新価格体系
New Price
2024年11月



# MILLING TOOLS

## 2025≫2026





ミーリング加工工具

OSG Corporation

# アイコンの種類について Guide to (Tool Specification) Icons

## 1 材質 Tool Materials

**PCD** ダイヤモンド焼結体
Polycrystalline Diamond
刃部にPCD（ダイヤモンド焼結体）を使用しています。

**MCD** 単結晶ダイヤモンド
Single Crystal Diamond
刃部にMCD（単結晶ダイヤモンド）を使用しています。

**CBN** CBN焼結体
Polycrystalline Cubic Bolon Nitride
刃部材料にCBN焼結体を使用しています。

**SPH** スーパープレミアムハイス
Super Premium HSS
コバルトを含有する材料を使用しています。

**XPM** 高級粉末ハイス
High grade Powder Metallurgy HSS (XPM)
コバルトを含有する材料を使用しています。

**CPM** 粉末ハイス
Powder Metallurgy HSS (CPM)
コバルトを含有する材料を使用しています。

**CERMET** サーメット
Cermet
刃部材料にサーメットを使用しています。

**CARBIDE** 超硬合金
Tungsten Carbide
刃部材料に超硬合金を使用しています。

**HSS-Co** コバルトハイス
Cobalt HSS
コバルトを含有する材料を使用しています。

**HSSE** 高バナジウムハイス
High Vanadium HSS
一部コバルトを含有する材料を使用しています。

**HSS** ハイス
HSS
一部コバルトを含有する材料を使用しています。

## 2 表面処理 Surface Treatment

**DUARISE** デュアライズコーティング
DUARISE Coating
潤滑性、耐摩耗性、高温酸化性に優れています。

**WXL** WXLコーティング
WXL Coating
耐摩耗性、耐溶着性に優れており、幅広い被削材に適応します。

**SXL** SXLコーティング
SXL Coating
耐サーマルクラック性、耐摩耗性に優れています。

**DUROREY** DUROREYコーティング
DUROREY Coating
優れた耐熱性・耐摩耗性を有しつつ、高いじん性を示すコーティングです。

**WXS** WXスーパーコート
WX Super Coating
酸化開始温度1300℃を実現した超耐熱・超硬質コーティングです。

**WX** WXコーティング（TiAlN系コーティング）
WX (TiAlN) Coating
従来の被膜特性に加え極めて高い耐酸化性を有するため高速加工が可能です。

**FX** FXコーティング（TiAlN系コーティング）
FX (TiAlN) Coating
従来の被膜特性に加え極めて高い耐酸化性を有するため高速加工が可能です。

**GX** GXコーティング
GX Coating
従来の被膜特性に加え極めて高い耐酸化性を有するコーティングです。

**V** Vコーティング（複合多層コーティング）
V (composite multi-layered) Coating
耐溶着性、耐摩耗性に優れています。

**TiN** TiNコーティング
TiN Coating
耐溶着性、耐摩耗性に優れています。

**DIA** ダイヤモンドコーティング
Diamond Coating
耐摩耗性が非常に優れています。

**DG** DGコーティング
DG Coating
耐摩耗性に優れたグラファイト専用コーティングです。

**DLC** DLCコーティング
DLC Coating
耐溶着性、高潤滑性に優れています。

**DLC-IGUSS** DLC-IGUSSコーティング
DLC-IGUSS Coating
耐溶着性、耐摩耗性に優れています。

**CrN** クロムナイトライドコーティング
CrN Coating
銅に対して優れた耐摩耗性、耐溶着性を示します。

**H** ホモ処理
Steam Oxide
ホモ処理を施してあります。溶着を防止します。

## 3 R許容差 Tolerance of Ball-End Radius




エンドミルのR許容差を表示します。
Identifies the tolerance of the radius for end mills.

## 4 外径･直径の許容差 Tolerance for milling diameter



エンドミルの外径を表示します。
Tolerance for milling diameter.

## 5 コーナ形状 Corner Form




エンドミルのコーナがピンカドを表示します。
Indicates that the end mill has a sharp corner edge.

## 6 シャンク Shank




シュリンクフィット（焼きばめ）システムにもお奨めします。
Suitable for the shrink holder system.

## 7 ねじれ角 Helix Angle




エンドミルの溝のねじれ角を表示します。
Displays helix angle of flute for end mills.

## 8 テーパ半角許容差 Tolerance for Cutting Edge Incline




テーパエンドミルのテーパ半角許容差を表示します。
Tolerance for Cutting Edge Incline of Tapered End Mills.

## 9 カッタ切込み角 Cutter of Cutting Angle




カッタの切込み角を表示します。
Indicates the entering angle of the milling cutter.

# OSG ミーリング加工工具 カタログ OSG Milling Tools Catalogue


超硬エンドミル CARBIDE END MILLS  P.200～

ハイスエンドミル HSS END MILLS  P.714～

インデキサブルツール INDEXABLE TOOL  P.928～

各種製品 OTHER PRODUCTS P.1166～

技術資料 TECHNICAL DATA P.1197～

索引 INDEX アルファベット順 CLASSFIED BY ALPHABETICAL ORDER P.1201～




## 【別冊】OSG 穴加工・ねじ加工工具 カタログ
OSG Drilling / Threading Tools Catalogue

- ドリル DRILLS
- 穴面取り CHAMFERING
- リーマ REAMER
- 旋削工具 TURNING
- タップ TAPS
- ゲージ GAUGES
- 丸ダイス ROUND DIES
- 転造工具 ROLLING DIES




### カタログご利用の前に INFORMATION

本カタログに掲載されている製品の仕様は2024年11月現在のものです。製品については、常に研究・改良を行っておりますので、予告なく本カタログ掲載仕様を変更する場合があります。また、在庫品は場合によっては品切れとなることがあります。また、廃番記載情報は2024年11月現在のもので、本カタログ発刊後、諸事情により廃番となる製品もございます。

The information on tool specification and discontinued products on this catalogue is as of November 2024. Tool specification is subject to change without notice. Depending on the situation, some products may be sold out or get discontinued.

■ISO9001 認証取得 ISO9001 Certification
八名工場・新城工場・豊橋工場・大池工場
OSG was certified by ISO9001 for the quality management system at the following factories: Yana Factory, Shinshiro Factory, Toyohashi Factory, and Oike Factory.

JQA-2856

■ISO14001 認証取得 ISO14001 Certification
本社・八名工場・新城工場・豊橋工場・大池工場・豊川工場・本野ケ原センター・アカデミー
OSG was certified by ISO14001 for the environmental management system at the following factories and offices: Head Office,Yana Factory, Shinshiro Factory, Toyohashi Factory, Oike Factory, Honnogahara Center and Academy.

JQA-EM1088

# ISO13399に準拠した記号一覧《アルファベット順》

**Designation list conformed with ISO 13399 《In alphabetical order》**

2019-2020 年版総合カタログより、下記に示す通り ISO13399 に準拠した寸法記号への移行を開始しています。
記号及び記号に対応する内容は下表の通りです。

Starting from the 2019-2020 general catalog, designations based on the ISO 13399 standard will be applied.
Details corresponding to designations are listed in the chart below.

## 1. エンドミル End mill

| 記　号 | 内　容 | Descriptions |
|---|---|---|
| **APMX** | 最大切込み | depth of cut maximum |
| **CHW** | コーナ面取り幅 | corner chamfer width |
| **CZC** | 接続サイズ | connection size code |
| **DC** | 切削径 | cutting diameter |
| **DCF** | すくい面接触部の加工径 | cutting diameter face contact |
| **DCON** | 接続径 | connection diameter |
| **DCX** | 最大切削径 | cutting diameter maximum |
| **DN** | 首径 | neck diameter |
| **KAPR** | 切込み角 | tool cutting edge angle |
| **LB** | 本体長さ | body length |
| **LF** | 機能長さ | functional length |
| **LH** | ヘッド長さ、首下長さ | head length |
| **LU** | 使用可能長さ | usable length |
| **RE** | コーナ R、ボールエンドミル半径 | corner radius |
| **SIG** | 先端角 | point angle |
| **ZEFF** | 正面有効切れ刃数 | face effective cutting edge count |
| **ZEFP** | 外周有効切れ刃数 | peripheral effective cutting edge count |

## 2. インサート Insert

| 記　号 | 内　容 | Descriptions |
|---|---|---|
| **AN** | 主切れ刃逃げ角 | clearance angle major |
| **ANN** | 副切れ刃逃げ角 | clearance angle minor |
| **BS** | ワイパー刃幅 | wiper edge length |
| **CHW** | コーナ面取り幅 | corner chamfer width |
| **D1** | インサート取付け穴径 | fixing hole diameter |
| **IC** | 内接円 | inscribed circle diameter |
| **KCH** | コーナ面取り角 | corner chamfer angle |
| **L** | 切れ刃長さ | cutting edge length |
| **LE** | 有効切れ刃長さ | cutting edge effective length |
| **M** | 内接円から切れ刃までの距離 | m-dimension |
| **RE** | コーナ R | corner radius |
| **S** | インサート厚さ | insert thickness |
| **W1** | インサート幅 | insert width |

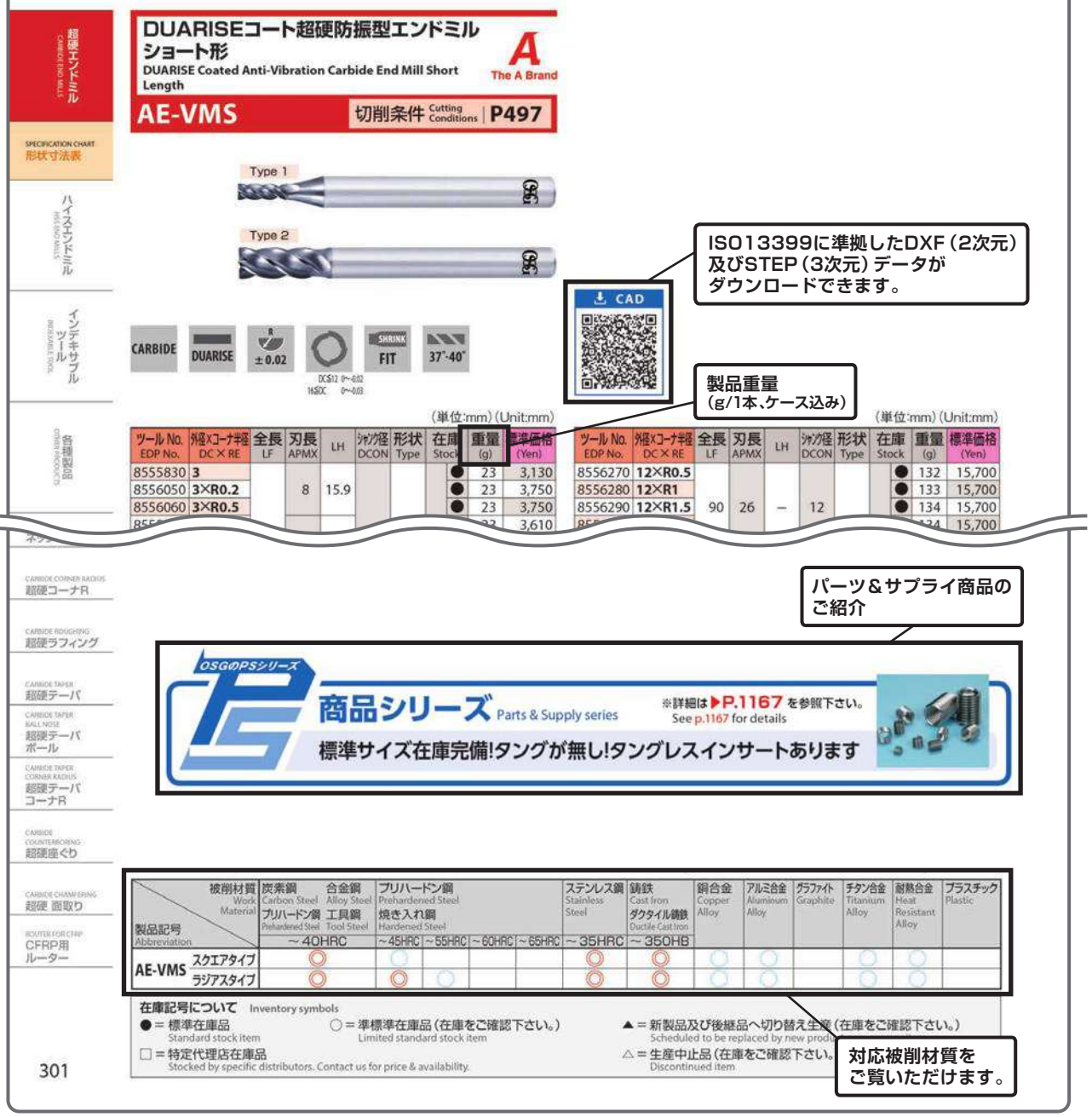
1.上表の記号はISO13399に準拠しております。
2.本カタログは、ISO13399に含まれない記号を一部使用しております。
3.協議中の記号も含まれているため、変更や追加があり得ることをご了承下さい。

1. The designations in the above table conform to ISO 13399.
2. This catalog may contain some designations which are not included in ISO 13399.
3. Please note that some of the designations may be subject to changed based on updates from ISO 13399.

## 3. インデキサブルツール Indexable tool

| 記　号 | 内　容 | Descriptions |
|---|---|---|
| **ADJLX** | 最大調整限界 | adjustment limit maximum |
| **APMX** | 最大切込み | depth of cut maximum |
| **BD** | 本体径 | body diameter |
| **BHTA** | 本体テーパ半角 | body half taper angle |
| **CBDP** | 取付け穴深さ | connection bore depth |
| **CRKS** | 取付けねじサイズ | connection retention knob thread size |
| **CW** | 切削幅 | cutting width |
| **CZC** | 接続サイズ | connection size code |
| **DAH** | ボルト穴径 | diameter access hole |
| **DC** | 切削径 | cutting diameter |
| **DCB** | 取付け穴径 | connection bore diameter |
| **DCCB** | 取付けボルト座径 | counterbore diameter connection bore |
| **DCN** | 最小切削径 | cutting diameter minimum |
| **DCON** | 接続径 | connection diameter |
| **DCONMS** | 機械側接続径 | connection diameter machine side |
| **DCONWS** | ワーク側接続径 | connection diameter workpiece side |
| **DCSFMS** | 接触面の径、フランジ径 | contact surface diameter machine side |
| **DCX** | 最大切削径 | cutting diameter maximum |
| **DHUB** | ハブ径 | hub diameter |
| **DMIN** | 最小加工径 | minimum bore diameter |
| **DN** | 首径 | neck diameter |
| **FHA** | 溝ねじれ角 | flute helix angle |
| **HAND** | 勝手 | hand |
| **KWW** | キー溝幅 | keyway width |
| **LB** | 本体長さ | body length |
| **LCF** | 溝長 | length chip flute |
| **LF** | 機能長さ | functional length |
| **LH** | ヘッド長さ、首下長さ | head length |
| **LPR** | 工具突出し長さ | protruding length |
| **LS** | シャンク長さ | shank length |
| **LU** | 使用可能長さ | usable length |
| **NOF** | 溝数 | flute count |
| **OAL** | 全長 | overall length |
| **RE** | コーナ R、ボールエンドミル半径 | corner radius |
| **RPMX** | 最高許容回転速度 | rotational speed maximum |
| **THUB** | ハブ厚さ | hub thickness |
| **WF** | 機能幅 | functional width |
| **ZEFP** | 外周有効切れ刃数 | peripheral effective cutting edge count |

# 総合カタログページ説明





## オーエスジー公式アプリ「Proカタログ」で最新情報を公開中!

Available on the App Store

※iPhone、iPadは米国および他の国々で登録されたApple Inc.の商標です。

### iPhone・iPad でのダウンロード

(1) App Storeで「OSG」を検索
(2) アプリ詳細説明画面で「入手」ボタンを押して下さい。

こちらよりアクセス

ANDROID APP ON Google play

※「Android」「Google Play」は、Google Inc.の商標または登録商標です。

### Androidでのダウンロード

(1) Google Playで「OSG」を検索
(2) アプリ詳細説明画面で「インストール」ボタンを押して下さい。

こちらよりアクセス



Pro カタログ

# オーエスジー公式アプリ
# Pro カタログ

## デジタルカタログ

カタログ

最新の総合カタログや製品カタログを時間・場所問わず閲覧できます。しおりを挟んだり、メールでカタログを共有することも可能です。




### 総合カタログ

いつでもどこでもカタログを。

### 製品カタログ

最新カタログをいち早く。




## コードスキャン

コードスキャン

アプリ限定

バーコード・二次元コードに対応したスキャン機能です。工具のスペック情報や切削条件、検査成績表などの各種データを取得することができます。



※二次元コードは一部製品に限ります

## CADデータダウンロード

CADデータダウンロード

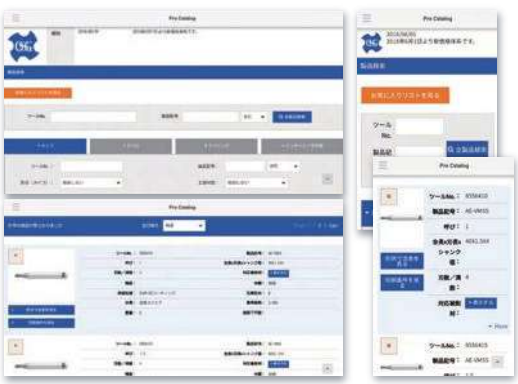
工具のDXFファイル・STEPファイルをパソコンやスマートフォンからいつでもダウンロードできます。



## 製品検索

製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



アプリの使い方・ダウンロードはこちら

**さらに、製品動画やFAQサイトなどOSG情報が満載！**

**最新情報を掲載中　今すぐダウンロード！**

## Web版通信教育　OSG eラーニング(有料)

工具についての基礎知識および実践的な技術知識を習得します。
インターネット環境とパソコンがあれば、
いつでもどこでも受講ができます。

テキストと並行してイラストやナレーション付きの動画にて
切削の様子を確認できるので、大変わかりやすくなっております。

OSG eラーニング

↑ホームページTOP
画面内のバナーより
アクセス頂けます

### 講座案内

| | |
|---|---|
| 入門編 | タップ入門、ドリル入門、エンドミル入門、ゲージ、インデキサブル工具、旋削工具 |
| 上級編 | 穴・ねじ加工上級、ミーリング加工上級 |

### 受講要領

| | |
|---|---|
| 学習方法 | 教材は全てWeb上で行い、課題テストもWeb上で実施となります。 |
| 申込方法 | OSGのホームページよりお申込み頂けます。　https://www.osg.co.jp/ |
| 申込締切 | いつからでも開始可能です。<br>(当社にて入金確認でき次第、コース申込の承認をいたします。承認には3～10営業日ほどかかります) |
| 受講期間 | 1講座60日 |
| 受講料 | 3,000円／1講座 |
| 修了認定 | 受講期間内に所定の課題を修了、かつ70点以上の方が修了となります。 |

## 講習会

オーエスジーでは、皆様のご要望に添った2種類の講習会をご用意しております。
ご希望の際は、最寄りの各営業所へご照会下さい。

### ■OSGテクニカルセミナ（WEB / 対面）：有料

**初心者からベテランまで、レベル・分野別コースで切削工具の基礎・技術を学ぶ、テクニカルセミナ。WEBと対面の2種類をご用意しています。**

・WEB：気軽にご参加いただけるWEBセミナです。わかりやすさはそのまま、よりご参加いただきやすくなっています。
・対面：工場見学やデモ実演、実習など、効果的なカリキュラムをご用意しています。デモ実演や工場見学、ディスカッション等を多く取り入れた独自カリキュラムです。



### ■出張型講習会

講師がお客様のもとに訪問し、希望される日時・場所・テーマで講習会を行います。





eラーニングや講習会についてのその他詳細につきましては、当社ホームページよりご確認下さい。

○ホームページTOP→お客様サポート→「スキルアップ」内の「eラーニング」をクリック
○ホームページTOP→お客様サポート→「スキルアップ」内の「テクニカルセミナ(WEB / 対面)」をクリック
○ホームページTOP→お客様サポート→「スキルアップ」内の「出張型講習会」をクリック

**https://www.osg.co.jp/support/skill_up/**

QRコードから
簡単アクセス！

## コミュニケーションダイヤル

よ い 工具は一番

フリーコール **0120-41-5981**

携帯電話からでもご利用になれます

受付時間 9:00～12:00、13:00～17:00
（土・日・祝日ほか、当社休業日を除く）

長年の実績をもとにお客様へ
TOOL SOLUTIONをご提供いたします。

- 難削材加工の切削条件の選定を!
- 深穴に対応するロングドリルは?
- ねじ検査のためのゲージの選び方は?
- 加工中のびびりを抑える方法は?
- 幅広い被削材に対応するタップは?

オーエスジーでは、工具の技術的な相談をコミュニケーションダイヤルにて承っております。
技術的にお困りのことがあれば何でもご相談下さい。

## OSG 加工相談Navi

当社HPより ご覧いただけます。

加工に関するよくある相談を掲載したサイトです。
多言語に対応しています。

**Q：エンドミルの2枚刃と4枚刃の使い分け？**

A：溝や穴加工など切りくず排出性が困難な加工には2枚刃を、側面加工など切りくず排出性が容易な加工には4枚刃（多刃）を用いると効率的です。

**Q：ユニファイねじの2A、3Bとは？**

A：ねじ精度をいいます。数字が大きいほど精密な精度で、Aはおねじ、Bはめねじ精度です。



- 新製品の「知りたい所」がわかる！
- わかりやすい資料あります！
- 24時間365日閲覧可能！
- 随時追加掲載中！

※OSG 加工相談Naviで解決できないご質問はコミュニケーションダイヤルまたはお問い合わせフォームまでご相談下さい。

## 製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



QRコードから簡単アクセス！

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

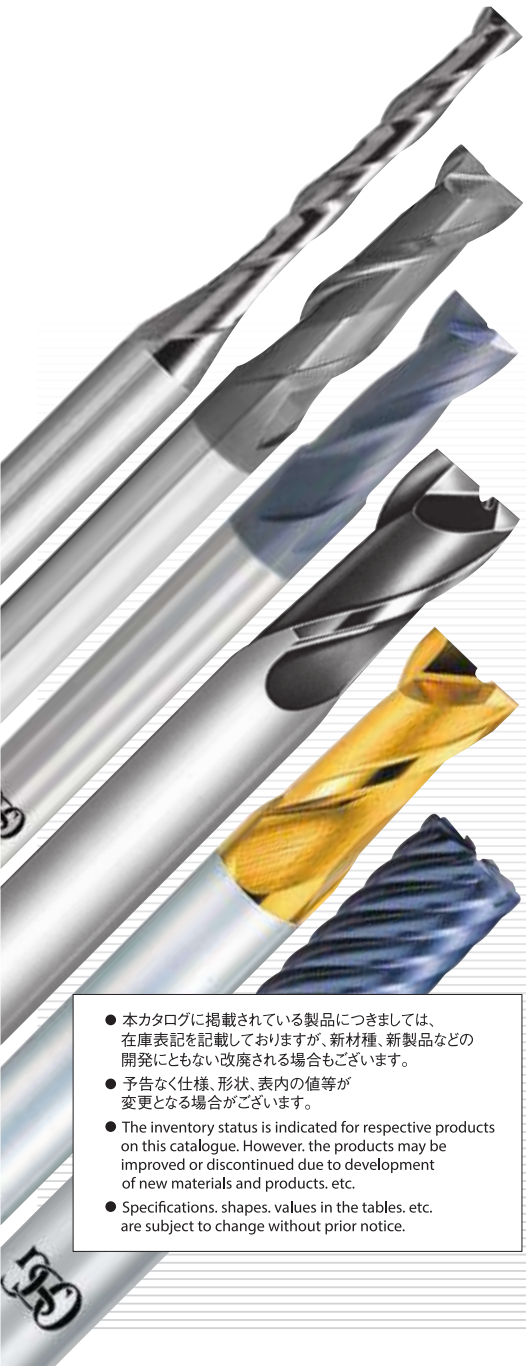
使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



# 刃径別刃長

## LENGTH OF CUT BY MILL DIAMETER



超硬エンドミル CARBIDE END MILLS



ハイスエンドミル HSS END MILLS




| | |
|---|---|
| 超硬スクエア CARBIDE SQUARE | P.11～ |
| 超硬ボール CARBIDE BALL NOSE | P.43～ |
| 超硬コーナR CARBIDE CORNER RADIUS | P.68～ |
| 超硬テーパ CARBIDE TAPER | P.86～ |
| 超硬テーパボール CARBIDE TAPER BALL NOSE | P.95～ |
| 超硬テーパコーナR CARBIDE TAPER CORNER RADIUS | P.99～ |
| ハイススクエア HSS SQUARE | P.100～ |
| ハイスボール HSS BALL NOSE | P.160～ |
| ハイスコーナR HSS CORNER RADIUS | P.169～ |
| ハイステーパ HSS TAPER | P.173～ |
| ハイステーパボール HSS TAPER BALL NOSE | P.188～ |
| ハイステーパコーナR HSS TAPER CORNER RADIUS | P.196～ |


- 本カタログに掲載されている製品につきましては、在庫表記を記載しておりますが、新材種、新製品などの開発にともない改廃される場合もございます。
- 予告なく仕様、形状、表内の値等が変更となる場合がございます。
- The inventory status is indicated for respective products on this catalogue. However. the products may be improved or discontinued due to development of new materials and products. etc.
- Specifications. shapes. values in the tables. etc. are subject to change without prior notice.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-1.5D-DE | 0.1 | 0.15 | 45 | 4 | ● | 259 |
| WXL-LN-EDS | 0.1 × 0.3 | 0.15 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.1 × 0.3 | 0.15 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.1 × 0.5 | 0.15 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.1 × 0.5 | 0.15 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.1 × 1 | 0.15 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.1 × 1 | 0.15 | 45 | 4 | □ | 321-1 |
| WXL-2D-DE | 0.1 | 0.2 | 45 | 4 | ● | 260 |
| WXL-3D-DE | 0.1 | 0.3 | 45 | 4 | ● | 263 |
| FX-EDSS-6 | 0.2 | 0.2 | 50 | 6 | □ | 311-6 |
| WXL-1.5D-DE | 0.2 | 0.3 | 45 | 4 | ● | 259 |
| CAP-LN-EDS-SF | 0.2 × 0.5 | 0.3 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.2 × 0.5 | 0.3 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.2 × 0.5 | 0.3 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.2 × 1 | 0.3 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.2 × 1 | 0.3 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.2 × 1 | 0.3 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.2 × 1.5 | 0.3 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.2 × 1.5 | 0.3 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.2 × 1.5 | 0.3 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.2 × 2 | 0.3 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.2 × 2 | 0.3 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.2 × 2 | 0.3 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.2 × 2.5 | 0.3 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.2 × 2.5 | 0.3 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.2 × 3 | 0.3 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.2 × 3 | 0.3 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.2 × 3.5 | 0.3 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.2 × 3.5 | 0.3 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.2 × 4 | 0.3 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.2 × 4 | 0.3 | 45 | 4 | □ | 321-1 |
| FX-EDS-6 | 0.2 | 0.3 | 50 | 6 | □ | 311-5 |
| FX-MG-EDS | 0.2 | 0.4 | 40 | 3 | □ | 311-1 |
| CAP-EDS-SF | 0.2 | 0.4 | 40 | 4 | □ | 311-14 |
| WXL-2D-DE | 0.2 | 0.4 | 45 | 4 | ● | 260 |
| WXL-3D-DE | 0.2 | 0.6 | 45 | 4 | ● | 263 |
| WXL-4D-DE | 0.2 | 0.8 | 45 | 4 | ● | 264 |
| FX-MG-EDL-3 | 0.2 | 1 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 0.2 | 1 | 40 | 3 | □ | 311-20 |
| FX-MG-EDLL-3 | 0.2 | 1.5 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 0.2 | 1.5 | 40 | 3 | □ | 311-21 |
| TIN-MG-EDS-3 | 0.25 | 0.6 | 40 | 3 | □ | 311-10 |
| FX-EDS-6 | 0.3 | 0.4 | 50 | 6 | □ | 311-5 |
| FX-EDSS-6 | 0.3 | 0.4 | 50 | 6 | □ | 311-6 |
| WXL-1.5D-DE | 0.3 | 0.45 | 45 | 4 | ● | 259 |
| CAP-LN-EDS-SF | 0.3 × 1 | 0.45 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.3 × 1 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 1 | 0.45 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.3 × 1.5 | 0.45 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.3 × 1.5 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 1.5 | 0.45 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.3 × 2 | 0.45 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.3 × 2 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 2 | 0.45 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.3 × 2.5 | 0.45 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.3 × 2.5 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 2.5 | 0.45 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.3 × 3 | 0.45 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.3 × 3 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 3 | 0.45 | 45 | 4 | □ | 321-1 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EDS | 0.3 × 4 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 4 | 0.45 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.3 × 5 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 5 | 0.45 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.3 × 6 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 6 | 0.45 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.3 × 9 | 0.45 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.3 × 9 | 0.45 | 45 | 4 | □ | 321-1 |
| FX-MG-EDS | 0.3 | 0.6 | 40 | 3 | □ | 311-1 |
| CAP-EDS-SF | 0.3 | 0.6 | 40 | 4 | □ | 311-14 |
| WXL-2D-DE | 0.3 | 0.6 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 0.3 | 0.6 | 50 | 6 | □ | 311-17 |
| WXL-3D-DE | 0.3 | 0.9 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 0.3 | 0.9 | 50 | 6 | □ | 311-17 |
| WXL-4D-DE | 0.3 | 1.2 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 0.3 | 1.2 | 50 | 6 | □ | 311-17 |
| FX-MG-EDL-3 | 0.3 | 1.4 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 0.3 | 1.4 | 40 | 3 | □ | 311-20 |
| FX-ED-DL-6 | 0.3 | 1.8 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 0.3 | 2.1 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 0.3 | 2.1 | 40 | 3 | □ | 311-21 |
| TIN-MG-EDS-3 | 0.35 | 1 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 0.4 | 0.5 | 50 | 6 | □ | 311-6 |
| WXL-1.5D-DE | 0.4 | 0.6 | 45 | 4 | ● | 259 |
| CAP-LN-EDS-SF | 0.4 × 1.5 | 0.6 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.4 × 1.5 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 1.5 | 0.6 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.4 × 2 | 0.6 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.4 × 2 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 2 | 0.6 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.4 × 3 | 0.6 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.4 × 3 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 3 | 0.6 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.4 × 4 | 0.6 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.4 × 4 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 4 | 0.6 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.4 × 5 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 5 | 0.6 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.4 × 6 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 6 | 0.6 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.4 × 7 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 7 | 0.6 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.4 × 8 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 8 | 0.6 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.4 × 9 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 9 | 0.6 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.4 × 10 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 10 | 0.6 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.4 × 12 | 0.6 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.4 × 12 | 0.6 | 45 | 4 | □ | 321-1 |
| FX-EDS-6 | 0.4 | 0.6 | 50 | 6 | □ | 311-5 |
| FX-MG-EDS | 0.4 | 0.8 | 40 | 3 | □ | 311-1 |
| CAP-EDS-SF | 0.4 | 0.8 | 40 | 4 | □ | 311-14 |
| WXL-2D-DE | 0.4 | 0.8 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 0.4 | 0.8 | 50 | 6 | □ | 311-17 |
| WXL-3D-DE | 0.4 | 1.2 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 0.4 | 1.2 | 50 | 6 | □ | 311-17 |
| WXL-4D-DE | 0.4 | 1.6 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 0.4 | 1.6 | 50 | 6 | □ | 311-17 |
| FX-MG-EDL-3 | 0.4 | 2 | 40 | 3 | □ | 311-19 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能

【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EDL-3 | 0.4 | 2 | 40 | 3 | □ | 311-20 |
| FX-ED-DL-6 | 0.4 | 2.4 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 0.4 | 3 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 0.4 | 3 | 40 | 3 | □ | 311-21 |
| FX-EDSS-6 | 0.5 | 0.6 | 50 | 6 | □ | 311-6 |
| CAP-LN-EDS | 0.5 × 2 | 0.7 | 40 | 3 | □ | 321-8 |
| DIA-LN-EDS | 0.5 × 2 | 0.7 | 40 | 3 | □ | 321-10 |
| CAP-LN-EDS | 0.5 × 4 | 0.7 | 40 | 3 | □ | 321-8 |
| DIA-LN-EDS | 0.5 × 4 | 0.7 | 40 | 3 | □ | 321-10 |
| CAP-LN-EDS | 0.5 × 6 | 0.7 | 40 | 3 | □ | 321-8 |
| DIA-LN-EDS | 0.5 × 6 | 0.7 | 40 | 3 | □ | 321-10 |
| CAP-LN-EDS-SF | 0.5 × 1.5 | 0.7 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.5 × 1.5 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 1.5 | 0.7 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.5 × 2 | 0.7 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.5 × 2 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 2 | 0.7 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.5 × 3 | 0.7 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.5 × 3 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 3 | 0.7 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.5 × 4 | 0.7 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.5 × 4 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 4 | 0.7 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.5 × 5 | 0.7 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.5 × 5 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 5 | 0.7 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.5 × 6 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 6 | 0.7 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.5 × 7 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 7 | 0.7 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.5 × 8 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 8 | 0.7 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.5 × 9 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 9 | 0.7 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.5 × 10 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 10 | 0.7 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.5 × 12 | 0.7 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 12 | 0.7 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.5 × 15 | 0.7 | 50 | 4 | ● | 312 |
| WX-LN-EDS | 0.5 × 15 | 0.7 | 50 | 4 | □ | 321-1 |
| FX-EDS-6 | 0.5 × 1.5 | 0.7 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 0.5 × 1.5 | 0.7 | 50 | 6 | □ | 311-13 |
| CRN-LN-EDS | 0.5 × 2.5 | 0.7 | 60 | 6 | □ | 321-9 |
| DLC-LN-EDS | 0.5 × 2.5 | 0.7 | 60 | 6 | ● | 317 |
| FX-LN-EDS-6 | 0.5 × 2.5 | 0.7 | 60 | 6 | □ | 321-6 |
| CRN-LN-EDS | 0.5 × 3 | 0.7 | 60 | 6 | □ | 321-9 |
| CRN-LN-EDS | 0.5 × 4 | 0.7 | 60 | 6 | □ | 321-9 |
| CRN-LN-EDS | 0.5 × 5 | 0.7 | 60 | 6 | □ | 321-9 |
| WXL-1.5D-DE | 0.5 | 0.75 | 45 | 4 | ● | 259 |
| LN-MG-EDS | 0.5 × 6 | 0.8 | 45 | 4 | □ | 321-7 |
| FX-MG-EDS | 0.5 | 1 | 40 | 3 | □ | 311-1 |
| GX-EDS | 0.5 | 1 | 40 | 3 | □ | 311-11 |
| CAP-EDS-SF | 0.5 | 1 | 40 | 4 | □ | 311-14 |
| DIA-2D-DE | 0.5 | 1 | 40 | 4 | □ | 311-8 |
| DIA-EDS | 0.5 | 1 | 40 | 4 | ● | 272 |
| DLC-EDS | 0.5 | 1 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 0.5 | 1 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 0.5 | 1 | 50 | 6 | □ | 311-17 |
| CRN-EDS-3 | 0.5 | 1.5 | 40 | 3 | □ | 311-12 |
| SEP-EL | 0.5 × 1.5 | 1.5 | 45 | 4 | ● | 286 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-3D-DE | 0.5 | 1.5 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 0.5 | 1.5 | 50 | 6 | □ | 311-17 |
| WXL-4D-DE | 0.5 | 2 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 0.5 | 2 | 50 | 6 | □ | 311-17 |
| FX-MG-EDL-3 | 0.5 | 2.5 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 0.5 | 2.5 | 40 | 3 | □ | 311-20 |
| SEP-EL | 0.5 × 2.5 | 2.5 | 45 | 4 | ● | 286 |
| FX-ED-DL-6 | 0.5 | 3 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 0.5 | 3.8 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 0.5 | 3.8 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 0.5 | 4 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 0.55 | 1.6 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 0.6 | 0.7 | 50 | 6 | □ | 311-6 |
| LN-MG-EDS | 0.6 × 6 | 0.8 | 45 | 4 | □ | 321-7 |
| CAP-LN-EDS | 0.6 × 2 | 0.9 | 40 | 3 | □ | 321-8 |
| DIA-LN-EDS | 0.6 × 2 | 0.9 | 40 | 3 | □ | 321-10 |
| CAP-LN-EDS | 0.6 × 4 | 0.9 | 40 | 3 | □ | 321-8 |
| DIA-LN-EDS | 0.6 × 4 | 0.9 | 40 | 3 | □ | 321-10 |
| CAP-LN-EDS | 0.6 × 6 | 0.9 | 40 | 3 | □ | 321-8 |
| DIA-LN-EDS | 0.6 × 6 | 0.9 | 40 | 3 | □ | 321-10 |
| WXL-1.5D-DE | 0.6 | 0.9 | 45 | 4 | ● | 259 |
| CAP-LN-EDS-SF | 0.6 × 2 | 0.9 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.6 × 2 | 0.9 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.6 × 2 | 0.9 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.6 × 3 | 0.9 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.6 × 3 | 0.9 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.6 × 3 | 0.9 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.6 × 4 | 0.9 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.6 × 4 | 0.9 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.6 × 4 | 0.9 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.6 × 5 | 0.9 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.6 × 5 | 0.9 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.6 × 5 | 0.9 | 45 | 4 | □ | 321-1 |
| CAP-LN-EDS-SF | 0.6 × 6 | 0.9 | 45 | 4 | □ | 311-15 |
| WXL-LN-EDS | 0.6 × 6 | 0.9 | 45 | 4 | ● | 312 |
| WX-LN-EDS | 0.6 × 6 | 0.9 | 45 | 4 | □ | 321-1 |
| WXL-LN-EDS | 0.6 × 7 | 0.9 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.6 × 7 | 0.9 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.6 × 8 | 0.9 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.6 × 8 | 0.9 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.6 × 10 | 0.9 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.6 × 10 | 0.9 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.6 × 12 | 0.9 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.6 × 12 | 0.9 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.6 × 15 | 0.9 | 50 | 4 | ● | 313 |
| WX-LN-EDS | 0.6 × 15 | 0.9 | 50 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.6 × 18 | 0.9 | 50 | 4 | ● | 313 |
| WX-LN-EDS | 0.6 × 18 | 0.9 | 50 | 4 | □ | 321-2 |
| FX-EDS-6 | 0.6 × 1.8 | 0.9 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 0.6 × 1.8 | 0.9 | 50 | 6 | □ | 311-13 |
| CRN-LN-EDS | 0.6 × 3 | 0.9 | 60 | 6 | □ | 321-9 |
| FX-LN-EDS-6 | 0.6 × 3 | 0.9 | 60 | 6 | □ | 321-6 |
| CRN-LN-EDS | 0.6 × 6 | 0.9 | 60 | 6 | □ | 321-9 |
| FX-MG-EDS | 0.6 | 1.2 | 40 | 3 | □ | 311-1 |
| CAP-EDS-SF | 0.6 | 1.2 | 40 | 4 | □ | 311-14 |
| DIA-2D-DE | 0.6 | 1.2 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 0.6 | 1.2 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 0.6 | 1.2 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 0.6 | 1.2 | 50 | 6 | □ | 311-17 |
| CRN-EDS-3 | 0.6 | 1.7 | 40 | 3 | □ | 311-12 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-3D-DE | 0.6 | 1.8 | 45 | 4 | ● | 263 |
| WXL-4D-DE | 0.6 | 2.4 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 0.6 | 2.4 | 50 | 6 | □ | 311-17 |
| FX-MG-EDL-3 | 0.6 | 2.8 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 0.6 | 2.8 | 40 | 3 | □ | 311-20 |
| FX-ED-DL-6 | 0.6 | 3.6 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 0.6 | 4.2 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 0.6 | 4.2 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 0.6 | 4.8 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 0.65 | 2 | 40 | 3 | □ | 311-10 |
| WXL-LN-EDS | 0.7 × 2 | 1 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.7 × 2 | 1 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.7 × 4 | 1 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.7 × 4 | 1 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.7 × 6 | 1 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.7 × 6 | 1 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.7 × 8 | 1 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.7 × 8 | 1 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.7 × 10 | 1 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.7 × 10 | 1 | 45 | 4 | □ | 321-2 |
| CAP-LN-EDS | 0.7 × 2 | 1 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.7 × 2 | 1 | 50 | 4 | □ | 321-10 |
| CAP-LN-EDS | 0.7 × 4 | 1 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.7 × 4 | 1 | 50 | 4 | □ | 321-10 |
| CAP-LN-EDS | 0.7 × 6 | 1 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.7 × 6 | 1 | 50 | 4 | □ | 321-10 |
| IT-EDS-6 | 0.7 × 2.1 | 1 | 50 | 6 | □ | 311-13 |
| WXL-1.5D-DE | 0.7 | 1.1 | 45 | 4 | ● | 259 |
| LN-MG-EDS | 0.7 × 6 | 1.1 | 45 | 4 | □ | 321-7 |
| FX-MG-EDS | 0.7 | 1.4 | 40 | 3 | □ | 311-1 |
| CAP-EDS-SF | 0.7 | 1.4 | 40 | 4 | □ | 311-14 |
| DIA-2D-DE | 0.7 | 1.4 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 0.7 | 1.4 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 0.7 | 1.4 | 50 | 6 | □ | 311-17 |
| WXL-3D-DE | 0.7 | 2.1 | 45 | 4 | ● | 263 |
| CRN-EDS-3 | 0.7 | 2.2 | 40 | 3 | □ | 311-12 |
| WXL-4D-DE | 0.7 | 2.8 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 0.7 | 2.8 | 50 | 6 | □ | 311-17 |
| FX-MG-EDL-3 | 0.7 | 3.6 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 0.7 | 3.6 | 40 | 3 | □ | 311-20 |
| FX-ED-DL-6 | 0.7 | 4.2 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 0.7 | 5.3 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 0.7 | 5.3 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 0.7 | 5.6 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 0.75 | 2.3 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 0.8 | 1 | 50 | 6 | □ | 311-6 |
| WXL-1.5D-DE | 0.8 | 1.2 | 45 | 4 | ● | 259 |
| WXL-LN-EDS | 0.8 × 4 | 1.2 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 4 | 1.2 | 45 | 4 | □ | 321-2 |
| LN-MG-EDS | 0.8 × 6 | 1.2 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 0.8 × 6 | 1.2 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 6 | 1.2 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.8 × 8 | 1.2 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 8 | 1.2 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.8 × 10 | 1.2 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 10 | 1.2 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.8 × 12 | 1.2 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 12 | 1.2 | 45 | 4 | □ | 321-2 |
| CAP-LN-EDS | 0.8 × 4 | 1.2 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.8 × 4 | 1.2 | 50 | 4 | □ | 321-10 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-LN-EDS | 0.8 × 6 | 1.2 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.8 × 6 | 1.2 | 50 | 4 | □ | 321-10 |
| WXL-LN-EDS | 0.8 × 14 | 1.2 | 50 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 14 | 1.2 | 50 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.8 × 16 | 1.2 | 50 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 16 | 1.2 | 50 | 4 | □ | 321-2 |
| FX-EDS-6 | 0.8 × 2.4 | 1.2 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 0.8 × 2.4 | 1.2 | 50 | 6 | □ | 311-13 |
| WXL-LN-EDS | 0.8 × 20 | 1.2 | 55 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 20 | 1.2 | 55 | 4 | □ | 321-2 |
| CAP-LN-EDS | 0.8 × 8 | 1.2 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.8 × 8 | 1.2 | 60 | 4 | □ | 321-10 |
| WXL-LN-EDS | 0.8 × 24 | 1.2 | 60 | 4 | ● | 313 |
| WX-LN-EDS | 0.8 × 24 | 1.2 | 60 | 4 | □ | 321-2 |
| CRN-LN-EDS | 0.8 × 4 | 1.2 | 60 | 6 | □ | 321-9 |
| FX-LN-EDS-6 | 0.8 × 4 | 1.2 | 60 | 6 | □ | 321-6 |
| CRN-LN-EDS | 0.8 × 8 | 1.2 | 60 | 6 | □ | 321-9 |
| FX-MG-EDS | 0.8 | 1.6 | 40 | 3 | □ | 311-1 |
| CAP-EDS-SF | 0.8 | 1.6 | 40 | 4 | □ | 311-14 |
| DIA-2D-DE | 0.8 | 1.6 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 0.8 | 1.6 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 0.8 | 1.6 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 0.8 | 1.6 | 50 | 6 | □ | 311-17 |
| CRN-EDS-3 | 0.8 | 2.4 | 40 | 3 | □ | 311-12 |
| WXL-3D-DE | 0.8 | 2.4 | 45 | 4 | ● | 263 |
| WXL-4D-DE | 0.8 | 3.2 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 0.8 | 3.2 | 50 | 6 | □ | 311-17 |
| FX-MG-EDL-3 | 0.8 | 4 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 0.8 | 4 | 40 | 3 | □ | 311-20 |
| FX-ED-DL-6 | 0.8 | 4.8 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 0.8 | 6 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 0.8 | 6 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 0.8 | 6.4 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 0.85 | 2.5 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 0.9 × 6 | 1.3 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 0.9 × 4 | 1.35 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.9 × 4 | 1.35 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.9 × 6 | 1.35 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.9 × 6 | 1.35 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.9 × 8 | 1.35 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.9 × 8 | 1.35 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 0.9 × 10 | 1.35 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 0.9 × 10 | 1.35 | 45 | 4 | □ | 321-2 |
| CAP-LN-EDS | 0.9 × 6 | 1.35 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.9 × 6 | 1.35 | 50 | 4 | □ | 321-10 |
| WXL-LN-EDS | 0.9 × 15 | 1.35 | 50 | 4 | ● | 313 |
| WX-LN-EDS | 0.9 × 15 | 1.35 | 50 | 4 | □ | 321-2 |
| CAP-LN-EDS | 0.9 × 8 | 1.35 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.9 × 8 | 1.35 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 0.9 × 10 | 1.35 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 0.9 × 10 | 1.35 | 60 | 4 | □ | 321-10 |
| WXL-1.5D-DE | 0.9 | 1.4 | 45 | 4 | ● | 259 |
| IT-EDS-6 | 0.9 × 2.4 | 1.4 | 50 | 6 | □ | 311-13 |
| DIA-2D-DE | 0.9 | 1.8 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 0.9 | 1.8 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 0.9 | 1.8 | 50 | 6 | □ | 311-17 |
| FX-MG-EDS | 0.9 | 2 | 40 | 3 | □ | 311-1 |
| CAP-EDS-SF | 0.9 | 2 | 40 | 4 | □ | 311-14 |
| CRN-EDS-3 | 0.9 | 2.6 | 40 | 3 | □ | 311-12 |
| WXL-3D-DE | 0.9 | 2.7 | 45 | 4 | ● | 263 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-4D-DE | 0.9 | 3.6 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 0.9 | 3.6 | 50 | 6 | □ | 311-17 |
| FX-MG-EDL-3 | 0.9 | 4.5 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 0.9 | 4.5 | 40 | 3 | □ | 311-20 |
| FX-ED-DL-6 | 0.9 | 5.4 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 0.9 | 6.8 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 0.9 | 6.8 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 0.9 | 7.2 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 0.95 | 2.8 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 1 | 1.2 | 50 | 6 | □ | 311-6 |
| AE-VMSS | 1 | 1.5 | 40 | 4 | ● | 296 |
| AE-VMSS | 1-RA | 1.5 | 40 | 4 | ● | 297 |
| WXL-1.5D-DE | 1 | 1.5 | 45 | 4 | ● | 259 |
| AE-TS-N | 1 × 3 | 1.5 | 45 | 4 | ● | 278 |
| AE-TS-N | 1 × 3-SP | 1.5 | 45 | 4 | ● | 279 |
| AE-VTS-N | 1 × 3 | 1.5 | 45 | 4 | ● | 280 |
| AE-VTS-N | 1 × 3-SP | 1.5 | 45 | 4 | ● | 281 |
| WXL-LN-EDS | 1 × 3 | 1.5 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 1 × 3 | 1.5 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 1 × 4 | 1.5 | 45 | 4 | ● | 313 |
| WXL-LN-EMS | 1 × 4 | 1.5 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1 × 4 | 1.5 | 45 | 4 | □ | 321-2 |
| WX-LN-EMS | 1 × 4 | 1.5 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1 × 5 | 1.5 | 45 | 4 | ● | 313 |
| WX-LN-EDS | 1 × 5 | 1.5 | 45 | 4 | □ | 321-2 |
| LN-MG-EDS | 1 × 6 | 1.5 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1 × 6 | 1.5 | 45 | 4 | ● | 313 |
| WXL-LN-EMS | 1 × 6 | 1.5 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1 × 6 | 1.5 | 45 | 4 | □ | 321-2 |
| WX-LN-EMS | 1 × 6 | 1.5 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1 × 7 | 1.5 | 45 | 4 | ● | 314 |
| WX-LN-EDS | 1 × 7 | 1.5 | 45 | 4 | □ | 321-2 |
| WXL-LN-EDS | 1 × 8 | 1.5 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1 × 8 | 1.5 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1 × 8 | 1.5 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1 × 8 | 1.5 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1 × 9 | 1.5 | 45 | 4 | ● | 314 |
| WX-LN-EDS | 1 × 9 | 1.5 | 45 | 4 | □ | 321-3 |
| WXL-LN-EDS | 1 × 10 | 1.5 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1 × 10 | 1.5 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1 × 10 | 1.5 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1 × 10 | 1.5 | 45 | 4 | □ | 321-11 |
| LN-MG-EDS | 1 × 12 | 1.5 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1 × 12 | 1.5 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1 × 12 | 1.5 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1 × 12 | 1.5 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1 × 12 | 1.5 | 45 | 4 | □ | 321-11 |
| CAP-LN-EDS | 1 × 6 | 1.5 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1 × 6 | 1.5 | 50 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1 × 6 | 1.5 | 50 | 4 | □ | 321-14 |
| WXL-LN-EDS | 1 × 14 | 1.5 | 50 | 4 | ● | 314 |
| WX-LN-EDS | 1 × 14 | 1.5 | 50 | 4 | □ | 321-3 |
| WXL-LN-EDS | 1 × 16 | 1.5 | 50 | 4 | ● | 314 |
| WXL-LN-EMS | 1 × 16 | 1.5 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1 × 16 | 1.5 | 50 | 4 | □ | 321-3 |
| WX-LN-EMS | 1 × 16 | 1.5 | 50 | 4 | □ | 321-11 |
| CRN-HS-EDS | 1 × 2.5 | 1.5 | 50 | 6 | □ | 311-13 |
| FX-EDS-6 | 1 × 2.5 | 1.5 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 1 × 2.5 | 1.5 | 50 | 6 | □ | 311-13 |
| IT-EMS-6 | 1 × 2.5 | 1.5 | 50 | 6 | □ | 311-35 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EDS | 1 × 18 | 1.5 | 55 | 4 | ● | 314 |
| WX-LN-EDS | 1 × 18 | 1.5 | 55 | 4 | □ | 321-3 |
| WXL-LN-EDS | 1 × 20 | 1.5 | 55 | 4 | ● | 314 |
| WX-LN-EDS | 1 × 20 | 1.5 | 55 | 4 | □ | 321-3 |
| CAP-LN-EDS | 1 × 8 | 1.5 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1 × 8 | 1.5 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 1 × 10 | 1.5 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1 × 10 | 1.5 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1 × 10 | 1.5 | 60 | 4 | □ | 321-14 |
| CAP-LN-EDS | 1 × 12 | 1.5 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1 × 12 | 1.5 | 60 | 4 | □ | 321-10 |
| WXL-LN-EDS | 1 × 22 | 1.5 | 60 | 4 | ● | 314 |
| WX-LN-EDS | 1 × 22 | 1.5 | 60 | 4 | □ | 321-3 |
| WXL-LN-EDS | 1 × 25 | 1.5 | 60 | 4 | ● | 314 |
| WX-LN-EDS | 1 × 25 | 1.5 | 60 | 4 | □ | 321-3 |
| CRN-LN-EDS | 1 × 3 | 1.5 | 60 | 6 | □ | 321-9 |
| CRN-LN-EDS | 1 × 4 | 1.5 | 60 | 6 | □ | 321-9 |
| CRN-LN-EDS | 1 × 5 | 1.5 | 60 | 6 | □ | 321-9 |
| DLC-LN-EDS | 1 × 5 | 1.5 | 60 | 6 | ● | 317 |
| FX-LN-EDS-6 | 1 × 5 | 1.5 | 60 | 6 | □ | 321-6 |
| FX-LN-EMS-6 | 1 × 5 | 1.5 | 60 | 6 | □ | 321-13 |
| CRN-LN-EDS | 1 × 6 | 1.5 | 60 | 6 | □ | 321-9 |
| CRN-LN-EDS | 1 × 7 | 1.5 | 60 | 6 | □ | 321-9 |
| CRN-LN-EDS | 1 × 8 | 1.5 | 60 | 6 | □ | 321-9 |
| CRN-LN-EDS | 1 × 9 | 1.5 | 60 | 6 | □ | 321-9 |
| CRN-LN-EDS | 1 × 10 | 1.5 | 60 | 6 | □ | 321-9 |
| WXL-LN-EDS | 1 × 30 | 1.5 | 70 | 4 | ● | 314 |
| WX-LN-EDS | 1 × 30 | 1.5 | 70 | 4 | □ | 321-3 |
| DIA-2D-DE | 1 | 2 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 1 | 2 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 1 | 2 | 45 | 4 | ● | 260 |
| DG-LN-EMS | 1 × 5 | 2 | 50 | 4 | ● | 321 |
| DG-LN-EMS | 1 × 10 | 2 | 50 | 4 | ● | 321 |
| FX-ED-DL-6 | 1 | 2 | 50 | 6 | □ | 311-17 |
| FXS-EMSS | 1 | 2 | 60 | 6 | □ | 311-29 |
| CAP-EDS-SF | 1 | 2.5 | 40 | 4 | □ | 311-14 |
| DIA-EDS | 1 | 2.5 | 40 | 4 | ● | 272 |
| DLC-MR-EDS | 1 | 2.5 | 40 | 4 | □ | 311-8 |
| FX-MG-EDS | 1 | 2.5 | 40 | 4 | □ | 311-1 |
| FX-MR-EDS | 1 | 2.5 | 40 | 4 | □ | 311-7 |
| GX-EDS | 1 | 2.5 | 40 | 4 | □ | 311-11 |
| V-MG-EDS | 1 | 2.5 | 40 | 4 | □ | 311-9 |
| WXL-EMS | 1 | 2.5 | 40 | 4 | ● | 287 |
| AE-MS-H | 1 | 2.5 | 60 | 6 | ● | 290 |
| CAP-EDS | 1 | 2.5 | 60 | 6 | □ | 311-11 |
| CRN-EDS | 1 | 2.5 | 60 | 6 | □ | 311-12 |
| DIA-EHDS-3 | 1 | 2.8 | 40 | 3 | □ | 311-44 |
| CRN-EDS-3 | 1 | 3 | 40 | 3 | □ | 311-12 |
| SEP-EL | 1 × 3 | 3 | 45 | 4 | ● | 286 |
| WXL-3D-DE | 1 | 3 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 1 | 3 | 50 | 6 | □ | 311-17 |
| CRN-EDN | 1 | 3 | 60 | 6 | □ | 311-16 |
| FXS-EMS | 1 | 3.5 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1 × 4 | 4 | 45 | 4 | □ | 311-22 |
| FX-MG-EDN | 1 | 4 | 45 | 4 | □ | 311-15 |
| WXL-4D-DE | 1 | 4 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1 | 4 | 50 | 6 | □ | 311-17 |
| CRN-EDL | 1 | 4 | 60 | 6 | □ | 311-23 |
| DIA-EHDL-3 | 1 | 4.5 | 45 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 1 | 5 | 40 | 3 | □ | 311-19 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EDL-3 | 1 | 5 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 1 × 5 | 5 | 45 | 4 | □ | 311-22 |
| SEP-EL | 1 × 5 | 5 | 45 | 4 | ● | 286 |
| FX-ED-DL-6 | 1 | 6 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 1 | 7.5 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1 | 7.5 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1 | 8 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 1.05 | 3.2 | 40 | 3 | □ | 311-10 |
| AE-VMSS | 1.1 | 1.7 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 1.1 | 1.7 | 45 | 4 | ● | 259 |
| LN-MG-EDS | 1.1 × 6 | 1.7 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.1 × 12 | 1.7 | 45 | 4 | □ | 321-7 |
| IT-EDS-6 | 1.1 × 2.8 | 1.7 | 50 | 6 | □ | 311-13 |
| DIA-2D-DE | 1.1 | 2.2 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 1.1 | 2.2 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 1.1 | 2.2 | 50 | 6 | □ | 311-17 |
| CAP-EDS-SF | 1.1 | 2.5 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 1.1 | 2.5 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 1.1 | 2.5 | 40 | 4 | □ | 311-1 |
| DIA-EHDS-3 | 1.1 | 2.8 | 40 | 3 | □ | 311-44 |
| WXL-3D-DE | 1.1 | 3.3 | 45 | 4 | ● | 263 |
| CRN-EDS-3 | 1.1 | 3.4 | 40 | 3 | □ | 311-12 |
| FXS-EMS | 1.1 | 4 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1.1 × 4.4 | 4.4 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 1.1 | 4.4 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1.1 | 4.4 | 50 | 6 | □ | 311-17 |
| DIA-EHDL-3 | 1.1 | 5 | 45 | 3 | □ | 311-46 |
| CRN-EDL-4 | 1.1 × 5.5 | 5.5 | 45 | 4 | □ | 311-22 |
| FX-MG-EDL-3 | 1.1 | 5.6 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.1 | 5.6 | 40 | 3 | □ | 311-20 |
| FX-ED-DL-6 | 1.1 | 6.6 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 1.1 | 8.4 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.1 | 8.4 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.1 | 8.8 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 1.15 | 3.6 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 1.2 | 1.4 | 50 | 6 | □ | 311-6 |
| AE-VMSS | 1.2 | 1.8 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 1.2 | 1.8 | 45 | 4 | ● | 259 |
| WXL-LN-EDS | 1.2 × 4 | 1.8 | 45 | 4 | ● | 314 |
| WX-LN-EDS | 1.2 × 4 | 1.8 | 45 | 4 | □ | 321-3 |
| WXL-LN-EDS | 1.2 × 6 | 1.8 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.2 × 6 | 1.8 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.2 × 6 | 1.8 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.2 × 6 | 1.8 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.2 × 8 | 1.8 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.2 × 8 | 1.8 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.2 × 8 | 1.8 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.2 × 8 | 1.8 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.2 × 10 | 1.8 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.2 × 10 | 1.8 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.2 × 10 | 1.8 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.2 × 10 | 1.8 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.2 × 12 | 1.8 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.2 × 12 | 1.8 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.2 × 12 | 1.8 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.2 × 12 | 1.8 | 45 | 4 | □ | 321-11 |
| DIA-LN-EDS | 1.2 × 6 | 1.8 | 50 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.2 × 6 | 1.8 | 50 | 4 | □ | 321-14 |
| WXL-LN-EDS | 1.2 × 14 | 1.8 | 50 | 4 | ● | 314 |
| WX-LN-EDS | 1.2 × 14 | 1.8 | 50 | 4 | □ | 321-3 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EDS | 1.2 × 16 | 1.8 | 50 | 4 | ● | 314 |
| WXL-LN-EMS | 1.2 × 16 | 1.8 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.2 × 16 | 1.8 | 50 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.2 × 16 | 1.8 | 50 | 4 | □ | 321-11 |
| FX-EDS-6 | 1.2 × 3 | 1.8 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 1.2 × 3 | 1.8 | 50 | 6 | □ | 311-13 |
| WXL-LN-EDS | 1.2 × 20 | 1.8 | 55 | 4 | ● | 314 |
| WX-LN-EDS | 1.2 × 20 | 1.8 | 55 | 4 | □ | 321-3 |
| DIA-LN-EDS | 1.2 × 12 | 1.8 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.2 × 12 | 1.8 | 60 | 4 | □ | 321-14 |
| FX-LN-EDS-6 | 1.2 × 6 | 1.8 | 60 | 6 | □ | 321-6 |
| FX-LN-EMS-6 | 1.2 × 6 | 1.8 | 60 | 6 | □ | 321-13 |
| LN-MG-EDS | 1.2 × 6 | 1.9 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.2 × 12 | 1.9 | 45 | 4 | □ | 321-7 |
| DIA-2D-DE | 1.2 | 2.4 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 1.2 | 2.4 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 1.2 | 2.4 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 1.2 | 2.4 | 50 | 6 | □ | 311-17 |
| DIA-EHDS-3 | 1.2 | 2.8 | 40 | 3 | □ | 311-44 |
| WXL-3D-DE | 1.2 | 3.6 | 45 | 4 | ● | 263 |
| CRN-EDS-3 | 1.2 | 3.8 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 1.2 | 4 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 1.2 | 4 | 40 | 4 | □ | 270 |
| DIA-EDS | 1.2 | 4 | 40 | 4 | □ | 272 |
| FX-MG-EDS | 1.2 | 4 | 40 | 4 | □ | 311-1 |
| GX-EDS | 1.2 | 4 | 40 | 4 | □ | 311-11 |
| FXS-EMS | 1.2 | 4 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1.2 × 4.8 | 4.8 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 1.2 | 4.8 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1.2 | 4.8 | 50 | 6 | □ | 311-17 |
| DIA-EHDL-3 | 1.2 | 5 | 45 | 3 | □ | 311-46 |
| CRN-EDL-4 | 1.2 × 6 | 6 | 45 | 4 | □ | 311-22 |
| FX-MG-EDL-3 | 1.2 | 6.2 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.2 | 6.2 | 40 | 3 | □ | 311-20 |
| FX-ED-DL-6 | 1.2 | 7.2 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 1.2 | 9.4 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.2 | 9.4 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.2 | 9.6 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 1.25 | 3.6 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 1.3 × 6 | 1.9 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.3 × 12 | 1.9 | 45 | 4 | □ | 321-7 |
| AE-VMSS | 1.3 | 2 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 1.3 | 2 | 45 | 4 | ● | 259 |
| IT-EDS-6 | 1.3 × 3.5 | 2 | 50 | 6 | □ | 311-13 |
| DIA-2D-DE | 1.3 | 2.6 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 1.3 | 2.6 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 1.3 | 2.6 | 50 | 6 | □ | 311-17 |
| DIA-EHDS-3 | 1.3 | 2.8 | 40 | 3 | □ | 311-44 |
| CRN-EDS-3 | 1.3 | 3.8 | 40 | 3 | □ | 311-12 |
| WXL-3D-DE | 1.3 | 3.9 | 45 | 4 | ● | 263 |
| CAP-EDS-SF | 1.3 | 4 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 1.3 | 4 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 1.3 | 4 | 40 | 4 | □ | 311-1 |
| FXS-EMS | 1.3 | 5 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1.3 × 5.2 | 5.2 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 1.3 | 5.2 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1.3 | 5.2 | 50 | 6 | □ | 311-17 |
| DIA-EHDL-3 | 1.3 | 5.5 | 45 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 1.3 | 6.2 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.3 | 6.2 | 40 | 3 | □ | 311-20 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CRN-EDL-4 | 1.3 × 6.5 | 6.5 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 1.3 | 7.8 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 1.3 | 9.4 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.3 | 9.4 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.3 | 10.4 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 1.35 | 4 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 1.4 | 1.7 | 50 | 6 | □ | 311-6 |
| AE-VMSS | 1.4 | 2.1 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 1.4 | 2.1 | 45 | 4 | ● | 259 |
| LN-MG-EDS | 1.4 × 6 | 2.1 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1.4 × 6 | 2.1 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.4 × 6 | 2.1 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.4 × 6 | 2.1 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.4 × 6 | 2.1 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.4 × 8 | 2.1 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.4 × 8 | 2.1 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.4 × 8 | 2.1 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.4 × 8 | 2.1 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.4 × 10 | 2.1 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.4 × 10 | 2.1 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.4 × 10 | 2.1 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.4 × 10 | 2.1 | 45 | 4 | □ | 321-11 |
| LN-MG-EDS | 1.4 × 12 | 2.1 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1.4 × 12 | 2.1 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.4 × 12 | 2.1 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.4 × 12 | 2.1 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.4 × 12 | 2.1 | 45 | 4 | □ | 321-11 |
| DIA-LN-EDS | 1.4 × 6 | 2.1 | 50 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.4 × 6 | 2.1 | 50 | 4 | □ | 321-14 |
| WXL-LN-EDS | 1.4 × 14 | 2.1 | 50 | 4 | ● | 314 |
| WXL-LN-EMS | 1.4 × 14 | 2.1 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.4 × 14 | 2.1 | 50 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.4 × 14 | 2.1 | 50 | 4 | □ | 321-11 |
| LN-MG-EDS | 1.4 × 16 | 2.1 | 50 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1.4 × 16 | 2.1 | 50 | 4 | ● | 314 |
| WXL-LN-EMS | 1.4 × 16 | 2.1 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.4 × 16 | 2.1 | 50 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.4 × 16 | 2.1 | 50 | 4 | □ | 321-11 |
| FX-EDS-6 | 1.4 × 3.5 | 2.1 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 1.4 × 3.6 | 2.1 | 50 | 6 | □ | 311-13 |
| DIA-LN-EDS | 1.4 × 14 | 2.1 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.4 × 14 | 2.1 | 60 | 4 | □ | 321-14 |
| LN-MG-EDS | 1.4 × 22 | 2.1 | 60 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1.4 × 22 | 2.1 | 60 | 4 | ● | 314 |
| WXL-LN-EMS | 1.4 × 22 | 2.1 | 60 | 4 | ● | 319 |
| WX-LN-EDS | 1.4 × 22 | 2.1 | 60 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.4 × 22 | 2.1 | 60 | 4 | □ | 321-11 |
| FX-LN-EDS-6 | 1.4 × 7 | 2.1 | 60 | 6 | □ | 321-6 |
| FX-LN-EMS-6 | 1.4 × 7 | 2.1 | 60 | 6 | □ | 321-13 |
| DIA-EHDS-3 | 1.4 | 2.8 | 40 | 3 | □ | 311-44 |
| DIA-2D-DE | 1.4 | 2.8 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 1.4 | 2.8 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 1.4 | 2.8 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 1.4 | 2.8 | 50 | 6 | □ | 311-17 |
| CAP-EDS-SF | 1.4 | 4 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 1.4 | 4 | 40 | 4 | □ | 270 |
| DIA-EDS | 1.4 | 4 | 40 | 4 | □ | 272 |
| FX-MG-EDS | 1.4 | 4 | 40 | 4 | □ | 311-1 |
| CRN-EDS-3 | 1.4 | 4.2 | 40 | 3 | □ | 311-12 |
| WXL-3D-DE | 1.4 | 4.2 | 45 | 4 | ● | 263 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FXS-EMS | 1.4 | 5 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1.4 × 5.6 | 5.6 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 1.4 | 5.6 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1.4 | 5.6 | 50 | 6 | □ | 311-17 |
| DIA-EHDL-3 | 1.4 | 6 | 45 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 1.4 | 7 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.4 | 7 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 1.4 × 7 | 7 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 1.4 | 8.4 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 1.4 | 10.5 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.4 | 10.5 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.4 | 11.2 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 1.45 | 4 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 1.5 | 1.8 | 50 | 6 | □ | 311-6 |
| LN-MG-EDS | 1.5 × 6 | 2.1 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.5 × 12 | 2.1 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.5 × 16 | 2.1 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.5 × 22 | 2.1 | 60 | 4 | □ | 321-7 |
| AE-VMSS | 1.5 | 2.3 | 40 | 4 | ● | 296 |
| AE-VMSS | 1.5-RA | 2.3 | 40 | 4 | ● | 297 |
| WXL-1.5D-DE | 1.5 | 2.3 | 45 | 4 | ● | 259 |
| WXL-LN-EDS | 1.5 × 4 | 2.3 | 45 | 4 | ● | 314 |
| WX-LN-EDS | 1.5 × 4 | 2.3 | 45 | 4 | □ | 321-3 |
| AE-TS-N | 1.5 × 4.5 | 2.3 | 45 | 4 | ● | 278 |
| AE-TS-N | 1.5 × 4.5-SP | 2.3 | 45 | 4 | ● | 279 |
| AE-VTS-N | 1.5 × 4.5 | 2.3 | 45 | 4 | ● | 280 |
| AE-VTS-N | 1.5 × 4.5-SP | 2.3 | 45 | 4 | ● | 281 |
| WXL-LN-EDS | 1.5 × 6 | 2.3 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.5 × 6 | 2.3 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.5 × 6 | 2.3 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.5 × 6 | 2.3 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.5 × 8 | 2.3 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.5 × 8 | 2.3 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.5 × 8 | 2.3 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.5 × 8 | 2.3 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.5 × 10 | 2.3 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.5 × 10 | 2.3 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.5 × 10 | 2.3 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.5 × 10 | 2.3 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.5 × 12 | 2.3 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.5 × 12 | 2.3 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.5 × 12 | 2.3 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.5 × 12 | 2.3 | 45 | 4 | □ | 321-11 |
| CAP-LN-EDS | 1.5 × 6 | 2.3 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1.5 × 6 | 2.3 | 50 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.5 × 6 | 2.3 | 50 | 4 | □ | 321-14 |
| WXL-LN-EDS | 1.5 × 14 | 2.3 | 50 | 4 | ● | 314 |
| WXL-LN-EMS | 1.5 × 14 | 2.3 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.5 × 14 | 2.3 | 50 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.5 × 14 | 2.3 | 50 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.5 × 16 | 2.3 | 50 | 4 | ● | 314 |
| WXL-LN-EMS | 1.5 × 16 | 2.3 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.5 × 16 | 2.3 | 50 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.5 × 16 | 2.3 | 50 | 4 | □ | 321-11 |
| CRN-HS-EDS | 1.5 × 3.8 | 2.3 | 50 | 6 | □ | 311-13 |
| FX-EDS-6 | 1.5 × 3.8 | 2.3 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 1.5 × 3.8 | 2.3 | 50 | 6 | □ | 311-13 |
| IT-EMS-6 | 1.5 × 3.8 | 2.3 | 50 | 6 | □ | 311-35 |
| WXL-LN-EDS | 1.5 × 18 | 2.3 | 55 | 4 | ● | 314 |
| WXL-LN-EMS | 1.5 × 18 | 2.3 | 55 | 4 | ● | 319 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WX-LN-EDS | 1.5 × 18 | 2.3 | 55 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.5 × 18 | 2.3 | 55 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.5 × 20 | 2.3 | 55 | 4 | ● | 314 |
| WXL-LN-EMS | 1.5 × 20 | 2.3 | 55 | 4 | ● | 319 |
| WX-LN-EDS | 1.5 × 20 | 2.3 | 55 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.5 × 20 | 2.3 | 55 | 4 | □ | 321-11 |
| CAP-LN-EDS | 1.5 × 8 | 2.3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1.5 × 8 | 2.3 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 1.5 × 10 | 2.3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1.5 × 10 | 2.3 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 1.5 × 12 | 2.3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1.5 × 12 | 2.3 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 1.5 × 14 | 2.3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1.5 × 14 | 2.3 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 1.5 × 16 | 2.3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1.5 × 16 | 2.3 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.5 × 16 | 2.3 | 60 | 4 | □ | 321-14 |
| CAP-LN-EDS | 1.5 × 18 | 2.3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1.5 × 18 | 2.3 | 60 | 4 | □ | 321-10 |
| WXL-LN-EDS | 1.5 × 25 | 2.3 | 60 | 4 | ● | 314 |
| WX-LN-EDS | 1.5 × 25 | 2.3 | 60 | 4 | □ | 321-3 |
| CRN-LN-EDS | 1.5 × 7.5 | 2.3 | 60 | 6 | □ | 321-9 |
| DLC-LN-EDS | 1.5 × 7.5 | 2.3 | 60 | 6 | ● | 317 |
| FX-LN-EDS-6 | 1.5 × 7.5 | 2.3 | 60 | 6 | □ | 321-6 |
| FX-LN-EMS-6 | 1.5 × 7.5 | 2.3 | 60 | 6 | □ | 321-13 |
| CRN-LN-EDS | 1.5 × 15 | 2.3 | 60 | 6 | □ | 321-9 |
| CAP-LN-EDS | 1.5 × 20 | 2.3 | 70 | 4 | □ | 321-8 |
| DIA-LN-EDS | 1.5 × 20 | 2.3 | 70 | 4 | □ | 321-10 |
| WXL-LN-EDS | 1.5 × 30 | 2.3 | 70 | 4 | ● | 314 |
| WX-LN-EDS | 1.5 × 30 | 2.3 | 70 | 4 | □ | 321-3 |
| WXL-LN-EDS | 1.5 × 38 | 2.3 | 80 | 4 | ● | 314 |
| WX-LN-EDS | 1.5 × 38 | 2.3 | 80 | 4 | □ | 321-3 |
| WXL-LN-EDS | 1.5 × 40 | 2.3 | 80 | 4 | ● | 314 |
| WX-LN-EDS | 1.5 × 40 | 2.3 | 80 | 4 | □ | 321-3 |
| WXL-LN-EDS | 1.5 × 45 | 2.3 | 80 | 4 | ● | 314 |
| WX-LN-EDS | 1.5 × 45 | 2.3 | 80 | 4 | □ | 321-3 |
| DIA-2D-DE | 1.5 | 3 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 1.5 | 3 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 1.5 | 3 | 45 | 4 | ● | 260 |
| DG-LN-EMS | 1.5 × 7.5 | 3 | 50 | 4 | ● | 321 |
| FX-ED-DL-6 | 1.5 | 3 | 50 | 6 | □ | 311-17 |
| DG-LN-EMS | 1.5 × 15 | 3 | 60 | 4 | ● | 321 |
| FXS-EMSS | 1.5 | 3 | 60 | 6 | □ | 311-29 |
| AE-MS-H | 1.5 | 3.8 | 60 | 6 | ● | 290 |
| CAP-EDS-SF | 1.5 | 4 | 40 | 4 | □ | 311-14 |
| DIA-EDS | 1.5 | 4 | 40 | 4 | ● | 272 |
| FX-MG-EDS | 1.5 | 4 | 40 | 4 | □ | 311-1 |
| GX-EDS | 1.5 | 4 | 40 | 4 | □ | 311-11 |
| V-MG-EDS | 1.5 | 4 | 40 | 4 | □ | 311-9 |
| WXL-EMS | 1.5 | 4 | 40 | 4 | ● | 287 |
| CAP-EDS | 1.5 | 4 | 60 | 6 | □ | 311-11 |
| CRN-EDS | 1.5 | 4 | 60 | 6 | □ | 311-12 |
| CRN-EDS-3 | 1.5 | 4.2 | 40 | 3 | □ | 311-12 |
| DIA-EHDS-3 | 1.5 | 4.4 | 40 | 3 | □ | 311-44 |
| WXL-3D-DE | 1.5 | 4.5 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 1.5 | 4.5 | 50 | 6 | □ | 311-17 |
| FX-MG-EDN | 1.5 | 5 | 45 | 4 | □ | 311-15 |
| CRN-EDN | 1.5 | 5 | 60 | 6 | □ | 311-16 |
| FXS-EMS | 1.5 | 5 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1.5 × 6 | 6 | 45 | 4 | □ | 311-22 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-4D-DE | 1.5 | 6 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1.5 | 6 | 50 | 6 | □ | 311-17 |
| CRN-EDL | 1.5 | 6 | 60 | 6 | □ | 311-23 |
| DIA-EHDL-3 | 1.5 | 6.5 | 50 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 1.5 | 7 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.5 | 7 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 1.5 × 7.5 | 7.5 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 1.5 | 8 | 50 | 6 | □ | 311-17 |
| FX-ED-DL-6 | 1.5 | 10 | 50 | 6 | □ | 311-17 |
| FX-MG-EDLL-3 | 1.5 | 10.5 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.5 | 10.5 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.5 | 12 | 50 | 6 | □ | 311-17 |
| TIN-MG-EDS-3 | 1.55 | 4.5 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 1.6 | 1.9 | 50 | 6 | □ | 311-6 |
| AE-VMSS | 1.6 | 2.4 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 1.6 | 2.4 | 45 | 4 | ● | 259 |
| LN-MG-EDS | 1.6 × 6 | 2.4 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1.6 × 6 | 2.4 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.6 × 6 | 2.4 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.6 × 6 | 2.4 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.6 × 6 | 2.4 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.6 × 8 | 2.4 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.6 × 8 | 2.4 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.6 × 8 | 2.4 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.6 × 8 | 2.4 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.6 × 10 | 2.4 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.6 × 10 | 2.4 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.6 × 10 | 2.4 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.6 × 10 | 2.4 | 45 | 4 | □ | 321-11 |
| LN-MG-EDS | 1.6 × 12 | 2.4 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1.6 × 12 | 2.4 | 45 | 4 | ● | 314 |
| WXL-LN-EMS | 1.6 × 12 | 2.4 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.6 × 12 | 2.4 | 45 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.6 × 12 | 2.4 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.6 × 14 | 2.4 | 50 | 4 | ● | 314 |
| WXL-LN-EMS | 1.6 × 14 | 2.4 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.6 × 14 | 2.4 | 50 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.6 × 14 | 2.4 | 50 | 4 | □ | 321-11 |
| LN-MG-EDS | 1.6 × 16 | 2.4 | 50 | 4 | □ | 321-7 |
| WXL-LN-EDS | 1.6 × 16 | 2.4 | 50 | 4 | ● | 314 |
| WXL-LN-EMS | 1.6 × 16 | 2.4 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.6 × 16 | 2.4 | 50 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.6 × 16 | 2.4 | 50 | 4 | □ | 321-11 |
| FX-EDS-6 | 1.6 × 4 | 2.4 | 50 | 6 | □ | 311-5 |
| WXL-LN-EDS | 1.6 × 18 | 2.4 | 55 | 4 | ● | 314 |
| WXL-LN-EMS | 1.6 × 18 | 2.4 | 55 | 4 | ● | 319 |
| WX-LN-EDS | 1.6 × 18 | 2.4 | 55 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.6 × 18 | 2.4 | 55 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.6 × 20 | 2.4 | 55 | 4 | ● | 315 |
| WXL-LN-EMS | 1.6 × 20 | 2.4 | 55 | 4 | ● | 319 |
| WX-LN-EDS | 1.6 × 20 | 2.4 | 55 | 4 | □ | 321-3 |
| WX-LN-EMS | 1.6 × 20 | 2.4 | 55 | 4 | □ | 321-11 |
| DIA-LN-EDS | 1.6 × 8 | 2.4 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.6 × 8 | 2.4 | 60 | 4 | □ | 321-14 |
| DIA-LN-EDS | 1.6 × 16 | 2.4 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.6 × 16 | 2.4 | 60 | 4 | □ | 321-14 |
| LN-MG-EDS | 1.6 × 22 | 2.4 | 60 | 4 | □ | 321-7 |
| WXL-LN-EMS | 1.6 × 25 | 2.4 | 60 | 4 | ● | 319 |
| WX-LN-EMS | 1.6 × 25 | 2.4 | 60 | 4 | □ | 321-11 |
| FX-LN-EDS-6 | 1.6 × 8 | 2.4 | 60 | 6 | □ | 321-6 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能

【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-LN-EMS-6 | 1.6 × 8 | 2.4 | 60 | 6 | □ | 321-13 |
| DIA-2D-DE | 1.6 | 3.2 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 1.6 | 3.2 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 1.6 | 3.2 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 1.6 | 3.2 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 1.6 | 4.4 | 40 | 3 | □ | 311-44 |
| CRN-EDS-3 | 1.6 | 4.8 | 40 | 3 | □ | 311-12 |
| WXL-3D-DE | 1.6 | 4.8 | 45 | 4 | ● | 263 |
| CAP-EDS-SF | 1.6 | 5 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 1.6 | 5 | 40 | 4 | □ | 270 |
| DIA-EDS | 1.6 | 5 | 40 | 4 | □ | 272 |
| FX-MG-EDS | 1.6 | 5 | 40 | 4 | □ | 311-1 |
| FXS-EMS | 1.6 | 5 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1.6 × 6.4 | 6.4 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 1.6 | 6.4 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1.6 | 6.4 | 50 | 6 | □ | 311-18 |
| DIA-EHDL-3 | 1.6 | 7 | 50 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 1.6 | 8 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.6 | 8 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 1.6 × 8 | 8 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 1.6 | 9.6 | 50 | 6 | □ | 311-18 |
| FX-MG-EDLL-3 | 1.6 | 12 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.6 | 12 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.6 | 12.8 | 50 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 1.65 | 4.5 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 1.7 × 6 | 2.4 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.7 × 12 | 2.4 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.7 × 16 | 2.4 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.7 × 22 | 2.4 | 60 | 4 | □ | 321-7 |
| AE-VMSS | 1.7 | 2.6 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 1.7 | 2.6 | 45 | 4 | ● | 259 |
| DIA-2D-DE | 1.7 | 3.4 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 1.7 | 3.4 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 1.7 | 3.4 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 1.7 | 4.4 | 40 | 3 | □ | 311-44 |
| CRN-EDS-3 | 1.7 | 4.8 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 1.7 | 5 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 1.7 | 5 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 1.7 | 5 | 40 | 4 | □ | 311-1 |
| WXL-3D-DE | 1.7 | 5.1 | 45 | 4 | ● | 263 |
| CRN-EDL-4 | 1.7 × 6.8 | 6.8 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 1.7 | 6.8 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1.7 | 6.8 | 50 | 6 | □ | 311-18 |
| FXS-EMS | 1.7 | 7 | 60 | 6 | □ | 311-29 |
| DIA-EHDL-3 | 1.7 | 7.5 | 50 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 1.7 | 8 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.7 | 8 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 1.7 × 8.5 | 8.5 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 1.7 | 10.2 | 50 | 6 | □ | 311-18 |
| FX-MG-EDLL-3 | 1.7 | 12 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.7 | 12 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.7 | 13.6 | 50 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 1.75 | 5 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 1.8 | 2.2 | 50 | 6 | □ | 311-6 |
| LN-MG-EDS | 1.8 × 6 | 2.6 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.8 × 12 | 2.6 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.8 × 16 | 2.6 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.8 × 22 | 2.6 | 60 | 4 | □ | 321-7 |
| AE-VMSS | 1.8 | 2.7 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 1.8 | 2.7 | 45 | 4 | ● | 259 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EDS | 1.8 × 6 | 2.7 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 6 | 2.7 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 6 | 2.7 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 6 | 2.7 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.8 × 8 | 2.7 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 8 | 2.7 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 8 | 2.7 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 8 | 2.7 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.8 × 10 | 2.7 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 10 | 2.7 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 10 | 2.7 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 10 | 2.7 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.8 × 12 | 2.7 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 12 | 2.7 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 12 | 2.7 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 12 | 2.7 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.8 × 14 | 2.7 | 50 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 14 | 2.7 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 14 | 2.7 | 50 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 14 | 2.7 | 50 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.8 × 16 | 2.7 | 50 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 16 | 2.7 | 50 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 16 | 2.7 | 50 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 16 | 2.7 | 50 | 4 | □ | 321-11 |
| FX-EDS-6 | 1.8 × 4.5 | 2.7 | 50 | 6 | □ | 311-5 |
| WXL-LN-EDS | 1.8 × 18 | 2.7 | 55 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 18 | 2.7 | 55 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 18 | 2.7 | 55 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 18 | 2.7 | 55 | 4 | □ | 321-11 |
| WXL-LN-EDS | 1.8 × 20 | 2.7 | 55 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 20 | 2.7 | 55 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 20 | 2.7 | 55 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 20 | 2.7 | 55 | 4 | □ | 321-11 |
| DIA-LN-EDS | 1.8 × 8 | 2.7 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.8 × 8 | 2.7 | 60 | 4 | □ | 321-14 |
| DIA-LN-EDS | 1.8 × 18 | 2.7 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 1.8 × 18 | 2.7 | 60 | 4 | □ | 321-14 |
| WXL-LN-EDS | 1.8 × 25 | 2.7 | 60 | 4 | ● | 315 |
| WXL-LN-EMS | 1.8 × 25 | 2.7 | 60 | 4 | ● | 319 |
| WX-LN-EDS | 1.8 × 25 | 2.7 | 60 | 4 | □ | 321-4 |
| WX-LN-EMS | 1.8 × 25 | 2.7 | 60 | 4 | □ | 321-11 |
| FX-LN-EDS-6 | 1.8 × 9 | 2.7 | 60 | 6 | □ | 321-6 |
| FX-LN-EMS-6 | 1.8 × 9 | 2.7 | 60 | 6 | □ | 321-13 |
| DIA-2D-DE | 1.8 | 3.6 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 1.8 | 3.6 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 1.8 | 3.6 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 1.8 | 3.6 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 1.8 | 4.4 | 40 | 3 | □ | 311-44 |
| CAP-EDS-SF | 1.8 | 5 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 1.8 | 5 | 40 | 4 | □ | 270 |
| DIA-EDS | 1.8 | 5 | 40 | 4 | □ | 272 |
| FX-MG-EDS | 1.8 | 5 | 40 | 4 | □ | 311-1 |
| GX-EDS | 1.8 | 5 | 40 | 4 | □ | 311-11 |
| CRN-EDS-3 | 1.8 | 5.3 | 40 | 3 | □ | 311-12 |
| WXL-3D-DE | 1.8 | 5.4 | 45 | 4 | ● | 263 |
| FXS-EMS | 1.8 | 7 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1.8 × 7.2 | 7.2 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 1.8 | 7.2 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 1.8 | 7.2 | 50 | 6 | □ | 311-18 |
| DIA-EHDL-3 | 1.8 | 8 | 50 | 3 | □ | 311-46 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EDL-3 | 1.8 | 9 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.8 | 9 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 1.8 × 9 | 9 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 1.8 | 10.8 | 50 | 6 | □ | 311-18 |
| FX-MG-EDLL-3 | 1.8 | 13.5 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.8 | 13.5 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.8 | 14.4 | 50 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 1.85 | 5 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 1.9 × 6 | 2.6 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.9 × 12 | 2.6 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.9 × 16 | 2.6 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 1.9 × 22 | 2.6 | 60 | 4 | □ | 321-7 |
| AE-VMSS | 1.9 | 2.9 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 1.9 | 2.9 | 45 | 4 | ● | 259 |
| DIA-2D-DE | 1.9 | 3.8 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 1.9 | 3.8 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 1.9 | 3.8 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 1.9 | 4.4 | 40 | 3 | □ | 311-44 |
| CAP-EDS-SF | 1.9 | 5 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 1.9 | 5 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 1.9 | 5 | 40 | 4 | □ | 311-1 |
| CRN-EDS-3 | 1.9 | 5.3 | 40 | 3 | □ | 311-12 |
| WXL-3D-DE | 1.9 | 5.7 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 1.9 | 7 | 50 | 6 | □ | 311-18 |
| FXS-EMS | 1.9 | 7 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 1.9 × 7.6 | 7.6 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 1.9 | 7.6 | 45 | 4 | ● | 264 |
| DIA-EHDL-3 | 1.9 | 8.5 | 50 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 1.9 | 9 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 1.9 | 9 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 1.9 × 9.5 | 9.5 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 1.9 | 9.5 | 50 | 6 | □ | 311-18 |
| FX-MG-EDLL-3 | 1.9 | 13.5 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 1.9 | 13.5 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 1.9 | 15.2 | 50 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 1.95 | 5.8 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 2 | 2.4 | 50 | 6 | □ | 311-6 |
| AE-VMSS | 2 | 3 | 40 | 4 | ● | 296 |
| AE-VMSS | 2-RA | 3 | 40 | 4 | ● | 297 |
| WXL-1.5D-DE | 2 | 3 | 45 | 4 | ● | 259 |
| AE-TS-N | 2 × 6 | 3 | 45 | 4 | ● | 278 |
| AE-TS-N | 2 × 6-SP | 3 | 45 | 4 | ● | 279 |
| AE-VTS-N | 2 × 6 | 3 | 45 | 4 | ● | 280 |
| AE-VTS-N | 2 × 6-SP | 3 | 45 | 4 | ● | 281 |
| WXL-LN-EDS | 2 × 6 | 3 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 6 | 3 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 2 × 6 | 3 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 6 | 3 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 2 × 8 | 3 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 8 | 3 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 2 × 8 | 3 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 8 | 3 | 45 | 4 | □ | 321-11 |
| WXL-LN-EDS | 2 × 10 | 3 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 10 | 3 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 2 × 10 | 3 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 10 | 3 | 45 | 4 | □ | 321-11 |
| LN-MG-EDS | 2 × 12 | 3 | 45 | 4 | □ | 321-7 |
| WXL-LN-EDS | 2 × 12 | 3 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 12 | 3 | 45 | 4 | ● | 319 |
| WX-LN-EDS | 2 × 12 | 3 | 45 | 4 | □ | 321-4 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WX-LN-EMS | 2 × 12 | 3 | 45 | 4 | □ | 321-11 |
| CAP-LN-EDS | 2 × 6 | 3 | 50 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 6 | 3 | 50 | 4 | □ | 321-10 |
| WXL-LN-EDS | 2 × 14 | 3 | 50 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 14 | 3 | 50 | 4 | ● | 320 |
| WX-LN-EDS | 2 × 14 | 3 | 50 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 14 | 3 | 50 | 4 | □ | 321-11 |
| LN-MG-EDS | 2 × 16 | 3 | 50 | 4 | □ | 321-7 |
| WXL-LN-EDS | 2 × 16 | 3 | 50 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 16 | 3 | 50 | 4 | ● | 320 |
| WX-LN-EDS | 2 × 16 | 3 | 50 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 16 | 3 | 50 | 4 | □ | 321-11 |
| CRN-HS-EDS | 2 × 5 | 3 | 50 | 6 | □ | 311-13 |
| FX-EDS-6 | 2 × 5 | 3 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 2 × 5 | 3 | 50 | 6 | □ | 311-13 |
| IT-EMS-6 | 2 × 5 | 3 | 50 | 6 | □ | 311-35 |
| WXL-LN-EDS | 2 × 18 | 3 | 55 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 18 | 3 | 55 | 4 | ● | 320 |
| WX-LN-EDS | 2 × 18 | 3 | 55 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 18 | 3 | 55 | 4 | □ | 321-12 |
| WXL-LN-EDS | 2 × 20 | 3 | 55 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 20 | 3 | 55 | 4 | ● | 320 |
| WX-LN-EDS | 2 × 20 | 3 | 55 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 20 | 3 | 55 | 4 | □ | 321-12 |
| CAP-LN-EDS | 2 × 8 | 3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 8 | 3 | 60 | 4 | □ | 321-10 |
| DIA-LN-EMS | 2 × 8 | 3 | 60 | 4 | □ | 321-14 |
| CAP-LN-EDS | 2 × 10 | 3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 10 | 3 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2 × 12 | 3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 12 | 3 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2 × 14 | 3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 14 | 3 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2 × 16 | 3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 16 | 3 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2 × 18 | 3 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 18 | 3 | 60 | 4 | □ | 321-10 |
| LN-MG-EDS | 2 × 22 | 3 | 60 | 4 | □ | 321-7 |
| WXL-LN-EDS | 2 × 25 | 3 | 60 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 25 | 3 | 60 | 4 | ● | 320 |
| WX-LN-EDS | 2 × 25 | 3 | 60 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 25 | 3 | 60 | 4 | □ | 321-12 |
| CRN-LN-EDS | 2 × 10 | 3 | 60 | 6 | □ | 321-9 |
| DLC-LN-EDS | 2 × 10 | 3 | 60 | 6 | ● | 317 |
| FX-LN-EDS-6 | 2 × 10 | 3 | 60 | 6 | □ | 321-6 |
| FX-LN-EMS-6 | 2 × 10 | 3 | 60 | 6 | □ | 321-13 |
| CAP-LN-EDS | 2 × 20 | 3 | 70 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 20 | 3 | 70 | 4 | □ | 321-10 |
| DIA-LN-EMS | 2 × 20 | 3 | 70 | 4 | □ | 321-14 |
| CAP-LN-EDS | 2 × 25 | 3 | 70 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 25 | 3 | 70 | 4 | □ | 321-10 |
| WXL-LN-EDS | 2 × 30 | 3 | 70 | 4 | ● | 315 |
| WXL-LN-EMS | 2 × 30 | 3 | 70 | 4 | ● | 320 |
| WX-LN-EDS | 2 × 30 | 3 | 70 | 4 | □ | 321-4 |
| WX-LN-EMS | 2 × 30 | 3 | 70 | 4 | □ | 321-12 |
| CRN-LN-EDS | 2 × 12 | 3 | 70 | 6 | □ | 321-9 |
| CRN-LN-EDS | 2 × 14 | 3 | 70 | 6 | □ | 321-9 |
| CRN-LN-EDS | 2 × 16 | 3 | 70 | 6 | □ | 321-9 |
| CRN-LN-EDS | 2 × 18 | 3 | 70 | 6 | □ | 321-9 |
| CRN-LN-EDS | 2 × 20 | 3 | 70 | 6 | □ | 321-9 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-LN-EDS | 2 × 30 | 3 | 80 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2 × 30 | 3 | 80 | 4 | □ | 321-10 |
| WXL-LN-EDS | 2 × 35 | 3 | 80 | 4 | ● | 315 |
| WX-LN-EDS | 2 × 35 | 3 | 80 | 4 | □ | 321-4 |
| WXL-LN-EDS | 2 × 40 | 3 | 90 | 4 | ● | 315 |
| WX-LN-EDS | 2 × 40 | 3 | 90 | 4 | □ | 321-4 |
| WXL-LN-EDS | 2 × 50 | 3 | 100 | 4 | ● | 315 |
| WX-LN-EDS | 2 × 50 | 3 | 100 | 4 | □ | 321-4 |
| WXL-LN-EDS | 2 × 60 | 3 | 110 | 4 | ● | 315 |
| WX-LN-EDS | 2 × 60 | 3 | 110 | 4 | □ | 321-4 |
| DIA-2D-DE | 2 | 4 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 2 | 4 | 40 | 4 | ● | 272 |
| SH-MG-EDS | 2 | 4 | 40 | 4 | □ | 311-10 |
| WXL-2D-DE | 2 | 4 | 45 | 4 | ● | 260 |
| FX-ED-DL-6 | 2 | 4 | 50 | 6 | □ | 311-18 |
| DG-LN-EMS | 2 × 10 | 4 | 60 | 4 | ● | 321 |
| DG-LN-EMS | 2 × 20 | 4 | 60 | 4 | ● | 321 |
| FXS-EMSS | 2 | 4 | 60 | 6 | □ | 311-29 |
| AE-MS-H | 2 | 5 | 60 | 6 | ● | 290 |
| CRN-EDS-3 | 2 | 6 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 2 | 6 | 40 | 4 | □ | 311-14 |
| DIA-EDS | 2 | 6 | 40 | 4 | ● | 272 |
| DLC-MR-EDS | 2 | 6 | 40 | 4 | □ | 311-8 |
| DLC-MR-EMS | 2 | 6 | 40 | 4 | □ | 311-31 |
| FX-MG-EDS | 2 | 6 | 40 | 4 | □ | 311-1 |
| FX-MG-EMS | 2 | 6 | 40 | 4 | □ | 311-26 |
| FX-MR-EDS | 2 | 6 | 40 | 4 | □ | 311-7 |
| FX-MR-EMS | 2 | 6 | 40 | 4 | □ | 311-28 |
| GX-EDS | 2 | 6 | 40 | 4 | □ | 311-11 |
| GX-EMS | 2 | 6 | 40 | 4 | □ | 311-33 |
| MG-EMS OH1 | 2 | 6 | 40 | 4 | □ | 311-34 |
| V-MG-EDS | 2 | 6 | 40 | 4 | □ | 311-9 |
| WXL-EMS | 2 | 6 | 40 | 4 | ● | 287 |
| SEP-EL | 2 × 6 | 6 | 45 | 4 | ● | 286 |
| WXL-3D-DE | 2 | 6 | 45 | 4 | ● | 263 |
| DLC-E1-3D | 2 | 6 | 50 | 4 | □ | 311-48 |
| DLC-E2-3D | 2 | 6 | 50 | 4 | □ | 311-50 |
| FX-ED-DL-6 | 2 | 6 | 50 | 6 | □ | 311-18 |
| DLC-E1-3D-L | 2 | 6 | 55 | 4 | □ | 311-48 |
| DLC-E2-3D-L | 2 | 6 | 55 | 4 | □ | 311-50 |
| CAP-EDS | 2 | 6 | 60 | 6 | □ | 311-11 |
| CRN-EDS | 2 | 6 | 60 | 6 | □ | 311-12 |
| CRN-EMS | 2 | 6 | 60 | 6 | □ | 311-35 |
| DIA-EHDS-3 | 2 | 7 | 40 | 3 | □ | 311-44 |
| FXS-EMS | 2 | 7 | 60 | 6 | □ | 311-29 |
| CRN-EDL-4 | 2 × 8 | 8 | 45 | 4 | □ | 311-22 |
| FX-MG-EDN | 2 | 8 | 45 | 4 | □ | 311-15 |
| WXL-4D-DE | 2 | 8 | 45 | 4 | ● | 264 |
| FX-ED-DL-6 | 2 | 8 | 50 | 6 | □ | 311-18 |
| CRN-EDN | 2 | 8 | 60 | 6 | □ | 311-16 |
| DIA-EHDL-3 | 2 | 9 | 55 | 3 | □ | 311-46 |
| CRN-EDL | 2 | 9 | 60 | 6 | □ | 311-23 |
| FX-MG-EDL-3 | 2 | 10 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2 | 10 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 2 × 10 | 10 | 45 | 4 | □ | 311-22 |
| DLC-E1-5D | 2 | 10 | 50 | 4 | □ | 311-49 |
| DLC-E2-5D | 2 | 10 | 50 | 4 | □ | 311-51 |
| SEP-EL | 2 × 10 | 10 | 50 | 4 | ● | 286 |
| DLC-E1-5D-L | 2 | 10 | 55 | 4 | □ | 311-49 |
| DLC-E2-5D-L | 2 | 10 | 55 | 4 | □ | 311-51 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| GF-EDR | 2 | 10 | 75 | 4 | □ | 311-24 |
| GF-EMR | 2 | 10 | 75 | 4 | □ | 311-37 |
| GF-LS-EDR | 2 | 10 | 100 | 4 | □ | 311-24 |
| GF-LS-EMR | 2 | 10 | 100 | 4 | □ | 311-38 |
| FX-ED-DL-6 | 2 | 12 | 50 | 6 | □ | 311-18 |
| FX-MG-EDLL-3 | 2 | 15 | 40 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2 | 15 | 40 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2 | 16 | 50 | 6 | □ | 311-18 |
| GF-EDL | 2 | 20 | 100 | 6 | □ | 311-25 |
| GF-EML | 2 | 20 | 100 | 6 | □ | 311-38 |
| TIN-MG-EDS-3 | 2.05 | 6 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 2.1 × 12 | 3 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.1 × 16 | 3 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.1 × 22 | 3 | 60 | 4 | □ | 321-7 |
| AE-VMSS | 2.1 | 3.2 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 2.1 | 3.2 | 45 | 4 | ● | 259 |
| DIA-2D-DE | 2.1 | 4.2 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 2.1 | 4.2 | 45 | 4 | ● | 260 |
| CRN-EDS-3 | 2.1 | 6 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 2.1 | 6 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 2.1 | 6 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 2.1 | 6 | 40 | 4 | □ | 311-1 |
| MG-EMS | 2.1 | 6 | 40 | 4 | □ | 292 |
| WXL-3D-DE | 2.1 | 6.3 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.1 | 6.3 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 2.1 | 7 | 40 | 3 | □ | 311-44 |
| CRN-EDL-4 | 2.1 × 8.4 | 8.4 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 2.1 | 8.4 | 45 | 4 | ● | 264 |
| DIA-EHDL-3 | 2.1 | 9.5 | 55 | 3 | □ | 311-46 |
| CRN-EDL-4 | 2.1 × 10.5 | 10.5 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.1 | 10.5 | 50 | 6 | □ | 311-18 |
| FX-MG-EDL-3 | 2.1 | 11 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.1 | 11 | 40 | 3 | □ | 311-20 |
| MG-EDL-4 | 2.1 | 12 | 45 | 4 | □ | 311-20 |
| FX-MG-EDLL-3 | 2.1 | 16 | 45 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.1 | 16 | 45 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.1 | 16.8 | 50 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.15 | 6.4 | 40 | 3 | □ | 311-10 |
| AE-VMSS | 2.2 | 3.3 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 2.2 | 3.3 | 45 | 4 | ● | 259 |
| LN-MG-EDS | 2.2 × 12 | 3.4 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.2 × 16 | 3.4 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.2 × 22 | 3.4 | 60 | 4 | □ | 321-7 |
| DIA-2D-DE | 2.2 | 4.4 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 2.2 | 4.4 | 45 | 4 | ● | 260 |
| CAP-EDS-SF | 2.2 | 6 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 2.2 | 6 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 2.2 | 6 | 40 | 4 | □ | 311-1 |
| MG-EMS | 2.2 | 6 | 40 | 4 | □ | 292 |
| WXL-3D-DE | 2.2 | 6.6 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.2 | 6.6 | 50 | 6 | □ | 311-18 |
| CRN-EDS-3 | 2.2 | 6.7 | 40 | 3 | □ | 311-12 |
| DIA-EHDS-3 | 2.2 | 7 | 40 | 3 | □ | 311-44 |
| CRN-EDL-4 | 2.2 × 8.8 | 8.8 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 2.2 | 8.8 | 45 | 4 | ● | 264 |
| DIA-EHDL-3 | 2.2 | 9.5 | 55 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 2.2 | 11 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.2 | 11 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 2.2 × 11 | 11 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.2 | 11 | 50 | 6 | □ | 311-18 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
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Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EDL-4 | 2.2 | 13 | 45 | 4 | □ | 311-20 |
| FX-MG-EDLL-3 | 2.2 | 17 | 45 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.2 | 17 | 45 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.2 | 17.6 | 50 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.25 | 6.7 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 2.3 × 12 | 3.4 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.3 × 16 | 3.4 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.3 × 22 | 3.4 | 60 | 4 | □ | 321-7 |
| AE-VMSS | 2.3 | 3.5 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 2.3 | 3.5 | 45 | 4 | ● | 259 |
| DIA-2D-DE | 2.3 | 4.6 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 2.3 | 4.6 | 45 | 4 | ● | 260 |
| CAP-EDS-SF | 2.3 | 6 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 2.3 | 6 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 2.3 | 6 | 40 | 4 | □ | 311-1 |
| MG-EMS | 2.3 | 6 | 40 | 4 | □ | 292 |
| CRN-EDS-3 | 2.3 | 6.7 | 40 | 3 | □ | 311-12 |
| WXL-3D-DE | 2.3 | 6.9 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.3 | 6.9 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 2.3 | 7 | 40 | 3 | □ | 311-44 |
| CRN-EDL-4 | 2.3 × 9.2 | 9.2 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 2.3 | 9.2 | 45 | 4 | ● | 264 |
| DIA-EHDL-3 | 2.3 | 10 | 55 | 3 | □ | 311-46 |
| CRN-EDL-4 | 2.3 × 11.5 | 11.5 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.3 | 11.5 | 50 | 6 | □ | 311-18 |
| FX-MG-EDL-3 | 2.3 | 12 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.3 | 12 | 40 | 3 | □ | 311-20 |
| MG-EDL-4 | 2.3 | 13 | 45 | 4 | □ | 311-20 |
| FX-MG-EDLL-3 | 2.3 | 17 | 45 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.3 | 17 | 45 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.3 | 18.4 | 50 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.35 | 7 | 40 | 3 | □ | 311-10 |
| AE-VMSS | 2.4 | 3.6 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 2.4 | 3.6 | 45 | 4 | ● | 259 |
| LN-MG-EDS | 2.4 × 12 | 4 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.4 × 16 | 4 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.4 × 22 | 4 | 60 | 4 | □ | 321-7 |
| DIA-2D-DE | 2.4 | 4.8 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 2.4 | 4.8 | 45 | 4 | ● | 260 |
| DIA-EHDS-3 | 2.4 | 7 | 40 | 3 | □ | 311-44 |
| WXL-3D-DE | 2.4 | 7.2 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.4 | 7.2 | 50 | 6 | □ | 311-18 |
| CRN-EDS-3 | 2.4 | 8 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 2.4 | 8 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 2.4 | 8 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 2.4 | 8 | 40 | 4 | □ | 311-1 |
| MG-EMS | 2.4 | 8 | 40 | 4 | □ | 292 |
| CRN-EDL-4 | 2.4 × 9.6 | 9.6 | 45 | 4 | □ | 311-22 |
| WXL-4D-DE | 2.4 | 9.6 | 45 | 4 | ● | 264 |
| DIA-EHDL-3 | 2.4 | 10.5 | 55 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 2.4 | 12 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.4 | 12 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 2.4 × 12 | 12 | 45 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.4 | 12 | 50 | 6 | □ | 311-18 |
| MG-EDL-4 | 2.4 | 14 | 45 | 4 | □ | 311-20 |
| FX-MG-EDLL-3 | 2.4 | 18 | 45 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.4 | 18 | 45 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.4 | 19.2 | 50 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.45 | 8 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 2.5 | 3 | 50 | 6 | □ | 311-6 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EDS | 2.5 × 8 | 3.7 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 2.5 × 8 | 3.7 | 45 | 4 | ● | 320 |
| WX-LN-EDS | 2.5 × 8 | 3.7 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 2.5 × 8 | 3.7 | 45 | 4 | □ | 321-12 |
| WXL-LN-EDS | 2.5 × 10 | 3.7 | 45 | 4 | ● | 315 |
| WX-LN-EDS | 2.5 × 10 | 3.7 | 45 | 4 | □ | 321-4 |
| WXL-LN-EDS | 2.5 × 12 | 3.7 | 45 | 4 | ● | 315 |
| WXL-LN-EMS | 2.5 × 12 | 3.7 | 45 | 4 | ● | 320 |
| WX-LN-EDS | 2.5 × 12 | 3.7 | 45 | 4 | □ | 321-4 |
| WX-LN-EMS | 2.5 × 12 | 3.7 | 45 | 4 | □ | 321-12 |
| WXL-LN-EDS | 2.5 × 14 | 3.7 | 50 | 4 | ● | 315 |
| WX-LN-EDS | 2.5 × 14 | 3.7 | 50 | 4 | □ | 321-4 |
| FX-EDS-6 | 2.5 × 5 | 3.7 | 50 | 6 | □ | 311-5 |
| IT-EDS-6 | 2.5 × 5 | 3.7 | 50 | 6 | □ | 311-13 |
| IT-EMS-6 | 2.5 × 5 | 3.7 | 50 | 6 | □ | 311-35 |
| WXL-LN-EDS | 2.5 × 16 | 3.7 | 55 | 4 | ● | 315 |
| WXL-LN-EMS | 2.5 × 16 | 3.7 | 55 | 4 | ● | 320 |
| WX-LN-EDS | 2.5 × 16 | 3.7 | 55 | 4 | □ | 321-4 |
| WX-LN-EMS | 2.5 × 16 | 3.7 | 55 | 4 | □ | 321-12 |
| WXL-LN-EDS | 2.5 × 18 | 3.7 | 55 | 4 | ● | 315 |
| WX-LN-EDS | 2.5 × 18 | 3.7 | 55 | 4 | □ | 321-4 |
| CAP-LN-EDS | 2.5 × 8 | 3.7 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 8 | 3.7 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2.5 × 10 | 3.7 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 10 | 3.7 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2.5 × 12 | 3.7 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 12 | 3.7 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2.5 × 14 | 3.7 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 14 | 3.7 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2.5 × 16 | 3.7 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 16 | 3.7 | 60 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2.5 × 18 | 3.7 | 60 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 18 | 3.7 | 60 | 4 | □ | 321-10 |
| WXL-LN-EDS | 2.5 × 20 | 3.7 | 60 | 4 | ● | 316 |
| WXL-LN-EMS | 2.5 × 20 | 3.7 | 60 | 4 | ● | 320 |
| WX-LN-EDS | 2.5 × 20 | 3.7 | 60 | 4 | □ | 321-4 |
| WX-LN-EMS | 2.5 × 20 | 3.7 | 60 | 4 | □ | 321-12 |
| FX-LN-EDS-6 | 2.5 × 12.5 | 3.7 | 60 | 6 | □ | 321-6 |
| FX-LN-EMS-6 | 2.5 × 12.5 | 3.7 | 60 | 6 | □ | 321-13 |
| CAP-LN-EDS | 2.5 × 20 | 3.7 | 70 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 20 | 3.7 | 70 | 4 | □ | 321-10 |
| CAP-LN-EDS | 2.5 × 25 | 3.7 | 70 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 25 | 3.7 | 70 | 4 | □ | 321-10 |
| WXL-LN-EDS | 2.5 × 25 | 3.7 | 70 | 4 | ● | 316 |
| WXL-LN-EMS | 2.5 × 25 | 3.7 | 70 | 4 | ● | 320 |
| WX-LN-EDS | 2.5 × 25 | 3.7 | 70 | 4 | □ | 321-5 |
| WX-LN-EMS | 2.5 × 25 | 3.7 | 70 | 4 | □ | 321-12 |
| CRN-LN-EDS | 2.5 × 12.5 | 3.7 | 70 | 6 | □ | 321-9 |
| DLC-LN-EDS | 2.5 × 12.5 | 3.7 | 70 | 6 | ● | 317 |
| CRN-LN-EDS | 2.5 × 17.5 | 3.7 | 70 | 6 | □ | 321-9 |
| CRN-LN-EDS | 2.5 × 25 | 3.7 | 70 | 6 | □ | 321-9 |
| CAP-LN-EDS | 2.5 × 30 | 3.7 | 80 | 4 | □ | 321-8 |
| DIA-LN-EDS | 2.5 × 30 | 3.7 | 80 | 4 | □ | 321-10 |
| WXL-LN-EDS | 2.5 × 30 | 3.7 | 80 | 4 | ● | 316 |
| WX-LN-EDS | 2.5 × 30 | 3.7 | 80 | 4 | □ | 321-5 |
| WXL-LN-EDS | 2.5 × 40 | 3.7 | 90 | 4 | ● | 316 |
| WX-LN-EDS | 2.5 × 40 | 3.7 | 90 | 4 | □ | 321-5 |
| WXL-LN-EDS | 2.5 × 50 | 3.7 | 100 | 4 | ● | 316 |
| WX-LN-EDS | 2.5 × 50 | 3.7 | 100 | 4 | □ | 321-5 |
| AE-VMSS | 2.5 | 3.8 | 40 | 4 | ● | 296 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-VMSS | 2.5-RA | 3.8 | 40 | 4 | ● | 297 |
| WXL-1.5D-DE | 2.5 | 3.8 | 45 | 4 | ● | 259 |
| AE-TS-N | 2.5 × 7.5 | 3.8 | 45 | 4 | ● | 278 |
| AE-TS-N | 2.5 × 7.5-SP | 3.8 | 45 | 4 | ● | 279 |
| AE-VTS-N | 2.5 × 7.5 | 3.8 | 45 | 4 | ● | 280 |
| AE-VTS-N | 2.5 × 7.5-SP | 3.8 | 45 | 4 | ● | 281 |
| LN-MG-EDS | 2.5 × 12 | 4 | 45 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.5 × 16 | 4 | 50 | 4 | □ | 321-7 |
| LN-MG-EDS | 2.5 × 22 | 4 | 60 | 4 | □ | 321-7 |
| DIA-2D-DE | 2.5 | 5 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 2.5 | 5 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 2.5 | 5 | 45 | 4 | ● | 260 |
| FXS-EMSS | 2.5 | 5 | 60 | 6 | □ | 311-29 |
| AE-MS-H | 2.5 | 6.3 | 60 | 6 | ● | 290 |
| WXL-3D-DE | 2.5 | 7.5 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.5 | 7.5 | 50 | 6 | □ | 311-18 |
| CRN-EDS-3 | 2.5 | 8 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 2.5 | 8 | 40 | 4 | □ | 311-14 |
| DIA-EDS | 2.5 | 8 | 40 | 4 | □ | 272 |
| FX-MG-EDS | 2.5 | 8 | 40 | 4 | □ | 311-1 |
| FX-MG-EMS | 2.5 | 8 | 40 | 4 | □ | 311-26 |
| GX-EDS | 2.5 | 8 | 40 | 4 | □ | 311-11 |
| GX-EMS | 2.5 | 8 | 40 | 4 | □ | 311-33 |
| MG-EMS OH1 | 2.5 | 8 | 40 | 4 | □ | 311-34 |
| V-MG-EDS | 2.5 | 8 | 40 | 4 | □ | 311-9 |
| WXL-EMS | 2.5 | 8 | 40 | 4 | ● | 287 |
| FXS-EMS | 2.5 | 8 | 60 | 6 | □ | 311-29 |
| CAP-EDS | 2.5 | 8 | 70 | 6 | □ | 311-11 |
| CRN-EDS | 2.5 | 8 | 70 | 6 | □ | 311-12 |
| DIA-EHDS-3 | 2.5 | 9 | 40 | 3 | □ | 311-44 |
| FX-MG-EDN | 2.5 | 10 | 45 | 4 | □ | 311-15 |
| WXL-4D-DE | 2.5 | 10 | 45 | 4 | ● | 264 |
| CRN-EDL-4 | 2.5 × 10 | 10 | 50 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.5 | 10 | 50 | 6 | □ | 311-18 |
| CRN-EDN | 2.5 | 10 | 70 | 6 | □ | 311-16 |
| DIA-EHDL-3 | 2.5 | 11 | 60 | 3 | □ | 311-46 |
| FX-MG-EML | 2.5 | 12 | 45 | 4 | □ | 294 |
| MG-EDL | 2.5 | 12 | 45 | 4 | □ | 276 |
| MG-EML | 2.5 | 12 | 45 | 4 | □ | 295 |
| CRN-EDL | 2.5 | 12 | 70 | 6 | □ | 311-23 |
| CRN-EDL-4 | 2.5 × 12.5 | 12.5 | 50 | 4 | □ | 311-22 |
| FX-MG-EDL-3 | 2.5 | 13 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.5 | 13 | 40 | 3 | □ | 311-20 |
| MG-EDL-4 | 2.5 | 15 | 50 | 4 | □ | 311-20 |
| FX-ED-DL-6 | 2.5 | 15 | 60 | 6 | □ | 311-18 |
| FX-MG-EDLL-3 | 2.5 | 19 | 45 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.5 | 19 | 45 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.5 | 20 | 60 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.55 | 8 | 40 | 3 | □ | 311-10 |
| AE-VMSS | 2.6 | 3.9 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 2.6 | 3.9 | 45 | 4 | ● | 259 |
| LN-MG-EDS | 2.6 × 14.5 | 4 | 45 | 4 | □ | 321-7 |
| DIA-2D-DE | 2.6 | 5.2 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 2.6 | 5.2 | 45 | 4 | ● | 260 |
| WXL-3D-DE | 2.6 | 7.8 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.6 | 7.8 | 50 | 6 | □ | 311-18 |
| CRN-EDS-3 | 2.6 | 8 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 2.6 | 8 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 2.6 | 8 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 2.6 | 8 | 40 | 4 | □ | 311-1 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EMS | 2.6 | 8 | 40 | 4 | □ | 292 |
| DIA-EHDS-3 | 2.6 | 9 | 40 | 3 | □ | 311-44 |
| CRN-EDL-4 | 2.6 × 10.4 | 10.4 | 50 | 4 | □ | 311-22 |
| WXL-4D-DE | 2.6 | 10.4 | 50 | 4 | ● | 264 |
| DIA-EHDL-3 | 2.6 | 11.5 | 60 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 2.6 | 13 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.6 | 13 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 2.6 × 13 | 13 | 50 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.6 | 13 | 50 | 6 | □ | 311-18 |
| MG-EDL-4 | 2.6 | 17 | 50 | 4 | □ | 311-20 |
| FX-MG-EDLL-3 | 2.6 | 20 | 50 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.6 | 20 | 50 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.6 | 20.8 | 60 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.65 | 8 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 2.7 × 14.5 | 4 | 45 | 4 | □ | 321-7 |
| AE-VMSS | 2.7 | 4.1 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 2.7 | 4.1 | 45 | 4 | ● | 259 |
| DIA-2D-DE | 2.7 | 5.4 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 2.7 | 5.4 | 45 | 4 | ● | 260 |
| CRN-EDS-3 | 2.7 | 8 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 2.7 | 8 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 2.7 | 8 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 2.7 | 8 | 40 | 4 | □ | 311-1 |
| MG-EMS | 2.7 | 8 | 40 | 4 | □ | 292 |
| WXL-3D-DE | 2.7 | 8.1 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.7 | 8.1 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 2.7 | 9 | 40 | 3 | □ | 311-44 |
| CRN-EDL-4 | 2.7 × 10.8 | 10.8 | 50 | 4 | □ | 311-22 |
| WXL-4D-DE | 2.7 | 10.8 | 50 | 4 | ● | 264 |
| DIA-EHDL-3 | 2.7 | 12 | 60 | 3 | □ | 311-46 |
| CRN-EDL-4 | 2.7 × 13.5 | 13.5 | 50 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.7 | 13.5 | 50 | 6 | □ | 311-18 |
| FX-MG-EDL-3 | 2.7 | 14 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.7 | 14 | 40 | 3 | □ | 311-20 |
| MG-EDL-4 | 2.7 | 17 | 50 | 4 | □ | 311-20 |
| FX-MG-EDLL-3 | 2.7 | 20 | 50 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.7 | 20 | 50 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.7 | 21.6 | 60 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.75 | 8 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 2.8 × 14.5 | 4 | 45 | 4 | □ | 321-7 |
| AE-VMSS | 2.8 | 4.2 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 2.8 | 4.2 | 45 | 4 | ● | 259 |
| DIA-2D-DE | 2.8 | 5.6 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 2.8 | 5.6 | 45 | 4 | ● | 260 |
| CRN-EDS-3 | 2.8 | 8 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 2.8 | 8 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 2.8 | 8 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 2.8 | 8 | 40 | 4 | □ | 311-1 |
| MG-EMS | 2.8 | 8 | 40 | 4 | □ | 292 |
| WXL-3D-DE | 2.8 | 8.4 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.8 | 8.4 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 2.8 | 9 | 40 | 3 | □ | 311-44 |
| CRN-EDL-4 | 2.8 × 11.2 | 11.2 | 50 | 4 | □ | 311-22 |
| WXL-4D-DE | 2.8 | 11.2 | 50 | 4 | ● | 264 |
| DIA-EHDL-3 | 2.8 | 12.5 | 60 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 2.8 | 14 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.8 | 14 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 2.8 × 14 | 14 | 50 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.8 | 14 | 50 | 6 | □ | 311-18 |
| MG-EDL-4 | 2.8 | 17 | 50 | 4 | □ | 311-20 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EDLL-3 | 2.8 | 21 | 50 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.8 | 21 | 50 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.8 | 22.4 | 60 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.85 | 8 | 40 | 3 | □ | 311-10 |
| LN-MG-EDS | 2.9 × 14.5 | 4 | 45 | 4 | □ | 321-7 |
| AE-VMSS | 2.9 | 4.4 | 40 | 4 | ● | 296 |
| WXL-1.5D-DE | 2.9 | 4.4 | 45 | 4 | ● | 259 |
| DIA-2D-DE | 2.9 | 5.8 | 40 | 4 | □ | 311-8 |
| WXL-2D-DE | 2.9 | 5.8 | 45 | 4 | ● | 260 |
| CRN-EDS-3 | 2.9 | 8 | 40 | 3 | □ | 311-12 |
| CAP-EDS-SF | 2.9 | 8 | 40 | 4 | □ | 311-14 |
| CA-RG-EDS | 2.9 | 8 | 40 | 4 | □ | 270 |
| FX-MG-EDS | 2.9 | 8 | 40 | 4 | □ | 311-1 |
| MG-EMS | 2.9 | 8 | 40 | 4 | □ | 292 |
| WXL-3D-DE | 2.9 | 8.7 | 45 | 4 | ● | 263 |
| FX-ED-DL-6 | 2.9 | 8.7 | 50 | 6 | □ | 311-18 |
| DIA-EHDS-3 | 2.9 | 9 | 40 | 3 | □ | 311-44 |
| CRN-EDL-4 | 2.9 × 11.6 | 11.6 | 50 | 4 | □ | 311-22 |
| WXL-4D-DE | 2.9 | 11.6 | 50 | 4 | ● | 264 |
| DIA-EHDL-3 | 2.9 | 13 | 60 | 3 | □ | 311-46 |
| CRN-EDL-4 | 2.9 × 14.5 | 14.5 | 50 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 2.9 | 14.5 | 50 | 6 | □ | 311-18 |
| FX-MG-EDL-3 | 2.9 | 15 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 2.9 | 15 | 40 | 3 | □ | 311-20 |
| MG-EDL-4 | 2.9 | 17 | 50 | 4 | □ | 311-20 |
| FX-MG-EDLL-3 | 2.9 | 22 | 50 | 3 | □ | 311-19 |
| MG-EDLL-3 | 2.9 | 22 | 50 | 3 | □ | 311-21 |
| FX-ED-DL-6 | 2.9 | 23.2 | 60 | 6 | □ | 311-18 |
| TIN-MG-EDS-3 | 2.95 | 8 | 40 | 3 | □ | 311-10 |
| FX-EDSS-6 | 3 | 3.6 | 50 | 6 | □ | 311-6 |
| LN-MG-EDS | 3 × 14.5 | 4 | 45 | 4 | □ | 321-7 |
| AE-VMSS | 3 | 4.5 | 45 | 6 | ● | 296 |
| AE-VMSS | 3-RA | 4.5 | 45 | 6 | ● | 297 |
| AE-VTSS | 3 × 4.5 × 6 | 4.5 | 45 | 6 | ● | 309 |
| WXL-1.5D-DE | 3 | 4.5 | 45 | 6 | ● | 259 |
| WXL-LN-EDS | 3 × 8 | 4.5 | 45 | 6 | ● | 316 |
| WXL-LN-EMS | 3 × 8 | 4.5 | 45 | 6 | ● | 320 |
| WX-LN-EDS | 3 × 8 | 4.5 | 45 | 6 | □ | 321-5 |
| WX-LN-EMS | 3 × 8 | 4.5 | 45 | 6 | □ | 321-12 |
| AE-MSS-H | 3 × 9 | 4.5 | 45 | 6 | ● | 289 |
| WXL-LN-EDS | 3 × 10 | 4.5 | 45 | 6 | ● | 316 |
| WX-LN-EDS | 3 × 10 | 4.5 | 45 | 6 | □ | 321-5 |
| WXL-LN-EDS | 3 × 12 | 4.5 | 45 | 6 | ● | 316 |
| WXL-LN-EMS | 3 × 12 | 4.5 | 45 | 6 | ● | 320 |
| WX-LN-EDS | 3 × 12 | 4.5 | 45 | 6 | □ | 321-5 |
| WX-LN-EMS | 3 × 12 | 4.5 | 45 | 6 | □ | 321-12 |
| FX-MG-EDSS | 3 | 4.5 | 50 | 6 | □ | 311-4 |
| FX-MG-EMSS | 3 | 4.5 | 50 | 6 | □ | 311-27 |
| IT-EDS | 3 | 4.5 | 50 | 6 | □ | 311-14 |
| IT-EMS | 3 | 4.5 | 50 | 6 | □ | 311-36 |
| WX-SHTSS | 3 | 4.5 | 50 | 6 | ● | 308 |
| CRN-HS-EDS | 3 × 7.5 | 4.5 | 50 | 6 | □ | 311-13 |
| WXL-LN-EDS | 3 × 14 | 4.5 | 50 | 6 | ● | 316 |
| WX-LN-EDS | 3 × 14 | 4.5 | 50 | 6 | □ | 321-5 |
| AE-TS-N | 3 × 9 | 4.5 | 55 | 6 | ● | 278 |
| AE-TS-N | 3 × 9-SP | 4.5 | 55 | 6 | ● | 279 |
| AE-VTS-N | 3 × 9 | 4.5 | 55 | 6 | ● | 280 |
| AE-VTS-N | 3 × 9-SP | 4.5 | 55 | 6 | ● | 281 |
| WXL-LN-EDS | 3 × 16 | 4.5 | 55 | 6 | ● | 316 |
| WXL-LN-EMS | 3 × 16 | 4.5 | 55 | 6 | ● | 320 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WX-LN-EDS | 3 × 16 | 4.5 | 55 | 6 | □ | 321-5 |
| WX-LN-EMS | 3 × 16 | 4.5 | 55 | 6 | □ | 321-12 |
| WXL-LN-EDS | 3 × 18 | 4.5 | 55 | 6 | ● | 316 |
| WX-LN-EDS | 3 × 18 | 4.5 | 55 | 6 | □ | 321-5 |
| WXL-LN-EDS | 3 × 20 | 4.5 | 60 | 6 | ● | 316 |
| WXL-LN-EMS | 3 × 20 | 4.5 | 60 | 6 | ● | 320 |
| WX-LN-EDS | 3 × 20 | 4.5 | 60 | 6 | □ | 321-5 |
| WX-LN-EMS | 3 × 20 | 4.5 | 60 | 6 | □ | 321-12 |
| WXL-LN-EDS | 3 × 25 | 4.5 | 65 | 6 | ● | 316 |
| WXL-LN-EMS | 3 × 25 | 4.5 | 65 | 6 | ● | 320 |
| WX-LN-EDS | 3 × 25 | 4.5 | 65 | 6 | □ | 321-5 |
| WX-LN-EMS | 3 × 25 | 4.5 | 65 | 6 | □ | 321-12 |
| CAP-LN-EDS | 3 × 8 | 4.5 | 70 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 8 | 4.5 | 70 | 6 | □ | 321-10 |
| CAP-LN-EDS | 3 × 10 | 4.5 | 70 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 10 | 4.5 | 70 | 6 | □ | 321-10 |
| CAP-LN-EDS | 3 × 12 | 4.5 | 70 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 12 | 4.5 | 70 | 6 | □ | 321-10 |
| CAP-LN-EDS | 3 × 14 | 4.5 | 70 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 14 | 4.5 | 70 | 6 | □ | 321-10 |
| CRN-LN-EDS | 3 × 15 | 4.5 | 70 | 6 | □ | 321-9 |
| DLC-LN-EDS | 3 × 15 | 4.5 | 70 | 6 | ● | 317 |
| FX-LN-EMS-6 | 3 × 15 | 4.5 | 70 | 6 | □ | 321-13 |
| CAP-LN-EDS | 3 × 16 | 4.5 | 80 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 16 | 4.5 | 80 | 6 | □ | 321-10 |
| CAP-LN-EDS | 3 × 18 | 4.5 | 80 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 18 | 4.5 | 80 | 6 | □ | 321-10 |
| CAP-LN-EDS | 3 × 20 | 4.5 | 80 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 20 | 4.5 | 80 | 6 | □ | 321-10 |
| CAP-LN-EDS | 3 × 25 | 4.5 | 80 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 25 | 4.5 | 80 | 6 | □ | 321-10 |
| CRN-LN-EDS | 3 × 30 | 4.5 | 80 | 6 | □ | 321-9 |
| WXL-LN-EDS | 3 × 30 | 4.5 | 80 | 6 | ● | 316 |
| WXL-LN-EMS | 3 × 30 | 4.5 | 80 | 6 | ● | 320 |
| WX-LN-EDS | 3 × 30 | 4.5 | 80 | 6 | □ | 321-5 |
| WX-LN-EMS | 3 × 30 | 4.5 | 80 | 6 | □ | 321-12 |
| CAP-LN-EDS | 3 × 30 | 4.5 | 90 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 30 | 4.5 | 90 | 6 | □ | 321-10 |
| WXL-LN-EDS | 3 × 35 | 4.5 | 90 | 6 | ● | 316 |
| WX-LN-EDS | 3 × 35 | 4.5 | 90 | 6 | □ | 321-5 |
| WXL-LN-EDS | 3 × 40 | 4.5 | 90 | 6 | ● | 316 |
| WX-LN-EDS | 3 × 40 | 4.5 | 90 | 6 | □ | 321-5 |
| CAP-LN-EDS | 3 × 40 | 4.5 | 100 | 6 | □ | 321-8 |
| DIA-LN-EDS | 3 × 40 | 4.5 | 100 | 6 | □ | 321-10 |
| WXL-LN-EDS | 3 × 50 | 4.5 | 100 | 6 | ● | 316 |
| WX-LN-EDS | 3 × 50 | 4.5 | 100 | 6 | □ | 321-5 |
| SH-MG-EDS | 3 | 5 | 45 | 6 | □ | 311-10 |
| DIA-ETS | 3 | 5 | 50 | 6 | □ | 311-26 |
| FX-NC-EDSS | 3 | 6 | 35 | 3 | □ | 311-7 |
| FX-NC-EMSS | 3 | 6 | 35 | 3 | □ | 311-28 |
| FX-NC-EMSS | 3 | 6 | 35 | 4 | □ | 311-28 |
| NC-EMSS | 3 | 6 | 35 | 4 | □ | 311-33 |
| DIA-2D-DE | 3 | 6 | 40 | 4 | □ | 311-8 |
| DLC-EDS | 3 | 6 | 40 | 4 | ● | 272 |
| WXL-2D-DE | 3 | 6 | 45 | 6 | ● | 260 |
| DG-LN-EMS | 3 × 15 | 6 | 60 | 4 | ● | 321 |
| FXS-EMSS | 3 | 6 | 60 | 6 | □ | 311-29 |
| DG-LN-EMS | 3 × 30 | 6 | 70 | 4 | ● | 321 |
| AE-MS-H | 3 | 7.5 | 60 | 6 | ● | 290 |
| CRN-EDS-3 | 3 | 8 | 40 | 3 | □ | 311-12 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-EDS-SF | 3 | 8 | 40 | 4 | □ | 311-14 |
| DIA-EDS | 3 | 8 | 45 | 6 | ● | 272 |
| DLC-MR-EDS | 3 | 8 | 45 | 6 | □ | 311-8 |
| DLC-MR-EMS | 3 | 8 | 45 | 6 | □ | 311-31 |
| FX-MG-EDS | 3 | 8 | 45 | 6 | □ | 311-1 |
| FX-MG-EDS OH1 | 3 | 8 | 45 | 6 | □ | 311-4 |
| FX-MG-EMS | 3 | 8 | 45 | 6 | □ | 311-26 |
| FX-MG-EMS OH1 | 3 | 8 | 45 | 6 | □ | 311-27 |
| FX-MR-EDS | 3 | 8 | 45 | 6 | □ | 311-7 |
| FX-MR-EMS | 3 | 8 | 45 | 6 | □ | 311-28 |
| GX-EDS | 3 | 8 | 45 | 6 | □ | 311-11 |
| GX-EMS | 3 | 8 | 45 | 6 | □ | 311-33 |
| MG-EMS OH1 | 3 | 8 | 45 | 6 | □ | 311-34 |
| V-MG-EDS | 3 | 8 | 45 | 6 | □ | 311-9 |
| WXL-EMS | 3 | 8 | 45 | 6 | ● | 287 |
| SXL-MG-EHS | 3 × 3F | 8 | 50 | 6 | □ | 311-40 |
| SXL-MG-EHS | 3 × 4F | 8 | 50 | 6 | □ | 311-40 |
| AE-VMS | 3-G | 8 | 60 | 6 | ● | 300 |
| AE-VMS | 3 | 8 | 60 | 6 | ● | 301 |
| AE-VMS | 3-RA | 8 | 60 | 6 | ● | 302 |
| AE-VMS | 3 | 8 | 60 | 6 | ● | 370 |
| UP-PHS | 3 | 8 | 60 | 6 | ● | 303 |
| CAP-EDS | 3 | 8 | 70 | 6 | □ | 311-11 |
| CRN-EDS | 3 | 8 | 70 | 6 | □ | 311-12 |
| CRN-EMS | 3 | 8 | 70 | 6 | □ | 311-35 |
| WXL-3D-DE | 3 | 9 | 45 | 6 | ● | 263 |
| FX-ED-DL-6 | 3 | 9 | 50 | 6 | □ | 311-18 |
| AE-TL-N | 3 × 9 | 9 | 55 | 6 | ● | 284 |
| AE-TL-N | 3 × 9-SP | 9 | 55 | 6 | ● | 285 |
| SEP-EL | 3 × 9 | 9 | 55 | 6 | ● | 286 |
| DLC-E1-3D | 3 | 9 | 60 | 6 | □ | 311-48 |
| DLC-E2-3D | 3 | 9 | 60 | 6 | □ | 311-50 |
| DLC-E1-3D-L | 3 | 9 | 65 | 6 | □ | 311-48 |
| DLC-E2-3D-L | 3 | 9 | 65 | 6 | □ | 311-50 |
| FX-MG-EDN | 3 | 10 | 50 | 6 | □ | 311-15 |
| FXS-EMS | 3 | 10 | 60 | 6 | □ | 311-29 |
| WX-PHN | 3 | 10 | 60 | 6 | ● | 304 |
| CRN-EDN | 3 | 10 | 70 | 6 | □ | 311-16 |
| FXS-LS-EMS | 3 | 10 | 80 | 6 | □ | 311-30 |
| DIA-EHDS-3 | 3 | 11 | 50 | 3 | □ | 311-44 |
| DIA-EHDS | 3 | 11 | 50 | 6 | □ | 311-42 |
| DIA-LS-EHDS | 3 | 11 | 150 | 6 | □ | 311-44 |
| CRN-EDL-4 | 3 × 12 | 12 | 50 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 3 | 12 | 50 | 6 | □ | 311-18 |
| WXL-4D-DE | 3 | 12 | 50 | 6 | ● | 264 |
| AE-ML-H | 3 × 12 | 12 | 60 | 6 | ● | 307 |
| WX-PHL | 3 | 12 | 60 | 6 | ● | 306 |
| CAP-EDL | 3 | 12 | 70 | 6 | □ | 311-21 |
| CRN-EDL | 3 | 12 | 70 | 6 | □ | 311-23 |
| CRN-EML | 3 | 12 | 70 | 6 | □ | 311-37 |
| DIA-EHDL-3 | 3 | 13.5 | 65 | 3 | □ | 311-46 |
| FX-MG-EDL-3 | 3 | 15 | 40 | 3 | □ | 311-19 |
| MG-EDL-3 | 3 | 15 | 40 | 3 | □ | 311-20 |
| CRN-EDL-4 | 3 × 15 | 15 | 50 | 4 | □ | 311-22 |
| FX-ED-DL-6 | 3 | 15 | 50 | 6 | □ | 311-18 |
| AE-TL-N | 3 × 15 | 15 | 55 | 6 | ● | 284 |
| AE-TL-N | 3 × 15-SP | 15 | 55 | 6 | ● | 285 |
| SEP-EL | 3 × 15 | 15 | 55 | 6 | ● | 286 |
| DLC-E1-5D | 3 | 15 | 60 | 6 | □ | 311-49 |
| DLC-E2-5D | 3 | 15 | 60 | 6 | □ | 311-51 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DLC-E1-5D-L | 3 | 15 | 65 | 6 | □ | 311-49 |
| DLC-E2-5D-L | 3 | 15 | 65 | 6 | □ | 311-51 |
| CRN-EDLL | 3 | 15 | 70 | 6 | □ | 311-23 |
| GF-EDR | 3 | 15 | 75 | 4 | □ | 311-24 |
| GF-EMR | 3 | 15 | 75 | 4 | □ | 311-37 |
| GF-LS-EDR | 3 | 15 | 100 | 4 | □ | 311-24 |
| GF-LS-EMR | 3 | 15 | 100 | 4 | □ | 311-38 |
| FX-ED-DL-6 | 3 | 18 | 60 | 6 | □ | 311-18 |
| DIA-EOE | 3 | 20 | 60 | 6 | □ | 311-47 |
| FX-MG-EDLL-3 | 3 | 22 | 50 | 3 | □ | 311-19 |
| MG-EDLL-3 | 3 | 22 | 50 | 3 | □ | 311-21 |
| DIA-EHDL | 3 | 22 | 65 | 6 | □ | 311-45 |
| DIA-LS-EHDL | 3 | 22 | 150 | 6 | □ | 311-47 |
| FX-ED-DL-6 | 3 | 24 | 70 | 6 | □ | 311-18 |
| FX-ED-DL-6 | 3 | 30 | 70 | 6 | □ | 311-18 |
| FX-MG-EXDL | 3 | 30 | 70 | 6 | □ | 275 |
| MG-EXDL | 3 | 30 | 70 | 6 | □ | 276 |
| MG-EXML | 3 | 30 | 70 | 6 | □ | 295 |
| GF-EDL | 3 | 30 | 100 | 6 | □ | 311-25 |
| GF-EML | 3 | 30 | 100 | 6 | □ | 311-38 |
| FX-ED-DL-6 | 3 | 40 | 80 | 6 | □ | 311-18 |
| FX-MG-EXDL | 3 | 40 | 80 | 6 | □ | 275 |
| MG-EXDL | 3 | 40 | 80 | 6 | □ | 276 |
| MG-EXML | 3 | 40 | 80 | 6 | □ | 295 |
| AE-VMSS | 3.1 | 4.7 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 3.1 | 4.7 | 45 | 6 | ● | 259 |
| WXL-2D-DE | 3.1 | 6.2 | 45 | 6 | ● | 260 |
| WXL-3D-DE | 3.1 | 9.3 | 45 | 6 | ● | 263 |
| CA-RG-EDS | 3.1 | 10 | 45 | 6 | □ | 270 |
| FX-MG-EDS | 3.1 | 10 | 45 | 6 | □ | 311-1 |
| MG-EMS | 3.1 | 10 | 45 | 6 | □ | 292 |
| CA-ETS | 3.1 | 10 | 50 | 6 | □ | 282 |
| DIA-EHDS | 3.1 | 11 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 3.1 | 12.4 | 50 | 6 | ● | 264 |
| DIA-EHDL | 3.1 | 22 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 3.2 | 4.8 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 3.2 | 4.8 | 45 | 6 | ● | 259 |
| WXL-2D-DE | 3.2 | 6.4 | 45 | 6 | ● | 260 |
| WXL-3D-DE | 3.2 | 9.6 | 45 | 6 | ● | 263 |
| CA-RG-EDS | 3.2 | 10 | 45 | 6 | □ | 270 |
| FX-MG-EDS | 3.2 | 10 | 45 | 6 | □ | 311-1 |
| MG-EMS | 3.2 | 10 | 45 | 6 | □ | 292 |
| CA-ETS | 3.2 | 10 | 50 | 6 | □ | 282 |
| DIA-EHDS | 3.2 | 11 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 3.2 | 12.8 | 50 | 6 | ● | 264 |
| DIA-EHDL | 3.2 | 22 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 3.3 | 5 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 3.3 | 5 | 45 | 6 | ● | 259 |
| WXL-2D-DE | 3.3 | 6.6 | 45 | 6 | ● | 260 |
| WXL-3D-DE | 3.3 | 9.9 | 45 | 6 | ● | 263 |
| CA-RG-EDS | 3.3 | 10 | 45 | 6 | □ | 270 |
| FX-MG-EDS | 3.3 | 10 | 45 | 6 | □ | 311-1 |
| MG-EMS | 3.3 | 10 | 45 | 6 | □ | 292 |
| CA-ETS | 3.3 | 10 | 50 | 6 | □ | 282 |
| DIA-EHDS | 3.3 | 11 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 3.3 | 13.2 | 50 | 6 | ● | 264 |
| DIA-EHDL | 3.3 | 22 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 3.4 | 5.1 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 3.4 | 5.1 | 45 | 6 | ● | 259 |
| WXL-2D-DE | 3.4 | 6.8 | 45 | 6 | ● | 260 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CA-RG-EDS | 3.4 | 10 | 45 | 6 | □ | 270 |
| FX-MG-EDS | 3.4 | 10 | 45 | 6 | □ | 311-1 |
| MG-EMS | 3.4 | 10 | 45 | 6 | □ | 292 |
| CA-ETS | 3.4 | 10 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 3.4 | 10.2 | 45 | 6 | ● | 263 |
| DIA-EHDS | 3.4 | 11 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 3.4 | 13.6 | 50 | 6 | ● | 264 |
| DIA-EHDL | 3.4 | 22 | 65 | 6 | □ | 311-45 |
| FX-EDSS-6 | 3.5 | 4.2 | 50 | 6 | □ | 311-6 |
| FX-MG-EDSS | 3.5 | 5.2 | 50 | 6 | □ | 311-4 |
| FX-MG-EMSS | 3.5 | 5.2 | 50 | 6 | □ | 311-27 |
| AE-VMSS | 3.5 | 5.3 | 45 | 6 | ● | 296 |
| AE-VMSS | 3.5-RA | 5.3 | 45 | 6 | ● | 297 |
| WXL-1.5D-DE | 3.5 | 5.3 | 45 | 6 | ● | 259 |
| WX-SHTSS | 3.5 | 5.3 | 50 | 6 | ● | 308 |
| FX-LN-EMS-6 | 3.5 × 17.5 | 5.3 | 70 | 6 | □ | 321-13 |
| WXL-2D-DE | 3.5 | 7 | 45 | 6 | ● | 260 |
| FXS-EMSS | 3.5 | 7 | 60 | 6 | □ | 311-29 |
| DIA-EDS | 3.5 | 10 | 45 | 6 | □ | 272 |
| FX-MG-EDS | 3.5 | 10 | 45 | 6 | □ | 311-1 |
| FX-MG-EMS | 3.5 | 10 | 45 | 6 | □ | 311-26 |
| MG-EMS OH1 | 3.5 | 10 | 45 | 6 | □ | 311-34 |
| V-MG-EDS | 3.5 | 10 | 45 | 6 | □ | 311-9 |
| WXL-EMS | 3.5 | 10 | 45 | 6 | ● | 287 |
| CAP-EDS | 3.5 | 10 | 70 | 6 | □ | 311-11 |
| CRN-EDS | 3.5 | 10 | 70 | 6 | □ | 311-12 |
| WXL-3D-DE | 3.5 | 10.5 | 45 | 6 | ● | 263 |
| DIA-EHDS | 3.5 | 12 | 50 | 6 | □ | 311-42 |
| FX-MG-EDN | 3.5 | 12 | 50 | 6 | □ | 311-15 |
| FXS-EMS | 3.5 | 12 | 60 | 6 | □ | 311-29 |
| CRN-EDN | 3.5 | 12 | 70 | 6 | □ | 311-16 |
| WXL-4D-DE | 3.5 | 14 | 50 | 6 | ● | 264 |
| CAP-EDL | 3.5 | 14 | 70 | 6 | □ | 311-21 |
| CRN-EDL | 3.5 | 14 | 70 | 6 | □ | 311-23 |
| DIA-EOE | 3.5 | 22 | 60 | 6 | □ | 311-47 |
| DIA-EHDL | 3.5 | 24 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 3.6 | 5.4 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 3.6 | 5.4 | 45 | 6 | ● | 259 |
| WXL-2D-DE | 3.6 | 7.2 | 45 | 6 | ● | 260 |
| CA-RG-EDS | 3.6 | 10 | 45 | 6 | □ | 270 |
| FX-MG-EDS | 3.6 | 10 | 45 | 6 | □ | 311-1 |
| MG-EMS | 3.6 | 10 | 45 | 6 | □ | 292 |
| CA-ETS | 3.6 | 10 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 3.6 | 10.8 | 45 | 6 | ● | 263 |
| DIA-EHDS | 3.6 | 12 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 3.6 | 14.4 | 50 | 6 | ● | 264 |
| DIA-EHDL | 3.6 | 24 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 3.7 | 5.6 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 3.7 | 5.6 | 45 | 6 | ● | 259 |
| WXL-2D-DE | 3.7 | 7.4 | 45 | 6 | ● | 260 |
| CA-RG-EDS | 3.7 | 10 | 45 | 6 | □ | 270 |
| FX-MG-EDS | 3.7 | 10 | 45 | 6 | □ | 311-1 |
| MG-EMS | 3.7 | 10 | 45 | 6 | □ | 292 |
| CA-ETS | 3.7 | 10 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 3.7 | 11.1 | 45 | 6 | ● | 263 |
| DIA-EHDS | 3.7 | 12 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 3.7 | 14.8 | 50 | 6 | ● | 264 |
| DIA-EHDL | 3.7 | 24 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 3.8 | 5.7 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 3.8 | 5.7 | 45 | 6 | ● | 259 |
| WXL-2D-DE | 3.8 | 7.6 | 45 | 6 | ● | 260 |
| CA-RG-EDS | 3.8 | 11 | 45 | 6 | □ | 270 |
| FX-MG-EDS | 3.8 | 11 | 45 | 6 | □ | 311-1 |
| MG-EMS | 3.8 | 11 | 45 | 6 | □ | 292 |
| CA-ETS | 3.8 | 11 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 3.8 | 11.4 | 45 | 6 | ● | 263 |
| DIA-EHDS | 3.8 | 12 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 3.8 | 15.2 | 50 | 6 | ● | 264 |
| DIA-EHDL | 3.8 | 24 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 3.9 | 5.9 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 3.9 | 5.9 | 45 | 6 | ● | 259 |
| WXL-2D-DE | 3.9 | 7.8 | 45 | 6 | ● | 260 |
| CA-RG-EDS | 3.9 | 11 | 45 | 6 | □ | 271 |
| FX-MG-EDS | 3.9 | 11 | 45 | 6 | □ | 311-1 |
| MG-EMS | 3.9 | 11 | 45 | 6 | □ | 292 |
| CA-ETS | 3.9 | 11 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 3.9 | 11.7 | 45 | 6 | ● | 263 |
| DIA-EHDS | 3.9 | 12 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 3.9 | 15.6 | 50 | 6 | ● | 264 |
| DIA-EHDL | 3.9 | 24 | 65 | 6 | □ | 311-45 |
| FX-EDSS-6 | 4 | 4.8 | 50 | 6 | □ | 311-6 |
| FX-NC-EDSS | 4 | 6 | 35 | 4 | □ | 311-7 |
| FX-NC-EMSS | 4 | 6 | 35 | 4 | □ | 311-28 |
| NC-EMSS | 4 | 6 | 35 | 4 | □ | 311-33 |
| AE-VMSS | 4 | 6 | 45 | 6 | ● | 296 |
| AE-VMSS | 4-RA | 6 | 45 | 6 | ● | 297 |
| AE-VTSS | 4 × 6 × 6 | 6 | 45 | 6 | ● | 309 |
| WXL-1.5D-DE | 4 | 6 | 45 | 6 | ● | 259 |
| DIA-ETS | 4 | 6 | 50 | 6 | □ | 311-26 |
| FX-MG-EDSS | 4 | 6 | 50 | 6 | □ | 311-4 |
| FX-MG-EMSS | 4 | 6 | 50 | 6 | □ | 311-27 |
| IT-EDS | 4 | 6 | 50 | 6 | □ | 311-14 |
| IT-EMS | 4 | 6 | 50 | 6 | □ | 311-36 |
| WX-SHTSS | 4 | 6 | 50 | 6 | ● | 308 |
| CRN-HS-EDS | 4 × 10 | 6 | 50 | 6 | □ | 311-13 |
| AE-MSS-H | 4 × 12 | 6 | 50 | 6 | ● | 289 |
| WXL-LN-EDS | 4 × 12 | 6 | 50 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 12 | 6 | 50 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 12 | 6 | 50 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 12 | 6 | 50 | 6 | □ | 321-12 |
| AE-TS-N | 4 × 12 | 6 | 55 | 6 | ● | 278 |
| AE-TS-N | 4 × 12-SP | 6 | 55 | 6 | ● | 279 |
| AE-VTS-N | 4 × 12 | 6 | 55 | 6 | ● | 280 |
| AE-VTS-N | 4 × 12-SP | 6 | 55 | 6 | ● | 281 |
| WXL-LN-EDS | 4 × 16 | 6 | 60 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 16 | 6 | 60 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 16 | 6 | 60 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 16 | 6 | 60 | 6 | □ | 321-12 |
| WXL-LN-EDS | 4 × 20 | 6 | 60 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 20 | 6 | 60 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 20 | 6 | 60 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 20 | 6 | 60 | 6 | □ | 321-12 |
| CAP-LN-EDS | 4 × 12 | 6 | 70 | 6 | □ | 321-8 |
| DIA-LN-EDS | 4 × 12 | 6 | 70 | 6 | □ | 321-10 |
| FX-LN-EMS-6 | 4 × 20 | 6 | 70 | 6 | □ | 321-13 |
| WXL-LN-EDS | 4 × 25 | 6 | 70 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 25 | 6 | 70 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 25 | 6 | 70 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 25 | 6 | 70 | 6 | □ | 321-12 |
| CAP-LN-EDS | 4 × 16 | 6 | 80 | 6 | □ | 321-8 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DIA-LN-EDS | 4 × 16 | 6 | 80 | 6 | □ | 321-10 |
| CAP-LN-EDS | 4 × 20 | 6 | 80 | 6 | □ | 321-8 |
| CRN-LN-EDS | 4 × 20 | 6 | 80 | 6 | □ | 321-9 |
| DIA-LN-EDS | 4 × 20 | 6 | 80 | 6 | □ | 321-10 |
| DLC-LN-EDS | 4 × 20 | 6 | 80 | 6 | ● | 317 |
| CAP-LN-EDS | 4 × 25 | 6 | 80 | 6 | □ | 321-8 |
| DIA-LN-EDS | 4 × 25 | 6 | 80 | 6 | □ | 321-10 |
| WXL-LN-EDS | 4 × 30 | 6 | 80 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 30 | 6 | 80 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 30 | 6 | 80 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 30 | 6 | 80 | 6 | □ | 321-12 |
| CAP-LN-EDS | 4 × 30 | 6 | 90 | 6 | □ | 321-8 |
| DIA-LN-EDS | 4 × 30 | 6 | 90 | 6 | □ | 321-10 |
| CAP-LN-EDS | 4 × 35 | 6 | 90 | 6 | □ | 321-8 |
| DIA-LN-EDS | 4 × 35 | 6 | 90 | 6 | □ | 321-10 |
| WXL-LN-EDS | 4 × 35 | 6 | 90 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 35 | 6 | 90 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 35 | 6 | 90 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 35 | 6 | 90 | 6 | □ | 321-12 |
| CRN-LN-EDS | 4 × 40 | 6 | 90 | 6 | □ | 321-9 |
| WXL-LN-EDS | 4 × 40 | 6 | 90 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 40 | 6 | 90 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 40 | 6 | 90 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 40 | 6 | 90 | 6 | □ | 321-12 |
| CAP-LN-EDS | 4 × 40 | 6 | 100 | 6 | □ | 321-8 |
| DIA-LN-EDS | 4 × 40 | 6 | 100 | 6 | □ | 321-10 |
| WXL-LN-EDS | 4 × 45 | 6 | 100 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 45 | 6 | 100 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 45 | 6 | 100 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 45 | 6 | 100 | 6 | □ | 321-12 |
| WXL-LN-EDS | 4 × 50 | 6 | 100 | 6 | ● | 316 |
| WXL-LN-EMS | 4 × 50 | 6 | 100 | 6 | ● | 320 |
| WX-LN-EDS | 4 × 50 | 6 | 100 | 6 | □ | 321-5 |
| WX-LN-EMS | 4 × 50 | 6 | 100 | 6 | □ | 321-12 |
| WXL-LN-EDS | 4 × 60 | 6 | 110 | 6 | ● | 316 |
| WX-LN-EDS | 4 × 60 | 6 | 110 | 6 | □ | 321-5 |
| DLC-EDS | 4 | 8 | 45 | 6 | ● | 272 |
| SH-MG-EDS | 4 | 8 | 45 | 6 | □ | 311-10 |
| WXL-2D-DE | 4 | 8 | 45 | 6 | ● | 260 |
| FXS-EMSS | 4 | 8 | 60 | 6 | □ | 311-29 |
| DG-EMS | 4 | 8 | 80 | 4 | ● | 293 |
| DG-LN-EMS | 4 × 40 | 8 | 100 | 4 | ● | 321 |
| AE-MS-H | 4 | 10 | 60 | 6 | ● | 290 |
| DIA-EDS | 4 | 11 | 45 | 6 | ● | 272 |
| DLC-MR-EDS | 4 | 11 | 45 | 6 | □ | 311-8 |
| DLC-MR-EMS | 4 | 11 | 45 | 6 | □ | 311-31 |
| FX-MG-EDS | 4 | 11 | 45 | 6 | □ | 311-1 |
| FX-MG-EDS OH1 | 4 | 11 | 45 | 6 | □ | 311-4 |
| FX-MG-EMS | 4 | 11 | 45 | 6 | □ | 311-26 |
| FX-MG-EMS OH1 | 4 | 11 | 45 | 6 | □ | 311-27 |
| FX-MR-EDS | 4 | 11 | 45 | 6 | □ | 311-7 |
| FX-MR-EMS | 4 | 11 | 45 | 6 | □ | 311-28 |
| GX-EDS | 4 | 11 | 45 | 6 | □ | 311-11 |
| GX-EMS | 4 | 11 | 45 | 6 | □ | 311-33 |
| MG-EMS OH1 | 4 | 11 | 45 | 6 | □ | 311-34 |
| V-MG-EDS | 4 | 11 | 45 | 6 | □ | 311-9 |
| WXL-EMS | 4 | 11 | 45 | 6 | ● | 287 |
| SXL-MG-EHS | 4 × 3F | 11 | 50 | 6 | □ | 311-40 |
| SXL-MG-EHS | 4 × 4F | 11 | 50 | 6 | □ | 311-40 |
| AE-VMS | 4-G | 11 | 60 | 6 | ● | 300 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-VMS | 4 | 11 | 60 | 6 | ● | 301 |
| AE-VMS | 4-RA | 11 | 60 | 6 | ● | 302 |
| AE-VMS | 4 | 11 | 60 | 6 | ● | 370 |
| UP-PHS | 4 | 11 | 60 | 6 | ● | 303 |
| CAP-EDS | 4 | 11 | 80 | 6 | □ | 311-11 |
| CRN-EDS | 4 | 11 | 80 | 6 | □ | 311-12 |
| CRN-EMS | 4 | 11 | 80 | 6 | □ | 311-35 |
| WXL-3D-DE | 4 | 12 | 50 | 6 | ● | 263 |
| AE-TL-N | 4 × 12 | 12 | 55 | 6 | ● | 284 |
| AE-TL-N | 4 × 12-SP | 12 | 55 | 6 | ● | 285 |
| SEP-EL | 4 × 12 | 12 | 55 | 6 | ● | 286 |
| DLC-E1-3D | 4 | 12 | 60 | 6 | □ | 311-48 |
| DLC-E2-3D | 4 | 12 | 60 | 6 | □ | 311-50 |
| FXS-EMS | 4 | 12 | 60 | 6 | □ | 311-29 |
| DLC-E1-3D-L | 4 | 12 | 65 | 6 | □ | 311-48 |
| DLC-E2-3D-L | 4 | 12 | 65 | 6 | □ | 311-50 |
| FXS-LS-EMS | 4 | 12 | 80 | 6 | □ | 311-30 |
| DIA-EHDS | 4 | 14 | 50 | 6 | □ | 311-42 |
| FX-MG-EDN | 4 | 14 | 50 | 6 | □ | 311-15 |
| WX-PHN | 4 | 14 | 60 | 6 | ● | 304 |
| CRN-EDN | 4 | 14 | 80 | 6 | □ | 311-16 |
| DIA-LS-EHDS | 4 | 14 | 150 | 6 | □ | 311-44 |
| WXL-4D-DE | 4 | 16 | 55 | 6 | ● | 264 |
| AE-ML-H | 4 × 16 | 16 | 60 | 6 | ● | 307 |
| WX-PHL | 4 | 17 | 60 | 6 | ● | 306 |
| CAP-EDL | 4 | 17 | 80 | 6 | □ | 311-21 |
| CRN-EDL | 4 | 17 | 80 | 6 | □ | 311-23 |
| CRN-EML | 4 | 17 | 80 | 6 | □ | 311-37 |
| AE-TL-N | 4 × 20 | 20 | 60 | 6 | ● | 284 |
| AE-TL-N | 4 × 20-SP | 20 | 60 | 6 | ● | 285 |
| DLC-E1-5D | 4 | 20 | 60 | 6 | □ | 311-49 |
| DLC-E2-5D | 4 | 20 | 60 | 6 | □ | 311-51 |
| SEP-EL | 4 × 20 | 20 | 60 | 6 | ● | 286 |
| DLC-E1-5D-L | 4 | 20 | 65 | 6 | □ | 311-49 |
| DLC-E2-5D-L | 4 | 20 | 65 | 6 | □ | 311-51 |
| GF-EDR | 4 | 20 | 75 | 4 | □ | 311-24 |
| GF-EMR | 4 | 20 | 75 | 4 | □ | 311-37 |
| CRN-EDLL | 4 | 20 | 80 | 6 | □ | 311-23 |
| GF-LS-EDR | 4 | 20 | 100 | 4 | □ | 311-24 |
| GF-LS-EMR | 4 | 20 | 100 | 4 | □ | 311-38 |
| DIA-EOE | 4 | 24 | 60 | 6 | □ | 311-47 |
| DIA-EHDL | 4 | 26 | 65 | 6 | □ | 311-45 |
| DIA-LS-EHDL | 4 | 26 | 150 | 6 | □ | 311-47 |
| FX-MG-EXDL | 4 | 30 | 70 | 6 | □ | 275 |
| MG-EXDL | 4 | 30 | 70 | 6 | □ | 276 |
| MG-EXML | 4 | 30 | 70 | 6 | □ | 295 |
| FX-MG-EXDL | 4 | 40 | 80 | 6 | □ | 275 |
| MG-EXDL | 4 | 40 | 80 | 6 | □ | 276 |
| MG-EXML | 4 | 40 | 80 | 6 | □ | 295 |
| GF-EDL | 4 | 60 | 120 | 6 | □ | 311-25 |
| GF-EML | 4 | 60 | 120 | 6 | □ | 311-38 |
| AE-VMSS | 4.1 | 6.2 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 4.1 | 6.2 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 4.1 | 8.2 | 50 | 6 | ● | 260 |
| CA-RG-EDS | 4.1 | 11 | 45 | 6 | □ | 271 |
| FX-MG-EDS | 4.1 | 11 | 45 | 6 | □ | 311-1 |
| MG-EMS | 4.1 | 11 | 45 | 6 | □ | 292 |
| CA-ETS | 4.1 | 11 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 4.1 | 12.3 | 50 | 6 | ● | 263 |
| DIA-EHDS | 4.1 | 14 | 50 | 6 | □ | 311-42 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-4D-DE | 4.1 | 16.4 | 55 | 6 | ● | 264 |
| DIA-EHDL | 4.1 | 26 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 4.2 | 6.3 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 4.2 | 6.3 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 4.2 | 8.4 | 50 | 6 | ● | 260 |
| CA-RG-EDS | 4.2 | 11 | 45 | 6 | □ | 271 |
| FX-MG-EDS | 4.2 | 11 | 45 | 6 | □ | 311-1 |
| MG-EMS | 4.2 | 11 | 45 | 6 | □ | 292 |
| CA-ETS | 4.2 | 11 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 4.2 | 12.6 | 50 | 6 | ● | 263 |
| DIA-EHDS | 4.2 | 14 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 4.2 | 16.8 | 55 | 6 | ● | 264 |
| DIA-EHDL | 4.2 | 26 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 4.3 | 6.5 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 4.3 | 6.5 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 4.3 | 8.6 | 50 | 6 | ● | 260 |
| CA-RG-EDS | 4.3 | 11 | 45 | 6 | □ | 271 |
| FX-MG-EDS | 4.3 | 11 | 45 | 6 | □ | 311-1 |
| MG-EMS | 4.3 | 11 | 45 | 6 | □ | 292 |
| CA-ETS | 4.3 | 11 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 4.3 | 12.9 | 50 | 6 | ● | 263 |
| DIA-EHDS | 4.3 | 14 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 4.3 | 17.2 | 55 | 6 | ● | 264 |
| DIA-EHDL | 4.3 | 26 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 4.4 | 6.6 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 4.4 | 6.6 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 4.4 | 8.8 | 50 | 6 | ● | 260 |
| CA-RG-EDS | 4.4 | 11 | 45 | 6 | □ | 271 |
| FX-MG-EDS | 4.4 | 11 | 45 | 6 | □ | 311-1 |
| MG-EMS | 4.4 | 11 | 45 | 6 | □ | 292 |
| CA-ETS | 4.4 | 11 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 4.4 | 13.2 | 50 | 6 | ● | 263 |
| DIA-EHDS | 4.4 | 14 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 4.4 | 17.6 | 55 | 6 | ● | 264 |
| DIA-EHDL | 4.4 | 26 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 4.5 | 6.8 | 45 | 6 | ● | 296 |
| AE-VMSS | 4.5-RA | 6.8 | 45 | 6 | ● | 297 |
| FX-MG-EDSS | 4.5 | 6.8 | 50 | 6 | □ | 311-4 |
| FX-MG-EMSS | 4.5 | 6.8 | 50 | 6 | □ | 311-27 |
| WXL-1.5D-DE | 4.5 | 6.8 | 50 | 6 | ● | 259 |
| WX-SHTSS | 4.5 | 6.8 | 50 | 6 | ● | 308 |
| WXL-2D-DE | 4.5 | 9 | 50 | 6 | ● | 260 |
| FXS-EMSS | 4.5 | 9 | 60 | 6 | □ | 311-29 |
| DIA-EDS | 4.5 | 11 | 45 | 6 | □ | 272 |
| FX-MG-EDS | 4.5 | 11 | 45 | 6 | □ | 311-1 |
| FX-MG-EMS | 4.5 | 11 | 45 | 6 | □ | 311-26 |
| MG-EMS OH1 | 4.5 | 11 | 45 | 6 | □ | 311-34 |
| V-MG-EDS | 4.5 | 11 | 45 | 6 | □ | 311-9 |
| WXL-EMS | 4.5 | 11 | 45 | 6 | ● | 287 |
| CAP-EDS | 4.5 | 11 | 80 | 6 | □ | 311-11 |
| CRN-EDS | 4.5 | 11 | 80 | 6 | □ | 311-12 |
| WXL-3D-DE | 4.5 | 13.5 | 50 | 6 | ● | 263 |
| FX-MG-EDN | 4.5 | 14 | 50 | 6 | □ | 311-15 |
| CRN-EDN | 4.5 | 14 | 80 | 6 | □ | 311-16 |
| FXS-EMS | 4.5 | 15 | 60 | 6 | □ | 311-29 |
| DIA-EHDS | 4.5 | 16 | 50 | 6 | □ | 311-42 |
| CAP-EDL | 4.5 | 17 | 80 | 6 | □ | 311-21 |
| CRN-EDL | 4.5 | 17 | 80 | 6 | □ | 311-23 |
| WXL-4D-DE | 4.5 | 18 | 55 | 6 | ● | 264 |
| DIA-EOE | 4.5 | 28 | 60 | 6 | □ | 311-47 |
| DIA-EHDL | 4.5 | 30 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 4.6 | 6.9 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 4.6 | 6.9 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 4.6 | 9.2 | 50 | 6 | ● | 260 |
| CA-RG-EDS | 4.6 | 11 | 45 | 6 | □ | 271 |
| FX-MG-EDS | 4.6 | 11 | 45 | 6 | □ | 311-1 |
| MG-EMS | 4.6 | 11 | 45 | 6 | □ | 292 |
| CA-ETS | 4.6 | 11 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 4.6 | 13.8 | 55 | 6 | ● | 263 |
| DIA-EHDS | 4.6 | 16 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 4.6 | 18.4 | 55 | 6 | ● | 264 |
| DIA-EHDL | 4.6 | 30 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 4.7 | 7.1 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 4.7 | 7.1 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 4.7 | 9.4 | 50 | 6 | ● | 260 |
| CA-RG-EDS | 4.7 | 11 | 45 | 6 | □ | 271 |
| FX-MG-EDS | 4.7 | 11 | 45 | 6 | □ | 311-1 |
| MG-EMS | 4.7 | 11 | 45 | 6 | □ | 292 |
| CA-ETS | 4.7 | 11 | 50 | 6 | □ | 282 |
| WXL-3D-DE | 4.7 | 14.1 | 55 | 6 | ● | 263 |
| DIA-EHDS | 4.7 | 16 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 4.7 | 18.8 | 55 | 6 | ● | 264 |
| DIA-EHDL | 4.7 | 30 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 4.8 | 7.2 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 4.8 | 7.2 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 4.8 | 9.6 | 50 | 6 | ● | 260 |
| CA-ETS | 4.8 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 4.8 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 4.8 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 4.8 | 13 | 50 | 6 | □ | 292 |
| WXL-3D-DE | 4.8 | 14.4 | 55 | 6 | ● | 263 |
| DIA-EHDS | 4.8 | 16 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 4.8 | 19.2 | 55 | 6 | ● | 264 |
| DIA-EHDL | 4.8 | 30 | 65 | 6 | □ | 311-45 |
| AE-VMSS | 4.9 | 7.4 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 4.9 | 7.4 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 4.9 | 9.8 | 50 | 6 | ● | 260 |
| CA-ETS | 4.9 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 4.9 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 4.9 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 4.9 | 13 | 50 | 6 | □ | 292 |
| WXL-3D-DE | 4.9 | 14.7 | 55 | 6 | ● | 263 |
| DIA-EHDS | 4.9 | 16 | 50 | 6 | □ | 311-42 |
| WXL-4D-DE | 4.9 | 19.6 | 55 | 6 | ● | 264 |
| DIA-EHDL | 4.9 | 30 | 65 | 6 | □ | 311-45 |
| FX-NC-EDSS | 5 | 6 | 35 | 6 | □ | 311-7 |
| FX-NC-EMSS | 5 | 6 | 35 | 6 | □ | 311-28 |
| NC-EMSS | 5 | 6 | 35 | 6 | □ | 311-33 |
| AE-VTSS | 5 × 6 × 6 | 6 | 45 | 6 | ● | 309 |
| FX-EDSS-6 | 5 | 6 | 50 | 6 | □ | 311-6 |
| AE-VMSS | 5 | 7.5 | 45 | 6 | ● | 296 |
| AE-VMSS | 5-RA | 7.5 | 45 | 6 | ● | 297 |
| FX-MG-EDSS | 5 | 7.5 | 50 | 6 | □ | 311-4 |
| FX-MG-EMSS | 5 | 7.5 | 50 | 6 | □ | 311-27 |
| IT-EDS | 5 | 7.5 | 50 | 6 | □ | 311-14 |
| IT-EMS | 5 | 7.5 | 50 | 6 | □ | 311-36 |
| WXL-1.5D-DE | 5 | 7.5 | 50 | 6 | ● | 259 |
| WX-SHTSS | 5 | 7.5 | 50 | 6 | ● | 308 |
| CRN-HS-EDS | 5 × 12.5 | 7.5 | 50 | 6 | □ | 311-13 |
| AE-TS-N | 5 × 15 | 7.5 | 55 | 6 | ● | 278 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-TS-N | 5 × 15-SP | 7.5 | 55 | 6 | ● | 279 |
| AE-VTS-N | 5 × 15 | 7.5 | 55 | 6 | ● | 280 |
| AE-VTS-N | 5 × 15-SP | 7.5 | 55 | 6 | ● | 281 |
| AE-MSS-H | 5 × 15 | 7.5 | 60 | 6 | ● | 289 |
| WXL-LN-EDS | 5 × 16 | 7.5 | 60 | 6 | ● | 316 |
| WXL-LN-EMS | 5 × 16 | 7.5 | 60 | 6 | ● | 320 |
| WX-LN-EDS | 5 × 16 | 7.5 | 60 | 6 | □ | 321-5 |
| WX-LN-EMS | 5 × 16 | 7.5 | 60 | 6 | □ | 321-12 |
| WXL-LN-EDS | 5 × 20 | 7.5 | 70 | 6 | ● | 316 |
| WX-LN-EDS | 5 × 20 | 7.5 | 70 | 6 | □ | 321-5 |
| WXL-LN-EDS | 5 × 25 | 7.5 | 70 | 6 | ● | 316 |
| WXL-LN-EMS | 5 × 25 | 7.5 | 70 | 6 | ● | 320 |
| WX-LN-EDS | 5 × 25 | 7.5 | 70 | 6 | □ | 321-5 |
| WX-LN-EMS | 5 × 25 | 7.5 | 70 | 6 | □ | 321-12 |
| CAP-LN-EDS | 5 × 16 | 7.5 | 80 | 6 | □ | 321-8 |
| DIA-LN-EDS | 5 × 16 | 7.5 | 80 | 6 | □ | 321-10 |
| CAP-LN-EDS | 5 × 20 | 7.5 | 80 | 6 | □ | 321-8 |
| DIA-LN-EDS | 5 × 20 | 7.5 | 80 | 6 | □ | 321-10 |
| CAP-LN-EDS | 5 × 25 | 7.5 | 80 | 6 | □ | 321-8 |
| DIA-LN-EDS | 5 × 25 | 7.5 | 80 | 6 | □ | 321-10 |
| FX-LN-EMS-6 | 5 × 25 | 7.5 | 80 | 6 | □ | 321-13 |
| CRN-LN-EDS | 5 × 25 | 7.5 | 90 | 6 | □ | 321-9 |
| DLC-LN-EDS | 5 × 25 | 7.5 | 90 | 6 | ● | 317 |
| CAP-LN-EDS | 5 × 30 | 7.5 | 90 | 6 | □ | 321-8 |
| WXL-LN-EDS | 5 × 30 | 7.5 | 90 | 6 | ● | 316 |
| WX-LN-EDS | 5 × 30 | 7.5 | 90 | 6 | □ | 321-5 |
| CAP-LN-EDS | 5 × 35 | 7.5 | 90 | 6 | □ | 321-8 |
| WXL-LN-EDS | 5 × 35 | 7.5 | 90 | 6 | ● | 316 |
| WXL-LN-EMS | 5 × 35 | 7.5 | 90 | 6 | ● | 320 |
| WX-LN-EDS | 5 × 35 | 7.5 | 90 | 6 | □ | 321-5 |
| WX-LN-EMS | 5 × 35 | 7.5 | 90 | 6 | □ | 321-12 |
| CAP-LN-EDS | 5 × 40 | 7.5 | 100 | 6 | □ | 321-8 |
| WXL-LN-EDS | 5 × 40 | 7.5 | 100 | 6 | ● | 316 |
| WX-LN-EDS | 5 × 40 | 7.5 | 100 | 6 | □ | 321-5 |
| WXL-LN-EDS | 5 × 50 | 7.5 | 110 | 6 | ● | 316 |
| WXL-LN-EMS | 5 × 50 | 7.5 | 110 | 6 | ● | 320 |
| WX-LN-EDS | 5 × 50 | 7.5 | 110 | 6 | □ | 321-5 |
| WX-LN-EMS | 5 × 50 | 7.5 | 110 | 6 | □ | 321-12 |
| WXL-LN-EDS | 5 × 60 | 7.5 | 120 | 6 | ● | 316 |
| WX-LN-EDS | 5 × 60 | 7.5 | 120 | 6 | □ | 321-5 |
| DIA-ETS | 5 | 8 | 50 | 6 | □ | 311-26 |
| DLC-EDS | 5 | 10 | 50 | 6 | ● | 272 |
| SH-MG-EDS | 5 | 10 | 50 | 6 | □ | 311-10 |
| WXL-2D-DE | 5 | 10 | 50 | 6 | ● | 260 |
| FXS-EMSS | 5 | 10 | 60 | 6 | □ | 311-29 |
| SXL-RESF | 5 | 11 | 50 | 6 | □ | 438-1 |
| SXL-RESF | 5H | 11 | 50 | 6 | □ | 438-1 |
| AE-MS-H | 5 | 12.5 | 60 | 6 | ● | 290 |
| DIA-EDS | 5 | 13 | 50 | 6 | ● | 272 |
| DLC-MR-EDS | 5 | 13 | 50 | 6 | □ | 311-8 |
| DLC-MR-EMS | 5 | 13 | 50 | 6 | □ | 311-31 |
| FX-MG-EDS | 5 | 13 | 50 | 6 | □ | 311-1 |
| FX-MG-EDS OH1 | 5 | 13 | 50 | 6 | □ | 311-4 |
| FX-MG-EMS | 5 | 13 | 50 | 6 | □ | 311-26 |
| FX-MG-EMS OH1 | 5 | 13 | 50 | 6 | □ | 311-27 |
| FX-MR-EDS | 5 | 13 | 50 | 6 | □ | 311-7 |
| FX-MR-EMS | 5 | 13 | 50 | 6 | □ | 311-28 |
| GX-EDS | 5 | 13 | 50 | 6 | □ | 311-11 |
| GX-EMS | 5 | 13 | 50 | 6 | □ | 311-33 |
| MG-EMS OH1 | 5 | 13 | 50 | 6 | □ | 311-34 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-MG-EDS | 5 | 13 | 50 | 6 | □ | 311-9 |
| WXL-EMS | 5 | 13 | 50 | 6 | ● | 287 |
| SXL-MG-EHS | 5 × 3F | 13 | 50 | 6 | □ | 311-40 |
| SXL-MG-EHS | 5 × 4F | 13 | 50 | 6 | □ | 311-40 |
| AE-VMS | 5-G | 13 | 60 | 6 | ● | 300 |
| AE-VMS | 5 | 13 | 60 | 6 | ● | 301 |
| AE-VMS | 5-RA | 13 | 60 | 6 | ● | 302 |
| AE-VMS | 5 | 13 | 60 | 6 | ● | 370 |
| SI-WC-RESF | 5 | 13 | 60 | 6 | □ | 438 |
| SI-WC-RESF | 5H | 13 | 60 | 6 | □ | 438 |
| UP-PHS | 5 | 13 | 60 | 6 | ● | 303 |
| CAP-EDS | 5 | 13 | 90 | 6 | □ | 311-11 |
| CRN-EDS | 5 | 13 | 90 | 6 | □ | 311-12 |
| CRN-EMS | 5 | 13 | 90 | 6 | □ | 311-35 |
| AE-TL-N | 5 × 15 | 15 | 55 | 6 | ● | 284 |
| AE-TL-N | 5 × 15-SP | 15 | 55 | 6 | ● | 285 |
| WXL-3D-DE | 5 | 15 | 55 | 6 | ● | 263 |
| DLC-E1-3D | 5 | 15 | 60 | 6 | □ | 311-48 |
| DLC-E2-3D | 5 | 15 | 60 | 6 | □ | 311-50 |
| FXS-EMS | 5 | 15 | 60 | 6 | □ | 311-29 |
| DLC-E1-3D-L | 5 | 15 | 65 | 6 | □ | 311-48 |
| DLC-E2-3D-L | 5 | 15 | 65 | 6 | □ | 311-50 |
| FXS-LS-EMS | 5 | 15 | 80 | 6 | □ | 311-30 |
| DIA-EHDS | 5 | 17 | 55 | 6 | □ | 311-42 |
| FX-MG-EDN | 5 | 17 | 60 | 6 | □ | 311-15 |
| WX-PHN | 5 | 17 | 60 | 6 | ● | 304 |
| CRN-EDN | 5 | 17 | 90 | 6 | □ | 311-16 |
| DIA-LS-EHDS | 5 | 17 | 150 | 6 | □ | 311-44 |
| WXL-4D-DE | 5 | 20 | 60 | 6 | ● | 264 |
| WX-PHL | 5 | 20 | 60 | 6 | ● | 306 |
| AE-ML-H | 5 × 20 | 20 | 70 | 6 | ● | 307 |
| CAP-EDL | 5 | 20 | 90 | 6 | □ | 311-21 |
| CRN-EDL | 5 | 20 | 90 | 6 | □ | 311-23 |
| CRN-EML | 5 | 20 | 90 | 6 | □ | 311-37 |
| AE-TL-N | 5 × 25 | 25 | 65 | 6 | ● | 284 |
| AE-TL-N | 5 × 25-SP | 25 | 65 | 6 | ● | 285 |
| DLC-E1-5D | 5 | 25 | 70 | 6 | □ | 311-49 |
| DLC-E2-5D | 5 | 25 | 70 | 6 | □ | 311-51 |
| DLC-E1-5D-L | 5 | 25 | 75 | 6 | □ | 311-49 |
| DLC-E2-5D-L | 5 | 25 | 75 | 6 | □ | 311-51 |
| CRN-EDLL | 5 | 25 | 90 | 6 | □ | 311-23 |
| GF-EDR | 5 | 25 | 100 | 6 | □ | 311-24 |
| GF-EMR | 5 | 25 | 100 | 6 | □ | 311-37 |
| GF-LS-EDR | 5 | 25 | 140 | 6 | □ | 311-24 |
| GF-LS-EMR | 5 | 25 | 140 | 6 | □ | 311-38 |
| DIA-EOE | 5 | 30 | 70 | 6 | □ | 311-47 |
| DIA-EHDL | 5 | 32 | 75 | 6 | □ | 311-45 |
| DIA-LS-EHDL | 5 | 32 | 150 | 6 | □ | 311-47 |
| FX-MG-EXDL | 5 | 50 | 90 | 6 | □ | 275 |
| MG-EXDL | 5 | 50 | 90 | 6 | □ | 276 |
| MG-EXML | 5 | 50 | 90 | 6 | □ | 295 |
| GF-EDL | 5 | 70 | 140 | 6 | □ | 311-25 |
| GF-EML | 5 | 70 | 140 | 6 | □ | 311-38 |
| AE-VMSS | 5.1 | 7.7 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 5.1 | 7.7 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 5.1 | 10.2 | 50 | 6 | ● | 260 |
| CA-ETS | 5.1 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 5.1 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 5.1 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 5.1 | 13 | 50 | 6 | □ | 292 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-3D-DE | 5.1 | 15.3 | 55 | 6 | ● | 263 |
| DIA-EHDS | 5.1 | 17 | 55 | 6 | □ | 311-42 |
| WXL-4D-DE | 5.1 | 20.4 | 60 | 6 | ● | 264 |
| DIA-EHDL | 5.1 | 32 | 75 | 6 | □ | 311-45 |
| AE-VMSS | 5.2 | 7.8 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 5.2 | 7.8 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 5.2 | 10.4 | 50 | 6 | ● | 260 |
| CA-ETS | 5.2 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 5.2 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 5.2 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 5.2 | 13 | 50 | 6 | □ | 292 |
| WXL-3D-DE | 5.2 | 15.6 | 55 | 6 | ● | 263 |
| DIA-EHDS | 5.2 | 17 | 55 | 6 | □ | 311-42 |
| WXL-4D-DE | 5.2 | 20.8 | 60 | 6 | ● | 264 |
| DIA-EHDL | 5.2 | 32 | 75 | 6 | □ | 311-45 |
| AE-VMSS | 5.3 | 8 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 5.3 | 8 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 5.3 | 10.6 | 50 | 6 | ● | 260 |
| CA-ETS | 5.3 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 5.3 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 5.3 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 5.3 | 13 | 50 | 6 | □ | 292 |
| WXL-3D-DE | 5.3 | 15.9 | 55 | 6 | ● | 263 |
| DIA-EHDS | 5.3 | 17 | 55 | 6 | □ | 311-42 |
| WXL-4D-DE | 5.3 | 21.2 | 60 | 6 | ● | 264 |
| DIA-EHDL | 5.3 | 32 | 75 | 6 | □ | 311-45 |
| AE-VMSS | 5.4 | 8.1 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 5.4 | 8.1 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 5.4 | 10.8 | 50 | 6 | ● | 260 |
| CA-ETS | 5.4 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 5.4 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 5.4 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 5.4 | 13 | 50 | 6 | □ | 292 |
| WXL-3D-DE | 5.4 | 16.2 | 55 | 6 | ● | 263 |
| DIA-EHDS | 5.4 | 17 | 55 | 6 | □ | 311-42 |
| WXL-4D-DE | 5.4 | 21.6 | 60 | 6 | ● | 264 |
| DIA-EHDL | 5.4 | 32 | 75 | 6 | □ | 311-45 |
| FX-MG-EDSS | 5.5 | 8.2 | 50 | 6 | □ | 311-4 |
| FX-MG-EMSS | 5.5 | 8.2 | 50 | 6 | □ | 311-27 |
| AE-VMSS | 5.5 | 8.3 | 45 | 6 | ● | 296 |
| AE-VMSS | 5.5-RA | 8.3 | 45 | 6 | ● | 297 |
| WXL-1.5D-DE | 5.5 | 8.3 | 50 | 6 | ● | 259 |
| WX-SHTSS | 5.5 | 8.3 | 50 | 6 | ● | 308 |
| WXL-2D-DE | 5.5 | 11 | 50 | 6 | ● | 260 |
| FXS-EMSS | 5.5 | 11 | 60 | 6 | □ | 311-29 |
| DIA-EDS | 5.5 | 13 | 50 | 6 | □ | 272 |
| FX-MG-EDS | 5.5 | 13 | 50 | 6 | □ | 311-1 |
| FX-MG-EMS | 5.5 | 13 | 50 | 6 | □ | 311-26 |
| MG-EMS OH1 | 5.5 | 13 | 50 | 6 | □ | 311-34 |
| V-MG-EDS | 5.5 | 13 | 50 | 6 | □ | 311-9 |
| WXL-EMS | 5.5 | 13 | 50 | 6 | ● | 287 |
| CAP-EDS | 5.5 | 13 | 90 | 6 | □ | 311-11 |
| CRN-EDS | 5.5 | 13 | 90 | 6 | □ | 311-12 |
| FXS-EMS | 5.5 | 15 | 60 | 6 | □ | 311-29 |
| WXL-3D-DE | 5.5 | 16.5 | 60 | 6 | ● | 263 |
| DIA-EHDS | 5.5 | 17 | 55 | 6 | □ | 311-42 |
| FX-MG-EDN | 5.5 | 17 | 60 | 6 | □ | 311-15 |
| CRN-EDN | 5.5 | 17 | 90 | 6 | □ | 311-16 |
| CAP-EDL | 5.5 | 20 | 90 | 6 | □ | 311-21 |
| CRN-EDL | 5.5 | 20 | 90 | 6 | □ | 311-23 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-4D-DE | 5.5 | 22 | 65 | 6 | ● | 264 |
| DIA-EOE | 5.5 | 30 | 70 | 6 | □ | 311-47 |
| DIA-EHDL | 5.5 | 32 | 75 | 6 | □ | 311-45 |
| AE-VMSS | 5.6 | 8.4 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 5.6 | 8.4 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 5.6 | 11.2 | 50 | 6 | ● | 260 |
| CA-ETS | 5.6 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 5.6 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 5.6 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 5.6 | 13 | 50 | 6 | □ | 292 |
| WXL-3D-DE | 5.6 | 16.8 | 60 | 6 | ● | 263 |
| DIA-EHDS | 5.6 | 17 | 55 | 6 | □ | 311-42 |
| WXL-4D-DE | 5.6 | 22.4 | 65 | 6 | ● | 264 |
| DIA-EHDL | 5.6 | 32 | 75 | 6 | □ | 311-45 |
| AE-VMSS | 5.7 | 8.6 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 5.7 | 8.6 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 5.7 | 11.4 | 50 | 6 | ● | 260 |
| CA-ETS | 5.7 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 5.7 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 5.7 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 5.7 | 13 | 50 | 6 | □ | 292 |
| DIA-EHDS | 5.7 | 17 | 55 | 6 | □ | 311-42 |
| WXL-3D-DE | 5.7 | 17.1 | 60 | 6 | ● | 263 |
| WXL-4D-DE | 5.7 | 22.8 | 65 | 6 | ● | 264 |
| DIA-EHDL | 5.7 | 32 | 75 | 6 | □ | 311-45 |
| AE-VMSS | 5.8 | 8.7 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 5.8 | 8.7 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 5.8 | 11.6 | 50 | 6 | ● | 260 |
| CA-ETS | 5.8 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 5.8 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 5.8 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 5.8 | 13 | 50 | 6 | □ | 292 |
| DIA-EHDS | 5.8 | 17 | 55 | 6 | □ | 311-42 |
| WXL-3D-DE | 5.8 | 17.4 | 60 | 6 | ● | 263 |
| WXL-4D-DE | 5.8 | 23.2 | 65 | 6 | ● | 264 |
| DIA-EHDL | 5.8 | 32 | 75 | 6 | □ | 311-45 |
| AE-VMSS | 5.9 | 8.9 | 45 | 6 | ● | 296 |
| WXL-1.5D-DE | 5.9 | 8.9 | 50 | 6 | ● | 259 |
| WXL-2D-DE | 5.9 | 11.8 | 50 | 6 | ● | 260 |
| CA-ETS | 5.9 | 13 | 50 | 6 | □ | 282 |
| CA-RG-EDS | 5.9 | 13 | 50 | 6 | □ | 271 |
| FX-MG-EDS | 5.9 | 13 | 50 | 6 | □ | 311-1 |
| MG-EMS | 5.9 | 13 | 50 | 6 | □ | 292 |
| DIA-EHDS | 5.9 | 17 | 55 | 6 | □ | 311-42 |
| WXL-3D-DE | 5.9 | 17.7 | 60 | 6 | ● | 263 |
| WXL-4D-DE | 5.9 | 23.6 | 65 | 6 | ● | 264 |
| DIA-EHDL | 5.9 | 32 | 75 | 6 | □ | 311-45 |
| MBOS | 6 | 3 | 50 | 6 | ● | 269 |
| FX-NC-EDSS | 6 | 6 | 35 | 6 | □ | 311-7 |
| FX-NC-EMSS | 6 | 6 | 35 | 6 | □ | 311-28 |
| NC-EMSS | 6 | 6 | 35 | 6 | □ | 311-33 |
| AE-VTSS | 6 × 6 × 6 | 6 | 45 | 6 | ● | 309 |
| MDOS | 6 | 7 | 50 | 6 | ● | 270 |
| FX-EDSS-6 | 6 | 7.2 | 50 | 6 | □ | 311-6 |
| AE-VMSS | 6 | 9 | 45 | 6 | ● | 296 |
| AE-VMSS | 6-RA | 9 | 45 | 6 | ● | 297 |
| FX-MG-EDSS | 6 | 9 | 50 | 6 | □ | 311-4 |
| FX-MG-EMSS | 6 | 9 | 50 | 6 | □ | 311-27 |
| IT-EDS | 6 | 9 | 50 | 6 | □ | 311-14 |
| IT-EMS | 6 | 9 | 50 | 6 | □ | 311-36 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-1.5D-DE | 6 | 9 | 50 | 6 | ● | 259 |
| WX-SHTSS | 6 | 9 | 50 | 6 | ● | 308 |
| CRN-HS-EDS | 6 × 15 | 9 | 50 | 6 | □ | 311-13 |
| DIA-ETS | 6 | 9 | 55 | 6 | □ | 311-26 |
| AE-TS-N | 6 × 18 | 9 | 60 | 6 | ● | 278 |
| AE-TS-N | 6 × 18-SP | 9 | 60 | 6 | ● | 279 |
| AE-VMSS | 6 × 18 | 9 | 60 | 6 | ● | 298 |
| AE-VMSS | 6 × 18 | 9 | 60 | 6 | ● | 318 |
| AE-VTS-N | 6 × 18 | 9 | 60 | 6 | ● | 280 |
| AE-VTS-N | 6 × 18-SP | 9 | 60 | 6 | ● | 281 |
| AE-VMSS | 6 × 30 | 9 | 70 | 6 | ● | 298 |
| AE-VMSS | 6 × 30 | 9 | 70 | 6 | ● | 318 |
| DIA-LS-ETS | 6 | 9 | 80 | 4 | □ | 311-25 |
| AE-MSS-H | 6 × 18 | 9 | 80 | 6 | ● | 289 |
| WXL-LN-EDS | 6 × 20 | 9 | 80 | 6 | ● | 316 |
| WXL-LN-EMS | 6 × 20 | 9 | 80 | 6 | ● | 320 |
| WX-LN-EDS | 6 × 20 | 9 | 80 | 6 | □ | 321-5 |
| WX-LN-EMS | 6 × 20 | 9 | 80 | 6 | □ | 321-12 |
| CAP-LN-EDS | 6 × 16 | 9 | 80 | 8 | □ | 321-8 |
| CAP-LN-EDS | 6 × 20 | 9 | 80 | 8 | □ | 321-8 |
| CAP-LN-EDS | 6 × 25 | 9 | 80 | 8 | □ | 321-8 |
| CRN-LN-EDS | 6 × 30 | 9 | 90 | 6 | □ | 321-9 |
| DLC-LN-EDS | 6 × 30 | 9 | 90 | 6 | ● | 317 |
| FX-LN-EMS-6 | 6 × 30 | 9 | 90 | 6 | □ | 321-13 |
| WXL-LN-EDS | 6 × 30 | 9 | 90 | 6 | ● | 316 |
| WXL-LN-EMS | 6 × 30 | 9 | 90 | 6 | ● | 320 |
| WX-LN-EDS | 6 × 30 | 9 | 90 | 6 | □ | 321-5 |
| WX-LN-EMS | 6 × 30 | 9 | 90 | 6 | □ | 321-12 |
| CAP-LN-EDS | 6 × 30 | 9 | 90 | 8 | □ | 321-8 |
| CAP-LN-EDS | 6 × 35 | 9 | 90 | 8 | □ | 321-8 |
| WXL-LN-EDS | 6 × 40 | 9 | 100 | 6 | ● | 316 |
| WXL-LN-EMS | 6 × 40 | 9 | 100 | 6 | ● | 320 |
| WX-LN-EDS | 6 × 40 | 9 | 100 | 6 | □ | 321-5 |
| WX-LN-EMS | 6 × 40 | 9 | 100 | 6 | □ | 321-12 |
| CAP-LN-EDS | 6 × 40 | 9 | 100 | 8 | □ | 321-8 |
| WXL-LN-EDS | 6 × 50 | 9 | 110 | 6 | ● | 316 |
| WXL-LN-EMS | 6 × 50 | 9 | 110 | 6 | ● | 320 |
| WX-LN-EDS | 6 × 50 | 9 | 110 | 6 | □ | 321-5 |
| WX-LN-EMS | 6 × 50 | 9 | 110 | 6 | □ | 321-12 |
| WXL-LN-EDS | 6 × 60 | 9 | 120 | 6 | ● | 316 |
| WX-LN-EDS | 6 × 60 | 9 | 120 | 6 | □ | 321-5 |
| SH-MG-EDS | 6 | 10 | 50 | 6 | □ | 311-10 |
| DLC-EDS | 6 | 12 | 50 | 6 | ● | 272 |
| NEO-EMS | 6 | 12 | 50 | 6 | ● | 291 |
| WXL-2D-DE | 6 | 12 | 50 | 6 | ● | 260 |
| FXS-EMSS | 6 | 12 | 60 | 6 | □ | 311-29 |
| DG-EMS | 6 | 12 | 80 | 6 | ● | 293 |
| DG-LN-EMS | 6 × 60 | 12 | 100 | 6 | ● | 321 |
| DIA-EDS | 6 | 13 | 50 | 6 | ● | 272 |
| DLC-MR-EDS | 6 | 13 | 50 | 6 | □ | 311-8 |
| DLC-MR-EMS | 6 | 13 | 50 | 6 | □ | 311-31 |
| FX-MG-EDS | 6 | 13 | 50 | 6 | □ | 311-1 |
| FX-MG-EDS OH1 | 6 | 13 | 50 | 6 | □ | 311-4 |
| FX-MG-EMS | 6 | 13 | 50 | 6 | □ | 311-26 |
| FX-MG-EMS OH1 | 6 | 13 | 50 | 6 | □ | 311-27 |
| FX-MR-EDS | 6 | 13 | 50 | 6 | □ | 311-7 |
| FX-MR-EMS | 6 | 13 | 50 | 6 | □ | 311-28 |
| GX-EDS | 6 | 13 | 50 | 6 | □ | 311-11 |
| GX-EMS | 6 | 13 | 50 | 6 | □ | 311-33 |
| MG-EHS | 6 | 13 | 50 | 6 | □ | 311-39 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EMS OH1 | 6 | 13 | 50 | 6 | □ | 311-34 |
| SXL-RESF | 6 | 13 | 50 | 6 | □ | 438-1 |
| SXL-RESF | 6H | 13 | 50 | 6 | □ | 438-1 |
| V-MG-EDS | 6 | 13 | 50 | 6 | □ | 311-9 |
| WXL-EMS | 6 | 13 | 50 | 6 | ● | 287 |
| SXL-MG-EHS | 6 × 3F | 13 | 50 | 6 | □ | 311-40 |
| SXL-MG-EHS | 6 × 4F | 13 | 50 | 6 | □ | 311-40 |
| AE-VMS | 6-G | 13 | 60 | 6 | ● | 300 |
| AE-VMS | 6 | 13 | 60 | 6 | ● | 301 |
| AE-VMS | 6-RA | 13 | 60 | 6 | ● | 302 |
| AE-VMS | 6 | 13 | 60 | 6 | ● | 370 |
| DUR-SMF | 6 | 13 | 60 | 6 | □ | 311-31 |
| SI-WC-RESF | 6 | 13 | 60 | 6 | ● | 438 |
| SI-WC-RESF | 6H | 13 | 60 | 6 | ● | 438 |
| UP-PHS | 6 | 13 | 60 | 6 | ● | 303 |
| CAP-EDS | 6 | 13 | 90 | 6 | □ | 311-11 |
| CRN-EDS | 6 | 13 | 90 | 6 | □ | 311-12 |
| CRN-EMS | 6 | 13 | 90 | 6 | □ | 311-35 |
| AE-MS-H | 6 | 15 | 60 | 6 | ● | 290 |
| FXS-EMS | 6 | 15 | 60 | 6 | □ | 311-29 |
| FXS-LS-EMS-S | 6 | 15 | 90 | 4 | □ | 311-30 |
| FXS-LS-EMS | 6 | 15 | 90 | 6 | □ | 311-30 |
| AE-VMFE | 6 | 15 | 100 | 4 | ● | 288 |
| AE-VMFE | 6 | 15 | 100 | 4 | ● | 393 |
| AE-VTFE-N | 6 | 15 | 100 | 4 | ● | 311 |
| DIA-EHDS | 6 | 17 | 55 | 6 | □ | 311-42 |
| FX-MG-EDN | 6 | 17 | 60 | 6 | □ | 311-15 |
| CRN-EDN | 6 | 17 | 90 | 6 | □ | 311-16 |
| DIA-LS-EHDS | 6 | 17 | 150 | 6 | □ | 311-44 |
| AE-TL-N | 6 × 18 | 18 | 60 | 6 | ● | 284 |
| AE-TL-N | 6 × 18-SP | 18 | 60 | 6 | ● | 285 |
| DLC-E1-3D | 6 | 18 | 60 | 6 | □ | 311-48 |
| DLC-E2-3D | 6 | 18 | 60 | 6 | □ | 311-50 |
| SEP-EL | 6 × 18 | 18 | 60 | 6 | ● | 286 |
| WXL-3D-DE | 6 | 18 | 60 | 6 | ● | 263 |
| DLC-E1-3D-L | 6 | 18 | 70 | 6 | □ | 311-48 |
| DLC-E2-3D-L | 6 | 18 | 70 | 6 | □ | 311-50 |
| AE-VML | 6 × 19 | 19 | 70 | 6 | ● | 305 |
| AE-VML | 6 × 19-N | 19 | 70 | 6 | ● | 306 |
| AE-VML | 6 × 19 | 19 | 70 | 6 | ● | 371 |
| SXL-MG-EHL | 6 × 3F | 20 | 60 | 6 | □ | 311-41 |
| CAP-EDL | 6 | 20 | 90 | 6 | □ | 311-21 |
| CRN-EDL | 6 | 20 | 90 | 6 | □ | 311-23 |
| CRN-EML | 6 | 20 | 90 | 6 | □ | 311-37 |
| WXL-4D-DE | 6 | 24 | 65 | 6 | ● | 264 |
| AE-ML-H | 6 × 24 | 24 | 70 | 6 | ● | 307 |
| AE-VML | 6 × 24 | 24 | 70 | 6 | ● | 305 |
| AE-VML | 6 × 24-N | 24 | 70 | 6 | ● | 306 |
| AE-VML | 6 × 24 | 24 | 70 | 6 | ● | 371 |
| FXS-EML | 6 | 25 | 70 | 6 | □ | 311-36 |
| DIA-EOE | 6 | 30 | 70 | 6 | □ | 311-47 |
| DLC-E1-5D | 6 | 30 | 70 | 6 | □ | 311-49 |
| DLC-E2-5D | 6 | 30 | 70 | 6 | □ | 311-51 |
| AE-TL-N | 6 × 30 | 30 | 75 | 6 | ● | 284 |
| AE-TL-N | 6 × 30-SP | 30 | 75 | 6 | ● | 285 |
| SEP-EL | 6 × 30 | 30 | 75 | 6 | ● | 286 |
| DLC-E1-5D-L | 6 | 30 | 80 | 6 | □ | 311-49 |
| DLC-E2-5D-L | 6 | 30 | 80 | 6 | □ | 311-51 |
| CRN-EDLL | 6 | 30 | 90 | 6 | □ | 311-23 |
| GF-EDR | 6 | 30 | 100 | 6 | □ | 311-24 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| GF-EMR | 6 | 30 | 100 | 6 | □ | 311-37 |
| GF-LS-EDR | 6 | 30 | 140 | 6 | □ | 311-24 |
| GF-LS-EMR | 6 | 30 | 140 | 6 | □ | 311-38 |
| DIA-EHDL | 6 | 32 | 75 | 6 | □ | 311-45 |
| DIA-LS-EHDL | 6 | 32 | 150 | 6 | □ | 311-47 |
| FX-MG-EXDL | 6 | 50 | 90 | 6 | □ | 275 |
| MG-EXDL | 6 | 50 | 90 | 6 | □ | 276 |
| MG-EXML | 6 | 50 | 90 | 6 | □ | 295 |
| FX-MG-EXDL | 6 | 60 | 100 | 6 | □ | 275 |
| MG-EXDL | 6 | 60 | 100 | 6 | □ | 276 |
| MG-EXML | 6 | 60 | 100 | 6 | □ | 295 |
| GF-EDL | 6 | 80 | 140 | 6 | □ | 311-25 |
| GF-EML | 6 | 80 | 140 | 6 | □ | 311-38 |
| WXL-2D-DE | 6.1 | 12.2 | 60 | 8 | ● | 260 |
| CA-ETS | 6.1 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 6.1 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 6.1 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 6.1 | 17 | 55 | 6 | □ | 311-42 |
| DIA-EHDL | 6.1 | 32 | 75 | 6 | □ | 311-45 |
| WXL-2D-DE | 6.2 | 12.4 | 60 | 8 | ● | 260 |
| CA-ETS | 6.2 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 6.2 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 6.2 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 6.2 | 17 | 55 | 6 | □ | 311-42 |
| DIA-EHDL | 6.2 | 32 | 75 | 6 | □ | 311-45 |
| WXL-2D-DE | 6.3 | 12.6 | 60 | 8 | ● | 260 |
| CA-ETS | 6.3 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 6.3 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 6.3 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 6.3 | 17 | 55 | 6 | □ | 311-42 |
| DIA-EHDL | 6.3 | 32 | 75 | 6 | □ | 311-45 |
| WXL-2D-DE | 6.4 | 12.8 | 60 | 8 | ● | 260 |
| CA-ETS | 6.4 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 6.4 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 6.4 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 6.4 | 17 | 55 | 6 | □ | 311-42 |
| DIA-EHDL | 6.4 | 32 | 75 | 6 | □ | 311-45 |
| AE-VMSS | 6.5 | 9.8 | 60 | 8 | ● | 296 |
| WX-SHTSS | 6.5 | 9.8 | 60 | 8 | ● | 308 |
| WXL-2D-DE | 6.5 | 13 | 60 | 8 | ● | 260 |
| FX-MG-EDS | 6.5 | 16 | 60 | 8 | □ | 311-1 |
| FX-MG-EMS | 6.5 | 16 | 60 | 8 | □ | 311-26 |
| MG-EMS OH1 | 6.5 | 16 | 60 | 8 | □ | 311-34 |
| V-MG-EDS | 6.5 | 16 | 60 | 8 | □ | 311-9 |
| WXL-EMS | 6.5 | 16 | 60 | 8 | ● | 287 |
| CAP-EDS | 6.5 | 16 | 100 | 6 | □ | 311-11 |
| CRN-EDS | 6.5 | 16 | 100 | 6 | □ | 311-12 |
| DIA-EHDS | 6.5 | 17 | 55 | 6 | □ | 311-42 |
| WXL-3D-DE | 6.5 | 19.5 | 65 | 8 | ● | 263 |
| FX-MG-EDN | 6.5 | 20 | 70 | 8 | □ | 311-15 |
| CRN-EDN | 6.5 | 20 | 100 | 6 | □ | 311-16 |
| CAP-EDL | 6.5 | 24 | 100 | 6 | □ | 311-21 |
| CRN-EDL | 6.5 | 24 | 100 | 6 | □ | 311-23 |
| DIA-EOE | 6.5 | 40 | 90 | 8 | □ | 311-47 |
| DIA-EHDL | 6.5 | 42 | 95 | 6 | □ | 311-45 |
| WXL-2D-DE | 6.6 | 13.2 | 60 | 8 | ● | 260 |
| CA-ETS | 6.6 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 6.6 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 6.6 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 6.6 | 17 | 55 | 6 | □ | 311-42 |
| DIA-EHDL | 6.6 | 42 | 95 | 6 | □ | 311-45 |
| WXL-2D-DE | 6.7 | 13.4 | 60 | 8 | ● | 260 |
| CA-ETS | 6.7 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 6.7 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 6.7 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 6.7 | 17 | 55 | 6 | □ | 311-42 |
| DIA-EHDL | 6.7 | 42 | 95 | 6 | □ | 311-45 |
| WXL-2D-DE | 6.8 | 13.6 | 60 | 8 | ● | 260 |
| CA-ETS | 6.8 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 6.8 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 6.8 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 6.8 | 17 | 55 | 6 | □ | 311-42 |
| DIA-EHDL | 6.8 | 42 | 95 | 6 | □ | 311-45 |
| WXL-2D-DE | 6.9 | 13.8 | 60 | 8 | ● | 260 |
| CA-ETS | 6.9 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 6.9 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 6.9 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 6.9 | 17 | 55 | 6 | □ | 311-42 |
| DIA-EHDL | 6.9 | 42 | 95 | 6 | □ | 311-45 |
| FX-NC-EDSS | 7 | 6 | 35 | 6 | □ | 311-7 |
| FX-NC-EMSS | 7 | 6 | 35 | 6 | □ | 311-28 |
| AE-VMSS | 7 | 10.5 | 60 | 8 | ● | 296 |
| WX-SHTSS | 7 | 10.5 | 60 | 8 | ● | 308 |
| SH-MG-EDS | 7 | 12 | 60 | 8 | □ | 311-10 |
| DLC-EDS | 7 | 14 | 60 | 8 | ● | 272 |
| WXL-2D-DE | 7 | 14 | 60 | 8 | ● | 260 |
| DIA-EDS | 7 | 16 | 60 | 8 | □ | 272 |
| DLC-MR-EDS | 7 | 16 | 60 | 8 | □ | 311-8 |
| DLC-MR-EMS | 7 | 16 | 60 | 8 | □ | 311-31 |
| FX-MG-EDS | 7 | 16 | 60 | 8 | □ | 311-1 |
| FX-MG-EMS | 7 | 16 | 60 | 8 | □ | 311-26 |
| FX-MR-EDS | 7 | 16 | 60 | 8 | □ | 311-7 |
| FX-MR-EMS | 7 | 16 | 60 | 8 | □ | 311-28 |
| MG-EHS | 7 | 16 | 60 | 8 | □ | 311-39 |
| MG-EMS OH1 | 7 | 16 | 60 | 8 | □ | 311-34 |
| SXL-RESF | 7 | 16 | 60 | 8 | □ | 438-1 |
| SXL-RESF | 7H | 16 | 60 | 8 | □ | 438-1 |
| V-MG-EDS | 7 | 16 | 60 | 8 | □ | 311-9 |
| WXL-EMS | 7 | 16 | 60 | 8 | ● | 287 |
| WX-RESF | 7 | 16 | 60 | 8 | □ | 437 |
| WX-RESF | 7H | 16 | 60 | 8 | □ | 437 |
| SXL-MG-EHS | 7 × 3F | 16 | 60 | 8 | □ | 311-40 |
| SI-WC-RESF | 7 | 16 | 80 | 8 | □ | 438 |
| SI-WC-RESF | 7H | 16 | 80 | 8 | □ | 438 |
| CAP-EDS | 7 | 16 | 100 | 6 | □ | 311-11 |
| CRN-EDS | 7 | 16 | 100 | 6 | □ | 311-12 |
| FX-MG-EDN | 7 | 20 | 70 | 8 | □ | 311-15 |
| CRN-EDN | 7 | 20 | 100 | 6 | □ | 311-16 |
| WXL-3D-DE | 7 | 21 | 65 | 8 | ● | 263 |
| DIA-EHDS | 7 | 22 | 65 | 8 | □ | 311-42 |
| CAP-EDL | 7 | 24 | 100 | 6 | □ | 311-21 |
| CRN-EDL | 7 | 24 | 100 | 6 | □ | 311-23 |
| GF-EDR | 7 | 35 | 110 | 6 | □ | 311-24 |
| GF-LS-EDR | 7 | 35 | 160 | 6 | □ | 311-24 |
| GF-LS-EMR | 7 | 35 | 160 | 6 | □ | 311-38 |
| DIA-EOE | 7 | 40 | 90 | 8 | □ | 311-47 |
| DIA-EHDL | 7 | 42 | 95 | 8 | □ | 311-45 |
| GF-EDL | 7 | 90 | 160 | 6 | □ | 311-25 |
| GF-EML | 7 | 90 | 160 | 6 | □ | 311-38 |
| WXL-2D-DE | 7.1 | 14.2 | 60 | 8 | ● | 260 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CA-ETS | 7.1 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 7.1 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 7.1 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 7.1 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 7.1 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 7.2 | 14.4 | 60 | 8 | ● | 260 |
| CA-ETS | 7.2 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 7.2 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 7.2 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 7.2 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 7.2 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 7.3 | 14.6 | 60 | 8 | ● | 261 |
| CA-ETS | 7.3 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 7.3 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 7.3 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 7.3 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 7.3 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 7.4 | 14.8 | 60 | 8 | ● | 261 |
| CA-ETS | 7.4 | 16 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 7.4 | 16 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 7.4 | 16 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 7.4 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 7.4 | 42 | 95 | 8 | □ | 311-45 |
| AE-VMSS | 7.5 | 11.3 | 60 | 8 | ● | 296 |
| WX-SHTSS | 7.5 | 11.3 | 60 | 8 | ● | 308 |
| WXL-2D-DE | 7.5 | 15 | 60 | 8 | ● | 261 |
| FX-MG-EDS | 7.5 | 16 | 60 | 8 | □ | 311-1 |
| FX-MG-EMS | 7.5 | 16 | 60 | 8 | □ | 311-26 |
| MG-EMS OH1 | 7.5 | 16 | 60 | 8 | □ | 311-34 |
| V-MG-EDS | 7.5 | 16 | 60 | 8 | □ | 311-9 |
| WXL-EMS | 7.5 | 16 | 60 | 8 | ● | 287 |
| CAP-EDS | 7.5 | 16 | 100 | 6 | □ | 311-11 |
| CRN-EDS | 7.5 | 16 | 100 | 6 | □ | 311-12 |
| FX-MG-EDN | 7.5 | 20 | 70 | 8 | □ | 311-15 |
| CRN-EDN | 7.5 | 20 | 100 | 6 | □ | 311-16 |
| DIA-EHDS | 7.5 | 22 | 65 | 8 | □ | 311-42 |
| WXL-3D-DE | 7.5 | 22.5 | 70 | 8 | ● | 263 |
| CAP-EDL | 7.5 | 24 | 100 | 6 | □ | 311-21 |
| CRN-EDL | 7.5 | 24 | 100 | 6 | □ | 311-23 |
| DIA-EOE | 7.5 | 40 | 90 | 8 | □ | 311-47 |
| DIA-EHDL | 7.5 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 7.6 | 15.2 | 60 | 8 | ● | 261 |
| CA-ETS | 7.6 | 19 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 7.6 | 19 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 7.6 | 19 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 7.6 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 7.6 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 7.7 | 15.4 | 60 | 8 | ● | 261 |
| CA-ETS | 7.7 | 19 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 7.7 | 19 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 7.7 | 19 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 7.7 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 7.7 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 7.8 | 15.6 | 60 | 8 | ● | 261 |
| CA-ETS | 7.8 | 19 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 7.8 | 19 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 7.8 | 19 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 7.8 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 7.8 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 7.9 | 15.8 | 60 | 8 | ● | 261 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CA-ETS | 7.9 | 19 | 60 | 8 | □ | 282 |
| CA-RG-EDS | 7.9 | 19 | 60 | 8 | □ | 271 |
| FX-MG-EDS | 7.9 | 19 | 60 | 8 | □ | 311-1 |
| DIA-EHDS | 7.9 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 7.9 | 42 | 95 | 8 | □ | 311-45 |
| MBOS | 8 | 4 | 60 | 8 | ● | 269 |
| FX-NC-EDSS | 8 | 6 | 35 | 6 | □ | 311-7 |
| FX-NC-EMSS | 8 | 6 | 35 | 6 | □ | 311-28 |
| NC-EMSS | 8 | 6 | 35 | 6 | □ | 311-33 |
| AE-VTSS | 8 × 8 × 8 | 8 | 45 | 8 | ● | 309 |
| MDOS | 8 | 9 | 60 | 8 | ● | 270 |
| AE-VMSS | 8 | 12 | 60 | 8 | ● | 296 |
| FX-MG-EDSS | 8 | 12 | 60 | 8 | □ | 311-4 |
| FX-MG-EMSS | 8 | 12 | 60 | 8 | □ | 311-27 |
| IT-EDS | 8 | 12 | 60 | 8 | □ | 311-14 |
| IT-EMS | 8 | 12 | 60 | 8 | □ | 311-36 |
| WXL-1.5D-DE | 8 | 12 | 60 | 8 | ● | 259 |
| WX-SHTSS | 8 | 12 | 60 | 8 | ● | 308 |
| CRN-HS-EDS | 8 × 20 | 12 | 60 | 8 | □ | 311-13 |
| DIA-ETS | 8 | 12 | 65 | 8 | □ | 311-26 |
| AE-TS-N | 8 × 24 | 12 | 70 | 8 | ● | 278 |
| AE-TS-N | 8 × 24-SP | 12 | 70 | 8 | ● | 279 |
| AE-VMSS | 8 × 24 | 12 | 70 | 8 | ● | 298 |
| AE-VMSS | 8 × 24 | 12 | 70 | 8 | ● | 318 |
| AE-VTS-N | 8 × 24 | 12 | 70 | 8 | ● | 280 |
| AE-VTS-N | 8 × 24-SP | 12 | 70 | 8 | ● | 281 |
| AE-VMSS | 8 × 40 | 12 | 80 | 8 | ● | 298 |
| AE-VMSS | 8 × 40 | 12 | 80 | 8 | ● | 318 |
| AE-MSS-H | 8 × 24 | 12 | 90 | 8 | ● | 289 |
| DIA-LS-ETS | 8 | 12 | 100 | 6 | □ | 311-25 |
| WXL-LN-EMS | 8 × 30 | 12 | 100 | 8 | ● | 320 |
| WX-LN-EMS | 8 × 30 | 12 | 100 | 8 | □ | 321-12 |
| CRN-LN-EDS | 8 × 40 | 12 | 110 | 8 | □ | 321-9 |
| WXL-LN-EDS | 8 × 40 | 12 | 110 | 8 | ● | 316 |
| WXL-LN-EMS | 8 × 50 | 12 | 120 | 8 | ● | 320 |
| WX-LN-EMS | 8 × 50 | 12 | 120 | 8 | □ | 321-12 |
| WXL-LN-EMS | 8 × 60 | 12 | 130 | 8 | ● | 320 |
| WX-LN-EMS | 8 × 60 | 12 | 130 | 8 | □ | 321-12 |
| DLC-EDS | 8 | 16 | 60 | 8 | ● | 272 |
| NEO-EMS | 8 | 16 | 60 | 8 | ● | 291 |
| SH-MG-EDS | 8 | 16 | 60 | 8 | □ | 311-10 |
| WXL-2D-DE | 8 | 16 | 60 | 8 | ● | 261 |
| FXS-EMSS | 8 | 16 | 70 | 8 | □ | 311-29 |
| DG-EMS | 8 | 16 | 100 | 8 | ● | 293 |
| DIA-EDS | 8 | 19 | 60 | 8 | ● | 272 |
| DLC-MR-EDS | 8 | 19 | 60 | 8 | □ | 311-8 |
| DLC-MR-EMS | 8 | 19 | 60 | 8 | □ | 311-31 |
| FX-MG-EDS | 8 | 19 | 60 | 8 | □ | 311-1 |
| FX-MG-EDS OH1 | 8 | 19 | 60 | 8 | □ | 311-4 |
| FX-MG-EMS | 8 | 19 | 60 | 8 | □ | 311-26 |
| FX-MG-EMS OH1 | 8 | 19 | 60 | 8 | □ | 311-27 |
| FX-MR-EDS | 8 | 19 | 60 | 8 | □ | 311-7 |
| FX-MR-EMS | 8 | 19 | 60 | 8 | □ | 311-28 |
| GX-EDS | 8 | 19 | 60 | 8 | □ | 311-11 |
| GX-EMS | 8 | 19 | 60 | 8 | □ | 311-33 |
| MG-EHS | 8 | 19 | 60 | 8 | □ | 311-39 |
| MG-EMS OH1 | 8 | 19 | 60 | 8 | □ | 311-34 |
| SXL-RESF | 8 | 19 | 60 | 8 | □ | 438-1 |
| SXL-RESF | 8H | 19 | 60 | 8 | □ | 438-1 |
| V-MG-EDS | 8 | 19 | 60 | 8 | □ | 311-9 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-EMS | 8 | 19 | 60 | 8 | ● | 287 |
| SXL-MG-EHS | 8 × 3F | 19 | 60 | 8 | □ | 311-40 |
| SXL-MG-EHS | 8 × 4F | 19 | 60 | 8 | □ | 311-40 |
| AE-VMS | 8-G | 19 | 70 | 8 | ● | 300 |
| AE-VMS | 8 | 19 | 70 | 8 | ● | 301 |
| AE-VMS | 8 | 19 | 70 | 8 | ● | 370 |
| DUR-SMF | 8 | 19 | 70 | 8 | □ | 311-31 |
| SI-WC-RESF | 8 | 19 | 80 | 8 | ● | 438 |
| SI-WC-RESF | 8H | 19 | 80 | 8 | ● | 438 |
| UP-PHS | 8 | 19 | 80 | 8 | ● | 303 |
| CAP-EDS | 8 | 19 | 110 | 8 | □ | 311-11 |
| CRN-EDS | 8 | 19 | 110 | 8 | □ | 311-12 |
| CRN-EMS | 8 | 19 | 110 | 8 | □ | 311-35 |
| WX-LS-RESF | 8 | 19 | 140 | 6 | □ | 438-2 |
| AE-MS-H | 8 | 20 | 70 | 8 | ● | 290 |
| FXS-EMS | 8 | 20 | 70 | 8 | □ | 311-29 |
| FXS-LS-EMS-S | 8 | 20 | 100 | 6 | □ | 311-30 |
| FXS-LS-EMS | 8 | 20 | 100 | 8 | □ | 311-30 |
| AE-VMFE | 8 | 20 | 110 | 6 | ● | 288 |
| AE-VMFE | 8 | 20 | 110 | 6 | ● | 393 |
| AE-VTFE-N | 8 | 20 | 110 | 6 | ● | 311 |
| DIA-EHDS | 8 | 22 | 65 | 8 | □ | 311-42 |
| DIA-LS-EHDS | 8 | 22 | 150 | 8 | □ | 311-44 |
| AE-TL-N | 8 × 24 | 24 | 70 | 8 | ● | 284 |
| AE-TL-N | 8 × 24-SP | 24 | 70 | 8 | ● | 285 |
| WXL-3D-DE | 8 | 24 | 70 | 8 | ● | 263 |
| DLC-E1-3D | 8 | 24 | 75 | 8 | □ | 311-48 |
| DLC-E2-3D | 8 | 24 | 75 | 8 | □ | 311-50 |
| FX-MG-EDN | 8 | 24 | 80 | 8 | □ | 311-15 |
| DLC-E1-3D-L | 8 | 24 | 85 | 8 | □ | 311-48 |
| DLC-E2-3D-L | 8 | 24 | 85 | 8 | □ | 311-50 |
| CRN-EDN | 8 | 24 | 110 | 8 | □ | 311-16 |
| AE-VML | 8 × 25 | 25 | 80 | 8 | ● | 305 |
| AE-VML | 8 × 25-N | 25 | 80 | 8 | ● | 306 |
| AE-VML | 8 × 25 | 25 | 80 | 8 | ● | 371 |
| SXL-MG-EHL | 8 × 3F | 28 | 70 | 8 | □ | 311-41 |
| CAP-EDL | 8 | 28 | 110 | 8 | □ | 311-21 |
| CRN-EDL | 8 | 28 | 110 | 8 | □ | 311-23 |
| CRN-EML | 8 | 28 | 110 | 8 | □ | 311-37 |
| AE-ML-H | 8 × 32 | 32 | 80 | 8 | ● | 307 |
| WXL-4D-DE | 8 | 32 | 80 | 8 | ● | 264 |
| AE-VML | 8 × 32 | 32 | 90 | 8 | ● | 305 |
| AE-VML | 8 × 32-N | 32 | 90 | 8 | ● | 306 |
| AE-VML | 8 × 32 | 32 | 90 | 8 | ● | 371 |
| FXS-EML | 8 | 35 | 80 | 8 | □ | 311-36 |
| AE-TL-N | 8 × 40 | 40 | 90 | 8 | ● | 284 |
| AE-TL-N | 8 × 40-SP | 40 | 90 | 8 | ● | 285 |
| DIA-EOE | 8 | 40 | 90 | 8 | □ | 311-47 |
| DLC-E1-5D | 8 | 40 | 90 | 8 | □ | 311-49 |
| DLC-E2-5D | 8 | 40 | 90 | 8 | □ | 311-51 |
| DLC-E1-5D-L | 8 | 40 | 100 | 8 | □ | 311-49 |
| DLC-E2-5D-L | 8 | 40 | 100 | 8 | □ | 311-51 |
| CRN-EDLL | 8 | 40 | 110 | 8 | □ | 311-23 |
| GF-EDR | 8 | 40 | 110 | 8 | □ | 311-24 |
| GF-EMR | 8 | 40 | 110 | 8 | □ | 311-37 |
| GF-LS-EDR | 8 | 40 | 160 | 8 | □ | 311-24 |
| GF-LS-EMR | 8 | 40 | 160 | 8 | □ | 311-38 |
| DIA-EHDL | 8 | 42 | 95 | 8 | □ | 311-45 |
| DIA-LS-EHDL | 8 | 42 | 150 | 8 | □ | 311-47 |
| FX-MG-EXDL | 8 | 50 | 95 | 10 | □ | 275 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EXDL | 8 | 50 | 95 | 10 | □ | 276 |
| MG-EXML | 8 | 50 | 95 | 10 | □ | 295 |
| FX-MG-EXDL | 8 | 60 | 105 | 10 | □ | 275 |
| MG-EXDL | 8 | 60 | 105 | 10 | □ | 276 |
| MG-EXML | 8 | 60 | 105 | 10 | □ | 295 |
| FX-MG-EXDL | 8 | 80 | 125 | 10 | □ | 275 |
| MG-EXDL | 8 | 80 | 125 | 10 | □ | 276 |
| MG-EXML | 8 | 80 | 125 | 10 | □ | 295 |
| GF-EDL | 8 | 100 | 160 | 8 | □ | 311-25 |
| GF-EML | 8 | 100 | 160 | 8 | □ | 311-38 |
| WXL-2D-DE | 8.1 | 16.2 | 70 | 10 | ● | 261 |
| CA-ETS | 8.1 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 8.1 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 8.1 | 19 | 70 | 10 | □ | 311-1 |
| DIA-EHDS | 8.1 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 8.1 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 8.2 | 16.4 | 70 | 10 | ● | 261 |
| CA-ETS | 8.2 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 8.2 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 8.2 | 19 | 70 | 10 | □ | 311-1 |
| DIA-EHDS | 8.2 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 8.2 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 8.3 | 16.6 | 70 | 10 | ● | 261 |
| CA-ETS | 8.3 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 8.3 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 8.3 | 19 | 70 | 10 | □ | 311-1 |
| DIA-EHDS | 8.3 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 8.3 | 42 | 95 | 8 | □ | 311-45 |
| WXL-2D-DE | 8.4 | 16.8 | 70 | 10 | ● | 261 |
| CA-ETS | 8.4 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 8.4 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 8.4 | 19 | 70 | 10 | □ | 311-1 |
| DIA-EHDS | 8.4 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 8.4 | 42 | 95 | 8 | □ | 311-45 |
| AE-VMSS | 8.5 | 12.8 | 70 | 10 | ● | 296 |
| WX-SHTSS | 8.5 | 12.8 | 70 | 10 | ● | 308 |
| WXL-2D-DE | 8.5 | 17 | 70 | 10 | ● | 261 |
| FX-MG-EDS | 8.5 | 19 | 70 | 10 | □ | 311-1 |
| FX-MG-EMS | 8.5 | 19 | 70 | 10 | □ | 311-26 |
| MG-EMS OH1 | 8.5 | 19 | 70 | 10 | □ | 311-34 |
| V-MG-EDS | 8.5 | 19 | 70 | 10 | □ | 311-9 |
| WXL-EMS | 8.5 | 19 | 70 | 10 | ● | 287 |
| CAP-EDS | 8.5 | 19 | 110 | 8 | □ | 311-11 |
| CRN-EDS | 8.5 | 19 | 110 | 8 | □ | 311-12 |
| DIA-EHDS | 8.5 | 22 | 65 | 8 | □ | 311-42 |
| FX-MG-EDN | 8.5 | 24 | 80 | 10 | □ | 311-15 |
| CRN-EDN | 8.5 | 24 | 110 | 8 | □ | 311-16 |
| WXL-3D-DE | 8.5 | 25.5 | 70 | 10 | ● | 263 |
| CAP-EDL | 8.5 | 28 | 110 | 8 | □ | 311-21 |
| CRN-EDL | 8.5 | 28 | 110 | 8 | □ | 311-23 |
| DIA-EOE | 8.5 | 40 | 100 | 10 | □ | 311-47 |
| DIA-EHDL | 8.5 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 8.6 | 17.2 | 70 | 10 | ● | 261 |
| CA-ETS | 8.6 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 8.6 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 8.6 | 19 | 70 | 10 | □ | 311-2 |
| DIA-EHDS | 8.6 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 8.6 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 8.7 | 17.4 | 70 | 10 | ● | 261 |
| CA-ETS | 8.7 | 19 | 70 | 10 | □ | 282 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CA-RG-EDS | 8.7 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 8.7 | 19 | 70 | 10 | □ | 311-2 |
| DIA-EHDS | 8.7 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 8.7 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 8.8 | 17.6 | 70 | 10 | ● | 261 |
| CA-ETS | 8.8 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 8.8 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 8.8 | 19 | 70 | 10 | □ | 311-2 |
| DIA-EHDS | 8.8 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 8.8 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 8.9 | 17.8 | 70 | 10 | ● | 261 |
| CA-ETS | 8.9 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 8.9 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 8.9 | 19 | 70 | 10 | □ | 311-2 |
| DIA-EHDS | 8.9 | 22 | 65 | 8 | □ | 311-42 |
| DIA-EHDL | 8.9 | 42 | 110 | 10 | □ | 311-45 |
| FX-NC-EDSS | 9 | 6 | 35 | 6 | □ | 311-7 |
| FX-NC-EMSS | 9 | 6 | 35 | 6 | □ | 311-28 |
| AE-VMSS | 9 | 13.5 | 70 | 10 | ● | 296 |
| WX-SHTSS | 9 | 13.5 | 70 | 10 | ● | 308 |
| SH-MG-EDS | 9 | 16 | 70 | 10 | □ | 311-10 |
| DLC-EDS | 9 | 18 | 70 | 10 | ● | 272 |
| WXL-2D-DE | 9 | 18 | 70 | 10 | ● | 261 |
| DIA-EDS | 9 | 19 | 70 | 10 | □ | 272 |
| DLC-MR-EDS | 9 | 19 | 70 | 10 | □ | 311-8 |
| DLC-MR-EMS | 9 | 19 | 70 | 10 | □ | 311-31 |
| FX-MG-EDS | 9 | 19 | 70 | 10 | □ | 311-2 |
| FX-MG-EMS | 9 | 19 | 70 | 10 | □ | 311-26 |
| FX-MR-EDS | 9 | 19 | 70 | 10 | □ | 311-7 |
| FX-MR-EMS | 9 | 19 | 70 | 10 | □ | 311-28 |
| MG-EHS | 9 | 19 | 70 | 10 | □ | 311-39 |
| MG-EMS OH1 | 9 | 19 | 70 | 10 | □ | 311-34 |
| SXL-RESF | 9 | 19 | 70 | 10 | □ | 438-1 |
| SXL-RESF | 9H | 19 | 70 | 10 | □ | 438-1 |
| V-MG-EDS | 9 | 19 | 70 | 10 | □ | 311-9 |
| WXL-EMS | 9 | 19 | 70 | 10 | ● | 287 |
| WX-RESF | 9 | 19 | 70 | 10 | □ | 437 |
| WX-RESF | 9H | 19 | 70 | 10 | □ | 437 |
| SXL-MG-EHS | 9 × 3F | 19 | 70 | 10 | □ | 311-40 |
| SI-WC-RESF | 9 | 19 | 80 | 10 | □ | 438 |
| SI-WC-RESF | 9H | 19 | 80 | 10 | □ | 438 |
| CAP-EDS | 9 | 19 | 110 | 8 | □ | 311-11 |
| CRN-EDS | 9 | 19 | 110 | 8 | □ | 311-12 |
| DIA-EHDS | 9 | 22 | 70 | 10 | □ | 311-42 |
| FX-MG-EDN | 9 | 24 | 80 | 10 | □ | 311-15 |
| CRN-EDN | 9 | 24 | 110 | 8 | □ | 311-16 |
| WXL-3D-DE | 9 | 27 | 75 | 10 | ● | 263 |
| CAP-EDL | 9 | 28 | 110 | 8 | □ | 311-21 |
| CRN-EDL | 9 | 28 | 110 | 8 | □ | 311-23 |
| DIA-EOE | 9 | 40 | 100 | 10 | □ | 311-47 |
| DIA-EHDL | 9 | 42 | 110 | 10 | □ | 311-45 |
| GF-EDR | 9 | 45 | 120 | 8 | □ | 311-24 |
| GF-LS-EDR | 9 | 45 | 180 | 8 | □ | 311-24 |
| GF-LS-EMR | 9 | 45 | 180 | 8 | □ | 311-38 |
| FX-MG-EXDL | 9 | 50 | 95 | 10 | □ | 275 |
| MG-EXDL | 9 | 50 | 95 | 10 | □ | 276 |
| MG-EXML | 9 | 50 | 95 | 10 | □ | 295 |
| FX-MG-EXDL | 9 | 60 | 105 | 10 | □ | 275 |
| MG-EXDL | 9 | 60 | 105 | 10 | □ | 276 |
| MG-EXML | 9 | 60 | 105 | 10 | □ | 295 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EXDL | 9 | 80 | 125 | 10 | □ | 275 |
| MG-EXDL | 9 | 80 | 125 | 10 | □ | 276 |
| MG-EXML | 9 | 80 | 125 | 10 | □ | 295 |
| GF-EDL | 9 | 110 | 180 | 8 | □ | 311-25 |
| GF-EML | 9 | 110 | 180 | 8 | □ | 311-38 |
| WXL-2D-DE | 9.1 | 18.2 | 70 | 10 | ● | 261 |
| CA-ETS | 9.1 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 9.1 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 9.1 | 19 | 70 | 10 | □ | 311-2 |
| DIA-EHDS | 9.1 | 22 | 70 | 10 | □ | 311-42 |
| DIA-EHDL | 9.1 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 9.2 | 18.4 | 70 | 10 | ● | 261 |
| CA-ETS | 9.2 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 9.2 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 9.2 | 19 | 70 | 10 | □ | 311-2 |
| DIA-EHDS | 9.2 | 22 | 70 | 10 | □ | 311-42 |
| DIA-EHDL | 9.2 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 9.3 | 18.6 | 70 | 10 | ● | 261 |
| CA-ETS | 9.3 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 9.3 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 9.3 | 19 | 70 | 10 | □ | 311-2 |
| DIA-EHDS | 9.3 | 22 | 70 | 10 | □ | 311-42 |
| DIA-EHDL | 9.3 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 9.4 | 18.8 | 70 | 10 | ● | 261 |
| CA-ETS | 9.4 | 19 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 9.4 | 19 | 70 | 10 | □ | 271 |
| FX-MG-EDS | 9.4 | 19 | 70 | 10 | □ | 311-2 |
| DIA-EHDS | 9.4 | 22 | 70 | 10 | □ | 311-42 |
| DIA-EHDL | 9.4 | 42 | 110 | 10 | □ | 311-45 |
| AE-VMSS | 9.5 | 14.3 | 70 | 10 | ● | 296 |
| WX-SHTSS | 9.5 | 14.3 | 70 | 10 | ● | 308 |
| FX-MG-EDS | 9.5 | 19 | 70 | 10 | □ | 311-2 |
| FX-MG-EMS | 9.5 | 19 | 70 | 10 | □ | 311-26 |
| MG-EMS OH1 | 9.5 | 19 | 70 | 10 | □ | 311-34 |
| V-MG-EDS | 9.5 | 19 | 70 | 10 | □ | 311-9 |
| WXL-2D-DE | 9.5 | 19 | 70 | 10 | ● | 261 |
| WXL-EMS | 9.5 | 19 | 70 | 10 | ● | 287 |
| CAP-EDS | 9.5 | 19 | 110 | 8 | □ | 311-11 |
| CRN-EDS | 9.5 | 19 | 110 | 8 | □ | 311-12 |
| DIA-EHDS | 9.5 | 22 | 70 | 10 | □ | 311-42 |
| FX-MG-EDN | 9.5 | 24 | 80 | 10 | □ | 311-15 |
| CRN-EDN | 9.5 | 24 | 110 | 8 | □ | 311-16 |
| CAP-EDL | 9.5 | 28 | 110 | 8 | □ | 311-21 |
| CRN-EDL | 9.5 | 28 | 110 | 8 | □ | 311-23 |
| WXL-3D-DE | 9.5 | 28.5 | 75 | 10 | ● | 263 |
| DIA-EOE | 9.5 | 40 | 100 | 10 | □ | 311-47 |
| DIA-EHDL | 9.5 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 9.6 | 19.2 | 70 | 10 | ● | 261 |
| CA-ETS | 9.6 | 22 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 9.6 | 22 | 70 | 10 | □ | 271 |
| DIA-EHDS | 9.6 | 22 | 70 | 10 | □ | 311-42 |
| FX-MG-EDS | 9.6 | 22 | 70 | 10 | □ | 311-2 |
| DIA-EHDL | 9.6 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 9.7 | 19.4 | 70 | 10 | ● | 261 |
| CA-ETS | 9.7 | 22 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 9.7 | 22 | 70 | 10 | □ | 271 |
| DIA-EHDS | 9.7 | 22 | 70 | 10 | □ | 311-42 |
| FX-MG-EDS | 9.7 | 22 | 70 | 10 | □ | 311-2 |
| DIA-EHDL | 9.7 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 9.8 | 19.6 | 70 | 10 | ● | 261 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
# CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CA-ETS | 9.8 | 22 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 9.8 | 22 | 70 | 10 | □ | 271 |
| DIA-EHDS | 9.8 | 22 | 70 | 10 | □ | 311-42 |
| FX-MG-EDS | 9.8 | 22 | 70 | 10 | □ | 311-2 |
| DIA-EHDL | 9.8 | 42 | 110 | 10 | □ | 311-45 |
| WXL-2D-DE | 9.9 | 19.8 | 70 | 10 | ● | 261 |
| CA-ETS | 9.9 | 22 | 70 | 10 | □ | 282 |
| CA-RG-EDS | 9.9 | 22 | 70 | 10 | □ | 271 |
| DIA-EHDS | 9.9 | 22 | 70 | 10 | □ | 311-42 |
| FX-MG-EDS | 9.9 | 22 | 70 | 10 | □ | 311-2 |
| DIA-EHDL | 9.9 | 42 | 110 | 10 | □ | 311-45 |
| MBOS | 10 | 5 | 70 | 10 | ● | 269 |
| FX-NC-EDSS | 10 | 6 | 35 | 6 | □ | 311-7 |
| FX-NC-EMSS | 10 | 6 | 35 | 6 | □ | 311-28 |
| NC-EMSS | 10 | 6 | 35 | 6 | □ | 311-33 |
| AE-VTSS | 10 × 10 ×10 | 10 | 45 | 10 | ● | 309 |
| MDOS | 10 | 11 | 70 | 10 | ● | 270 |
| AE-VMSS | 10 | 15 | 70 | 10 | ● | 296 |
| FX-MG-EDSS | 10 | 15 | 70 | 10 | □ | 311-4 |
| FX-MG-EMSS | 10 | 15 | 70 | 10 | □ | 311-27 |
| IT-EDS | 10 | 15 | 70 | 10 | □ | 311-14 |
| IT-EMS | 10 | 15 | 70 | 10 | □ | 311-36 |
| WXL-1.5D-DE | 10 | 15 | 70 | 10 | ● | 259 |
| WX-SHTSS | 10 | 15 | 70 | 10 | ● | 308 |
| CRN-HS-EDS | 10 × 25 | 15 | 70 | 10 | □ | 311-13 |
| DIA-ETS | 10 | 15 | 75 | 10 | □ | 311-26 |
| AE-TS-N | 10 × 30 | 15 | 75 | 10 | ● | 278 |
| AE-TS-N | 10 × 30-SP | 15 | 75 | 10 | ● | 279 |
| AE-VTS-N | 10 × 30 | 15 | 75 | 10 | ● | 280 |
| AE-VTS-N | 10 × 30-SP | 15 | 75 | 10 | ● | 281 |
| AE-VMSS | 10 × 30 | 15 | 80 | 10 | ● | 298 |
| AE-VMSS | 10 × 30 | 15 | 80 | 10 | ● | 318 |
| AE-MSS-H | 10 × 30 | 15 | 100 | 10 | ● | 289 |
| AE-VMSS | 10 × 50 | 15 | 100 | 10 | ● | 298 |
| AE-VMSS | 10 × 50 | 15 | 100 | 10 | ● | 318 |
| WXL-LN-EMS | 10 × 40 | 15 | 110 | 10 | ● | 320 |
| WX-LN-EMS | 10 × 40 | 15 | 110 | 10 | □ | 321-12 |
| CRN-LN-EDS | 10 × 50 | 15 | 125 | 10 | □ | 321-9 |
| WXL-LN-EDS | 10 × 50 | 15 | 125 | 10 | ● | 316 |
| DIA-LS-ETS | 10 | 15 | 130 | 8 | □ | 311-25 |
| WXL-LN-EMS | 10 × 60 | 15 | 130 | 10 | ● | 320 |
| WX-LN-EMS | 10 × 60 | 15 | 130 | 10 | □ | 321-12 |
| WXL-LN-EMS | 10 × 80 | 15 | 150 | 10 | ● | 320 |
| WX-LN-EMS | 10 × 80 | 15 | 150 | 10 | □ | 321-12 |
| DLC-EDS | 10 | 20 | 70 | 10 | ● | 272 |
| NEO-EMS | 10 | 20 | 70 | 10 | ● | 291 |
| SH-MG-EDS | 10 | 20 | 70 | 10 | □ | 311-10 |
| WXL-2D-DE | 10 | 20 | 70 | 10 | ● | 261 |
| FXS-EMSS | 10 | 20 | 80 | 10 | □ | 311-29 |
| DG-EMS | 10 | 20 | 100 | 10 | ● | 293 |
| DIA-EDS | 10 | 22 | 70 | 10 | ● | 272 |
| DLC-MR-EDS | 10 | 22 | 70 | 10 | □ | 311-8 |
| DLC-MR-EMS | 10 | 22 | 70 | 10 | □ | 311-31 |
| FX-MG-EDS | 10 | 22 | 70 | 10 | □ | 311-2 |
| FX-MG-EDS OH1 | 10 | 22 | 70 | 10 | □ | 311-4 |
| FX-MG-EMS | 10 | 22 | 70 | 10 | □ | 311-26 |
| FX-MG-EMS OH1 | 10 | 22 | 70 | 10 | □ | 311-27 |
| FX-MR-EDS | 10 | 22 | 70 | 10 | □ | 311-7 |
| FX-MR-EMS | 10 | 22 | 70 | 10 | □ | 311-28 |
| GX-EDS | 10 | 22 | 70 | 10 | □ | 311-11 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| GX-EMS | 10 | 22 | 70 | 10 | □ | 311-33 |
| MG-EHS | 10 | 22 | 70 | 10 | □ | 311-39 |
| MG-EMS OH1 | 10 | 22 | 70 | 10 | □ | 311-34 |
| SXL-RESF | 10 | 22 | 70 | 10 | □ | 438-1 |
| SXL-RESF | 10H | 22 | 70 | 10 | □ | 438-1 |
| V-MG-EDS | 10 | 22 | 70 | 10 | □ | 311-9 |
| WXL-EMS | 10 | 22 | 70 | 10 | ● | 287 |
| SXL-MG-EHS | 10 × 3F | 22 | 70 | 10 | □ | 311-40 |
| SXL-MG-EHS | 10 × 4F | 22 | 70 | 10 | □ | 311-40 |
| AE-VMS | 10-G | 22 | 80 | 10 | ● | 300 |
| AE-VMS | 10 | 22 | 80 | 10 | ● | 301 |
| AE-VMS | 10 | 22 | 80 | 10 | ● | 370 |
| DUR-SMF | 10 | 22 | 80 | 10 | □ | 311-31 |
| SI-WC-RESF | 10 | 22 | 80 | 10 | ● | 438 |
| SI-WC-RESF | 10H | 22 | 80 | 10 | ● | 438 |
| UP-PHS | 10 | 22 | 80 | 10 | ● | 303 |
| CAP-EDS | 10 | 22 | 125 | 10 | □ | 311-11 |
| CRN-EDS | 10 | 22 | 125 | 10 | □ | 311-12 |
| CRN-EMS | 10 | 22 | 125 | 10 | □ | 311-35 |
| WX-LS-RESF | 10 | 22 | 160 | 8 | □ | 438-2 |
| AE-MS-H | 10 | 25 | 80 | 10 | ● | 290 |
| FXS-EMS | 10 | 25 | 80 | 10 | □ | 311-29 |
| FXS-LS-EMS-S | 10 | 25 | 100 | 8 | □ | 311-30 |
| FXS-LS-EMS | 10 | 25 | 100 | 10 | □ | 311-30 |
| AE-VMFE | 10 | 25 | 130 | 8 | ● | 288 |
| AE-VMFE | 10 | 25 | 130 | 8 | ● | 393 |
| AE-VTFE-N | 10 | 25 | 130 | 8 | ● | 311 |
| DIA-EHDS | 10 | 28 | 75 | 10 | □ | 311-42 |
| FX-MG-EDN | 10 | 28 | 80 | 10 | □ | 311-15 |
| CRN-EDN | 10 | 28 | 125 | 10 | □ | 311-16 |
| DIA-LS-EHDS | 10 | 28 | 200 | 8 | □ | 311-44 |
| AE-TL-N | 10 × 30 | 30 | 75 | 10 | ● | 284 |
| AE-TL-N | 10 × 30-SP | 30 | 75 | 10 | ● | 285 |
| WXL-3D-DE | 10 | 30 | 80 | 10 | ● | 263 |
| DLC-E1-3D | 10 | 30 | 90 | 10 | □ | 311-48 |
| DLC-E2-3D | 10 | 30 | 90 | 10 | □ | 311-50 |
| DLC-E1-3D-L | 10 | 30 | 100 | 10 | □ | 311-48 |
| DLC-E2-3D-L | 10 | 30 | 100 | 10 | □ | 311-50 |
| AE-VML | 10 × 31 | 31 | 90 | 10 | ● | 305 |
| AE-VML | 10 × 31-N | 31 | 90 | 10 | ● | 306 |
| AE-VML | 10 × 31 | 31 | 90 | 10 | ● | 371 |
| SXL-MG-EHL | 10 × 3F | 34 | 80 | 10 | □ | 311-41 |
| CAP-EDL | 10 | 34 | 125 | 10 | □ | 311-21 |
| CRN-EDL | 10 | 34 | 125 | 10 | □ | 311-23 |
| CRN-EML | 10 | 34 | 125 | 10 | □ | 311-37 |
| WXL-4D-DE | 10 | 40 | 90 | 10 | ● | 264 |
| AE-ML-H | 10 × 40 | 40 | 100 | 10 | ● | 307 |
| AE-VML | 10 × 40 | 40 | 100 | 10 | ● | 305 |
| AE-VML | 10 × 40-N | 40 | 100 | 10 | ● | 306 |
| AE-VML | 10 × 40 | 40 | 100 | 10 | ● | 371 |
| FXS-EML | 10 | 45 | 100 | 10 | □ | 311-36 |
| AE-TL-N | 10 × 50 | 50 | 100 | 10 | ● | 284 |
| AE-TL-N | 10 × 50-SP | 50 | 100 | 10 | ● | 285 |
| DIA-EOE | 10 | 50 | 110 | 10 | □ | 311-47 |
| DLC-E1-5D | 10 | 50 | 110 | 10 | □ | 311-49 |
| DLC-E2-5D | 10 | 50 | 110 | 10 | □ | 311-51 |
| DLC-E1-5D-L | 10 | 50 | 120 | 10 | □ | 311-49 |
| DLC-E2-5D-L | 10 | 50 | 120 | 10 | □ | 311-51 |
| GF-EDR | 10 | 50 | 120 | 10 | □ | 311-24 |
| GF-EMR | 10 | 50 | 120 | 10 | □ | 311-37 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CRN-EDLL | 10 | 50 | 125 | 10 | □ | 311-23 |
| GF-LS-EDR | 10 | 50 | 180 | 10 | □ | 311-24 |
| GF-LS-EMR | 10 | 50 | 180 | 10 | □ | 311-38 |
| DIA-EHDL | 10 | 53 | 120 | 10 | □ | 311-45 |
| DIA-LS-EHDL | 10 | 53 | 200 | 8 | □ | 311-47 |
| FX-MG-EXDL | 10 | 60 | 105 | 10 | □ | 275 |
| MG-EXDL | 10 | 60 | 105 | 10 | □ | 276 |
| MG-EXML | 10 | 60 | 105 | 10 | □ | 295 |
| FX-MG-EXDL | 10 | 80 | 125 | 10 | □ | 275 |
| MG-EXDL | 10 | 80 | 125 | 10 | □ | 276 |
| MG-EXML | 10 | 80 | 125 | 10 | □ | 295 |
| FX-MG-EXDL | 10 | 100 | 145 | 10 | □ | 275 |
| MG-EXDL | 10 | 100 | 145 | 10 | □ | 276 |
| MG-EXML | 10 | 100 | 145 | 10 | □ | 295 |
| GF-EDL | 10 | 120 | 180 | 10 | □ | 311-25 |
| GF-EML | 10 | 120 | 180 | 10 | □ | 311-38 |
| WXL-2D-DE | 10.1 | 20.2 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.1 | 22 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 10.1 | 28 | 75 | 10 | □ | 311-42 |
| DIA-EHDL | 10.1 | 53 | 120 | 10 | □ | 311-45 |
| WXL-2D-DE | 10.2 | 20.4 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.2 | 22 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 10.2 | 28 | 75 | 10 | □ | 311-42 |
| DIA-EHDL | 10.2 | 53 | 120 | 10 | □ | 311-45 |
| WXL-2D-DE | 10.3 | 20.6 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.3 | 22 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 10.3 | 28 | 75 | 10 | □ | 311-42 |
| DIA-EHDL | 10.3 | 53 | 120 | 10 | □ | 311-45 |
| WXL-2D-DE | 10.4 | 20.8 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.4 | 22 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 10.4 | 28 | 75 | 10 | □ | 311-42 |
| DIA-EHDL | 10.4 | 53 | 120 | 10 | □ | 311-45 |
| AE-VMSS | 10.5 | 15.8 | 75 | 12 | ● | 296 |
| WXL-2D-DE | 10.5 | 21 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.5 | 22 | 75 | 12 | □ | 311-2 |
| FX-MG-EMS | 10.5 | 22 | 75 | 12 | □ | 311-26 |
| WXL-EMS | 10.5 | 22 | 75 | 12 | ● | 287 |
| DIA-EHDS | 10.5 | 28 | 75 | 10 | □ | 311-42 |
| FX-MG-EDN | 10.5 | 28 | 90 | 12 | □ | 311-15 |
| DIA-EOE | 10.5 | 50 | 110 | 12 | □ | 311-47 |
| DIA-EHDL | 10.5 | 53 | 120 | 12 | □ | 311-45 |
| WXL-2D-DE | 10.6 | 21.2 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.6 | 22 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 10.6 | 28 | 75 | 12 | □ | 311-42 |
| DIA-EHDL | 10.6 | 53 | 120 | 12 | □ | 311-45 |
| WXL-2D-DE | 10.7 | 21.4 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.7 | 22 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 10.7 | 28 | 75 | 12 | □ | 311-42 |
| DIA-EHDL | 10.7 | 53 | 120 | 12 | □ | 311-45 |
| WXL-2D-DE | 10.8 | 21.6 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.8 | 22 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 10.8 | 28 | 75 | 12 | □ | 311-42 |
| DIA-EHDL | 10.8 | 53 | 120 | 12 | □ | 311-45 |
| WXL-2D-DE | 10.9 | 21.8 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 10.9 | 22 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 10.9 | 28 | 75 | 12 | □ | 311-42 |
| DIA-EHDL | 10.9 | 53 | 120 | 12 | □ | 311-45 |
| AE-VMSS | 11 | 16.5 | 75 | 12 | ● | 296 |
| WX-SHTSS | 11 | 16.5 | 75 | 12 | ● | 308 |
| SH-MG-EDS | 11 | 20 | 75 | 12 | □ | 311-10 |
| DIA-EDS | 11 | 22 | 75 | 12 | □ | 272 |
| DLC-EDS | 11 | 22 | 75 | 12 | ● | 272 |
| DLC-MR-EDS | 11 | 22 | 75 | 12 | □ | 311-8 |
| DLC-MR-EMS | 11 | 22 | 75 | 12 | □ | 311-31 |
| FX-MG-EDS | 11 | 22 | 75 | 12 | □ | 311-2 |
| FX-MG-EMS | 11 | 22 | 75 | 12 | □ | 311-26 |
| FX-MR-EDS | 11 | 22 | 75 | 12 | □ | 311-7 |
| FX-MR-EMS | 11 | 22 | 75 | 12 | □ | 311-28 |
| MG-EHS | 11 | 22 | 75 | 12 | □ | 311-39 |
| MG-EMS OH1 | 11 | 22 | 75 | 12 | □ | 311-34 |
| SXL-RESF | 11 | 22 | 75 | 12 | □ | 438-1 |
| SXL-RESF | 11H | 22 | 75 | 12 | □ | 438-1 |
| V-MG-EDS | 11 | 22 | 75 | 12 | □ | 311-9 |
| WXL-2D-DE | 11 | 22 | 75 | 12 | ● | 261 |
| WXL-EMS | 11 | 22 | 75 | 12 | ● | 287 |
| WX-RESF | 11 | 22 | 75 | 12 | □ | 437 |
| WX-RESF | 11H | 22 | 75 | 12 | □ | 437 |
| SXL-MG-EHS | 11 × 3F | 22 | 75 | 12 | □ | 311-40 |
| SI-WC-RESF | 11 | 22 | 80 | 12 | □ | 438 |
| SI-WC-RESF | 11H | 22 | 80 | 12 | □ | 438 |
| CAP-EDS | 11 | 22 | 125 | 10 | □ | 311-11 |
| CRN-EDS | 11 | 22 | 125 | 10 | □ | 311-12 |
| DIA-EHDS | 11 | 28 | 80 | 12 | □ | 311-42 |
| FX-MG-EDN | 11 | 28 | 90 | 12 | □ | 311-15 |
| CRN-EDN | 11 | 28 | 125 | 10 | □ | 311-16 |
| WXL-3D-DE | 11 | 33 | 80 | 12 | ● | 263 |
| CAP-EDL | 11 | 34 | 125 | 10 | □ | 311-21 |
| CRN-EDL | 11 | 34 | 125 | 10 | □ | 311-23 |
| DIA-EOE | 11 | 50 | 110 | 12 | □ | 311-47 |
| DIA-EHDL | 11 | 53 | 120 | 12 | □ | 311-45 |
| GF-EDR | 11 | 55 | 130 | 10 | □ | 311-24 |
| GF-LS-EDR | 11 | 55 | 200 | 10 | □ | 311-24 |
| GF-LS-EMR | 11 | 55 | 200 | 10 | □ | 311-38 |
| FX-MG-EXDL | 11 | 75 | 130 | 12 | □ | 275 |
| GF-EDL | 11 | 130 | 200 | 10 | □ | 311-25 |
| GF-EML | 11 | 130 | 200 | 10 | □ | 311-38 |
| FX-MG-EDS | 11.1 | 22 | 75 | 12 | □ | 311-2 |
| WXL-2D-DE | 11.1 | 22.2 | 75 | 12 | ● | 261 |
| DIA-EHDS | 11.1 | 28 | 80 | 12 | □ | 311-42 |
| DIA-EHDL | 11.1 | 53 | 120 | 12 | □ | 311-45 |
| FX-MG-EDS | 11.2 | 22 | 75 | 12 | □ | 311-2 |
| WXL-2D-DE | 11.2 | 22.4 | 75 | 12 | ● | 261 |
| DIA-EHDS | 11.2 | 28 | 80 | 12 | □ | 311-42 |
| DIA-EHDL | 11.2 | 53 | 120 | 12 | □ | 311-45 |
| FX-MG-EDS | 11.3 | 22 | 75 | 12 | □ | 311-2 |
| WXL-2D-DE | 11.3 | 22.6 | 75 | 12 | ● | 261 |
| DIA-EHDS | 11.3 | 28 | 80 | 12 | □ | 311-42 |
| DIA-EHDL | 11.3 | 53 | 120 | 12 | □ | 311-45 |
| FX-MG-EDS | 11.4 | 22 | 75 | 12 | □ | 311-2 |
| WXL-2D-DE | 11.4 | 22.8 | 75 | 12 | ● | 261 |
| DIA-EHDS | 11.4 | 28 | 80 | 12 | □ | 311-42 |
| DIA-EHDL | 11.4 | 53 | 120 | 12 | □ | 311-45 |
| AE-VMSS | 11.5 | 17.3 | 75 | 12 | ● | 296 |
| FX-MG-EDS | 11.5 | 22 | 75 | 12 | □ | 311-2 |
| FX-MG-EMS | 11.5 | 22 | 75 | 12 | □ | 311-26 |
| WXL-EMS | 11.5 | 22 | 75 | 12 | ● | 287 |
| WXL-2D-DE | 11.5 | 23 | 75 | 12 | ● | 261 |
| DIA-EHDS | 11.5 | 28 | 80 | 12 | □ | 311-42 |
| FX-MG-EDN | 11.5 | 28 | 90 | 12 | □ | 311-15 |
| DIA-EOE | 11.5 | 50 | 110 | 12 | □ | 311-47 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DIA-EHDL | 11.5 | 53 | 120 | 12 | □ | 311-45 |
| FX-MG-EDS | 11.6 | 22 | 75 | 12 | □ | 311-2 |
| WXL-2D-DE | 11.6 | 23.2 | 75 | 12 | ● | 261 |
| DIA-EHDS | 11.6 | 28 | 80 | 12 | □ | 311-42 |
| DIA-EHDL | 11.6 | 53 | 120 | 12 | □ | 311-45 |
| FX-MG-EDS | 11.7 | 22 | 75 | 12 | □ | 311-2 |
| WXL-2D-DE | 11.7 | 23.4 | 75 | 12 | ● | 261 |
| DIA-EHDS | 11.7 | 28 | 80 | 12 | □ | 311-42 |
| DIA-EHDL | 11.7 | 53 | 120 | 12 | □ | 311-45 |
| FX-MG-EDS | 11.8 | 22 | 75 | 12 | □ | 311-2 |
| WXL-2D-DE | 11.8 | 23.6 | 75 | 12 | ● | 261 |
| DIA-EHDS | 11.8 | 28 | 80 | 12 | □ | 311-42 |
| DIA-EHDL | 11.8 | 53 | 120 | 12 | □ | 311-45 |
| WXL-2D-DE | 11.9 | 23.8 | 75 | 12 | ● | 261 |
| FX-MG-EDS | 11.9 | 26 | 75 | 12 | □ | 311-2 |
| DIA-EHDS | 11.9 | 28 | 80 | 12 | □ | 311-42 |
| DIA-EHDL | 11.9 | 53 | 120 | 12 | □ | 311-45 |
| FX-NC-EDSS | 12 | 6 | 35 | 6 | □ | 311-7 |
| FX-NC-EMSS | 12 | 6 | 35 | 6 | □ | 311-28 |
| NC-EMSS | 12 | 6 | 35 | 6 | □ | 311-33 |
| MBOS | 12 | 6 | 75 | 12 | ● | 269 |
| AE-VTSS | 12 × 12 × 10 | 12 | 50 | 10 | ● | 309 |
| MDOS | 12 | 13 | 75 | 12 | ● | 270 |
| AE-VMSS | 12 | 18 | 75 | 12 | ● | 296 |
| FX-MG-EDSS | 12 | 18 | 75 | 12 | □ | 311-4 |
| FX-MG-EMSS | 12 | 18 | 75 | 12 | □ | 311-27 |
| WXL-1.5D-DE | 12 | 18 | 75 | 12 | ● | 259 |
| WX-SHTSS | 12 | 18 | 75 | 12 | ● | 308 |
| DIA-ETS | 12 | 18 | 80 | 12 | □ | 311-26 |
| CRN-HS-EDS | 12 × 30 | 18 | 80 | 12 | □ | 311-13 |
| AE-TS-N | 12 × 36 | 18 | 80 | 12 | ● | 278 |
| AE-TS-N | 12 × 36-SP | 18 | 80 | 12 | ● | 279 |
| AE-VTS-N | 12 × 36 | 18 | 80 | 12 | ● | 280 |
| AE-VTS-N | 12 × 36-SP | 18 | 80 | 12 | ● | 281 |
| AE-VMSS | 12 × 36 | 18 | 90 | 12 | ● | 298 |
| AE-VMSS | 12 × 36 | 18 | 90 | 12 | ● | 318 |
| AERO-ETS | 12 | 18 | 100 | 12 | ● | 376 |
| AE-MSS-H | 12 × 36 | 18 | 110 | 12 | ● | 289 |
| AE-VMSS | 12 × 60 | 18 | 110 | 12 | ● | 298 |
| AE-VMSS | 12 × 60 | 18 | 110 | 12 | ● | 318 |
| CRN-LN-EDS | 12 × 60 | 18 | 140 | 12 | □ | 321-9 |
| WXL-LN-EDS | 12 × 60 | 18 | 140 | 12 | ● | 316 |
| DIA-LS-ETS | 12 | 18 | 150 | 10 | □ | 311-25 |
| DLC-EDS | 12 | 24 | 75 | 12 | ● | 272 |
| NEO-EMS | 12 | 24 | 75 | 12 | ● | 291 |
| WXL-2D-DE | 12 | 24 | 75 | 12 | ● | 261 |
| FXS-EMSS | 12 | 24 | 90 | 12 | □ | 311-29 |
| UVX-TI-4FL | 12 × 36 | 24 | 90 | 12 | ● | 372 |
| UVX-TI-5FL | 12 × 36 | 24 | 90 | 12 | ● | 373 |
| DG-EMS | 12 | 24 | 120 | 12 | ● | 293 |
| SH-MG-EDS | 12 | 25 | 75 | 12 | □ | 311-10 |
| DIA-EDS | 12 | 26 | 75 | 12 | ● | 272 |
| DLC-MR-EDS | 12 | 26 | 75 | 12 | □ | 311-8 |
| DLC-MR-EMS | 12 | 26 | 75 | 12 | □ | 311-31 |
| FX-MG-EDS | 12 | 26 | 75 | 12 | □ | 311-2 |
| FX-MG-EDS OH1 | 12 | 26 | 75 | 12 | □ | 311-4 |
| FX-MG-EMS | 12 | 26 | 75 | 12 | □ | 311-26 |
| FX-MG-EMS OH1 | 12 | 26 | 75 | 12 | □ | 311-27 |
| FX-MR-EDS | 12 | 26 | 75 | 12 | □ | 311-7 |
| FX-MR-EMS | 12 | 26 | 75 | 12 | □ | 311-28 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| GX-EDS | 12 | 26 | 75 | 12 | □ | 311-11 |
| GX-EMS | 12 | 26 | 75 | 12 | □ | 311-33 |
| MG-EHS | 12 | 26 | 75 | 12 | □ | 311-39 |
| MG-EMS OH1 | 12 | 26 | 75 | 12 | □ | 311-34 |
| SXL-RESF | 12 | 26 | 75 | 12 | □ | 438-1 |
| SXL-RESF | 12H | 26 | 75 | 12 | □ | 438-1 |
| V-MG-EDS | 12 | 26 | 75 | 12 | □ | 311-9 |
| WXL-EMS | 12 | 26 | 75 | 12 | ● | 287 |
| SXL-MG-EHS | 12 × 3F | 26 | 75 | 12 | □ | 311-40 |
| SXL-MG-EHS | 12 × 4F | 26 | 75 | 12 | □ | 311-40 |
| SI-WC-RESF | 12 | 26 | 80 | 12 | ● | 438 |
| SI-WC-RESF | 12H | 26 | 80 | 12 | ● | 438 |
| AE-VMS | 12-G | 26 | 90 | 12 | ● | 300 |
| AE-VMS | 12 | 26 | 90 | 12 | ● | 301 |
| AE-VMS | 12 | 26 | 90 | 12 | ● | 370 |
| DUR-SMF | 12 | 26 | 90 | 12 | □ | 311-31 |
| UP-PHS | 12 | 26 | 100 | 12 | ● | 303 |
| CAP-EDS | 12 | 26 | 140 | 12 | □ | 311-11 |
| CRN-EDS | 12 | 26 | 140 | 12 | □ | 311-12 |
| CRN-EMS | 12 | 26 | 140 | 12 | □ | 311-35 |
| WX-LS-RESF | 12 | 26 | 180 | 10 | □ | 438-2 |
| DIA-EHDS | 12 | 28 | 80 | 12 | □ | 311-42 |
| DIA-LS-EHDS | 12 | 28 | 200 | 10 | □ | 311-44 |
| AE-MS-H | 12 | 30 | 90 | 12 | ● | 290 |
| FXS-EMS | 12 | 30 | 90 | 12 | □ | 311-29 |
| FXS-LS-EMS-S | 12 | 30 | 110 | 10 | □ | 311-30 |
| FXS-LS-EMS | 12 | 30 | 110 | 12 | □ | 311-30 |
| AE-VMFE | 12 | 30 | 150 | 10 | ● | 288 |
| AE-VMFE | 12 | 30 | 150 | 10 | ● | 393 |
| AE-VTFE-N | 12 | 30 | 150 | 10 | ● | 311 |
| FX-MG-EDN | 12 | 34 | 90 | 12 | □ | 311-15 |
| CRN-EDN | 12 | 34 | 140 | 12 | □ | 311-16 |
| AE-TL-N | 12 × 36 | 36 | 80 | 12 | ● | 284 |
| AE-TL-N | 12 × 36-SP | 36 | 80 | 12 | ● | 285 |
| WXL-3D-DE | 12 | 36 | 90 | 12 | ● | 263 |
| DLC-E1-3D | 12 | 36 | 100 | 12 | □ | 311-48 |
| DLC-E2-3D | 12 | 36 | 100 | 12 | □ | 311-50 |
| DLC-E1-3D-L | 12 | 36 | 110 | 12 | □ | 311-48 |
| DLC-E2-3D-L | 12 | 36 | 110 | 12 | □ | 311-50 |
| AE-VML | 12 × 38 | 38 | 100 | 12 | ● | 305 |
| AE-VML | 12 × 38-N | 38 | 100 | 12 | ● | 306 |
| AE-VML | 12 × 38 | 38 | 100 | 12 | ● | 371 |
| SXL-MG-EHL | 12 × 3F | 40 | 90 | 12 | □ | 311-41 |
| CAP-EDL | 12 | 40 | 140 | 12 | □ | 311-21 |
| CRN-EDL | 12 | 40 | 140 | 12 | □ | 311-23 |
| CRN-EML | 12 | 40 | 140 | 12 | □ | 311-37 |
| WXL-4D-DE | 12 | 48 | 100 | 12 | ● | 264 |
| AE-ML-H | 12 × 48 | 48 | 110 | 12 | ● | 307 |
| AE-VML | 12 × 48 | 48 | 110 | 12 | ● | 305 |
| AE-VML | 12 × 48-N | 48 | 110 | 12 | ● | 306 |
| AE-VML | 12 × 48 | 48 | 110 | 12 | ● | 371 |
| UVXL-TI-5FL | 12 × 60 | 48 | 110 | 12 | ● | 374 |
| AERO-ETL | 12 | 50 | 110 | 12 | ● | 377 |
| DIA-EOE | 12 | 50 | 110 | 12 | □ | 311-47 |
| DIA-EHDL | 12 | 53 | 120 | 12 | □ | 311-45 |
| DIA-LS-EHDL | 12 | 53 | 200 | 10 | □ | 311-47 |
| FXS-EML | 12 | 55 | 110 | 12 | □ | 311-36 |
| AE-TL-N | 12 × 60 | 60 | 110 | 12 | ● | 284 |
| AE-TL-N | 12 × 60-SP | 60 | 110 | 12 | ● | 285 |
| DLC-E1-5D | 12 | 60 | 120 | 12 | □ | 311-49 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DLC-E2-5D | 12 | 60 | 120 | 12 | □ | 311-51 |
| DLC-E1-5D-L | 12 | 60 | 130 | 12 | □ | 311-49 |
| DLC-E2-5D-L | 12 | 60 | 130 | 12 | □ | 311-51 |
| CRN-EDLL | 12 | 60 | 140 | 12 | □ | 311-23 |
| GF-EDR | 12 | 65 | 130 | 12 | □ | 311-24 |
| GF-EMR | 12 | 65 | 130 | 12 | □ | 311-37 |
| GF-LS-EDR | 12 | 65 | 200 | 12 | □ | 311-24 |
| GF-LS-EMR | 12 | 65 | 200 | 12 | □ | 311-38 |
| FX-MG-EXDL | 12 | 80 | 130 | 12 | □ | 275 |
| MG-EXDL | 12 | 80 | 130 | 12 | □ | 276 |
| MG-EXML | 12 | 80 | 130 | 12 | □ | 295 |
| FX-MG-EXDL | 12 | 100 | 150 | 12 | □ | 275 |
| MG-EXDL | 12 | 100 | 150 | 12 | □ | 276 |
| MG-EXML | 12 | 100 | 150 | 12 | □ | 295 |
| FX-MG-EXDL | 12 | 120 | 170 | 12 | □ | 275 |
| MG-EXDL | 12 | 120 | 170 | 12 | □ | 276 |
| MG-EXML | 12 | 120 | 170 | 12 | □ | 295 |
| GF-EDL | 12 | 130 | 200 | 12 | □ | 311-25 |
| GF-EML | 12 | 130 | 200 | 12 | □ | 311-38 |
| WXL-2D-DE | 12.1 | 24.2 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.1 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 12.2 | 24.4 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.2 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 12.3 | 24.6 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.3 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 12.4 | 24.8 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.4 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 12.5 | 25 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.5 | 26 | 85 | 12 | □ | 311-2 |
| FX-MG-EMS | 12.5 | 26 | 85 | 12 | □ | 311-26 |
| WXL-EMS | 12.5 | 26 | 85 | 12 | ● | 287 |
| WXL-2D-DE | 12.6 | 25.2 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.6 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 12.7 | 25.4 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.7 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 12.8 | 25.6 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.8 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 12.9 | 25.8 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 12.9 | 26 | 85 | 12 | □ | 311-2 |
| FX-MG-EDS | 13 | 26 | 85 | 12 | □ | 311-2 |
| FX-MG-EMS | 13 | 26 | 85 | 12 | □ | 311-26 |
| MG-EDS | 13 | 26 | 85 | 12 | □ | 268 |
| MG-EMS | 13 | 26 | 85 | 12 | □ | 292 |
| SI-WC-RESF | 13 | 26 | 85 | 12 | □ | 438 |
| SI-WC-RESF | 13H | 26 | 85 | 12 | □ | 438 |
| V-MG-EDS | 13 | 26 | 85 | 12 | □ | 311-9 |
| WXL-2D-DE | 13 | 26 | 85 | 12 | ● | 261 |
| WXL-EMS | 13 | 26 | 85 | 12 | ● | 287 |
| SXL-RESF | 13 | 26 | 90 | 12 | □ | 438-1 |
| SXL-RESF | 13H | 26 | 90 | 12 | □ | 438-1 |
| WX-RESF | 13 | 26 | 90 | 12 | □ | 437 |
| WX-RESF | 13H | 26 | 90 | 12 | □ | 437 |
| MG-EHS | 13 | 26 | 90 | 16 | □ | 311-39 |
| SXL-MG-EHS | 13 × 3F | 26 | 90 | 16 | □ | 311-40 |
| CAP-EDS | 13 | 26 | 140 | 12 | □ | 311-11 |
| CRN-EDS | 13 | 26 | 140 | 12 | □ | 311-12 |
| FX-MG-EDN | 13 | 34 | 90 | 12 | □ | 311-15 |
| DIA-EHDS | 13 | 35 | 85 | 12 | □ | 311-42 |
| MG-EDL | 13 | 40 | 100 | 12 | □ | 276 |
| MG-EML | 13 | 40 | 100 | 12 | □ | 295 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-EDL | 13 | 40 | 140 | 12 | □ | 311-21 |
| CRN-EDL | 13 | 40 | 140 | 12 | □ | 311-23 |
| DIA-EHDL | 13 | 60 | 130 | 12 | □ | 311-45 |
| FX-MG-EDS | 13.1 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.1 | 26.2 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 13.2 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.2 | 26.4 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 13.3 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.3 | 26.6 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 13.4 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.4 | 26.8 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 13.5 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.5 | 27 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 13.6 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.6 | 27.2 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 13.7 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.7 | 27.4 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 13.8 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.8 | 27.6 | 85 | 12 | ● | 261 |
| FX-MG-EDS | 13.9 | 26 | 85 | 12 | □ | 311-2 |
| WXL-2D-DE | 13.9 | 27.8 | 85 | 12 | ● | 261 |
| FX-MG-EDSS | 14 | 21 | 85 | 12 | □ | 311-4 |
| FX-MG-EMSS | 14 | 21 | 85 | 12 | □ | 311-27 |
| DIA-LS-ETS | 14 | 21 | 160 | 12 | □ | 311-25 |
| FX-MG-EDS | 14 | 26 | 85 | 12 | □ | 311-2 |
| FX-MG-EMS | 14 | 26 | 85 | 12 | □ | 311-26 |
| MG-EDS | 14 | 26 | 85 | 12 | □ | 268 |
| MG-EMS | 14 | 26 | 85 | 12 | □ | 292 |
| SI-WC-RESF | 14 | 26 | 85 | 12 | □ | 438 |
| SI-WC-RESF | 14H | 26 | 85 | 12 | □ | 438 |
| SXL-RESF | 14 | 26 | 85 | 12 | □ | 438-1 |
| V-MG-EDS | 14 | 26 | 85 | 12 | □ | 311-9 |
| WXL-EMS | 14 | 26 | 85 | 12 | ● | 287 |
| WX-RESF | 14 | 26 | 85 | 12 | ● | 437 |
| MG-EHS | 14 | 26 | 90 | 16 | □ | 311-39 |
| SXL-MG-EHS | 14 × 3F | 26 | 90 | 16 | □ | 311-40 |
| SXL-MG-EHS | 14 × 4F | 26 | 90 | 16 | □ | 311-40 |
| CAP-EDS | 14 | 26 | 140 | 12 | □ | 311-11 |
| CRN-EDS | 14 | 26 | 140 | 12 | □ | 311-12 |
| CRN-EMS | 14 | 26 | 140 | 12 | □ | 311-35 |
| WXL-2D-DE | 14 | 28 | 85 | 12 | ● | 261 |
| FX-MG-EDN | 14 | 34 | 90 | 12 | □ | 311-15 |
| FXS-EMS | 14 | 35 | 100 | 16 | □ | 311-29 |
| AE-VMFE | 14 | 35 | 160 | 12 | ● | 288 |
| AE-VMFE | 14 | 35 | 160 | 12 | ● | 393 |
| AE-VTFE-N | 14 | 35 | 160 | 12 | ● | 311 |
| DIA-EHDS | 14 | 40 | 95 | 16 | □ | 311-42 |
| MG-EDL | 14 | 40 | 100 | 12 | □ | 276 |
| MG-EML | 14 | 40 | 100 | 12 | □ | 295 |
| CAP-EDL | 14 | 40 | 140 | 12 | □ | 311-21 |
| CRN-EDL | 14 | 40 | 140 | 12 | □ | 311-23 |
| CRN-EML | 14 | 40 | 140 | 12 | □ | 311-37 |
| DIA-LS-EHDS | 14 | 40 | 200 | 12 | □ | 311-44 |
| DIA-EHDL | 14 | 60 | 140 | 16 | □ | 311-45 |
| DIA-LS-EHDL | 14 | 60 | 200 | 12 | □ | 311-47 |
| FX-MG-EXDL | 14 | 80 | 140 | 16 | □ | 275 |
| MG-EXDL | 14 | 80 | 140 | 16 | □ | 276 |
| MG-EXML | 14 | 80 | 140 | 16 | □ | 295 |
| FX-MG-EXDL | 14 | 100 | 160 | 16 | □ | 275 |
| MG-EXDL | 14 | 100 | 160 | 16 | □ | 276 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EXML | 14 | 100 | 160 | 16 | □ | 295 |
| FX-MG-EXDL | 14 | 120 | 180 | 16 | □ | 275 |
| MG-EXDL | 14 | 120 | 180 | 16 | □ | 276 |
| MG-EXML | 14 | 120 | 180 | 16 | □ | 295 |
| FX-MG-EDS | 14.1 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EDS | 14.2 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EDS | 14.3 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EDS | 14.4 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EDS | 14.5 | 26 | 90 | 16 | □ | 311-2 |
| WXL-2D-DE | 14.5 | 29 | 90 | 16 | ● | 261 |
| FX-MG-EDS | 14.6 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EDS | 14.7 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EDS | 14.8 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EDS | 14.9 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EDSS | 15 | 23 | 90 | 16 | □ | 311-4 |
| FX-MG-EMSS | 15 | 23 | 90 | 16 | □ | 311-27 |
| FX-MG-EDS | 15 | 26 | 90 | 16 | □ | 311-2 |
| FX-MG-EMS | 15 | 26 | 90 | 16 | □ | 311-26 |
| MG-EDS | 15 | 26 | 90 | 16 | □ | 268 |
| MG-EHS | 15 | 26 | 90 | 16 | □ | 311-39 |
| MG-EMS | 15 | 26 | 90 | 16 | □ | 292 |
| SI-WC-RESF | 15 | 26 | 90 | 16 | □ | 438 |
| SI-WC-RESF | 15H | 26 | 90 | 16 | □ | 438 |
| V-MG-EDS | 15 | 26 | 90 | 16 | □ | 311-9 |
| WXL-EMS | 15 | 26 | 90 | 16 | ● | 287 |
| SXL-MG-EHS | 15 × 3F | 26 | 90 | 16 | □ | 311-40 |
| SXL-MG-EHS | 15 × 4F | 26 | 90 | 16 | □ | 311-40 |
| SXL-RESF | 15 | 26 | 100 | 16 | □ | 438-1 |
| SXL-RESF | 15H | 26 | 100 | 16 | □ | 438-1 |
| WX-RESF | 15 | 26 | 100 | 16 | □ | 437 |
| WX-RESF | 15H | 26 | 100 | 16 | □ | 437 |
| CAP-EDS | 15 | 26 | 140 | 12 | □ | 311-11 |
| CRN-EDS | 15 | 26 | 140 | 12 | □ | 311-12 |
| CRN-EMS | 15 | 26 | 140 | 12 | □ | 311-35 |
| WX-LS-RESF | 15 | 26 | 200 | 12 | □ | 438-2 |
| WXL-2D-DE | 15 | 30 | 90 | 16 | ● | 261 |
| FX-MG-EDN | 15 | 34 | 100 | 16 | □ | 311-15 |
| DIA-EHDS | 15 | 40 | 95 | 16 | □ | 311-42 |
| FXS-EMS | 15 | 40 | 105 | 16 | □ | 311-29 |
| MG-EDL | 15 | 40 | 105 | 16 | □ | 276 |
| MG-EML | 15 | 40 | 105 | 16 | □ | 295 |
| CAP-EDL | 15 | 40 | 140 | 12 | □ | 311-21 |
| CRN-EDL | 15 | 40 | 140 | 12 | □ | 311-23 |
| CRN-EML | 15 | 40 | 140 | 12 | □ | 311-37 |
| DIA-LS-EHDS | 15 | 40 | 200 | 12 | □ | 311-44 |
| DIA-EHDL | 15 | 60 | 140 | 16 | □ | 311-45 |
| DIA-LS-EHDL | 15 | 60 | 200 | 12 | □ | 311-47 |
| FX-MG-EXDL | 15 | 80 | 140 | 16 | □ | 275 |
| MG-EXDL | 15 | 80 | 140 | 16 | □ | 276 |
| MG-EXML | 15 | 80 | 140 | 16 | □ | 295 |
| FX-MG-EXDL | 15 | 100 | 160 | 16 | □ | 275 |
| MG-EXDL | 15 | 100 | 160 | 16 | □ | 276 |
| MG-EXML | 15 | 100 | 160 | 16 | □ | 295 |
| FX-MG-EXDL | 15 | 120 | 180 | 16 | □ | 275 |
| MG-EXDL | 15 | 120 | 180 | 16 | □ | 276 |
| MG-EXML | 15 | 120 | 180 | 16 | □ | 295 |
| FX-MG-EXDL | 15 | 150 | 210 | 16 | □ | 275 |
| MG-EXDL | 15 | 150 | 210 | 16 | □ | 276 |
| MG-EXML | 15 | 150 | 210 | 16 | □ | 295 |
| FX-MG-EDS | 15.1 | 32 | 100 | 16 | □ | 311-2 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EDS | 15.2 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 15.3 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 15.4 | 32 | 100 | 16 | □ | 311-2 |
| WXL-2D-DE | 15.5 | 31 | 90 | 16 | ● | 261 |
| FX-MG-EDS | 15.5 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 15.6 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 15.7 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 15.8 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 15.9 | 32 | 100 | 16 | □ | 311-2 |
| DIA-ETS | 16 | 24 | 95 | 16 | □ | 311-26 |
| AERO-ETS | 16 | 24 | 100 | 16 | ● | 376 |
| FX-MG-EDSS | 16 | 24 | 100 | 16 | □ | 311-4 |
| FX-MG-EMSS | 16 | 24 | 100 | 16 | □ | 311-27 |
| AE-TS-N | 16 × 48 | 24 | 110 | 16 | ● | 278 |
| WXL-2D-DE | 16 | 32 | 90 | 16 | ● | 261 |
| AE-VMS | 16 | 32 | 100 | 16 | ● | 301 |
| AE-VMS | 16 | 32 | 100 | 16 | ● | 370 |
| DUR-SMF | 16 | 32 | 100 | 16 | □ | 311-31 |
| FX-MG-EDS | 16 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EMS | 16 | 32 | 100 | 16 | □ | 311-26 |
| MG-EDS | 16 | 32 | 100 | 16 | □ | 268 |
| MG-EHS | 16 | 32 | 100 | 16 | □ | 311-39 |
| MG-EMS | 16 | 32 | 100 | 16 | □ | 292 |
| NEO-EMS | 16 | 32 | 100 | 16 | ● | 291 |
| SI-WC-RESF | 16 | 32 | 100 | 16 | □ | 438 |
| SI-WC-RESF | 16H | 32 | 100 | 16 | □ | 438 |
| SXL-RESF | 16 | 32 | 100 | 16 | □ | 438-1 |
| V-MG-EDS | 16 | 32 | 100 | 16 | □ | 311-9 |
| WXL-EMS | 16 | 32 | 100 | 16 | ● | 287 |
| WX-RESF | 16 | 32 | 100 | 16 | ● | 437 |
| SXL-MG-EHS | 16 × 3F | 32 | 100 | 16 | □ | 311-40 |
| SXL-MG-EHS | 16 × 4F | 32 | 100 | 16 | □ | 311-40 |
| SXL-RESF | 16H × 4F | 32 | 100 | 16 | □ | 438-1 |
| WX-RESF | 16H × 4F | 32 | 100 | 16 | ● | 437 |
| SXL-RESF | 16H × 6F | 32 | 100 | 16 | □ | 438-1 |
| WX-RESF | 16H × 6F | 32 | 100 | 16 | ● | 437 |
| UVX-TI-4FL | 16 × 48 | 32 | 100 | 16 | ● | 372 |
| UVX-TI-5FL | 16 × 48 | 32 | 100 | 16 | ● | 373 |
| CAP-EDS | 16 | 32 | 160 | 16 | □ | 311-11 |
| CRN-EDS | 16 | 32 | 160 | 16 | □ | 311-12 |
| CRN-EMS | 16 | 32 | 160 | 16 | □ | 311-35 |
| DIA-EHDS | 16 | 40 | 95 | 16 | □ | 311-42 |
| AE-MS-H | 16 | 40 | 105 | 16 | ● | 290 |
| FXS-EMS | 16 | 40 | 105 | 16 | □ | 311-29 |
| FX-MG-EDN | 16 | 40 | 110 | 16 | □ | 311-15 |
| FXS-LS-EMS-S | 16 | 40 | 140 | 12 | □ | 311-30 |
| FXS-LS-EMS | 16 | 40 | 140 | 16 | □ | 311-30 |
| DIA-LS-EHDS | 16 | 40 | 200 | 16 | □ | 311-44 |
| WXL-3D-DE | 16 | 48 | 110 | 16 | ● | 263 |
| MG-EDL | 16 | 48 | 115 | 16 | □ | 276 |
| MG-EML | 16 | 48 | 115 | 16 | □ | 295 |
| AE-TL-N | 16 × 48 | 48 | 120 | 16 | ● | 284 |
| CAP-EDL | 16 | 48 | 160 | 16 | □ | 311-21 |
| CRN-EDL | 16 | 48 | 160 | 16 | □ | 311-23 |
| CRN-EML | 16 | 48 | 160 | 16 | □ | 311-37 |
| AERO-ETL | 16 | 50 | 110 | 16 | ● | 377 |
| AE-VML | 16 × 50 | 50 | 125 | 16 | ● | 305 |
| AE-VML | 16 × 50-N | 50 | 125 | 16 | ● | 306 |
| AE-VML | 16 × 50 | 50 | 125 | 16 | ● | 371 |
| DIA-EHDL | 16 | 60 | 140 | 16 | □ | 311-45 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／スクエア
CARBIDE END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DIA-LS-EHDL | 16 | 60 | 200 | 16 | □ | 311-47 |
| AE-ML-H | 16 × 64 | 64 | 130 | 16 | ● | 307 |
| UVXL-TI-5FL | 16 × 80 | 64 | 130 | 16 | ● | 374 |
| AE-VML | 16 × 64 | 64 | 140 | 16 | ● | 305 |
| AE-VML | 16 × 64-N | 64 | 140 | 16 | ● | 306 |
| AE-VML | 16 × 64 | 64 | 140 | 16 | ● | 371 |
| FXS-EML | 16 | 65 | 125 | 16 | □ | 311-36 |
| AE-TL-N | 16 × 80 | 80 | 150 | 16 | ● | 284 |
| FX-MG-EXDL | 16 | 100 | 160 | 16 | □ | 275 |
| MG-EXDL | 16 | 100 | 160 | 16 | □ | 276 |
| MG-EXML | 16 | 100 | 160 | 16 | □ | 295 |
| FX-MG-EXDL | 16 | 150 | 210 | 16 | □ | 275 |
| MG-EXDL | 16 | 150 | 210 | 16 | □ | 276 |
| MG-EXML | 16 | 150 | 210 | 16 | □ | 295 |
| FX-MG-EDS | 16.1 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 16.2 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 16.3 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 16.4 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 16.5 | 32 | 100 | 16 | □ | 311-2 |
| WXL-2D-DE | 16.5 | 33 | 90 | 16 | ● | 262 |
| FX-MG-EDS | 16.6 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 16.7 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 16.8 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 16.9 | 32 | 100 | 16 | □ | 311-2 |
| FX-MG-EDS | 17 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EMS | 17 | 32 | 100 | 16 | □ | 311-26 |
| MG-EDS | 17 | 32 | 100 | 16 | □ | 268 |
| MG-EMS | 17 | 32 | 100 | 16 | □ | 292 |
| SI-WC-RESF | 17 | 32 | 100 | 16 | □ | 438 |
| SI-WC-RESF | 17H | 32 | 100 | 16 | □ | 438 |
| WXL-EMS | 17 | 32 | 100 | 16 | ● | 287 |
| CAP-EDS | 17 | 32 | 160 | 16 | □ | 311-11 |
| CRN-EDS | 17 | 32 | 160 | 16 | □ | 311-12 |
| WXL-2D-DE | 17 | 34 | 90 | 16 | ● | 262 |
| FX-MG-EDN | 17 | 40 | 110 | 16 | □ | 311-15 |
| DIA-EHDS | 17 | 45 | 115 | 20 | □ | 311-42 |
| MG-EDL | 17 | 48 | 115 | 16 | □ | 276 |
| MG-EML | 17 | 48 | 115 | 16 | □ | 295 |
| CAP-EDL | 17 | 48 | 160 | 16 | □ | 311-21 |
| CRN-EDL | 17 | 48 | 160 | 16 | □ | 311-23 |
| DIA-EHDL | 17 | 60 | 150 | 20 | □ | 311-45 |
| FX-MG-EDS | 17.1 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EDS | 17.2 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EDS | 17.3 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EDS | 17.4 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EDS | 17.5 | 32 | 100 | 16 | □ | 311-3 |
| WXL-2D-DE | 17.5 | 35 | 90 | 16 | ● | 262 |
| FX-MG-EDS | 17.6 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EDS | 17.7 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EDS | 17.8 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EDS | 17.9 | 32 | 100 | 16 | □ | 311-3 |
| DIA-LS-ETS | 18 | 27 | 180 | 16 | □ | 311-25 |
| FX-MG-EDS | 18 | 32 | 100 | 16 | □ | 311-3 |
| FX-MG-EMS | 18 | 32 | 100 | 16 | □ | 311-26 |
| MG-EDS | 18 | 32 | 100 | 16 | □ | 268 |
| MG-EMS | 18 | 32 | 100 | 16 | □ | 292 |
| SI-WC-RESF | 18 | 32 | 100 | 16 | □ | 438 |
| SI-WC-RESF | 18H | 32 | 100 | 16 | □ | 438 |
| SXL-RESF | 18 | 32 | 100 | 16 | □ | 438-1 |
| V-MG-EDS | 18 | 32 | 100 | 16 | □ | 311-9 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-EMS | 18 | 32 | 100 | 16 | ● | 287 |
| WX-RESF | 18 | 32 | 100 | 16 | ● | 437 |
| SXL-RESF | 18H × 4F | 32 | 100 | 16 | □ | 438-1 |
| WX-RESF | 18H × 4F | 32 | 100 | 16 | □ | 437 |
| SXL-RESF | 18H × 6F | 32 | 100 | 16 | □ | 438-1 |
| WX-RESF | 18H × 6F | 32 | 100 | 16 | □ | 437 |
| MG-EHS | 18 | 32 | 100 | 20 | □ | 311-39 |
| SXL-MG-EHS | 18 × 3F | 32 | 100 | 20 | □ | 311-40 |
| SXL-MG-EHS | 18 × 4F | 32 | 100 | 20 | □ | 311-40 |
| CAP-EDS | 18 | 32 | 160 | 16 | □ | 311-11 |
| CRN-EDS | 18 | 32 | 160 | 16 | □ | 311-12 |
| CRN-EMS | 18 | 32 | 160 | 16 | □ | 311-35 |
| WXL-2D-DE | 18 | 36 | 90 | 16 | ● | 262 |
| FX-MG-EDN | 18 | 40 | 110 | 16 | □ | 311-15 |
| FXS-EMS | 18 | 40 | 110 | 20 | □ | 311-29 |
| FXS-LS-EMS | 18 | 40 | 160 | 16 | □ | 311-30 |
| DIA-EHDS | 18 | 45 | 115 | 20 | □ | 311-43 |
| AE-VMFE | 18 | 45 | 180 | 16 | ● | 288 |
| AE-VMFE | 18 | 45 | 180 | 16 | ● | 393 |
| AE-VTFE-N | 18 | 45 | 180 | 16 | ● | 311 |
| DIA-LS-EHDS | 18 | 45 | 250 | 16 | □ | 311-44 |
| MG-EDL | 18 | 48 | 115 | 16 | □ | 276 |
| MG-EML | 18 | 48 | 115 | 16 | □ | 295 |
| CAP-EDL | 18 | 48 | 160 | 16 | □ | 311-21 |
| CRN-EDL | 18 | 48 | 160 | 16 | □ | 311-23 |
| CRN-EML | 18 | 48 | 160 | 16 | □ | 311-37 |
| WXL-3D-DE | 18 | 54 | 130 | 16 | ● | 263 |
| DIA-EHDL | 18 | 60 | 150 | 20 | □ | 311-46 |
| DIA-LS-EHDL | 18 | 60 | 250 | 16 | □ | 311-47 |
| FX-MG-EXDL | 18 | 100 | 165 | 20 | □ | 275 |
| MG-EXDL | 18 | 100 | 165 | 20 | □ | 276 |
| MG-EXML | 18 | 100 | 165 | 20 | □ | 295 |
| FX-MG-EXDL | 18 | 150 | 215 | 20 | □ | 275 |
| MG-EXDL | 18 | 150 | 215 | 20 | □ | 276 |
| MG-EXML | 18 | 150 | 215 | 20 | □ | 295 |
| FX-MG-EDS | 18.1 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EDS | 18.2 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EDS | 18.3 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EDS | 18.4 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EDS | 18.5 | 32 | 100 | 20 | □ | 311-3 |
| WXL-2D-DE | 18.5 | 37 | 100 | 20 | ● | 262 |
| FX-MG-EDS | 18.6 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EDS | 18.7 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EDS | 18.8 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EDS | 18.9 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EDS | 19 | 32 | 100 | 20 | □ | 311-3 |
| FX-MG-EMS | 19 | 32 | 100 | 20 | □ | 311-26 |
| MG-EDS | 19 | 32 | 100 | 20 | □ | 268 |
| MG-EMS | 19 | 32 | 100 | 20 | □ | 292 |
| SI-WC-RESF | 19 | 32 | 100 | 20 | □ | 438 |
| SI-WC-RESF | 19H | 32 | 100 | 20 | □ | 438 |
| WXL-EMS | 19 | 32 | 100 | 20 | ● | 287 |
| CAP-EDS | 19 | 32 | 160 | 16 | □ | 311-11 |
| CRN-EDS | 19 | 32 | 160 | 16 | □ | 311-12 |
| WXL-2D-DE | 19 | 38 | 100 | 20 | ● | 262 |
| FX-MG-EDN | 19 | 40 | 110 | 20 | □ | 311-15 |
| DIA-EHDS | 19 | 45 | 115 | 20 | □ | 311-43 |
| MG-EDL | 19 | 48 | 115 | 20 | □ | 276 |
| MG-EML | 19 | 48 | 115 | 20 | □ | 295 |
| CAP-EDL | 19 | 48 | 160 | 16 | □ | 311-21 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CRN-EDL | 19 | 48 | 160 | 16 | □ | 311-23 |
| DIA-EHDL | 19 | 60 | 150 | 20 | □ | 311-46 |
| FX-MG-EDS | 19.1 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EDS | 19.2 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EDS | 19.3 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EDS | 19.4 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EDS | 19.5 | 38 | 105 | 20 | □ | 311-3 |
| WXL-2D-DE | 19.5 | 39 | 100 | 20 | ● | 262 |
| FX-MG-EDS | 19.6 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EDS | 19.7 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EDS | 19.8 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EDS | 19.9 | 38 | 105 | 20 | □ | 311-3 |
| AERO-ETS | 20 | 30 | 100 | 20 | ● | 376 |
| AERO-O-ETS | 20 | 30 | 100 | 20 | ● | 377 |
| DIA-ETS | 20 | 30 | 115 | 20 | □ | 311-26 |
| AE-TS-N | 20 × 60 | 30 | 120 | 20 | ● | 278 |
| FX-MG-EDS | 20 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EMS | 20 | 38 | 105 | 20 | □ | 311-26 |
| MG-EDS | 20 | 38 | 105 | 20 | □ | 268 |
| MG-EHS | 20 | 38 | 105 | 20 | □ | 311-39 |
| MG-EMS | 20 | 38 | 105 | 20 | □ | 292 |
| SI-WC-RESF | 20 | 38 | 105 | 20 | □ | 438 |
| SI-WC-RESF | 20H | 38 | 105 | 20 | □ | 438 |
| SXL-RESF | 20 | 38 | 105 | 20 | □ | 438-1 |
| V-MG-EDS | 20 | 38 | 105 | 20 | □ | 311-9 |
| WXL-EMS | 20 | 38 | 105 | 20 | ● | 287 |
| WX-RESF | 20 | 38 | 105 | 20 | ● | 437 |
| SXL-MG-EHS | 20 × 3F | 38 | 105 | 20 | □ | 311-40 |
| SXL-MG-EHS | 20 × 4F | 38 | 105 | 20 | □ | 311-40 |
| SXL-RESF | 20H × 4F | 38 | 105 | 20 | □ | 438-1 |
| WX-RESF | 20H × 4F | 38 | 105 | 20 | ● | 437 |
| SXL-RESF | 20H × 6F | 38 | 105 | 20 | □ | 438-1 |
| WX-RESF | 20H × 6F | 38 | 105 | 20 | ● | 437 |
| DUR-SMF | 20 | 38 | 110 | 20 | □ | 311-31 |
| CAP-EDS | 20 | 38 | 180 | 20 | □ | 311-11 |
| CRN-EDS | 20 | 38 | 180 | 20 | □ | 311-12 |
| CRN-EMS | 20 | 38 | 180 | 20 | □ | 311-35 |
| WX-LS-RESF | 20 | 38 | 220 | 16 | □ | 438-2 |
| WXL-2D-DE | 20 | 40 | 100 | 20 | ● | 262 |
| NEO-EMS | 20 | 40 | 105 | 20 | ● | 291 |
| AE-VMS | 20 | 40 | 110 | 20 | ● | 301 |
| AE-VMS | 20 | 40 | 110 | 20 | ● | 370 |
| UVX-TI-4FL | 20 × 60 | 40 | 120 | 20 | ● | 372 |
| UVX-TI-5FL | 20 × 60 | 40 | 120 | 20 | ● | 373 |
| FXS-EMS | 20 | 45 | 110 | 20 | □ | 311-29 |
| DIA-EHDS | 20 | 45 | 115 | 20 | □ | 311-43 |
| FXS-LS-EMS-S | 20 | 45 | 160 | 16 | □ | 311-30 |
| FXS-LS-EMS | 20 | 45 | 160 | 20 | □ | 311-30 |
| DIA-LS-EHDS | 20 | 45 | 250 | 20 | □ | 311-44 |
| FX-MG-EDN | 20 | 48 | 115 | 20 | □ | 311-15 |
| AERO-ETL | 20 | 50 | 110 | 20 | ● | 377 |
| AE-MS-H | 20 | 50 | 120 | 20 | ● | 290 |
| MG-EDL | 20 | 56 | 125 | 20 | □ | 276 |
| MG-EML | 20 | 56 | 125 | 20 | □ | 295 |
| CAP-EDL | 20 | 56 | 180 | 20 | □ | 311-21 |
| CRN-EDL | 20 | 56 | 180 | 20 | □ | 311-23 |
| CRN-EML | 20 | 56 | 180 | 20 | □ | 311-37 |
| WXL-3D-DE | 20 | 60 | 130 | 20 | ● | 263 |
| AE-TL-N | 20 × 60 | 60 | 135 | 20 | ● | 284 |
| DIA-EHDL | 20 | 60 | 150 | 20 | □ | 311-46 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DIA-LS-EHDL | 20 | 60 | 250 | 20 | □ | 311-47 |
| AE-VML | 20 × 62 | 62 | 135 | 20 | ● | 305 |
| AE-VML | 20 × 62-N | 62 | 135 | 20 | ● | 306 |
| AE-VML | 20 × 62 | 62 | 135 | 20 | ● | 371 |
| FXS-EML | 20 | 75 | 140 | 20 | □ | 311-36 |
| AE-ML-H | 20 × 80 | 80 | 150 | 20 | ● | 307 |
| AE-VML | 20 × 80 | 80 | 155 | 20 | ● | 305 |
| AE-VML | 20 × 80-N | 80 | 155 | 20 | ● | 306 |
| AE-VML | 20 × 80 | 80 | 155 | 20 | ● | 371 |
| UVXL-TI-5FL | 20 × 100 | 80 | 160 | 20 | ● | 374 |
| AERO-EXTL | 20 | 100 | 160 | 20 | ● | 378 |
| FX-MG-EXDL | 20 | 100 | 165 | 20 | □ | 275 |
| MG-EXDL | 20 | 100 | 165 | 20 | □ | 276 |
| MG-EXML | 20 | 100 | 165 | 20 | □ | 295 |
| AE-TL-N | 20 × 100 | 100 | 175 | 20 | ● | 284 |
| FX-MG-EXDL | 20 | 120 | 185 | 20 | □ | 275 |
| MG-EXDL | 20 | 120 | 185 | 20 | □ | 276 |
| MG-EXML | 20 | 120 | 185 | 20 | □ | 295 |
| FX-MG-EXDL | 20 | 150 | 215 | 20 | □ | 275 |
| MG-EXDL | 20 | 150 | 215 | 20 | □ | 276 |
| MG-EXML | 20 | 150 | 215 | 20 | □ | 295 |
| FX-MG-EDS | 21 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EMS | 21 | 38 | 105 | 20 | □ | 311-26 |
| MG-EDS | 21 | 38 | 105 | 20 | □ | 268 |
| MG-EMS | 21 | 38 | 105 | 20 | □ | 292 |
| WXL-EMS | 21 | 38 | 105 | 20 | ● | 287 |
| WXL-2D-DE | 21 | 42 | 105 | 20 | ● | 262 |
| FX-MG-EDN | 21 | 48 | 115 | 20 | □ | 311-15 |
| MG-EDL | 21 | 56 | 125 | 20 | □ | 276 |
| MG-EML | 21 | 56 | 125 | 20 | □ | 295 |
| DIA-LS-ETS | 22 | 33 | 200 | 20 | □ | 311-25 |
| FX-MG-EDS | 22 | 38 | 105 | 20 | □ | 311-3 |
| FX-MG-EMS | 22 | 38 | 105 | 20 | □ | 311-26 |
| MG-EDS | 22 | 38 | 105 | 20 | □ | 268 |
| MG-EMS | 22 | 38 | 105 | 20 | □ | 292 |
| SXL-RESF | 22 | 38 | 105 | 20 | □ | 438-1 |
| WXL-EMS | 22 | 38 | 105 | 20 | ● | 287 |
| WX-RESF | 22 | 38 | 105 | 20 | ● | 437 |
| WXL-2D-DE | 22 | 44 | 105 | 20 | ● | 262 |
| FXS-LS-EMS | 22 | 45 | 180 | 20 | □ | 311-30 |
| FX-MG-EDN | 22 | 48 | 115 | 20 | □ | 311-15 |
| AE-VMFE | 22 | 55 | 200 | 20 | ● | 288 |
| AE-VMFE | 22 | 55 | 200 | 20 | ● | 393 |
| AE-VTFE-N | 22 | 55 | 200 | 20 | ● | 311 |
| MG-EDL | 22 | 56 | 125 | 20 | □ | 276 |
| MG-EML | 22 | 56 | 125 | 20 | □ | 295 |
| FX-MG-EDS | 23 | 45 | 120 | 25 | □ | 311-3 |
| FX-MG-EMS | 23 | 45 | 120 | 25 | □ | 311-26 |
| MG-EDS | 23 | 45 | 120 | 25 | □ | 268 |
| MG-EMS | 23 | 45 | 120 | 25 | □ | 292 |
| WXL-EMS | 23 | 45 | 120 | 25 | ● | 287 |
| WXL-2D-DE | 23 | 46 | 120 | 25 | ● | 262 |
| FX-MG-EDN | 23 | 56 | 130 | 25 | □ | 311-15 |
| MG-EDL | 23 | 67 | 140 | 25 | □ | 276 |
| MG-EML | 23 | 67 | 140 | 25 | □ | 295 |
| FX-MG-EDS | 24 | 45 | 120 | 25 | □ | 311-3 |
| FX-MG-EMS | 24 | 45 | 120 | 25 | □ | 311-26 |
| MG-EDS | 24 | 45 | 120 | 25 | □ | 268 |
| MG-EMS | 24 | 45 | 120 | 25 | □ | 292 |
| WXL-EMS | 24 | 45 | 120 | 25 | ● | 287 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 超硬エンドミル／スクエア
## CARBIDE END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-2D-DE | 24 | 48 | 120 | 25 | ● | 262 |
| FX-MG-EDN | 24 | 56 | 130 | 25 | □ | 311-15 |
| MG-EDL | 24 | 67 | 140 | 25 | □ | 276 |
| MG-EML | 24 | 67 | 140 | 25 | □ | 295 |
| AERO-ETS | 25 | 37.5 | 100 | 25 | ● | 376 |
| AERO-O-ETS | 25 | 37.5 | 100 | 25 | ● | 377 |
| AE-TS-N | 25 × 75 | 37.5 | 140 | 25 | ● | 278 |
| FX-MG-EDS | 25 | 45 | 120 | 25 | □ | 311-3 |
| FX-MG-EMS | 25 | 45 | 120 | 25 | □ | 311-26 |
| MG-EDS | 25 | 45 | 120 | 25 | □ | 268 |
| MG-EHS | 25 | 45 | 120 | 25 | □ | 311-39 |
| MG-EMS | 25 | 45 | 120 | 25 | □ | 292 |
| SXL-RESF | 25 | 45 | 120 | 25 | □ | 438-1 |
| V-MG-EDS | 25 | 45 | 120 | 25 | □ | 311-9 |
| WXL-EMS | 25 | 45 | 120 | 25 | ● | 287 |
| WX-RESF | 25 | 45 | 120 | 25 | ● | 437 |
| SXL-MG-EHS | 25 × 3F | 45 | 120 | 25 | □ | 311-40 |
| SXL-MG-EHS | 25 × 4F | 45 | 120 | 25 | □ | 311-40 |
| WX-LS-RESF | 25 | 45 | 250 | 20 | □ | 438-2 |
| AE-VMS | 25 | 50 | 120 | 25 | ● | 301 |
| AE-VMS | 25 | 50 | 120 | 25 | ● | 370 |
| NEO-EMS | 25 | 50 | 120 | 25 | ● | 291 |
| FXS-EMS | 25 | 50 | 125 | 25 | □ | 311-29 |
| WXL-2D-DE | 25 | 50 | 125 | 25 | ● | 262 |
| UVX-TI-4FL | 25 × 75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 × 75 | 50 | 140 | 25 | ● | 373 |
| FXS-LS-EMS-S | 25 | 50 | 180 | 20 | □ | 311-30 |
| FXS-LS-EMS | 25 | 50 | 180 | 25 | □ | 311-30 |
| FX-MG-EDN | 25 | 56 | 130 | 25 | □ | 311-15 |
| MG-EDL | 25 | 67 | 140 | 25 | □ | 276 |
| MG-EML | 25 | 67 | 140 | 25 | □ | 295 |
| AE-TL-N | 25 × 75 | 75 | 155 | 25 | ● | 284 |
| FXS-EML | 25 | 90 | 165 | 25 | □ | 311-36 |
| UVXL-TI-5FL | 25 × 125 | 100 | 190 | 25 | ● | 374 |
| AE-TL-N | 25 × 125 | 125 | 205 | 25 | ● | 284 |
| FX-MG-EDS | 26 | 45 | 120 | 25 | □ | 311-3 |
| FX-MG-EMS | 26 | 45 | 120 | 25 | □ | 311-26 |
| FX-MG-EDS | 27 | 45 | 125 | 25 | □ | 311-3 |
| FX-MG-EMS | 27 | 45 | 125 | 25 | □ | 311-26 |
| FX-MG-EDS | 28 | 45 | 125 | 25 | □ | 311-3 |
| FX-MG-EMS | 28 | 45 | 125 | 25 | □ | 311-26 |
| FXS-LS-EMS | 28 | 55 | 200 | 25 | □ | 311-30 |
| FX-MG-EDS | 29 | 45 | 125 | 32 | □ | 311-3 |
| FX-MG-EMS | 29 | 45 | 125 | 32 | □ | 311-26 |
| FX-MG-EDS | 30 | 45 | 125 | 32 | □ | 311-3 |
| FX-MG-EMS | 30 | 45 | 125 | 32 | □ | 311-26 |
| WXL-EMS | 30 | 45 | 125 | 32 | ● | 287 |
| FXS-EMS | 30 | 55 | 140 | 32 | □ | 311-29 |
| FXS-LS-EMS | 30 × 25 | 55 | 200 | 25 | □ | 311-30 |
| FXS-LS-EMS | 30 | 55 | 200 | 32 | □ | 311-30 |
| WXL-2D-DE | 30 | 60 | 140 | 32 | ● | 262 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-LNBD-H | R0.05 ×0.2 ×4 | 0.08 | 45 | 4 | ● | 348 |
| AE-LNBD-H | R0.05 ×0.3 ×4 | 0.08 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.05 ×0.3 ×4 | 0.08 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.05 ×0.3 ×4 | 0.08 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.05 ×0.5 ×4 | 0.08 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.05 ×0.5 ×4 | 0.08 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.05 ×0.5 ×4 | 0.08 | 45 | 4 | ● | 341 |
| MG-EBD-3 | R0.05 ×0.1 | 0.2 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.05 ×0.2 ×4 | 0.2 | 40 | 4 | ● | 322 |
| AE-LNBD-N | R0.075 ×0.3 ×4 | 0.12 | 45 | 4 | ● | 357 |
| AE-LNBD-N | R0.075 ×0.5 ×4 | 0.12 | 45 | 4 | ● | 357 |
| AE-LNBD-N | R0.075 ×1 ×4 | 0.12 | 45 | 4 | ● | 357 |
| MG-EBD-3 | R0.075 ×0.15 | 0.3 | 40 | 3 | □ | 340-18 |
| AE-LNBD-H | R0.1 ×0.3 ×4 | 0.16 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.1 ×0.3 ×4 | 0.16 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.1 ×0.3 ×4 | 0.16 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.1 ×0.5 ×4 | 0.16 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.1 ×0.5 ×4 | 0.16 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.1 ×0.5 ×4 | 0.16 | 45 | 4 | ● | 341 |
| WX-LN-EBD | R0.1 ×0.5 | 0.16 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.1 ×0.75 ×4 | 0.16 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.1 ×0.75 ×4 | 0.16 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.1 ×1 ×4 | 0.16 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.1 ×1 ×4 | 0.16 | 45 | 4 | ● | 357 |
| CRN-LN-EBD-4 | R0.1 ×1 | 0.16 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.1 ×1 ×4 | 0.16 | 45 | 4 | ● | 341 |
| WX-LN-EBD | R0.1 ×1 | 0.16 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.1 ×1.25 ×4 | 0.16 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.1 ×1.25 ×4 | 0.16 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.1 ×1.5 ×4 | 0.16 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.1 ×1.5 ×4 | 0.16 | 45 | 4 | ● | 357 |
| CRN-LN-EBD-4 | R0.1 ×1.5 | 0.16 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.1 ×1.5 ×4 | 0.16 | 45 | 4 | ● | 341 |
| WX-LN-EBD | R0.1 ×1.5 | 0.16 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.1 ×1.75 ×4 | 0.16 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.1 ×1.75 ×4 | 0.16 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.1 ×2 ×4 | 0.16 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.1 ×2 ×4 | 0.16 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.1 ×2.5 ×4 | 0.16 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.1 ×2.5 ×4 | 0.16 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.1 ×3 ×4 | 0.16 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.1 ×3 ×4 | 0.16 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.1 ×1 ×6 | 0.16 | 45 | 6 | ● | 348 |
| WXL-LN-EBD | R0.1 ×0.5 ×6 | 0.16 | 50 | 6 | ● | 341 |
| WXL-LN-EBD | R0.1 ×1 ×6 | 0.16 | 50 | 6 | ● | 341 |
| FX-PCS-EBD-6 | R0.1 ×30′ ×1 | 0.16 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.1 ×1° ×1 | 0.16 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.1 ×1°30′ ×1 | 0.16 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.1 ×2° ×1 | 0.16 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.1 ×1.5 ×6 | 0.16 | 50 | 6 | ● | 341 |
| FX-PCS-EBD-6 | R0.1 ×30′ ×1.5 | 0.16 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.1 ×1° ×1.5 | 0.16 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.1 ×1°30′ ×1.5 | 0.16 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.1 ×2° ×1.5 | 0.16 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.1 ×2 ×6 | 0.16 | 50 | 6 | ● | 341 |
| FX-EBD-6 | R0.1 | 0.2 | 50 | 6 | □ | 340-5 |
| FX-EBDSS-6 | R0.1 ×0.2 | 0.2 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD-SF | R0.1 ×0.5 | 0.3 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.1 ×1 | 0.3 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.1 ×1.5 | 0.3 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.1 ×2 | 0.3 | 45 | 4 | □ | 340-28 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-HS-EBD | R0.1 ×0.4 ×4 | 0.4 | 35 | 4 | ● | 323 |
| CRN-EBD-3 | R0.1 ×0.2 | 0.4 | 40 | 3 | □ | 340-22 |
| MG-EBD-3 | R0.1 ×0.2 | 0.4 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.1 ×0.4 ×4 | 0.4 | 40 | 4 | ● | 322 |
| CRN-EBD | R0.1 ×0.2 | 0.4 | 60 | 4 | □ | 340-21 |
| MG-EBD-3 | R0.125 ×0.25 | 0.5 | 40 | 3 | □ | 340-18 |
| AE-LNBD-H | R0.15 ×0.5 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×0.5 ×4 | 0.24 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.15 ×0.6 ×4 | 0.24 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.15 ×0.6 ×4 | 0.24 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.15 ×0.6 ×4 | 0.24 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.15 ×0.75 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×0.75 ×4 | 0.24 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.15 ×1 ×4 | 0.24 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.15 ×1 ×4 | 0.24 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.15 ×1 ×4 | 0.24 | 45 | 4 | ● | 341 |
| WX-LN-EBD | R0.15 ×1 | 0.24 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.15 ×1.25 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×1.25 ×4 | 0.24 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.15 ×1.5 ×4 | 0.24 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.15 ×1.5 ×4 | 0.24 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.15 ×1.5 ×4 | 0.24 | 45 | 4 | ● | 341 |
| WX-LN-EBD | R0.15 ×1.5 | 0.24 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.15 ×1.75 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×1.75 ×4 | 0.24 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.15 ×2 ×4 | 0.24 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.15 ×2 ×4 | 0.24 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.15 ×2 ×4 | 0.24 | 45 | 4 | ● | 341 |
| WX-LN-EBD | R0.15 ×2 | 0.24 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.15 ×2.25 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×2.25 ×4 | 0.24 | 45 | 4 | ● | 341 |
| AE-LNBD-H | R0.15 ×2.5 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×2.5 ×4 | 0.24 | 45 | 4 | ● | 341 |
| WXL-LN-EBD | R0.15 ×2.75 ×4 | 0.24 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.15 ×3 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×3 ×4 | 0.24 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.15 ×3.5 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×3.5 ×4 | 0.24 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.15 ×4 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×4 ×4 | 0.24 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.15 ×4.5 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×4.5 ×4 | 0.24 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.15 ×5 ×4 | 0.24 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.15 ×5 ×4 | 0.24 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.15 ×1.5 ×6 | 0.24 | 45 | 6 | ● | 348 |
| WXL-LN-EBD | R0.15 ×1 ×6 | 0.24 | 50 | 6 | ● | 341 |
| FX-PCS-EBD-6 | R0.15 ×30′ ×1 | 0.24 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.15 ×1° ×1 | 0.24 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.15 ×1°30′ ×1 | 0.24 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.15 ×2° ×1 | 0.24 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.15 ×1.5 ×6 | 0.24 | 50 | 6 | ● | 341 |
| WXL-LN-EBD | R0.15 ×2 ×6 | 0.24 | 50 | 6 | ● | 341 |
| FX-PCS-EBD-6 | R0.15 ×30′ ×2 | 0.24 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.15 ×1° ×2 | 0.24 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.15 ×1°30′ ×2 | 0.24 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.15 ×2° ×2 | 0.24 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.15 ×2.5 ×6 | 0.24 | 50 | 6 | ● | 341 |
| WXL-LN-EBD | R0.15 ×3 ×6 | 0.24 | 50 | 6 | ● | 342 |
| FX-EBD-6 | R0.15 | 0.3 | 50 | 6 | □ | 340-5 |
| FX-EBDSS-6 | R0.15 ×0.3 | 0.4 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD-SF | R0.15 ×1 | 0.45 | 45 | 4 | □ | 340-28 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-LN-EBD-SF | R0.15 ×1.5 | 0.45 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.15 ×2 | 0.45 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.15 ×2.5 | 0.45 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.15 ×3 | 0.45 | 45 | 4 | □ | 340-28 |
| MG-EBD-3 | R0.15 ×0.3 | 0.6 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.15 ×0.6 ×4 | 0.6 | 40 | 4 | ● | 322 |
| MG-EBD-DL | R0.15 ×0.3 | 0.6 | 50 | 3 | □ | 340-20 |
| WXL-EBD | R0.15 ×0.6 ×6 | 0.6 | 50 | 6 | ● | 322 |
| FX-EBD-DL-6 | R0.15 ×0.3 | 0.6 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.15 ×0.3 | 0.9 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.15 ×0.3 | 1.2 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.15 ×0.3 | 1.2 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.15 ×0.3 | 1.8 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.15 ×0.3 | 1.8 | 50 | 6 | □ | 340-7 |
| MG-EBD-3 | R0.175 ×0.35 | 0.7 | 40 | 3 | □ | 340-18 |
| WXL-LN-EBD-3 | R0.2 ×3 | 0.3 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.2 ×4 | 0.3 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.2 ×5 | 0.3 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.2 ×6 | 0.3 | 45 | 3 | □ | 359-1 |
| AE-LNBD-H | R0.2 ×0.5 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×0.5 ×4 | 0.3 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.2 ×0.75 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×0.75 ×4 | 0.3 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.2 ×0.8 ×4 | 0.3 | 45 | 4 | ● | 348 |
| AE-LNBD-H | R0.2 ×1 ×4 | 0.3 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.2 ×1 ×4 | 0.3 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.2 ×1 ×4 | 0.3 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.2 ×1 | 0.3 | 45 | 4 | □ | 359-2 |
| CBN-SXB | R0.2 ×1.2 ×4 | 0.3 | 45 | 4 | ● | 330 |
| AE-LNBD-H | R0.2 ×1.5 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×1.5 ×4 | 0.3 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.2 ×1.5 | 0.3 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.2 ×2 ×4 | 0.3 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.2 ×2 ×4 | 0.3 | 45 | 4 | ● | 357 |
| CBN-LN-SXB | R0.2 ×2 ×4 | 0.3 | 45 | 4 | ● | 359 |
| CRN-LN-EBD-4 | R0.2 ×2 | 0.3 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.2 ×2 ×4 | 0.3 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.2 ×2 | 0.3 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.2 ×0.5° ×2 | 0.3 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.2 ×2.5 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×2.5 ×4 | 0.3 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.2 ×2.5 | 0.3 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.2 ×3 ×4 | 0.3 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.2 ×3 ×4 | 0.3 | 45 | 4 | ● | 357 |
| CBN-LN-SXB | R0.2 ×3 ×4 | 0.3 | 45 | 4 | ● | 359 |
| WXL-LN-EBD | R0.2 ×3 ×4 | 0.3 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.2 ×3 | 0.3 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.2 ×0.5° ×3 | 0.3 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.2 ×3.5 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×3.5 ×4 | 0.3 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.2 ×4 ×4 | 0.3 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.2 ×4 ×4 | 0.3 | 45 | 4 | ● | 357 |
| CRN-LN-EBD-4 | R0.2 ×4 | 0.3 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.2 ×4 ×4 | 0.3 | 45 | 4 | ● | 342 |
| WXL-PC-EBD | R0.2 ×0.5° ×4 | 0.3 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.2 ×1° ×4 | 0.3 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.2 ×4.5 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×4.5 ×4 | 0.3 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.2 ×5 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×5 ×4 | 0.3 | 45 | 4 | ● | 342 |
| WXL-PC-EBD | R0.2 ×0.5° ×5 | 0.3 | 45 | 4 | ● | 360 |

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-PC-EBD | R0.2 ×1° ×5 | 0.3 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.2 ×5.5 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×5.5 ×4 | 0.3 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.2 ×6 ×4 | 0.3 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.2 ×6 ×4 | 0.3 | 45 | 4 | ● | 342 |
| WXL-PC-EBD | R0.2 ×0.5° ×6 | 0.3 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.2 ×1° ×6 | 0.3 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.2 ×1 ×6 | 0.3 | 45 | 6 | ● | 348 |
| AE-LNBD-H | R0.2 ×2 ×6 | 0.3 | 45 | 6 | ● | 348 |
| WXL-LN-EBD | R0.2 ×1 ×6 | 0.3 | 50 | 6 | ● | 342 |
| WXL-LN-EBD | R0.2 ×1.5 ×6 | 0.3 | 50 | 6 | ● | 342 |
| WXL-LN-EBD | R0.2 ×2 ×6 | 0.3 | 50 | 6 | ● | 342 |
| FX-PCS-EBD-6 | R0.2 ×30′ ×2 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×1° ×2 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×1°30′ ×2 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×2° ×2 | 0.3 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.2 ×2.5 ×6 | 0.3 | 50 | 6 | ● | 342 |
| WXL-LN-EBD | R0.2 ×3 ×6 | 0.3 | 50 | 6 | ● | 342 |
| FX-PCS-EBD-6 | R0.2 ×30′ ×3 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×1° ×3 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×1°30′ ×3 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×2° ×3 | 0.3 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.2 ×4 ×6 | 0.3 | 50 | 6 | ● | 342 |
| FX-PCS-EBD-6 | R0.2 ×30′ ×4 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×1° ×4 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×1°30′ ×4 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×2° ×4 | 0.3 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.2 ×5 ×6 | 0.3 | 50 | 6 | ● | 342 |
| FX-PCS-EBD-6 | R0.2 ×30′ ×5 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×1° ×5 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×1°30′ ×5 | 0.3 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.2 ×2° ×5 | 0.3 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.2 ×6 ×6 | 0.3 | 50 | 6 | ● | 342 |
| FX-EBD-6 | R0.2 | 0.4 | 50 | 6 | □ | 340-5 |
| FX-EBDSS-6 | R0.2 ×0.4 | 0.5 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD-SF | R0.2 ×1.5 | 0.6 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.2 ×2 | 0.6 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.2 ×3 | 0.6 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.2 ×4 | 0.6 | 45 | 4 | □ | 340-28 |
| DG-LN-EBD | R0.2 ×4 | 0.6 | 50 | 4 | ● | 355 |
| DG-LN-EBD | R0.2 ×8 | 0.6 | 50 | 4 | ● | 355 |
| DG-LN-EBD | R0.2 ×12 | 0.6 | 50 | 4 | ● | 355 |
| WXL-HS-EBD | R0.2 ×0.8 ×4 | 0.8 | 35 | 4 | ● | 323 |
| CRN-EBD-3 | R0.2 ×0.4 | 0.8 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.2 ×0.4 | 0.8 | 40 | 3 | □ | 340-8 |
| GX-EBD | R0.2 ×0.4 | 0.8 | 40 | 3 | □ | 340-17 |
| MG-EBD-3 | R0.2 ×0.4 | 0.8 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.2 ×0.8 ×4 | 0.8 | 40 | 4 | ● | 322 |
| MG-EBD-DL | R0.2 ×0.4 | 0.8 | 50 | 3 | □ | 340-20 |
| FX-MG-EBD | R0.2 ×0.4 | 0.8 | 50 | 4 | □ | 340-3 |
| WXL-EBD | R0.2 ×0.8 ×6 | 0.8 | 50 | 6 | ● | 322 |
| FX-EBD-DL-6 | R0.2 ×0.4 | 0.8 | 50 | 6 | □ | 340-7 |
| CRN-EBD | R0.2 ×0.4 | 0.8 | 60 | 4 | □ | 340-21 |
| FX-EBD-DL-6 | R0.2 ×0.4 | 1.2 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.2 ×0.4 | 1.6 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.2 ×0.4 | 1.6 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.2 ×0.4 | 2 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.2 ×0.4 | 2 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.2 ×0.4 | 2 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.2 ×0.4 | 2.4 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.2 ×0.4 | 2.4 | 50 | 6 | □ | 340-7 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EBDLL-3 | R0.2 ×0.4 | 3 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R0.2 ×0.4 | 3 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.2 ×0.4 | 3 | 50 | 3 | □ | 340-20 |
| CBN-SXB | R0.25 ×1.5 ×4 | 0.3 | 45 | 4 | ● | 330 |
| WXL-LN-EBD-3 | R0.25 ×2 | 0.4 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.25 ×2.5 | 0.4 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.25 ×3 | 0.4 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.25 ×4 | 0.4 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.25 ×5 | 0.4 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.25 ×6 | 0.4 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.25 ×8 | 0.4 | 45 | 3 | □ | 359-1 |
| AE-LNBD-H | R0.25 ×0.75 ×4 | 0.4 | 45 | 4 | ● | 348 |
| AE-LNBD-H | R0.25 ×1 ×4 | 0.4 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.25 ×1 ×4 | 0.4 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.25 ×1 ×4 | 0.4 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.25 ×1.5 ×4 | 0.4 | 45 | 4 | ● | 348 |
| WXL-LN-EBD | R0.25 ×1.5 ×4 | 0.4 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.25 ×2 ×4 | 0.4 | 45 | 4 | ● | 348 |
| AE-LNBD-N | R0.25 ×2 ×4 | 0.4 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.25 ×2 ×4 | 0.4 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.25 ×2 | 0.4 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.25 ×2.5 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×2.5 ×4 | 0.4 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.25 ×3 ×4 | 0.4 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.25 ×3 ×4 | 0.4 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.25 ×3 ×4 | 0.4 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.25 ×3 | 0.4 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.25 ×3.5 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×3.5 ×4 | 0.4 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.25 ×4 ×4 | 0.4 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.25 ×4 ×4 | 0.4 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.25 ×4 ×4 | 0.4 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.25 ×4 | 0.4 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.25 ×4.5 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×4.5 ×4 | 0.4 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.25 ×5 ×4 | 0.4 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.25 ×5 ×4 | 0.4 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.25 ×5 ×4 | 0.4 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.25 ×5 | 0.4 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.25 ×5.5 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×5.5 ×4 | 0.4 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.25 ×6 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×6 ×4 | 0.4 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.25 ×6 | 0.4 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.25 ×7 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×7 ×4 | 0.4 | 45 | 4 | ● | 342 |
| AE-LNBD-H | R0.25 ×8 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×8 ×4 | 0.4 | 45 | 4 | ● | 342 |
| WX-LN-EBD | R0.25 ×8 | 0.4 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.25 ×9 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×9 ×4 | 0.4 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.25 ×10 ×4 | 0.4 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.25 ×10 ×4 | 0.4 | 45 | 4 | ● | 343 |
| WXL-LN-EBD | R0.25 ×1.5 ×6 | 0.4 | 50 | 6 | ● | 342 |
| WXL-LN-EBD | R0.25 ×2 ×6 | 0.4 | 50 | 6 | ● | 342 |
| WXL-LN-EBD | R0.25 ×2.5 ×6 | 0.4 | 50 | 6 | ● | 342 |
| WXL-LN-EBD | R0.25 ×3 ×6 | 0.4 | 50 | 6 | ● | 342 |
| FX-PCS-EBD-6 | R0.25 ×30′ ×3 | 0.4 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.25 ×1° ×3 | 0.4 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.25 ×1°30′ ×3 | 0.4 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.25 ×2° ×3 | 0.4 | 50 | 6 | □ | 369-1 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EBD | R0.25 ×4 ×6 | 0.4 | 50 | 6 | ● | 342 |
| WXL-LN-EBD | R0.25 ×5 ×6 | 0.4 | 50 | 6 | ● | 342 |
| FX-PCS-EBD-6 | R0.25 ×30′ ×5 | 0.4 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.25 ×1° ×5 | 0.4 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.25 ×1°30′ ×5 | 0.4 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.25 ×2° ×5 | 0.4 | 50 | 6 | □ | 369-1 |
| WXL-LN-EBD | R0.25 ×6 ×6 | 0.4 | 50 | 6 | ● | 342 |
| WXL-LN-EBD | R0.25 ×8 ×6 | 0.4 | 50 | 6 | ● | 342 |
| FX-EBD-6 | R0.25 ×1.5 | 0.5 | 50 | 6 | □ | 340-5 |
| FX-LN-EBD-6 | R0.25 ×2.5 | 0.5 | 60 | 6 | □ | 359-5 |
| FX-EBDSS-6 | R0.25 ×0.5 | 0.6 | 50 | 6 | □ | 340-6 |
| MG-EBD-DL | R0.25 ×0.5 | 1 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.25 ×0.5 | 1 | 50 | 6 | □ | 340-7 |
| CRN-EBD-3 | R0.25 ×0.5 | 1.1 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.25 ×0.5 | 1.1 | 40 | 3 | □ | 340-8 |
| GX-EBD | R0.25 ×0.5 | 1.1 | 40 | 3 | □ | 340-17 |
| MG-EBD-3 | R0.25 ×0.5 | 1.1 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.25 ×1.1 ×4 | 1.1 | 40 | 4 | ● | 322 |
| FX-MG-EBD | R0.25 ×0.5 | 1.1 | 50 | 4 | □ | 340-3 |
| WXL-EBD | R0.25 ×1.1 ×6 | 1.1 | 50 | 6 | ● | 322 |
| FX-EBD-DL-6 | R0.25 ×0.5 | 1.5 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.25 ×0.5 | 2 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.25 ×0.5 | 2 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.25 ×0.5 | 2.5 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.25 ×0.5 | 2.5 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.25 ×0.5 | 2.5 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.25 ×0.5 | 3 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.25 ×0.5 | 3 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.25 ×0.5 | 4 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.25 ×0.5 | 4 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.3 ×1.8 ×4 | 0.4 | 45 | 4 | ● | 330 |
| CBN-LN-SXB | R0.3 ×3 ×4 | 0.4 | 45 | 4 | ● | 359 |
| CBN-LN-SXB | R0.3 ×4.5 ×4 | 0.4 | 45 | 4 | ● | 359 |
| PHX-LN-DBT | R0.3 ×1 | 0.45 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.3 ×2 | 0.45 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.3 ×3 | 0.45 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.3 ×4 | 0.45 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.3 ×6 | 0.45 | 50 | 4 | ● | 354 |
| WXL-LN-EBD-3 | R0.3 ×2.5 | 0.5 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.3 ×3 | 0.5 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.3 ×3.5 | 0.5 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.3 ×5 | 0.5 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.3 ×6 | 0.5 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.3 ×7 | 0.5 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.3 ×9 | 0.5 | 45 | 3 | □ | 359-1 |
| AE-LNBD-H | R0.3 ×0.75 ×4 | 0.5 | 45 | 4 | ● | 349 |
| AE-LNBD-H | R0.3 ×1 ×4 | 0.5 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.3 ×1 ×4 | 0.5 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.3 ×1 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×1.2 ×4 | 0.5 | 45 | 4 | ● | 349 |
| AE-LNBD-H | R0.3 ×1.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×1.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×2 ×4 | 0.5 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.3 ×2 ×4 | 0.5 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.3 ×2 ×4 | 0.5 | 45 | 4 | ● | 343 |
| WX-LN-EBD | R0.3 ×2 | 0.5 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.3 ×0.5° ×2 | 0.5 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.3 ×2.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×2.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×3 ×4 | 0.5 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.3 ×3 ×4 | 0.5 | 45 | 4 | ● | 357 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CRN-LN-EBD-4 | R0.3 ×3 | 0.5 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.3 ×3 ×4 | 0.5 | 45 | 4 | ● | 343 |
| WX-LN-EBD | R0.3 ×3 | 0.5 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.3 ×3.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×3.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×4 ×4 | 0.5 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.3 ×4 ×4 | 0.5 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.3 ×4 ×4 | 0.5 | 45 | 4 | ● | 343 |
| WX-LN-EBD | R0.3 ×4 | 0.5 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.3 ×0.5° ×4 | 0.5 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.3 ×1° ×4 | 0.5 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.3 ×4.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×4.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.3 ×5 ×4 | 0.5 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.3 ×5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| WX-LN-EBD | R0.3 ×5 | 0.5 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.3 ×5.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×5.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×6 ×4 | 0.5 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.3 ×6 ×4 | 0.5 | 45 | 4 | ● | 357 |
| CRN-LN-EBD-4 | R0.3 ×6 | 0.5 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.3 ×6 ×4 | 0.5 | 45 | 4 | ● | 343 |
| WX-LN-EBD | R0.3 ×6 | 0.5 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.3 ×0.5° ×6 | 0.5 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.3 ×1° ×6 | 0.5 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.3 ×6.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×6.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×7 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×7 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×7.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×7.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×8 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×8 ×4 | 0.5 | 45 | 4 | ● | 343 |
| WX-LN-EBD | R0.3 ×8 | 0.5 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.3 ×0.5° ×8 | 0.5 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.3 ×1° ×8 | 0.5 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.3 ×8.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×8.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×9 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×9 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×9.5 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×9.5 ×4 | 0.5 | 45 | 4 | ● | 343 |
| AE-LNBD-H | R0.3 ×10 ×4 | 0.5 | 45 | 4 | ● | 349 |
| WXL-LN-EBD | R0.3 ×10 ×4 | 0.5 | 45 | 4 | ● | 343 |
| WXL-PC-EBD | R0.3 ×0.5° ×10 | 0.5 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.3 ×1° ×10 | 0.5 | 45 | 4 | ● | 360 |
| WXL-LN-EBD | R0.3 ×11 ×4 | 0.5 | 45 | 4 | ● | 344 |
| WXL-LN-EBD | R0.3 ×12 ×4 | 0.5 | 45 | 4 | ● | 344 |
| WXL-PC-EBD | R0.3 ×0.5° ×12 | 0.5 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.3 ×1° ×12 | 0.5 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.3 ×2 ×6 | 0.5 | 45 | 6 | ● | 349 |
| AE-LNBD-H | R0.3 ×3 ×6 | 0.5 | 45 | 6 | ● | 349 |
| AE-LNBD-H | R0.3 ×4 ×6 | 0.5 | 45 | 6 | ● | 349 |
| AE-LNBD-H | R0.3 ×11 ×4 | 0.5 | 50 | 4 | ● | 349 |
| AE-LNBD-H | R0.3 ×12 ×4 | 0.5 | 50 | 4 | ● | 349 |
| WXL-PC-EBD | R0.3 ×0.5° ×16 | 0.5 | 50 | 4 | ● | 360 |
| WXL-PC-EBD | R0.3 ×1° ×16 | 0.5 | 50 | 4 | ● | 360 |
| WXL-LN-EBD | R0.3 ×1.5 ×6 | 0.5 | 50 | 6 | ● | 343 |
| WXL-LN-EBD | R0.3 ×2 ×6 | 0.5 | 50 | 6 | ● | 343 |
| WXL-LN-EBD | R0.3 ×2.5 ×6 | 0.5 | 50 | 6 | ● | 343 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EBD | R0.3 ×3 ×6 | 0.5 | 50 | 6 | ● | 343 |
| FX-PCS-EBD-6 | R0.3 ×30′ ×3 | 0.5 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.3 ×1° ×3 | 0.5 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.3 ×1°30′ ×3 | 0.5 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.3 ×2° ×3 | 0.5 | 50 | 6 | □ | 369-2 |
| WXL-LN-EBD | R0.3 ×4 ×6 | 0.5 | 50 | 6 | ● | 343 |
| WXL-LN-EBD | R0.3 ×5 ×6 | 0.5 | 50 | 6 | ● | 343 |
| FX-PCS-EBD-6 | R0.3 ×30′ ×5 | 0.5 | 50 | 6 | □ | 369-1 |
| FX-PCS-EBD-6 | R0.3 ×1° ×5 | 0.5 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.3 ×1°30′ ×5 | 0.5 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.3 ×2° ×5 | 0.5 | 50 | 6 | □ | 369-2 |
| WXL-LN-EBD | R0.3 ×6 ×6 | 0.5 | 50 | 6 | ● | 343 |
| WXL-LN-EBD | R0.3 ×8 ×6 | 0.5 | 50 | 6 | ● | 343 |
| WXL-LN-EBD | R0.3 ×10 ×6 | 0.5 | 50 | 6 | ● | 343 |
| FX-EBD-6 | R0.3 ×1.1 | 0.6 | 50 | 6 | □ | 340-5 |
| FX-EBD-6 | R0.3 ×1.8 | 0.6 | 50 | 6 | □ | 340-5 |
| FX-LN-EBD-6 | R0.3 ×3 | 0.6 | 60 | 6 | □ | 359-5 |
| FX-PC-MG-EBD | R0.3 ×60 ×30′ ×10 | 0.6 | 60 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R0.3 ×60 ×1° ×10 | 0.6 | 60 | 6 | □ | 369-4 |
| FX-EBDSS-6 | R0.3 ×0.6 | 0.7 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD | R0.3 ×2 | 0.9 | 40 | 3 | □ | 359-9 |
| CAP-LN-EBD | R0.3 ×4 | 0.9 | 40 | 3 | □ | 359-9 |
| CAP-LN-EBD | R0.3 ×6 | 0.9 | 40 | 3 | □ | 359-9 |
| CAP-LN-EBD-SF | R0.3 ×2 | 0.9 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.3 ×3 | 0.9 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.3 ×4 | 0.9 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.3 ×5 | 0.9 | 45 | 4 | □ | 340-28 |
| CAP-LN-EBD-SF | R0.3 ×6 | 0.9 | 45 | 4 | □ | 340-28 |
| DG-LN-EBD | R0.3 ×6 | 0.9 | 50 | 4 | ● | 355 |
| DG-LN-EBD | R0.3 ×10 | 0.9 | 50 | 4 | ● | 355 |
| DG-LN-EBD | R0.3 ×16 | 0.9 | 60 | 4 | ● | 355 |
| DG-LN-EBD | R0.3 ×20 | 0.9 | 60 | 4 | ● | 355 |
| WXL-HS-EBD | R0.3 ×1.1 ×4 | 1.1 | 35 | 4 | ● | 323 |
| CRN-EBD-3 | R0.3 ×0.6 | 1.1 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.3 ×0.6 | 1.1 | 40 | 3 | □ | 340-8 |
| GX-EBD | R0.3 ×0.6 | 1.1 | 40 | 3 | □ | 340-17 |
| MG-EBD-3 | R0.3 ×0.6 | 1.1 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.3 ×1.1 ×4 | 1.1 | 40 | 4 | ● | 322 |
| FX-MG-EBD | R0.3 ×0.6 | 1.1 | 50 | 4 | □ | 340-3 |
| WXL-EBD | R0.3 ×1.1 ×6 | 1.1 | 50 | 6 | ● | 322 |
| CRN-EBD | R0.3 ×0.6 | 1.1 | 60 | 4 | □ | 340-21 |
| MG-EBD-DL | R0.3 ×0.6 | 1.2 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.3 ×0.6 | 1.2 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.3 ×0.6 | 2.4 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.3 ×0.6 | 2.4 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.3 ×0.6 | 2.8 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.3 ×0.6 | 2.8 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.3 ×0.6 | 2.8 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.3 ×0.6 | 3.6 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.3 ×0.6 | 3.6 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDLL-3 | R0.3 ×0.6 | 4.2 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R0.3 ×0.6 | 4.2 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.3 ×0.6 | 4.2 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.3 ×0.6 | 4.8 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.3 ×0.6 | 4.8 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.35 ×2.1 ×4 | 0.5 | 45 | 4 | ● | 330 |
| MG-EBD-DL | R0.35 ×0.7 | 1.4 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.35 ×0.7 | 1.4 | 50 | 6 | □ | 340-7 |
| CRN-EBD-3 | R0.35 ×0.7 | 1.5 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.35 ×0.7 | 1.5 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.35 ×0.7 | 1.5 | 40 | 3 | □ | 340-18 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-EBD | R0.35 ×1.5 ×4 | 1.5 | 40 | 4 | ● | 322 |
| FX-MG-EBD | R0.35 ×0.7 | 1.5 | 50 | 4 | □ | 340-3 |
| MG-EBD-DL | R0.35 ×0.7 | 2.8 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.35 ×0.7 | 2.8 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.35 ×0.7 | 3.6 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.35 ×0.7 | 3.6 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.35 ×0.7 | 3.6 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.35 ×0.7 | 4.2 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.35 ×0.7 | 4.2 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.35 ×0.7 | 5.6 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.4 ×2.4 ×4 | 0.5 | 45 | 4 | ● | 330 |
| WXL-LN-EBD-3 | R0.4 ×3 | 0.6 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.4 ×4 | 0.6 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.4 ×5 | 0.6 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.4 ×8 | 0.6 | 45 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.4 ×10 | 0.6 | 45 | 3 | □ | 359-1 |
| AE-LNBD-H | R0.4 ×1 ×4 | 0.6 | 45 | 4 | ● | 349 |
| AE-LNBD-H | R0.4 ×1.5 ×4 | 0.6 | 45 | 4 | ● | 349 |
| AE-LNBD-H | R0.4 ×2 ×4 | 0.6 | 45 | 4 | ● | 349 |
| AE-LNBD-N | R0.4 ×2 ×4 | 0.6 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.4 ×2 ×4 | 0.6 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.4 ×2 | 0.6 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.4 ×2.5 ×4 | 0.6 | 45 | 4 | ● | 349 |
| AE-LNBD-H | R0.4 ×3 ×4 | 0.6 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.4 ×3 ×4 | 0.6 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.4 ×3 ×4 | 0.6 | 45 | 4 | ● | 344 |
| AE-LNBD-H | R0.4 ×4 ×4 | 0.6 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.4 ×4 ×4 | 0.6 | 45 | 4 | ● | 357 |
| CRN-LN-EBD-4 | R0.4 ×4 | 0.6 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.4 ×4 ×4 | 0.6 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.4 ×4 | 0.6 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.4 ×0.5° ×4 | 0.6 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.4 ×5 ×4 | 0.6 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.4 ×5 ×4 | 0.6 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.4 ×5 | 0.6 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.4 ×6 ×4 | 0.6 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.4 ×6 ×4 | 0.6 | 45 | 4 | ● | 357 |
| WXL-LN-EBD | R0.4 ×6 ×4 | 0.6 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.4 ×6 | 0.6 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.4 ×0.5° ×6 | 0.6 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.4 ×7 ×4 | 0.6 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.4 ×7 ×4 | 0.6 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.4 ×7 | 0.6 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.4 ×8 ×4 | 0.6 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.4 ×8 ×4 | 0.6 | 45 | 4 | ● | 357 |
| CRN-LN-EBD-4 | R0.4 ×8 | 0.6 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.4 ×8 ×4 | 0.6 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.4 ×8 | 0.6 | 45 | 4 | □ | 359-2 |
| WXL-PC-EBD | R0.4 ×0.5° ×8 | 0.6 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.4 ×1° ×8 | 0.6 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.4 ×9 ×4 | 0.6 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.4 ×9 ×4 | 0.6 | 45 | 4 | ● | 344 |
| AE-LNBD-H | R0.4 ×10 ×4 | 0.6 | 45 | 4 | ● | 350 |
| CRN-LN-EBD-4 | R0.4 ×10 | 0.6 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.4 ×10 ×4 | 0.6 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.4 ×10 | 0.6 | 45 | 4 | □ | 359-2 |
| WXL-LN-EBD | R0.4 ×12 ×4 | 0.6 | 45 | 4 | ● | 344 |
| WXL-PC-EBD | R0.4 ×0.5° ×12 | 0.6 | 45 | 4 | ● | 360 |
| WXL-PC-EBD | R0.4 ×1° ×12 | 0.6 | 45 | 4 | ● | 360 |
| AE-LNBD-H | R0.4 ×2 ×6 | 0.6 | 45 | 6 | ● | 349 |
| WXL-LN-EBD-3 | R0.4 ×12 | 0.6 | 50 | 3 | □ | 359-1 |

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-LNBD-H | R0.4 ×12 ×4 | 0.6 | 50 | 4 | ● | 350 |
| WXL-PC-EBD | R0.4 ×1° ×16 | 0.6 | 50 | 4 | ● | 360 |
| WXL-LN-EBD | R0.4 ×2 ×6 | 0.6 | 50 | 6 | ● | 344 |
| WXL-LN-EBD | R0.4 ×3 ×6 | 0.6 | 50 | 6 | ● | 344 |
| FX-PCS-EBD-6 | R0.4 ×30′ ×3 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×1° ×3 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×1°30′ ×3 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×2° ×3 | 0.6 | 50 | 6 | □ | 369-2 |
| WXL-LN-EBD | R0.4 ×4 ×6 | 0.6 | 50 | 6 | ● | 344 |
| WXL-LN-EBD | R0.4 ×5 ×6 | 0.6 | 50 | 6 | ● | 344 |
| FX-PCS-EBD-6 | R0.4 ×30′ ×5 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×1° ×5 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×1°30′ ×5 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×2° ×5 | 0.6 | 50 | 6 | □ | 369-2 |
| WXL-LN-EBD | R0.4 ×6 ×6 | 0.6 | 50 | 6 | ● | 344 |
| FX-PCS-EBD-6 | R0.4 ×30′ ×7 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×1° ×7 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×1°30′ ×7 | 0.6 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.4 ×2° ×7 | 0.6 | 50 | 6 | □ | 369-2 |
| WXL-LN-EBD | R0.4 ×8 ×6 | 0.6 | 50 | 6 | ● | 344 |
| WXL-LN-EBD | R0.4 ×10 ×6 | 0.6 | 50 | 6 | ● | 344 |
| FX-EBD-6 | R0.4 ×1.5 | 0.8 | 50 | 6 | □ | 340-5 |
| FX-EBD-6 | R0.4 ×2.4 | 0.8 | 50 | 6 | □ | 340-5 |
| FX-LN-EBD-6 | R0.4 ×4 | 0.8 | 60 | 6 | □ | 359-5 |
| FX-PC-MG-EBD | R0.4 ×60 ×30′ ×12 | 0.8 | 60 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R0.4 ×60 ×1° ×12 | 0.8 | 60 | 6 | □ | 369-4 |
| FX-EBDSS-6 | R0.4 ×0.8 | 1 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD | R0.4 ×4 | 1.2 | 50 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.4 ×6 | 1.2 | 50 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.4 ×8 | 1.2 | 60 | 4 | □ | 359-9 |
| MG-EBD-DL | R0.4 ×0.8 | 1.6 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.4 ×0.8 | 1.6 | 50 | 6 | □ | 340-7 |
| WXL-HS-EBD | R0.4 ×2 ×4 | 2 | 35 | 4 | ● | 323 |
| CRN-EBD-3 | R0.4 ×0.8 | 2 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.4 ×0.8 | 2 | 40 | 3 | □ | 340-8 |
| GX-EBD | R0.4 ×0.8 | 2 | 40 | 3 | □ | 340-17 |
| MG-EBD-3 | R0.4 ×0.8 | 2 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.4 ×2 ×4 | 2 | 40 | 4 | ● | 322 |
| MG-EBD | R0.4 ×0.8 | 2 | 45 | 4 | □ | 328 |
| MG-EBD-4 | R0.4 ×0.8 | 2 | 45 | 4 | □ | 340-18 |
| FX-MG-EBD | R0.4 ×0.8 | 2 | 50 | 4 | □ | 340-3 |
| WXL-EBD | R0.4 ×2 ×6 | 2 | 50 | 6 | ● | 322 |
| CRN-EBD | R0.4 ×0.8 | 2 | 60 | 4 | □ | 340-21 |
| MG-EBD-DL | R0.4 ×0.8 | 3.2 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.4 ×0.8 | 3.2 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.4 ×0.8 | 4 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.4 ×0.8 | 4 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.4 ×0.8 | 4.5 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.4 ×0.8 | 4.8 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.4 ×0.8 | 4.8 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDLL-3 | R0.4 ×0.8 | 6 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R0.4 ×0.8 | 6 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.4 ×0.8 | 6 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.4 ×0.8 | 6.4 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.45 ×2.7 ×4 | 0.6 | 45 | 4 | ● | 330 |
| MG-EBD-DL | R0.45 ×0.9 | 1.8 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.45 ×0.9 | 1.8 | 50 | 6 | □ | 340-7 |
| MG-EBD | R0.45 ×0.9 | 2 | 45 | 4 | □ | 328 |
| MG-EBD-4 | R0.45 ×0.9 | 2 | 45 | 4 | □ | 340-18 |
| CRN-EBD-3 | R0.45 ×0.9 | 2.2 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.45 ×0.9 | 2.2 | 40 | 3 | □ | 340-8 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EBD-3 | R0.45 ×0.9 | 2.2 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.45 ×2.2 ×4 | 2.2 | 50 | 4 | ● | 322 |
| FX-MG-EBD | R0.45 ×0.9 | 2.2 | 50 | 4 | □ | 340-3 |
| MG-EBD-DL | R0.45 ×0.9 | 3.6 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.45 ×0.9 | 3.6 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.45 ×0.9 | 4.5 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.45 ×0.9 | 4.5 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.45 ×0.9 | 5 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.45 ×0.9 | 5.4 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.45 ×0.9 | 5.4 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.45 ×0.9 | 7.2 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.5 ×2.5 ×4 | 0.6 | 45 | 4 | ● | 330 |
| CBN-LN-SXB | R0.5 ×4 ×4 | 0.6 | 45 | 4 | ● | 359 |
| CBN-LN-SXB | R0.5 ×5 ×4 | 0.6 | 45 | 4 | ● | 359 |
| CBN-LN-SXB | R0.5 ×6 ×4 | 0.6 | 45 | 4 | ● | 359 |
| CBN-LN-SXB | R0.5 ×7.5 ×4 | 0.6 | 45 | 4 | ● | 359 |
| CBN-SXB | R0.5 ×2.5 ×6 | 0.6 | 50 | 6 | ● | 330 |
| CBN-LN-SXB | R0.5 ×4 ×6 | 0.6 | 50 | 6 | ● | 359 |
| CBN-LN-SXB | R0.5 ×5 ×6 | 0.6 | 50 | 6 | ● | 359 |
| CBN-LN-SXB | R0.5 ×6 ×6 | 0.6 | 50 | 6 | ● | 359 |
| CBN-LN-SXB | R0.5 ×7.5 ×6 | 0.6 | 50 | 6 | ● | 359 |
| WXL-PC-EBD | R0.5 ×0.5° ×6 | 0.63 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×8 | 0.63 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1.5° ×8 | 0.63 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×10 | 0.63 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×10 | 0.63 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1.5° ×10 | 0.63 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×12 | 0.63 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1.5° ×12 | 0.63 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×16 | 0.63 | 50 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×16 | 0.63 | 50 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1.5° ×16 | 0.63 | 50 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×18 | 0.63 | 55 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×20 | 0.63 | 55 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×20 | 0.63 | 55 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1.5° ×20 | 0.63 | 55 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×25 | 0.63 | 60 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×25 | 0.63 | 60 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1.5° ×25 | 0.63 | 60 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×30 | 0.63 | 65 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×30 | 0.63 | 65 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1.5° ×30 | 0.63 | 65 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×0.5° ×35 | 0.63 | 70 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×35 | 0.63 | 70 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1.5° ×35 | 0.63 | 70 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×40 | 0.63 | 80 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×2° ×45 | 0.63 | 80 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×50 | 0.63 | 90 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×60 | 0.63 | 100 | 4 | ● | 361 |
| WXL-PC-EBD | R0.5 ×1° ×70 | 0.63 | 110 | 4 | ● | 361 |
| FXS-EQD | R0.5 | 0.7 | 60 | 6 | ● | 364 |
| PHX-LN-DBT | R0.5 ×4 | 0.75 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.5 ×6 | 0.75 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.5 ×8 | 0.75 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.5 ×10 | 0.75 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.5 ×12 | 0.75 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.5 ×14 | 0.75 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.5 ×16 | 0.75 | 50 | 4 | ● | 354 |
| AE-LNBD-H | R0.5 ×1.5 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-H | R0.5 ×2 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.5 ×2 ×4 | 0.8 | 45 | 4 | ● | 358 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-LNBD-H | R0.5 ×2.5 ×4 | 0.8 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.5 ×2.5 ×4 | 0.8 | 45 | 4 | ● | 344 |
| AE-LNBD-H | R0.5 ×3 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.5 ×3 ×4 | 0.8 | 45 | 4 | ● | 358 |
| CRN-LN-EBD-4 | R0.5 ×3 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×3 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×3 | 0.8 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.5 ×4 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.5 ×4 ×4 | 0.8 | 45 | 4 | ● | 358 |
| CRN-LN-EBD-4 | R0.5 ×4 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×4 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×4 | 0.8 | 45 | 4 | □ | 359-2 |
| AE-LNBD-H | R0.5 ×5 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.5 ×5 ×4 | 0.8 | 45 | 4 | ● | 358 |
| CRN-LN-EBD-4 | R0.5 ×5 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×5 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×5 | 0.8 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×6 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.5 ×6 ×4 | 0.8 | 45 | 4 | ● | 358 |
| CRN-LN-EBD-4 | R0.5 ×6 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×6 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×6 | 0.8 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×7 ×4 | 0.8 | 45 | 4 | ● | 350 |
| CRN-LN-EBD-4 | R0.5 ×7 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×7 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×7 | 0.8 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×8 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.5 ×8 ×4 | 0.8 | 45 | 4 | ● | 358 |
| CRN-LN-EBD-4 | R0.5 ×8 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×8 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×8 | 0.8 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×9 ×4 | 0.8 | 45 | 4 | ● | 350 |
| CRN-LN-EBD-4 | R0.5 ×9 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×9 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×9 | 0.8 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×10 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.5 ×10 ×4 | 0.8 | 45 | 4 | ● | 358 |
| CRN-LN-EBD-4 | R0.5 ×10 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×10 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×10 | 0.8 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×12 ×4 | 0.8 | 45 | 4 | ● | 350 |
| AE-LNBD-N | R0.5 ×12 ×4 | 0.8 | 45 | 4 | ● | 358 |
| CRN-LN-EBD-4 | R0.5 ×12 | 0.8 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×12 ×4 | 0.8 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×12 | 0.8 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×2 ×6 | 0.8 | 45 | 6 | ● | 350 |
| AE-LNBD-H | R0.5 ×3 ×6 | 0.8 | 45 | 6 | ● | 350 |
| AE-LNBD-H | R0.5 ×4 ×6 | 0.8 | 45 | 6 | ● | 350 |
| AE-LNBD-H | R0.5 ×5 ×6 | 0.8 | 45 | 6 | ● | 350 |
| AE-LNBD-H | R0.5 ×6 ×6 | 0.8 | 45 | 6 | ● | 350 |
| AE-LNBD-H | R0.5 ×7 ×6 | 0.8 | 45 | 6 | ● | 350 |
| AE-LNBD-H | R0.5 ×8 ×6 | 0.8 | 45 | 6 | ● | 350 |
| WXL-LN-EBD-3 | R0.5 ×4 | 0.8 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.5 ×5 | 0.8 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.5 ×6 | 0.8 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.5 ×8 | 0.8 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.5 ×10 | 0.8 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.5 ×12 | 0.8 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.5 ×16 | 0.8 | 50 | 3 | □ | 359-1 |
| AE-BD-H | R0.5 ×2 | 0.8 | 50 | 4 | ● | 324 |
| AE-LNBD-H | R0.5 ×13 ×4 | 0.8 | 50 | 4 | ● | 350 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-LNBD-H | R0.5 ×14 ×4 | 0.8 | 50 | 4 | ● | 350 |
| WXL-LN-EBD | R0.5 ×14 ×4 | 0.8 | 50 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×14 | 0.8 | 50 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×16 ×4 | 0.8 | 50 | 4 | ● | 350 |
| CRN-LN-EBD-4 | R0.5 ×16 | 0.8 | 50 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×16 ×4 | 0.8 | 50 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×16 | 0.8 | 50 | 4 | □ | 359-3 |
| WXL-LN-EBD | R0.5 ×3 ×6 | 0.8 | 50 | 6 | ● | 344 |
| FX-PCS-EBD-6 | R0.5 ×30′ ×3 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×1° ×3 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×1°30′ ×3 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×2° ×3 | 0.8 | 50 | 6 | □ | 369-2 |
| WXL-LN-EBD | R0.5 ×4 ×6 | 0.8 | 50 | 6 | ● | 344 |
| WXL-LN-EBD | R0.5 ×5 ×6 | 0.8 | 50 | 6 | ● | 344 |
| FX-PCS-EBD-6 | R0.5 ×30′ ×5 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×1° ×5 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×1°30′ ×5 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×2° ×5 | 0.8 | 50 | 6 | □ | 369-2 |
| WXL-LN-EBD | R0.5 ×6 ×6 | 0.8 | 50 | 6 | ● | 344 |
| WXL-LN-EBD | R0.5 ×7 ×6 | 0.8 | 50 | 6 | ● | 344 |
| FX-PCS-EBD-6 | R0.5 ×30′ ×7 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×1° ×7 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×1°30′ ×7 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×2° ×7 | 0.8 | 50 | 6 | □ | 369-2 |
| WXL-LN-EBD | R0.5 ×8 ×6 | 0.8 | 50 | 6 | ● | 344 |
| FX-PCS-EBD-6 | R0.5 ×30′ ×9 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×1° ×9 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×1°30′ ×9 | 0.8 | 50 | 6 | □ | 369-2 |
| FX-PCS-EBD-6 | R0.5 ×2° ×9 | 0.8 | 50 | 6 | □ | 369-2 |
| AE-LNBD-H | R0.5 ×10 ×6 | 0.8 | 50 | 6 | ● | 350 |
| WXL-LN-EBD | R0.5 ×10 ×6 | 0.8 | 50 | 6 | ● | 344 |
| WXL-LN-EBD | R0.5 ×12 ×6 | 0.8 | 50 | 6 | ● | 344 |
| AE-LNBD-H | R0.5 ×18 ×4 | 0.8 | 55 | 4 | ● | 350 |
| WXL-LN-EBD | R0.5 ×18 ×4 | 0.8 | 55 | 4 | ● | 344 |
| AE-LNBD-H | R0.5 ×20 ×4 | 0.8 | 55 | 4 | ● | 350 |
| CRN-LN-EBD-4 | R0.5 ×20 | 0.8 | 55 | 4 | □ | 359-10 |
| WXL-LN-EBD | R0.5 ×20 ×4 | 0.8 | 55 | 4 | ● | 344 |
| WX-LN-EBD | R0.5 ×20 | 0.8 | 55 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.5 ×22 ×4 | 0.8 | 60 | 4 | ● | 350 |
| WXL-LN-EBD | R0.5 ×14 ×6 | 0.8 | 60 | 6 | ● | 344 |
| WXL-LN-EBD | R0.5 ×16 ×6 | 0.8 | 60 | 6 | ● | 344 |
| WXL-LN-EBD | R0.5 ×20 ×6 | 0.8 | 60 | 6 | ● | 344 |
| AE-LNBD-H | R0.5 ×22 ×6 | 0.8 | 60 | 6 | ● | 350 |
| WXL-LN-EBD | R0.5 ×22 ×6 | 0.8 | 60 | 6 | ● | 344 |
| DIA-EBT | R0.5 ×3 | 1 | 45 | 4 | □ | 340-26 |
| CRN-HS-EBD | R0.5 ×2.5 | 1 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R0.5 ×1.8 | 1 | 50 | 6 | □ | 340-5 |
| FX-EBD-6 | R0.5 ×2.5 | 1 | 50 | 6 | □ | 340-5 |
| FX-H-EBD | R0.5 ×2.5 | 1 | 50 | 6 | □ | 340-11 |
| FX-HS-EBDS | R0.5 ×2.5 | 1 | 50 | 6 | □ | 340-10 |
| FX-LN-EBD-6 | R0.5 ×5 | 1 | 60 | 6 | □ | 359-5 |
| FX-PC-MG-EBD | R0.5 ×70 ×30′ ×20 | 1 | 70 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R0.5 ×70 ×1° ×20 | 1 | 70 | 6 | □ | 369-4 |
| FX-EBDSS-6 | R0.5 ×1 | 1.2 | 50 | 6 | □ | 340-6 |
| WXL-HS-EBD | R0.5 ×1.5 ×4 | 1.5 | 40 | 4 | ● | 323 |
| WXL-EBD | R0.5 ×1.5 ×4 | 1.5 | 50 | 4 | ● | 322 |
| DG-LN-EBD | R0.5 ×4 | 1.5 | 50 | 4 | ● | 355 |
| CAP-LN-EBD | R0.5 ×6 | 1.5 | 50 | 4 | □ | 359-9 |
| DG-LN-EBD | R0.5 ×6 | 1.5 | 50 | 4 | ● | 355 |
| DG-LN-EBD | R0.5 ×10 | 1.5 | 50 | 4 | ● | 355 |
| CAP-LN-EBD | R0.5 ×8 | 1.5 | 60 | 4 | □ | 359-9 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-LN-EBD | R0.5 ×10 | 1.5 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.5 ×12 | 1.5 | 60 | 4 | □ | 359-9 |
| DG-LN-EBD | R0.5 ×16 | 1.5 | 60 | 4 | ● | 355 |
| DG-LN-EBD | R0.5 ×20 | 1.5 | 60 | 4 | ● | 355 |
| PHX-DBT | R0.5 ×60 | 1.5 | 60 | 6 | ● | 335 |
| CRN-LN-EBD | R0.5 ×3 | 1.5 | 60 | 6 | □ | 359-10 |
| CRN-LN-EBD | R0.5 ×4 | 1.5 | 60 | 6 | □ | 359-10 |
| CRN-LN-EBD | R0.5 ×5 | 1.5 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R0.5 ×5 | 1.5 | 60 | 6 | ● | 355 |
| DLC-LN-EBD | R0.5 ×5 | 1.5 | 60 | 6 | ● | 356 |
| CRN-LN-EBD | R0.5 ×6 | 1.5 | 60 | 6 | □ | 359-10 |
| PHX-PC-DBT | R0.5 ×1° ×6 | 1.5 | 60 | 6 | ● | 365 |
| CRN-LN-EBD | R0.5 ×7 | 1.5 | 60 | 6 | □ | 359-10 |
| CRN-LN-EBD | R0.5 ×8 | 1.5 | 60 | 6 | □ | 359-10 |
| PHX-PC-DBT | R0.5 ×0.5° ×8 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×8 | 1.5 | 60 | 6 | ● | 365 |
| CRN-LN-EBD | R0.5 ×9 | 1.5 | 60 | 6 | □ | 359-10 |
| CRN-LN-EBD | R0.5 ×10 | 1.5 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R0.5 ×10 | 1.5 | 60 | 6 | ● | 355 |
| PHX-PC-DBT | R0.5 ×1° ×10 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×0.5° ×12 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×12 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×14 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×15 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×0.5° ×16 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×16 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×16 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×18 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×0.5° ×20 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×20 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×20 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×22 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×24 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×24 | 1.5 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×25 | 1.5 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×25 | 1.5 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×26 | 1.5 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×28 | 1.5 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×30 | 1.5 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×30 | 1.5 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×4.5° ×30 | 1.5 | 70 | 6 | ● | 365 |
| DG-LN-EBD | R0.5 ×30 | 1.5 | 80 | 4 | ● | 355 |
| DG-LN-EBD | R0.5 ×40 | 1.5 | 80 | 4 | ● | 355 |
| PHX-PC-DBT | R0.5 ×1° ×32 | 1.5 | 80 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×34 | 1.5 | 80 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1° ×36 | 1.5 | 80 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×40 | 1.5 | 80 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×50 | 1.5 | 90 | 6 | ● | 365 |
| PHX-PC-DBT | R0.5 ×1.5° ×60 | 1.5 | 100 | 6 | ● | 365 |
| MG-EBD-DL | R0.5 ×1 | 2 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.5 ×1 | 2 | 50 | 6 | □ | 340-7 |
| FX-LN-MG-EBD | R0.5 ×10 | 2 | 80 | 4 | □ | 359-6 |
| MG-LN-EBD | R0.5 ×10 | 2 | 80 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R0.5 ×15 | 2 | 90 | 4 | □ | 359-6 |
| MG-LN-EBD | R0.5 ×15 | 2 | 90 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R0.5 ×20 | 2 | 90 | 4 | □ | 359-6 |
| MG-LN-EBD | R0.5 ×20 | 2 | 90 | 4 | □ | 359-8 |
| CRN-EBD-3 | R0.5 ×1 | 2.5 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.5 ×1 | 2.5 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.5 ×1 | 2.5 | 40 | 3 | □ | 340-18 |
| DLC-EBD | R0.5 | 2.5 | 50 | 4 | ● | 332 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-EBD | R0.5 ×2.5 ×4 | 2.5 | 50 | 4 | ● | 322 |
| CA-RG-EBD | R0.5 ×1 | 2.5 | 50 | 4 | □ | 340-21 |
| FX-MG-EBD | R0.5 ×1 | 2.5 | 50 | 4 | □ | 340-3 |
| GX-EBD | R0.5 ×1 | 2.5 | 50 | 4 | □ | 340-17 |
| TIN-MG-EBD | R0.5 ×1 | 2.5 | 50 | 4 | □ | 340-15 |
| CRN-EBD | R0.5 ×1 | 2.5 | 60 | 4 | □ | 340-21 |
| DIA-EBD | R0.5 ×1 | 2.5 | 60 | 4 | ● | 333 |
| WXL-EBD | R0.5 ×2.5 ×6 | 2.5 | 60 | 6 | ● | 322 |
| FX-PC-MG-EBD | R0.5 ×60 ×5° ×20 | 2.5 | 60 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R0.5 ×70 ×1°30′ ×20 | 2.5 | 70 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R0.5 ×80 ×3° ×40 | 2.5 | 80 | 6 | □ | 369-4 |
| V-LS-MG-EBD | R0.5 ×1 | 2.5 | 100 | 4 | □ | 340-14 |
| DIA-PC-EBD | R0.5 ×30′ ×30 | 2.5 | 100 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×1° ×30 | 2.5 | 100 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×30′ ×40 | 2.5 | 100 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×1° ×40 | 2.5 | 100 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×30′ ×50 | 2.5 | 100 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×1° ×50 | 2.5 | 100 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×30′ ×60 | 2.5 | 120 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×1° ×60 | 2.5 | 120 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×30′ ×70 | 2.5 | 140 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×1° ×70 | 2.5 | 140 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×1° ×80 | 2.5 | 140 | 6 | □ | 369-6 |
| DIA-PC-EBD | R0.5 ×1° ×90 | 2.5 | 150 | 6 | □ | 369-6 |
| MG-EBD-DL | R0.5 ×1 | 3 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.5 ×1 | 3 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.5 ×1 | 4 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.5 ×1 | 4 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.5 ×1 | 5 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.5 ×1 | 5 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.5 ×1 | 5 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.5 ×1 | 5 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.5 ×1 | 5 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.5 ×1 | 6 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.5 ×1 | 6 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDLL-3 | R0.5 ×1 | 7.5 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R0.5 ×1 | 7.5 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.5 ×1 | 7.5 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.5 ×1 | 8 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.55 ×2.8 ×6 | 0.7 | 50 | 6 | ● | 330 |
| MG-EBD-DL | R0.55 ×1.1 | 2.2 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.55 ×1.1 | 2.2 | 50 | 6 | □ | 340-7 |
| WXL-EBD | R0.55 ×2.7 ×4 | 2.7 | 50 | 4 | ● | 322 |
| CRN-EBD-3 | R0.55 ×1.1 | 3 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.55 ×1.1 | 3 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.55 ×1.1 | 3 | 40 | 3 | □ | 340-18 |
| FX-MG-EBD | R0.55 ×1.1 | 3 | 50 | 4 | □ | 340-3 |
| MG-EBD | R0.55 ×1.1 | 3 | 50 | 4 | □ | 328 |
| MG-EBD-4 | R0.55 ×1.1 | 3 | 50 | 4 | □ | 340-18 |
| MG-EBD-DL | R0.55 ×1.1 | 4.4 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.55 ×1.1 | 4.4 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.55 ×1.1 | 5.6 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.55 ×1.1 | 5.6 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.55 ×1.1 | 5.6 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.55 ×1.1 | 6.6 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.55 ×1.1 | 6.6 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.55 ×1.1 | 8.8 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.6 ×3 ×6 | 0.7 | 50 | 6 | ● | 330 |
| AE-LNBD-H | R0.6 ×2 ×4 | 1 | 45 | 4 | ● | 350 |
| AE-LNBD-H | R0.6 ×2.4 ×4 | 1 | 45 | 4 | ● | 350 |
| AE-LNBD-H | R0.6 ×2.5 ×4 | 1 | 45 | 4 | ● | 350 |

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-LNBD-H | R0.6 ×3 ×4 | 1 | 45 | 4 | ● | 350 |
| AE-LNBD-H | R0.6 ×4 ×4 | 1 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.6 ×4 ×4 | 1 | 45 | 4 | ● | 344 |
| AE-LNBD-H | R0.6 ×6 ×4 | 1 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.6 ×6 ×4 | 1 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.6 ×6 | 1 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.6 ×8 ×4 | 1 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.6 ×8 ×4 | 1 | 45 | 4 | ● | 344 |
| WX-LN-EBD | R0.6 ×8 | 1 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.6 ×10 ×4 | 1 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.6 ×10 ×4 | 1 | 45 | 4 | ● | 345 |
| WX-LN-EBD | R0.6 ×10 | 1 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.6 ×12 ×4 | 1 | 45 | 4 | ● | 350 |
| WXL-LN-EBD | R0.6 ×12 ×4 | 1 | 45 | 4 | ● | 345 |
| WX-LN-EBD | R0.6 ×12 | 1 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.6 ×2 ×6 | 1 | 45 | 6 | ● | 350 |
| AE-LNBD-H | R0.6 ×4 ×6 | 1 | 45 | 6 | ● | 350 |
| AE-LNBD-H | R0.6 ×14 ×4 | 1 | 50 | 4 | ● | 350 |
| WXL-LN-EBD | R0.6 ×14 ×4 | 1 | 50 | 4 | ● | 345 |
| AE-LNBD-H | R0.6 ×16 ×4 | 1 | 50 | 4 | ● | 351 |
| WXL-LN-EBD | R0.6 ×16 ×4 | 1 | 50 | 4 | ● | 345 |
| WXL-LN-EBD | R0.6 ×6 ×6 | 1 | 50 | 6 | ● | 344 |
| WXL-LN-EBD | R0.6 ×8 ×6 | 1 | 50 | 6 | ● | 345 |
| WXL-LN-EBD | R0.6 ×10 ×6 | 1 | 50 | 6 | ● | 345 |
| WXL-LN-EBD | R0.6 ×12 ×6 | 1 | 50 | 6 | ● | 345 |
| AE-LNBD-H | R0.6 ×18 ×4 | 1 | 55 | 4 | ● | 351 |
| WXL-LN-EBD | R0.6 ×18 ×4 | 1 | 55 | 4 | ● | 345 |
| AE-LNBD-H | R0.6 ×20 ×4 | 1 | 55 | 4 | ● | 351 |
| WXL-LN-EBD | R0.6 ×20 ×4 | 1 | 60 | 4 | ● | 345 |
| WXL-LN-EBD | R0.6 ×24 ×4 | 1 | 60 | 4 | ● | 345 |
| WXL-LN-EBD | R0.6 ×16 ×6 | 1 | 60 | 6 | ● | 345 |
| CRN-HS-EBD | R0.6 ×3 | 1.2 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R0.6 ×2.2 | 1.2 | 50 | 6 | □ | 340-5 |
| FX-EBD-6 | R0.6 ×3 | 1.2 | 50 | 6 | □ | 340-5 |
| FX-HS-EBDS | R0.6 ×3 | 1.2 | 50 | 6 | □ | 340-10 |
| FX-LN-EBD-6 | R0.6 ×6 | 1.2 | 60 | 6 | □ | 359-5 |
| FX-EBDSS-6 | R0.6 ×1.2 | 1.4 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD | R0.6 ×6 | 1.8 | 50 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.6 ×8 | 1.8 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.6 ×10 | 1.8 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.6 ×12 | 1.8 | 60 | 4 | □ | 359-9 |
| CRN-LN-EBD | R0.6 ×6 | 1.8 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R0.6 ×6 | 1.8 | 60 | 6 | □ | 355 |
| DIA-LN-EBD | R0.6 ×12 | 1.8 | 60 | 6 | □ | 355 |
| MG-EBD-DL | R0.6 ×1.2 | 2.4 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.6 ×1.2 | 2.4 | 50 | 6 | □ | 340-7 |
| CRN-EBD-3 | R0.6 ×1.2 | 3 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.6 ×1.2 | 3 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.6 ×1.2 | 3 | 40 | 3 | □ | 340-18 |
| WXL-HS-EBD | R0.6 ×3 ×4 | 3 | 40 | 4 | ● | 323 |
| WXL-EBD | R0.6 ×3 ×4 | 3 | 50 | 4 | ● | 322 |
| FX-MG-EBD | R0.6 ×1.2 | 3 | 50 | 4 | □ | 340-3 |
| GX-EBD | R0.6 ×1.2 | 3 | 50 | 4 | □ | 340-17 |
| CRN-EBD | R0.6 ×1.2 | 3 | 60 | 4 | □ | 340-21 |
| DIA-EBD | R0.6 ×1.2 | 3 | 60 | 4 | □ | 333 |
| MG-EBD-DL | R0.6 ×1.2 | 4.8 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.6 ×1.2 | 4.8 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.6 ×1.2 | 6.2 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.6 ×1.2 | 6.2 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.6 ×1.2 | 6.2 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.6 ×1.2 | 7.2 | 50 | 4 | □ | 340-20 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-EBD-DL-6 | R0.6 ×1.2 | 7.2 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDLL-3 | R0.6 ×1.2 | 9.4 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R0.6 ×1.2 | 9.4 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.6 ×1.2 | 9.4 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.6 ×1.2 | 9.6 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.65 ×3.3 ×6 | 0.8 | 50 | 6 | ● | 330 |
| MG-EBD-DL | R0.65 ×1.3 | 2.6 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.65 ×1.3 | 2.6 | 50 | 6 | □ | 340-7 |
| WXL-EBD | R0.65 ×3.2 ×4 | 3.2 | 50 | 4 | ● | 322 |
| CRN-EBD-3 | R0.65 ×1.3 | 3.5 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.65 ×1.3 | 3.5 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.65 ×1.3 | 3.5 | 40 | 3 | □ | 340-18 |
| FX-MG-EBD | R0.65 ×1.3 | 3.5 | 50 | 4 | □ | 340-3 |
| MG-EBD | R0.65 ×1.3 | 3.5 | 50 | 4 | □ | 328 |
| MG-EBD-4 | R0.65 ×1.3 | 3.5 | 50 | 4 | □ | 340-18 |
| MG-EBD-DL | R0.65 ×1.3 | 5.2 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.65 ×1.3 | 5.2 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.65 ×1.3 | 6.2 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.65 ×1.3 | 6.2 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.65 ×1.3 | 6.2 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.65 ×1.3 | 7.8 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.65 ×1.3 | 7.8 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.65 ×1.3 | 10.4 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.7 ×3.5 ×6 | 0.8 | 50 | 6 | ● | 330 |
| WXL-LN-EBD | R0.7 ×8 ×4 | 1.1 | 45 | 4 | ● | 345 |
| WX-LN-EBD | R0.7 ×8 | 1.1 | 45 | 4 | □ | 359-3 |
| WXL-LN-EBD | R0.7 ×12 ×4 | 1.1 | 45 | 4 | ● | 345 |
| WX-LN-EBD | R0.7 ×12 | 1.1 | 45 | 4 | □ | 359-3 |
| WXL-LN-EBD | R0.7 ×16 ×4 | 1.1 | 50 | 4 | ● | 345 |
| WX-LN-EBD | R0.7 ×16 | 1.1 | 50 | 4 | □ | 359-3 |
| CRN-HS-EBD | R0.7 ×3.5 | 1.4 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R0.7 ×3.5 | 1.4 | 50 | 6 | □ | 340-5 |
| FX-HS-EBDS | R0.7 ×3.5 | 1.4 | 50 | 6 | □ | 340-10 |
| FX-LN-EBD-6 | R0.7 ×7 | 1.4 | 60 | 6 | □ | 359-5 |
| FX-EBDSS-6 | R0.7 ×1.4 | 1.7 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD | R0.7 ×8 | 2.1 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.7 ×12 | 2.1 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.7 ×16 | 2.1 | 60 | 4 | □ | 359-9 |
| CRN-LN-EBD | R0.7 ×7 | 2.1 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R0.7 ×7 | 2.1 | 60 | 6 | □ | 355 |
| DIA-LN-EBD | R0.7 ×14 | 2.1 | 60 | 6 | □ | 355 |
| MG-EBD-DL | R0.7 ×1.4 | 2.8 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.7 ×1.4 | 2.8 | 50 | 6 | □ | 340-7 |
| CRN-EBD-3 | R0.7 ×1.4 | 3.5 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.7 ×1.4 | 3.5 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.7 ×1.4 | 3.5 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.7 ×3.5 ×4 | 3.5 | 50 | 4 | ● | 322 |
| FX-MG-EBD | R0.7 ×1.4 | 3.5 | 50 | 4 | □ | 340-3 |
| GX-EBD | R0.7 ×1.4 | 3.5 | 50 | 4 | □ | 340-17 |
| CRN-EBD | R0.7 ×1.4 | 3.5 | 60 | 4 | □ | 340-21 |
| DIA-EBD | R0.7 ×1.4 | 3.5 | 60 | 4 | □ | 333 |
| MG-EBD-DL | R0.7 ×1.4 | 5.6 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.7 ×1.4 | 5.6 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.7 ×1.4 | 7 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.7 ×1.4 | 7 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.7 ×1.4 | 7 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.7 ×1.4 | 8.4 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.7 ×1.4 | 8.4 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDLL-3 | R0.7 ×1.4 | 10.5 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R0.7 ×1.4 | 10.5 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.7 ×1.4 | 10.5 | 50 | 3 | □ | 340-20 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-EBD-DL-6 | R0.7 ×1.4 | 11.2 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.75 ×3.8 ×6 | 0.9 | 50 | 6 | ● | 330 |
| CBN-LN-SXB | R0.75 ×7.5 ×6 | 0.9 | 50 | 6 | ● | 359 |
| WXL-PC-EBD | R0.75 ×0.5° ×8 | 0.95 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.75 ×0.5° ×10 | 0.95 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.75 ×1° ×10 | 0.95 | 45 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×1.5° ×10 | 0.95 | 45 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×0.5° ×12 | 0.95 | 45 | 4 | ● | 361 |
| WXL-PC-EBD | R0.75 ×1° ×12 | 0.95 | 45 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×1.5° ×12 | 0.95 | 45 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×0.5° ×16 | 0.95 | 55 | 4 | ● | 361 |
| WXL-PC-EBD | R0.75 ×1° ×16 | 0.95 | 55 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×1.5° ×16 | 0.95 | 55 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×0.5° ×20 | 0.95 | 55 | 4 | ● | 361 |
| WXL-PC-EBD | R0.75 ×1° ×20 | 0.95 | 55 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×1.5° ×20 | 0.95 | 55 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×0.5° ×25 | 0.95 | 60 | 4 | ● | 361 |
| WXL-PC-EBD | R0.75 ×1° ×25 | 0.95 | 60 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×1.5° ×25 | 0.95 | 60 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×0.5° ×30 | 0.95 | 65 | 4 | ● | 361 |
| WXL-PC-EBD | R0.75 ×1° ×30 | 0.95 | 65 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×1.5° ×30 | 0.95 | 65 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×0.5° ×35 | 0.95 | 70 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×1° ×35 | 0.95 | 70 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×1.5° ×35 | 0.95 | 70 | 4 | ● | 362 |
| WXL-PC-EBD | R0.75 ×2° ×38.6 | 0.95 | 70 | 4 | ● | 362 |
| PHX-LN-DBT | R0.75 ×6 | 1.13 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.75 ×8 | 1.13 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.75 ×10 | 1.13 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.75 ×12 | 1.13 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R0.75 ×16 | 1.13 | 50 | 4 | ● | 354 |
| AE-LNBD-H | R0.75 ×2 ×4 | 1.2 | 45 | 4 | ● | 351 |
| AE-LNBD-H | R0.75 ×2.5 ×4 | 1.2 | 45 | 4 | ● | 351 |
| AE-LNBD-H | R0.75 ×3 ×4 | 1.2 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R0.75 ×3 ×4 | 1.2 | 45 | 4 | ● | 345 |
| AE-LNBD-H | R0.75 ×4 ×4 | 1.2 | 45 | 4 | ● | 351 |
| AE-LNBD-N | R0.75 ×4 ×4 | 1.2 | 45 | 4 | ● | 358 |
| WXL-LN-EBD | R0.75 ×4 ×4 | 1.2 | 45 | 4 | ● | 345 |
| AE-LNBD-H | R0.75 ×5 ×4 | 1.2 | 45 | 4 | ● | 351 |
| AE-LNBD-H | R0.75 ×6 ×4 | 1.2 | 45 | 4 | ● | 351 |
| AE-LNBD-N | R0.75 ×6 ×4 | 1.2 | 45 | 4 | ● | 358 |
| WXL-LN-EBD | R0.75 ×6 ×4 | 1.2 | 45 | 4 | ● | 345 |
| AE-LNBD-H | R0.75 ×8 ×4 | 1.2 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R0.75 ×8 ×4 | 1.2 | 45 | 4 | ● | 345 |
| WX-LN-EBD | R0.75 ×8 | 1.2 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.75 ×10 ×4 | 1.2 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R0.75 ×10 ×4 | 1.2 | 45 | 4 | ● | 345 |
| AE-LNBD-H | R0.75 ×12 ×4 | 1.2 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R0.75 ×12 ×4 | 1.2 | 45 | 4 | ● | 345 |
| WX-LN-EBD | R0.75 ×12 | 1.2 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.75 ×3 ×6 | 1.2 | 45 | 6 | ● | 351 |
| AE-LNBD-H | R0.75 ×5 ×6 | 1.2 | 45 | 6 | ● | 351 |
| AE-LNBD-H | R0.75 ×6 ×6 | 1.2 | 45 | 6 | ● | 351 |
| AE-LNBD-H | R0.75 ×8 ×6 | 1.2 | 45 | 6 | ● | 351 |
| WXL-LN-EBD-3 | R0.75 ×6 | 1.2 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.75 ×8 | 1.2 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.75 ×10 | 1.2 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.75 ×12 | 1.2 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R0.75 ×16 | 1.2 | 50 | 3 | □ | 359-1 |
| AE-BD-H | R0.75 ×3 | 1.2 | 50 | 4 | ● | 324 |
| AE-LNBD-H | R0.75 ×14 ×4 | 1.2 | 50 | 4 | ● | 351 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／ボール
CARBIDE END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EBD | R0.75 ×14 ×4 | 1.2 | 50 | 4 | ● | 345 |
| AE-LNBD-H | R0.75 ×16 ×4 | 1.2 | 50 | 4 | ● | 351 |
| WX-LN-EBD | R0.75 ×16 | 1.2 | 50 | 4 | □ | 359-3 |
| WXL-LN-EBD | R0.75 ×6 ×6 | 1.2 | 50 | 6 | ● | 345 |
| FX-PCS-EBD-6 | R0.75 ×30′ ×7 | 1.2 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R0.75 ×1° ×7 | 1.2 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R0.75 ×1°30′ ×7 | 1.2 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R0.75 ×2° ×7 | 1.2 | 50 | 6 | □ | 369-3 |
| WXL-LN-EBD | R0.75 ×8 ×6 | 1.2 | 50 | 6 | ● | 345 |
| WXL-LN-EBD | R0.75 ×10 ×6 | 1.2 | 50 | 6 | ● | 345 |
| FX-PCS-EBD-6 | R0.75 ×30′ ×11 | 1.2 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R0.75 ×1° ×11 | 1.2 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R0.75 ×1°30′ ×11 | 1.2 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R0.75 ×2° ×11 | 1.2 | 50 | 6 | □ | 369-3 |
| WXL-LN-EBD | R0.75 ×12 ×6 | 1.2 | 50 | 6 | ● | 345 |
| AE-LNBD-N | R0.75 ×12 ×4 | 1.2 | 55 | 4 | ● | 358 |
| WXL-LN-EBD | R0.75 ×16 ×4 | 1.2 | 55 | 4 | ● | 345 |
| AE-LNBD-H | R0.75 ×18 ×4 | 1.2 | 55 | 4 | ● | 351 |
| AE-LNBD-N | R0.75 ×18 ×4 | 1.2 | 55 | 4 | ● | 358 |
| WXL-LN-EBD | R0.75 ×18 ×4 | 1.2 | 55 | 4 | ● | 345 |
| AE-LNBD-H | R0.75 ×20 ×4 | 1.2 | 55 | 4 | ● | 351 |
| WXL-LN-EBD | R0.75 ×20 ×4 | 1.2 | 55 | 4 | ● | 345 |
| WX-LN-EBD | R0.75 ×20 | 1.2 | 55 | 4 | □ | 359-3 |
| WXL-LN-EBD | R0.75 ×22 ×4 | 1.2 | 55 | 4 | ● | 346 |
| AE-LNBD-H | R0.75 ×22 ×4 | 1.2 | 60 | 4 | ● | 351 |
| WXL-LN-EBD | R0.75 ×16 ×6 | 1.2 | 60 | 6 | ● | 345 |
| WXL-LN-EBD | R0.75 ×20 ×6 | 1.2 | 60 | 6 | ● | 345 |
| AE-LNBD-H | R0.75 ×25 ×4 | 1.2 | 65 | 4 | ● | 351 |
| WXL-LN-EBD | R0.75 ×30 ×4 | 1.2 | 65 | 4 | ● | 346 |
| AE-LNBD-H | R0.75 ×30 ×4 | 1.2 | 70 | 4 | ● | 351 |
| CRN-HS-EBD | R0.75 ×3.8 | 1.5 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R0.75 ×2.7 | 1.5 | 50 | 6 | □ | 340-5 |
| FX-H-EBD | R0.75 ×3.75 | 1.5 | 50 | 6 | □ | 340-11 |
| FX-HS-EBDS | R0.75 ×3.75 | 1.5 | 50 | 6 | □ | 340-10 |
| FX-EBD-6 | R0.75 ×3.8 | 1.5 | 50 | 6 | □ | 340-5 |
| FX-LN-EBD-6 | R0.75 ×7.5 | 1.5 | 60 | 6 | □ | 359-5 |
| FX-EBDSS-6 | R0.75 ×1.5 | 1.8 | 50 | 6 | □ | 340-6 |
| WXL-HS-EBD | R0.75 ×2 ×4 | 2 | 40 | 4 | ● | 323 |
| WXL-EBD | R0.75 ×2 ×4 | 2 | 50 | 4 | ● | 322 |
| PHX-PC-DBT | R0.75 ×1° ×6 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×8 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×9 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×10 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×0.7° ×12 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×12 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×14 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×15 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×0.7° ×16 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×16 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×18 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×0.7° ×20 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×20 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×21 | 2.25 | 60 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×26 | 2.25 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×0.7° ×30 | 2.25 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×30 | 2.25 | 70 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×40 | 2.25 | 80 | 6 | ● | 365 |
| PHX-PC-DBT | R0.75 ×1° ×50 | 2.25 | 90 | 6 | ● | 365 |
| DG-LN-EBD | R0.75 ×6 | 2.3 | 50 | 4 | ● | 355 |
| DG-LN-EBD | R0.75 ×10 | 2.3 | 50 | 4 | ● | 355 |
| CAP-LN-EBD | R0.75 ×8 | 2.3 | 60 | 4 | □ | 359-9 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-LN-EBD | R0.75 ×12 | 2.3 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.75 ×16 | 2.3 | 60 | 4 | □ | 359-9 |
| DG-LN-EBD | R0.75 ×16 | 2.3 | 60 | 4 | ● | 355 |
| DG-LN-EBD | R0.75 ×20 | 2.3 | 60 | 4 | ● | 355 |
| CRN-LN-EBD | R0.75 ×7.5 | 2.3 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R0.75 ×7.5 | 2.3 | 60 | 6 | □ | 355 |
| DIA-LN-EBD | R0.75 ×15 | 2.3 | 60 | 6 | □ | 355 |
| CAP-LN-EBD | R0.75 ×20 | 2.3 | 70 | 4 | □ | 359-9 |
| DG-LN-EBD | R0.75 ×30 | 2.3 | 80 | 4 | ● | 355 |
| DG-LN-EBD | R0.75 ×40 | 2.3 | 80 | 4 | ● | 355 |
| FX-LN-MG-EBD | R0.75 ×10 | 2.5 | 80 | 4 | □ | 359-6 |
| MG-LN-EBD | R0.75 ×10 | 2.5 | 80 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R0.75 ×15 | 2.5 | 90 | 4 | □ | 359-6 |
| MG-LN-EBD | R0.75 ×15 | 2.5 | 90 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R0.75 ×20 | 2.5 | 90 | 4 | □ | 359-6 |
| MG-LN-EBD | R0.75 ×20 | 2.5 | 90 | 4 | □ | 359-8 |
| MG-EBD-DL | R0.75 ×1.5 | 3 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.75 ×1.5 | 3 | 50 | 6 | □ | 340-7 |
| CRN-EBD-3 | R0.75 ×1.5 | 4 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.75 ×1.5 | 4 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.75 ×1.5 | 4 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.75 ×4 ×4 | 4 | 50 | 4 | ● | 322 |
| FX-MG-EBD | R0.75 ×1.5 | 4 | 50 | 4 | □ | 340-3 |
| GX-EBD | R0.75 ×1.5 | 4 | 50 | 4 | □ | 340-17 |
| TIN-MG-EBD | R0.75 ×1.5 | 4 | 50 | 4 | □ | 340-15 |
| WXL-EBD | R0.75 ×4 ×6 | 4 | 50 | 6 | ● | 322 |
| CRN-EBD | R0.75 ×1.5 | 4 | 60 | 4 | □ | 340-21 |
| DIA-EBD | R0.75 ×1.5 | 4 | 60 | 4 | □ | 333 |
| MG-EBD-DL | R0.75 ×1.5 | 4.5 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.75 ×1.5 | 4.5 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.75 ×1.5 | 6 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.75 ×1.5 | 6 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.75 ×1.5 | 7 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.75 ×1.5 | 7 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.75 ×1.5 | 7 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R0.75 ×1.5 | 7.5 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.75 ×1.5 | 8 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.75 ×1.5 | 10 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.75 ×1.5 | 12 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.8 ×4 ×6 | 1 | 50 | 6 | ● | 330 |
| AE-LNBD-H | R0.8 ×4 ×4 | 1.3 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R0.8 ×4 ×4 | 1.3 | 45 | 4 | ● | 346 |
| AE-LNBD-H | R0.8 ×8 ×4 | 1.3 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R0.8 ×8 ×4 | 1.3 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R0.8 ×8 | 1.3 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.8 ×12 ×4 | 1.3 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R0.8 ×12 ×4 | 1.3 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R0.8 ×12 | 1.3 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.8 ×16 ×4 | 1.3 | 50 | 4 | ● | 351 |
| WXL-LN-EBD | R0.8 ×16 ×4 | 1.3 | 50 | 4 | ● | 346 |
| WX-LN-EBD | R0.8 ×16 | 1.3 | 50 | 4 | □ | 359-3 |
| AE-LNBD-H | R0.8 ×20 ×4 | 1.3 | 55 | 4 | ● | 351 |
| WXL-LN-EBD | R0.8 ×20 ×4 | 1.3 | 55 | 4 | ● | 346 |
| WX-LN-EBD | R0.8 ×20 | 1.3 | 55 | 4 | □ | 359-3 |
| CRN-HS-EBD | R0.8 ×4 | 1.6 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R0.8 ×4 | 1.6 | 50 | 6 | □ | 340-5 |
| FX-HS-EBDS | R0.8 ×4 | 1.6 | 50 | 6 | □ | 340-10 |
| FX-LN-EBD-6 | R0.8 ×8 | 1.6 | 60 | 6 | □ | 359-5 |
| FX-EBDSS-6 | R0.8 ×1.6 | 1.9 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD | R0.8 ×8 | 2.4 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.8 ×12 | 2.4 | 60 | 4 | □ | 359-9 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-LN-EBD | R0.8 ×16 | 2.4 | 60 | 4 | □ | 359-9 |
| CRN-LN-EBD | R0.8 ×8 | 2.4 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R0.8 ×8 | 2.4 | 60 | 6 | □ | 355 |
| DIA-LN-EBD | R0.8 ×16 | 2.4 | 60 | 6 | □ | 355 |
| CAP-LN-EBD | R0.8 ×20 | 2.4 | 70 | 4 | □ | 359-9 |
| MG-EBD-DL | R0.8 ×1.6 | 3.2 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.8 ×1.6 | 3.2 | 50 | 6 | □ | 340-7 |
| CRN-EBD-3 | R0.8 ×1.6 | 4 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.8 ×1.6 | 4 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.8 ×1.6 | 4 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.8 ×4 ×4 | 4 | 50 | 4 | ● | 322 |
| FX-MG-EBD | R0.8 ×1.6 | 4 | 50 | 4 | □ | 340-3 |
| GX-EBD | R0.8 ×1.6 | 4 | 50 | 4 | □ | 340-17 |
| CRN-EBD | R0.8 ×1.6 | 4 | 60 | 4 | □ | 340-21 |
| DIA-EBD | R0.8 ×1.6 | 4 | 60 | 4 | □ | 333 |
| MG-EBD-DL | R0.8 ×1.6 | 6.4 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.8 ×1.6 | 6.4 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.8 ×1.6 | 8 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.8 ×1.6 | 8 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.8 ×1.6 | 8 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.8 ×1.6 | 9.6 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDLL-3 | R0.8 ×1.6 | 12 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R0.8 ×1.6 | 12 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.8 ×1.6 | 12 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.8 ×1.6 | 12.8 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.85 ×4.3 ×6 | 1 | 50 | 6 | ● | 330 |
| MG-EBD-DL | R0.85 ×1.7 | 3.4 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.85 ×1.7 | 3.4 | 50 | 6 | □ | 340-7 |
| WXL-EBD | R0.85 ×4.2 ×4 | 4.2 | 50 | 4 | ● | 322 |
| CRN-EBD-3 | R0.85 ×1.7 | 4.5 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.85 ×1.7 | 4.5 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.85 ×1.7 | 4.5 | 40 | 3 | □ | 340-18 |
| FX-MG-EBD | R0.85 ×1.7 | 4.5 | 50 | 4 | □ | 340-3 |
| MG-EBD | R0.85 ×1.7 | 4.5 | 50 | 4 | □ | 328 |
| MG-EBD-4 | R0.85 ×1.7 | 4.5 | 50 | 4 | □ | 340-18 |
| MG-EBD-DL | R0.85 ×1.7 | 6.8 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.85 ×1.7 | 6.8 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.85 ×1.7 | 8 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.85 ×1.7 | 8 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.85 ×1.7 | 8 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.85 ×1.7 | 10.2 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.85 ×1.7 | 13.6 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.9 ×4.5 ×6 | 1.1 | 50 | 6 | ● | 330 |
| WXL-LN-EBD | R0.9 ×8 ×4 | 1.4 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R0.9 ×8 | 1.4 | 45 | 4 | □ | 359-3 |
| WXL-LN-EBD | R0.9 ×12 ×4 | 1.4 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R0.9 ×12 | 1.4 | 45 | 4 | □ | 359-3 |
| WXL-LN-EBD | R0.9 ×16 ×4 | 1.4 | 50 | 4 | ● | 346 |
| WX-LN-EBD | R0.9 ×16 | 1.4 | 50 | 4 | □ | 359-3 |
| WXL-LN-EBD | R0.9 ×20 ×4 | 1.4 | 55 | 4 | ● | 346 |
| WX-LN-EBD | R0.9 ×20 | 1.4 | 55 | 4 | □ | 359-3 |
| CRN-HS-EBD | R0.9 ×4.5 | 1.8 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R0.9 ×4.5 | 1.8 | 50 | 6 | □ | 340-5 |
| FX-HS-EBDS | R0.9 ×4.5 | 1.8 | 50 | 6 | □ | 340-10 |
| FX-LN-EBD-6 | R0.9 ×9 | 1.8 | 60 | 6 | □ | 359-5 |
| FX-EBDSS-6 | R0.9 ×1.8 | 2.2 | 50 | 6 | □ | 340-6 |
| CAP-LN-EBD | R0.9 ×8 | 2.7 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.9 ×12 | 2.7 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R0.9 ×16 | 2.7 | 60 | 4 | □ | 359-9 |
| CRN-LN-EBD | R0.9 ×9 | 2.7 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R0.9 ×9 | 2.7 | 60 | 6 | □ | 355 |

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DIA-LN-EBD | R0.9 ×18 | 2.7 | 60 | 6 | □ | 355 |
| CAP-LN-EBD | R0.9 ×20 | 2.7 | 70 | 4 | □ | 359-9 |
| MG-EBD-DL | R0.9 ×1.8 | 3.6 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.9 ×1.8 | 3.6 | 50 | 6 | □ | 340-7 |
| CRN-EBD-3 | R0.9 ×1.8 | 4.5 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.9 ×1.8 | 4.5 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.9 ×1.8 | 4.5 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R0.9 ×4.5 ×4 | 4.5 | 50 | 4 | ● | 322 |
| FX-MG-EBD | R0.9 ×1.8 | 4.5 | 50 | 4 | □ | 340-3 |
| CRN-EBD | R0.9 ×1.8 | 4.5 | 60 | 4 | □ | 340-21 |
| DIA-EBD | R0.9 ×1.8 | 4.5 | 60 | 4 | □ | 333 |
| MG-EBD-DL | R0.9 ×1.8 | 7.2 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.9 ×1.8 | 7.2 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R0.9 ×1.8 | 9 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.9 ×1.8 | 9 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.9 ×1.8 | 9 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.9 ×1.8 | 10.8 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDLL-3 | R0.9 ×1.8 | 13.5 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R0.9 ×1.8 | 13.5 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.9 ×1.8 | 13.5 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.9 ×1.8 | 14.4 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R0.95 ×4.8 ×6 | 1.1 | 50 | 6 | ● | 330 |
| MG-EBD-DL | R0.95 ×1.9 | 3.8 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R0.95 ×1.9 | 3.8 | 50 | 6 | □ | 340-7 |
| WXL-EBD | R0.95 ×4.7 ×4 | 4.7 | 50 | 4 | ● | 322 |
| CRN-EBD-3 | R0.95 ×1.9 | 5 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R0.95 ×1.9 | 5 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R0.95 ×1.9 | 5 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R0.95 ×1.9 | 5 | 50 | 4 | □ | 340-18 |
| FX-MG-EBD | R0.95 ×1.9 | 5 | 50 | 6 | □ | 340-3 |
| MG-EBD | R0.95 ×1.9 | 5 | 50 | 6 | □ | 328 |
| FX-EBD-DL-6 | R0.95 ×1.9 | 7 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R0.95 ×1.9 | 7.6 | 50 | 4 | □ | 340-20 |
| FX-MG-EBDL-3 | R0.95 ×1.9 | 9 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R0.95 ×1.9 | 9 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R0.95 ×1.9 | 9 | 50 | 3 | □ | 340-20 |
| FX-EBD-DL-6 | R0.95 ×1.9 | 9.5 | 50 | 6 | □ | 340-7 |
| FX-EBD-DL-6 | R0.95 ×1.9 | 15.2 | 50 | 6 | □ | 340-7 |
| CBN-SXB | R1 ×5 ×6 | 1.2 | 50 | 6 | ● | 330 |
| CBN-LN-SXB | R1 ×6 ×6 | 1.2 | 50 | 6 | ● | 359 |
| CBN-LN-SXB | R1 ×8 ×6 | 1.2 | 50 | 6 | ● | 359 |
| CBN-LN-SXB | R1 ×10 ×6 | 1.2 | 50 | 6 | ● | 359 |
| WXL-PC-EBD | R1 ×0.5° ×8 | 1.26 | 45 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×0.5° ×10 | 1.26 | 45 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×0.5° ×12 | 1.26 | 45 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×0.5° ×16 | 1.26 | 50 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×16 | 1.26 | 50 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1.5° ×16 | 1.26 | 50 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×0.5° ×20 | 1.26 | 55 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×20 | 1.26 | 55 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1.5° ×20 | 1.26 | 55 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×0.5° ×25 | 1.26 | 65 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×25 | 1.26 | 65 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1.5° ×25 | 1.26 | 65 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×0.5° ×30 | 1.26 | 70 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×30 | 1.26 | 70 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1.5° ×30 | 1.26 | 70 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×2° ×31.5 | 1.26 | 70 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×0.5° ×35 | 1.26 | 75 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×35 | 1.26 | 75 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1.5° ×35 | 1.26 | 75 | 4 | ● | 362 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-PC-EBD | R1 ×0.5° ×40 | 1.26 | 80 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×40 | 1.26 | 80 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1.5° ×41.4 | 1.26 | 80 | 4 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×50 | 1.26 | 90 | 6 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×60 | 1.26 | 100 | 6 | ● | 362 |
| WXL-PC-EBD | R1 ×1° ×70 | 1.26 | 110 | 6 | ● | 362 |
| PHX-LN-DBT | R1 ×6 | 1.5 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R1 ×8 | 1.5 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R1 ×10 | 1.5 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R1 ×12 | 1.5 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R1 ×14 | 1.5 | 50 | 4 | ● | 354 |
| PHX-LN-DBT | R1 ×16 | 1.5 | 50 | 4 | ● | 354 |
| DLC-EQD | R1 ×6 | 1.5 | 60 | 4 | □ | 359-11 |
| PHX-LN-DBT | R1 ×18 | 1.5 | 60 | 4 | ● | 354 |
| PHX-LN-DBT | R1 ×20 | 1.5 | 60 | 4 | ● | 354 |
| PHX-LN-DBT | R1 ×22 | 1.5 | 60 | 4 | ● | 354 |
| FXS-EQD | R1 | 1.5 | 60 | 6 | ● | 364 |
| DLC-EQD | R1 ×10 | 1.5 | 70 | 4 | □ | 359-11 |
| AE-LNBD-H | R1 ×2.5 ×4 | 1.6 | 45 | 4 | ● | 351 |
| AE-LNBD-H | R1 ×3 ×4 | 1.6 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R1 ×3 ×4 | 1.6 | 45 | 4 | ● | 346 |
| AE-LNBD-H | R1 ×4 ×4 | 1.6 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R1 ×4 ×4 | 1.6 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×4 | 1.6 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R1 ×5 ×4 | 1.6 | 45 | 4 | ● | 351 |
| AE-LNBD-H | R1 ×6 ×4 | 1.6 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R1 ×6 ×4 | 1.6 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×6 | 1.6 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R1 ×8 ×4 | 1.6 | 45 | 4 | ● | 351 |
| WXL-LN-EBD | R1 ×8 ×4 | 1.6 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×8 | 1.6 | 45 | 4 | □ | 359-3 |
| AE-LNBD-H | R1 ×10 ×4 | 1.6 | 45 | 4 | ● | 351 |
| CRN-LN-EBD-4 | R1 ×10 | 1.6 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R1 ×10 ×4 | 1.6 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×10 | 1.6 | 45 | 4 | □ | 359-4 |
| AE-LNBD-H | R1 ×12 ×4 | 1.6 | 45 | 4 | ● | 351 |
| CRN-LN-EBD-4 | R1 ×12 | 1.6 | 45 | 4 | □ | 359-10 |
| WXL-LN-EBD | R1 ×12 ×4 | 1.6 | 45 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×12 | 1.6 | 45 | 4 | □ | 359-4 |
| AE-LNBD-H | R1 ×3 ×6 | 1.6 | 45 | 6 | ● | 351 |
| AE-LNBD-H | R1 ×4 ×6 | 1.6 | 45 | 6 | ● | 351 |
| AE-LNBD-H | R1 ×6 ×6 | 1.6 | 45 | 6 | ● | 351 |
| AE-LNBD-H | R1 ×8 ×6 | 1.6 | 45 | 6 | ● | 351 |
| WXL-LN-EBD-3 | R1 ×8 | 1.6 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R1 ×10 | 1.6 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R1 ×12 | 1.6 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R1 ×16 | 1.6 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R1 ×18 | 1.6 | 50 | 3 | □ | 359-1 |
| AE-LNBD-N | R1 ×4 ×4 | 1.6 | 50 | 4 | ● | 358 |
| AE-LNBD-N | R1 ×6 ×4 | 1.6 | 50 | 4 | ● | 358 |
| AE-LNBD-N | R1 ×8 ×4 | 1.6 | 50 | 4 | ● | 358 |
| AE-LNBD-N | R1 ×10 ×4 | 1.6 | 50 | 4 | ● | 358 |
| AE-LNBD-N | R1 ×12 ×4 | 1.6 | 50 | 4 | ● | 358 |
| AE-LNBD-H | R1 ×13 ×4 | 1.6 | 50 | 4 | ● | 352 |
| AE-LNBD-H | R1 ×14 ×4 | 1.6 | 50 | 4 | ● | 352 |
| AE-LNBD-N | R1 ×14 ×4 | 1.6 | 50 | 4 | ● | 358 |
| WXL-LN-EBD | R1 ×14 ×4 | 1.6 | 50 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×14 | 1.6 | 50 | 4 | □ | 359-4 |
| AE-LNBD-H | R1 ×16 ×4 | 1.6 | 50 | 4 | ● | 352 |
| AE-LNBD-N | R1 ×16 ×4 | 1.6 | 50 | 4 | ● | 358 |
| CRN-LN-EBD-4 | R1 ×16 | 1.6 | 50 | 4 | □ | 359-10 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EBD | R1 ×16 ×4 | 1.6 | 50 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×16 | 1.6 | 50 | 4 | □ | 359-4 |
| AE-BD-H | R1 ×4 | 1.6 | 50 | 6 | ● | 324 |
| WXL-LN-EBD | R1 ×4 ×6 | 1.6 | 50 | 6 | ● | 346 |
| WXL-LN-EBD | R1 ×6 ×6 | 1.6 | 50 | 6 | ● | 346 |
| WXL-LN-EBD | R1 ×8 ×6 | 1.6 | 50 | 6 | ● | 346 |
| AE-LNBD-H | R1 ×10 ×6 | 1.6 | 50 | 6 | ● | 351 |
| WXL-LN-EBD | R1 ×10 ×6 | 1.6 | 50 | 6 | ● | 346 |
| FX-PCS-EBD-6 | R1 ×30′ ×10 | 1.6 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1 ×1° ×10 | 1.6 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1 ×1°30′ ×10 | 1.6 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1 ×2° ×10 | 1.6 | 50 | 6 | □ | 369-3 |
| AE-LNBD-H | R1 ×12 ×6 | 1.6 | 50 | 6 | ● | 351 |
| WXL-LN-EBD | R1 ×12 ×6 | 1.6 | 50 | 6 | ● | 346 |
| FX-PCS-EBD-6 | R1 ×30′ ×15 | 1.6 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1 ×1° ×15 | 1.6 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1 ×1°30′ ×15 | 1.6 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1 ×2° ×15 | 1.6 | 50 | 6 | □ | 369-3 |
| WXL-LN-EBD-3 | R1 ×20 | 1.6 | 55 | 3 | □ | 359-1 |
| AE-LNBD-H | R1 ×18 ×4 | 1.6 | 55 | 4 | ● | 352 |
| WXL-LN-EBD | R1 ×18 ×4 | 1.6 | 55 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×18 | 1.6 | 55 | 4 | □ | 359-4 |
| AE-LNBD-H | R1 ×20 ×4 | 1.6 | 55 | 4 | ● | 352 |
| CRN-LN-EBD-4 | R1 ×20 | 1.6 | 55 | 4 | □ | 359-10 |
| WXL-LN-EBD | R1 ×20 ×4 | 1.6 | 55 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×20 | 1.6 | 55 | 4 | □ | 359-4 |
| AE-LNBD-H | R1 ×16 ×6 | 1.6 | 55 | 6 | ● | 352 |
| AE-LNBD-N | R1 ×20 ×4 | 1.6 | 60 | 4 | ● | 358 |
| AE-LNBD-H | R1 ×22 ×4 | 1.6 | 60 | 4 | ● | 352 |
| WXL-LN-EBD | R1 ×22 ×4 | 1.6 | 60 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×22 | 1.6 | 60 | 4 | □ | 359-4 |
| AE-LNBD-N | R1 ×25 ×4 | 1.6 | 60 | 4 | ● | 358 |
| WXL-LN-EBD | R1 ×16 ×6 | 1.6 | 60 | 6 | ● | 346 |
| AE-LNBD-H | R1 ×20 ×6 | 1.6 | 60 | 6 | ● | 352 |
| AE-LNBD-H | R1 ×25 ×4 | 1.6 | 65 | 4 | ● | 352 |
| CRN-LN-EBD-4 | R1 ×25 | 1.6 | 65 | 4 | □ | 359-10 |
| WXL-LN-EBD | R1 ×25 ×4 | 1.6 | 65 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×25 | 1.6 | 65 | 4 | □ | 359-4 |
| WXL-LN-EBD | R1 ×20 ×6 | 1.6 | 65 | 6 | ● | 346 |
| AE-LNBD-H | R1 ×25 ×6 | 1.6 | 65 | 6 | ● | 352 |
| AE-LNBD-H | R1 ×30 ×4 | 1.6 | 70 | 4 | ● | 352 |
| CRN-LN-EBD-4 | R1 ×30 | 1.6 | 70 | 4 | □ | 359-10 |
| WXL-LN-EBD | R1 ×30 ×4 | 1.6 | 70 | 4 | ● | 346 |
| WX-LN-EBD | R1 ×30 | 1.6 | 70 | 4 | □ | 359-4 |
| AE-LNBD-H | R1 ×35 ×4 | 1.6 | 70 | 4 | ● | 352 |
| WXL-LN-EBD | R1 ×25 ×6 | 1.6 | 70 | 6 | ● | 346 |
| WXL-LN-EBD | R1 ×35 ×4 | 1.6 | 75 | 4 | ● | 346 |
| WXL-LN-EBD | R1 ×30 ×6 | 1.6 | 75 | 6 | ● | 346 |
| AE-LNBD-H | R1 ×40 ×4 | 1.6 | 80 | 4 | ● | 352 |
| WXL-LN-EBD | R1 ×40 ×4 | 1.6 | 80 | 4 | ● | 346 |
| WXL-LN-EBD | R1 ×35 ×6 | 1.6 | 80 | 6 | ● | 346 |
| DIA-EBT | R1 ×6 | 2 | 45 | 4 | □ | 340-26 |
| CRN-HS-EBD | R1 ×5 | 2 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R1 ×3.6 | 2 | 50 | 6 | □ | 340-5 |
| AE-BM-H | R1 ×4 | 2 | 50 | 6 | ● | 337 |
| FX-EBD-6 | R1 ×5 | 2 | 50 | 6 | □ | 340-5 |
| FX-H-EBD | R1 ×5 | 2 | 50 | 6 | □ | 340-11 |
| FX-HS-EBDS | R1 ×5 | 2 | 50 | 6 | □ | 340-10 |
| AM-EBT | R1 ×2 ×4 | 2 | 60 | 6 | ● | 334 |
| AM-EBT | R1 ×2 ×8 | 2 | 60 | 6 | ● | 334 |
| FX-LN-EBD-6 | R1 ×10 | 2 | 60 | 6 | □ | 359-5 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-PC-MG-EBD | R1 ×70 ×30′ ×20 | 2 | 70 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1 ×70 ×1° ×20 | 2 | 70 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1 ×70 ×30′ ×30 | 2 | 70 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1 ×70 ×1° ×30 | 2 | 70 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1 ×80 ×30′ ×40 | 2 | 80 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1 ×80 ×1° ×40 | 2 | 80 | 6 | □ | 369-4 |
| FX-EBDSS-6 | R1 ×2 | 2.4 | 50 | 6 | □ | 340-6 |
| WXL-HS-EBD | R1 ×3 ×4 | 3 | 40 | 4 | ● | 323 |
| WXL-EBD | R1 ×3 ×4 | 3 | 50 | 4 | ● | 322 |
| DG-LN-EBD | R1 ×6 | 3 | 50 | 4 | ● | 355 |
| DG-LN-EBD | R1 ×10 | 3 | 50 | 4 | ● | 355 |
| DG-LN-EBM | R1 ×10 | 3 | 50 | 4 | ● | 356 |
| CAP-LN-EBD | R1 ×8 | 3 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R1 ×12 | 3 | 60 | 4 | □ | 359-9 |
| CAP-LN-EBD | R1 ×16 | 3 | 60 | 4 | □ | 359-9 |
| DG-LN-EBD | R1 ×16 | 3 | 60 | 4 | ● | 355 |
| DG-LN-EBM | R1 ×16 | 3 | 60 | 4 | ● | 356 |
| DG-LN-EBD | R1 ×20 | 3 | 60 | 4 | ● | 355 |
| DG-LN-EBM | R1 ×20 | 3 | 60 | 4 | ● | 356 |
| PHX-DBT | R1 ×60 | 3 | 60 | 6 | ● | 335 |
| CRN-LN-EBD | R1 ×6 | 3 | 60 | 6 | □ | 359-10 |
| CRN-LN-EBD | R1 ×8 | 3 | 60 | 6 | □ | 359-10 |
| CRN-LN-EBD | R1 ×10 | 3 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R1 ×10 | 3 | 60 | 6 | ● | 355 |
| DLC-LN-EBD | R1 ×10 | 3 | 60 | 6 | ● | 356 |
| PHX-PC-DBT | R1 ×0.5° ×10 | 3 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1° ×10 | 3 | 60 | 6 | ● | 366 |
| CRN-LN-EBD | R1 ×12 | 3 | 60 | 6 | □ | 359-10 |
| PHX-PC-DBT | R1 ×1° ×12 | 3 | 60 | 6 | ● | 366 |
| CRN-LN-EBD | R1 ×14 | 3 | 60 | 6 | □ | 359-10 |
| PHX-PC-DBT | R1 ×1° ×14 | 3 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1° ×15 | 3 | 60 | 6 | ● | 366 |
| CRN-LN-EBD | R1 ×16 | 3 | 60 | 6 | □ | 359-10 |
| PHX-PC-DBT | R1 ×1° ×16 | 3 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1.5° ×16 | 3 | 60 | 6 | ● | 366 |
| CRN-LN-EBD | R1 ×18 | 3 | 60 | 6 | □ | 359-10 |
| PHX-PC-DBT | R1 ×1° ×18 | 3 | 60 | 6 | ● | 366 |
| CRN-LN-EBD | R1 ×20 | 3 | 60 | 6 | □ | 359-10 |
| DIA-LN-EBD | R1 ×20 | 3 | 60 | 6 | ● | 355 |
| PHX-PC-DBT | R1 ×0.5° ×20 | 3 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1° ×20 | 3 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1.5° ×20 | 3 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1° ×24 | 3 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1.5° ×24 | 3 | 60 | 6 | ● | 366 |
| CAP-LN-EBD | R1 ×20 | 3 | 70 | 4 | □ | 359-9 |
| PHX-PC-DBT | R1 ×1° ×25 | 3 | 70 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1° ×26 | 3 | 70 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×0.5° ×30 | 3 | 70 | 6 | ● | 366 |
| DG-LN-EBD | R1 ×30 | 3 | 80 | 4 | ● | 355 |
| DG-LN-EBD | R1 ×40 | 3 | 80 | 4 | ● | 355 |
| PHX-PC-DBT | R1 ×1° ×30 | 3 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1.5° ×30 | 3 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×4° ×30 | 3 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1° ×40 | 3 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1.5° ×40 | 3 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×3° ×41.2 | 3 | 80 | 6 | ● | 366 |
| DG-LN-EBD | R1 ×60 | 3 | 100 | 4 | ● | 355 |
| PHX-PC-DBT | R1 ×1° ×50 | 3 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1.5° ×50 | 3 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×1.5° ×60 | 3 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1 ×2° ×60.3 | 3 | 100 | 6 | ● | 366 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EBD-DL | R1 ×2 | 4 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R1 ×2 | 4 | 50 | 6 | □ | 340-7 |
| FX-LN-MG-EBD | R1 ×10 | 4 | 80 | 4 | □ | 359-6 |
| MG-LN-EBD | R1 ×10 | 4 | 80 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R1 ×15 | 4 | 90 | 4 | □ | 359-6 |
| MG-LN-EBD | R1 ×15 | 4 | 90 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R1 ×20 | 4 | 90 | 4 | □ | 359-6 |
| MG-LN-EBD | R1 ×20 | 4 | 90 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R1 ×25 | 4 | 100 | 4 | □ | 359-6 |
| MG-LN-EBD | R1 ×25 | 4 | 100 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R1 ×30 | 4 | 100 | 4 | □ | 359-6 |
| MG-LN-EBD | R1 ×30 | 4 | 100 | 4 | □ | 359-8 |
| TIN-MG-LN-EBD | R1 ×30 | 4 | 100 | 4 | □ | 359-7 |
| CRN-EBD-3 | R1 ×2 | 5 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1 ×2 | 5 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1 ×2 | 5 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1 ×2 | 5 | 50 | 4 | □ | 340-18 |
| DLC-EBD | R1 | 5 | 50 | 6 | ● | 332 |
| WXL-EBD | R1 ×5 ×6 | 5 | 50 | 6 | ● | 322 |
| CA-RG-EBD | R1 ×2 | 5 | 50 | 6 | □ | 340-21 |
| FX-MG-EBD | R1 ×2 | 5 | 50 | 6 | □ | 340-3 |
| GX-EBD | R1 ×2 | 5 | 50 | 6 | □ | 340-17 |
| TIN-MG-EBD | R1 ×2 | 5 | 50 | 6 | □ | 340-15 |
| CRN-EBD | R1 ×2 | 5 | 60 | 6 | □ | 340-21 |
| DIA-EBD | R1 ×2 | 5 | 60 | 6 | ● | 333 |
| FX-PC-MG-EBD | R1 ×60 ×5° ×20 | 5 | 60 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1 ×70 ×1°30′ ×20 | 5 | 70 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1 ×80 ×3° ×40 | 5 | 80 | 6 | □ | 369-4 |
| V-LS-MG-EBD | R1 ×2 | 5 | 100 | 6 | □ | 340-14 |
| DIA-PC-EBD | R1 ×30′ ×60 | 5 | 120 | 6 | □ | 369-6 |
| DIA-PC-EBD | R1 ×1° ×60 | 5 | 120 | 6 | □ | 369-6 |
| DIA-PC-EBD | R1 ×30′ ×80 | 5 | 140 | 6 | □ | 369-6 |
| DIA-PC-EBD | R1 ×1° ×80 | 5 | 140 | 6 | □ | 369-6 |
| DIA-PC-EBD | R1 ×30′ ×100 | 5 | 160 | 6 | □ | 369-6 |
| DIA-PC-EBD | R1 ×1° ×100 | 5 | 160 | 6 | □ | 369-6 |
| WXL-EBD | R1 ×6 ×4 | 6 | 50 | 4 | ● | 322 |
| MG-EBD-DL | R1 ×2 | 6 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R1 ×2 | 6 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R1 ×2 | 8 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R1 ×2 | 8 | 50 | 6 | □ | 340-7 |
| FX-MG-EBDL-3 | R1 ×2 | 10 | 40 | 3 | □ | 340-9 |
| MG-EBDL-3 | R1 ×2 | 10 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R1 ×2 | 10 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R1 ×2 | 10 | 50 | 4 | □ | 340-20 |
| DIA-GF-EBDR | R1 ×2 | 10 | 75 | 4 | □ | 340-25 |
| GF-EBDR | R1 ×2 | 10 | 75 | 4 | □ | 340-24 |
| D-GF-LS-EBDR | R1 ×2 | 10 | 100 | 4 | □ | 340-26 |
| GF-LS-EBDR | R1 ×2 | 10 | 100 | 4 | □ | 340-25 |
| MG-EBD-DL | R1 ×2 | 12 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R1 ×2 | 12 | 50 | 6 | □ | 340-7 |
| MG-EBD-DL | R1 ×2 | 14 | 50 | 4 | □ | 340-20 |
| FX-MG-EBDLL-3 | R1 ×2 | 15 | 40 | 3 | □ | 340-10 |
| MG-EBDLL-3 | R1 ×2 | 15 | 40 | 3 | □ | 340-19 |
| MG-EBD-DL | R1 ×2 | 15 | 50 | 3 | □ | 340-20 |
| MG-EBD-DL | R1 ×2 | 16 | 50 | 4 | □ | 340-20 |
| FX-EBD-DL-6 | R1 ×2 | 16 | 50 | 6 | □ | 340-7 |
| GF-EBDL | R1 ×2 | 20 | 100 | 6 | □ | 340-24 |
| CBN-SXB | R1.05 ×4.2 ×6 | 1.3 | 50 | 6 | ● | 330 |
| WXL-EBD | R1.05 ×4.8 ×6 | 4.8 | 50 | 6 | ● | 322 |
| CRN-EBD-3 | R1.05 ×2.1 | 6 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.05 ×2.1 | 6 | 40 | 3 | □ | 340-8 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから



□＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EBD-3 | R1.05 ×2.1 | 6 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.05 ×2.1 | 6 | 50 | 4 | □ | 340-18 |
| MG-EBD | R1.05 ×2.1 | 6 | 50 | 6 | □ | 328 |
| FX-MG-EBD | R1.05 ×2.1 | 6 | 60 | 6 | □ | 340-3 |
| CBN-SXB | R1.1 ×4.4 ×6 | 1.3 | 50 | 6 | ● | 330 |
| WXL-EBD | R1.1 ×4.9 ×6 | 4.9 | 50 | 6 | ● | 322 |
| CRN-EBD-3 | R1.1 ×2.2 | 6 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.1 ×2.2 | 6 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.1 ×2.2 | 6 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.1 ×2.2 | 6 | 60 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.1 ×2.2 | 6 | 60 | 6 | □ | 340-3 |
| MG-EBD | R1.1 ×2.2 | 6 | 60 | 6 | □ | 328 |
| CBN-SXB | R1.15 ×4.6 ×6 | 1.4 | 50 | 6 | ● | 330 |
| WXL-EBD | R1.15 ×5 ×6 | 5 | 50 | 6 | ● | 322 |
| CRN-EBD-3 | R1.15 ×2.3 | 6 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.15 ×2.3 | 6 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.15 ×2.3 | 6 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.15 ×2.3 | 6 | 60 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.15 ×2.3 | 6 | 60 | 6 | □ | 340-3 |
| MG-EBD | R1.15 ×2.3 | 6 | 60 | 6 | □ | 328 |
| CBN-SXB | R1.2 ×4.8 ×6 | 1.4 | 50 | 6 | ● | 330 |
| WXL-EBD | R1.2 ×5.1 ×6 | 5.1 | 50 | 6 | ● | 322 |
| CRN-EBD-3 | R1.2 ×2.4 | 6 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.2 ×2.4 | 6 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.2 ×2.4 | 6 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.2 ×2.4 | 6 | 60 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.2 ×2.4 | 6 | 60 | 6 | □ | 340-3 |
| MG-EBD | R1.2 ×2.4 | 6 | 60 | 6 | □ | 328 |
| CBN-SXB | R1.25 ×5 ×6 | 1.5 | 50 | 6 | ● | 330 |
| AE-LNBD-H | R1.25 ×6 ×4 | 2 | 45 | 4 | ● | 352 |
| WXL-LN-EBD | R1.25 ×6 ×4 | 2 | 45 | 4 | ● | 346 |
| AE-LNBD-H | R1.25 ×8 ×4 | 2 | 45 | 4 | ● | 352 |
| AE-LNBD-H | R1.25 ×10 ×4 | 2 | 45 | 4 | ● | 352 |
| WXL-LN-EBD-3 | R1.25 ×10 | 2 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R1.25 ×15 | 2 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD-3 | R1.25 ×20 | 2 | 50 | 3 | □ | 359-1 |
| WXL-LN-EBD | R1.25 ×10 ×4 | 2 | 50 | 4 | ● | 346 |
| AE-LNBD-H | R1.25 ×15 ×4 | 2 | 50 | 4 | ● | 352 |
| WXL-LN-EBD-3 | R1.25 ×25 | 2 | 55 | 3 | □ | 359-1 |
| WXL-LN-EBD | R1.25 ×15 ×4 | 2 | 55 | 4 | ● | 346 |
| AE-LNBD-H | R1.25 ×20 ×4 | 2 | 55 | 4 | ● | 352 |
| WXL-LN-EBD | R1.25 ×20 ×4 | 2 | 60 | 4 | ● | 346 |
| AE-LNBD-H | R1.25 ×25 ×4 | 2 | 65 | 4 | ● | 352 |
| WXL-LN-EBD | R1.25 ×25 ×4 | 2 | 65 | 4 | ● | 346 |
| AE-LNBD-H | R1.25 ×30 ×4 | 2 | 70 | 4 | ● | 352 |
| WXL-LN-EBD | R1.25 ×30 ×4 | 2 | 70 | 4 | ● | 346 |
| AE-LNBD-H | R1.25 ×35 ×4 | 2 | 70 | 4 | ● | 352 |
| WXL-LN-EBD | R1.25 ×35 ×4 | 2 | 70 | 4 | ● | 346 |
| CRN-HS-EBD | R1.25 ×6.3 | 2.5 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R1.25 ×5 | 2.5 | 50 | 6 | □ | 340-5 |
| FX-HS-EBDS | R1.25 ×6.3 | 2.5 | 50 | 6 | □ | 340-10 |
| FX-LN-EBD-6 | R1.25 ×12.5 | 2.5 | 60 | 6 | □ | 359-5 |
| WXL-EBD | R1.25 ×3 ×4 | 3 | 50 | 4 | ● | 322 |
| FX-EBDSS-6 | R1.25 ×2.5 | 3 | 50 | 6 | □ | 340-6 |
| CRN-LN-EBD | R1.25 ×12.5 | 3.7 | 70 | 6 | □ | 359-10 |
| DIA-LN-EBD | R1.25 ×12.5 | 3.7 | 70 | 6 | □ | 355 |
| DIA-LN-EBD | R1.25 ×25 | 3.7 | 70 | 6 | □ | 355 |
| PHX-PC-DBT | R1.25 ×0.7° ×16 | 3.8 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1.25 ×0.7° ×20 | 3.8 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1.25 ×0.7° ×24 | 3.8 | 60 | 6 | ● | 366 |
| PHX-PC-DBT | R1.25 ×0.7° ×30 | 3.8 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.25 ×1° ×30 | 3.8 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.25 ×1° ×40 | 3.8 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.25 ×1.5° ×40 | 3.8 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1.25 ×1° ×50 | 3.8 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1.25 ×1.5° ×60 | 3.8 | 120 | 8 | ● | 366 |
| PHX-PC-DBT | R1.25 ×1.5° ×80 | 3.8 | 150 | 8 | ● | 366 |
| FX-LN-MG-EBD | R1.25 ×20 | 4 | 90 | 4 | □ | 359-6 |
| MG-LN-EBD | R1.25 ×20 | 4 | 90 | 4 | □ | 359-8 |
| FX-LN-MG-EBD | R1.25 ×30 | 4 | 100 | 4 | □ | 359-6 |
| MG-LN-EBD | R1.25 ×30 | 4 | 100 | 4 | □ | 359-8 |
| TIN-MG-LN-EBD | R1.25 ×30 | 4 | 100 | 4 | □ | 359-7 |
| CRN-EBD-3 | R1.25 ×2.5 | 6 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.25 ×2.5 | 6 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.25 ×2.5 | 6 | 40 | 3 | □ | 340-18 |
| WXL-EBD | R1.25 ×6 ×4 | 6 | 50 | 4 | ● | 322 |
| MG-EBD-4 | R1.25 ×2.5 | 6 | 60 | 4 | □ | 340-18 |
| WXL-EBD | R1.25 ×6 ×6 | 6 | 60 | 6 | ● | 322 |
| FX-MG-EBD | R1.25 ×2.5 | 6 | 60 | 6 | □ | 340-3 |
| FXS-EBT | R1.25 ×2.5 | 6 | 60 | 6 | □ | 336 |
| TIN-MG-EBD | R1.25 ×2.5 | 6 | 60 | 6 | □ | 340-15 |
| CRN-EBD | R1.25 ×2.5 | 6 | 70 | 6 | □ | 340-21 |
| DIA-EBD | R1.25 ×2.5 | 6 | 70 | 6 | □ | 333 |
| FX-EBD-DL-6 | R1.25 ×2.5 | 7.5 | 60 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.25 ×2.5 | 10 | 60 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.25 ×2.5 | 15 | 60 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.25 ×2.5 | 20 | 60 | 6 | □ | 340-8 |
| CBN-SXB | R1.3 ×5.2 ×6 | 1.6 | 50 | 6 | ● | 330 |
| WXL-EBD | R1.3 ×5.2 ×6 | 5.2 | 50 | 6 | ● | 322 |
| CRN-EBD-3 | R1.3 ×2.6 | 8 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.3 ×2.6 | 8 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.3 ×2.6 | 8 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.3 ×2.6 | 8 | 60 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.3 ×2.6 | 8 | 60 | 6 | □ | 340-3 |
| MG-EBD | R1.3 ×2.6 | 8 | 60 | 6 | □ | 328 |
| CBN-SXB | R1.35 ×5.4 ×6 | 1.6 | 50 | 6 | ● | 330 |
| WXL-EBD | R1.35 ×5.4 ×6 | 5.4 | 50 | 6 | ● | 322 |
| CRN-EBD-3 | R1.35 ×2.7 | 8 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.35 ×2.7 | 8 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.35 ×2.7 | 8 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.35 ×2.7 | 8 | 60 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.35 ×2.7 | 8 | 60 | 6 | □ | 340-3 |
| MG-EBD | R1.35 ×2.7 | 8 | 60 | 6 | □ | 328 |
| CBN-SXB | R1.4 ×5.6 ×6 | 1.7 | 50 | 6 | ● | 330 |
| WXL-EBD | R1.4 ×5.6 ×6 | 5.6 | 60 | 6 | ● | 322 |
| CRN-EBD-3 | R1.4 ×2.8 | 8 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.4 ×2.8 | 8 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.4 ×2.8 | 8 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.4 ×2.8 | 8 | 60 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.4 ×2.8 | 8 | 60 | 6 | □ | 340-3 |
| MG-EBD | R1.4 ×2.8 | 8 | 60 | 6 | □ | 328 |
| CBN-SXB | R1.45 ×5.8 ×6 | 1.7 | 50 | 6 | ● | 330 |
| WXL-EBD | R1.45 ×5.8 ×6 | 5.8 | 60 | 6 | ● | 322 |
| CRN-EBD-3 | R1.45 ×2.9 | 8 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.45 ×2.9 | 8 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.45 ×2.9 | 8 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.45 ×2.9 | 8 | 60 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.45 ×2.9 | 8 | 60 | 6 | □ | 340-3 |
| MG-EBD | R1.45 ×2.9 | 8 | 60 | 6 | □ | 328 |
| CBN-SXB | R1.5 ×6 ×6 | 1.8 | 50 | 6 | ● | 330 |
| CBN-LN-SXB | R1.5 ×12 ×6 | 1.8 | 50 | 6 | ● | 359 |
| CBN-LN-SXB | R1.5 ×15 ×6 | 1.8 | 50 | 6 | ● | 359 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DLC-EQD | R1.5 ×9 | 2.2 | 70 | 4 | □ | 359-11 |
| DLC-EQD | R1.5 ×15 | 2.2 | 80 | 4 | □ | 359-11 |
| PHX-LN-DBT | R1.5 ×12 | 2.25 | 60 | 4 | ● | 354 |
| PHX-LN-DBT | R1.5 ×16 | 2.25 | 60 | 4 | ● | 354 |
| PHX-LN-DBT | R1.5 ×20 | 2.25 | 60 | 4 | ● | 354 |
| PHX-LN-DBT | R1.5 ×25 | 2.25 | 60 | 4 | ● | 354 |
| FXS-EQD | R1.5 | 2.3 | 70 | 6 | ● | 364 |
| WXL-LN-EBD | R1.5 ×6 ×3 | 2.4 | 45 | 3 | ● | 346 |
| WXL-LN-EBD | R1.5 ×6 ×4 | 2.4 | 45 | 4 | ● | 346 |
| AE-LNBD-H | R1.5 ×6 ×6 | 2.4 | 50 | 6 | ● | 352 |
| WXL-LN-EBD | R1.5 ×6 ×6 | 2.4 | 50 | 6 | ● | 346 |
| AE-LNBD-H | R1.5 ×8 ×6 | 2.4 | 50 | 6 | ● | 352 |
| WXL-LN-EBD | R1.5 ×8 ×6 | 2.4 | 50 | 6 | ● | 346 |
| WX-LN-EBD | R1.5 ×8 | 2.4 | 50 | 6 | □ | 359-4 |
| WXL-PC-EBD | R1.5 ×0.5° ×8 | 2.4 | 50 | 6 | ● | 362 |
| AE-LNBD-H | R1.5 ×10 ×6 | 2.4 | 50 | 6 | ● | 352 |
| WXL-LN-EBD | R1.5 ×10 ×6 | 2.4 | 50 | 6 | ● | 346 |
| WX-LN-EBD | R1.5 ×10 | 2.4 | 50 | 6 | □ | 359-4 |
| WXL-PC-EBD | R1.5 ×0.5° ×10 | 2.4 | 50 | 6 | ● | 362 |
| FX-PCS-EBD-6 | R1.5 ×30′ ×15 | 2.4 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1.5 ×1° ×15 | 2.4 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1.5 ×1°30′ ×15 | 2.4 | 50 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1.5 ×2° ×15 | 2.4 | 50 | 6 | □ | 369-3 |
| AE-LNBD-N | R1.5 ×10 ×6 | 2.4 | 55 | 6 | ● | 358 |
| AE-LNBD-H | R1.5 ×12 ×6 | 2.4 | 55 | 6 | ● | 352 |
| AE-LNBD-N | R1.5 ×12 ×6 | 2.4 | 55 | 6 | ● | 358 |
| WXL-LN-EBD | R1.5 ×12 ×6 | 2.4 | 55 | 6 | ● | 346 |
| WXL-PC-EBD | R1.5 ×0.5° ×12 | 2.4 | 55 | 6 | ● | 362 |
| AE-LNBD-H | R1.5 ×13 ×6 | 2.4 | 55 | 6 | ● | 352 |
| AE-LNBD-H | R1.5 ×14 ×6 | 2.4 | 55 | 6 | ● | 352 |
| AE-LNBD-N | R1.5 ×14 ×6 | 2.4 | 55 | 6 | ● | 358 |
| WXL-LN-EBD | R1.5 ×14 ×6 | 2.4 | 55 | 6 | ● | 347 |
| AE-LNBD-H | R1.5 ×15 ×6 | 2.4 | 55 | 6 | ● | 352 |
| WXL-LN-EBD | R1.5 ×15 ×6 | 2.4 | 55 | 6 | ● | 347 |
| AE-LNBD-H | R1.5 ×16 ×6 | 2.4 | 55 | 6 | ● | 352 |
| AE-LNBD-N | R1.5 ×16 ×6 | 2.4 | 55 | 6 | ● | 358 |
| WXL-LN-EBD | R1.5 ×16 ×6 | 2.4 | 55 | 6 | ● | 347 |
| WX-LN-EBD | R1.5 ×16 | 2.4 | 55 | 6 | □ | 359-4 |
| WXL-PC-EBD | R1.5 ×0.5° ×16 | 2.4 | 55 | 6 | ● | 362 |
| AE-LNBD-N | R1.5 ×20 ×6 | 2.4 | 55 | 6 | ● | 358 |
| AE-BD-H | R1.5 ×6 | 2.4 | 60 | 6 | ● | 324 |
| AE-LNBD-H | R1.5 ×20 ×6 | 2.4 | 60 | 6 | ● | 352 |
| WXL-LN-EBD | R1.5 ×20 ×6 | 2.4 | 60 | 6 | ● | 347 |
| WX-LN-EBD | R1.5 ×20 | 2.4 | 60 | 6 | □ | 359-4 |
| FX-PCS-EBD-6 | R1.5 ×30′ ×20 | 2.4 | 60 | 6 | □ | 369-3 |
| WXL-PC-EBD | R1.5 ×0.5° ×20 | 2.4 | 60 | 6 | ● | 362 |
| WXL-PC-EBD | R1.5 ×1° ×20 | 2.4 | 60 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1.5° ×20 | 2.4 | 60 | 6 | ● | 363 |
| FX-PCS-EBD-6 | R1.5 ×30′ ×25 | 2.4 | 60 | 6 | □ | 369-3 |
| AE-LNBD-H | R1.5 ×25 ×6 | 2.4 | 65 | 6 | ● | 352 |
| AE-LNBD-N | R1.5 ×25 ×6 | 2.4 | 65 | 6 | ● | 358 |
| WXL-LN-EBD | R1.5 ×25 ×6 | 2.4 | 65 | 6 | ● | 347 |
| WX-LN-EBD | R1.5 ×25 | 2.4 | 65 | 6 | □ | 359-4 |
| WXL-PC-EBD | R1.5 ×0.5° ×25 | 2.4 | 65 | 6 | ● | 362 |
| WXL-PC-EBD | R1.5 ×1° ×25 | 2.4 | 65 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1.5° ×25 | 2.4 | 65 | 6 | ● | 363 |
| AE-LNBD-N | R1.5 ×30 ×6 | 2.4 | 65 | 6 | ● | 358 |
| FX-PCS-EBD-6 | R1.5 ×1° ×20 | 2.4 | 70 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1.5 ×1°30′ ×20 | 2.4 | 70 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1.5 ×2° ×20 | 2.4 | 70 | 6 | □ | 369-3 |
| AE-LNBD-H | R1.5 ×30 ×6 | 2.4 | 70 | 6 | ● | 352 |
| WXL-LN-EBD | R1.5 ×30 ×6 | 2.4 | 70 | 6 | ● | 347 |
| WX-LN-EBD | R1.5 ×30 | 2.4 | 70 | 6 | □ | 359-4 |
| WXL-PC-EBD | R1.5 ×0.5° ×30 | 2.4 | 70 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1° ×30 | 2.4 | 70 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1.5° ×30 | 2.4 | 70 | 6 | ● | 363 |
| AE-LNBD-H | R1.5 ×35 ×6 | 2.4 | 80 | 6 | ● | 352 |
| WXL-LN-EBD | R1.5 ×35 ×6 | 2.4 | 80 | 6 | ● | 347 |
| WX-LN-EBD | R1.5 ×35 | 2.4 | 80 | 6 | □ | 359-4 |
| WXL-PC-EBD | R1.5 ×0.5° ×35 | 2.4 | 80 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1° ×35 | 2.4 | 80 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1.5° ×35 | 2.4 | 80 | 6 | ● | 363 |
| WXL-LN-EBD | R1.5 ×40 ×6 | 2.4 | 85 | 6 | ● | 347 |
| WXL-PC-EBD | R1.5 ×0.5° ×40 | 2.4 | 85 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1° ×40 | 2.4 | 85 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1.5° ×40 | 2.4 | 85 | 6 | ● | 363 |
| AE-LNBD-H | R1.5 ×40 ×6 | 2.4 | 90 | 6 | ● | 352 |
| WXL-PC-EBD | R1.5 ×0.5° ×50 | 2.4 | 90 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1° ×50 | 2.4 | 90 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1.5° ×50 | 2.4 | 90 | 6 | ● | 363 |
| FX-PCS-EBD-6 | R1.5 ×1° ×25 | 2.4 | 100 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1.5 ×1°30′ ×25 | 2.4 | 100 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R1.5 ×2° ×25 | 2.4 | 100 | 6 | □ | 369-3 |
| WXL-PC-EBD | R1.5 ×2° ×47.5 | 2.4 | 100 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1° ×60 | 2.4 | 100 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1.5° ×62.5 | 2.4 | 100 | 6 | ● | 363 |
| WXL-PC-EBD | R1.5 ×1° ×70 | 2.4 | 110 | 6 | ● | 363 |
| DIA-EBT | R1.5 ×9 | 3 | 45 | 4 | □ | 340-26 |
| CRN-HS-EBD | R1.5 ×7.5 | 3 | 50 | 6 | □ | 340-22 |
| AE-BM-H | R1.5 ×6 | 3 | 50 | 6 | ● | 337 |
| FX-EBD-6 | R1.5 ×6 | 3 | 50 | 6 | □ | 340-5 |
| FX-H-EBD | R1.5 ×7.5 | 3 | 50 | 6 | □ | 340-11 |
| FX-HS-EBDS | R1.5 ×7.5 | 3 | 50 | 6 | □ | 340-10 |
| AM-EBT | R1.5 ×3 ×6 | 3 | 60 | 6 | ● | 334 |
| AM-EBT | R1.5 ×3 ×12 | 3 | 60 | 6 | ● | 334 |
| FX-LN-EBD-6 | R1.5 ×15 | 3 | 70 | 6 | □ | 359-5 |
| FX-PC-MG-EBD | R1.5 ×90 ×30′ ×50 | 3 | 90 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1.5 ×90 ×1° ×50 | 3 | 90 | 6 | □ | 369-4 |
| FX-EBDSS-6 | R1.5 ×3 | 3.6 | 50 | 6 | □ | 340-6 |
| FX-LN-MG-EBD | R1.5 ×15 | 4 | 90 | 6 | □ | 359-6 |
| MG-LN-EBD | R1.5 ×15 | 4 | 90 | 6 | □ | 359-8 |
| FX-LN-MG-EBD | R1.5 ×20 | 4 | 90 | 6 | □ | 359-6 |
| MG-LN-EBD | R1.5 ×20 | 4 | 90 | 6 | □ | 359-8 |
| FX-LN-MG-EBD | R1.5 ×25 | 4 | 100 | 6 | □ | 359-6 |
| MG-LN-EBD | R1.5 ×25 | 4 | 100 | 6 | □ | 359-8 |
| FX-LN-MG-EBD | R1.5 ×35 | 4 | 100 | 6 | □ | 359-6 |
| MG-LN-EBD | R1.5 ×35 | 4 | 100 | 6 | □ | 359-8 |
| TIN-MG-LN-EBD | R1.5 ×35 | 4 | 100 | 6 | □ | 359-7 |
| WXL-HS-EBD | R1.5 ×4.5 ×4 | 4.5 | 40 | 4 | ● | 323 |
| WXL-EBD | R1.5 ×4.5 ×4 | 4.5 | 60 | 4 | ● | 322 |
| DG-LN-EBM | R1.5 ×10 | 4.5 | 60 | 4 | ● | 356 |
| DG-LN-EBD | R1.5 ×20 | 4.5 | 60 | 4 | ● | 355 |
| DG-LN-EBM | R1.5 ×20 | 4.5 | 60 | 4 | ● | 356 |
| WXL-EBD | R1.5 ×4.5 ×6 | 4.5 | 60 | 6 | ● | 322 |
| PHX-DBT | R1.5 ×70 | 4.5 | 70 | 6 | ● | 335 |
| CRN-LN-EBD | R1.5 ×15 | 4.5 | 70 | 6 | □ | 359-10 |
| DIA-LN-EBD | R1.5 ×15 | 4.5 | 70 | 6 | ● | 355 |
| DLC-LN-EBD | R1.5 ×15 | 4.5 | 70 | 6 | ● | 356 |
| CRN-LN-EBD | R1.5 ×30 | 4.5 | 70 | 6 | □ | 359-10 |
| DIA-LN-EBD | R1.5 ×30 | 4.5 | 70 | 6 | ● | 355 |
| DG-LN-EBD | R1.5 ×40 | 4.5 | 80 | 4 | ● | 355 |
| CAP-LN-EBD | R1.5 ×16 | 4.5 | 80 | 6 | □ | 359-9 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PHX-PC-DBT | R1.5 ×1° ×16 | 4.5 | 80 | 6 | ● | 366 |
| CAP-LN-EBD | R1.5 ×20 | 4.5 | 80 | 6 | □ | 359-9 |
| PHX-PC-DBT | R1.5 ×0.5° ×20 | 4.5 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1° ×20 | 4.5 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1° ×24 | 4.5 | 80 | 6 | ● | 366 |
| CAP-LN-EBD | R1.5 ×25 | 4.5 | 80 | 6 | □ | 359-9 |
| PHX-PC-DBT | R1.5 ×1° ×25 | 4.5 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1° ×26 | 4.5 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1° ×30 | 4.5 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×3° ×32.1 | 4.5 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1° ×40 | 4.5 | 80 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×3° ×40 | 4.5 | 80 | 8 | ● | 367 |
| DG-LN-EBD | R1.5 ×60 | 4.5 | 100 | 4 | ● | 355 |
| CAP-LN-EBD | R1.5 ×35 | 4.5 | 100 | 6 | □ | 359-9 |
| PHX-PC-DBT | R1.5 ×2° ×46.5 | 4.5 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1° ×50 | 4.5 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1° ×60 | 4.5 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1.5° ×60.8 | 4.5 | 100 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×1° ×70 | 4.5 | 110 | 6 | ● | 366 |
| PHX-PC-DBT | R1.5 ×3° ×50 | 4.5 | 120 | 10 | ● | 367 |
| PHX-PC-DBT | R1.5 ×3° ×70 | 4.5 | 120 | 12 | ● | 367 |
| PHX-PC-DBT | R1.5 ×3° ×90 | 4.5 | 130 | 12 | ● | 367 |
| CRN-EBD-3 | R1.5 ×3 | 8 | 40 | 3 | □ | 340-22 |
| FX-MG-EBD-3 | R1.5 ×3 | 8 | 40 | 3 | □ | 340-8 |
| MG-EBD-3 | R1.5 ×3 | 8 | 40 | 3 | □ | 340-18 |
| MG-EBD-4 | R1.5 ×3 | 8 | 60 | 4 | □ | 340-18 |
| DLC-EBD | R1.5 | 8 | 60 | 6 | ● | 332 |
| WXL-EBD | R1.5 ×8 ×6 | 8 | 60 | 6 | ● | 322 |
| CA-RG-EBD | R1.5 ×3 | 8 | 60 | 6 | □ | 340-21 |
| FX-MG-EBD | R1.5 ×3 | 8 | 60 | 6 | □ | 340-3 |
| FX-MG-EBM | R1.5 ×3 | 8 | 60 | 6 | □ | 340-27 |
| GX-EBD | R1.5 ×3 | 8 | 60 | 6 | □ | 340-17 |
| TIN-MG-EBD | R1.5 ×3 | 8 | 60 | 6 | □ | 340-15 |
| CRN-EBD | R1.5 ×3 | 8 | 70 | 6 | □ | 340-21 |
| DIA-EBD | R1.5 ×3 | 8 | 70 | 6 | ● | 333 |
| FX-PC-MG-EBD | R1.5 ×70 ×3° ×30 | 8 | 70 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R1.5 ×90 ×1°30′ ×50 | 8 | 90 | 6 | □ | 369-4 |
| V-LS-MG-EBD | R1.5 ×3 | 8 | 120 | 6 | □ | 340-14 |
| DIA-PC-EBD | R1.5 ×30′ ×90 | 8 | 160 | 8 | □ | 369-6 |
| DIA-PC-EBD | R1.5 ×1° ×90 | 8 | 160 | 8 | □ | 369-6 |
| DIA-PC-EBD | R1.5 ×30′ ×120 | 8 | 180 | 8 | □ | 369-6 |
| DIA-PC-EBD | R1.5 ×1° ×120 | 8 | 180 | 8 | □ | 369-6 |
| FX-EBD-DL-6 | R1.5 ×3 | 9 | 60 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.5 ×3 | 12 | 60 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.5 ×3 | 15 | 60 | 6 | □ | 340-8 |
| DIA-GF-EBDR | R1.5 ×3 | 15 | 75 | 4 | □ | 340-25 |
| GF-EBDR | R1.5 ×3 | 15 | 75 | 4 | □ | 340-24 |
| D-GF-LS-EBDR | R1.5 ×3 | 15 | 100 | 4 | □ | 340-26 |
| GF-LS-EBDR | R1.5 ×3 | 15 | 100 | 4 | □ | 340-25 |
| FX-EBD-DL-6 | R1.5 ×3 | 18 | 60 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.5 ×3 | 24 | 60 | 6 | □ | 340-8 |
| GF-EBDL | R1.5 ×3 | 30 | 100 | 6 | □ | 340-24 |
| MG-EBD-4 | R1.55 ×3.1 | 8 | 60 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.55 ×3.1 | 8 | 70 | 6 | □ | 340-3 |
| MG-EBD | R1.55 ×3.1 | 8 | 70 | 6 | □ | 328 |
| TIN-MG-EBD | R1.55 ×3.1 | 8 | 70 | 6 | □ | 340-15 |
| MG-EBD-4 | R1.6 ×3.2 | 8 | 70 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.6 ×3.2 | 8 | 70 | 6 | □ | 340-3 |
| MG-EBD | R1.6 ×3.2 | 8 | 70 | 6 | □ | 328 |
| TIN-MG-EBD | R1.6 ×3.2 | 8 | 70 | 6 | □ | 340-15 |
| MG-EBD-4 | R1.65 ×3.3 | 8 | 70 | 4 | □ | 340-18 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EBD | R1.65 ×3.3 | 8 | 70 | 6 | □ | 340-3 |
| MG-EBD | R1.65 ×3.3 | 8 | 70 | 6 | □ | 328 |
| TIN-MG-EBD | R1.65 ×3.3 | 8 | 70 | 6 | □ | 340-15 |
| MG-EBD-4 | R1.7 ×3.4 | 8 | 70 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.7 ×3.4 | 8 | 70 | 6 | □ | 340-3 |
| MG-EBD | R1.7 ×3.4 | 8 | 70 | 6 | □ | 328 |
| TIN-MG-EBD | R1.7 ×3.4 | 8 | 70 | 6 | □ | 340-15 |
| AE-LNBD-H | R1.75 ×10 ×6 | 2.8 | 50 | 6 | ● | 352 |
| AE-LNBD-H | R1.75 ×15 ×6 | 2.8 | 55 | 6 | ● | 352 |
| AE-LNBD-H | R1.75 ×16 ×6 | 2.8 | 55 | 6 | ● | 352 |
| WXL-LN-EBD | R1.75 ×10 ×6 | 2.8 | 60 | 6 | ● | 347 |
| WXL-LN-EBD | R1.75 ×15 ×6 | 2.8 | 60 | 6 | ● | 347 |
| AE-LNBD-H | R1.75 ×20 ×6 | 2.8 | 60 | 6 | ● | 352 |
| WXL-LN-EBD | R1.75 ×20 ×6 | 2.8 | 65 | 6 | ● | 347 |
| AE-LNBD-H | R1.75 ×25 ×6 | 2.8 | 65 | 6 | ● | 352 |
| WXL-LN-EBD | R1.75 ×25 ×6 | 2.8 | 65 | 6 | ● | 347 |
| AE-LNBD-H | R1.75 ×30 ×6 | 2.8 | 70 | 6 | ● | 352 |
| WXL-LN-EBD | R1.75 ×30 ×6 | 2.8 | 70 | 6 | ● | 347 |
| AE-LNBD-H | R1.75 ×35 ×6 | 2.8 | 80 | 6 | ● | 352 |
| WXL-LN-EBD | R1.75 ×35 ×6 | 2.8 | 80 | 6 | ● | 347 |
| AE-LNBD-H | R1.75 ×40 ×6 | 2.8 | 90 | 6 | ● | 352 |
| WXL-LN-EBD | R1.75 ×40 ×6 | 2.8 | 90 | 6 | ● | 347 |
| AE-LNBD-H | R1.75 ×45 ×6 | 2.8 | 90 | 6 | ● | 352 |
| WXL-LN-EBD | R1.75 ×45 ×6 | 2.8 | 90 | 6 | ● | 347 |
| CRN-HS-EBD | R1.75 ×8.8 | 3.5 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R1.75 ×6 | 3.5 | 50 | 6 | □ | 340-5 |
| FX-HS-EBDS | R1.75 ×8.8 | 3.5 | 50 | 6 | □ | 340-10 |
| FX-LN-EBD-6 | R1.75 ×17.5 | 3.5 | 70 | 6 | □ | 359-5 |
| FX-LN-MG-EBD | R1.75 ×20 | 4 | 90 | 6 | □ | 359-6 |
| MG-LN-EBD | R1.75 ×20 | 4 | 90 | 6 | □ | 359-8 |
| FX-LN-MG-EBD | R1.75 ×35 | 4 | 100 | 6 | □ | 359-6 |
| MG-LN-EBD | R1.75 ×35 | 4 | 100 | 6 | □ | 359-8 |
| TIN-MG-LN-EBD | R1.75 ×35 | 4 | 100 | 6 | □ | 359-7 |
| FX-EBDSS-6 | R1.75 ×3.5 | 4.2 | 50 | 6 | □ | 340-6 |
| CRN-LN-EBD | R1.75 ×17.5 | 5.3 | 70 | 6 | □ | 359-10 |
| DIA-LN-EBD | R1.75 ×17.5 | 5.3 | 70 | 6 | □ | 355 |
| PHX-PC-DBT | R1.75 ×1° ×20 | 5.3 | 80 | 6 | ● | 367 |
| PHX-PC-DBT | R1.75 ×1° ×30 | 5.3 | 80 | 6 | ● | 367 |
| DIA-LN-EBD | R1.75 ×35 | 5.3 | 80 | 6 | □ | 355 |
| PHX-PC-DBT | R1.75 ×1° ×40 | 5.3 | 80 | 6 | ● | 367 |
| PHX-PC-DBT | R1.75 ×1° ×50 | 5.3 | 100 | 6 | ● | 367 |
| PHX-PC-DBT | R1.75 ×1.5° ×60 | 5.3 | 100 | 8 | ● | 367 |
| PHX-PC-DBT | R1.75 ×1.5° ×80 | 5.3 | 120 | 8 | ● | 367 |
| PHX-PC-DBT | R1.75 ×1.5° ×100 | 5.3 | 150 | 10 | ● | 367 |
| MG-EBD-4 | R1.75 ×3.5 | 8 | 70 | 4 | □ | 340-18 |
| WXL-EBD | R1.75 ×8 ×6 | 8 | 70 | 6 | ● | 322 |
| CRN-EBD | R1.75 ×3.5 | 8 | 70 | 6 | □ | 340-21 |
| DIA-EBD | R1.75 ×3.5 | 8 | 70 | 6 | □ | 333 |
| FX-MG-EBD | R1.75 ×3.5 | 8 | 70 | 6 | □ | 340-3 |
| FXS-EBT | R1.75 ×3.5 | 8 | 70 | 6 | □ | 336 |
| TIN-MG-EBD | R1.75 ×3.5 | 8 | 70 | 6 | □ | 340-15 |
| FX-EBD-DL-6 | R1.75 ×3.5 | 10.5 | 70 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.75 ×3.5 | 14 | 70 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.75 ×3.5 | 17.5 | 70 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.75 ×3.5 | 21 | 70 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R1.75 ×3.5 | 28 | 70 | 6 | □ | 340-8 |
| MG-EBD-4 | R1.8 ×3.6 | 8 | 70 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.8 ×3.6 | 8 | 70 | 6 | □ | 340-3 |
| MG-EBD | R1.8 ×3.6 | 8 | 70 | 6 | □ | 328 |
| TIN-MG-EBD | R1.8 ×3.6 | 8 | 70 | 6 | □ | 340-15 |
| MG-EBD-4 | R1.85 ×3.7 | 8 | 70 | 4 | □ | 340-18 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EBD | R1.85 ×3.7 | 8 | 70 | 6 | □ | 340-3 |
| MG-EBD | R1.85 ×3.7 | 8 | 70 | 6 | □ | 328 |
| TIN-MG-EBD | R1.85 ×3.7 | 8 | 70 | 6 | □ | 340-15 |
| MG-EBD-4 | R1.9 ×3.8 | 8 | 70 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.9 ×3.8 | 8 | 70 | 6 | □ | 340-3 |
| MG-EBD | R1.9 ×3.8 | 8 | 70 | 6 | □ | 328 |
| TIN-MG-EBD | R1.9 ×3.8 | 8 | 70 | 6 | □ | 340-15 |
| MG-EBD-4 | R1.95 ×3.9 | 8 | 70 | 4 | □ | 340-18 |
| FX-MG-EBD | R1.95 ×3.9 | 8 | 70 | 6 | □ | 340-3 |
| MG-EBD | R1.95 ×3.9 | 8 | 70 | 6 | □ | 328 |
| TIN-MG-EBD | R1.95 ×3.9 | 8 | 70 | 6 | □ | 340-15 |
| PHX-LN-DBT | R2 ×16 | 3 | 60 | 4 | ● | 354 |
| PHX-LN-DBT | R2 ×20 | 3 | 60 | 4 | ● | 354 |
| PHX-LN-DBT | R2 ×25 | 3 | 60 | 4 | ● | 354 |
| FXS-EQD | R2 | 3 | 70 | 6 | ● | 364 |
| AE-BD-H | R2 ×8-S | 3.2 | 45 | 6 | ● | 324 |
| AE-LNBD-H | R2 ×8 ×4 | 3.2 | 55 | 4 | ● | 352 |
| WXL-LN-EBD | R2 ×8 ×4 | 3.2 | 55 | 4 | ● | 347 |
| AE-LNBD-H | R2 ×8 ×6 | 3.2 | 55 | 6 | ● | 352 |
| AE-BD-H | R2 ×8-4 | 3.2 | 60 | 4 | ● | 324 |
| WXL-LN-EBD | R2 ×8 ×6 | 3.2 | 60 | 6 | ● | 347 |
| AE-LNBD-H | R2 ×10 ×6 | 3.2 | 60 | 6 | ● | 352 |
| AE-LNBD-N | R2 ×10 ×6 | 3.2 | 60 | 6 | ● | 358 |
| WXL-LN-EBD | R2 ×10 ×6 | 3.2 | 60 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×10 | 3.2 | 60 | 6 | □ | 359-4 |
| AE-LNBD-H | R2 ×12 ×6 | 3.2 | 60 | 6 | ● | 352 |
| WXL-LN-EBD | R2 ×12 ×6 | 3.2 | 60 | 6 | ● | 347 |
| AE-LNBD-H | R2 ×13 ×6 | 3.2 | 60 | 6 | ● | 352 |
| AE-LNBD-H | R2 ×14 ×6 | 3.2 | 60 | 6 | ● | 352 |
| WXL-LN-EBD | R2 ×14 ×6 | 3.2 | 60 | 6 | ● | 347 |
| AE-LNBD-H | R2 ×15 ×6 | 3.2 | 60 | 6 | ● | 352 |
| AE-LNBD-N | R2 ×15 ×6 | 3.2 | 60 | 6 | ● | 358 |
| WXL-LN-EBD | R2 ×15 ×6 | 3.2 | 60 | 6 | ● | 347 |
| AE-LNBD-H | R2 ×16 ×6 | 3.2 | 60 | 6 | ● | 353 |
| WXL-LN-EBD | R2 ×16 ×6 | 3.2 | 60 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×16 | 3.2 | 60 | 6 | □ | 359-4 |
| FX-PCS-EBD-6 | R2 ×30′ ×20 | 3.2 | 60 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R2 ×1° ×20 | 3.2 | 60 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R2 ×1°30′ ×20 | 3.2 | 60 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R2 ×2° ×20 | 3.2 | 60 | 6 | □ | 369-3 |
| AE-LNBD-H | R2 ×20 ×6 | 3.2 | 65 | 6 | ● | 353 |
| AE-LNBD-N | R2 ×20 ×6 | 3.2 | 65 | 6 | ● | 358 |
| WXL-LN-EBD | R2 ×20 ×6 | 3.2 | 65 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×20 | 3.2 | 65 | 6 | □ | 359-4 |
| WXL-PC-EBD | R2 ×1° ×20 | 3.2 | 65 | 6 | ● | 363 |
| AE-LNBD-N | R2 ×25 ×6 | 3.2 | 65 | 6 | ● | 358 |
| AE-BD-H | R2 ×8 | 3.2 | 70 | 6 | ● | 324 |
| AE-LNBD-H | R2 ×25 ×6 | 3.2 | 70 | 6 | ● | 353 |
| WXL-LN-EBD | R2 ×25 ×6 | 3.2 | 70 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×25 | 3.2 | 70 | 6 | □ | 359-4 |
| AE-LNBD-H | R2 ×30 ×6 | 3.2 | 80 | 6 | ● | 353 |
| AE-LNBD-N | R2 ×30 ×6 | 3.2 | 80 | 6 | ● | 358 |
| WXL-LN-EBD | R2 ×30 ×6 | 3.2 | 80 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×30 | 3.2 | 80 | 6 | □ | 359-4 |
| WXL-PC-EBD | R2 ×1° ×30 | 3.2 | 80 | 6 | ● | 363 |
| WXL-PC-EBD | R2 ×2° ×34 | 3.2 | 80 | 6 | ● | 363 |
| AE-LNBD-H | R2 ×35 ×6 | 3.2 | 80 | 6 | ● | 353 |
| WXL-LN-EBD | R2 ×35 ×6 | 3.2 | 80 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×35 | 3.2 | 80 | 6 | □ | 359-4 |
| AE-LNBD-N | R2 ×40 ×6 | 3.2 | 80 | 6 | ● | 358 |
| WXL-PC-EBD | R2 ×1.5° ×44.2 | 3.2 | 80 | 6 | ● | 363 |

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-PCS-EBD-6 | R2 ×30′ ×30 | 3.2 | 90 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R2 ×1° ×30 | 3.2 | 90 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R2 ×1°30′ ×30 | 3.2 | 90 | 6 | □ | 369-3 |
| FX-PCS-EBD-6 | R2 ×2° ×30 | 3.2 | 90 | 6 | □ | 369-3 |
| AE-LNBD-H | R2 ×40 ×6 | 3.2 | 90 | 6 | ● | 353 |
| WXL-LN-EBD | R2 ×40 ×6 | 3.2 | 90 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×40 | 3.2 | 90 | 6 | □ | 359-4 |
| WXL-PC-EBD | R2 ×1° ×40 | 3.2 | 90 | 6 | ● | 363 |
| AE-LNBD-H | R2 ×45 ×6 | 3.2 | 90 | 6 | ● | 353 |
| WXL-LN-EBD | R2 ×45 ×6 | 3.2 | 90 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×45 | 3.2 | 90 | 6 | □ | 359-4 |
| AE-LNBD-H | R2 ×50 ×6 | 3.2 | 100 | 6 | ● | 353 |
| WXL-LN-EBD | R2 ×50 ×6 | 3.2 | 100 | 6 | ● | 347 |
| WX-LN-EBD | R2 ×50 | 3.2 | 100 | 6 | □ | 359-4 |
| WXL-PC-EBD | R2 ×1° ×50 | 3.2 | 100 | 8 | ● | 363 |
| WXL-PC-EBD | R2 ×1° ×60 | 3.2 | 110 | 8 | ● | 363 |
| DLC-EQD | R2 ×12 | 3.5 | 70 | 4 | □ | 359-11 |
| DLC-EQD | R2 ×20 | 3.5 | 80 | 4 | □ | 359-11 |
| DIA-EBT | R2 ×12 | 4 | 50 | 4 | □ | 340-26 |
| CRN-HS-EBD | R2 ×10 | 4 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R2 ×6 | 4 | 50 | 6 | □ | 340-5 |
| FX-H-EBD | R2 ×10 | 4 | 50 | 6 | □ | 340-11 |
| FX-HS-EBDS | R2 ×10 | 4 | 50 | 6 | □ | 340-10 |
| AE-BM-H | R2 ×8 | 4 | 60 | 6 | ● | 337 |
| AM-EBT | R2 ×4 ×8 | 4 | 60 | 6 | ● | 334 |
| AM-EBT | R2 ×4 ×16 | 4 | 60 | 6 | ● | 334 |
| FX-LN-EBD-6 | R2 ×20 | 4 | 70 | 6 | □ | 359-5 |
| FX-PC-MG-EBD | R2 ×110 ×30′ ×60 | 4 | 110 | 6 | □ | 369-4 |
| FX-PC-MG-EBD | R2 ×110 ×1° ×60 | 4 | 110 | 6 | □ | 369-4 |
| FX-EBDSS-6 | R2 ×4 | 4.8 | 50 | 6 | □ | 340-6 |
| WXL-HS-EBD | R2 ×6 ×6 | 6 | 40 | 6 | ● | 323 |
| DG-LN-EBD | R2 ×20 | 6 | 60 | 4 | ● | 355 |
| PHX-DBT | R2 ×70 | 6 | 70 | 6 | ● | 335 |
| WXL-EBD | R2 ×6 ×6 | 6 | 70 | 6 | ● | 322 |
| DG-LN-EBD | R2 ×40 | 6 | 80 | 4 | ● | 355 |
| CAP-LN-EBD | R2 ×16 | 6 | 80 | 6 | □ | 359-9 |
| CAP-LN-EBD | R2 ×20 | 6 | 80 | 6 | □ | 359-9 |
| CRN-LN-EBD | R2 ×20 | 6 | 80 | 6 | □ | 359-10 |
| DIA-LN-EBD | R2 ×20 | 6 | 80 | 6 | ● | 355 |
| DLC-LN-EBD | R2 ×20 | 6 | 80 | 6 | ● | 356 |
| CAP-LN-EBD | R2 ×25 | 6 | 80 | 6 | □ | 359-9 |
| PHX-PC-DBT | R2 ×0.5° ×25 | 6 | 80 | 6 | ● | 367 |
| PHX-PC-DBT | R2 ×1° ×30 | 6 | 80 | 6 | ● | 367 |
| DIA-LN-EBD | R2 ×40 | 6 | 80 | 6 | ● | 355 |
| PHX-PC-DBT | R2 ×1° ×40 | 6 | 80 | 6 | ● | 367 |
| PHX-PC-DBT | R2 ×1.5° ×42.2 | 6 | 80 | 6 | ● | 367 |
| PHX-PC-DBT | R2 ×2° ×30 | 6 | 80 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×3° ×30 | 6 | 80 | 8 | ● | 367 |
| FX-LN-MG-EBD | R2 ×20 | 6 | 90 | 6 | □ | 359-6 |
| MG-LN-EBD | R2 ×20 | 6 | 90 | 6 | □ | 359-8 |
| CAP-LN-EBD | R2 ×30 | 6 | 90 | 6 | □ | 359-9 |
| CRN-LN-EBD | R2 ×40 | 6 | 90 | 6 | □ | 359-10 |
| DG-LN-EBD | R2 ×60 | 6 | 100 | 4 | ● | 355 |
| FX-LN-MG-EBD | R2 ×25 | 6 | 100 | 6 | □ | 359-6 |
| MG-LN-EBD | R2 ×25 | 6 | 100 | 6 | □ | 359-8 |
| FX-LN-MG-EBD | R2 ×30 | 6 | 100 | 6 | □ | 359-6 |
| MG-LN-EBD | R2 ×30 | 6 | 100 | 6 | □ | 359-8 |
| CAP-LN-EBD | R2 ×40 | 6 | 100 | 6 | □ | 359-9 |
| PHX-PC-DBT | R2 ×1° ×50 | 6 | 100 | 6 | ● | 367 |
| PHX-PC-DBT | R2 ×1° ×60 | 6 | 100 | 6 | ● | 367 |
| PHX-PC-DBT | R2 ×1° ×61.3 | 6 | 100 | 6 | ● | 367 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 超硬エンドミル／ボール
CARBIDE END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PHX-PC-DBT | R2 ×3° ×42.2 | 6 | 100 | 8 | ● | 367 |
| FX-LN-MG-EBD | R2 ×35 | 6 | 110 | 6 | □ | 359-6 |
| MG-LN-EBD | R2 ×35 | 6 | 110 | 6 | □ | 359-8 |
| TIN-MG-LN-EBD | R2 ×35 | 6 | 110 | 6 | □ | 359-7 |
| FX-LN-MG-EBD | R2 ×40 | 6 | 110 | 6 | □ | 359-6 |
| MG-LN-EBD | R2 ×40 | 6 | 110 | 6 | □ | 359-8 |
| PHX-PC-DBT | R2 ×3° ×47.1 ×120 | 6 | 120 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×1.5° ×60 | 6 | 120 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×2° ×61.3 | 6 | 120 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×1° ×70 | 6 | 120 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×1° ×80 | 6 | 120 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×1.5° ×80.4 | 6 | 120 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×3° ×47.1 ×140 | 6 | 140 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×2° ×66.7 ×140 | 6 | 140 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×1.5° ×100 | 6 | 150 | 10 | ● | 367 |
| PHX-PC-DBT | R2 ×3° ×47.1 ×160 | 6 | 160 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×2° ×66.7 ×160 | 6 | 160 | 8 | ● | 367 |
| PHX-PC-DBT | R2 ×3° ×47.1 ×200 | 6 | 200 | 8 | ● | 367 |
| WXL-EBD | R2 ×8 ×4 | 8 | 60 | 4 | ● | 322 |
| FX-MG-EBD | R2 ×4-4 | 8 | 60 | 4 | □ | 340-3 |
| MG-EBD-4 | R2 ×4 | 8 | 70 | 4 | □ | 340-18 |
| CRN-EBD | R2 ×4-4 | 8 | 70 | 4 | □ | 340-21 |
| DIA-EBD | R2 ×4-4 | 8 | 70 | 4 | ● | 333 |
| DLC-EBD | R2 | 8 | 70 | 6 | ● | 332 |
| WXL-EBD | R2 ×8 ×6 | 8 | 70 | 6 | ● | 322 |
| CA-RG-EBD | R2 ×4 | 8 | 70 | 6 | □ | 340-21 |
| FX-MG-EBD | R2 ×4 | 8 | 70 | 6 | □ | 340-3 |
| FX-MG-EBM | R2 ×4 | 8 | 70 | 6 | □ | 340-27 |
| GX-EBD | R2 ×4 | 8 | 70 | 6 | □ | 340-17 |
| TIN-MG-EBD | R2 ×4 | 8 | 70 | 6 | □ | 340-15 |
| FX-PC-MG-EBD | R2 ×70 ×3° ×28 | 8 | 70 | 6 | □ | 369-4 |
| DG-EBD | R2 ×8 ×80 | 8 | 80 | 4 | ● | 333 |
| DG-EBM | R2 ×8 | 8 | 80 | 4 | ● | 338 |
| CRN-EBD | R2 ×4 | 8 | 80 | 6 | □ | 340-21 |
| DIA-EBD | R2 ×4 | 8 | 80 | 6 | ● | 333 |
| FX-PC-MG-EBD | R2 ×90 ×1°30′ ×48 | 8 | 90 | 6 | □ | 369-4 |
| V-LS-MG-EBD | R2 ×4 | 8 | 120 | 6 | □ | 340-14 |
| DIA-PC-EBD | R2 ×30′ ×120 | 8 | 180 | 10 | □ | 369-6 |
| DIA-PC-EBD | R2 ×1° ×120 | 8 | 180 | 10 | □ | 369-6 |
| FX-PCL-EBD | R2 ×4 ×200 | 8 | 200 | 10 | □ | 369-5 |
| FX-EBD-DL-6 | R2 ×4 | 12 | 70 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R2 ×4 | 16 | 70 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R2 ×4 | 20 | 70 | 6 | □ | 340-8 |
| DIA-GF-EBDR | R2 ×4 | 20 | 75 | 4 | □ | 340-25 |
| GF-EBDR | R2 ×4 | 20 | 75 | 4 | □ | 340-24 |
| D-GF-LS-EBDR | R2 ×4 | 20 | 100 | 4 | □ | 340-26 |
| GF-LS-EBDR | R2 ×4 | 20 | 100 | 4 | □ | 340-25 |
| DG-EBD | R2 ×20 ×120 | 20 | 120 | 4 | ● | 333 |
| FX-EBD-DL-6 | R2 ×4 | 24 | 70 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R2 ×4 | 32 | 70 | 6 | □ | 340-8 |
| GF-EBDL | R2 ×4 | 60 | 120 | 6 | □ | 340-24 |
| FX-MG-EBD | R2.05 ×4.1 | 10 | 80 | 6 | □ | 340-3 |
| MG-EBD | R2.05 ×4.1 | 10 | 80 | 6 | □ | 328 |
| TIN-MG-EBD | R2.05 ×4.1 | 10 | 80 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.1 ×4.2 | 10 | 80 | 6 | □ | 340-3 |
| MG-EBD | R2.1 ×4.2 | 10 | 80 | 6 | □ | 328 |
| TIN-MG-EBD | R2.1 ×4.2 | 10 | 80 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.15 ×4.3 | 10 | 80 | 6 | □ | 340-3 |
| MG-EBD | R2.15 ×4.3 | 10 | 80 | 6 | □ | 328 |
| TIN-MG-EBD | R2.15 ×4.3 | 10 | 80 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.2 ×4.4 | 10 | 80 | 6 | □ | 340-3 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EBD | R2.2 ×4.4 | 10 | 80 | 6 | □ | 328 |
| TIN-MG-EBD | R2.2 ×4.4 | 10 | 80 | 6 | □ | 340-15 |
| CRN-HS-EBD | R2.25 ×11.3 | 4.5 | 50 | 6 | □ | 340-22 |
| FX-HS-EBDS | R2.25 ×11.3 | 4.5 | 50 | 6 | □ | 340-10 |
| FX-LN-MG-EBD | R2.25 ×25 | 6 | 100 | 6 | □ | 359-6 |
| MG-LN-EBD | R2.25 ×25 | 6 | 100 | 6 | □ | 359-8 |
| FX-LN-MG-EBD | R2.25 ×35 | 6 | 110 | 6 | □ | 359-6 |
| MG-LN-EBD | R2.25 ×35 | 6 | 110 | 6 | □ | 359-8 |
| TIN-MG-LN-EBD | R2.25 ×35 | 6 | 110 | 6 | □ | 359-7 |
| DIA-LN-EBD | R2.25 ×22.5 | 6.8 | 80 | 6 | □ | 355 |
| DIA-LN-EBD | R2.25 ×45 | 6.8 | 90 | 6 | □ | 355 |
| WXL-EBD | R2.25 ×8 ×6 | 8 | 80 | 6 | ● | 322 |
| CAP-EBD | R2.25 ×4.5 | 10 | 80 | 6 | □ | 331 |
| CRN-EBD | R2.25 ×4.5 | 10 | 80 | 6 | □ | 340-21 |
| DIA-EBD | R2.25 ×4.5 | 10 | 80 | 6 | □ | 333 |
| FX-MG-EBD | R2.25 ×4.5 | 10 | 80 | 6 | □ | 340-3 |
| FXS-EBT | R2.25 ×4.5 | 10 | 80 | 6 | □ | 336 |
| TIN-MG-EBD | R2.25 ×4.5 | 10 | 80 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.3 ×4.6 | 10 | 80 | 6 | □ | 340-3 |
| MG-EBD | R2.3 ×4.6 | 10 | 80 | 6 | □ | 328 |
| TIN-MG-EBD | R2.3 ×4.6 | 10 | 80 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.35 ×4.7 | 10 | 80 | 6 | □ | 340-3 |
| MG-EBD | R2.35 ×4.7 | 10 | 80 | 6 | □ | 328 |
| TIN-MG-EBD | R2.35 ×4.7 | 10 | 80 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.4 ×4.8 | 10 | 80 | 6 | □ | 340-3 |
| MG-EBD | R2.4 ×4.8 | 10 | 80 | 6 | □ | 328 |
| TIN-MG-EBD | R2.4 ×4.8 | 10 | 80 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.45 ×4.9 | 10 | 80 | 6 | □ | 340-3 |
| MG-EBD | R2.45 ×4.9 | 10 | 80 | 6 | □ | 328 |
| TIN-MG-EBD | R2.45 ×4.9 | 10 | 80 | 6 | □ | 340-15 |
| AE-BD-H | R2.5 ×10-S | 4 | 50 | 6 | ● | 324 |
| AE-LNBD-H | R2.5 ×10 ×6 | 4 | 60 | 6 | ● | 353 |
| AE-LNBD-H | R2.5 ×15 ×6 | 4 | 60 | 6 | ● | 353 |
| AE-LNBD-H | R2.5 ×20 ×6 | 4 | 70 | 6 | ● | 353 |
| WX-LN-EBD | R2.5 ×20 | 4 | 70 | 6 | □ | 359-4 |
| AE-LNBD-H | R2.5 ×25 ×6 | 4 | 70 | 6 | ● | 353 |
| WX-LN-EBD | R2.5 ×25 | 4 | 70 | 6 | □ | 359-4 |
| AE-BD-H | R2.5 ×10 | 4 | 80 | 6 | ● | 324 |
| AE-LNBD-H | R2.5 ×30 ×6 | 4 | 80 | 6 | ● | 353 |
| WX-LN-EBD | R2.5 ×30 | 4 | 80 | 6 | □ | 359-4 |
| AE-LNBD-H | R2.5 ×35 ×6 | 4 | 80 | 6 | ● | 353 |
| WX-LN-EBD | R2.5 ×35 | 4 | 80 | 6 | □ | 359-4 |
| AE-LNBD-H | R2.5 ×40 ×6 | 4 | 90 | 6 | ● | 353 |
| AE-LNBD-H | R2.5 ×45 ×6 | 4 | 100 | 6 | ● | 353 |
| AE-LNBD-H | R2.5 ×50 ×6 | 4 | 100 | 6 | ● | 353 |
| DLC-EQD | R2.5 ×15 | 4.4 | 70 | 4 | □ | 359-11 |
| DLC-EQD | R2.5 ×25 | 4.4 | 80 | 4 | □ | 359-11 |
| CRN-HS-EBD | R2.5 ×12.5 | 5 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R2.5 ×7.5 | 5 | 50 | 6 | □ | 340-5 |
| FX-H-EBD | R2.5 ×12.5 | 5 | 50 | 6 | □ | 340-11 |
| FX-HS-EBDS | R2.5 ×12.5 | 5 | 50 | 6 | □ | 340-10 |
| AE-BM-H | R2.5 ×10 | 5 | 60 | 6 | ● | 337 |
| AM-EBT | R2.5 ×5 ×10 | 5 | 60 | 6 | ● | 334 |
| AM-EBT | R2.5 ×5 ×20 | 5 | 60 | 6 | ● | 334 |
| WXL-LN-EBD | R2.5 ×10 | 5 | 65 | 6 | ● | 347 |
| WXL-LN-EBD | R2.5 ×15 | 5 | 70 | 6 | ● | 347 |
| WXL-LN-EBD | R2.5 ×20 | 5 | 70 | 6 | ● | 347 |
| WXL-LN-EBD | R2.5 ×25 | 5 | 70 | 6 | ● | 347 |
| FX-LN-EBD-6 | R2.5 ×25 | 5 | 80 | 6 | □ | 359-5 |
| WXL-LN-EBD | R2.5 ×30 | 5 | 80 | 6 | ● | 347 |
| WXL-LN-EBD | R2.5 ×35 | 5 | 80 | 6 | ● | 347 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EBD | R2.5 ×40 | 5 | 90 | 6 | ● | 347 |
| WXL-LN-EBD | R2.5 ×45 | 5 | 100 | 6 | ● | 347 |
| WXL-LN-EBD | R2.5 ×50 | 5 | 100 | 6 | ● | 347 |
| FX-EBDSS-6 | R2.5 ×5 | 6 | 50 | 6 | □ | 340-6 |
| FX-LN-MG-EBD | R2.5 ×30 | 7 | 110 | 8 | □ | 359-6 |
| MG-LN-EBD | R2.5 ×30 | 7 | 110 | 8 | □ | 359-8 |
| FX-LN-MG-EBD | R2.5 ×40 | 7 | 120 | 8 | □ | 359-6 |
| MG-LN-EBD | R2.5 ×40 | 7 | 120 | 8 | □ | 359-8 |
| TIN-MG-LN-EBD | R2.5 ×40 | 7 | 120 | 8 | □ | 359-7 |
| PHX-DBT | R2.5 ×70 | 7.5 | 70 | 6 | ● | 335 |
| CAP-LN-EBD | R2.5 ×20 | 7.5 | 80 | 6 | □ | 359-9 |
| PHX-PC-DBT | R2.5 ×1° ×30 | 7.5 | 80 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×1° ×40 | 7.5 | 80 | 8 | ● | 367 |
| CRN-LN-EBD | R2.5 ×25 | 7.5 | 90 | 6 | □ | 359-10 |
| DIA-LN-EBD | R2.5 ×25 | 7.5 | 90 | 6 | ● | 355 |
| CAP-LN-EBD | R2.5 ×30 | 7.5 | 90 | 6 | □ | 359-9 |
| CAP-LN-EBD | R2.5 ×40 | 7.5 | 100 | 6 | □ | 359-9 |
| DIA-LN-EBD | R2.5 ×50 | 7.5 | 100 | 6 | ● | 355 |
| PHX-PC-DBT | R2.5 ×1° ×35 | 7.5 | 100 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×1° ×50 | 7.5 | 100 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×1° ×60 | 7.5 | 100 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×2° ×47.5 | 7.5 | 130 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×1.5° ×61.8 | 7.5 | 130 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×1° ×70 | 7.5 | 130 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×1° ×80 | 7.5 | 130 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×1° ×90.4 | 7.5 | 130 | 8 | ● | 367 |
| PHX-PC-DBT | R2.5 ×1.5° ×90 | 7.5 | 130 | 10 | ● | 367 |
| WXL-HS-EBD | R2.5 ×8 | 8 | 40 | 6 | ● | 323 |
| WXL-EBD | R2.5 ×8 | 8 | 80 | 6 | ● | 322 |
| WXL-EBD | R2.5 ×10 | 10 | 80 | 6 | ● | 322 |
| CA-RG-EBD | R2.5 ×5 | 10 | 80 | 6 | □ | 340-21 |
| FX-MG-EBD | R2.5 ×5 | 10 | 80 | 6 | □ | 340-3 |
| FX-MG-EBM | R2.5 ×5 | 10 | 80 | 6 | □ | 340-27 |
| GX-EBD | R2.5 ×5 | 10 | 80 | 6 | □ | 340-17 |
| TIN-MG-EBD | R2.5 ×5 | 10 | 80 | 6 | □ | 340-15 |
| CRN-EBD | R2.5 ×5 | 10 | 90 | 6 | □ | 340-21 |
| DIA-EBD | R2.5 ×5 | 10 | 90 | 6 | ● | 333 |
| FX-PC-MG-EBD | R2.5 ×90 ×3° ×40 | 10 | 90 | 8 | □ | 369-4 |
| FX-PC-MG-EBD | R2.5 ×110 ×1°30′ ×60 | 10 | 110 | 8 | □ | 369-4 |
| V-LS-MG-EBD | R2.5 ×5 | 10 | 150 | 6 | □ | 340-14 |
| WXL-EBD | R2.5 ×12 | 12 | 80 | 6 | ● | 322 |
| FX-EBD-DL-6 | R2.5 ×5 | 15 | 80 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R2.5 ×5 | 20 | 80 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R2.5 ×5 | 25 | 80 | 6 | □ | 340-8 |
| D-GF-LS-EBDR | R2.5 ×5 | 25 | 100 | 4 | □ | 340-26 |
| GF-LS-EBDR | R2.5 ×5 | 25 | 100 | 4 | □ | 340-25 |
| DIA-GF-EBDR | R2.5 ×5 | 25 | 100 | 6 | □ | 340-25 |
| GF-EBDR | R2.5 ×5 | 25 | 100 | 6 | □ | 340-24 |
| DG-EBD | R2.5 ×25 ×120 | 25 | 120 | 5 | ● | 333 |
| D-GF-LS-EBDR | R2.5 ×5 | 25 | 140 | 6 | □ | 340-26 |
| GF-LS-EBDR | R2.5 ×5 | 25 | 140 | 6 | □ | 340-25 |
| FX-EBD-DL-6 | R2.5 ×5 | 30 | 80 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R2.5 ×5 | 40 | 80 | 6 | □ | 340-8 |
| GF-EBDL | R2.5 ×5 | 70 | 140 | 6 | □ | 340-24 |
| FX-MG-EBD | R2.55 ×5.1 | 12 | 90 | 6 | □ | 340-3 |
| MG-EBD | R2.55 ×5.1 | 12 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R2.55 ×5.1 | 12 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.6 ×5.2 | 12 | 90 | 6 | □ | 340-3 |
| MG-EBD | R2.6 ×5.2 | 12 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R2.6 ×5.2 | 12 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.65 ×5.3 | 12 | 90 | 6 | □ | 340-3 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-EBD | R2.65 ×5.3 | 12 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R2.65 ×5.3 | 12 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.7 ×5.4 | 12 | 90 | 6 | □ | 340-3 |
| MG-EBD | R2.7 ×5.4 | 12 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R2.7 ×5.4 | 12 | 90 | 6 | □ | 340-15 |
| FX-LN-MG-EBD | R2.75 ×30 | 7 | 110 | 8 | □ | 359-6 |
| MG-LN-EBD | R2.75 ×30 | 7 | 110 | 8 | □ | 359-8 |
| FX-LN-MG-EBD | R2.75 ×40 | 7 | 120 | 8 | □ | 359-6 |
| MG-LN-EBD | R2.75 ×40 | 7 | 120 | 8 | □ | 359-8 |
| TIN-MG-LN-EBD | R2.75 ×40 | 7 | 120 | 8 | □ | 359-7 |
| WXL-EBD | R2.75 ×10 | 10 | 80 | 6 | ● | 322 |
| CAP-EBD | R2.75 ×5.5 | 12 | 90 | 6 | □ | 331 |
| CRN-EBD | R2.75 ×5.5 | 12 | 90 | 6 | □ | 340-21 |
| DIA-EBD | R2.75 ×5.5 | 12 | 90 | 6 | □ | 333 |
| FX-MG-EBD | R2.75 ×5.5 | 12 | 90 | 6 | □ | 340-3 |
| FXS-EBT | R2.75 ×5.5 | 12 | 90 | 6 | □ | 336 |
| TIN-MG-EBD | R2.75 ×5.5 | 12 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.8 ×5.6 | 12 | 90 | 6 | □ | 340-3 |
| MG-EBD | R2.8 ×5.6 | 12 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R2.8 ×5.6 | 12 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.85 ×5.7 | 12 | 90 | 6 | □ | 340-3 |
| MG-EBD | R2.85 ×5.7 | 12 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R2.85 ×5.7 | 12 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.9 ×5.8 | 12 | 90 | 6 | □ | 340-3 |
| MG-EBD | R2.9 ×5.8 | 12 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R2.9 ×5.8 | 12 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R2.95 ×5.9 | 12 | 90 | 6 | □ | 340-3 |
| MG-EBD | R2.95 ×5.9 | 12 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R2.95 ×5.9 | 12 | 90 | 6 | □ | 340-15 |
| FXS-EQD | R3 | 4 | 90 | 6 | ● | 364 |
| CBN-EBD | R3 ×6 | 4 | 90 | 6 | ● | 331 |
| PHX-LN-DBT | R3 ×20 | 4.5 | 70 | 6 | ● | 354 |
| PHX-LN-DBT | R3 ×30 | 4.5 | 70 | 6 | ● | 354 |
| AE-LNBD-H | R3 ×10 ×6 | 4.8 | 60 | 6 | ● | 353 |
| AE-LNBD-H | R3 ×12 ×6 | 4.8 | 60 | 6 | ● | 353 |
| AE-LNBD-H | R3 ×15 ×6 | 4.8 | 65 | 6 | ● | 353 |
| AE-LNBD-N | R3 ×10 ×6 | 4.8 | 70 | 6 | ● | 358 |
| AE-LNBD-N | R3 ×15 ×6 | 4.8 | 70 | 6 | ● | 358 |
| AE-LNBD-H | R3 ×20 ×6 | 4.8 | 70 | 6 | ● | 353 |
| AE-LNBD-N | R3 ×20 ×6 | 4.8 | 70 | 6 | ● | 358 |
| AE-LNBD-H | R3 ×25 ×6 | 4.8 | 70 | 6 | ● | 353 |
| AE-LNBD-H | R3 ×30 ×6 | 4.8 | 80 | 6 | ● | 353 |
| WX-LN-EBD | R3 ×30 | 4.8 | 80 | 6 | □ | 359-4 |
| AE-LNBD-H | R3 ×35 ×6 | 4.8 | 80 | 6 | ● | 353 |
| AE-LNBD-N | R3 ×30 ×6 | 4.8 | 90 | 6 | ● | 358 |
| AE-LNBD-H | R3 ×40 ×6 | 4.8 | 90 | 6 | ● | 353 |
| AE-LNBD-N | R3 ×50 ×6 | 4.8 | 90 | 6 | ● | 358 |
| AE-LNBD-H | R3 ×45 ×6 | 4.8 | 100 | 6 | ● | 353 |
| AE-LNBD-H | R3 ×50 ×6 | 4.8 | 120 | 6 | ● | 353 |
| WX-LN-EBD | R3 ×50 | 4.8 | 120 | 6 | □ | 359-4 |
| AE-LNBD-H | R3 ×60 ×6 | 4.8 | 120 | 6 | ● | 353 |
| DLC-EQD | R3 ×18 | 5.3 | 70 | 6 | □ | 359-11 |
| DLC-EQD | R3 ×30 | 5.3 | 80 | 6 | □ | 359-11 |
| CRN-HS-EBD | R3 ×15 | 6 | 50 | 6 | □ | 340-22 |
| FX-EBD-6 | R3 ×9 | 6 | 50 | 6 | □ | 340-5 |
| FX-H-EBD | R3 ×15 | 6 | 50 | 6 | □ | 340-11 |
| FX-HS-EBDS | R3 ×15 | 6 | 50 | 6 | □ | 340-10 |
| WXL-LN-EBD | R3 ×10 | 6 | 60 | 6 | ● | 347 |
| DIA-EBM | R3 ×18 | 6 | 60 | 6 | □ | 340-27 |
| WXL-LN-EBD | R3 ×20 | 6 | 70 | 6 | ● | 347 |
| WXL-LN-EBD | R3 ×25 | 6 | 70 | 6 | ● | 347 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-LN-EBD | R3 ×30 | 6 | 80 | 6 | ● | 347 |
| WXL-LN-EBD | R3 ×35 | 6 | 80 | 6 | ● | 347 |
| FXS-HO-EBDS | R3 ×6 | 6 | 90 | 6 | □ | 340-13 |
| SXLE-EBD | R3 ×12 | 6 | 90 | 6 | □ | 340-2 |
| SXLE-EBD | R3 ×12 | 6 | 90 | 6 | □ | 340-2 |
| FX-LN-EBD-6 | R3 ×30 | 6 | 90 | 6 | □ | 359-5 |
| WXL-LN-EBD | R3 ×40 | 6 | 90 | 6 | ● | 347 |
| WXL-LN-EBD | R3 ×45 | 6 | 100 | 6 | ● | 347 |
| WXL-PC-EBD | R3 ×1° ×30 | 6 | 100 | 8 | ● | 363 |
| WXL-PC-EBD | R3 ×2° ×36 | 6 | 100 | 8 | ● | 363 |
| WXL-PC-EBD | R3 ×1° ×40 | 6 | 100 | 8 | ● | 363 |
| WXL-PC-EBD | R3 ×1.5° ×49 | 6 | 100 | 8 | ● | 363 |
| WXL-PC-EBD | R3 ×1° ×50 | 6 | 100 | 8 | ● | 363 |
| WXL-PC-EBD | R3 ×1° ×60 | 6 | 110 | 10 | ● | 363 |
| WXL-LN-EBD | R3 ×50 | 6 | 120 | 6 | ● | 347 |
| WXL-PC-EBD | R3 ×1° ×70 | 6 | 120 | 10 | ● | 363 |
| WXL-PC-EBD | R3 ×1° ×80 | 6 | 130 | 12 | ● | 363 |
| FX-EBDSS-6 | R3 ×6 | 7.2 | 50 | 6 | □ | 340-6 |
| FX-LN-MG-EBD | R3 ×30 | 8 | 110 | 8 | □ | 359-6 |
| MG-LN-EBD | R3 ×30 | 8 | 110 | 8 | □ | 359-8 |
| FX-LN-MG-EBD | R3 ×45 | 8 | 120 | 8 | □ | 359-6 |
| MG-LN-EBD | R3 ×45 | 8 | 120 | 8 | □ | 359-8 |
| TIN-MG-LN-EBD | R3 ×45 | 8 | 120 | 8 | □ | 359-7 |
| AE-BD-H | R3 ×18-S | 9 | 55 | 6 | ● | 324 |
| AE-BM-H | R3 | 9 | 60 | 6 | ● | 337 |
| AM-EBT | R3 ×6 | 9 | 60 | 6 | ● | 334 |
| PHX-DBT | R3 ×80 | 9 | 80 | 6 | ● | 335 |
| CAP-LN-EBD | R3 ×20 | 9 | 80 | 8 | □ | 359-9 |
| AE-BD-H | R3 ×18 | 9 | 90 | 6 | ● | 324 |
| CAP-LN-EBD | R3 ×30 | 9 | 90 | 8 | □ | 359-9 |
| PHX-PC-DBT | R3 ×2° ×33.6 | 9 | 100 | 8 | ● | 368 |
| CAP-LN-EBD | R3 ×40 | 9 | 100 | 8 | □ | 359-9 |
| PHX-PC-DBT | R3 ×1° ×40 | 9 | 100 | 8 | ● | 367 |
| PHX-PC-DBT | R3 ×1.5° ×43.2 | 9 | 100 | 8 | ● | 368 |
| PHX-PC-DBT | R3 ×1° ×50 | 9 | 100 | 8 | ● | 367 |
| PHX-PC-DBT | R3 ×1° ×60 | 9 | 100 | 10 | ● | 367 |
| PHX-DBT | R3 ×110 | 9 | 110 | 6 | ● | 335 |
| PHX-PC-DBT | R3 ×1° ×62.3 | 9 | 130 | 8 | ● | 367 |
| PHX-PC-DBT | R3 ×3° ×50.1 ×130 | 9 | 130 | 10 | ● | 368 |
| PHX-PC-DBT | R3 ×2° ×62.3 | 9 | 130 | 10 | ● | 368 |
| PHX-PC-DBT | R3 ×2° ×69.7 ×130 | 9 | 130 | 10 | ● | 368 |
| PHX-PC-DBT | R3 ×1.5° ×81.4 | 9 | 130 | 10 | ● | 368 |
| PHX-PC-DBT | R3 ×1° ×90 | 9 | 130 | 10 | ● | 367 |
| PHX-PC-DBT | R3 ×3° ×50.1 ×160 | 9 | 160 | 10 | ● | 368 |
| PHX-PC-DBT | R3 ×2° ×69.7 ×160 | 9 | 160 | 10 | ● | 368 |
| PHX-PC-DBT | R3 ×3° ×50.1 ×200 | 9 | 200 | 10 | ● | 368 |
| WXL-HS-EBD | R3 ×10 | 10 | 45 | 6 | ● | 323 |
| WXL-EBD | R3 ×10 | 10 | 90 | 6 | ● | 322 |
| DG-EBD | R3 ×12 ×80 | 12 | 80 | 6 | ● | 333 |
| DG-EBM | R3 ×12 | 12 | 80 | 6 | ● | 338 |
| DLC-EBD | R3 | 12 | 90 | 6 | ● | 332 |
| WXL-EBD | R3 ×12 | 12 | 90 | 6 | ● | 322 |
| CA-RG-EBD | R3 ×6 | 12 | 90 | 6 | □ | 340-21 |
| CRN-EBD | R3 ×6 | 12 | 90 | 6 | □ | 340-21 |
| DIA-EBD | R3 ×6 | 12 | 90 | 6 | ● | 333 |
| FX-HO-MG-EBD | R3 ×6 | 12 | 90 | 6 | □ | 340-11 |
| FX-MG-EBD | R3 ×6 | 12 | 90 | 6 | □ | 340-3 |
| FX-MG-EBM | R3 ×6 | 12 | 90 | 6 | □ | 340-27 |
| FX-MR-EBD | R3 ×6 | 12 | 90 | 6 | □ | 340-13 |
| GX-EBD | R3 ×6 | 12 | 90 | 6 | □ | 340-17 |
| TIN-MG-EBD | R3 ×6 | 12 | 90 | 6 | □ | 340-15 |

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-PC-MG-EBD | R3 ×90 ×3° ×33.5 | 12 | 90 | 8 | □ | 369-4 |
| FX-PC-MG-EBD | R3 ×110 ×1°30′ ×52 | 12 | 110 | 8 | □ | 369-4 |
| CRN-LS-EBD | R3 ×6 | 12 | 140 | 6 | □ | 340-23 |
| V-LS-MG-EBD | R3 ×6 | 12 | 150 | 6 | □ | 340-14 |
| FX-PCL-EBD | R3 ×6 ×200 | 12 | 200 | 12 | □ | 369-5 |
| DIA-PC-EBD | R3 ×30′ ×150 | 12 | 220 | 12 | □ | 369-6 |
| DIA-PC-EBD | R3 ×1° ×150 | 12 | 220 | 12 | □ | 369-6 |
| WXL-REBM | R3 ×6 | 13 | 50 | 6 | □ | 438-3 |
| FX-EBD-DL-6 | R3 ×6 | 18 | 90 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R3 ×6 | 24 | 90 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R3 ×6 | 30 | 90 | 6 | □ | 340-8 |
| D-GF-LS-EBDR | R3 ×6 | 30 | 100 | 4 | □ | 340-26 |
| GF-LS-EBDR | R3 ×6 | 30 | 100 | 4 | □ | 340-25 |
| DIA-GF-EBDR | R3 ×6 | 30 | 100 | 6 | □ | 340-25 |
| GF-EBDR | R3 ×6 | 30 | 100 | 6 | □ | 340-24 |
| DG-EBD | R3 ×30 ×120 | 30 | 120 | 6 | ● | 333 |
| D-GF-LS-EBDR | R3 ×6 | 30 | 140 | 6 | □ | 340-26 |
| GF-LS-EBDR | R3 ×6 | 30 | 140 | 6 | □ | 340-25 |
| DG-EBD | R3 ×30 ×150 | 30 | 150 | 6 | ● | 333 |
| FX-LS-MG-EBDL | R3 ×6 | 30 | 150 | 6 | □ | 340-12 |
| FX-EBD-DL-6 | R3 ×6 | 36 | 90 | 6 | □ | 340-8 |
| FX-EBD-DL-6 | R3 ×6 | 48 | 90 | 6 | □ | 340-8 |
| GF-EBDL | R3 ×6 | 80 | 140 | 6 | □ | 340-24 |
| FX-MG-EBD | R3.05 ×6.1 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.05 ×6.1 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.05 ×6.1 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.1 ×6.2 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.1 ×6.2 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.1 ×6.2 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.15 ×6.3 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.15 ×6.3 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.15 ×6.3 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.2 ×6.4 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.2 ×6.4 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.2 ×6.4 | 14 | 90 | 6 | □ | 340-15 |
| WXL-EBD | R3.25 ×13 | 13 | 90 | 6 | ● | 322 |
| FX-MG-EBD | R3.25 ×6.5 | 14 | 90 | 6 | □ | 340-3 |
| FXS-EBT | R3.25 ×6.5 | 14 | 90 | 6 | □ | 336 |
| TIN-MG-EBD | R3.25 ×6.5 | 14 | 90 | 6 | □ | 340-15 |
| CAP-EBD | R3.25 ×6.5 | 14 | 100 | 6 | □ | 331 |
| CRN-EBD | R3.25 ×6.5 | 14 | 100 | 6 | □ | 340-21 |
| DIA-EBD | R3.25 ×6.5 | 14 | 100 | 6 | □ | 333 |
| FX-MG-EBD | R3.3 ×6.6 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.3 ×6.6 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.3 ×6.6 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.35 ×6.7 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.35 ×6.7 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.35 ×6.7 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.4 ×6.8 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.4 ×6.8 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.4 ×6.8 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.45 ×6.9 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.45 ×6.9 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.45 ×6.9 | 14 | 90 | 6 | □ | 340-15 |
| CRN-HS-EBD | R3.5 ×17.5 | 7 | 60 | 8 | □ | 340-22 |
| FX-HS-EBDS | R3.5 ×17.5 | 7 | 60 | 8 | □ | 340-10 |
| FX-LN-MG-EBD | R3.5 ×30 | 10 | 110 | 10 | □ | 359-6 |
| MG-LN-EBD | R3.5 ×30 | 10 | 110 | 10 | □ | 359-8 |
| FX-LN-MG-EBD | R3.5 ×45 | 10 | 120 | 10 | □ | 359-6 |
| MG-LN-EBD | R3.5 ×45 | 10 | 120 | 10 | □ | 359-8 |
| TIN-MG-LN-EBD | R3.5 ×45 | 10 | 120 | 10 | □ | 359-7 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WXL-EBD | R3.5 ×14 | 14 | 90 | 6 | ● | 322 |
| CA-RG-EBD | R3.5 ×7 | 14 | 90 | 6 | □ | 340-21 |
| FX-MG-EBD | R3.5 ×7 | 14 | 90 | 6 | □ | 340-3 |
| FX-MR-EBD | R3.5 ×7 | 14 | 90 | 6 | □ | 340-13 |
| FXS-EBT | R3.5 ×7 | 14 | 90 | 6 | □ | 336 |
| TIN-MG-EBD | R3.5 ×7 | 14 | 90 | 6 | □ | 340-15 |
| CAP-EBD | R3.5 ×7 | 14 | 100 | 6 | □ | 331 |
| CRN-EBD | R3.5 ×7 | 14 | 100 | 6 | □ | 340-21 |
| DIA-EBD | R3.5 ×7 | 14 | 100 | 6 | □ | 333 |
| V-LS-MG-EBD | R3.5 ×7 | 14 | 150 | 6 | □ | 340-14 |
| DIA-GF-EBDR | R3.5 ×7 | 35 | 110 | 6 | □ | 340-25 |
| GF-EBDR | R3.5 ×7 | 35 | 110 | 6 | □ | 340-24 |
| D-GF-LS-EBDR | R3.5 ×7 | 35 | 160 | 6 | □ | 340-26 |
| GF-LS-EBDR | R3.5 ×7 | 35 | 160 | 6 | □ | 340-25 |
| GF-EBDL | R3.5 ×7 | 90 | 160 | 6 | □ | 340-24 |
| FX-MG-EBD | R3.55 ×7.1 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.55 ×7.1 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.55 ×7.1 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.6 ×7.2 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.6 ×7.2 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.6 ×7.2 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.65 ×7.3 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.65 ×7.3 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.65 ×7.3 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.7 ×7.4 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.7 ×7.4 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.7 ×7.4 | 14 | 90 | 6 | □ | 340-15 |
| WXL-EBD | R3.75 ×14 | 14 | 90 | 6 | ● | 322 |
| FX-MG-EBD | R3.75 ×7.5 | 14 | 90 | 6 | □ | 340-3 |
| FXS-EBT | R3.75 ×7.5 | 14 | 90 | 6 | □ | 336 |
| TIN-MG-EBD | R3.75 ×7.5 | 14 | 90 | 6 | □ | 340-15 |
| CAP-EBD | R3.75 ×7.5 | 14 | 100 | 6 | □ | 331 |
| CRN-EBD | R3.75 ×7.5 | 14 | 100 | 6 | □ | 340-21 |
| DIA-EBD | R3.75 ×7.5 | 14 | 100 | 6 | □ | 333 |
| FX-MG-EBD | R3.8 ×7.6 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.8 ×7.6 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.8 ×7.6 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.85 ×7.7 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.85 ×7.7 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.85 ×7.7 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.9 ×7.8 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.9 ×7.8 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.9 ×7.8 | 14 | 90 | 6 | □ | 340-15 |
| FX-MG-EBD | R3.95 ×7.9 | 14 | 90 | 6 | □ | 340-3 |
| MG-EBD | R3.95 ×7.9 | 14 | 90 | 6 | □ | 328 |
| TIN-MG-EBD | R3.95 ×7.9 | 14 | 90 | 6 | □ | 340-15 |
| CBN-EBD | R4 ×8 | 5 | 100 | 8 | ● | 331 |
| FXS-EQD | R4 | 5.4 | 100 | 8 | ● | 364 |
| DLC-EQD | R4 ×24 | 7.1 | 90 | 8 | □ | 359-11 |
| DLC-EQD | R4 ×40 | 7.1 | 110 | 8 | □ | 359-11 |
| CRN-HS-EBD | R4 ×20 | 8 | 60 | 8 | □ | 340-22 |
| FX-H-EBD | R4 ×20 | 8 | 60 | 8 | □ | 340-11 |
| FX-HS-EBDS | R4 ×20 | 8 | 60 | 8 | □ | 340-10 |
| DIA-EBM | R4 ×24 | 8 | 70 | 8 | □ | 340-27 |
| FXS-HO-EBDS | R4 ×8 | 8 | 100 | 8 | □ | 340-13 |
| SXLE-EBD | R4 ×16 | 8 | 100 | 8 | □ | 340-2 |
| SXLE-EBD | R4 ×16 | 8 | 100 | 8 | □ | 340-2 |
| WXL-PC-EBD | R4 ×3° ×35.5 | 8 | 100 | 10 | ● | 363 |
| WXL-PC-EBD | R4 ×1.5° ×54.5 | 8 | 120 | 10 | ● | 363 |
| WXL-HS-EBD | R4 ×12 | 12 | 55 | 8 | ● | 323 |
| AE-BM-H | R4 | 12 | 70 | 8 | ● | 337 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AM-EBT | R4 ×8 | 12 | 70 | 8 | ● | 334 |
| AE-BD-H | R4 ×24-S | 12 | 75 | 8 | ● | 324 |
| PHX-DBT | R4 ×90 | 12 | 90 | 8 | ● | 335 |
| CAP-LN-EBD | R4 ×20 | 12 | 90 | 10 | □ | 359-9 |
| WXL-EBD | R4 ×12 | 12 | 100 | 8 | ● | 322 |
| AE-BD-H | R4 ×24 | 12 | 100 | 8 | ● | 324 |
| CAP-LN-EBD | R4 ×40 | 12 | 100 | 10 | □ | 359-9 |
| PHX-PC-DBT | R4 ×1° ×40 | 12 | 100 | 10 | ● | 368 |
| FX-LN-MG-EBD | R4 ×30 | 12 | 110 | 10 | □ | 359-6 |
| MG-LN-EBD | R4 ×30 | 12 | 110 | 10 | □ | 359-8 |
| PHX-DBT | R4 ×120 | 12 | 120 | 8 | ● | 335 |
| FX-LN-MG-EBD | R4 ×40 | 12 | 120 | 10 | □ | 359-6 |
| MG-LN-EBD | R4 ×40 | 12 | 120 | 10 | □ | 359-8 |
| PHX-PC-DBT | R4 ×1.5° ×44.2 | 12 | 120 | 10 | ● | 368 |
| PHX-PC-DBT | R4 ×1° ×50 | 12 | 120 | 10 | ● | 368 |
| CAP-LN-EBD | R4 ×60 | 12 | 120 | 10 | □ | 359-9 |
| PHX-PC-DBT | R4 ×1° ×63.3 | 12 | 120 | 10 | ● | 368 |
| PHX-PC-DBT | R4 ×1° ×70 | 12 | 120 | 10 | ● | 368 |
| PHX-PC-DBT | R4 ×1.5° ×60 | 12 | 120 | 12 | ● | 368 |
| PHX-PC-DBT | R4 ×2° ×63.3 | 12 | 120 | 12 | ● | 368 |
| PHX-PC-DBT | R4 ×1° ×80 | 12 | 120 | 12 | ● | 368 |
| FX-LN-MG-EBD | R4 ×55 | 12 | 140 | 10 | □ | 359-6 |
| MG-LN-EBD | R4 ×55 | 12 | 140 | 10 | □ | 359-8 |
| TIN-MG-LN-EBD | R4 ×55 | 12 | 140 | 10 | □ | 359-7 |
| PHX-PC-DBT | R4 ×2° ×72.7 ×150 | 12 | 150 | 12 | ● | 368 |
| PHX-PC-DBT | R4 ×1.5° ×82.4 | 12 | 150 | 12 | ● | 368 |
| PHX-PC-DBT | R4 ×1° ×90 | 12 | 150 | 12 | ● | 368 |
| PHX-PC-DBT | R4 ×1.5° ×92.3 | 12 | 150 | 12 | ● | 368 |
| PHX-PC-DBT | R4 ×1° ×100 | 12 | 150 | 12 | ● | 368 |
| PHX-PC-DBT | R4 ×2° ×72.7 ×160 | 12 | 160 | 12 | ● | 368 |
| PHX-PC-DBT | R4 ×1° ×120.6 | 12 | 180 | 12 | ● | 368 |
| DLC-EBD | R4 | 14 | 100 | 8 | ● | 332 |
| WXL-EBD | R4 ×14 | 14 | 100 | 8 | ● | 322 |
| CA-RG-EBD | R4 ×8 | 14 | 100 | 8 | □ | 340-21 |
| FX-HO-MG-EBD | R4 ×8 | 14 | 100 | 8 | □ | 340-11 |
| FX-MG-EBD | R4 ×8 | 14 | 100 | 8 | □ | 340-4 |
| FX-MG-EBM | R4 ×8 | 14 | 100 | 8 | □ | 340-27 |
| FX-MR-EBD | R4 ×8 | 14 | 100 | 8 | □ | 340-13 |
| GX-EBD | R4 ×8 | 14 | 100 | 8 | □ | 340-17 |
| TIN-MG-EBD | R4 ×8 | 14 | 100 | 8 | □ | 340-15 |
| FX-PC-MG-EBD | R4 ×100 ×3° ×35.5 | 14 | 100 | 10 | □ | 369-4 |
| CRN-EBD | R4 ×8 | 14 | 110 | 8 | □ | 340-21 |
| DIA-EBD | R4 ×8 | 14 | 110 | 8 | ● | 333 |
| FX-PC-MG-EBD | R4 ×120 ×1°30′ ×54.5 | 14 | 120 | 10 | □ | 369-4 |
| CRN-LS-EBD | R4 ×8 | 14 | 160 | 8 | □ | 340-23 |
| V-LS-MG-EBD | R4 ×8 | 14 | 180 | 8 | □ | 340-14 |
| FX-PCL-EBD | R4 ×8 ×200 | 14 | 200 | 12 | □ | 369-5 |
| DG-EBD | R4 ×16 ×100 | 16 | 100 | 8 | ● | 333 |
| DG-EBM | R4 ×16 | 16 | 100 | 8 | ● | 338 |
| WXL-REBM | R4 ×8 | 19 | 60 | 8 | □ | 438-3 |
| FX-LS-MG-EBDL | R4 ×8 | 35 | 150 | 8 | □ | 340-12 |
| DIA-GF-EBDR | R4 ×8 | 40 | 110 | 8 | □ | 340-25 |
| GF-EBDR | R4 ×8 | 40 | 110 | 8 | □ | 340-24 |
| D-GF-LS-EBDR | R4 ×8 | 40 | 160 | 6 | □ | 340-26 |
| GF-LS-EBDR | R4 ×8 | 40 | 160 | 6 | □ | 340-25 |
| D-GF-LS-EBDR | R4 ×8 | 40 | 160 | 8 | □ | 340-26 |
| GF-LS-EBDR | R4 ×8 | 40 | 160 | 8 | □ | 340-25 |
| DG-EBD | R4 ×40 ×170 | 40 | 170 | 8 | ● | 333 |
| GF-EBDL | R4 ×8 | 100 | 160 | 8 | □ | 340-24 |
| FX-MG-EBD | R4.05 ×8.1 | 18 | 100 | 8 | □ | 340-4 |
| TIN-MG-EBD | R4.05 ×8.1 | 18 | 100 | 8 | □ | 340-15 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EBD | R4.1 ×8.2 | 18 | 100 | 8 | □ | 340-4 |
| MG-EBD | R4.1 ×8.2 | 18 | 100 | 8 | □ | 329 |
| TIN-MG-EBD | R4.1 ×8.2 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.15 ×8.3 | 18 | 100 | 8 | □ | 340-4 |
| TIN-MG-EBD | R4.15 ×8.3 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.2 ×8.4 | 18 | 100 | 8 | □ | 340-4 |
| MG-EBD | R4.2 ×8.4 | 18 | 100 | 8 | □ | 329 |
| TIN-MG-EBD | R4.2 ×8.4 | 18 | 100 | 8 | □ | 340-15 |
| WXL-EBD | R4.25 ×16 | 16 | 100 | 8 | ● | 322 |
| FX-MG-EBD | R4.25 ×8.5 | 18 | 100 | 8 | □ | 340-4 |
| FXS-EBT | R4.25 ×8.5 | 18 | 100 | 8 | □ | 336 |
| TIN-MG-EBD | R4.25 ×8.5 | 18 | 100 | 8 | □ | 340-15 |
| CAP-EBD | R4.25 ×8.5 | 18 | 110 | 8 | □ | 331 |
| CRN-EBD | R4.25 ×8.5 | 18 | 110 | 8 | □ | 340-21 |
| DIA-EBD | R4.25 ×8.5 | 18 | 110 | 8 | □ | 333 |
| FX-MG-EBD | R4.3 ×8.6 | 18 | 100 | 8 | □ | 340-4 |
| MG-EBD | R4.3 ×8.6 | 18 | 100 | 8 | □ | 329 |
| TIN-MG-EBD | R4.3 ×8.6 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.35 ×8.7 | 18 | 100 | 8 | □ | 340-4 |
| TIN-MG-EBD | R4.35 ×8.7 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.4 ×8.8 | 18 | 100 | 8 | □ | 340-4 |
| MG-EBD | R4.4 ×8.8 | 18 | 100 | 8 | □ | 329 |
| TIN-MG-EBD | R4.4 ×8.8 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.45 ×8.9 | 18 | 100 | 8 | □ | 340-4 |
| TIN-MG-EBD | R4.45 ×8.9 | 18 | 100 | 8 | □ | 340-15 |
| CRN-HS-EBD | R4.5 ×22.5 | 9 | 70 | 10 | □ | 340-22 |
| FX-HS-EBDS | R4.5 ×22.5 | 9 | 70 | 10 | □ | 340-10 |
| FX-LN-MG-EBD | R4.5 ×30 | 15 | 110 | 12 | □ | 359-6 |
| MG-LN-EBD | R4.5 ×30 | 15 | 110 | 12 | □ | 359-8 |
| FX-LN-MG-EBD | R4.5 ×55 | 15 | 140 | 12 | □ | 359-6 |
| MG-LN-EBD | R4.5 ×55 | 15 | 140 | 12 | □ | 359-8 |
| TIN-MG-LN-EBD | R4.5 ×55 | 15 | 140 | 12 | □ | 359-7 |
| WXL-EBD | R4.5 ×18 | 18 | 100 | 8 | ● | 322 |
| CA-RG-EBD | R4.5 ×9 | 18 | 100 | 8 | □ | 340-21 |
| FX-MG-EBD | R4.5 ×9 | 18 | 100 | 8 | □ | 340-4 |
| FX-MR-EBD | R4.5 ×9 | 18 | 100 | 8 | □ | 340-13 |
| FXS-EBT | R4.5 ×9 | 18 | 100 | 8 | □ | 336 |
| TIN-MG-EBD | R4.5 ×9 | 18 | 100 | 8 | □ | 340-15 |
| CAP-EBD | R4.5 ×9 | 18 | 110 | 8 | □ | 331 |
| CRN-EBD | R4.5 ×9 | 18 | 110 | 8 | □ | 340-21 |
| DIA-EBD | R4.5 ×9 | 18 | 110 | 8 | □ | 333 |
| V-LS-MG-EBD | R4.5 ×9 | 18 | 180 | 8 | □ | 340-14 |
| DIA-GF-EBDR | R4.5 ×9 | 45 | 120 | 8 | □ | 340-25 |
| GF-EBDR | R4.5 ×9 | 45 | 120 | 8 | □ | 340-24 |
| D-GF-LS-EBDR | R4.5 ×9 | 45 | 180 | 8 | □ | 340-26 |
| GF-LS-EBDR | R4.5 ×9 | 45 | 180 | 8 | □ | 340-25 |
| GF-EBDL | R4.5 ×9 | 110 | 180 | 8 | □ | 340-24 |
| FX-MG-EBD | R4.55 ×9.1 | 18 | 100 | 8 | □ | 340-4 |
| TIN-MG-EBD | R4.55 ×9.1 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.6 ×9.2 | 18 | 100 | 8 | □ | 340-4 |
| MG-EBD | R4.6 ×9.2 | 18 | 100 | 8 | □ | 329 |
| TIN-MG-EBD | R4.6 ×9.2 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.65 ×9.3 | 18 | 100 | 8 | □ | 340-4 |
| TIN-MG-EBD | R4.65 ×9.3 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.7 ×9.4 | 18 | 100 | 8 | □ | 340-4 |
| MG-EBD | R4.7 ×9.4 | 18 | 100 | 8 | □ | 329 |
| TIN-MG-EBD | R4.7 ×9.4 | 18 | 100 | 8 | □ | 340-15 |
| WXL-EBD | R4.75 ×18 | 18 | 100 | 8 | ● | 322 |
| FX-MG-EBD | R4.75 ×9.5 | 18 | 100 | 8 | □ | 340-4 |
| FXS-EBT | R4.75 ×9.5 | 18 | 100 | 8 | □ | 336 |
| TIN-MG-EBD | R4.75 ×9.5 | 18 | 100 | 8 | □ | 340-15 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CAP-EBD | R4.75 ×9.5 | 18 | 110 | 8 | □ | 331 |
| CRN-EBD | R4.75 ×9.5 | 18 | 110 | 8 | □ | 340-21 |
| DIA-EBD | R4.75 ×9.5 | 18 | 110 | 8 | □ | 333 |
| FX-MG-EBD | R4.8 ×9.6 | 18 | 100 | 8 | □ | 340-4 |
| MG-EBD | R4.8 ×9.6 | 18 | 100 | 8 | □ | 329 |
| TIN-MG-EBD | R4.8 ×9.6 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.85 ×9.7 | 18 | 100 | 8 | □ | 340-4 |
| TIN-MG-EBD | R4.85 ×9.7 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.9 ×9.8 | 18 | 100 | 8 | □ | 340-4 |
| MG-EBD | R4.9 ×9.8 | 18 | 100 | 8 | □ | 329 |
| TIN-MG-EBD | R4.9 ×9.8 | 18 | 100 | 8 | □ | 340-15 |
| FX-MG-EBD | R4.95 ×9.9 | 18 | 100 | 8 | □ | 340-4 |
| TIN-MG-EBD | R4.95 ×9.9 | 18 | 100 | 8 | □ | 340-15 |
| CBN-EBD | R5 ×10 | 6 | 100 | 10 | ● | 331 |
| FXS-EQD | R5 | 6.7 | 110 | 10 | ● | 364 |
| DLC-EQD | R5 ×30 | 8.8 | 100 | 10 | □ | 359-11 |
| DLC-EQD | R5 ×50 | 8.8 | 120 | 10 | □ | 359-11 |
| DIA-EBD-SF | R5 ×10 | 10 | 32 | 6 | ● | 340 |
| DLC-EBD-SF | R5 ×10 | 10 | 32 | 6 | □ | 340-1 |
| CRN-HS-EBD | R5 ×25 | 10 | 70 | 10 | □ | 340-22 |
| FX-H-EBD | R5 ×25 | 10 | 70 | 10 | □ | 340-11 |
| FX-HS-EBDS | R5 ×25 | 10 | 70 | 10 | □ | 340-10 |
| DIA-EBM | R5 ×30 | 10 | 80 | 10 | □ | 340-27 |
| FXS-HO-EBDS | R5 ×10 | 10 | 100 | 10 | □ | 340-13 |
| SXLE-EBD | R5 ×20 | 10 | 100 | 10 | □ | 340-2 |
| SXLE-EBD | R5 ×20 | 10 | 100 | 10 | □ | 340-2 |
| WXL-PC-EBD | R5 ×3° ×39.5 | 10 | 110 | 12 | ● | 363 |
| WXL-PC-EBD | R5 ×1.5° ×58.5 | 10 | 130 | 12 | ● | 363 |
| WXL-HS-EBD | R5 ×15 | 15 | 65 | 10 | ● | 323 |
| AE-BD-H | R5 ×30-S | 15 | 75 | 10 | ● | 324 |
| AE-BM-H | R5 | 15 | 80 | 10 | ● | 337 |
| AM-EBT | R5 ×10 | 15 | 80 | 10 | ● | 334 |
| PHX-DBT | R5 ×100 | 15 | 100 | 10 | ● | 335 |
| WXL-EBD | R5 ×15 | 15 | 100 | 10 | ● | 322 |
| AE-BD-H | R5 ×30 | 15 | 100 | 10 | ● | 324 |
| CAP-LN-EBD | R5 ×30 | 15 | 100 | 12 | □ | 359-9 |
| PHX-PC-DBT | R5 ×2° ×35.6 | 15 | 120 | 12 | ● | 368 |
| FX-LN-MG-EBD | R5 ×40 | 15 | 120 | 12 | □ | 359-6 |
| MG-LN-EBD | R5 ×40 | 15 | 120 | 12 | □ | 359-8 |
| PHX-PC-DBT | R5 ×1.5° ×45.2 | 15 | 120 | 12 | ● | 368 |
| CAP-LN-EBD | R5 ×50 | 15 | 120 | 12 | □ | 359-9 |
| PHX-PC-DBT | R5 ×1° ×50 | 15 | 120 | 12 | ● | 368 |
| PHX-PC-DBT | R5 ×1° ×64.3 | 15 | 120 | 12 | ● | 368 |
| PHX-DBT | R5 ×130 | 15 | 130 | 10 | ● | 335 |
| CAP-LN-EBD | R5 ×70 | 15 | 140 | 12 | □ | 359-9 |
| FX-LN-MG-EBD | R5 ×65 | 15 | 150 | 12 | □ | 359-6 |
| MG-LN-EBD | R5 ×65 | 15 | 150 | 12 | □ | 359-8 |
| TIN-MG-LN-EBD | R5 ×65 | 15 | 150 | 12 | □ | 359-7 |
| PHX-PC-DBT | R5 ×1° ×80 | 15 | 160 | 16 | ● | 368 |
| PHX-PC-DBT | R5 ×1.5° ×80 | 15 | 160 | 16 | ● | 368 |
| PHX-PC-DBT | R5 ×2° ×92.9 | 15 | 160 | 16 | ● | 368 |
| PHX-PC-DBT | R5 ×1° ×100 | 15 | 160 | 16 | ● | 368 |
| PHX-PC-DBT | R5 ×1° ×120 | 15 | 180 | 16 | ● | 368 |
| PHX-PC-DBT | R5 ×1.5° ×121.6 | 15 | 180 | 16 | ● | 368 |
| PHX-PC-DBT | R5 ×1° ×140 | 15 | 200 | 16 | ● | 368 |
| PHX-PC-DBT | R5 ×1° ×160 | 15 | 220 | 16 | ● | 368 |
| DLC-EBD | R5 | 18 | 100 | 10 | ● | 332 |
| WXL-EBD | R5 ×18 | 18 | 100 | 10 | ● | 322 |
| CA-RG-EBD | R5 ×10 | 18 | 100 | 10 | □ | 340-21 |
| FX-HO-MG-EBD | R5 ×10 | 18 | 100 | 10 | □ | 340-11 |
| FX-MG-EBD | R5 ×10 | 18 | 100 | 10 | □ | 340-4 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-MG-EBM | R5 ×10 | 18 | 100 | 10 | □ | 340-27 |
| FX-MR-EBD | R5 ×10 | 18 | 100 | 10 | □ | 340-13 |
| GX-EBD | R5 ×10 | 18 | 100 | 10 | □ | 340-17 |
| TIN-MG-EBD | R5 ×10 | 18 | 100 | 10 | □ | 340-15 |
| FX-PC-MG-EBD | R5 ×110 ×3° ×39.5 | 18 | 110 | 12 | □ | 369-4 |
| CRN-EBD | R5 ×10 | 18 | 125 | 10 | □ | 340-21 |
| DIA-EBD | R5 ×10 | 18 | 125 | 10 | ● | 333 |
| FX-PC-MG-EBD | R5 ×130 ×1°30′ ×58.5 | 18 | 130 | 12 | □ | 369-4 |
| CRN-LS-EBD | R5 ×10 | 18 | 180 | 10 | □ | 340-23 |
| V-LS-MG-EBD | R5 ×10 | 18 | 180 | 10 | □ | 340-14 |
| FX-PCL-EBD | R5 ×10 ×250 | 18 | 250 | 16 | □ | 369-5 |
| DG-EBD | R5 ×20 ×100 | 20 | 100 | 10 | ● | 333 |
| DG-EBM | R5 ×20 | 20 | 100 | 10 | ● | 338 |
| WXL-REBM | R5 ×10 | 22 | 70 | 10 | □ | 438-3 |
| FX-LS-MG-EBDL | R5 ×10 | 40 | 200 | 10 | □ | 340-12 |
| DIA-GF-EBDR | R5 ×10 | 50 | 120 | 10 | □ | 340-25 |
| GF-EBDR | R5 ×10 | 50 | 120 | 10 | □ | 340-24 |
| DG-EBD | R5 ×50 ×150 | 50 | 150 | 10 | ● | 333 |
| D-GF-LS-EBDR | R5 ×10 | 50 | 180 | 8 | □ | 340-26 |
| GF-LS-EBDR | R5 ×10 | 50 | 180 | 8 | □ | 340-25 |
| D-GF-LS-EBDR | R5 ×10 | 50 | 180 | 10 | □ | 340-26 |
| GF-LS-EBDR | R5 ×10 | 50 | 180 | 10 | □ | 340-25 |
| DG-EBD | R5 ×50 ×200 | 50 | 200 | 10 | ● | 333 |
| GF-EBDL | R5 ×10 | 120 | 180 | 10 | □ | 340-24 |
| TIN-MG-EBD | R5.05 ×10.1 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.1 ×10.2 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.15 ×10.3 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.2 ×10.4 | 22 | 100 | 10 | □ | 340-15 |
| FX-MG-EBD | R5.25 ×10.5 | 22 | 100 | 10 | □ | 340-4 |
| FXS-EBT | R5.25 ×10.5 | 22 | 100 | 10 | □ | 336 |
| MG-EBD | R5.25 ×10.5 | 22 | 100 | 10 | □ | 329 |
| TIN-MG-EBD | R5.25 ×10.5 | 22 | 100 | 10 | □ | 340-15 |
| CAP-EBD | R5.25 ×10.5 | 22 | 125 | 10 | □ | 331 |
| CRN-EBD | R5.25 ×10.5 | 22 | 125 | 10 | □ | 340-21 |
| DIA-EBD | R5.25 ×10.5 | 22 | 125 | 10 | □ | 333 |
| TIN-MG-EBD | R5.3 ×10.6 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.35 ×10.7 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.4 ×10.8 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.45 ×10.9 | 22 | 100 | 10 | □ | 340-15 |
| CRN-HS-EBD | R5.5 ×27.5 | 11 | 80 | 12 | □ | 340-22 |
| FX-HS-EBDS | R5.5 ×27.5 | 11 | 80 | 12 | □ | 340-10 |
| FX-LN-MG-EBD | R5.5 ×70 | 20 | 150 | 16 | □ | 359-6 |
| MG-LN-EBD | R5.5 ×70 | 20 | 150 | 16 | □ | 359-8 |
| TIN-MG-LN-EBD | R5.5 ×70 | 20 | 150 | 16 | □ | 359-7 |
| WXL-EBD | R5.5 ×22 | 22 | 100 | 10 | ● | 322 |
| CA-RG-EBD | R5.5 ×11 | 22 | 100 | 10 | □ | 340-21 |
| FX-MG-EBD | R5.5 ×11 | 22 | 100 | 10 | □ | 340-4 |
| FX-MR-EBD | R5.5 ×11 | 22 | 100 | 10 | □ | 340-13 |
| FXS-EBT | R5.5 ×11 | 22 | 100 | 10 | □ | 336 |
| TIN-MG-EBD | R5.5 ×11 | 22 | 100 | 10 | □ | 340-15 |
| CAP-EBD | R5.5 ×11 | 22 | 125 | 10 | □ | 331 |
| CRN-EBD | R5.5 ×11 | 22 | 125 | 10 | □ | 340-21 |
| DIA-EBD | R5.5 ×11 | 22 | 125 | 10 | □ | 333 |
| V-LS-MG-EBD | R5.5 ×11 | 22 | 180 | 10 | □ | 340-14 |
| DIA-GF-EBDR | R5.5 ×11 | 55 | 130 | 10 | □ | 340-25 |
| GF-EBDR | R5.5 ×11 | 55 | 130 | 10 | □ | 340-24 |
| D-GF-LS-EBDR | R5.5 ×11 | 55 | 200 | 10 | □ | 340-26 |
| GF-LS-EBDR | R5.5 ×11 | 55 | 200 | 10 | □ | 340-25 |
| GF-EBDL | R5.5 ×11 | 130 | 200 | 10 | □ | 340-24 |
| TIN-MG-EBD | R5.55 ×11.1 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.6 ×11.2 | 22 | 100 | 10 | □ | 340-15 |

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| TIN-MG-EBD | R5.65 ×11.3 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.7 ×11.4 | 22 | 100 | 10 | □ | 340-15 |
| FX-MG-EBD | R5.75 ×11.5 | 22 | 100 | 10 | □ | 340-4 |
| FXS-EBT | R5.75 ×11.5 | 22 | 100 | 10 | □ | 336 |
| MG-EBD | R5.75 ×11.5 | 22 | 100 | 10 | □ | 329 |
| TIN-MG-EBD | R5.75 ×11.5 | 22 | 100 | 10 | □ | 340-15 |
| CAP-EBD | R5.75 ×11.5 | 22 | 125 | 10 | □ | 331 |
| CRN-EBD | R5.75 ×11.5 | 22 | 125 | 10 | □ | 340-21 |
| DIA-EBD | R5.75 ×11.5 | 22 | 125 | 10 | □ | 333 |
| TIN-MG-EBD | R5.8 ×11.6 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.85 ×11.7 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.9 ×11.8 | 22 | 100 | 10 | □ | 340-15 |
| TIN-MG-EBD | R5.95 ×11.9 | 22 | 100 | 10 | □ | 340-15 |
| CBN-EBD | R6 ×12 | 7 | 110 | 12 | ● | 331 |
| FXS-EQD | R6 | 8.1 | 110 | 12 | ● | 364 |
| DLC-EQD | R6 ×36 | 10.6 | 100 | 12 | □ | 359-11 |
| DLC-EQD | R6 ×60 | 10.6 | 120 | 12 | □ | 359-11 |
| DIA-EBD-SF | R6 ×12 | 12 | 34 | 6 | ● | 340 |
| DLC-EBD-SF | R6 ×12 | 12 | 34 | 6 | □ | 340-1 |
| CRN-HS-EBD | R6 ×30 | 12 | 80 | 12 | □ | 340-22 |
| FX-H-EBD | R6 ×30 | 12 | 80 | 12 | □ | 340-11 |
| FX-HS-EBDS | R6 ×30 | 12 | 80 | 12 | □ | 340-10 |
| FXS-HO-EBDS | R6 ×12 | 12 | 110 | 12 | □ | 340-13 |
| SXLE-EBD | R6 ×24 | 12 | 110 | 12 | □ | 340-2 |
| SXLE-EBD | R6 ×24 | 12 | 110 | 12 | □ | 340-2 |
| WXL-PC-EBD | R6 ×3° ×60 | 12 | 140 | 16 | ● | 363 |
| WXL-PC-EBD | R6 ×1.5° ×80 | 12 | 160 | 16 | ● | 363 |
| WXL-HS-EBD | R6 ×18 | 18 | 70 | 12 | ● | 323 |
| AE-BD-H | R6 ×36-S | 18 | 80 | 12 | ● | 324 |
| AE-BM-H | R6 | 18 | 90 | 12 | ● | 337 |
| AM-EBT | R6 ×12 | 18 | 90 | 12 | ● | 334 |
| PHX-DBT | R6 ×100 | 18 | 100 | 12 | ● | 335 |
| WXL-EBD | R6 ×18 | 18 | 110 | 12 | ● | 322 |
| AE-BD-H | R6 ×36 | 18 | 110 | 12 | ● | 324 |
| CAP-LN-EBD | R6 ×40 | 18 | 120 | 16 | □ | 359-9 |
| PHX-PC-DBT | R6 ×1° ×60 | 18 | 120 | 16 | ● | 368 |
| PHX-PC-DBT | R6 ×1.5° ×80 | 18 | 130 | 20 | ● | 368 |
| PHX-DBT | R6 ×140 | 18 | 140 | 12 | ● | 335 |
| CAP-LN-EBD | R6 ×60 | 18 | 140 | 16 | □ | 359-9 |
| CAP-LN-EBD | R6 ×80 | 18 | 160 | 16 | □ | 359-9 |
| PHX-PC-DBT | R6 ×1° ×80 | 18 | 160 | 16 | ● | 368 |
| PHX-PC-DBT | R6 ×1° ×100 | 18 | 180 | 16 | ● | 368 |
| PHX-PC-DBT | R6 ×1° ×122.6 | 18 | 180 | 16 | ● | 368 |
| PHX-PC-DBT | R6 ×1° ×160 | 18 | 220 | 20 | ● | 368 |
| PHX-PC-DBT | R6 ×1.5° ×160.8 | 18 | 220 | 20 | ● | 368 |
| FX-LN-MG-EBD | R6 ×45 | 20 | 120 | 16 | □ | 359-6 |
| MG-LN-EBD | R6 ×45 | 20 | 120 | 16 | □ | 359-8 |
| FX-LN-MG-EBD | R6 ×75 | 20 | 150 | 16 | □ | 359-6 |
| MG-LN-EBD | R6 ×75 | 20 | 150 | 16 | □ | 359-8 |
| TIN-MG-LN-EBD | R6 ×75 | 20 | 150 | 16 | □ | 359-7 |
| DLC-EBD | R6 | 22 | 110 | 12 | ● | 332 |
| WXL-EBD | R6 ×22 | 22 | 110 | 12 | ● | 322 |
| CA-RG-EBD | R6 ×12 | 22 | 110 | 12 | □ | 340-21 |
| FX-HO-MG-EBD | R6 ×12 | 22 | 110 | 12 | □ | 340-11 |
| FX-MG-EBD | R6 ×12 | 22 | 110 | 12 | □ | 340-4 |
| FX-MG-EBM | R6 ×12 | 22 | 110 | 12 | □ | 340-27 |
| FX-MR-EBD | R6 ×12 | 22 | 110 | 12 | □ | 340-13 |
| GX-EBD | R6 ×12 | 22 | 110 | 12 | □ | 340-17 |
| TIN-MG-EBD | R6 ×12 | 22 | 110 | 12 | □ | 340-16 |
| CRN-EBD | R6 ×12 | 22 | 140 | 12 | □ | 340-21 |
| DIA-EBD | R6 ×12 | 22 | 140 | 12 | ● | 333 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-PC-MG-EBD | R6 ×140 ×3° ×60 | 22 | 140 | 16 | □ | 369-4 |
| FX-PC-MG-EBD | R6 ×160 ×1°30′ ×80 | 22 | 160 | 16 | □ | 369-4 |
| CRN-LS-EBD | R6 ×12 | 22 | 200 | 12 | □ | 340-23 |
| V-LS-MG-EBD | R6 ×12 | 22 | 200 | 12 | □ | 340-14 |
| FX-PCL-EBD | R6 ×12 ×250 | 22 | 250 | 16 | □ | 369-5 |
| WXL-REBM | R6 ×12 | 26 | 75 | 12 | □ | 438-3 |
| DG-EBD | R6 ×36 ×130 | 36 | 130 | 12 | ● | 333 |
| FX-LS-MG-EBDL | R6 ×12 | 45 | 200 | 12 | □ | 340-12 |
| DG-EBD | R6 ×60 ×200 | 60 | 200 | 12 | ● | 333 |
| DIA-GF-EBDR | R6 ×12 | 65 | 130 | 12 | □ | 340-25 |
| GF-EBDR | R6 ×12 | 65 | 130 | 12 | □ | 340-24 |
| D-GF-LS-EBDR | R6 ×12 | 65 | 200 | 10 | □ | 340-26 |
| GF-LS-EBDR | R6 ×12 | 65 | 200 | 10 | □ | 340-25 |
| D-GF-LS-EBDR | R6 ×12 | 65 | 200 | 12 | □ | 340-26 |
| GF-LS-EBDR | R6 ×12 | 65 | 200 | 12 | □ | 340-25 |
| GF-EBDL | R6 ×12 | 130 | 200 | 12 | □ | 340-24 |
| TIN-MG-EBD | R6.05 ×12.1 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.1 ×12.2 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.15 ×12.3 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.2 ×12.4 | 26 | 110 | 12 | □ | 340-16 |
| FX-MG-EBD | R6.25 ×12.5 | 26 | 110 | 12 | □ | 340-4 |
| FXS-EBT | R6.25 ×12.5 | 26 | 110 | 12 | □ | 336 |
| MG-EBD | R6.25 ×12.5 | 26 | 110 | 12 | □ | 329 |
| TIN-MG-EBD | R6.25 ×12.5 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.3 ×12.6 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.35 ×12.7 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.4 ×12.8 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.45 ×12.9 | 26 | 110 | 12 | □ | 340-16 |
| WXL-EBD | R6.5 ×24 | 24 | 110 | 12 | ● | 322 |
| FX-MG-EBD | R6.5 ×13 | 26 | 110 | 12 | □ | 340-4 |
| FXS-EBT | R6.5 ×13 | 26 | 110 | 12 | □ | 336 |
| MG-EBD | R6.5 ×13 | 26 | 110 | 12 | □ | 329 |
| TIN-MG-EBD | R6.5 ×13 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.55 ×13.1 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.6 ×13.2 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.65 ×13.3 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.7 ×13.4 | 26 | 110 | 12 | □ | 340-16 |
| FX-MG-EBD | R6.75 ×13.5 | 26 | 110 | 12 | □ | 340-4 |
| FXS-EBT | R6.75 ×13.5 | 26 | 110 | 12 | □ | 336 |
| MG-EBD | R6.75 ×13.5 | 26 | 110 | 12 | □ | 329 |
| TIN-MG-EBD | R6.75 ×13.5 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.8 ×13.6 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.85 ×13.7 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.9 ×13.8 | 26 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R6.95 ×13.9 | 26 | 110 | 12 | □ | 340-16 |
| FX-LN-MG-EBD | R7 ×75 | 25 | 180 | 16 | □ | 359-6 |
| MG-LN-EBD | R7 ×75 | 25 | 180 | 16 | □ | 359-8 |
| WXL-EBD | R7 ×26 | 26 | 110 | 12 | ● | 322 |
| CA-RG-EBD | R7 ×14 | 26 | 110 | 12 | □ | 340-21 |
| FX-MG-EBD | R7 ×14 | 26 | 110 | 12 | □ | 340-4 |
| FX-MG-EBM | R7 ×14 | 26 | 110 | 12 | □ | 340-27 |
| FXS-EBT | R7 ×14 | 26 | 110 | 12 | □ | 336 |
| MG-EBD | R7 ×14 | 26 | 110 | 12 | □ | 329 |
| TIN-MG-EBD | R7 ×14 | 26 | 110 | 12 | □ | 340-16 |
| V-LS-MG-EBD | R7 ×14 | 26 | 200 | 12 | □ | 340-14 |
| TIN-MG-EBD | R7.05 ×14.1 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.1 ×14.2 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.15 ×14.3 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.2 ×14.4 | 30 | 110 | 12 | □ | 340-16 |
| FX-MG-EBD | R7.25 ×14.5 | 30 | 110 | 12 | □ | 340-4 |
| FXS-EBT | R7.25 ×14.5 | 30 | 110 | 12 | □ | 336 |
| MG-EBD | R7.25 ×14.5 | 30 | 110 | 12 | □ | 329 |
| TIN-MG-EBD | R7.25 ×14.5 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.3 ×14.6 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.35 ×14.7 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.4 ×14.8 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.45 ×14.9 | 30 | 110 | 12 | □ | 340-16 |
| V-LS-MG-EBD | R7.5 ×15 | 26 | 200 | 12 | □ | 340-14 |
| WXL-EBD | R7.5 ×28 | 28 | 110 | 12 | ● | 322 |
| FX-MG-EBD | R7.5 ×15 | 30 | 110 | 12 | □ | 340-4 |
| FXS-EBT | R7.5 ×15 | 30 | 110 | 12 | □ | 336 |
| MG-EBD | R7.5 ×15 | 30 | 110 | 12 | □ | 329 |
| TIN-MG-EBD | R7.5 ×15 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.55 ×15.1 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.6 ×15.2 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.65 ×15.3 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.7 ×15.4 | 30 | 110 | 12 | □ | 340-16 |
| FX-MG-EBD | R7.75 ×15.5 | 30 | 110 | 12 | □ | 340-4 |
| FXS-EBT | R7.75 ×15.5 | 30 | 110 | 12 | □ | 336 |
| MG-EBD | R7.75 ×15.5 | 30 | 110 | 12 | □ | 329 |
| TIN-MG-EBD | R7.75 ×15.5 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.8 ×15.6 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.85 ×15.7 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.9 ×15.8 | 30 | 110 | 12 | □ | 340-16 |
| TIN-MG-EBD | R7.95 ×15.9 | 30 | 110 | 12 | □ | 340-16 |
| FXS-HO-EBDS | R8 ×16 | 16 | 140 | 16 | □ | 340-13 |
| AM-EBT | R8 ×16 | 24 | 105 | 16 | ● | 334 |
| PHX-DBT | R8 ×150 | 24 | 150 | 16 | ● | 335 |
| FX-LN-MG-EBD | R8 ×75 | 25 | 180 | 16 | □ | 359-6 |
| MG-LN-EBD | R8 ×75 | 25 | 180 | 16 | □ | 359-8 |
| DLC-EBD | R8 | 30 | 140 | 16 | ● | 332 |
| WXL-EBD | R8 ×30 | 30 | 140 | 16 | ● | 322 |
| CA-RG-EBD | R8 ×16 | 30 | 140 | 16 | □ | 340-21 |
| FX-HO-MG-EBD | R8 ×16 | 30 | 140 | 16 | □ | 340-11 |
| FX-MG-EBD | R8 ×16 | 30 | 140 | 16 | □ | 340-4 |
| FX-MG-EBM | R8 ×16 | 30 | 140 | 16 | □ | 340-27 |
| MG-EBD | R8 ×16 | 30 | 140 | 16 | □ | 329 |
| TIN-MG-EBD | R8 ×16 | 30 | 140 | 16 | □ | 340-16 |
| V-LS-MG-EBD | R8 ×16 | 30 | 250 | 16 | □ | 340-14 |
| WXL-REBM | R8 ×16 | 32 | 100 | 16 | □ | 438-3 |
| FX-LS-MG-EBDL | R8 ×16 | 55 | 250 | 16 | □ | 340-12 |
| TIN-MG-EBD | R8.05 ×16.1 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.1 ×16.2 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.15 ×16.3 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.2 ×16.4 | 34 | 140 | 16 | □ | 340-16 |
| FX-MG-EBD | R8.25 ×16.5 | 34 | 140 | 16 | □ | 340-4 |
| FXS-EBT | R8.25 ×16.5 | 34 | 140 | 16 | □ | 336 |
| MG-EBD | R8.25 ×16.5 | 34 | 140 | 16 | □ | 329 |
| TIN-MG-EBD | R8.25 ×16.5 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.3 ×16.6 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.35 ×16.7 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.4 ×16.8 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.45 ×16.9 | 34 | 140 | 16 | □ | 340-16 |
| FX-MG-EBD | R8.5 ×17 | 34 | 140 | 16 | □ | 340-4 |
| FXS-EBT | R8.5 ×17 | 34 | 140 | 16 | □ | 336 |
| MG-EBD | R8.5 ×17 | 34 | 140 | 16 | □ | 329 |
| TIN-MG-EBD | R8.5 ×17 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.55 ×17.1 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.6 ×17.2 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.65 ×17.3 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.7 ×17.4 | 34 | 140 | 16 | □ | 340-16 |
| FX-MG-EBD | R8.75 ×17.5 | 34 | 140 | 16 | □ | 340-4 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／ボール
## CARBIDE END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FXS-EBT | R8.75 ×17.5 | 34 | 140 | 16 | □ | 336 |
| MG-EBD | R8.75 ×17.5 | 34 | 140 | 16 | □ | 329 |
| TIN-MG-EBD | R8.75 ×17.5 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.8 ×17.6 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.85 ×17.7 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.9 ×17.8 | 34 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R8.95 ×17.9 | 34 | 140 | 16 | □ | 340-16 |
| FX-LN-MG-EBD | R9 ×100 | 30 | 200 | 20 | □ | 359-6 |
| MG-LN-EBD | R9 ×100 | 30 | 200 | 20 | □ | 359-8 |
| WXL-EBD | R9 ×34 | 34 | 140 | 16 | ● | 322 |
| CA-RG-EBD | R9 ×18 | 34 | 140 | 16 | □ | 340-21 |
| FX-MG-EBD | R9 ×18 | 34 | 140 | 16 | □ | 340-4 |
| FX-MG-EBM | R9 ×18 | 34 | 140 | 16 | □ | 340-27 |
| FXS-EBT | R9 ×18 | 34 | 140 | 16 | □ | 336 |
| MG-EBD | R9 ×18 | 34 | 140 | 16 | □ | 329 |
| TIN-MG-EBD | R9 ×18 | 34 | 140 | 16 | □ | 340-16 |
| V-LS-MG-EBD | R9 ×18 | 34 | 250 | 16 | □ | 340-14 |
| TIN-MG-EBD | R9.05 ×18.1 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.1 ×18.2 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.15 ×18.3 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.2 ×18.4 | 38 | 140 | 16 | □ | 340-16 |
| FX-MG-EBD | R9.25 ×18.5 | 38 | 140 | 16 | □ | 340-4 |
| FXS-EBT | R9.25 ×18.5 | 38 | 140 | 16 | □ | 336 |
| MG-EBD | R9.25 ×18.5 | 38 | 140 | 16 | □ | 329 |
| TIN-MG-EBD | R9.25 ×18.5 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.3 ×18.6 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.35 ×18.7 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.4 ×18.8 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.45 ×18.9 | 38 | 140 | 16 | □ | 340-16 |
| FX-MG-EBD | R9.5 ×19 | 38 | 140 | 16 | □ | 340-4 |
| FXS-EBT | R9.5 ×19 | 38 | 140 | 16 | □ | 336 |
| MG-EBD | R9.5 ×19 | 38 | 140 | 16 | □ | 329 |
| TIN-MG-EBD | R9.5 ×19 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.55 ×19.1 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.6 ×19.2 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.65 ×19.3 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.7 ×19.4 | 38 | 140 | 16 | □ | 340-16 |
| FX-MG-EBD | R9.75 ×19.5 | 38 | 140 | 16 | □ | 340-4 |
| FXS-EBT | R9.75 ×19.5 | 38 | 140 | 16 | □ | 336 |
| MG-EBD | R9.75 ×19.5 | 38 | 140 | 16 | □ | 329 |
| TIN-MG-EBD | R9.75 ×19.5 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.8 ×19.6 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.85 ×19.7 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.9 ×19.8 | 38 | 140 | 16 | □ | 340-16 |
| TIN-MG-EBD | R9.95 ×19.9 | 38 | 140 | 16 | □ | 340-16 |
| FXS-HO-EBDS | R10 ×20 | 20 | 160 | 20 | □ | 340-13 |
| AM-EBT | R10 ×20 | 30 | 110 | 20 | ● | 334 |
| PHX-DBT | R10 ×150 | 30 | 150 | 20 | ● | 335 |
| PHX-DBT | R10 ×200 | 30 | 200 | 20 | ● | 335 |
| FX-LN-MG-EBD | R10 ×100 | 30 | 200 | 20 | □ | 359-6 |
| MG-LN-EBD | R10 ×100 | 30 | 200 | 20 | □ | 359-8 |
| WXL-REBM | R10 ×20 | 38 | 105 | 20 | □ | 438-3 |
| DLC-EBD | R10 | 38 | 160 | 20 | ● | 332 |
| WXL-EBD | R10 ×38 | 38 | 160 | 20 | ● | 322 |
| CA-RG-EBD | R10 ×20 | 38 | 160 | 20 | □ | 340-21 |
| FX-HO-MG-EBD | R10 ×20 | 38 | 160 | 20 | □ | 340-11 |
| FX-MG-EBD | R10 ×20 | 38 | 160 | 20 | □ | 340-4 |
| FX-MG-EBM | R10 ×20 | 38 | 160 | 20 | □ | 340-27 |
| MG-EBD | R10 ×20 | 38 | 160 | 20 | □ | 329 |
| TIN-MG-EBD | R10 ×20 | 38 | 160 | 20 | □ | 340-16 |
| V-LS-MG-EBD | R10 ×20 | 38 | 300 | 20 | □ | 340-14 |

| 製品記号 Abbreviation | ボール半径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-LS-MG-EBDL | R10 ×20 | 65 | 300 | 20 | □ | 340-12 |
| FX-MG-EBD | R10.5 ×21 | 45 | 160 | 20 | □ | 340-4 |
| FX-MG-EBD | R11 ×22 | 45 | 160 | 20 | □ | 340-4 |
| FX-MG-EBD | R12 ×24 | 50 | 160 | 20 | □ | 340-4 |
| FX-MG-EBD | R12.5 ×25 | 50 | 180 | 25 | □ | 340-4 |
| FX-MG-EBM | R12.5 ×25 | 50 | 180 | 25 | □ | 340-27 |
| MG-EBD | R12.5 ×25 | 50 | 180 | 25 | □ | 329 |
| TIN-MG-EBD | R12.5 ×25 | 50 | 180 | 25 | □ | 340-16 |
| V-LS-MG-EBD | R12.5 ×25 | 50 | 350 | 25 | □ | 340-14 |
| FX-LS-MG-EBDL | R12.5 ×25 | 70 | 300 | 25 | □ | 340-12 |
| FX-MG-EBD | R13 ×26 | 50 | 180 | 25 | □ | 340-4 |
| FX-MG-EBD | R14 ×28 | 55 | 180 | 25 | □ | 340-4 |
| FX-MG-EBD | R15 ×30 | 55 | 180 | 25 | □ | 340-4 |
| V-LS-MG-EBD | R15 ×30 | 55 | 350 | 25 | □ | 340-14 |
| V-LS-MG-EBD | R16 ×32 | 60 | 350 | 32 | □ | 340-14 |
| V-LS-MG-EBD | R17.5 ×35 | 60 | 350 | 32 | □ | 340-14 |
| V-LS-MG-EBD | R20 ×40 | 65 | 350 | 32 | □ | 340-14 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから



□＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR2-H | 0.2×R0.02 ×0.5 | 0.15 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.2×R0.02 ×0.5 | 0.15 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.2×R0.02 ×1 | 0.15 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.2×R0.02 ×1 | 0.15 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.2×R0.02 ×1.5 | 0.15 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.2×R0.02 ×1.5 | 0.15 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.2×R0.02 ×2 | 0.15 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.2×R0.02 ×2 | 0.15 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.2×R0.05 ×0.5 | 0.15 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.2×R0.05 ×0.5 | 0.15 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.2×R0.05 ×1 | 0.15 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.2×R0.05 ×1 | 0.15 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.2×R0.05 ×1.5 | 0.15 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.2×R0.05 ×1.5 | 0.15 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.2×R0.05 ×2 | 0.15 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.2×R0.05 ×2 | 0.15 | 45 | 4 | ● | 411 |
| AE-CPR-N | 0.2×R0.05 ×0.4 | 0.2 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.2×R0.05 ×0.6 | 0.2 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.2×R0.05 ×1 | 0.2 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.2×R0.05 ×1.5 | 0.2 | 45 | 4 | ● | 398 |
| AE-CPR2-H | 0.3×R0.02 ×1 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.02 ×1 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.3×R0.02 ×1.5 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.02 ×1.5 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.3×R0.02 ×2 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.02 ×2 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.3×R0.02 ×2.5 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.02 ×2.5 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.3×R0.02 ×3 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.02 ×3 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.3×R0.05 ×1 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.05 ×1 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.3×R0.05 ×1.5 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.05 ×1.5 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.3×R0.05 ×2 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.05 ×2 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.3×R0.05 ×2.5 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.05 ×2.5 | 0.25 | 45 | 4 | ○ | 411 |
| AE-CPR2-H | 0.3×R0.05 ×3 | 0.25 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.3×R0.05 ×3 | 0.25 | 45 | 4 | ● | 411 |
| AE-CPR-N | 0.3×R0.05 ×0.6 | 0.3 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.3×R0.05 ×1 | 0.3 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.3×R0.05 ×1.5 | 0.3 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.3×R0.05 ×2 | 0.3 | 45 | 4 | ● | 398 |
| AE-CPR2-H | 0.4×R0.02 ×1 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.02 ×1 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.02 ×1.5 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.02 ×1.5 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.02 ×2 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.02 ×2 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.02 ×2.5 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.02 ×2.5 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.02 ×3 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.02 ×3 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.02 ×4 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.02 ×4 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.05 ×1 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.05 ×1 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.05 ×1.5 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.05 ×1.5 | 0.3 | 45 | 4 | ○ | 411 |

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR2-H | 0.4×R0.05 ×2 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.05 ×2 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR4-H | 0.4×R0.05 ×2.5 | 0.3 | 45 | 4 | ○ | 411 |
| AE-CPR2-H | 0.4×R0.05 ×3 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.05 ×3 | 0.3 | 45 | 4 | ○ | 411 |
| AE-CPR2-H | 0.4×R0.05 ×4 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.05 ×4 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.1 ×1 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.1 ×1 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.1 ×2 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.1 ×2 | 0.3 | 45 | 4 | ● | 411 |
| AE-CPR2-H | 0.4×R0.1 ×3 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.1 ×3 | 0.3 | 45 | 4 | ○ | 411 |
| AE-CPR2-H | 0.4×R0.1 ×4 | 0.3 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.4×R0.1 ×4 | 0.3 | 45 | 4 | ○ | 411 |
| AE-CPR-N | 0.4×R0.02 ×0.8 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.02 ×2 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.05 ×0.8 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.05 ×1.2 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.05 ×2 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.05 ×3 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.05 ×4 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.1 ×0.8 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.1 ×1.2 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.1 ×2 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.1 ×3 | 0.4 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.4×R0.1 ×4 | 0.4 | 45 | 4 | ● | 398 |
| CBN-SXR | 0.5×R0.05 ×1.5 | 0.3 | 45 | 4 | ● | 381 |
| CBN-LN-SXR | 0.5×R0.05 ×2.5 | 0.3 | 45 | 4 | ● | 433 |
| CBN-SXR | 0.5×R0.1 ×1.5 | 0.3 | 45 | 4 | ● | 381 |
| CBN-LN-SXR | 0.5×R0.1 ×2.5 | 0.3 | 45 | 4 | ● | 433 |
| AE-CPR2-H | 0.5×R0.02 ×1 | 0.4 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.5×R0.02 ×1 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.02 ×2 | 0.4 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.5×R0.02 ×2 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.02 ×3 | 0.4 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.5×R0.02 ×3 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.02 ×4 | 0.4 | 45 | 4 | ● | 406 |
| AE-CPR4-H | 0.5×R0.02 ×4 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.02 ×5 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.02 ×5 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.02 ×6 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.02 ×6 | 0.4 | 45 | 4 | ○ | 412 |
| AE-CPR2-H | 0.5×R0.05 ×1 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.05 ×1 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.05 ×2 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.05 ×2 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.05 ×3 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.05 ×3 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.05 ×4 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.05 ×4 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.05 ×5 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.05 ×5 | 0.4 | 45 | 4 | ○ | 412 |
| AE-CPR2-H | 0.5×R0.05 ×6 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.05 ×6 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.1 ×1 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.1 ×1 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.1 ×2 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.1 ×2 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.1 ×3 | 0.4 | 45 | 4 | ● | 407 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR4-H | 0.5×R0.1 ×3 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.1 ×4 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.1 ×4 | 0.4 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.5×R0.1 ×5 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.1 ×5 | 0.4 | 45 | 4 | ○ | 412 |
| AE-CPR2-H | 0.5×R0.1 ×6 | 0.4 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.5×R0.1 ×6 | 0.4 | 45 | 4 | ○ | 412 |
| AE-CPR-N | 0.5×R0.05 ×1 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.05 ×2 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.05 ×3 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.05 ×4 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.05 ×5 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.1 ×1 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.1 ×2 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.1 ×3 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.1 ×4 | 0.5 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.5×R0.1 ×5 | 0.5 | 45 | 4 | ● | 398 |
| FX-CR-EDS-6 | 0.5×1.5 ×R0.1 | 0.7 | 50 | 6 | □ | 436-1 |
| DG-CPR | 0.5×R0.1 ×0° ×4 | 0.9 | 50 | 4 | ● | 434 |
| DG-CPR | 0.5×R0.1 ×0° ×6 | 0.9 | 50 | 4 | ● | 434 |
| DG-CPR | 0.5×R0.1 ×0° ×8 | 0.9 | 50 | 4 | ● | 434 |
| DG-CPR | 0.5×R0.1 ×0° ×10 | 0.9 | 50 | 4 | ● | 434 |
| DG-CPR | 0.5×R0.1 ×0° ×15 | 0.9 | 60 | 4 | ● | 434 |
| DG-CPR | 0.5×R0.1 ×0° ×20 | 0.9 | 60 | 4 | ● | 434 |
| AE-CPR4-H | 0.6×R0.05 ×1 | 0.48 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.6×R0.05 ×2 | 0.48 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.6×R0.05 ×2 | 0.48 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.6×R0.05 ×4 | 0.48 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.6×R0.05 ×4 | 0.48 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.6×R0.05 ×6 | 0.48 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.6×R0.05 ×6 | 0.48 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.6×R0.1 ×1 | 0.48 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.6×R0.1 ×1 | 0.48 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.6×R0.1 ×2 | 0.48 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.6×R0.1 ×2 | 0.48 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.6×R0.1 ×4 | 0.48 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.6×R0.1 ×4 | 0.48 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.6×R0.1 ×6 | 0.48 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.6×R0.1 ×6 | 0.48 | 45 | 4 | ● | 412 |
| AE-CPR-N | 0.6×R0.05 ×1.2 | 0.6 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.6×R0.05 ×2 | 0.6 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.6×R0.05 ×4 | 0.6 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.6×R0.05 ×6 | 0.6 | 45 | 4 | ● | 398 |
| AE-CPR-N | 0.6×R0.1 ×1.2 | 0.6 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.6×R0.1 ×2 | 0.6 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.6×R0.1 ×3 | 0.6 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.6×R0.1 ×4 | 0.6 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.6×R0.1 ×6 | 0.6 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.6×R0.2 ×1.2 | 0.6 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.6×R0.2 ×4 | 0.6 | 45 | 4 | ● | 399 |
| FX-CR-EDS-6 | 0.6×1.8 ×R0.1 | 0.9 | 50 | 6 | □ | 436-1 |
| AE-CPR4-H | 0.7×R0.02 ×1.5 | 0.55 | 45 | 4 | ● | 412 |
| AE-CPR4-H | 0.7×R0.02 ×2 | 0.55 | 45 | 4 | ● | 412 |
| AE-CPR4-H | 0.7×R0.02 ×4 | 0.55 | 45 | 4 | ● | 412 |
| AE-CPR4-H | 0.7×R0.02 ×6 | 0.55 | 45 | 4 | ○ | 412 |
| AE-CPR4-H | 0.7×R0.05 ×1.5 | 0.55 | 45 | 4 | ● | 412 |
| AE-CPR4-H | 0.7×R0.05 ×2 | 0.55 | 45 | 4 | ● | 412 |
| AE-CPR4-H | 0.7×R0.05 ×4 | 0.55 | 45 | 4 | ● | 412 |
| AE-CPR4-H | 0.7×R0.05 ×6 | 0.55 | 45 | 4 | ○ | 412 |
| AE-CPR4-H | 0.7×R0.1 ×2 | 0.55 | 45 | 4 | ● | 412 |

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR4-H | 0.7×R0.1 ×4 | 0.55 | 45 | 4 | ● | 412 |
| AE-CPR4-H | 0.7×R0.1 ×6 | 0.55 | 45 | 4 | ○ | 412 |
| PHX-LN-CRE | 0.8×R0.1 ×2 | 0.32 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 0.8×R0.1 ×4 | 0.32 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 0.8×R0.1 ×6 | 0.32 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 0.8×R0.1 ×8 | 0.32 | 50 | 4 | ● | 430 |
| AE-CPR2-H | 0.8×R0.05 ×2 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.05 ×2 | 0.65 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.8×R0.05 ×4 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.05 ×4 | 0.65 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.8×R0.05 ×6 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.05 ×6 | 0.65 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.8×R0.1 ×2 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.1 ×2 | 0.65 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.8×R0.1 ×4 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.1 ×4 | 0.65 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.8×R0.1 ×6 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.1 ×6 | 0.65 | 45 | 4 | ● | 412 |
| AE-CPR2-H | 0.8×R0.2 ×2 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.2 ×2 | 0.65 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 0.8×R0.2 ×4 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.2 ×4 | 0.65 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 0.8×R0.2 ×6 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.2 ×6 | 0.65 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 0.8×R0.2 ×8 | 0.65 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 0.8×R0.2 ×8 | 0.65 | 45 | 4 | ● | 413 |
| AE-CPR-N | 0.8×R0.05 ×1.6 | 0.8 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.8×R0.05 ×4 | 0.8 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.8×R0.05 ×6 | 0.8 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.8×R0.05 ×8 | 0.8 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.8×R0.1 ×1.6 | 0.8 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.8×R0.1 ×4 | 0.8 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.8×R0.1 ×6 | 0.8 | 45 | 4 | ● | 399 |
| AE-CPR-N | 0.8×R0.1 ×8 | 0.8 | 45 | 4 | ● | 399 |
| FX-CR-EDS-6 | 0.8×2.4 ×R0.1 | 1.2 | 50 | 6 | □ | 436-1 |
| AE-CPR4-H | 0.9×R0.1 ×4 | 0.7 | 45 | 4 | ● | 413 |
| AE-CPR4-H | 0.9×R0.1 ×8 | 0.7 | 45 | 4 | ● | 413 |
| PHX-LN-CRE | 1 ×R0.1 ×4 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.1 ×6 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.1 ×8 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.1 ×10 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.1 ×12 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.2 ×4 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.2 ×6 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.2 ×8 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.2 ×10 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.2 ×12 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.3 ×4 | 0.4 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1 ×R0.3 ×6 | 0.4 | 50 | 4 | ● | 430 |
| AE-CRE-H | 1 ×R0.2 | 0.4 | 50 | 6 | ● | 383 |
| AE-HFE-H | 1 ×R0.1 | 0.4 | 60 | 6 | ● | 384 |
| CBN-SXR | 1 ×R0.05 ×2.5 | 0.6 | 45 | 4 | ● | 381 |
| CBN-LN-SXR | 1 ×R0.05 ×5 | 0.6 | 45 | 4 | ● | 433 |
| CBN-SXR | 1 ×R0.1 ×2.5 | 0.6 | 45 | 4 | ● | 381 |
| CBN-LN-SXR | 1 ×R0.1 ×5 | 0.6 | 45 | 4 | ● | 433 |
| CBN-SXR | 1 ×R0.2 ×2.5 | 0.6 | 45 | 4 | ● | 381 |
| CBN-LN-SXR | 1 ×R0.2 ×5 | 0.6 | 45 | 4 | ● | 433 |
| CBN-SXR | 1 ×R0.3 ×2.5 | 0.6 | 45 | 4 | ● | 381 |
| CBN-LN-SXR | 1 ×R0.3 ×5 | 0.6 | 45 | 4 | ● | 433 |
| AE-CPR4-H | 1 ×R0.02 ×2 | 0.8 | 45 | 4 | ● | 413 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／コーナR
# CARBIDE END MILLS / WITH CORNER RADIUS

◎デジタルカタログで最新情報を公開中

【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR4-H | 1 ×R0.02 ×3 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR4-H | 1 ×R0.02 ×4 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR4-H | 1 ×R0.02 ×6 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR4-H | 1 ×R0.02 ×8 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR4-H | 1 ×R0.02 ×10 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.05 ×2 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.05 ×2 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.05 ×3 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.05 ×3 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.05 ×4 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.05 ×4 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.05 ×6 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.05 ×6 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.05 ×8 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.05 ×8 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.05 ×10 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.05 ×10 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.05 ×12 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.05 ×12 | 0.8 | 45 | 4 | ○ | 413 |
| AE-CPR2-H | 1 ×R0.1 ×2 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.1 ×2 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.1 ×3 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.1 ×3 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.1 ×4 | 0.8 | 45 | 4 | ● | 407 |
| AE-CPR4-H | 1 ×R0.1 ×4 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.1 ×6 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.1 ×6 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.1 ×8 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.1 ×8 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.1 ×10 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.1 ×10 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.1 ×12 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.1 ×12 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×2 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×2 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×3 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×3 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×4 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×4 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×6 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×6 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×8 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×8 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×10 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×10 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×12 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×12 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.3 ×2 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.3 ×2 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.3 ×3 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.3 ×3 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.3 ×4 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.3 ×4 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.3 ×6 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.3 ×6 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.3 ×8 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.3 ×8 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.3 ×10 | 0.8 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.3 ×10 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.3 ×12 | 0.8 | 45 | 4 | ● | 408 |

| 製品記号 Abbreviation | 外径×コーナ半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR4-H | 1 ×R0.3 ×12 | 0.8 | 45 | 4 | ● | 413 |
| AE-CPR4-H | 1 ×R0.1 ×16 | 0.8 | 55 | 4 | ● | 413 |
| AE-CPR4-H | 1 ×R0.1 ×20 | 0.8 | 55 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×16 | 0.8 | 55 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×16 | 0.8 | 55 | 4 | ● | 413 |
| AE-CPR2-H | 1 ×R0.2 ×20 | 0.8 | 55 | 4 | ● | 408 |
| AE-CPR4-H | 1 ×R0.2 ×20 | 0.8 | 55 | 4 | ● | 413 |
| AE-CPR4-H | 1 ×R0.3 ×16 | 0.8 | 55 | 4 | ● | 413 |
| AE-CPR4-H | 1 ×R0.3 ×20 | 0.8 | 55 | 4 | ● | 413 |
| AE-CPR-N | 1 ×R0.02 ×2 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.02 ×3 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.1 ×2 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.1 ×3 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.1 ×4 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.1 ×5 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.1 ×6 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.1 ×8 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.1 ×10 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.2 ×2 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.2 ×3 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.2 ×4 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.2 ×5 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.2 ×6 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.2 ×8 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.2 ×10 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.3 ×2 | 1 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1 ×R0.3 ×3 | 1 | 45 | 4 | ● | 399 |
| DG-CPR | 1 ×R0.2 ×0° ×6 | 1.5 | 50 | 4 | ● | 434 |
| DG-CPR | 1 ×R0.2 ×0° ×10 | 1.5 | 50 | 4 | ● | 434 |
| FX-CR-EDS-6 | 1 ×2.5 ×R0.1 | 1.5 | 50 | 6 | □ | 436-1 |
| FX-CR-EDS-6 | 1 ×2.5 ×R0.2 | 1.5 | 50 | 6 | □ | 436-1 |
| DG-CPR | 1 ×R0.2 ×0° ×16 | 1.5 | 60 | 4 | ● | 434 |
| DG-CPR | 1 ×R0.2 ×0° ×20 | 1.5 | 60 | 4 | ● | 434 |
| FX-LN-CR-EDS-6 | 1 ×5 ×R0.1 | 1.5 | 60 | 6 | □ | 436-11 |
| FX-LN-CR-EDS-6 | 1 ×5 ×R0.2 | 1.5 | 60 | 6 | □ | 436-11 |
| DG-CPR | 1 ×R0.2 ×0° ×30 | 1.5 | 80 | 4 | ● | 434 |
| DG-CPR | 1 ×R0.2 ×0° ×40 | 1.5 | 80 | 4 | ● | 434 |
| PHX-CRT | 1 ×R0.3 | 2 | 60 | 6 | ● | 388 |
| FX-CR-MG-EDS | 1 ×R0.2 | 2.5 | 40 | 4 | □ | 379 |
| FX-CS-EDS | 1 ×C0.2 | 2.5 | 40 | 4 | □ | 436-9 |
| MG-CS-EDS | 1 ×C0.2 | 2.5 | 40 | 4 | □ | 436-10 |
| FX-CR-MG-EDS | 1 ×R0.3 | 2.5 | 40 | 4 | □ | 379 |
| AE-CPR2-H | 1.2 ×R0.2 ×6 | 1 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.2 ×R0.2 ×6 | 1 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.2 ×R0.2 ×8 | 1 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.2 ×R0.2 ×8 | 1 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.2 ×R0.2 ×10 | 1 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.2 ×R0.2 ×10 | 1 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.2 ×R0.3 ×6 | 1 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.2 ×R0.3 ×6 | 1 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.2 ×R0.3 ×8 | 1 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.2 ×R0.3 ×8 | 1 | 45 | 4 | ○ | 414 |
| AE-CPR2-H | 1.2 ×R0.3 ×10 | 1 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.2 ×R0.3 ×10 | 1 | 45 | 4 | ○ | 414 |
| FX-CR-EDS-6 | 1.2 ×3 ×R0.1 | 1.8 | 50 | 6 | □ | 436-1 |
| FX-CR-EDS-6 | 1.2 ×3 ×R0.2 | 1.8 | 50 | 6 | □ | 436-1 |
| FX-LN-CR-EDS-6 | 1.2 ×6 ×R0.1 | 1.8 | 60 | 6 | □ | 436-11 |
| FX-LN-CR-EDS-6 | 1.2 ×6 ×R0.2 | 1.8 | 60 | 6 | □ | 436-11 |
| FX-CR-EDS-6 | 1.4 ×3.5 ×R0.1 | 2.1 | 50 | 6 | □ | 436-1 |
| FX-CR-EDS-6 | 1.4 ×3.5 ×R0.2 | 2.1 | 50 | 6 | □ | 436-1 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-LN-CR-EDS-6 | 1.4×7 ×R0.1 | 2.1 | 60 | 6 | □ | 436-11 |
| FX-LN-CR-EDS-6 | 1.4×7 ×R0.2 | 2.1 | 60 | 6 | □ | 436-11 |
| PHX-LN-CRE | 1.5×R0.1 ×4 | 0.6 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1.5×R0.1 ×8 | 0.6 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1.5×R0.1 ×12 | 0.6 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1.5×R0.2 ×4 | 0.6 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1.5×R0.2 ×6 | 0.6 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 1.5×R0.2 ×8 | 0.6 | 50 | 4 | ● | 430 |
| CBN-SXR | 1.5×R0.1 ×3.8 | 0.9 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 1.5×R0.1 ×7.5 | 0.9 | 50 | 6 | ● | 433 |
| CBN-SXR | 1.5×R0.2 ×3.8 | 0.9 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 1.5×R0.2 ×7.5 | 0.9 | 50 | 6 | ● | 433 |
| CBN-SXR | 1.5×R0.3 ×3.8 | 0.9 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 1.5×R0.3 ×7.5 | 0.9 | 50 | 6 | ● | 433 |
| AE-CPR2-H | 1.5×R0.05 ×3 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.05 ×3 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.05 ×4 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.05 ×4 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.05 ×6 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.05 ×6 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.05 ×8 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.05 ×8 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.05 ×10 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.05 ×10 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.05 ×12 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.05 ×12 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.1 ×3 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.1 ×3 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.1 ×4 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.1 ×4 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.1 ×6 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.1 ×6 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.1 ×8 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.1 ×8 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.1 ×10 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.1 ×10 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.1 ×12 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.1 ×12 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.2 ×3 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.2 ×3 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.2 ×4 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.2 ×4 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.2 ×6 | 1.2 | 45 | 4 | ● | 408 |
| AE-CPR4-H | 1.5×R0.2 ×6 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.2 ×8 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.2 ×8 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.2 ×10 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.2 ×10 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.2 ×12 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.2 ×12 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.3 ×3 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.3 ×3 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.3 ×4 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.3 ×4 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.3 ×6 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.3 ×6 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.3 ×8 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.3 ×8 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.3 ×10 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.3 ×10 | 1.2 | 45 | 4 | ● | 414 |

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR2-H | 1.5×R0.3 ×12 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.3 ×12 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.5 ×3 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.5 ×3 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.5 ×4 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.5 ×4 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.5 ×6 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.5 ×6 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.5 ×8 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.5 ×8 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.5 ×10 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.5 ×10 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.5 ×12 | 1.2 | 45 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.5 ×12 | 1.2 | 45 | 4 | ● | 414 |
| AE-CPR4-H | 1.5×R0.05 ×16 | 1.2 | 50 | 4 | ● | 414 |
| AE-CPR4-H | 1.5×R0.1 ×16 | 1.2 | 50 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.2 ×16 | 1.2 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.2 ×16 | 1.2 | 50 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.3 ×16 | 1.2 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.3 ×16 | 1.2 | 50 | 4 | ● | 414 |
| AE-CPR2-H | 1.5×R0.5 ×16 | 1.2 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 1.5×R0.5 ×16 | 1.2 | 50 | 4 | ● | 414 |
| AE-CPR-N | 1.5×R0.3 ×3 | 1.5 | 45 | 4 | ● | 399 |
| AE-CPR-N | 1.5×R0.5 ×3 | 1.5 | 45 | 4 | ● | 400 |
| AE-CPR-N | 1.5×R0.5 ×10 | 1.5 | 45 | 4 | ● | 400 |
| AE-CPR-N | 1.5×R0.5 ×12 | 1.5 | 60 | 4 | ● | 400 |
| AE-CPR-N | 1.5×R0.5 ×20 | 1.5 | 60 | 4 | ● | 400 |
| DG-CPR | 1.5×R0.2 ×0° ×6 | 2.3 | 50 | 4 | ● | 434 |
| DG-CPR | 1.5×R0.2 ×0° ×10 | 2.3 | 50 | 4 | ● | 434 |
| FX-CR-EDS-6 | 1.5×3.8 ×R0.1 | 2.3 | 50 | 6 | □ | 436-1 |
| FX-CR-EDS-6 | 1.5×3.8 ×R0.2 | 2.3 | 50 | 6 | □ | 436-1 |
| DG-CPR | 1.5×R0.2 ×0° ×20 | 2.3 | 60 | 4 | ● | 434 |
| FX-LN-CR-EDS-6 | 1.5×7.5 ×R0.1 | 2.3 | 60 | 6 | □ | 436-11 |
| FX-LN-CR-EDS-6 | 1.5×7.5 ×R0.2 | 2.3 | 60 | 6 | □ | 436-11 |
| DG-CPR | 1.5×R0.2 ×0° ×30 | 2.3 | 80 | 4 | ● | 434 |
| DG-CPR | 1.5×R0.2 ×0° ×40 | 2.3 | 80 | 4 | ● | 434 |
| PHX-CRT | 1.5×R0.3 | 3 | 60 | 6 | ● | 388 |
| FX-CR-MG-EDS | 1.5×R0.2 | 4 | 40 | 4 | □ | 379 |
| FX-CR-MG-EDS | 1.5×R0.3 | 4 | 40 | 4 | □ | 379 |
| FX-CR-MG-EDS | 1.5×R0.5 | 4 | 40 | 4 | □ | 379 |
| FX-CR-EDS-6 | 1.6×4 ×R0.1 | 2.4 | 50 | 6 | □ | 436-1 |
| FX-CR-EDS-6 | 1.6×4 ×R0.2 | 2.4 | 50 | 6 | □ | 436-1 |
| FX-LN-CR-EDS-6 | 1.6×8 ×R0.1 | 2.4 | 60 | 6 | □ | 436-11 |
| FX-LN-CR-EDS-6 | 1.6×8 ×R0.2 | 2.4 | 60 | 6 | □ | 436-11 |
| FX-CR-EDS-6 | 1.8×4.5 ×R0.1 | 2.7 | 50 | 6 | □ | 436-1 |
| FX-CR-EDS-6 | 1.8×4.5 ×R0.2 | 2.7 | 50 | 6 | □ | 436-1 |
| FX-LN-CR-EDS-6 | 1.8×9 ×R0.1 | 2.7 | 60 | 6 | □ | 436-11 |
| FX-LN-CR-EDS-6 | 1.8×9 ×R0.2 | 2.7 | 60 | 6 | □ | 436-11 |
| PHX-LN-CRE | 2 ×R0.1 ×8 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.1 ×10 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.1 ×12 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.1 ×16 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.3 ×8 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.3 ×12 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.5 ×6 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.5 ×8 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.5 ×10 | 0.8 | 50 | 4 | ● | 430 |
| PHX-LN-CRE | 2 ×R0.5 ×12 | 0.8 | 50 | 4 | ● | 430 |
| AE-HFE-H | 2 ×R0.2 | 0.8 | 60 | 6 | ● | 384 |
| AE-CRE-H | 2 ×R0.5 | 0.8 | 60 | 6 | ● | 383 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CBN-SXR | 2 ×R0.1 ×5 | 1.2 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 2 ×R0.1 ×10 | 1.2 | 50 | 6 | ● | 433 |
| CBN-SXR | 2 ×R0.2 ×5 | 1.2 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 2 ×R0.2 ×10 | 1.2 | 50 | 6 | ● | 433 |
| CBN-SXR | 2 ×R0.3 ×5 | 1.2 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 2 ×R0.3 ×10 | 1.2 | 50 | 6 | ● | 433 |
| CBN-SXR | 2 ×R0.5 ×5 | 1.2 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 2 ×R0.5 ×10 | 1.2 | 50 | 6 | ● | 433 |
| AE-CPR2-H | 2 ×R0.05 ×4 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.05 ×4 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.05 ×6 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.05 ×6 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.05 ×8 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.05 ×8 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.05 ×10 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.05 ×10 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.05 ×12 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.05 ×12 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.05 ×16 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.05 ×16 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.1 ×4 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.1 ×4 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.1 ×6 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.1 ×6 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.1 ×8 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.1 ×8 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.1 ×10 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.1 ×10 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.1 ×12 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.1 ×12 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.1 ×16 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.1 ×16 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.2 ×4 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.2 ×4 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.2 ×6 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.2 ×6 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.2 ×8 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.2 ×8 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.2 ×10 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.2 ×10 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.2 ×12 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.2 ×12 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.2 ×16 | 1.6 | 50 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.2 ×16 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.3 ×4 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.3 ×4 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.3 ×6 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.3 ×6 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.3 ×8 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.3 ×8 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.3 ×10 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.3 ×10 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.3 ×12 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.3 ×12 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.3 ×16 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.3 ×16 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.5 ×4 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.5 ×4 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.5 ×6 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.5 ×6 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.5 ×8 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.5 ×8 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.5 ×10 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.5 ×10 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.5 ×12 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.5 ×12 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.5 ×16 | 1.6 | 50 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.5 ×16 | 1.6 | 50 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.05 ×20 | 1.6 | 60 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.05 ×20 | 1.6 | 60 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.1 ×20 | 1.6 | 60 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.1 ×20 | 1.6 | 60 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.1 ×25 | 1.6 | 60 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.1 ×25 | 1.6 | 60 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.2 ×20 | 1.6 | 60 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.2 ×20 | 1.6 | 60 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.2 ×25 | 1.6 | 60 | 4 | ● | 409 |
| AE-CPR4-H | 2 ×R0.2 ×25 | 1.6 | 60 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.3 ×20 | 1.6 | 60 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.3 ×20 | 1.6 | 60 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.3 ×25 | 1.6 | 60 | 4 | ● | 410 |
| AE-CPR2-H | 2 ×R0.5 ×20 | 1.6 | 60 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.5 ×20 | 1.6 | 60 | 4 | ● | 415 |
| AE-CPR2-H | 2 ×R0.5 ×25 | 1.6 | 60 | 4 | ● | 410 |
| AE-CPR4-H | 2 ×R0.5 ×25 | 1.6 | 60 | 4 | ● | 415 |
| AE-CPR-N | 2 ×R0.1 ×4 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.1 ×6 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.1 ×8 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.1 ×10 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.1 ×15 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.2 ×4 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.2 ×10 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.3 ×4 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.3 ×6 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.3 ×8 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.3 ×10 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.3 ×15 | 2 | 50 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.1 ×16 | 2 | 60 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.1 ×20 | 2 | 60 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.2 ×16 | 2 | 60 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.2 ×20 | 2 | 60 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.3 ×16 | 2 | 60 | 4 | ● | 400 |
| AE-CPR-N | 2 ×R0.3 ×20 | 2 | 60 | 4 | ● | 400 |
| FX-CR-EDS-6 | 2 ×5 ×R0.1 | 3 | 50 | 6 | □ | 436-1 |
| FX-CR-EDS-6 | 2 ×5 ×R0.2 | 3 | 50 | 6 | □ | 436-1 |
| PHX-LN-DFR | 2 ×R0.5 ×16 | 3 | 50 | 6 | ● | 431 |
| DG-CPR | 2 ×R0.2 ×0° ×6 | 3 | 60 | 4 | ● | 434 |
| DG-CPR | 2 ×R0.2 ×0° ×10 | 3 | 60 | 4 | ● | 434 |
| FX-LN-CR-EDS-6 | 2 ×10 ×R0.1 | 3 | 60 | 6 | □ | 436-11 |
| FX-LN-CR-EDS-6 | 2 ×10 ×R0.2 | 3 | 60 | 6 | □ | 436-11 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×10 | 3 | 60 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×0.5° ×15 | 3 | 60 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×15 | 3 | 60 | 6 | ● | 427 |
| PHX-LN-DFR | 2 ×R0.5 ×20 | 3 | 60 | 6 | ● | 431 |
| PHX-PC-DFR | 2 ×R0.5 ×0.5° ×20 | 3 | 60 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×20 | 3 | 60 | 6 | ● | 427 |
| PHX-LN-DFR | 2 ×R0.5 ×24 | 3 | 60 | 6 | ● | 431 |
| DG-CPR | 2 ×R0.2 ×0° ×16 | 3 | 70 | 4 | ● | 434 |
| DG-CPR | 2 ×R0.2 ×0° ×20 | 3 | 70 | 4 | ● | 434 |
| PHX-PC-DFR | 2 ×R0.5 ×0.5° ×25 | 3 | 70 | 6 | ● | 427 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PHX-PC-DFR | 2 ×R0.5 ×1° ×25 | 3 | 70 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×0.5° ×30 | 3 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×30 | 3 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×0.5° ×35 | 3 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×35 | 3 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×0.5° ×40 | 3 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×40 | 3 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1.5° ×40 | 3 | 80 | 6 | ● | 427 |
| DG-CPR | 2 ×R0.2 ×0° ×40 | 3 | 100 | 4 | ● | 434 |
| DG-CPR | 2 ×R0.2 ×0° ×60 | 3 | 100 | 4 | ● | 434 |
| PHX-PC-DFR | 2 ×R0.5 ×3° ×41.2 | 3 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×45 | 3 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×50 | 3 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×2° ×60.3 | 3 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1° ×60 | 3 | 110 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1.5° ×60 | 3 | 110 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×1.5° ×81.6 | 3 | 120 | 6 | ● | 427 |
| PHX-PC-DFR | 2 ×R0.5 ×2° ×80 | 3 | 120 | 8 | ● | 427 |
| PHX-CRT | 2 ×R0.5 | 4 | 60 | 6 | ● | 388 |
| DIA-CR-EDS | 2 ×R0.2 | 6 | 40 | 4 | □ | 436-4 |
| FX-CR-MG-EDS | 2 ×R0.2 | 6 | 40 | 4 | □ | 379 |
| FX-CS-EDS | 2 ×C0.2 | 6 | 40 | 4 | □ | 436-9 |
| MG-CS-EDS | 2 ×C0.2 | 6 | 40 | 4 | □ | 436-10 |
| FX-CR-MG-EDS | 2 ×R0.3 | 6 | 40 | 4 | □ | 379 |
| FX-CS-EDS | 2 ×C0.3 | 6 | 40 | 4 | □ | 436-9 |
| MG-CR-EDS | 2 ×R0.3 | 6 | 40 | 4 | □ | 436-3 |
| MG-CS-EDS | 2 ×C0.3 | 6 | 40 | 4 | □ | 436-10 |
| TIN-MG-CR-EDS | 2 ×R0.3 | 6 | 40 | 4 | □ | 436-2 |
| FX-CR-MG-EDS | 2 ×R0.4 | 6 | 40 | 4 | □ | 379 |
| MG-CR-EDS | 2 ×R0.4 | 6 | 40 | 4 | □ | 436-3 |
| FX-CR-MG-EDS | 2 ×R0.5 | 6 | 40 | 4 | □ | 379 |
| FX-CS-EDS | 2 ×C0.5 | 6 | 40 | 4 | □ | 436-9 |
| MG-CR-EDS | 2 ×R0.5 | 6 | 40 | 4 | □ | 436-3 |
| MG-CS-EDS | 2 ×C0.5 | 6 | 40 | 4 | □ | 436-10 |
| TIN-MG-CR-EDS | 2 ×R0.5 | 6 | 40 | 4 | □ | 436-2 |
| FX-CR-MG-EDL | 2 ×R0.2 | 10 | 50 | 4 | □ | 380 |
| FX-CR-MG-EDL | 2 ×R0.3 | 10 | 50 | 4 | □ | 380 |
| AE-CPR4-H | 2.5 ×R0.1 ×10 | 2 | 55 | 4 | ● | 415 |
| AE-CPR4-H | 2.5 ×R0.1 ×20 | 2 | 55 | 4 | ● | 415 |
| AE-CPR2-H | 2.5 ×R0.2 ×10 | 2 | 55 | 4 | ● | 410 |
| AE-CPR4-H | 2.5 ×R0.2 ×10 | 2 | 55 | 4 | ● | 415 |
| AE-CPR2-H | 2.5 ×R0.2 ×20 | 2 | 55 | 4 | ● | 410 |
| AE-CPR4-H | 2.5 ×R0.2 ×20 | 2 | 55 | 4 | ● | 415 |
| AE-CPR4-H | 2.5 ×R0.3 ×10 | 2 | 55 | 4 | ● | 415 |
| AE-CPR4-H | 2.5 ×R0.3 ×20 | 2 | 55 | 4 | ● | 415 |
| AE-CPR2-H | 2.5 ×R0.5 ×10 | 2 | 55 | 4 | ● | 410 |
| AE-CPR4-H | 2.5 ×R0.5 ×10 | 2 | 55 | 4 | ● | 415 |
| AE-CPR2-H | 2.5 ×R0.5 ×20 | 2 | 55 | 4 | ● | 410 |
| AE-CPR4-H | 2.5 ×R0.5 ×20 | 2 | 55 | 4 | ● | 415 |
| AE-CPR4-H | 2.5 ×R0.1 ×30 | 2 | 70 | 4 | ● | 415 |
| AE-CPR2-H | 2.5 ×R0.2 ×30 | 2 | 70 | 4 | ● | 410 |
| AE-CPR4-H | 2.5 ×R0.2 ×30 | 2 | 70 | 4 | ● | 415 |
| AE-CPR4-H | 2.5 ×R0.3 ×30 | 2 | 70 | 4 | ● | 415 |
| AE-CPR2-H | 2.5 ×R0.5 ×30 | 2 | 70 | 4 | ● | 410 |
| AE-CPR4-H | 2.5 ×R0.5 ×30 | 2 | 70 | 4 | ● | 415 |
| AE-CPR-N | 2.5 ×R0.5 ×5 | 2.5 | 55 | 4 | ● | 400 |
| AE-CPR-N | 2.5 ×R0.5 ×20 | 2.5 | 55 | 4 | ● | 400 |
| FX-CR-EDS-6 | 2.5 ×5 ×R0.1 | 3.7 | 50 | 6 | □ | 436-1 |
| FX-CR-EDS-6 | 2.5 ×5 ×R0.2 | 3.7 | 50 | 6 | □ | 436-1 |
| FX-LN-CR-EDS-6 | 2.5 ×12.5 ×R0.1 | 3.7 | 60 | 6 | □ | 436-11 |
| FX-LN-CR-EDS-6 | 2.5 ×12.5 ×R0.2 | 3.7 | 60 | 6 | □ | 436-11 |
| PHX-PC-DFR | 2.5 ×R0.8 ×0.75° ×16 | 3.8 | 70 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×1.5° ×16 | 3.8 | 70 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×0.75° ×20 | 3.8 | 70 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×1.5° ×20 | 3.8 | 70 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×0.75° ×24 | 3.8 | 70 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×1.5° ×24 | 3.8 | 70 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×0.75° ×30 | 3.8 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×1.5° ×30 | 3.8 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×0.75° ×40 | 3.8 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×1.5° ×40 | 3.8 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×0.75° ×50 | 3.8 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×1.5° ×50 | 3.8 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 2.5 ×R0.8 ×1.5° ×60 | 3.8 | 100 | 6 | ● | 427 |
| FX-CR-MG-EDS | 2.5 ×R0.2 | 6 | 60 | 6 | □ | 379 |
| FX-CR-MG-EDS | 2.5 ×R0.3 | 6 | 60 | 6 | □ | 379 |
| FX-CR-MG-EDS | 2.5 ×R0.5 | 6 | 60 | 6 | □ | 379 |
| FX-CR-MG-EDS | 2.5 ×R0.75 | 6 | 60 | 6 | □ | 379 |
| PHX-LN-CRE | 3 ×R0.3 ×12 | 1.2 | 50 | 4 | ● | 430 |
| AE-HFE-H | 3 ×R0.3 | 1.3 | 60 | 6 | ● | 384 |
| AE-CRE-H | 3 ×R0.75 | 1.3 | 60 | 6 | ● | 383 |
| CBN-SXR | 3 ×R0.1 ×6 | 1.8 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 3 ×R0.1 ×12 | 1.8 | 50 | 6 | ● | 433 |
| CBN-SXR | 3 ×R0.2 ×6 | 1.8 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 3 ×R0.2 ×12 | 1.8 | 50 | 6 | ● | 433 |
| CBN-SXR | 3 ×R0.3 ×6 | 1.8 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 3 ×R0.3 ×12 | 1.8 | 50 | 6 | ● | 433 |
| CBN-SXR | 3 ×R0.5 ×6 | 1.8 | 50 | 6 | ● | 381 |
| CBN-LN-SXR | 3 ×R0.5 ×12 | 1.8 | 50 | 6 | ● | 433 |
| AE-CPR4-H | 3 ×R0.1 ×4 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.1 ×6 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.1 ×8 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.1 ×10 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.1 ×12 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.1 ×16 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.1 ×20 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.2 ×4 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.2 ×6 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.2 ×8 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.2 ×8 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.2 ×10 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.2 ×12 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.2 ×12 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.2 ×16 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.2 ×16 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.2 ×20 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.2 ×20 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.3 ×4 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.3 ×6 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.3 ×8 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.3 ×10 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.3 ×12 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.3 ×12 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.3 ×16 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.3 ×16 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.3 ×20 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.3 ×20 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.5 ×4 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.5 ×6 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.5 ×8 | 2.5 | 55 | 6 | ● | 416 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

# 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR4-H | 3 ×R0.5 ×10 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.5 ×12 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.5 ×12 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.5 ×16 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.5 ×16 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.5 ×20 | 2.5 | 55 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.5 ×20 | 2.5 | 55 | 6 | ● | 416 |
| AE-CPR4-H | 3 ×R0.1 ×25 | 2.5 | 70 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.2 ×25 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.2 ×25 | 2.5 | 70 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.2 ×30 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.2 ×30 | 2.5 | 70 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.2 ×35 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.2 ×35 | 2.5 | 70 | 6 | ○ | 416 |
| AE-CPR2-H | 3 ×R0.3 ×25 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.3 ×25 | 2.5 | 70 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.3 ×30 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.3 ×30 | 2.5 | 70 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.3 ×35 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.3 ×35 | 2.5 | 70 | 6 | ○ | 416 |
| AE-CPR2-H | 3 ×R0.5 ×25 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.5 ×25 | 2.5 | 70 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.5 ×30 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.5 ×30 | 2.5 | 70 | 6 | ● | 416 |
| AE-CPR2-H | 3 ×R0.5 ×35 | 2.5 | 70 | 6 | ● | 410 |
| AE-CPR4-H | 3 ×R0.5 ×35 | 2.5 | 70 | 6 | ○ | 416 |
| CBN-CR-EDS | 3 ×R0.2 | 3 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 3 ×R0.3 | 3 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 3 ×R0.5 | 3 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 3 ×R0.75 | 3 | 50 | 6 | ● | 381 |
| AE-CPR-N | 3 ×R0.2 ×6 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.2 ×12 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.2 ×18 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.3 ×6 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.3 ×8 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.3 ×12 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.3 ×20 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.5 ×6 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.5 ×12 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.5 ×15 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.5 ×18 | 3 | 55 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.2 ×21 | 3 | 70 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.2 ×24 | 3 | 70 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.5 ×21 | 3 | 70 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.5 ×25 | 3 | 70 | 6 | ● | 400 |
| AE-CPR-N | 3 ×R0.5 ×30 | 3 | 70 | 6 | ● | 400 |
| PHX-LN-DFR | 3 ×R0.8 ×16 | 4 | 50 | 6 | ● | 431 |
| PHX-LN-DFR | 3 ×R0.8 ×20 | 4 | 60 | 6 | ● | 431 |
| PHX-LN-DFR | 3 ×R0.8 ×24 | 4 | 70 | 6 | ● | 431 |
| PHX-LN-DFR | 3 ×R0.8 ×28 | 4 | 70 | 6 | ● | 431 |
| PHX-LN-DFR | 3 ×R0.8 ×32 | 4 | 70 | 6 | ● | 431 |
| DLC-PKE | 3 ×R0.5 ×50 | 4.5 | 50 | 6 | ● | 403 |
| AE-TS-N | 3 ×9 ×R0.2 | 4.5 | 55 | 6 | ● | 395 |
| AE-VTS-N | 3 ×9 ×R0.2 | 4.5 | 55 | 6 | ● | 396 |
| AE-TS-N | 3 ×9 ×R0.5 | 4.5 | 55 | 6 | ● | 395 |
| AE-VTS-N | 3 ×9 ×R0.5 | 4.5 | 55 | 6 | ● | 396 |
| DG-CPR | 3 ×R0.2 ×0° ×10 | 4.5 | 60 | 4 | ● | 434 |
| DG-CPR | 3 ×R0.2 ×0° ×16 | 4.5 | 60 | 4 | ● | 434 |
| DG-CPR | 3 ×R0.2 ×0° ×20 | 4.5 | 60 | 4 | ● | 434 |
| FXS-PKE | 3 ×R0.2 ×60 | 4.5 | 60 | 6 | ● | 391 |
| SXL-PKE | 3 ×R0.2 ×60 | 4.5 | 60 | 6 | □ | 436-12 |
| FXS-PKE | 3 ×R0.5 ×60 | 4.5 | 60 | 6 | ● | 391 |
| SXL-PKE | 3 ×R0.5 ×60 | 4.5 | 60 | 6 | □ | 436-12 |
| FXS-PKE | 3 ×R0.2 ×70 | 4.5 | 70 | 6 | ● | 391 |
| SXL-PKE | 3 ×R0.2 ×70 | 4.5 | 70 | 6 | □ | 436-12 |
| FXS-PKE | 3 ×R0.5 ×70 | 4.5 | 70 | 6 | ● | 391 |
| SXL-PKE | 3 ×R0.5 ×70 | 4.5 | 70 | 6 | □ | 436-12 |
| DG-CPR | 3 ×R0.2 ×0° ×40 | 4.5 | 80 | 4 | ● | 434 |
| PHX-PC-DFR | 3 ×R0.5 ×1° ×40 | 4.5 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×0.5° ×20 | 4.5 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×1° ×20 | 4.5 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×1° ×25 | 4.5 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×1° ×30 | 4.5 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×0.5° ×40 | 4.5 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×1° ×40 | 4.5 | 80 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.5 ×1° ×60 | 4.5 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×3° ×32.1 | 4.5 | 100 | 6 | ● | 428 |
| PHX-PC-DFR | 3 ×R0.8 ×2° ×46.5 | 4.5 | 100 | 6 | ● | 428 |
| PHX-PC-DFR | 3 ×R0.8 ×1° ×50 | 4.5 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×1° ×60 | 4.5 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×1.5° ×60.8 | 4.5 | 100 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×1° ×80 | 4.5 | 120 | 6 | ● | 427 |
| PHX-PC-DFR | 3 ×R0.8 ×2° ×80 | 4.5 | 150 | 8 | ● | 428 |
| PHX-PC-DFR | 3 ×R0.8 ×1° ×100 | 4.5 | 150 | 8 | ● | 427 |
| WXL-MG-NC-RESF | 3 ×R0.5 | 6 | 60 | 6 | □ | 438-3 |
| PHX-CRT | 3 ×R0.8 | 6 | 70 | 6 | ● | 388 |
| AE-MS-H | 3 ×R0.2 | 7.5 | 60 | 6 | ● | 405 |
| AE-MS-H | 3 ×R0.5 | 7.5 | 60 | 6 | ○ | 405 |
| DIA-CR-EDS | 3 ×R0.2 | 8 | 45 | 6 | □ | 436-4 |
| FX-CS-EDS | 3 ×C0.2 | 8 | 45 | 6 | □ | 436-9 |
| MG-CS-EDS | 3 ×C0.2 | 8 | 45 | 6 | □ | 436-10 |
| FX-CS-EDS | 3 ×C0.3 | 8 | 45 | 6 | □ | 436-9 |
| MG-CR-EDS | 3 ×R0.3 | 8 | 45 | 6 | □ | 436-3 |
| MG-CS-EDS | 3 ×C0.3 | 8 | 45 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 3 ×R0.3 | 8 | 45 | 6 | □ | 436-2 |
| MG-CR-EDS | 3 ×R0.4 | 8 | 45 | 6 | □ | 436-3 |
| DIA-CR-EDS | 3 ×R0.5 | 8 | 45 | 6 | □ | 436-4 |
| FX-CS-EDS | 3 ×C0.5 | 8 | 45 | 6 | □ | 436-9 |
| MG-CR-EDS | 3 ×R0.5 | 8 | 45 | 6 | □ | 436-3 |
| MG-CS-EDS | 3 ×C0.5 | 8 | 45 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 3 ×R0.5 | 8 | 45 | 6 | □ | 436-2 |
| MG-CR-EDS | 3 ×R0.75 | 8 | 45 | 6 | □ | 436-3 |
| TIN-MG-CR-EDS | 3 ×R0.75 | 8 | 45 | 6 | □ | 436-2 |
| MG-CR-EDS | 3 ×R0.8 | 8 | 45 | 6 | □ | 436-3 |
| FX-CS-EDS | 3 ×C1 | 8 | 45 | 6 | □ | 436-9 |
| MG-CS-EDS | 3 ×C1 | 8 | 45 | 6 | □ | 436-10 |
| AE-VMS | 3 ×R0.2 | 8 | 60 | 6 | ● | 301 |
| AE-VMS | 3 ×R0.2 | 8 | 60 | 6 | ● | 370 |
| FXS-PKER | 3 ×R0.2 | 8 | 60 | 6 | □ | 436-8 |
| FX-CR-MG-EDS | 3 ×R0.3 | 8 | 60 | 6 | □ | 379 |
| FX-CR-MG-EDS | 3 ×R0.4 | 8 | 60 | 6 | □ | 379 |
| AE-VMS | 3 ×R0.5 | 8 | 60 | 6 | ● | 301 |
| AE-VMS | 3 ×R0.5 | 8 | 60 | 6 | ● | 370 |
| FXS-PKER | 3 ×R0.5 | 8 | 60 | 6 | □ | 436-8 |
| FX-CR-MG-EDS | 3 ×R0.75 | 8 | 60 | 6 | □ | 379 |
| FX-CR-MG-EDS | 3 ×R0.8 | 8 | 60 | 6 | □ | 379 |
| FX-CR-MG-EDL | 3 ×R0.2 | 12 | 60 | 6 | □ | 380 |
| FX-CR-MG-EDL | 3 ×R0.3 | 12 | 60 | 6 | □ | 380 |
| FX-CR-MG-EDL | 3 ×R0.5 | 12 | 60 | 6 | □ | 380 |
| FXS-CR-EML | 3 ×R0.2 | 15 | 80 | 6 | □ | 436-7 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FXS-CR-EML | 3 ×R0.5 | 15 | 80 | 6 | □ | 436-7 |
| AE-HFE-H | 4 ×R0.35 | 1.6 | 70 | 6 | ● | 384 |
| AE-CRE-H | 4 ×R1 | 1.6 | 70 | 6 | ● | 383 |
| AE-CPR4-H | 4 ×R0.1 ×8 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.1 ×12 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.1 ×16 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.1 ×20 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.1 ×25 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.2 ×8 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.2 ×12 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.2 ×16 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.2 ×20 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.2 ×25 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.3 ×8 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.3 ×12 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.3 ×16 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.3 ×20 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.3 ×25 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.5 ×8 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.5 ×12 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.5 ×16 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.5 ×20 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.5 ×25 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R1 ×8 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R1 ×12 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R1 ×16 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R1 ×20 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R1 ×25 | 3.2 | 60 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.1 ×30 | 3.2 | 75 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.2 ×30 | 3.2 | 75 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.2 ×40 | 3.2 | 75 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.3 ×30 | 3.2 | 75 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.3 ×40 | 3.2 | 75 | 6 | ○ | 417 |
| AE-CPR4-H | 4 ×R0.5 ×30 | 3.2 | 75 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.5 ×40 | 3.2 | 75 | 6 | ○ | 417 |
| AE-CPR4-H | 4 ×R1 ×30 | 3.2 | 75 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R1 ×40 | 3.2 | 75 | 6 | ● | 417 |
| AE-CPR4-H | 4 ×R0.5 ×50 | 3.2 | 90 | 6 | ● | 417 |
| CBN-CR-EDS | 4 ×R0.2 | 4 | 45 | 6 | ● | 381 |
| CBN-CR-EDS | 4 ×R0.3 | 4 | 45 | 6 | ● | 381 |
| CBN-CR-EDS | 4 ×R0.5 | 4 | 45 | 6 | ● | 381 |
| CBN-CR-EDS | 4 ×R1 | 4 | 45 | 6 | ● | 381 |
| AE-CPR-N | 4 ×R0.2 ×8 | 4 | 60 | 6 | ● | 400 |
| AE-CPR-N | 4 ×R0.2 ×16 | 4 | 60 | 6 | ● | 400 |
| AE-CPR-N | 4 ×R0.2 ×20 | 4 | 60 | 6 | ● | 400 |
| AE-CPR-N | 4 ×R0.2 ×24 | 4 | 60 | 6 | ● | 400 |
| AE-CPR-N | 4 ×R0.3 ×8 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.3 ×20 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.5 ×8 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.5 ×12 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.5 ×16 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.5 ×20 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.5 ×24 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.5 ×25 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R1 ×8 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R1 ×16 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R1 ×24 | 4 | 60 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.2 ×28 | 4 | 75 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.2 ×32 | 4 | 75 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R0.5 ×28 | 4 | 75 | 6 | ● | 401 |

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-CPR-N | 4 ×R0.5 ×32 | 4 | 75 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R1 ×28 | 4 | 75 | 6 | ● | 401 |
| AE-CPR-N | 4 ×R1 ×32 | 4 | 75 | 6 | ● | 401 |
| DLC-PKE | 4 ×R0.5 ×50 | 6 | 50 | 6 | ● | 403 |
| PHX-LN-DFR | 4 ×R1 ×16 | 6 | 50 | 6 | ● | 431 |
| AE-TS-N | 4 ×12 ×R0.2 | 6 | 55 | 6 | ● | 395 |
| AE-VTS-N | 4 ×12 ×R0.2 | 6 | 55 | 6 | ● | 396 |
| AE-TS-N | 4 ×12 ×R0.5 | 6 | 55 | 6 | ● | 395 |
| AE-VTS-N | 4 ×12 ×R0.5 | 6 | 55 | 6 | ● | 396 |
| AE-TS-N | 4 ×12 ×R1 | 6 | 55 | 6 | ● | 395 |
| AE-VTS-N | 4 ×12 ×R1 | 6 | 55 | 6 | ● | 396 |
| WXL-MG-NC-RESF | 4 ×R0.5 | 6 | 60 | 6 | □ | 438-3 |
| PHX-LN-DFR | 4 ×R1 ×20 | 6 | 70 | 4 | ● | 431 |
| PHX-LN-DFR | 4 ×R1 ×28 | 6 | 70 | 4 | ● | 431 |
| FXS-PKE | 4 ×R0.2 ×70 | 6 | 70 | 6 | ● | 391 |
| SXL-PKE | 4 ×R0.2 ×70 | 6 | 70 | 6 | □ | 436-12 |
| FXS-PKE | 4 ×R0.5 ×70 | 6 | 70 | 6 | ● | 391 |
| SXL-PKE | 4 ×R0.5 ×70 | 6 | 70 | 6 | □ | 436-12 |
| PHX-LN-DFR | 4 ×R1 ×20-6 | 6 | 70 | 6 | ● | 431 |
| PHX-LN-DFR | 4 ×R1 ×24 | 6 | 70 | 6 | ● | 431 |
| PHX-LN-DFR | 4 ×R1 ×28-6 | 6 | 70 | 6 | ● | 431 |
| PHX-LN-DFR | 4 ×R1 ×32 | 6 | 70 | 6 | ● | 431 |
| DG-CPR | 4 ×R0.2 ×0° ×40 | 6 | 80 | 4 | ● | 434 |
| FXS-PKE | 4 ×R0.2 ×80 | 6 | 80 | 6 | ● | 391 |
| SXL-PKE | 4 ×R0.2 ×80 | 6 | 80 | 6 | □ | 436-12 |
| FXS-PKE | 4 ×R0.5 ×80 | 6 | 80 | 6 | ● | 391 |
| SXL-PKE | 4 ×R0.5 ×80 | 6 | 80 | 6 | □ | 436-12 |
| PHX-PC-DFR | 4 ×R0.5 ×1° ×30 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×0.5° ×25 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×0.5° ×30 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1° ×30 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×2° ×32.6 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×0.5° ×35 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×0.5° ×40 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1° ×40 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1.5° ×42.2 | 6 | 80 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×0.5° ×45 | 6 | 80 | 6 | ● | 428 |
| PHX-LN-DFR | 4 ×R1 ×36 | 6 | 90 | 6 | ● | 431 |
| PHX-LN-DFR | 4 ×R1 ×40 | 6 | 90 | 6 | ● | 431 |
| PHX-PC-DFR | 4 ×R0.5 ×1° ×60 | 6 | 100 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×0.5° ×50 | 6 | 100 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1° ×50 | 6 | 100 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1° ×61.3 | 6 | 100 | 6 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×3° ×42.2 | 6 | 100 | 8 | ● | 428 |
| DG-CPR | 4 ×R0.2 ×0° ×60 | 6 | 120 | 4 | ● | 434 |
| PHX-PC-DFR | 4 ×R1 ×2° ×61.3 | 6 | 120 | 8 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1° ×80 | 6 | 120 | 8 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1.5° ×80.4 | 6 | 120 | 8 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1.5° ×100 | 6 | 150 | 10 | ● | 428 |
| PHX-PC-DFR | 4 ×R1 ×1.5° ×120 | 6 | 160 | 10 | ● | 428 |
| AM-HFC | 4 ×R0.5 | 8 | 50 | 6 | ● | 386 |
| PHX-CRT | 4 ×R1 | 8 | 70 | 6 | ● | 388 |
| AE-MS-H | 4 ×R0.2 | 10 | 60 | 6 | ● | 405 |
| AE-MS-H | 4 ×R0.5 | 10 | 60 | 6 | ○ | 405 |
| AE-MS-H | 4 ×R1 | 10 | 60 | 6 | ○ | 405 |
| DIA-CR-EDS | 4 ×R0.2 | 11 | 45 | 6 | □ | 436-4 |
| FX-CS-EDS | 4 ×C0.2 | 11 | 45 | 6 | □ | 436-9 |
| MG-CS-EDS | 4 ×C0.2 | 11 | 45 | 6 | □ | 436-10 |
| FX-CS-EDS | 4 ×C0.3 | 11 | 45 | 6 | □ | 436-9 |
| MG-CS-EDS | 4 ×C0.3 | 11 | 45 | 6 | □ | 436-10 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-CR-EDS | 4 ×R0.4 | 11 | 45 | 6 | □ | 436-3 |
| DIA-CR-EDS | 4 ×R0.5 | 11 | 45 | 6 | □ | 436-4 |
| FX-CR-MG-EMS | 4 ×R0.5 | 11 | 45 | 6 | □ | 436-5 |
| FX-CS-EDS | 4 ×C0.5 | 11 | 45 | 6 | □ | 436-9 |
| MG-CR-EDS | 4 ×R0.5 | 11 | 45 | 6 | □ | 436-3 |
| MG-CR-EMS | 4 ×R0.5 | 11 | 45 | 6 | □ | 436-6 |
| MG-CS-EDS | 4 ×C0.5 | 11 | 45 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 4 ×R0.5 | 11 | 45 | 6 | □ | 436-2 |
| MG-CR-EDS | 4 ×R0.75 | 11 | 45 | 6 | □ | 436-3 |
| TIN-MG-CR-EDS | 4 ×R0.75 | 11 | 45 | 6 | □ | 436-2 |
| MG-CR-EDS | 4 ×R0.8 | 11 | 45 | 6 | □ | 436-3 |
| DIA-CR-EDS | 4 ×R1 | 11 | 45 | 6 | □ | 436-4 |
| FX-CR-MG-EMS | 4 ×R1 | 11 | 45 | 6 | □ | 436-5 |
| FX-CS-EDS | 4 ×C1 | 11 | 45 | 6 | □ | 436-9 |
| MG-CR-EDS | 4 ×R1 | 11 | 45 | 6 | □ | 436-3 |
| MG-CR-EMS | 4 ×R1 | 11 | 45 | 6 | □ | 436-6 |
| MG-CS-EDS | 4 ×C1 | 11 | 45 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 4 ×R1 | 11 | 45 | 6 | □ | 436-2 |
| FX-CS-EDS | 4 ×C1.5 | 11 | 45 | 6 | □ | 436-9 |
| MG-CS-EDS | 4 ×C1.5 | 11 | 45 | 6 | □ | 436-10 |
| AE-VMS | 4 ×R0.2 | 11 | 60 | 6 | ● | 301 |
| AE-VMS | 4 ×R0.2 | 11 | 60 | 6 | ● | 370 |
| AE-VMS | 4 ×R0.5 | 11 | 60 | 6 | ● | 301 |
| AE-VMS | 4 ×R0.5 | 11 | 60 | 6 | ● | 370 |
| AE-VMS | 4 ×R1 | 11 | 60 | 6 | ● | 301 |
| AE-VMS | 4 ×R1 | 11 | 60 | 6 | ● | 370 |
| FXS-PKER | 4 ×R0.2 | 11 | 70 | 6 | □ | 436-8 |
| FX-CR-MG-EDS | 4 ×R0.4 | 11 | 70 | 6 | □ | 379 |
| FXS-PKER | 4 ×R0.5 | 11 | 70 | 6 | □ | 436-8 |
| FX-CR-MG-EDS | 4 ×R0.75 | 11 | 70 | 6 | □ | 379 |
| FX-CR-MG-EDS | 4 ×R0.8 | 11 | 70 | 6 | □ | 379 |
| FX-CR-MG-EDL | 4 ×R0.2 | 17 | 70 | 6 | □ | 380 |
| FX-CR-MG-EDL | 4 ×R0.3 | 17 | 70 | 6 | □ | 380 |
| FX-CR-MG-EDL | 4 ×R0.5 | 17 | 70 | 6 | □ | 380 |
| FX-CR-MG-EDL | 4 ×R1 | 17 | 70 | 6 | □ | 380 |
| FXS-CR-EML | 4 ×R0.2 | 20 | 80 | 6 | □ | 436-7 |
| FXS-CR-EML | 4 ×R0.5 | 20 | 80 | 6 | □ | 436-7 |
| FXS-CR-EML | 4 ×R1 | 20 | 80 | 6 | □ | 436-7 |
| AE-HFE-H | 5 ×R0.4 | 2 | 80 | 6 | ● | 384 |
| AE-CRE-H | 5 ×R1.2 | 2 | 80 | 6 | ● | 383 |
| CBN-CR-EDS | 5 ×R0.2 | 5 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 5 ×R0.3 | 5 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 5 ×R0.5 | 5 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 5 ×R0.75 | 5 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 5 ×R1 | 5 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 5 ×R1.5 | 5 | 50 | 6 | ● | 381 |
| WXL-MG-NC-RESF | 5 ×R0.5 | 6 | 60 | 6 | □ | 438-3 |
| AE-TS-N | 5 ×15 ×R0.2 | 7.5 | 55 | 6 | ● | 395 |
| AE-VTS-N | 5 ×15 ×R0.2 | 7.5 | 55 | 6 | ● | 396 |
| AE-TS-N | 5 ×15 ×R0.5 | 7.5 | 55 | 6 | ● | 395 |
| AE-VTS-N | 5 ×15 ×R0.5 | 7.5 | 55 | 6 | ● | 396 |
| AE-TS-N | 5 ×15 ×R1 | 7.5 | 55 | 6 | ● | 395 |
| AE-VTS-N | 5 ×15 ×R1 | 7.5 | 55 | 6 | ● | 396 |
| DLC-PKE | 5 ×R0.5 ×60 | 7.5 | 60 | 6 | ● | 403 |
| PHX-LN-DFR | 5 ×R1 ×20 | 7.5 | 70 | 6 | ● | 431 |
| PHX-LN-DFR | 5 ×R1 ×30 | 7.5 | 70 | 6 | ● | 431 |
| FXS-PKE | 5 ×R0.2 ×80 | 7.5 | 80 | 6 | ● | 391 |
| SXL-PKE | 5 ×R0.2 ×80 | 7.5 | 80 | 6 | □ | 436-12 |
| FXS-PKE | 5 ×R0.5 ×80 | 7.5 | 80 | 6 | ● | 391 |
| SXL-PKE | 5 ×R0.5 ×80 | 7.5 | 80 | 6 | □ | 436-12 |

| 製品記号 Abbreviation | 外径×コーナ半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FXS-PKE | 5 ×R0.2 ×90 | 7.5 | 90 | 6 | ● | 391 |
| SXL-PKE | 5 ×R0.2 ×90 | 7.5 | 90 | 6 | □ | 436-12 |
| FXS-PKE | 5 ×R0.5 ×90 | 7.5 | 90 | 6 | ● | 391 |
| SXL-PKE | 5 ×R0.5 ×90 | 7.5 | 90 | 6 | □ | 436-12 |
| PHX-LN-DFR | 5 ×R1 ×40 | 7.5 | 90 | 6 | ● | 431 |
| AM-HFC | 5 ×R0.6 | 10 | 60 | 6 | ● | 386 |
| PHX-CRT | 5 ×R1 | 10 | 70 | 6 | ● | 388 |
| DIA-LS-CRED | 5 ×R0.3 | 10 | 100 | 4 | ● | 402 |
| DIA-LS-CRED | 5 ×R0.5 | 10 | 100 | 4 | ● | 402 |
| DIA-LS-CRED | 5 ×R1 | 10 | 100 | 4 | ● | 402 |
| AE-MS-H | 5 ×R0.2 | 12.5 | 60 | 6 | ● | 405 |
| AE-MS-H | 5 ×R0.5 | 12.5 | 60 | 6 | ○ | 405 |
| AE-MS-H | 5 ×R1 | 12.5 | 60 | 6 | ○ | 405 |
| DIA-CR-EDS | 5 ×R0.2 | 13 | 50 | 6 | □ | 436-4 |
| FX-CS-EDS | 5 ×C0.2 | 13 | 50 | 6 | □ | 436-9 |
| MG-CS-EDS | 5 ×C0.2 | 13 | 50 | 6 | □ | 436-10 |
| FX-CS-EDS | 5 ×C0.3 | 13 | 50 | 6 | □ | 436-9 |
| MG-CS-EDS | 5 ×C0.3 | 13 | 50 | 6 | □ | 436-10 |
| MG-CR-EDS | 5 ×R0.4 | 13 | 50 | 6 | □ | 436-3 |
| DIA-CR-EDS | 5 ×R0.5 | 13 | 50 | 6 | □ | 436-4 |
| FX-CR-MG-EMS | 5 ×R0.5 | 13 | 50 | 6 | □ | 436-5 |
| FX-CS-EDS | 5 ×C0.5 | 13 | 50 | 6 | □ | 436-9 |
| MG-CR-EDS | 5 ×R0.5 | 13 | 50 | 6 | □ | 436-3 |
| MG-CR-EMS | 5 ×R0.5 | 13 | 50 | 6 | □ | 436-6 |
| MG-CS-EDS | 5 ×C0.5 | 13 | 50 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 5 ×R0.5 | 13 | 50 | 6 | □ | 436-2 |
| TIN-MG-CR-EDS | 5 ×R0.75 | 13 | 50 | 6 | □ | 436-2 |
| MG-CR-EDS | 5 ×R0.8 | 13 | 50 | 6 | □ | 436-3 |
| DIA-CR-EDS | 5 ×R1 | 13 | 50 | 6 | □ | 436-4 |
| FX-CR-MG-EMS | 5 ×R1 | 13 | 50 | 6 | □ | 436-5 |
| FX-CS-EDS | 5 ×C1 | 13 | 50 | 6 | □ | 436-9 |
| MG-CR-EDS | 5 ×R1 | 13 | 50 | 6 | □ | 436-3 |
| MG-CR-EMS | 5 ×R1 | 13 | 50 | 6 | □ | 436-6 |
| MG-CS-EDS | 5 ×C1 | 13 | 50 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 5 ×R1 | 13 | 50 | 6 | □ | 436-2 |
| FX-CR-MG-EMS | 5 ×R1.5 | 13 | 50 | 6 | □ | 436-5 |
| FX-CS-EDS | 5 ×C1.5 | 13 | 50 | 6 | □ | 436-9 |
| MG-CR-EDS | 5 ×R1.5 | 13 | 50 | 6 | □ | 436-3 |
| MG-CR-EMS | 5 ×R1.5 | 13 | 50 | 6 | □ | 436-6 |
| MG-CS-EDS | 5 ×C1.5 | 13 | 50 | 6 | □ | 436-10 |
| AE-VMS | 5 ×R0.2 | 13 | 60 | 6 | ● | 301 |
| AE-VMS | 5 ×R0.2 | 13 | 60 | 6 | ● | 370 |
| AE-VMS | 5 ×R0.5 | 13 | 60 | 6 | ● | 301 |
| AE-VMS | 5 ×R0.5 | 13 | 60 | 6 | ● | 370 |
| AE-VMS | 5 ×R1 | 13 | 60 | 6 | ● | 301 |
| AE-VMS | 5 ×R1 | 13 | 60 | 6 | ● | 370 |
| FXS-PKER | 5 ×R0.2 | 13 | 80 | 6 | □ | 436-8 |
| FX-CR-MG-EDS | 5 ×R0.4 | 13 | 80 | 6 | □ | 379 |
| FXS-PKER | 5 ×R0.5 | 13 | 80 | 6 | □ | 436-8 |
| FX-CR-MG-EDS | 5 ×R0.8 | 13 | 80 | 6 | □ | 379 |
| FX-CR-MG-EDS | 5 ×R1.5 | 13 | 80 | 6 | □ | 379 |
| FX-CR-MG-EDL | 5 ×R0.2 | 20 | 80 | 6 | □ | 380 |
| FX-CR-MG-EDL | 5 ×R0.3 | 20 | 80 | 6 | □ | 380 |
| FX-CR-MG-EDL | 5 ×R0.5 | 20 | 80 | 6 | □ | 380 |
| FX-CR-MG-EDL | 5 ×R1 | 20 | 80 | 6 | □ | 380 |
| FXS-CR-EML | 5 ×R0.2 | 25 | 80 | 6 | □ | 436-7 |
| FXS-CR-EML | 5 ×R0.5 | 25 | 80 | 6 | □ | 436-7 |
| FXS-CR-EML | 5 ×R1 | 25 | 80 | 6 | □ | 436-7 |
| AE-HFE-H | 6 ×R0.45 | 2.5 | 90 | 6 | ● | 384 |
| AE-CRE-H | 6 ×R1.5 | 2.5 | 90 | 6 | ● | 383 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CM-RMS | 6 ×R0.75 ×4Z | 4.5 | 60 | 6 | ● | 435 |
| CM-RMS | 6 ×R0.75 ×6Z | 4.5 | 60 | 6 | ● | 435 |
| AE-CPR4-H | 6 ×R0.1 ×12 | 4.8 | 70 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.2 ×12 | 4.8 | 70 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.3 ×12 | 4.8 | 70 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.5 ×12 | 4.8 | 70 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R1 ×12 | 4.8 | 70 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.1 ×18 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.1 ×24 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.1 ×30 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.2 ×18 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.2 ×24 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.2 ×30 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.3 ×18 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.3 ×24 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.3 ×30 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.5 ×18 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.5 ×24 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.5 ×30 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R1 ×18 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R1 ×24 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R1 ×30 | 4.8 | 90 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.1 ×48 | 4.8 | 120 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.2 ×48 | 4.8 | 120 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.3 ×48 | 4.8 | 120 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R0.5 ×48 | 4.8 | 120 | 6 | ● | 418 |
| AE-CPR4-H | 6 ×R1 ×48 | 4.8 | 120 | 6 | ● | 418 |
| CBN-CR-EDS | 6 ×R0.2 | 6 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 6 ×R0.3 | 6 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 6 ×R0.5 | 6 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 6 ×R0.75 | 6 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 6 ×R1 | 6 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 6 ×R1.5 | 6 | 50 | 6 | ● | 381 |
| CBN-CR-EDS | 6 ×R2 | 6 | 50 | 6 | ● | 381 |
| AE-CPR-N | 6 ×R0.1 ×12 | 6 | 60 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.1 ×24 | 6 | 60 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.2 ×12 | 6 | 60 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.2 ×24 | 6 | 60 | 6 | ● | 401 |
| WXL-MG-NC-RESF | 6 ×R0.5 | 6 | 60 | 6 | □ | 438-3 |
| AE-CPR-N | 6 ×R0.5 ×12 | 6 | 60 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.5 ×24 | 6 | 60 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.5 ×30 | 6 | 60 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R1 ×12 | 6 | 60 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R1 ×24 | 6 | 60 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.2 ×32 | 6 | 80 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.2 ×48 | 6 | 80 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.5 ×32 | 6 | 80 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R0.5 ×48 | 6 | 80 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R1 ×32 | 6 | 80 | 6 | ● | 401 |
| AE-CPR-N | 6 ×R1 ×48 | 6 | 80 | 6 | ● | 401 |
| DG-CPR | 6 ×R0.5 ×0° ×30 | 6 | 100 | 6 | ● | 434 |
| DG-CPR | 6 ×R1 ×0° ×30 | 6 | 100 | 6 | ● | 434 |
| AE-TS-N | 6 ×18 ×R0.3 | 9 | 60 | 6 | ● | 395 |
| AE-VTS-N | 6 ×18 ×R0.3 | 9 | 60 | 6 | ● | 396 |
| DLC-PKE | 6 ×R0.5 ×60 | 9 | 60 | 6 | ● | 403 |
| AE-TS-N | 6 ×18 ×R0.5 | 9 | 60 | 6 | ● | 395 |
| AE-VTS-N | 6 ×18 ×R0.5 | 9 | 60 | 6 | ● | 396 |
| AM-CRE | 6 ×R1 | 9 | 60 | 6 | ● | 385 |
| DLC-PKE | 6 ×R1 ×60 | 9 | 60 | 6 | ● | 403 |
| AE-TS-N | 6 ×18 ×R1 | 9 | 60 | 6 | ● | 395 |
| AE-VTS-N | 6 ×18 ×R1 | 9 | 60 | 6 | ● | 396 |
| AM-CRE | 6 ×R1.5 | 9 | 60 | 6 | ● | 385 |
| PHX-LN-DFR | 6 ×R1 ×20 | 9 | 70 | 6 | ● | 431 |
| PHX-LN-DFR | 6 ×R1.5 ×20 | 9 | 70 | 6 | ● | 431 |
| PHX-LN-DFR | 6 ×R1.5 ×30 | 9 | 80 | 6 | ● | 431 |
| FXS-PKE | 6 ×R0.5 ×90 | 9 | 90 | 6 | ● | 391 |
| SXL-PKE | 6 ×R0.5 ×90 | 9 | 90 | 6 | □ | 436-12 |
| FXS-PKE | 6 ×R1 ×90 | 9 | 90 | 6 | ● | 391 |
| SXL-PKE | 6 ×R1 ×90 | 9 | 90 | 6 | □ | 436-12 |
| PHX-LN-DFR | 6 ×R1 ×40 | 9 | 90 | 6 | ● | 431 |
| PHX-LN-DFR | 6 ×R1.5 ×42 | 9 | 90 | 6 | ● | 431 |
| FXS-PKE | 6 ×R0.5 ×100 | 9 | 100 | 6 | ● | 391 |
| SXL-PKE | 6 ×R0.5 ×100 | 9 | 100 | 6 | □ | 436-12 |
| FXS-PKE | 6 ×R1 ×100 | 9 | 100 | 6 | ● | 391 |
| SXL-PKE | 6 ×R1 ×100 | 9 | 100 | 6 | □ | 436-12 |
| PHX-LN-DFR | 6 ×R1.5 ×54 | 9 | 100 | 6 | ● | 431 |
| PHX-PC-DFR | 6 ×R1.5 ×2° ×33.6 | 9 | 100 | 8 | ● | 429 |
| PHX-PC-DFR | 6 ×R1.5 ×1° ×40 | 9 | 100 | 8 | ● | 428 |
| PHX-PC-DFR | 6 ×R1.5 ×1.5° ×43.2 | 9 | 100 | 8 | ● | 429 |
| PHX-PC-DFR | 6 ×R1.5 ×1° ×50 | 9 | 100 | 8 | ● | 429 |
| PHX-LN-DFR | 6 ×R1.5 ×66 | 9 | 110 | 6 | ● | 431 |
| PHX-PC-DFR | 6 ×R1.5 ×1° ×80 | 9 | 120 | 10 | ● | 429 |
| PHX-PC-DFR | 6 ×R0.8 ×1° ×62.3 | 9 | 130 | 8 | ● | 428 |
| PHX-PC-DFR | 6 ×R1.5 ×0.5° ×60 | 9 | 130 | 8 | ● | 428 |
| PHX-PC-DFR | 6 ×R1.5 ×1° ×62.3 | 9 | 130 | 8 | ● | 429 |
| PHX-PC-DFR | 6 ×R1.5 ×2° ×62.3 | 9 | 130 | 10 | ● | 429 |
| PHX-PC-DFR | 6 ×R1.5 ×1.5° ×81.4 | 9 | 130 | 10 | ● | 429 |
| PHX-PC-DFR | 6 ×R1.5 ×1° ×100 | 9 | 150 | 10 | ● | 429 |
| PHX-PC-DFR | 6 ×R0.8 ×1° ×120 | 9 | 160 | 10 | ● | 428 |
| PHX-PC-DFR | 6 ×R1.5 ×1° ×120 | 9 | 160 | 10 | ● | 429 |
| PHX-PC-DFR | 6 ×R1.5 ×1.5° ×120 | 9 | 160 | 12 | ● | 429 |
| AM-HFC | 6 ×R0.8 | 12 | 60 | 6 | ● | 386 |
| PHX-DFR | 6 ×R1.5 | 12 | 80 | 6 | ● | 387 |
| FX-CS-EDS | 6 ×C0.2 | 13 | 50 | 6 | □ | 436-9 |
| MG-CS-EDS | 6 ×C0.2 | 13 | 50 | 6 | □ | 436-10 |
| DIA-CR-EDS | 6 ×R0.3 | 13 | 50 | 6 | □ | 436-4 |
| FX-CS-EDS | 6 ×C0.3 | 13 | 50 | 6 | □ | 436-9 |
| MG-CS-EDS | 6 ×C0.3 | 13 | 50 | 6 | □ | 436-10 |
| MG-CR-EDS | 6 ×R0.4 | 13 | 50 | 6 | □ | 436-3 |
| DIA-CR-EDS | 6 ×R0.5 | 13 | 50 | 6 | □ | 436-4 |
| FX-CR-MG-EMS | 6 ×R0.5 | 13 | 50 | 6 | □ | 436-5 |
| FX-CS-EDS | 6 ×C0.5 | 13 | 50 | 6 | □ | 436-9 |
| MG-CR-EDS | 6 ×R0.5 | 13 | 50 | 6 | □ | 436-3 |
| MG-CR-EMS | 6 ×R0.5 | 13 | 50 | 6 | □ | 436-6 |
| MG-CS-EDS | 6 ×C0.5 | 13 | 50 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 6 ×R0.5 | 13 | 50 | 6 | □ | 436-2 |
| MG-CR-EDS | 6 ×R0.8 | 13 | 50 | 6 | □ | 436-3 |
| DIA-CR-EDS | 6 ×R1 | 13 | 50 | 6 | □ | 436-4 |
| FX-CR-MG-EMS | 6 ×R1 | 13 | 50 | 6 | □ | 436-5 |
| FX-CS-EDS | 6 ×C1 | 13 | 50 | 6 | □ | 436-9 |
| MG-CR-EDS | 6 ×R1 | 13 | 50 | 6 | □ | 436-3 |
| MG-CR-EMS | 6 ×R1 | 13 | 50 | 6 | □ | 436-6 |
| MG-CS-EDS | 6 ×C1 | 13 | 50 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 6 ×R1 | 13 | 50 | 6 | □ | 436-2 |
| DIA-CR-EDS | 6 ×R1.5 | 13 | 50 | 6 | □ | 436-4 |
| FX-CR-MG-EMS | 6 ×R1.5 | 13 | 50 | 6 | □ | 436-5 |
| FX-CS-EDS | 6 ×C1.5 | 13 | 50 | 6 | □ | 436-9 |
| MG-CR-EDS | 6 ×R1.5 | 13 | 50 | 6 | □ | 436-3 |
| MG-CR-EMS | 6 ×R1.5 | 13 | 50 | 6 | □ | 436-6 |
| MG-CS-EDS | 6 ×C1.5 | 13 | 50 | 6 | □ | 436-10 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| TIN-MG-CR-EDS | 6 ×R1.5 | 13 | 50 | 6 | □ | 436-2 |
| DIA-CR-EDS | 6 ×R2 | 13 | 50 | 6 | □ | 436-4 |
| FX-CR-MG-EMS | 6 ×R2 | 13 | 50 | 6 | □ | 436-5 |
| FX-CS-EDS | 6 ×C2 | 13 | 50 | 6 | □ | 436-9 |
| MG-CR-EDS | 6 ×R2 | 13 | 50 | 6 | □ | 436-3 |
| MG-CR-EMS | 6 ×R2 | 13 | 50 | 6 | □ | 436-6 |
| MG-CS-EDS | 6 ×C2 | 13 | 50 | 6 | □ | 436-10 |
| TIN-MG-CR-EDS | 6 ×R2 | 13 | 50 | 6 | □ | 436-2 |
| AE-VMS | 6 ×R0.3 | 13 | 60 | 6 | ● | 301 |
| AE-VMS | 6 ×R0.3 | 13 | 60 | 6 | ● | 370 |
| AE-VMS | 6 ×R0.5 | 13 | 60 | 6 | ● | 301 |
| AE-VMS | 6 ×R0.5 | 13 | 60 | 6 | ● | 370 |
| AE-VMS | 6 ×R1 | 13 | 60 | 6 | ● | 301 |
| AE-VMS | 6 ×R1 | 13 | 60 | 6 | ● | 370 |
| FXS-PKER | 6 ×R0.2 | 13 | 90 | 6 | □ | 436-8 |
| SXL-CR-MG-EHS | 6 ×R0.2 | 13 | 90 | 6 | □ | 436-7 |
| FX-CR-MG-EDS | 6 ×R0.4 | 13 | 90 | 6 | □ | 379 |
| FXS-PKER | 6 ×R0.5 | 13 | 90 | 6 | □ | 436-8 |
| SXL-CR-MG-EHS | 6 ×R0.5 | 13 | 90 | 6 | □ | 436-7 |
| FX-CR-MG-EDS | 6 ×R0.8 | 13 | 90 | 6 | □ | 379 |
| FXS-PKER | 6 ×R1 | 13 | 90 | 6 | □ | 436-8 |
| SXL-CR-MG-EHS | 6 ×R1 | 13 | 90 | 6 | □ | 436-7 |
| FXS-PKER | 6 ×R1.5 | 13 | 90 | 6 | □ | 436-8 |
| AE-MS-H | 6 ×R0.3 | 15 | 60 | 6 | ● | 405 |
| AE-MS-H | 6 ×R0.5 | 15 | 60 | 6 | ● | 405 |
| AE-MS-H | 6 ×R1 | 15 | 60 | 6 | ● | 405 |
| FXS-CR-EMS | 6 ×R0.2 | 15 | 90 | 6 | □ | 436-6 |
| FXS-CR-EMS | 6 ×R0.5 | 15 | 90 | 6 | □ | 436-6 |
| FXS-CR-EMS | 6 ×R1 | 15 | 90 | 6 | □ | 436-6 |
| AE-VTFE-N | 6 ×R0.2 | 15 | 100 | 4 | ● | 397 |
| AE-VMFE | 6 ×R0.5 | 15 | 100 | 4 | ● | 288 |
| AE-VMFE | 6 ×R0.5 | 15 | 100 | 4 | ● | 393 |
| AE-VML | 6 ×19 ×R0.3 | 19 | 70 | 6 | ● | 305 |
| AE-VML | 6 ×19 ×R0.3 | 19 | 70 | 6 | ● | 371 |
| AE-VML | 6 ×19 ×R0.5 | 19 | 70 | 6 | ● | 305 |
| AE-VML | 6 ×19 ×R0.5 | 19 | 70 | 6 | ● | 371 |
| AE-VML | 6 ×19 ×R1 | 19 | 70 | 6 | ● | 305 |
| AE-VML | 6 ×19 ×R1 | 19 | 70 | 6 | ● | 371 |
| FX-CR-MG-EDL | 6 ×R1.5 | 20 | 90 | 6 | □ | 380 |
| FX-CR-MG-EDL | 6 ×R2 | 20 | 90 | 6 | □ | 380 |
| AE-VML | 6 ×24 ×R0.3 | 24 | 70 | 6 | ● | 305 |
| AE-VML | 6 ×24 ×R0.3 | 24 | 70 | 6 | ● | 371 |
| AE-VML | 6 ×24 ×R0.5 | 24 | 70 | 6 | ● | 305 |
| AE-VML | 6 ×24 ×R0.5 | 24 | 70 | 6 | ● | 371 |
| AE-VML | 6 ×24 ×R1 | 24 | 70 | 6 | ● | 305 |
| AE-VML | 6 ×24 ×R1 | 24 | 70 | 6 | ● | 371 |
| FXS-CR-EML | 6 ×R0.3 | 25 | 90 | 6 | □ | 436-7 |
| FXS-CR-EML | 6 ×R0.5 | 25 | 90 | 6 | □ | 436-7 |
| FXS-CR-EML | 6 ×R1 | 25 | 90 | 6 | □ | 436-7 |
| AE-CRE-H | 7 ×R1.5 | 3 | 90 | 6 | ● | 383 |
| DIA-LS-CRED | 7 ×R0.3 | 14 | 160 | 6 | ● | 402 |
| DIA-LS-CRED | 7 ×R0.5 | 14 | 160 | 6 | ● | 402 |
| DIA-LS-CRED | 7 ×R1 | 14 | 160 | 6 | ● | 402 |
| DIA-CR-EDS | 7 ×R0.3 | 16 | 60 | 8 | □ | 436-4 |
| DIA-CR-EDS | 7 ×R0.5 | 16 | 60 | 8 | □ | 436-4 |
| DIA-CR-EDS | 7 ×R1 | 16 | 60 | 8 | □ | 436-4 |
| AE-HFE-H | 8 ×R0.65 | 3.5 | 100 | 8 | ● | 384 |
| AE-CRE-H | 8 ×R2 | 3.5 | 100 | 8 | ● | 383 |
| WXL-MG-NC-RESF | 8 ×R0.5 | 6 | 60 | 6 | □ | 438-3 |
| CM-RMS | 8 ×R1.0 ×4Z | 6 | 60 | 8 | ● | 435 |

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CM-RMS | 8 ×R1.0 ×6Z | 6 | 60 | 8 | ● | 435 |
| DG-CPR | 8 ×R0.5 ×0° ×32 | 8 | 100 | 8 | ● | 434 |
| DG-CPR | 8 ×R1 ×0° ×32 | 8 | 100 | 8 | ● | 434 |
| AE-TS-N | 8 ×24 ×R0.3 | 12 | 70 | 8 | ● | 395 |
| AE-VTS-N | 8 ×24 ×R0.3 | 12 | 70 | 8 | ● | 396 |
| DLC-PKE | 8 ×R0.5 ×70 | 12 | 70 | 8 | ● | 403 |
| AE-TS-N | 8 ×24 ×R0.5 | 12 | 70 | 8 | ● | 395 |
| AE-VTS-N | 8 ×24 ×R0.5 | 12 | 70 | 8 | ● | 396 |
| AM-CRE | 8 ×R1 | 12 | 70 | 8 | ● | 385 |
| DLC-PKE | 8 ×R1 ×70 | 12 | 70 | 8 | ● | 403 |
| AE-TS-N | 8 ×24 ×R1 | 12 | 70 | 8 | ● | 395 |
| AE-VTS-N | 8 ×24 ×R1 | 12 | 70 | 8 | ● | 396 |
| AE-TS-N | 8 ×24 ×R1.5 | 12 | 70 | 8 | ● | 395 |
| AE-VTS-N | 8 ×24 ×R1.5 | 12 | 70 | 8 | ● | 396 |
| AM-CRE | 8 ×R2 | 12 | 70 | 8 | ● | 385 |
| AE-TS-N | 8 ×24 ×R2 | 12 | 70 | 8 | ● | 395 |
| AE-VTS-N | 8 ×24 ×R2 | 12 | 70 | 8 | ● | 396 |
| PHX-LN-DFR | 8 ×R2 ×40 | 12 | 85 | 8 | ● | 431 |
| FXS-PKE | 8 ×R0.5 ×100 | 12 | 100 | 8 | ● | 391 |
| SXL-PKE | 8 ×R0.5 ×100 | 12 | 100 | 8 | □ | 436-12 |
| FXS-PKE | 8 ×R1 ×100 | 12 | 100 | 8 | ● | 391 |
| SXL-PKE | 8 ×R1 ×100 | 12 | 100 | 8 | □ | 436-12 |
| PHX-LN-DFR | 8 ×R2 ×56 | 12 | 100 | 8 | ● | 431 |
| FXS-PKE | 8 ×R0.5 ×110 | 12 | 110 | 8 | ● | 391 |
| SXL-PKE | 8 ×R0.5 ×110 | 12 | 110 | 8 | □ | 436-12 |
| FXS-PKE | 8 ×R1 ×110 | 12 | 110 | 8 | ● | 391 |
| SXL-PKE | 8 ×R1 ×110 | 12 | 110 | 8 | □ | 436-12 |
| PHX-LN-DFR | 8 ×R2 ×72 | 12 | 120 | 8 | ● | 431 |
| PHX-PC-DFR | 8 ×R1 ×1° ×63.3 | 12 | 120 | 10 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×2° ×34.6 | 12 | 120 | 10 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×1.5° ×44.2 | 12 | 120 | 10 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×1° ×50 | 12 | 120 | 10 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×2° ×63.3 | 12 | 120 | 12 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×1° ×63.3 | 12 | 150 | 10 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×0.5° ×80 | 12 | 150 | 10 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×1.5° ×82.4 | 12 | 150 | 12 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×1.5° ×120 | 12 | 160 | 16 | ● | 429 |
| PHX-PC-DFR | 8 ×R1 ×1° ×120.6 | 12 | 180 | 12 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×1° ×120.6 | 12 | 180 | 12 | ● | 429 |
| PHX-PC-DFR | 8 ×R2 ×1.5° ×160 | 12 | 200 | 16 | ● | 429 |
| AM-HFC | 8 ×R1 | 16 | 70 | 8 | ● | 386 |
| PHX-DFR | 8 ×R2 | 16 | 90 | 8 | ● | 387 |
| FX-CS-EDS | 8 ×C0.2 | 19 | 60 | 8 | □ | 436-9 |
| MG-CS-EDS | 8 ×C0.2 | 19 | 60 | 8 | □ | 436-10 |
| DIA-CR-EDS | 8 ×R0.3 | 19 | 60 | 8 | □ | 436-4 |
| FX-CS-EDS | 8 ×C0.3 | 19 | 60 | 8 | □ | 436-9 |
| MG-CS-EDS | 8 ×C0.3 | 19 | 60 | 8 | □ | 436-10 |
| MG-CR-EDS | 8 ×R0.4 | 19 | 60 | 8 | □ | 436-3 |
| DIA-CR-EDS | 8 ×R0.5 | 19 | 60 | 8 | □ | 436-4 |
| FX-CR-MG-EMS | 8 ×R0.5 | 19 | 60 | 8 | □ | 436-5 |
| FX-CS-EDS | 8 ×C0.5 | 19 | 60 | 8 | □ | 436-9 |
| MG-CR-EDS | 8 ×R0.5 | 19 | 60 | 8 | □ | 436-3 |
| MG-CR-EMS | 8 ×R0.5 | 19 | 60 | 8 | □ | 436-6 |
| MG-CS-EDS | 8 ×C0.5 | 19 | 60 | 8 | □ | 436-10 |
| TIN-MG-CR-EDS | 8 ×R0.5 | 19 | 60 | 8 | □ | 436-2 |
| MG-CR-EDS | 8 ×R0.8 | 19 | 60 | 8 | □ | 436-3 |
| DIA-CR-EDS | 8 ×R1 | 19 | 60 | 8 | □ | 436-4 |
| FX-CR-MG-EMS | 8 ×R1 | 19 | 60 | 8 | □ | 436-5 |
| FX-CS-EDS | 8 ×C1 | 19 | 60 | 8 | □ | 436-9 |
| MG-CR-EDS | 8 ×R1 | 19 | 60 | 8 | □ | 436-3 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| MG-CR-EMS | 8 ×R1 | 19 | 60 | 8 | □ | 436-6 |
| MG-CS-EDS | 8 ×C1 | 19 | 60 | 8 | □ | 436-10 |
| TIN-MG-CR-EDS | 8 ×R1 | 19 | 60 | 8 | □ | 436-2 |
| DIA-CR-EDS | 8 ×R1.5 | 19 | 60 | 8 | □ | 436-4 |
| FX-CR-MG-EMS | 8 ×R1.5 | 19 | 60 | 8 | □ | 436-5 |
| FX-CS-EDS | 8 ×C1.5 | 19 | 60 | 8 | □ | 436-9 |
| MG-CR-EDS | 8 ×R1.5 | 19 | 60 | 8 | □ | 436-3 |
| MG-CR-EMS | 8 ×R1.5 | 19 | 60 | 8 | □ | 436-6 |
| MG-CS-EDS | 8 ×C1.5 | 19 | 60 | 8 | □ | 436-10 |
| TIN-MG-CR-EDS | 8 ×R1.5 | 19 | 60 | 8 | □ | 436-2 |
| DIA-CR-EDS | 8 ×R2 | 19 | 60 | 8 | □ | 436-4 |
| FX-CR-MG-EMS | 8 ×R2 | 19 | 60 | 8 | □ | 436-5 |
| FX-CS-EDS | 8 ×C2 | 19 | 60 | 8 | □ | 436-9 |
| MG-CR-EDS | 8 ×R2 | 19 | 60 | 8 | □ | 436-3 |
| MG-CR-EMS | 8 ×R2 | 19 | 60 | 8 | □ | 436-6 |
| MG-CS-EDS | 8 ×C2 | 19 | 60 | 8 | □ | 436-10 |
| TIN-MG-CR-EDS | 8 ×R2 | 19 | 60 | 8 | □ | 436-2 |
| FX-CR-MG-EMS | 8 ×R2.5 | 19 | 60 | 8 | □ | 436-5 |
| MG-CR-EDS | 8 ×R2.5 | 19 | 60 | 8 | □ | 436-3 |
| MG-CR-EMS | 8 ×R2.5 | 19 | 60 | 8 | □ | 436-6 |
| TIN-MG-CR-EDS | 8 ×R2.5 | 19 | 60 | 8 | □ | 436-2 |
| FX-CS-EDS | 8 ×C3 | 19 | 60 | 8 | □ | 436-9 |
| MG-CR-EDS | 8 ×R3 | 19 | 60 | 8 | □ | 436-3 |
| MG-CS-EDS | 8 ×C3 | 19 | 60 | 8 | □ | 436-10 |
| TIN-MG-CR-EDS | 8 ×R3 | 19 | 60 | 8 | □ | 436-2 |
| AE-VMS | 8 ×R0.3 | 19 | 70 | 8 | ● | 301 |
| AE-VMS | 8 ×R0.3 | 19 | 70 | 8 | ● | 370 |
| AE-VMS | 8 ×R0.5 | 19 | 70 | 8 | ● | 301 |
| AE-VMS | 8 ×R0.5 | 19 | 70 | 8 | ● | 370 |
| AE-VMS | 8 ×R1 | 19 | 70 | 8 | ● | 301 |
| AE-VMS | 8 ×R1 | 19 | 70 | 8 | ● | 370 |
| AE-VMS | 8 ×R1.5 | 19 | 70 | 8 | ● | 301 |
| AE-VMS | 8 ×R1.5 | 19 | 70 | 8 | ● | 370 |
| AE-VMS | 8 ×R2 | 19 | 70 | 8 | ● | 301 |
| AE-VMS | 8 ×R2 | 19 | 70 | 8 | ● | 370 |
| FXS-PKER | 8 ×R0.2 | 19 | 100 | 8 | □ | 436-8 |
| SXL-CR-MG-EHS | 8 ×R0.2 | 19 | 100 | 8 | □ | 436-7 |
| FX-CR-MG-EDS | 8 ×R0.4 | 19 | 100 | 8 | □ | 379 |
| FXS-PKER | 8 ×R0.5 | 19 | 100 | 8 | □ | 436-8 |
| SXL-CR-MG-EHS | 8 ×R0.5 | 19 | 100 | 8 | □ | 436-7 |
| FX-CR-MG-EDS | 8 ×R0.8 | 19 | 100 | 8 | □ | 379 |
| FXS-PKER | 8 ×R1 | 19 | 100 | 8 | □ | 436-8 |
| SXL-CR-MG-EHS | 8 ×R1 | 19 | 100 | 8 | □ | 436-7 |
| FXS-PKER | 8 ×R2 | 19 | 100 | 8 | □ | 436-8 |
| SXL-CR-MG-EHS | 8 ×R2 | 19 | 100 | 8 | □ | 436-7 |
| FX-CR-MG-EDS | 8 ×R2.5 | 19 | 100 | 8 | □ | 379 |
| FX-CR-MG-EDS | 8 ×R3 | 19 | 100 | 8 | □ | 379 |
| AE-MS-H | 8 ×R0.3 | 20 | 70 | 8 | ● | 405 |
| AE-MS-H | 8 ×R0.5 | 20 | 70 | 8 | ● | 405 |
| AE-MS-H | 8 ×R1 | 20 | 70 | 8 | ● | 405 |
| AE-MS-H | 8 ×R1.5 | 20 | 70 | 8 | ○ | 405 |
| AE-MS-H | 8 ×R2 | 20 | 70 | 8 | ○ | 405 |
| FXS-CR-EMS | 8 ×R0.2 | 20 | 100 | 8 | □ | 436-6 |
| FXS-CR-EMS | 8 ×R0.5 | 20 | 100 | 8 | □ | 436-6 |
| FXS-CR-EMS | 8 ×R1 | 20 | 100 | 8 | □ | 436-6 |
| FXS-CR-EMS | 8 ×R2 | 20 | 100 | 8 | □ | 436-6 |
| AE-VMFE | 8 ×R0.5 | 20 | 110 | 6 | ● | 288 |
| AE-VMFE | 8 ×R0.5 | 20 | 110 | 6 | ● | 393 |
| AE-VTFE-N | 8 ×R0.5 | 20 | 110 | 6 | ● | 397 |
| AE-VML | 8 ×25 ×R0.3 | 25 | 80 | 8 | ● | 305 |
| AE-VML | 8 ×25 ×R0.3 | 25 | 80 | 8 | ● | 371 |
| AE-VML | 8 ×25 ×R0.5 | 25 | 80 | 8 | ● | 305 |
| AE-VML | 8 ×25 ×R0.5 | 25 | 80 | 8 | ● | 371 |
| AE-VML | 8 ×25 ×R1 | 25 | 80 | 8 | ● | 305 |
| AE-VML | 8 ×25 ×R1 | 25 | 80 | 8 | ● | 371 |
| AE-VML | 8 ×25 ×R1.5 | 25 | 80 | 8 | ● | 305 |
| AE-VML | 8 ×25 ×R1.5 | 25 | 80 | 8 | ● | 371 |
| AE-VML | 8 ×25 ×R2 | 25 | 80 | 8 | ● | 305 |
| AE-VML | 8 ×25 ×R2 | 25 | 80 | 8 | ● | 371 |
| FX-CR-MG-EDL | 8 ×R2.5 | 28 | 100 | 8 | □ | 380 |
| FX-CR-MG-EDL | 8 ×R3 | 28 | 100 | 8 | □ | 380 |
| AE-VML | 8 ×32 ×R0.3 | 32 | 90 | 8 | ● | 305 |
| AE-VML | 8 ×32 ×R0.3 | 32 | 90 | 8 | ● | 371 |
| AE-VML | 8 ×32 ×R0.5 | 32 | 90 | 8 | ● | 305 |
| AE-VML | 8 ×32 ×R0.5 | 32 | 90 | 8 | ● | 371 |
| AE-VML | 8 ×32 ×R1 | 32 | 90 | 8 | ● | 305 |
| AE-VML | 8 ×32 ×R1 | 32 | 90 | 8 | ● | 371 |
| AE-VML | 8 ×32 ×R1.5 | 32 | 90 | 8 | ● | 305 |
| AE-VML | 8 ×32 ×R1.5 | 32 | 90 | 8 | ● | 371 |
| AE-VML | 8 ×32 ×R2 | 32 | 90 | 8 | ● | 305 |
| AE-VML | 8 ×32 ×R2 | 32 | 90 | 8 | ● | 371 |
| FXS-CR-EML | 8 ×R0.3 | 35 | 100 | 8 | □ | 436-7 |
| FXS-CR-EML | 8 ×R0.5 | 35 | 100 | 8 | □ | 436-7 |
| FXS-CR-EML | 8 ×R1 | 35 | 100 | 8 | □ | 436-7 |
| FXS-CR-EML | 8 ×R2 | 35 | 100 | 8 | □ | 436-7 |
| AE-CRE-H | 9 ×R2 | 4 | 100 | 8 | ● | 383 |
| DIA-LS-CRED | 9 ×R0.5 | 18 | 180 | 8 | ● | 402 |
| DIA-LS-CRED | 9 ×R1 | 18 | 180 | 8 | ● | 402 |
| AE-HFE-H | 10 ×R0.7 | 4.5 | 110 | 10 | ● | 384 |
| AE-CRE-H | 10 ×R2 | 5 | 100 | 10 | ● | 383 |
| WXL-MG-NC-RESF | 10 ×R0.5 | 6 | 70 | 10 | □ | 438-3 |
| CM-RMS | 10 ×R1.25 ×4Z | 7.5 | 65 | 10 | ● | 435 |
| CM-RMS | 10 ×R1.25 ×6Z | 7.5 | 65 | 10 | ● | 435 |
| DG-CPR | 10 ×R0.5 ×0° ×40 | 10 | 125 | 10 | ● | 434 |
| DG-CPR | 10 ×R1 ×0° ×40 | 10 | 125 | 10 | ● | 434 |
| AE-TS-N | 10 ×30 ×R0.3 | 15 | 75 | 10 | ● | 395 |
| AE-VTS-N | 10 ×30 ×R0.3 | 15 | 75 | 10 | ● | 396 |
| AE-TS-N | 10 ×30 ×R0.5 | 15 | 75 | 10 | ● | 395 |
| AE-VTS-N | 10 ×30 ×R0.5 | 15 | 75 | 10 | ● | 396 |
| AE-TS-N | 10 ×30 ×R1 | 15 | 75 | 10 | ● | 395 |
| AE-VTS-N | 10 ×30 ×R1 | 15 | 75 | 10 | ● | 396 |
| AE-TS-N | 10 ×30 ×R1.5 | 15 | 75 | 10 | ● | 395 |
| AE-VTS-N | 10 ×30 ×R1.5 | 15 | 75 | 10 | ● | 396 |
| AE-TS-N | 10 ×30 ×R2 | 15 | 75 | 10 | ● | 395 |
| AE-VTS-N | 10 ×30 ×R2 | 15 | 75 | 10 | ● | 396 |
| AE-TS-N | 10 ×30 ×R3 | 15 | 75 | 10 | ● | 395 |
| AE-VTS-N | 10 ×30 ×R3 | 15 | 75 | 10 | ● | 396 |
| DLC-PKE | 10 ×R0.5 ×80 | 15 | 80 | 10 | ● | 403 |
| AM-CRE | 10 ×R1 | 15 | 80 | 10 | ● | 385 |
| DLC-PKE | 10 ×R1 ×80 | 15 | 80 | 10 | ● | 403 |
| AM-CRE | 10 ×R2 | 15 | 80 | 10 | ● | 385 |
| PHX-LN-DFR | 10 ×R2 ×30 | 15 | 80 | 10 | ● | 432 |
| PHX-LN-DFR | 10 ×R2 ×40 | 15 | 90 | 10 | ● | 432 |
| FXS-PKE | 10 ×R0.5 ×100 | 15 | 100 | 10 | ● | 391 |
| SXL-PKE | 10 ×R0.5 ×100 | 15 | 100 | 10 | □ | 436-12 |
| FXS-PKE | 10 ×R1 ×100 | 15 | 100 | 10 | ● | 391 |
| SXL-PKE | 10 ×R1 ×100 | 15 | 100 | 10 | □ | 436-12 |
| FXS-PKE | 10 ×R2 ×100 | 15 | 100 | 10 | ● | 391 |
| SXL-PKE | 10 ×R2 ×100 | 15 | 100 | 10 | □ | 436-12 |
| PHX-LN-DFR | 10 ×R2 ×50 | 15 | 100 | 10 | ● | 432 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

# 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PHX-LN-DFR | 10 ×R2 ×60 | 15 | 110 | 10 | ● | 432 |
| FXS-PKE | 10 ×R0.5 ×120 | 15 | 120 | 10 | ● | 391 |
| SXL-PKE | 10 ×R0.5 ×120 | 15 | 120 | 10 | □ | 436-12 |
| FXS-PKE | 10 ×R1 ×120 | 15 | 120 | 10 | ● | 391 |
| SXL-PKE | 10 ×R1 ×120 | 15 | 120 | 10 | □ | 436-12 |
| FXS-PKE | 10 ×R2 ×120 | 15 | 120 | 10 | ● | 391 |
| SXL-PKE | 10 ×R2 ×120 | 15 | 120 | 10 | □ | 436-12 |
| PHX-LN-DFR | 10 ×R2 ×70 | 15 | 120 | 10 | ● | 432 |
| PHX-PC-DFR | 10 ×R2 ×2° ×35.6 | 15 | 120 | 12 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×1.5° ×45.2 | 15 | 120 | 12 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×1° ×64.3 | 15 | 120 | 12 | ● | 429 |
| PHX-LN-DFR | 10 ×R2 ×80 | 15 | 130 | 10 | ● | 432 |
| PHX-LN-DFR | 10 ×R2 ×90 | 15 | 140 | 10 | ● | 432 |
| PHX-PC-DFR | 10 ×R2 ×1.5° ×80 | 15 | 140 | 16 | ● | 429 |
| PHX-LN-DFR | 10 ×R2 ×100 | 15 | 150 | 10 | ● | 432 |
| PHX-PC-DFR | 10 ×R2 ×0.5° ×100 | 15 | 150 | 12 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×1° ×80 | 15 | 160 | 16 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×1° ×100 | 15 | 160 | 16 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×1° ×120 | 15 | 180 | 16 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×1.5° ×121.6 | 15 | 180 | 16 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×1° ×140 | 15 | 200 | 16 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×2° ×92.9 | 15 | 220 | 16 | ● | 429 |
| PHX-PC-DFR | 10 ×R2 ×1° ×160 | 15 | 220 | 16 | ● | 429 |
| AM-HFC | 10 ×R1.2 | 20 | 80 | 10 | ● | 386 |
| PHX-DFR | 10 ×R2 | 20 | 100 | 10 | ● | 387 |
| FX-CS-EDS | 10 ×C0.2 | 22 | 70 | 10 | □ | 436-9 |
| MG-CS-EDS | 10 ×C0.2 | 22 | 70 | 10 | □ | 436-10 |
| DIA-CR-EDS | 10 ×R0.3 | 22 | 70 | 10 | □ | 436-4 |
| FX-CS-EDS | 10 ×C0.3 | 22 | 70 | 10 | □ | 436-9 |
| MG-CS-EDS | 10 ×C0.3 | 22 | 70 | 10 | □ | 436-10 |
| MG-CR-EDS | 10 ×R0.4 | 22 | 70 | 10 | □ | 436-3 |
| DIA-CR-EDS | 10 ×R0.5 | 22 | 70 | 10 | □ | 436-4 |
| FX-CR-MG-EMS | 10 ×R0.5 | 22 | 70 | 10 | □ | 436-5 |
| FX-CS-EDS | 10 ×C0.5 | 22 | 70 | 10 | □ | 436-9 |
| MG-CR-EDS | 10 ×R0.5 | 22 | 70 | 10 | □ | 436-3 |
| MG-CR-EMS | 10 ×R0.5 | 22 | 70 | 10 | □ | 436-6 |
| MG-CS-EDS | 10 ×C0.5 | 22 | 70 | 10 | □ | 436-10 |
| TIN-MG-CR-EDS | 10 ×R0.5 | 22 | 70 | 10 | □ | 436-2 |
| MG-CR-EDS | 10 ×R0.8 | 22 | 70 | 10 | □ | 436-3 |
| DIA-CR-EDS | 10 ×R1 | 22 | 70 | 10 | □ | 436-4 |
| FX-CR-MG-EMS | 10 ×R1 | 22 | 70 | 10 | □ | 436-5 |
| FX-CS-EDS | 10 ×C1 | 22 | 70 | 10 | □ | 436-9 |
| MG-CR-EDS | 10 ×R1 | 22 | 70 | 10 | □ | 436-3 |
| MG-CR-EMS | 10 ×R1 | 22 | 70 | 10 | □ | 436-6 |
| MG-CS-EDS | 10 ×C1 | 22 | 70 | 10 | □ | 436-10 |
| TIN-MG-CR-EDS | 10 ×R1 | 22 | 70 | 10 | □ | 436-2 |
| DIA-CR-EDS | 10 ×R1.5 | 22 | 70 | 10 | □ | 436-4 |
| FX-CR-MG-EMS | 10 ×R1.5 | 22 | 70 | 10 | □ | 436-5 |
| FX-CS-EDS | 10 ×C1.5 | 22 | 70 | 10 | □ | 436-9 |
| MG-CR-EDS | 10 ×R1.5 | 22 | 70 | 10 | □ | 436-3 |
| MG-CR-EMS | 10 ×R1.5 | 22 | 70 | 10 | □ | 436-6 |
| MG-CS-EDS | 10 ×C1.5 | 22 | 70 | 10 | □ | 436-10 |
| TIN-MG-CR-EDS | 10 ×R1.5 | 22 | 70 | 10 | □ | 436-2 |
| DIA-CR-EDS | 10 ×R2 | 22 | 70 | 10 | □ | 436-4 |
| FX-CR-MG-EMS | 10 ×R2 | 22 | 70 | 10 | □ | 436-5 |
| FX-CS-EDS | 10 ×C2 | 22 | 70 | 10 | □ | 436-9 |
| MG-CR-EDS | 10 ×R2 | 22 | 70 | 10 | □ | 436-3 |
| MG-CR-EMS | 10 ×R2 | 22 | 70 | 10 | □ | 436-6 |
| MG-CS-EDS | 10 ×C2 | 22 | 70 | 10 | □ | 436-10 |
| TIN-MG-CR-EDS | 10 ×R2 | 22 | 70 | 10 | □ | 436-2 |

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-CR-MG-EMS | 10 ×R2.5 | 22 | 70 | 10 | □ | 436-5 |
| MG-CR-EDS | 10 ×R2.5 | 22 | 70 | 10 | □ | 436-3 |
| MG-CR-EMS | 10 ×R2.5 | 22 | 70 | 10 | □ | 436-6 |
| TIN-MG-CR-EDS | 10 ×R2.5 | 22 | 70 | 10 | □ | 436-2 |
| DIA-CR-EDS | 10 ×R3 | 22 | 70 | 10 | □ | 436-4 |
| FX-CR-MG-EMS | 10 ×R3 | 22 | 70 | 10 | □ | 436-5 |
| FX-CS-EDS | 10 ×C3 | 22 | 70 | 10 | □ | 436-9 |
| MG-CR-EDS | 10 ×R3 | 22 | 70 | 10 | □ | 436-3 |
| MG-CR-EMS | 10 ×R3 | 22 | 70 | 10 | □ | 436-6 |
| MG-CS-EDS | 10 ×C3 | 22 | 70 | 10 | □ | 436-10 |
| TIN-MG-CR-EDS | 10 ×R3 | 22 | 70 | 10 | □ | 436-2 |
| AE-VMS | 10 ×R0.3 | 22 | 80 | 10 | ● | 301 |
| AE-VMS | 10 ×R0.3 | 22 | 80 | 10 | ● | 370 |
| AE-VMS | 10 ×R0.5 | 22 | 80 | 10 | ● | 301 |
| AE-VMS | 10 ×R0.5 | 22 | 80 | 10 | ● | 370 |
| AE-VMS | 10 ×R1 | 22 | 80 | 10 | ● | 301 |
| AE-VMS | 10 ×R1 | 22 | 80 | 10 | ● | 370 |
| AE-VMS | 10 ×R1.5 | 22 | 80 | 10 | ● | 301 |
| AE-VMS | 10 ×R1.5 | 22 | 80 | 10 | ● | 370 |
| AE-VMS | 10 ×R2 | 22 | 80 | 10 | ● | 301 |
| AE-VMS | 10 ×R2 | 22 | 80 | 10 | ● | 370 |
| AE-VMS | 10 ×R3 | 22 | 80 | 10 | ● | 301 |
| AE-VMS | 10 ×R3 | 22 | 80 | 10 | ● | 370 |
| FXS-PKER | 10 ×R0.2 | 22 | 100 | 10 | □ | 436-8 |
| SXL-CR-MG-EHS | 10 ×R0.2 | 22 | 100 | 10 | □ | 436-7 |
| FX-CR-MG-EDS | 10 ×R0.4 | 22 | 100 | 10 | □ | 379 |
| FXS-PKER | 10 ×R0.5 | 22 | 100 | 10 | □ | 436-8 |
| SXL-CR-MG-EHS | 10 ×R0.5 | 22 | 100 | 10 | □ | 436-7 |
| FX-CR-MG-EDS | 10 ×R0.8 | 22 | 100 | 10 | □ | 379 |
| FXS-PKER | 10 ×R1 | 22 | 100 | 10 | □ | 436-8 |
| SXL-CR-MG-EHS | 10 ×R1 | 22 | 100 | 10 | □ | 436-7 |
| FXS-PKER | 10 ×R2 | 22 | 100 | 10 | □ | 436-8 |
| SXL-CR-MG-EHS | 10 ×R2 | 22 | 100 | 10 | □ | 436-7 |
| FX-CR-MG-EDS | 10 ×R2.5 | 22 | 100 | 10 | □ | 379 |
| AE-MS-H | 10 ×R0.3 | 25 | 80 | 10 | ● | 405 |
| AE-MS-H | 10 ×R0.5 | 25 | 80 | 10 | ● | 405 |
| AE-MS-H | 10 ×R1 | 25 | 80 | 10 | ● | 405 |
| AE-MS-H | 10 ×R1.5 | 25 | 80 | 10 | ○ | 405 |
| AE-MS-H | 10 ×R2 | 25 | 80 | 10 | ○ | 405 |
| AE-MS-H | 10 ×R3 | 25 | 80 | 10 | ○ | 405 |
| FXS-CR-EMS | 10 ×R0.2 | 25 | 100 | 10 | □ | 436-6 |
| FXS-CR-EMS | 10 ×R0.5 | 25 | 100 | 10 | □ | 436-6 |
| FXS-CR-EMS | 10 ×R1 | 25 | 100 | 10 | □ | 436-6 |
| FXS-CR-EMS | 10 ×R2 | 25 | 100 | 10 | □ | 436-6 |
| AE-VMFE | 10 ×R0.5 | 25 | 130 | 8 | ● | 288 |
| AE-VMFE | 10 ×R0.5 | 25 | 130 | 8 | ● | 393 |
| AE-VTFE-N | 10 ×R0.5 | 25 | 130 | 8 | ● | 397 |
| AE-VMFE | 10 ×R1 | 25 | 130 | 8 | ○ | 288 |
| AE-VMFE | 10 ×R1 | 25 | 130 | 8 | ○ | 393 |
| AE-VTFE-N | 10 ×R1 | 25 | 130 | 8 | ○ | 397 |
| AE-VML | 10 ×31 ×R0.3 | 31 | 90 | 10 | ● | 305 |
| AE-VML | 10 ×31 ×R0.3 | 31 | 90 | 10 | ● | 371 |
| AE-VML | 10 ×31 ×R0.5 | 31 | 90 | 10 | ● | 305 |
| AE-VML | 10 ×31 ×R0.5 | 31 | 90 | 10 | ● | 371 |
| AE-VML | 10 ×31 ×R1 | 31 | 90 | 10 | ● | 305 |
| AE-VML | 10 ×31 ×R1 | 31 | 90 | 10 | ● | 371 |
| AE-VML | 10 ×31 ×R1.5 | 31 | 90 | 10 | ● | 305 |
| AE-VML | 10 ×31 ×R1.5 | 31 | 90 | 10 | ● | 371 |
| AE-VML | 10 ×31 ×R2 | 31 | 90 | 10 | ● | 305 |
| AE-VML | 10 ×31 ×R2 | 31 | 90 | 10 | ● | 371 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-VML | 10 ×31 ×R3 | 31 | 90 | 10 | ● | 305 |
| AE-VML | 10 ×31 ×R3 | 31 | 90 | 10 | ● | 371 |
| FX-CR-MG-EDL | 10 ×R2.5 | 34 | 100 | 10 | □ | 380 |
| FX-CR-MG-EDL | 10 ×R3 | 34 | 100 | 10 | □ | 380 |
| AE-VML | 10 ×40 ×R0.3 | 40 | 100 | 10 | ● | 305 |
| AE-VML | 10 ×40 ×R0.3 | 40 | 100 | 10 | ● | 371 |
| AE-VML | 10 ×40 ×R0.5 | 40 | 100 | 10 | ● | 305 |
| AE-VML | 10 ×40 ×R0.5 | 40 | 100 | 10 | ● | 371 |
| AE-VML | 10 ×40 ×R1 | 40 | 100 | 10 | ● | 305 |
| AE-VML | 10 ×40 ×R1 | 40 | 100 | 10 | ● | 371 |
| AE-VML | 10 ×40 ×R1.5 | 40 | 100 | 10 | ● | 305 |
| AE-VML | 10 ×40 ×R1.5 | 40 | 100 | 10 | ● | 371 |
| AE-VML | 10 ×40 ×R2 | 40 | 100 | 10 | ● | 305 |
| AE-VML | 10 ×40 ×R2 | 40 | 100 | 10 | ● | 371 |
| AE-VML | 10 ×40 ×R3 | 40 | 100 | 10 | ● | 305 |
| AE-VML | 10 ×40 ×R3 | 40 | 100 | 10 | ● | 371 |
| FXS-CR-EML | 10 ×R0.5 | 45 | 100 | 10 | □ | 436-7 |
| FXS-CR-EML | 10 ×R1 | 45 | 100 | 10 | □ | 436-7 |
| FXS-CR-EML | 10 ×R1.5 | 45 | 100 | 10 | □ | 436-7 |
| FXS-CR-EML | 10 ×R2 | 45 | 100 | 10 | □ | 436-7 |
| AE-CRE-H | 11 ×R2 | 5 | 100 | 10 | ● | 383 |
| DIA-LS-CRED | 11 ×R0.5 | 22 | 180 | 10 | ● | 402 |
| DIA-LS-CRED | 11 ×R1 | 22 | 180 | 10 | ● | 402 |
| AE-CRE-H | 12 ×R3 | 5 | 110 | 12 | ● | 383 |
| AE-HFE-H | 12 ×R0.8 | 5 | 135 | 12 | ● | 384 |
| WXL-MG-NC-RESF | 12 ×R0.5 | 6 | 70 | 10 | □ | 438-3 |
| CM-RMS | 12 ×R1.5 ×4Z | 9 | 70 | 12 | ● | 435 |
| CM-RMS | 12 ×R1.5 ×6Z | 9 | 70 | 12 | ● | 435 |
| DG-CPR | 12 ×R0.5 ×0° ×48 | 12 | 150 | 12 | ● | 434 |
| DG-CPR | 12 ×R1 ×0° ×48 | 12 | 150 | 12 | ● | 434 |
| DLC-AIR-EDS | 12 ×R1 | 14 | 90 | 12 | ● | 376 |
| DLC-AIR-EDS | 12 ×R1.6 | 14 | 90 | 12 | ● | 376 |
| DLC-AIR-EDS | 12 ×R3 | 14 | 90 | 12 | ● | 376 |
| AE-TS-N | 12 ×36 ×R0.3 | 18 | 80 | 12 | ● | 395 |
| AE-VTS-N | 12 ×36 ×R0.3 | 18 | 80 | 12 | ● | 396 |
| AE-TS-N | 12 ×36 ×R0.5 | 18 | 80 | 12 | ● | 395 |
| AE-VTS-N | 12 ×36 ×R0.5 | 18 | 80 | 12 | ● | 396 |
| AE-TS-N | 12 ×36 ×R1 | 18 | 80 | 12 | ● | 395 |
| AE-VTS-N | 12 ×36 ×R1 | 18 | 80 | 12 | ● | 396 |
| AE-TS-N | 12 ×36 ×R1.5 | 18 | 80 | 12 | ● | 395 |
| AE-VTS-N | 12 ×36 ×R1.5 | 18 | 80 | 12 | ● | 396 |
| AE-TS-N | 12 ×36 ×R2 | 18 | 80 | 12 | ● | 395 |
| AE-VTS-N | 12 ×36 ×R2 | 18 | 80 | 12 | ● | 396 |
| AE-TS-N | 12 ×36 ×R3 | 18 | 80 | 12 | ● | 395 |
| AE-VTS-N | 12 ×36 ×R3 | 18 | 80 | 12 | ● | 396 |
| DLC-PKE | 12 ×R0.5 ×90 | 18 | 90 | 12 | ● | 403 |
| AM-CRE | 12 ×R1 | 18 | 90 | 12 | ● | 385 |
| DLC-PKE | 12 ×R1 ×90 | 18 | 90 | 12 | ● | 403 |
| AM-CRE | 12 ×R2 | 18 | 90 | 12 | ● | 385 |
| PHX-LN-DFR | 12 ×R2 ×40 | 18 | 90 | 12 | ● | 432 |
| AERO-ETS | 12 ×R1 | 18 | 100 | 12 | ● | 376 |
| AERO-ETS | 12 ×R3 | 18 | 100 | 12 | ● | 376 |
| FXS-PKE | 12 ×R0.5 ×110 | 18 | 110 | 12 | ● | 391 |
| SXL-PKE | 12 ×R0.5 ×110 | 18 | 110 | 12 | □ | 436-12 |
| FXS-PKE | 12 ×R1 ×110 | 18 | 110 | 12 | ● | 391 |
| SXL-PKE | 12 ×R1 ×110 | 18 | 110 | 12 | □ | 436-12 |
| FXS-PKE | 12 ×R2 ×110 | 18 | 110 | 12 | ● | 391 |
| SXL-PKE | 12 ×R2 ×110 | 18 | 110 | 12 | □ | 436-12 |
| PHX-LN-DFR | 12 ×R2 ×60 | 18 | 110 | 12 | ● | 432 |
| PHX-PC-DFR | 12 ×R2 ×1° ×60 | 18 | 120 | 16 | ● | 429 |
| FXS-PKE | 12 ×R0.5 ×130 | 18 | 130 | 12 | ● | 391 |
| SXL-PKE | 12 ×R0.5 ×130 | 18 | 130 | 12 | □ | 436-12 |
| FXS-PKE | 12 ×R1 ×130 | 18 | 130 | 12 | ● | 391 |
| SXL-PKE | 12 ×R1 ×130 | 18 | 130 | 12 | □ | 436-12 |
| FXS-PKE | 12 ×R2 ×130 | 18 | 130 | 12 | ● | 391 |
| SXL-PKE | 12 ×R2 ×130 | 18 | 130 | 12 | □ | 436-12 |
| PHX-LN-DFR | 12 ×R2 ×84 | 18 | 135 | 12 | ● | 432 |
| PHX-LN-DFR | 12 ×R2 ×108 | 18 | 160 | 12 | ● | 432 |
| PHX-LN-DFR | 12 ×R2 ×120 | 18 | 170 | 12 | ● | 432 |
| PHX-PC-DFR | 12 ×R2 ×1° ×100 | 18 | 180 | 16 | ● | 429 |
| PHX-PC-DFR | 12 ×R2 ×0.5° ×120 | 18 | 180 | 16 | ● | 429 |
| PHX-PC-DFR | 12 ×R2 ×1° ×122.6 | 18 | 180 | 16 | ● | 429 |
| PHX-PC-DFR | 12 ×R2 ×1° ×160 | 18 | 220 | 20 | ● | 429 |
| PHX-PC-DFR | 12 ×R2 ×1.5° ×160.8 | 18 | 220 | 20 | ● | 429 |
| UVX-TI-4FL | 12 ×R1 ×36 | 24 | 90 | 12 | ● | 372 |
| UVX-TI-4FL | 12 ×R1 ×36-SL | 24 | 90 | 12 | ● | 372 |
| UVX-TI-5FL | 12 ×R1 ×36 | 24 | 90 | 12 | ● | 373 |
| UVX-TI-5FL | 12 ×R1 ×36-SL | 24 | 90 | 12 | ● | 373 |
| AM-HFC | 12 ×R1.5 | 24 | 90 | 12 | ● | 386 |
| UVX-TI-4FL | 12 ×R1.5 ×36 | 24 | 90 | 12 | ● | 372 |
| UVX-TI-5FL | 12 ×R1.5 ×36 | 24 | 90 | 12 | ● | 373 |
| UVX-TI-4FL | 12 ×R2 ×36 | 24 | 90 | 12 | ● | 372 |
| UVX-TI-5FL | 12 ×R2 ×36 | 24 | 90 | 12 | ● | 373 |
| UVX-TI-4FL | 12 ×R2.5 ×36 | 24 | 90 | 12 | ● | 372 |
| UVX-TI-5FL | 12 ×R2.5 ×36 | 24 | 90 | 12 | ● | 373 |
| UVX-TI-4FL | 12 ×R3 ×36 | 24 | 90 | 12 | ● | 372 |
| UVX-TI-4FL | 12 ×R3 ×36-SL | 24 | 90 | 12 | ● | 372 |
| UVX-TI-5FL | 12 ×R3 ×36 | 24 | 90 | 12 | ● | 373 |
| UVX-TI-5FL | 12 ×R3 ×36-SL | 24 | 90 | 12 | ● | 373 |
| UVX-TI-4FL | 12 ×R4 ×36 | 24 | 90 | 12 | ● | 372 |
| UVX-TI-5FL | 12 ×R4 ×36 | 24 | 90 | 12 | ● | 373 |
| PHX-DFR | 12 ×R2 | 24 | 120 | 12 | ● | 387 |
| FX-CS-EDS | 12 ×C0.2 | 26 | 75 | 12 | □ | 436-9 |
| MG-CS-EDS | 12 ×C0.2 | 26 | 75 | 12 | □ | 436-10 |
| FX-CS-EDS | 12 ×C0.3 | 26 | 75 | 12 | □ | 436-9 |
| MG-CS-EDS | 12 ×C0.3 | 26 | 75 | 12 | □ | 436-10 |
| MG-CR-EDS | 12 ×R0.4 | 26 | 75 | 12 | □ | 436-3 |
| DIA-CR-EDS | 12 ×R0.5 | 26 | 75 | 12 | □ | 436-4 |
| FX-CR-MG-EMS | 12 ×R0.5 | 26 | 75 | 12 | □ | 436-5 |
| FX-CS-EDS | 12 ×C0.5 | 26 | 75 | 12 | □ | 436-9 |
| MG-CR-EDS | 12 ×R0.5 | 26 | 75 | 12 | □ | 436-3 |
| MG-CR-EMS | 12 ×R0.5 | 26 | 75 | 12 | □ | 436-6 |
| MG-CS-EDS | 12 ×C0.5 | 26 | 75 | 12 | □ | 436-10 |
| TIN-MG-CR-EDS | 12 ×R0.5 | 26 | 75 | 12 | □ | 436-2 |
| MG-CR-EDS | 12 ×R0.8 | 26 | 75 | 12 | □ | 436-3 |
| DIA-CR-EDS | 12 ×R1 | 26 | 75 | 12 | □ | 436-4 |
| FX-CR-MG-EMS | 12 ×R1 | 26 | 75 | 12 | □ | 436-5 |
| FX-CS-EDS | 12 ×C1 | 26 | 75 | 12 | □ | 436-9 |
| MG-CR-EDS | 12 ×R1 | 26 | 75 | 12 | □ | 436-3 |
| MG-CR-EMS | 12 ×R1 | 26 | 75 | 12 | □ | 436-6 |
| MG-CS-EDS | 12 ×C1 | 26 | 75 | 12 | □ | 436-10 |
| TIN-MG-CR-EDS | 12 ×R1 | 26 | 75 | 12 | □ | 436-2 |
| FX-CR-MG-EMS | 12 ×R1.5 | 26 | 75 | 12 | □ | 436-5 |
| FX-CS-EDS | 12 ×C1.5 | 26 | 75 | 12 | □ | 436-9 |
| MG-CR-EDS | 12 ×R1.5 | 26 | 75 | 12 | □ | 436-3 |
| MG-CR-EMS | 12 ×R1.5 | 26 | 75 | 12 | □ | 436-6 |
| MG-CS-EDS | 12 ×C1.5 | 26 | 75 | 12 | □ | 436-10 |
| TIN-MG-CR-EDS | 12 ×R1.5 | 26 | 75 | 12 | □ | 436-2 |
| DIA-CR-EDS | 12 ×R2 | 26 | 75 | 12 | □ | 436-4 |
| FX-CR-MG-EMS | 12 ×R2 | 26 | 75 | 12 | □ | 436-5 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／コーナR
# CARBIDE END MILLS / WITH CORNER RADIUS

◎デジタルカタログで最新情報を公開中

【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| FX-CS-EDS | 12 ×C2 | 26 | 75 | 12 | □ | 436-9 |
| MG-CR-EDS | 12 ×R2 | 26 | 75 | 12 | □ | 436-3 |
| MG-CR-EMS | 12 ×R2 | 26 | 75 | 12 | □ | 436-6 |
| MG-CS-EDS | 12 ×C2 | 26 | 75 | 12 | □ | 436-10 |
| TIN-MG-CR-EDS | 12 ×R2 | 26 | 75 | 12 | □ | 436-2 |
| FX-CR-MG-EMS | 12 ×R2.5 | 26 | 75 | 12 | □ | 436-5 |
| MG-CR-EDS | 12 ×R2.5 | 26 | 75 | 12 | □ | 436-3 |
| MG-CR-EMS | 12 ×R2.5 | 26 | 75 | 12 | □ | 436-6 |
| TIN-MG-CR-EDS | 12 ×R2.5 | 26 | 75 | 12 | □ | 436-2 |
| DIA-CR-EDS | 12 ×R3 | 26 | 75 | 12 | □ | 436-4 |
| FX-CR-MG-EMS | 12 ×R3 | 26 | 75 | 12 | □ | 436-5 |
| FX-CS-EDS | 12 ×C3 | 26 | 75 | 12 | □ | 436-9 |
| MG-CR-EDS | 12 ×R3 | 26 | 75 | 12 | □ | 436-3 |
| MG-CR-EMS | 12 ×R3 | 26 | 75 | 12 | □ | 436-6 |
| MG-CS-EDS | 12 ×C3 | 26 | 75 | 12 | □ | 436-10 |
| TIN-MG-CR-EDS | 12 ×R3 | 26 | 75 | 12 | □ | 436-2 |
| FX-CR-MG-EMS | 12 ×R4 | 26 | 75 | 12 | □ | 436-5 |
| MG-CR-EDS | 12 ×R4 | 26 | 75 | 12 | □ | 436-3 |
| MG-CR-EMS | 12 ×R4 | 26 | 75 | 12 | □ | 436-6 |
| TIN-MG-CR-EDS | 12 ×R4 | 26 | 75 | 12 | □ | 436-2 |
| AE-VMS | 12 ×R0.5 | 26 | 90 | 12 | ● | 301 |
| AE-VMS | 12 ×R0.5 | 26 | 90 | 12 | ● | 370 |
| AE-VMS | 12 ×R1 | 26 | 90 | 12 | ● | 301 |
| AE-VMS | 12 ×R1 | 26 | 90 | 12 | ● | 370 |
| AE-VMS | 12 ×R1.5 | 26 | 90 | 12 | ● | 301 |
| AE-VMS | 12 ×R1.5 | 26 | 90 | 12 | ● | 370 |
| AE-VMS | 12 ×R2 | 26 | 90 | 12 | ● | 301 |
| AE-VMS | 12 ×R2 | 26 | 90 | 12 | ● | 370 |
| AE-VMS | 12 ×R3 | 26 | 90 | 12 | ● | 301 |
| AE-VMS | 12 ×R3 | 26 | 90 | 12 | ● | 370 |
| FXS-PKER | 12 ×R0.2 | 26 | 110 | 12 | □ | 436-8 |
| SXL-CR-MG-EHS | 12 ×R0.2 | 26 | 110 | 12 | □ | 436-7 |
| FX-CR-MG-EDS | 12 ×R0.4 | 26 | 110 | 12 | □ | 379 |
| FXS-PKER | 12 ×R0.5 | 26 | 110 | 12 | □ | 436-8 |
| SXL-CR-MG-EHS | 12 ×R0.5 | 26 | 110 | 12 | □ | 436-7 |
| FX-CR-MG-EDS | 12 ×R0.8 | 26 | 110 | 12 | □ | 379 |
| FXS-PKER | 12 ×R1 | 26 | 110 | 12 | □ | 436-8 |
| SXL-CR-MG-EHS | 12 ×R1 | 26 | 110 | 12 | □ | 436-7 |
| FXS-PKER | 12 ×R2 | 26 | 110 | 12 | □ | 436-8 |
| SXL-CR-MG-EHS | 12 ×R2 | 26 | 110 | 12 | □ | 436-7 |
| FX-CR-MG-EDS | 12 ×R2.5 | 26 | 110 | 12 | □ | 379 |
| FXS-PKER | 12 ×R3 | 26 | 110 | 12 | □ | 436-8 |
| SXL-CR-MG-EHS | 12 ×R3 | 26 | 110 | 12 | □ | 436-7 |
| FX-CR-MG-EDS | 12 ×R4 | 26 | 110 | 12 | □ | 379 |
| AE-MS-H | 12 ×R0.3 | 30 | 90 | 12 | ● | 405 |
| AE-MS-H | 12 ×R0.5 | 30 | 90 | 12 | ● | 405 |
| AE-MS-H | 12 ×R1 | 30 | 90 | 12 | ● | 405 |
| AE-MS-H | 12 ×R1.5 | 30 | 90 | 12 | ○ | 405 |
| AE-MS-H | 12 ×R2 | 30 | 90 | 12 | ○ | 405 |
| AE-MS-H | 12 ×R3 | 30 | 90 | 12 | ○ | 405 |
| FXS-CR-EMS | 12 ×R0.2 | 30 | 110 | 12 | □ | 436-6 |
| FXS-CR-EMS | 12 ×R0.5 | 30 | 110 | 12 | □ | 436-6 |
| FXS-CR-EMS | 12 ×R1 | 30 | 110 | 12 | □ | 436-6 |
| FXS-CR-EMS | 12 ×R2 | 30 | 110 | 12 | □ | 436-6 |
| FXS-CR-EMS | 12 ×R3 | 30 | 110 | 12 | □ | 436-6 |
| AE-VMFE | 12 ×R0.5 | 30 | 150 | 10 | ● | 288 |
| AE-VMFE | 12 ×R0.5 | 30 | 150 | 10 | ● | 393 |
| AE-VTFE-N | 12 ×R0.5 | 30 | 150 | 10 | ● | 397 |
| AE-VMFE | 12 ×R1 | 30 | 150 | 10 | ○ | 288 |
| AE-VMFE | 12 ×R1 | 30 | 150 | 10 | ○ | 393 |

| 製品記号 Abbreviation | 外径×コーナ半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-VTFE-N | 12 ×R1 | 30 | 150 | 10 | ○ | 397 |
| AE-VML | 12 ×38 ×R0.5 | 38 | 100 | 12 | ● | 305 |
| AE-VML | 12 ×38 ×R0.5 | 38 | 100 | 12 | ● | 371 |
| AE-VML | 12 ×38 ×R1 | 38 | 100 | 12 | ● | 305 |
| AE-VML | 12 ×38 ×R1 | 38 | 100 | 12 | ● | 371 |
| AE-VML | 12 ×38 ×R1.5 | 38 | 100 | 12 | ● | 305 |
| AE-VML | 12 ×38 ×R1.5 | 38 | 100 | 12 | ● | 371 |
| AE-VML | 12 ×38 ×R2 | 38 | 100 | 12 | ● | 305 |
| AE-VML | 12 ×38 ×R2 | 38 | 100 | 12 | ● | 371 |
| AE-VML | 12 ×38 ×R3 | 38 | 100 | 12 | ● | 305 |
| AE-VML | 12 ×38 ×R3 | 38 | 100 | 12 | ● | 371 |
| FX-CR-MG-EDL | 12 ×R2.5 | 40 | 110 | 12 | □ | 380 |
| FX-CR-MG-EDL | 12 ×R4 | 40 | 110 | 12 | □ | 380 |
| AE-VML | 12 ×48 ×R0.5 | 48 | 110 | 12 | ● | 305 |
| AE-VML | 12 ×48 ×R0.5 | 48 | 110 | 12 | ● | 371 |
| AE-VML | 12 ×48 ×R1 | 48 | 110 | 12 | ● | 305 |
| AE-VML | 12 ×48 ×R1 | 48 | 110 | 12 | ● | 371 |
| UVXL-TI-5FL | 12 ×R1 ×60 | 48 | 110 | 12 | ● | 374 |
| UVXL-TI-5FL | 12 ×R1 ×60-SL | 48 | 110 | 12 | ● | 374 |
| AE-VML | 12 ×48 ×R1.5 | 48 | 110 | 12 | ● | 305 |
| AE-VML | 12 ×48 ×R1.5 | 48 | 110 | 12 | ● | 371 |
| UVXL-TI-5FL | 12 ×R1.5 ×60 | 48 | 110 | 12 | ● | 374 |
| AE-VML | 12 ×48 ×R2 | 48 | 110 | 12 | ● | 305 |
| AE-VML | 12 ×48 ×R2 | 48 | 110 | 12 | ● | 371 |
| UVXL-TI-5FL | 12 ×R2 ×60 | 48 | 110 | 12 | ● | 374 |
| UVXL-TI-5FL | 12 ×R2.5 ×60 | 48 | 110 | 12 | ● | 374 |
| AE-VML | 12 ×48 ×R3 | 48 | 110 | 12 | ● | 305 |
| AE-VML | 12 ×48 ×R3 | 48 | 110 | 12 | ● | 371 |
| UVXL-TI-5FL | 12 ×R3 ×60 | 48 | 110 | 12 | ● | 374 |
| UVXL-TI-5FL | 12 ×R3 ×60-SL | 48 | 110 | 12 | ● | 374 |
| UVXL-TI-5FL | 12 ×R4 ×60 | 48 | 110 | 12 | ● | 374 |
| AERO-ETL | 12 ×R1 | 50 | 110 | 12 | ● | 377 |
| AERO-ETL | 12 ×R3 | 50 | 110 | 12 | ● | 377 |
| AERO-ETL | 12 ×R4 | 50 | 110 | 12 | ● | 377 |
| FXS-CR-EML | 12 ×R0.5 | 55 | 110 | 12 | □ | 436-7 |
| FXS-CR-EML | 12 ×R1 | 55 | 110 | 12 | □ | 436-7 |
| FXS-CR-EML | 12 ×R1.5 | 55 | 110 | 12 | □ | 436-7 |
| FXS-CR-EML | 12 ×R2 | 55 | 110 | 12 | □ | 436-7 |
| FXS-CR-EML | 12 ×R3 | 55 | 110 | 12 | □ | 436-7 |
| AE-CRE-H | 13 ×R3 | 6 | 110 | 12 | ● | 383 |
| WXL-MG-NC-RESF | 14 ×R1 | 8 | 70 | 10 | □ | 438-3 |
| AE-VMFE | 14 ×R0.5 | 35 | 160 | 12 | ● | 288 |
| AE-VMFE | 14 ×R0.5 | 35 | 160 | 12 | ● | 393 |
| AE-VTFE-N | 14 ×R0.5 | 35 | 160 | 12 | ● | 397 |
| AE-VMFE | 14 ×R1 | 35 | 160 | 12 | ○ | 288 |
| AE-VMFE | 14 ×R1 | 35 | 160 | 12 | ○ | 393 |
| AE-VTFE-N | 14 ×R1 | 35 | 160 | 12 | ○ | 397 |
| WXL-MG-NC-RESF | 15 ×R1 | 8 | 70 | 10 | □ | 438-3 |
| TIN-MG-CR-EDS | 15 ×R2 | 26 | 90 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 15 ×R2.5 | 26 | 90 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 15 ×R3 | 26 | 90 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 15 ×R4 | 26 | 90 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 15 ×R5 | 26 | 90 | 16 | □ | 436-2 |
| CM-CRE | 16 ×R4 | 5 | 120 | 16 | ● | 436 |
| HFC-TI | 16 | 5 | 120 | 16 | ● | 375 |
| WXL-MG-NC-RESF | 16 ×R1 | 8 | 70 | 10 | □ | 438-3 |
| DLC-AIR-EDS | 16 ×R1 | 18 | 100 | 16 | ● | 376 |
| DLC-AIR-EDS | 16 ×R1.6 | 18 | 100 | 16 | ● | 376 |
| DLC-AIR-EDS | 16 ×R3 | 18 | 100 | 16 | ● | 376 |
| AERO-ETS | 16 ×R1 | 24 | 100 | 16 | ● | 376 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AERO-ETS | 16 ×R3 | 24 | 100 | 16 | ● | 376 |
| AERO-ETS | 16 ×R4 | 24 | 100 | 16 | ● | 376 |
| AERO-ETS | 16 ×R5 | 24 | 100 | 16 | ● | 376 |
| AM-CRE | 16 ×R1 | 24 | 105 | 16 | ● | 385 |
| AM-CRE | 16 ×R3 | 24 | 105 | 16 | ● | 385 |
| DLC-PKE | 16 ×R0.5 ×115 | 24 | 115 | 16 | ● | 403 |
| DLC-PKE | 16 ×R1 ×115 | 24 | 115 | 16 | ● | 403 |
| DLC-PKE | 16 ×R3 ×115 | 24 | 115 | 16 | ● | 403 |
| FXS-PKE | 16 ×R1 ×140 | 24 | 140 | 16 | ● | 391 |
| SXL-PKE | 16 ×R1 ×140 | 24 | 140 | 16 | □ | 436-12 |
| FXS-PKE | 16 ×R2 ×140 | 24 | 140 | 16 | ● | 391 |
| SXL-PKE | 16 ×R2 ×140 | 24 | 140 | 16 | □ | 436-12 |
| FXS-PKE | 16 ×R3 ×140 | 24 | 140 | 16 | ● | 391 |
| SXL-PKE | 16 ×R3 ×140 | 24 | 140 | 16 | □ | 436-12 |
| PHX-LN-DFR | 16 ×R3 ×80 | 24 | 140 | 16 | ● | 432 |
| PHX-LN-DFR | 16 ×R3 ×120 | 24 | 175 | 16 | ● | 432 |
| DIA-CR-EDS | 16 ×R0.5 | 32 | 90 | 16 | □ | 436-4 |
| DIA-CR-EDS | 16 ×R1 | 32 | 90 | 16 | □ | 436-4 |
| DIA-CR-EDS | 16 ×R2 | 32 | 90 | 16 | □ | 436-4 |
| DIA-CR-EDS | 16 ×R3 | 32 | 90 | 16 | □ | 436-4 |
| AE-VMS | 16 ×R0.5 | 32 | 100 | 16 | ● | 301 |
| AE-VMS | 16 ×R0.5 | 32 | 100 | 16 | ● | 370 |
| AE-VMS | 16 ×R1 | 32 | 100 | 16 | ● | 301 |
| AE-VMS | 16 ×R1 | 32 | 100 | 16 | ● | 370 |
| FX-CR-MG-EDS | 16 ×R1 | 32 | 100 | 16 | □ | 379 |
| FX-CR-MG-EMS | 16 ×R1 | 32 | 100 | 16 | □ | 436-5 |
| MG-CR-EDS | 16 ×R1 | 32 | 100 | 16 | □ | 436-3 |
| MG-CR-EMS | 16 ×R1 | 32 | 100 | 16 | □ | 436-6 |
| UVX-TI-4FL | 16 ×R1 ×48 | 32 | 100 | 16 | ● | 372 |
| UVX-TI-4FL | 16 ×R1 ×48-SL | 32 | 100 | 16 | ● | 372 |
| UVX-TI-5FL | 16 ×R1 ×48 | 32 | 100 | 16 | ● | 373 |
| UVX-TI-5FL | 16 ×R1 ×48-SL | 32 | 100 | 16 | ● | 373 |
| FX-CR-MG-EDS | 16 ×R1.5 | 32 | 100 | 16 | □ | 379 |
| FX-CR-MG-EMS | 16 ×R1.5 | 32 | 100 | 16 | □ | 436-5 |
| MG-CR-EDS | 16 ×R1.5 | 32 | 100 | 16 | □ | 436-3 |
| MG-CR-EMS | 16 ×R1.5 | 32 | 100 | 16 | □ | 436-6 |
| UVX-TI-4FL | 16 ×R1.5 ×48 | 32 | 100 | 16 | ● | 372 |
| UVX-TI-5FL | 16 ×R1.5 ×48 | 32 | 100 | 16 | ● | 373 |
| AE-VMS | 16 ×R2 | 32 | 100 | 16 | ● | 301 |
| AE-VMS | 16 ×R2 | 32 | 100 | 16 | ● | 370 |
| FX-CR-MG-EDS | 16 ×R2 | 32 | 100 | 16 | □ | 379 |
| FX-CR-MG-EMS | 16 ×R2 | 32 | 100 | 16 | □ | 436-5 |
| MG-CR-EDS | 16 ×R2 | 32 | 100 | 16 | □ | 436-3 |
| MG-CR-EMS | 16 ×R2 | 32 | 100 | 16 | □ | 436-6 |
| MG-CS-EDS | 16 ×C2 | 32 | 100 | 16 | □ | 436-10 |
| TIN-MG-CR-EDS | 16 ×R2 | 32 | 100 | 16 | □ | 436-2 |
| UVX-TI-4FL | 16 ×R2 ×48 | 32 | 100 | 16 | ● | 372 |
| UVX-TI-5FL | 16 ×R2 ×48 | 32 | 100 | 16 | ● | 373 |
| AE-VMS | 16 ×R2.5 | 32 | 100 | 16 | ● | 301 |
| AE-VMS | 16 ×R2.5 | 32 | 100 | 16 | ● | 370 |
| FX-CR-MG-EDS | 16 ×R2.5 | 32 | 100 | 16 | □ | 379 |
| FX-CR-MG-EMS | 16 ×R2.5 | 32 | 100 | 16 | □ | 436-5 |
| MG-CR-EDS | 16 ×R2.5 | 32 | 100 | 16 | □ | 436-3 |
| MG-CR-EMS | 16 ×R2.5 | 32 | 100 | 16 | □ | 436-6 |
| TIN-MG-CR-EDS | 16 ×R2.5 | 32 | 100 | 16 | □ | 436-2 |
| UVX-TI-4FL | 16 ×R2.5 ×48 | 32 | 100 | 16 | ● | 372 |
| UVX-TI-5FL | 16 ×R2.5 ×48 | 32 | 100 | 16 | ● | 373 |
| AE-VMS | 16 ×R3 | 32 | 100 | 16 | ● | 301 |
| AE-VMS | 16 ×R3 | 32 | 100 | 16 | ● | 370 |
| FX-CR-MG-EDS | 16 ×R3 | 32 | 100 | 16 | □ | 379 |
| FX-CR-MG-EMS | 16 ×R3 | 32 | 100 | 16 | □ | 436-5 |
| MG-CR-EDS | 16 ×R3 | 32 | 100 | 16 | □ | 436-3 |
| MG-CR-EMS | 16 ×R3 | 32 | 100 | 16 | □ | 436-6 |
| MG-CS-EDS | 16 ×C3 | 32 | 100 | 16 | □ | 436-10 |
| TIN-MG-CR-EDS | 16 ×R3 | 32 | 100 | 16 | □ | 436-2 |
| UVX-TI-4FL | 16 ×R3 ×48 | 32 | 100 | 16 | ● | 372 |
| UVX-TI-4FL | 16 ×R3 ×48-SL | 32 | 100 | 16 | ● | 372 |
| UVX-TI-5FL | 16 ×R3 ×48 | 32 | 100 | 16 | ● | 373 |
| UVX-TI-5FL | 16 ×R3 ×48-SL | 32 | 100 | 16 | ● | 373 |
| AE-VMS | 16 ×R4 | 32 | 100 | 16 | ● | 301 |
| AE-VMS | 16 ×R4 | 32 | 100 | 16 | ● | 370 |
| FX-CR-MG-EDS | 16 ×R4 | 32 | 100 | 16 | □ | 379 |
| FX-CR-MG-EMS | 16 ×R4 | 32 | 100 | 16 | □ | 436-5 |
| MG-CR-EDS | 16 ×R4 | 32 | 100 | 16 | □ | 436-3 |
| MG-CR-EMS | 16 ×R4 | 32 | 100 | 16 | □ | 436-6 |
| TIN-MG-CR-EDS | 16 ×R4 | 32 | 100 | 16 | □ | 436-2 |
| UVX-TI-4FL | 16 ×R4 ×48 | 32 | 100 | 16 | ● | 372 |
| UVX-TI-5FL | 16 ×R4 ×48 | 32 | 100 | 16 | ● | 373 |
| TIN-MG-CR-EDS | 16 ×R5 | 32 | 100 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 16 ×R6 | 32 | 100 | 16 | □ | 436-2 |
| PHX-DFR | 16 ×R3 | 32 | 130 | 16 | ● | 387 |
| FXS-PKER | 16 ×R0.5 | 32 | 140 | 16 | □ | 436-8 |
| SXL-CR-MG-EHS | 16 ×R0.5 | 32 | 140 | 16 | □ | 436-7 |
| FXS-PKER | 16 ×R1 | 32 | 140 | 16 | □ | 436-8 |
| SXL-CR-MG-EHS | 16 ×R1 | 32 | 140 | 16 | □ | 436-7 |
| FXS-PKER | 16 ×R2 | 32 | 140 | 16 | □ | 436-8 |
| SXL-CR-MG-EHS | 16 ×R2 | 32 | 140 | 16 | □ | 436-7 |
| FXS-PKER | 16 ×R3 | 32 | 140 | 16 | □ | 436-8 |
| SXL-CR-MG-EHS | 16 ×R3 | 32 | 140 | 16 | □ | 436-7 |
| FXS-CR-EMS | 16 ×R0.5 | 40 | 140 | 16 | □ | 436-6 |
| FXS-CR-EMS | 16 ×R1 | 40 | 140 | 16 | □ | 436-6 |
| FXS-CR-EMS | 16 ×R2 | 40 | 140 | 16 | □ | 436-6 |
| FXS-CR-EMS | 16 ×R3 | 40 | 140 | 16 | □ | 436-6 |
| FX-CR-MG-EDL | 16 ×R2 | 48 | 140 | 16 | □ | 380 |
| FX-CR-MG-EDL | 16 ×R2.5 | 48 | 140 | 16 | □ | 380 |
| FX-CR-MG-EDL | 16 ×R3 | 48 | 140 | 16 | □ | 380 |
| FX-CR-MG-EDL | 16 ×R4 | 48 | 140 | 16 | □ | 380 |
| FX-CR-MG-EDL | 16 ×R5 | 48 | 140 | 16 | □ | 380 |
| FX-CR-MG-EDL | 16 ×R6 | 48 | 140 | 16 | □ | 380 |
| AERO-ETL | 16 ×R1 | 50 | 110 | 16 | ● | 377 |
| AERO-ETL | 16 ×R3 | 50 | 110 | 16 | ● | 377 |
| AERO-ETL | 16 ×R4 | 50 | 110 | 16 | ● | 377 |
| AERO-ETL | 16 ×R5 | 50 | 110 | 16 | ● | 377 |
| UVXL-TI-5FL | 16 ×R1 ×80 | 64 | 130 | 16 | ● | 374 |
| UVXL-TI-5FL | 16 ×R1 ×80-SL | 64 | 130 | 16 | ● | 374 |
| UVXL-TI-5FL | 16 ×R1.5 ×80 | 64 | 130 | 16 | ● | 374 |
| UVXL-TI-5FL | 16 ×R2 ×80 | 64 | 130 | 16 | ● | 374 |
| UVXL-TI-5FL | 16 ×R2.5 ×80 | 64 | 130 | 16 | ● | 374 |
| UVXL-TI-5FL | 16 ×R3 ×80 | 64 | 130 | 16 | ● | 374 |
| UVXL-TI-5FL | 16 ×R3 ×80-SL | 64 | 130 | 16 | ● | 374 |
| UVXL-TI-5FL | 16 ×R4 ×80 | 64 | 130 | 16 | ● | 374 |
| FXS-CR-EML | 16 ×R0.5 | 65 | 140 | 16 | □ | 436-7 |
| FXS-CR-EML | 16 ×R1 | 65 | 140 | 16 | □ | 436-7 |
| FXS-CR-EML | 16 ×R1.5 | 65 | 140 | 16 | □ | 436-7 |
| FXS-CR-EML | 16 ×R2 | 65 | 140 | 16 | □ | 436-7 |
| FXS-CR-EML | 16 ×R3 | 65 | 140 | 16 | □ | 436-7 |
| WXL-MG-NC-RESF | 18 ×R1 | 8 | 70 | 10 | □ | 438-3 |
| DLC-MFE-SF | 18 ×R1 | 18 | 51 | 10 | □ | 436-12 |
| TIN-MG-CR-EDS | 18 ×R2 | 32 | 100 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 18 ×R2.5 | 32 | 100 | 16 | □ | 436-2 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| TIN-MG-CR-EDS | 18 ×R3 | 32 | 100 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 18 ×R4 | 32 | 100 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 18 ×R5 | 32 | 100 | 16 | □ | 436-2 |
| TIN-MG-CR-EDS | 18 ×R6 | 32 | 100 | 16 | □ | 436-2 |
| AE-VMFE | 18 ×R0.5 | 45 | 180 | 16 | ○ | 288 |
| AE-VMFE | 18 ×R0.5 | 45 | 180 | 16 | ○ | 393 |
| AE-VMFE | 18 ×R1 | 45 | 180 | 16 | ● | 288 |
| AE-VMFE | 18 ×R1 | 45 | 180 | 16 | ● | 393 |
| AE-VTFE-N | 18 ×R1 | 45 | 180 | 16 | ● | 397 |
| CM-CRE | 20 ×R4 | 5 | 120 | 20 | ● | 436 |
| HFC-TI | 20 | 5 | 120 | 20 | ● | 375 |
| WXL-MG-NC-RESF | 20 ×R1 | 8 | 70 | 10 | □ | 438-3 |
| DLC-AIR-EDS | 20 ×R1 | 22 | 110 | 20 | ● | 376 |
| DLC-AIR-EDS | 20 ×R1.6 | 22 | 110 | 20 | ● | 376 |
| DLC-AIR-EDS | 20 ×R3 | 22 | 110 | 20 | ● | 376 |
| AERO-ETS | 20 ×R1 | 30 | 100 | 20 | ● | 376 |
| AERO-O-ETS | 20 ×R1 | 30 | 100 | 20 | ● | 377 |
| AERO-ETS | 20 ×R3 | 30 | 100 | 20 | ● | 376 |
| AERO-O-ETS | 20 ×R3 | 30 | 100 | 20 | ● | 377 |
| AERO-ETS | 20 ×R4 | 30 | 100 | 20 | ● | 376 |
| AERO-O-ETS | 20 ×R4 | 30 | 100 | 20 | ● | 377 |
| AERO-ETS | 20 ×R5 | 30 | 100 | 20 | ● | 376 |
| AERO-O-ETS | 20 ×R5 | 30 | 100 | 20 | ● | 377 |
| AM-CRE | 20 ×R1 | 30 | 110 | 20 | ● | 385 |
| AM-CRE | 20 ×R3 | 30 | 110 | 20 | ● | 385 |
| DLC-PKE | 20 ×R0.5 ×125 | 30 | 125 | 20 | ● | 403 |
| DLC-PKE | 20 ×R1 ×125 | 30 | 125 | 20 | ● | 403 |
| DLC-PKE | 20 ×R3 ×125 | 30 | 125 | 20 | ● | 403 |
| FXS-PKE | 20 ×R1 ×160 | 30 | 160 | 20 | ● | 391 |
| SXL-PKE | 20 ×R1 ×160 | 30 | 160 | 20 | □ | 436-12 |
| FXS-PKE | 20 ×R2 ×160 | 30 | 160 | 20 | ● | 391 |
| SXL-PKE | 20 ×R2 ×160 | 30 | 160 | 20 | □ | 436-12 |
| FXS-PKE | 20 ×R3 ×160 | 30 | 160 | 20 | ● | 391 |
| SXL-PKE | 20 ×R3 ×160 | 30 | 160 | 20 | □ | 436-12 |
| DIA-CR-EDS | 20 ×R0.5 | 38 | 100 | 20 | □ | 436-4 |
| DIA-CR-EDS | 20 ×R1 | 38 | 100 | 20 | □ | 436-4 |
| DIA-CR-EDS | 20 ×R1.5 | 38 | 100 | 20 | □ | 436-4 |
| DIA-CR-EDS | 20 ×R2 | 38 | 100 | 20 | □ | 436-4 |
| DIA-CR-EDS | 20 ×R3 | 38 | 100 | 20 | □ | 436-4 |
| FX-CR-MG-EDS | 20 ×R1 | 38 | 105 | 20 | □ | 379 |
| FX-CR-MG-EMS | 20 ×R1 | 38 | 105 | 20 | □ | 436-5 |
| MG-CR-EDS | 20 ×R1 | 38 | 105 | 20 | □ | 436-3 |
| MG-CR-EMS | 20 ×R1 | 38 | 105 | 20 | □ | 436-6 |
| FX-CR-MG-EDS | 20 ×R1.5 | 38 | 105 | 20 | □ | 379 |
| FX-CR-MG-EMS | 20 ×R1.5 | 38 | 105 | 20 | □ | 436-5 |
| MG-CR-EDS | 20 ×R1.5 | 38 | 105 | 20 | □ | 436-3 |
| MG-CR-EMS | 20 ×R1.5 | 38 | 105 | 20 | □ | 436-6 |
| FX-CR-MG-EDS | 20 ×R2 | 38 | 105 | 20 | □ | 379 |
| FX-CR-MG-EMS | 20 ×R2 | 38 | 105 | 20 | □ | 436-5 |
| MG-CR-EDS | 20 ×R2 | 38 | 105 | 20 | □ | 436-3 |
| MG-CR-EMS | 20 ×R2 | 38 | 105 | 20 | □ | 436-6 |
| MG-CS-EDS | 20 ×C2 | 38 | 105 | 20 | □ | 436-10 |
| TIN-MG-CR-EDS | 20 ×R2 | 38 | 105 | 20 | □ | 436-2 |
| FX-CR-MG-EDS | 20 ×R2.5 | 38 | 105 | 20 | □ | 379 |
| FX-CR-MG-EMS | 20 ×R2.5 | 38 | 105 | 20 | □ | 436-5 |
| MG-CR-EDS | 20 ×R2.5 | 38 | 105 | 20 | □ | 436-3 |
| MG-CR-EMS | 20 ×R2.5 | 38 | 105 | 20 | □ | 436-6 |
| FX-CR-MG-EDS | 20 ×R3 | 38 | 105 | 20 | □ | 379 |
| FX-CR-MG-EMS | 20 ×R3 | 38 | 105 | 20 | □ | 436-5 |
| MG-CR-EDS | 20 ×R3 | 38 | 105 | 20 | □ | 436-3 |
| MG-CR-EMS | 20 ×R3 | 38 | 105 | 20 | □ | 436-6 |
| MG-CS-EDS | 20 ×C3 | 38 | 105 | 20 | □ | 436-10 |
| TIN-MG-CR-EDS | 20 ×R3 | 38 | 105 | 20 | □ | 436-2 |
| FX-CR-MG-EDS | 20 ×R4 | 38 | 105 | 20 | □ | 379 |
| FX-CR-MG-EMS | 20 ×R4 | 38 | 105 | 20 | □ | 436-5 |
| MG-CR-EDS | 20 ×R4 | 38 | 105 | 20 | □ | 436-3 |
| MG-CR-EMS | 20 ×R4 | 38 | 105 | 20 | □ | 436-6 |
| TIN-MG-CR-EDS | 20 ×R4 | 38 | 105 | 20 | □ | 436-2 |
| TIN-MG-CR-EDS | 20 ×R5 | 38 | 105 | 20 | □ | 436-2 |
| TIN-MG-CR-EDS | 20 ×R6 | 38 | 105 | 20 | □ | 436-2 |
| FXS-PKER | 20 ×R0.5 | 38 | 160 | 20 | □ | 436-8 |
| SXL-CR-MG-EHS | 20 ×R0.5 | 38 | 160 | 20 | □ | 436-7 |
| FXS-PKER | 20 ×R1 | 38 | 160 | 20 | □ | 436-8 |
| SXL-CR-MG-EHS | 20 ×R1 | 38 | 160 | 20 | □ | 436-7 |
| FXS-PKER | 20 ×R2 | 38 | 160 | 20 | □ | 436-8 |
| SXL-CR-MG-EHS | 20 ×R2 | 38 | 160 | 20 | □ | 436-7 |
| FXS-PKER | 20 ×R3 | 38 | 160 | 20 | □ | 436-8 |
| SXL-CR-MG-EHS | 20 ×R3 | 38 | 160 | 20 | □ | 436-7 |
| AE-VMS | 20 ×R0.5 | 40 | 110 | 20 | ● | 301 |
| AE-VMS | 20 ×R0.5 | 40 | 110 | 20 | ● | 370 |
| AE-VMS | 20 ×R1 | 40 | 110 | 20 | ● | 301 |
| AE-VMS | 20 ×R1 | 40 | 110 | 20 | ● | 370 |
| AE-VMS | 20 ×R2 | 40 | 110 | 20 | ● | 301 |
| AE-VMS | 20 ×R2 | 40 | 110 | 20 | ● | 370 |
| AE-VMS | 20 ×R2.5 | 40 | 110 | 20 | ● | 301 |
| AE-VMS | 20 ×R2.5 | 40 | 110 | 20 | ● | 370 |
| AE-VMS | 20 ×R3 | 40 | 110 | 20 | ● | 301 |
| AE-VMS | 20 ×R3 | 40 | 110 | 20 | ● | 370 |
| AE-VMS | 20 ×R4 | 40 | 110 | 20 | ● | 301 |
| AE-VMS | 20 ×R4 | 40 | 110 | 20 | ● | 370 |
| AE-VMS | 20 ×R5 | 40 | 110 | 20 | ● | 301 |
| AE-VMS | 20 ×R5 | 40 | 110 | 20 | ● | 370 |
| UVX-TI-4FL | 20 ×R1 ×60 | 40 | 120 | 20 | ● | 372 |
| UVX-TI-4FL | 20 ×R1 ×60-SL | 40 | 120 | 20 | ● | 372 |
| UVX-TI-5FL | 20 ×R1 ×60 | 40 | 120 | 20 | ● | 373 |
| UVX-TI-5FL | 20 ×R1 ×60-SL | 40 | 120 | 20 | ● | 373 |
| UVX-TI-4FL | 20 ×R1.5 ×60 | 40 | 120 | 20 | ● | 372 |
| UVX-TI-5FL | 20 ×R1.5 ×60 | 40 | 120 | 20 | ● | 373 |
| UVX-TI-4FL | 20 ×R2 ×60 | 40 | 120 | 20 | ● | 372 |
| UVX-TI-5FL | 20 ×R2 ×60 | 40 | 120 | 20 | ● | 373 |
| UVX-TI-4FL | 20 ×R2.5 ×60 | 40 | 120 | 20 | ● | 372 |
| UVX-TI-5FL | 20 ×R2.5 ×60 | 40 | 120 | 20 | ● | 373 |
| UVX-TI-4FL | 20 ×R3 ×60 | 40 | 120 | 20 | ● | 372 |
| UVX-TI-4FL | 20 ×R3 ×60-SL | 40 | 120 | 20 | ● | 372 |
| UVX-TI-5FL | 20 ×R3 ×60 | 40 | 120 | 20 | ● | 373 |
| UVX-TI-5FL | 20 ×R3 ×60-SL | 40 | 120 | 20 | ● | 373 |
| UVX-TI-4FL | 20 ×R4 ×60 | 40 | 120 | 20 | ● | 372 |
| UVX-TI-5FL | 20 ×R4 ×60 | 40 | 120 | 20 | ● | 373 |
| UVX-TI-4FL | 20 ×R5 ×60 | 40 | 120 | 20 | ● | 372 |
| UVX-TI-4FL | 20 ×R5 ×60-SL | 40 | 120 | 20 | ● | 372 |
| UVX-TI-5FL | 20 ×R5 ×60 | 40 | 120 | 20 | ● | 373 |
| UVX-TI-5FL | 20 ×R5 ×60-SL | 40 | 120 | 20 | ● | 373 |
| PHX-DFR | 20 ×R3 | 40 | 150 | 20 | ● | 387 |
| FXS-CR-EMS | 20 ×R0.5 | 45 | 160 | 20 | □ | 436-6 |
| FXS-CR-EMS | 20 ×R1 | 45 | 160 | 20 | □ | 436-6 |
| FXS-CR-EMS | 20 ×R2 | 45 | 160 | 20 | □ | 436-6 |
| FXS-CR-EMS | 20 ×R3 | 45 | 160 | 20 | □ | 436-6 |
| AERO-ETL | 20 ×R1 | 50 | 110 | 20 | ● | 377 |
| AERO-ETL | 20 ×R3 | 50 | 110 | 20 | ● | 377 |
| AERO-ETL | 20 ×R4 | 50 | 110 | 20 | ● | 377 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／コーナR
## CARBIDE END MILLS / WITH CORNER RADIUS

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AERO-ETL | 20 ×R5 | 50 | 110 | 20 | ● | 377 |
| FX-CR-MG-EDL | 20 ×R2 | 56 | 160 | 20 | □ | 380 |
| FX-CR-MG-EDL | 20 ×R3 | 56 | 160 | 20 | □ | 380 |
| FX-CR-MG-EDL | 20 ×R4 | 56 | 160 | 20 | □ | 380 |
| FX-CR-MG-EDL | 20 ×R5 | 56 | 160 | 20 | □ | 380 |
| FX-CR-MG-EDL | 20 ×R6 | 56 | 160 | 20 | □ | 380 |
| FXS-CR-EML | 20 ×R0.5 | 75 | 160 | 20 | □ | 436-7 |
| FXS-CR-EML | 20 ×R1 | 75 | 160 | 20 | □ | 436-7 |
| FXS-CR-EML | 20 ×R1.5 | 75 | 160 | 20 | □ | 436-7 |
| FXS-CR-EML | 20 ×R2 | 75 | 160 | 20 | □ | 436-7 |
| FXS-CR-EML | 20 ×R3 | 75 | 160 | 20 | □ | 436-7 |
| UVXL-TI-5FL | 20 ×R1 ×100 | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R1 ×100-SL | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R1.5 ×100 | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R2 ×100 | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R2.5 ×100 | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R3 ×100 | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R3 ×100-SL | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R4 ×100 | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R5 ×100 | 80 | 160 | 20 | ● | 374 |
| UVXL-TI-5FL | 20 ×R5 ×100-SL | 80 | 160 | 20 | ● | 374 |
| AERO-EXTL | 20 ×R1 | 100 | 160 | 20 | ● | 378 |
| AERO-EXTL | 20 ×R3 | 100 | 160 | 20 | ● | 378 |
| AERO-EXTL | 20 ×R4 | 100 | 160 | 20 | ● | 378 |
| AERO-EXTL | 20 ×R5 | 100 | 160 | 20 | ● | 378 |
| DLC-MFE-SF | 22 ×R1 | 22 | 60 | 12 | □ | 436-12 |
| AE-VMFE | 22 ×R0.5 | 55 | 200 | 20 | ○ | 288 |
| AE-VMFE | 22 ×R0.5 | 55 | 200 | 20 | ○ | 393 |
| AE-VMFE | 22 ×R1 | 55 | 200 | 20 | ● | 288 |
| AE-VMFE | 22 ×R1 | 55 | 200 | 20 | ● | 393 |
| AE-VTFE-N | 22 ×R1 | 55 | 200 | 20 | ● | 397 |
| CM-CRE | 25 ×R4 | 5 | 120 | 25 | ● | 436 |
| HFC-TI | 25 | 5 | 120 | 25 | ● | 375 |
| DLC-AIR-EDS | 25 ×R1 | 27 | 110 | 25 | ● | 376 |
| DLC-AIR-EDS | 25 ×R1.6 | 27 | 110 | 25 | ● | 376 |
| DLC-AIR-EDS | 25 ×R3 | 27 | 110 | 25 | ● | 376 |
| AERO-ETS | 25 ×R1 | 37.5 | 100 | 25 | ● | 376 |
| AERO-O-ETS | 25 ×R1 | 37.5 | 100 | 25 | ● | 377 |
| AERO-ETS | 25 ×R3 | 37.5 | 100 | 25 | ● | 376 |
| AERO-O-ETS | 25 ×R3 | 37.5 | 100 | 25 | ● | 377 |
| AERO-ETS | 25 ×R4 | 37.5 | 100 | 25 | ● | 376 |
| AERO-O-ETS | 25 ×R4 | 37.5 | 100 | 25 | ● | 377 |
| AERO-ETS | 25 ×R5 | 37.5 | 100 | 25 | ● | 376 |
| AERO-O-ETS | 25 ×R5 | 37.5 | 100 | 25 | ● | 377 |
| TIN-MG-CR-EDS | 25 ×R3 | 45 | 120 | 25 | □ | 436-2 |
| TIN-MG-CR-EDS | 25 ×R4 | 45 | 120 | 25 | □ | 436-2 |
| TIN-MG-CR-EDS | 25 ×R5 | 45 | 120 | 25 | □ | 436-2 |
| TIN-MG-CR-EDS | 25 ×R6 | 45 | 120 | 25 | □ | 436-2 |
| TIN-MG-CR-EDS | 25 ×R8 | 45 | 120 | 25 | □ | 436-2 |
| SXL-CR-MG-EHS | 25 ×R0.5 | 45 | 180 | 25 | □ | 436-7 |
| SXL-CR-MG-EHS | 25 ×R1 | 45 | 180 | 25 | □ | 436-7 |
| SXL-CR-MG-EHS | 25 ×R2 | 45 | 180 | 25 | □ | 436-7 |
| SXL-CR-MG-EHS | 25 ×R3 | 45 | 180 | 25 | □ | 436-7 |
| AE-VMS | 25 ×R1 | 50 | 120 | 25 | ● | 301 |
| AE-VMS | 25 ×R1 | 50 | 120 | 25 | ● | 370 |
| AE-VMS | 25 ×R2 | 50 | 120 | 25 | ● | 301 |
| AE-VMS | 25 ×R2 | 50 | 120 | 25 | ● | 370 |
| AE-VMS | 25 ×R3 | 50 | 120 | 25 | ● | 301 |
| AE-VMS | 25 ×R3 | 50 | 120 | 25 | ● | 370 |
| AE-VMS | 25 ×R4 | 50 | 120 | 25 | ● | 301 |

| 製品記号 Abbreviation | 外径×コーナ半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AE-VMS | 25 ×R4 | 50 | 120 | 25 | ● | 370 |
| AE-VMS | 25 ×R5 | 50 | 120 | 25 | ● | 301 |
| AE-VMS | 25 ×R5 | 50 | 120 | 25 | ● | 370 |
| UVX-TI-4FL | 25 ×R1 ×75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-4FL | 25 ×R1 ×75-SL | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 ×R1 ×75 | 50 | 140 | 25 | ● | 373 |
| UVX-TI-5FL | 25 ×R1 ×75-SL | 50 | 140 | 25 | ● | 373 |
| UVX-TI-4FL | 25 ×R1.5 ×75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 ×R1.5 ×75 | 50 | 140 | 25 | ● | 373 |
| UVX-TI-4FL | 25 ×R2 ×75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 ×R2 ×75 | 50 | 140 | 25 | ● | 373 |
| UVX-TI-4FL | 25 ×R2.5 ×75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 ×R2.5 ×75 | 50 | 140 | 25 | ● | 373 |
| UVX-TI-4FL | 25 ×R3 ×75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-4FL | 25 ×R3 ×75-SL | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 ×R3 ×75 | 50 | 140 | 25 | ● | 373 |
| UVX-TI-5FL | 25 ×R3 ×75-SL | 50 | 140 | 25 | ● | 373 |
| UVX-TI-4FL | 25 ×R4 ×75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 ×R4 ×75 | 50 | 140 | 25 | ● | 373 |
| UVX-TI-4FL | 25 ×R5 ×75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-4FL | 25 ×R5 ×75-SL | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 ×R5 ×75 | 50 | 140 | 25 | ● | 373 |
| UVX-TI-5FL | 25 ×R5 ×75-SL | 50 | 140 | 25 | ● | 373 |
| UVX-TI-4FL | 25 ×R6 ×75 | 50 | 140 | 25 | ● | 372 |
| UVX-TI-5FL | 25 ×R6 ×75 | 50 | 140 | 25 | ● | 373 |
| FXS-CR-EMS | 25 ×R0.5 | 50 | 180 | 25 | □ | 436-6 |
| FXS-CR-EMS | 25 ×R1 | 50 | 180 | 25 | □ | 436-6 |
| FXS-CR-EMS | 25 ×R2 | 50 | 180 | 25 | □ | 436-6 |
| FXS-CR-EMS | 25 ×R3 | 50 | 180 | 25 | □ | 436-6 |
| FX-CR-MG-EDL | 25 ×R3 | 67 | 180 | 25 | □ | 380 |
| FX-CR-MG-EDL | 25 ×R4 | 67 | 180 | 25 | □ | 380 |
| FX-CR-MG-EDL | 25 ×R5 | 67 | 180 | 25 | □ | 380 |
| FX-CR-MG-EDL | 25 ×R6 | 67 | 180 | 25 | □ | 380 |
| FX-CR-MG-EDL | 25 ×R8 | 67 | 180 | 25 | □ | 380 |
| FXS-CR-EML | 25 ×R0.5 | 90 | 180 | 25 | □ | 436-7 |
| FXS-CR-EML | 25 ×R1 | 90 | 180 | 25 | □ | 436-7 |
| FXS-CR-EML | 25 ×R1.5 | 90 | 180 | 25 | □ | 436-7 |
| FXS-CR-EML | 25 ×R2 | 90 | 180 | 25 | □ | 436-7 |
| FXS-CR-EML | 25 ×R3 | 90 | 180 | 25 | □ | 436-7 |
| UVXL-TI-5FL | 25 ×R1 ×125 | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R1 ×125-SL | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R1.5 ×125 | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R2 ×125 | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R2.5 ×125 | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R3 ×125 | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R3 ×125-SL | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R4 ×125 | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R5 ×125 | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R5 ×125-SL | 100 | 190 | 25 | ● | 374 |
| UVXL-TI-5FL | 25 ×R6 ×125 | 100 | 190 | 25 | ● | 374 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパ
# CARBIDE END MILLS / TAPER

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FX-MG-TPDS | 0.25° | 0.8 | 0.2 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.25° | 1.2 | 0.3 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.25° | 1.6 | 0.4 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.25° | 2 | 0.5 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.25° | 2 | 0.6 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.25° | 2 | 0.7 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.25° | 3 | 0.8 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.25° | 3 | 0.9 | 40 | 3 | □ | 440 |
| RB-MG-TPE | 0.25° | 6 | 0.8 | 35 | 3 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 6 | 0.9 | 35 | 3 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 8 | 1 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 8 | 1.1 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 8 | 1.2 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 8 | 1.3 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 8 | 1.4 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 8 | 1.5 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 8 | 1.6 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 8 | 1.7 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 8 | 1.8 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 8 | 1.9 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 8 | 2 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 10 | 0.8 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 10 | 0.9 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 12 | 1 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 12 | 1.1 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 12 | 1.2 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 12 | 1.3 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.25° | 12 | 1.4 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 12 | 1.5 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 12 | 1.6 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 12 | 1.7 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 12 | 1.8 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 12 | 1.9 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 12 | 2 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 16 | 1.4 | 50 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 16 | 1.5 | 50 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 16 | 1.6 | 50 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 16 | 1.7 | 50 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 16 | 1.8 | 50 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 16 | 1.9 | 50 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 16 | 2 | 50 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 20 | 1.5 | 55 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 20 | 1.6 | 55 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 20 | 1.7 | 55 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.25° | 20 | 1.8 | 55 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 20 | 1.9 | 55 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.25° | 20 | 2 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 2 | 0.4 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 0.5° | 2 | 0.5 | 35 | 3 | □ | 443-4 |
| FX-MG-TPDS | 0.5° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 0.5° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FXS-RB-TPE | 0.5° | 3 | 0.4 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 0.5° | 4 | 0.4 | 35 | 3 | □ | 443-4 |
| DLC-RB-TPE | 0.5° | 4 | 0.5 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 4 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.5° | 4 | 0.5 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 0.5° | 4 | 0.6 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 4 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.5° | 4 | 0.6 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 0.5° | 4 | 0.7 | 35 | 3 | □ | 443-12 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| RB-MG-TPE | 0.5° | 4 | 0.7 | 35 | 3 | □ | 443-9 |
| FX-MG-TPDS | 0.5° | 4 | 1 | 50 | 4 | ● | 440 |
| MG-TPDS | 0.5° | 5 | 1 | 45 | 4 | □ | 443-1 |
| FX-MG-TPDS | 0.5° | 5 | 1.5 | 50 | 4 | ● | 440 |
| DLC-RB-TPE | 0.5° | 6 | 0.5 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 6 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.5° | 6 | 0.5 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 0.5° | 6 | 0.6 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 6 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.5° | 6 | 0.6 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 0.5° | 6 | 0.7 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 6 | 0.7 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.5° | 6 | 0.7 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 0.5° | 6 | 0.8 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 6 | 0.8 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.5° | 6 | 0.8 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 6 | 0.9 | 35 | 3 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 6 | 0.9 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 6 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 0.5° | 6 | 1.2 | 45 | 4 | □ | 443-5 |
| MG-TPDS | 0.5° | 6 | 1.5 | 45 | 4 | □ | 443-1 |
| FX-MG-TPDS | 0.5° | 6 | 2 | 50 | 4 | ● | 440 |
| FXS-RB-TPE | 0.5° | 8 | 0.7 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 0.5° | 8 | 0.8 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 0.5° | 8 | 0.9 | 45 | 4 | □ | 443-5 |
| DLC-RB-TPE | 0.5° | 8 | 1 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 8 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 8 | 1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 8 | 1.1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 8 | 1.1 | 45 | 4 | □ | 443-9 |
| DLC-RB-TPE | 0.5° | 8 | 1.2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 8 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 8 | 1.2 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 8 | 1.3 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 8 | 1.3 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 8 | 1.4 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 8 | 1.4 | 45 | 4 | □ | 443-10 |
| DLC-RB-TPE | 0.5° | 8 | 1.5 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 8 | 1.5 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 8 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 8 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 8 | 1.6 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 8 | 1.7 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 8 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 8 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 8 | 1.8 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 8 | 1.9 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 8 | 1.9 | 45 | 4 | □ | 443-11 |
| DLC-RB-TPE | 0.5° | 8 | 2 | 45 | 4 | □ | 443-12 |
| MG-TPDS | 0.5° | 8 | 2 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 0.5° | 8 | 2 | 45 | 4 | □ | 443-2 |
| RB-MG-TPE | 0.5° | 8 | 2 | 45 | 4 | □ | 443-11 |
| MG-TPDS | 0.5° | 8 | 2.5 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 0.5° | 8 | 2.5 | 45 | 4 | □ | 443-2 |
| FX-MG-TPDS | 0.5° | 8 | 2.5 | 50 | 4 | ● | 440 |
| MG-TPDS | 0.5° | 8 | 3 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 0.5° | 8 | 3 | 45 | 4 | □ | 443-2 |
| DLC-RB-TPE | 0.5° | 10 | 0.8 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 10 | 0.8 | 45 | 4 | □ | 443-4 |
| RB-MG-TPE | 0.5° | 10 | 0.8 | 45 | 4 | □ | 443-9 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパ
# CARBIDE END MILLS / TAPER

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPE | 0.5° | 10 | 0.9 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 10 | 0.9 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 10 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 0.5° | 10 | 1.2 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 0.5° | 10 | 1.5 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 0.5° | 10 | 1.6 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 0.5° | 10 | 1.8 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 0.5° | 10 | 2 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 0.5° | 10 | 2.5 | 45 | 4 | □ | 443-8 |
| FX-MG-TPDS | 0.5° | 10 | 3 | 60 | 6 | ● | 441 |
| MG-TPDS | 0.5° | 10 | 4 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 0.5° | 10 | 4 | 50 | 6 | □ | 443-2 |
| DLC-RB-TPE | 0.5° | 12 | 1 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 12 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 12 | 1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 12 | 1.1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 12 | 1.1 | 45 | 4 | □ | 443-9 |
| DLC-RB-TPE | 0.5° | 12 | 1.2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 12 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 12 | 1.2 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 12 | 1.3 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 12 | 1.3 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.5° | 12 | 1.4 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 12 | 1.4 | 45 | 4 | □ | 443-10 |
| DLC-RB-TPE | 0.5° | 12 | 1.5 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 12 | 1.5 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 12 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 12 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 12 | 1.6 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 12 | 1.7 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 12 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 12 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 12 | 1.8 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 12 | 1.9 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 12 | 1.9 | 45 | 4 | □ | 443-11 |
| DLC-RB-TPE | 0.5° | 12 | 2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 12 | 2 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 12 | 2 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 12 | 2.5 | 45 | 4 | □ | 443-8 |
| MG-TPDS | 0.5° | 12 | 5 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 0.5° | 12 | 5 | 50 | 6 | □ | 443-2 |
| MG-TPDS | 0.5° | 12 | 6 | 60 | 8 | □ | 443-1 |
| MG-TPMS | 0.5° | 12 | 6 | 60 | 8 | □ | 443-2 |
| MG-TPDS | 0.5° | 14 | 8 | 70 | 10 | □ | 443-1 |
| MG-TPMS | 0.5° | 14 | 8 | 70 | 10 | □ | 443-2 |
| MG-TPDS | 0.5° | 14 | 10 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 0.5° | 14 | 10 | 75 | 12 | □ | 443-2 |
| FX-MG-TPDS | 0.5° | 15 | 4 | 60 | 6 | ● | 441 |
| FXS-RB-TPE | 0.5° | 16 | 1 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 0.5° | 16 | 1.2 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 0.5° | 16 | 1.4 | 50 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.5° | 16 | 1.4 | 50 | 4 | □ | 443-10 |
| DLC-RB-TPE | 0.5° | 16 | 1.5 | 50 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 16 | 1.5 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 16 | 1.5 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 16 | 1.6 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 16 | 1.6 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 16 | 1.7 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 16 | 1.7 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 16 | 1.8 | 50 | 4 | □ | 443-7 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| RB-MG-TPE | 0.5° | 16 | 1.8 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 16 | 1.9 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 16 | 1.9 | 50 | 4 | □ | 443-11 |
| DLC-RB-TPE | 0.5° | 16 | 2 | 50 | 4 | □ | 443-12 |
| FXS-RB-TPE | 0.5° | 16 | 2 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 16 | 2 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 16 | 2.5 | 50 | 4 | □ | 443-8 |
| MG-TPDS | 0.5° | 17 | 12 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 0.5° | 17 | 12 | 75 | 12 | □ | 443-2 |
| FXS-RB-TPE | 0.5° | 20 | 1.5 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 20 | 1.5 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 20 | 1.6 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 20 | 1.6 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 20 | 1.7 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.5° | 20 | 1.7 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.5° | 20 | 1.8 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 20 | 1.8 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 20 | 1.9 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 20 | 1.9 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 20 | 2 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.5° | 20 | 2 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.5° | 20 | 2.5 | 55 | 4 | □ | 443-8 |
| FX-MG-TPDS | 0.5° | 20 | 5 | 60 | 6 | ● | 441 |
| FX-MG-TPDS | 0.5° | 20 | 6 | 60 | 6 | ● | 441 |
| FXS-RB-TPE | 0.5° | 25 | 2 | 55 | 4 | □ | 443-7 |
| FXS-RB-TPE | 0.5° | 25 | 2.5 | 55 | 4 | □ | 443-8 |
| FX-MG-TPDS | 0.5° | 25 | 8 | 70 | 8 | ● | 442 |
| FXS-RB-TPE | 0.5° | 30 | 2.5 | 60 | 4 | □ | 443-8 |
| FX-MG-TPDS | 0.5° | 35 | 10 | 90 | 10 | ● | 442 |
| FX-MG-TPDS | 0.5° | 40 | 12 | 90 | 12 | ● | 442 |
| FX-MG-TPDS | 0.75° | 0.8 | 0.2 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.75° | 1.2 | 0.3 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.75° | 1.6 | 0.4 | 40 | 3 | □ | 439 |
| FXS-RB-TPE | 0.75° | 2 | 0.4 | 35 | 3 | □ | 443-4 |
| FX-MG-TPDS | 0.75° | 2 | 0.5 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.75° | 2 | 0.6 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.75° | 2 | 0.7 | 40 | 3 | □ | 439 |
| FXS-RB-TPE | 0.75° | 3 | 0.4 | 35 | 3 | □ | 443-4 |
| FX-MG-TPDS | 0.75° | 3 | 0.8 | 40 | 3 | □ | 439 |
| FX-MG-TPDS | 0.75° | 3 | 0.9 | 40 | 3 | □ | 440 |
| FXS-RB-TPE | 0.75° | 4 | 0.4 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 0.75° | 4 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.75° | 4 | 0.5 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 4 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.75° | 4 | 0.6 | 35 | 3 | □ | 443-9 |
| RB-MG-TPE | 0.75° | 4 | 0.7 | 35 | 3 | □ | 443-9 |
| FX-MG-TPDS | 0.75° | 4 | 1 | 50 | 4 | □ | 440 |
| FX-MG-TPDS | 0.75° | 5 | 1.5 | 50 | 4 | □ | 440 |
| FXS-RB-TPE | 0.75° | 6 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.75° | 6 | 0.5 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 6 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.75° | 6 | 0.6 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 6 | 0.7 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.75° | 6 | 0.7 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 6 | 0.8 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 0.75° | 6 | 0.8 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 6 | 0.9 | 35 | 3 | □ | 443-5 |
| RB-MG-TPE | 0.75° | 6 | 0.9 | 35 | 3 | □ | 443-9 |
| FX-MG-TPDS | 0.75° | 6 | 2 | 50 | 4 | □ | 440 |
| FXS-RB-TPE | 0.75° | 8 | 0.7 | 45 | 4 | □ | 443-4 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパ
CARBIDE END MILLS / TAPER

◎デジタルカタログで最新情報を公開中

【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPE | 0.75° | 8 | 0.8 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 0.75° | 8 | 0.9 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 0.75° | 8 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.75° | 8 | 1 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.75° | 8 | 1.1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 8 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.75° | 8 | 1.2 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.75° | 8 | 1.3 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.75° | 8 | 1.4 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 8 | 1.5 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.75° | 8 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 8 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.75° | 8 | 1.6 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.75° | 8 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 8 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.75° | 8 | 1.8 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.75° | 8 | 1.9 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.75° | 8 | 2 | 45 | 4 | □ | 443-11 |
| FX-MG-TPDS | 0.75° | 8 | 2.5 | 50 | 4 | □ | 440 |
| FXS-RB-TPE | 0.75° | 10 | 0.8 | 45 | 4 | □ | 443-4 |
| RB-MG-TPE | 0.75° | 10 | 0.8 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 10 | 0.9 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.75° | 10 | 0.9 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 10 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 0.75° | 10 | 1.2 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 0.75° | 10 | 1.5 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 0.75° | 10 | 1.6 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 0.75° | 10 | 1.8 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 0.75° | 10 | 2 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 0.75° | 10 | 2.5 | 45 | 4 | □ | 443-8 |
| FX-MG-TPDS | 0.75° | 10 | 3 | 60 | 6 | □ | 441 |
| FXS-RB-TPE | 0.75° | 12 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.75° | 12 | 1 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.75° | 12 | 1.1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 0.75° | 12 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.75° | 12 | 1.2 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.75° | 12 | 1.3 | 45 | 4 | □ | 443-9 |
| RB-MG-TPE | 0.75° | 12 | 1.4 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 12 | 1.5 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.75° | 12 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 12 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.75° | 12 | 1.6 | 45 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.75° | 12 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 12 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.75° | 12 | 1.8 | 45 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.75° | 12 | 1.9 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.75° | 12 | 2 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.75° | 12 | 2 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.75° | 12 | 2.5 | 45 | 4 | □ | 443-8 |
| FXS-RB-TPE | 0.75° | 16 | 1.2 | 50 | 4 | □ | 443-5 |
| RB-MG-TPE | 0.75° | 16 | 1.4 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 16 | 1.5 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.75° | 16 | 1.5 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 16 | 1.6 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.75° | 16 | 1.6 | 50 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.75° | 16 | 1.7 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 16 | 1.8 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.75° | 16 | 1.8 | 50 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.75° | 16 | 1.9 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.75° | 16 | 2 | 50 | 4 | □ | 443-7 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| RB-MG-TPE | 0.75° | 16 | 2 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.75° | 16 | 2.5 | 50 | 4 | □ | 443-8 |
| FXS-RB-TPE | 0.75° | 20 | 1.5 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.75° | 20 | 1.5 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 20 | 1.6 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 0.75° | 20 | 1.6 | 55 | 4 | □ | 443-10 |
| RB-MG-TPE | 0.75° | 20 | 1.7 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 0.75° | 20 | 1.8 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.75° | 20 | 1.8 | 55 | 4 | □ | 443-11 |
| RB-MG-TPE | 0.75° | 20 | 1.9 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.75° | 20 | 2 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 0.75° | 20 | 2 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 0.75° | 20 | 2.5 | 55 | 4 | □ | 443-8 |
| FXS-RB-TPE | 0.75° | 25 | 2 | 55 | 4 | □ | 443-7 |
| FXS-RB-TPE | 0.75° | 25 | 2.5 | 55 | 4 | □ | 443-8 |
| FXS-RB-TPE | 0.75° | 25 | 3 | 55 | 4 | □ | 443-8 |
| FXS-RB-TPE | 0.75° | 30 | 2.5 | 60 | 4 | □ | 443-8 |
| FXS-RB-TPE | 0.75° | 40 | 3 | 80 | 6 | □ | 443-8 |
| FXS-RB-TPE | 1° | 2 | 0.4 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 1° | 2 | 0.5 | 35 | 3 | □ | 443-4 |
| FX-MG-TPDS | 1° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 1° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FXS-RB-TPE | 1° | 3 | 0.4 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 1° | 4 | 0.4 | 35 | 3 | □ | 443-4 |
| DLC-RB-TPE | 1° | 4 | 0.5 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1° | 4 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1° | 4 | 0.5 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1° | 4 | 0.6 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1° | 4 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1° | 4 | 0.6 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1° | 4 | 0.7 | 35 | 3 | □ | 443-12 |
| RB-MG-TPE | 1° | 4 | 0.7 | 35 | 3 | □ | 443-9 |
| FX-MG-TPDS | 1° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 1° | 5 | 1.5 | 50 | 4 | ● | 440 |
| DLC-RB-TPE | 1° | 6 | 0.5 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1° | 6 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1° | 6 | 0.5 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1° | 6 | 0.6 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1° | 6 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1° | 6 | 0.6 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1° | 6 | 0.7 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1° | 6 | 0.7 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1° | 6 | 0.7 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1° | 6 | 0.8 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1° | 6 | 0.8 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1° | 6 | 0.8 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 1° | 6 | 0.9 | 35 | 3 | □ | 443-5 |
| RB-MG-TPE | 1° | 6 | 0.9 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 1° | 6 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1° | 6 | 1.2 | 45 | 4 | □ | 443-5 |
| FX-MG-TPDS | 1° | 6 | 2 | 50 | 4 | ● | 440 |
| MG-TPDS | 1° | 7 | 1 | 45 | 4 | □ | 443-1 |
| FXS-RB-TPE | 1° | 8 | 0.7 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 1° | 8 | 0.8 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 1° | 8 | 0.9 | 45 | 4 | □ | 443-5 |
| DLC-RB-TPE | 1° | 8 | 1 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 8 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 8 | 1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1° | 8 | 1.1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 8 | 1.1 | 45 | 4 | □ | 443-9 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／テーパ
## CARBIDE END MILLS / TAPER

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| DLC-RB-TPE | 1° | 8 | 1.2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 8 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 8 | 1.2 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1° | 8 | 1.3 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 8 | 1.3 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 8 | 1.4 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 8 | 1.4 | 45 | 4 | □ | 443-10 |
| DLC-RB-TPE | 1° | 8 | 1.5 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 8 | 1.5 | 45 | 4 | □ | 443-6 |
| MG-TPDS | 1° | 8 | 1.5 | 45 | 4 | □ | 443-1 |
| RB-MG-TPE | 1° | 8 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 8 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 8 | 1.6 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 8 | 1.7 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 8 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 8 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 8 | 1.8 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1° | 8 | 1.9 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 8 | 1.9 | 45 | 4 | □ | 443-11 |
| DLC-RB-TPE | 1° | 8 | 2 | 45 | 4 | □ | 443-12 |
| RB-MG-TPE | 1° | 8 | 2 | 45 | 4 | □ | 443-11 |
| FX-MG-TPDS | 1° | 8 | 2.5 | 50 | 4 | ● | 440 |
| DLC-RB-TPE | 1° | 10 | 0.8 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 10 | 0.8 | 45 | 4 | □ | 443-4 |
| RB-MG-TPE | 1° | 10 | 0.8 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1° | 10 | 0.9 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 10 | 0.9 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1° | 10 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1° | 10 | 1.2 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1° | 10 | 1.5 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 1° | 10 | 1.6 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 1° | 10 | 1.8 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 1° | 10 | 2 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 1° | 10 | 2.5 | 45 | 4 | □ | 443-8 |
| FX-MG-TPDS | 1° | 10 | 3 | 60 | 6 | ● | 441 |
| MG-TPDS | 1° | 11 | 2 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 1° | 11 | 2 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 1° | 11 | 2.5 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 1° | 11 | 2.5 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 1° | 11 | 3 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 1° | 11 | 3 | 45 | 4 | □ | 443-2 |
| DLC-RB-TPE | 1° | 12 | 1 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 12 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 12 | 1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1° | 12 | 1.1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 12 | 1.1 | 45 | 4 | □ | 443-9 |
| DLC-RB-TPE | 1° | 12 | 1.2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 12 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 12 | 1.2 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1° | 12 | 1.3 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 12 | 1.3 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 12 | 1.4 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 12 | 1.4 | 45 | 4 | □ | 443-10 |
| DLC-RB-TPE | 1° | 12 | 1.5 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 12 | 1.5 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 12 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 12 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 12 | 1.6 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 12 | 1.7 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 12 | 1.7 | 45 | 4 | □ | 443-10 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPE | 1° | 12 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 12 | 1.8 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1° | 12 | 1.9 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 12 | 1.9 | 45 | 4 | □ | 443-11 |
| DLC-RB-TPE | 1° | 12 | 2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 12 | 2 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 12 | 2 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1° | 12 | 2.5 | 45 | 4 | □ | 443-8 |
| MG-TPDS | 1° | 13 | 4 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 1° | 13 | 4 | 50 | 6 | □ | 443-2 |
| FX-MG-TPDS | 1° | 15 | 4 | 60 | 6 | ● | 441 |
| FXS-RB-TPE | 1° | 16 | 1 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1° | 16 | 1.2 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1° | 16 | 1.4 | 50 | 4 | □ | 443-5 |
| RB-MG-TPE | 1° | 16 | 1.4 | 50 | 4 | □ | 443-10 |
| DLC-RB-TPE | 1° | 16 | 1.5 | 50 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 16 | 1.5 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 16 | 1.5 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 16 | 1.6 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 16 | 1.6 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 16 | 1.7 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 16 | 1.7 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 16 | 1.8 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 16 | 1.8 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1° | 16 | 1.9 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 16 | 1.9 | 50 | 4 | □ | 443-11 |
| DLC-RB-TPE | 1° | 16 | 2 | 50 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1° | 16 | 2 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 16 | 2 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1° | 16 | 2.5 | 50 | 4 | □ | 443-8 |
| MG-TPDS | 1° | 16 | 5 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 1° | 16 | 5 | 50 | 6 | □ | 443-2 |
| MG-TPDS | 1° | 16 | 6 | 60 | 8 | □ | 443-1 |
| MG-TPMS | 1° | 16 | 6 | 60 | 8 | □ | 443-2 |
| MG-TPDS | 1° | 19 | 8 | 70 | 10 | □ | 443-1 |
| MG-TPMS | 1° | 19 | 8 | 70 | 10 | □ | 443-2 |
| MG-TPDS | 1° | 19 | 10 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 1° | 19 | 10 | 75 | 12 | □ | 443-2 |
| FXS-RB-TPE | 1° | 20 | 1.5 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 20 | 1.5 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 20 | 1.6 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 20 | 1.6 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 20 | 1.7 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 1° | 20 | 1.7 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1° | 20 | 1.8 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 20 | 1.8 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1° | 20 | 1.9 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 20 | 1.9 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1° | 20 | 2 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 1° | 20 | 2 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1° | 20 | 2.5 | 55 | 4 | □ | 443-8 |
| FX-MG-TPDS | 1° | 20 | 5 | 60 | 6 | ● | 441 |
| FX-MG-TPDS | 1° | 20 | 6 | 60 | 6 | ● | 441 |
| MG-TPDS | 1° | 22 | 12 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 1° | 22 | 12 | 75 | 12 | □ | 443-2 |
| FXS-RB-TPE | 1° | 25 | 2 | 55 | 4 | □ | 443-7 |
| FXS-RB-TPE | 1° | 25 | 2.5 | 55 | 4 | □ | 443-8 |
| FXS-RB-TPE | 1° | 25 | 3 | 55 | 4 | □ | 443-8 |
| FX-MG-TPDS | 1° | 25 | 8 | 70 | 8 | ● | 442 |
| FXS-RB-TPE | 1° | 30 | 2.5 | 60 | 4 | □ | 443-8 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパ
# CARBIDE END MILLS / TAPER

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FX-MG-TPDS | 1° | 35 | 10 | 90 | 10 | ● | 442 |
| FXS-RB-TPE | 1° | 40 | 3 | 80 | 6 | □ | 443-8 |
| FX-MG-TPDS | 1° | 40 | 12 | 90 | 12 | ● | 442 |
| FXS-RB-TPE | 1.5° | 2 | 0.4 | 35 | 3 | □ | 443-4 |
| FX-MG-TPDS | 1.5° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 1.5° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FXS-RB-TPE | 1.5° | 3 | 0.4 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 1.5° | 4 | 0.4 | 35 | 3 | □ | 443-4 |
| DLC-RB-TPE | 1.5° | 4 | 0.5 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 4 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1.5° | 4 | 0.5 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1.5° | 4 | 0.6 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 4 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1.5° | 4 | 0.6 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1.5° | 4 | 0.7 | 35 | 3 | □ | 443-12 |
| RB-MG-TPE | 1.5° | 4 | 0.7 | 35 | 3 | □ | 443-9 |
| FX-MG-TPDS | 1.5° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 1.5° | 5 | 1.5 | 50 | 4 | ● | 440 |
| DLC-RB-TPE | 1.5° | 6 | 0.5 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 6 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1.5° | 6 | 0.5 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1.5° | 6 | 0.6 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 6 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1.5° | 6 | 0.6 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1.5° | 6 | 0.7 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 6 | 0.7 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1.5° | 6 | 0.7 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 1.5° | 6 | 0.8 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 6 | 0.8 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 1.5° | 6 | 0.8 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 1.5° | 6 | 0.9 | 35 | 3 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 6 | 0.9 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 1.5° | 6 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1.5° | 6 | 1.2 | 45 | 4 | □ | 443-5 |
| FX-MG-TPDS | 1.5° | 6 | 2 | 50 | 4 | ● | 440 |
| MG-TPDS | 1.5° | 7 | 1 | 45 | 4 | □ | 443-1 |
| FXS-RB-TPE | 1.5° | 8 | 0.7 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 1.5° | 8 | 0.8 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 1.5° | 8 | 0.9 | 45 | 4 | □ | 443-5 |
| DLC-RB-TPE | 1.5° | 8 | 1 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 8 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 8 | 1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1.5° | 8 | 1.1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 8 | 1.1 | 45 | 4 | □ | 443-9 |
| DLC-RB-TPE | 1.5° | 8 | 1.2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 8 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 8 | 1.2 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1.5° | 8 | 1.3 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 8 | 1.3 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 8 | 1.4 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 8 | 1.4 | 45 | 4 | □ | 443-10 |
| DLC-RB-TPE | 1.5° | 8 | 1.5 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 8 | 1.5 | 45 | 4 | □ | 443-6 |
| MG-TPDS | 1.5° | 8 | 1.5 | 45 | 4 | □ | 443-1 |
| RB-MG-TPE | 1.5° | 8 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 8 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 8 | 1.6 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 8 | 1.7 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 8 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 8 | 1.8 | 45 | 4 | □ | 443-7 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| RB-MG-TPE | 1.5° | 8 | 1.8 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1.5° | 8 | 1.9 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 8 | 1.9 | 45 | 4 | □ | 443-11 |
| DLC-RB-TPE | 1.5° | 8 | 2 | 45 | 4 | □ | 443-12 |
| RB-MG-TPE | 1.5° | 8 | 2 | 45 | 4 | □ | 443-11 |
| FX-MG-TPDS | 1.5° | 8 | 2.5 | 50 | 4 | ● | 441 |
| DLC-RB-TPE | 1.5° | 10 | 0.8 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 10 | 0.8 | 45 | 4 | □ | 443-4 |
| RB-MG-TPE | 1.5° | 10 | 0.8 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1.5° | 10 | 0.9 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 10 | 0.9 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1.5° | 10 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1.5° | 10 | 1.2 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1.5° | 10 | 1.5 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 1.5° | 10 | 1.6 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 1.5° | 10 | 1.8 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 1.5° | 10 | 2 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 1.5° | 10 | 2.5 | 45 | 4 | □ | 443-8 |
| FX-MG-TPDS | 1.5° | 10 | 3 | 60 | 6 | ● | 441 |
| MG-TPDS | 1.5° | 11 | 2 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 1.5° | 11 | 2 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 1.5° | 11 | 2.5 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 1.5° | 11 | 2.5 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 1.5° | 11 | 3 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 1.5° | 11 | 3 | 45 | 4 | □ | 443-2 |
| DLC-RB-TPE | 1.5° | 12 | 1 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 12 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 12 | 1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1.5° | 12 | 1.1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 12 | 1.1 | 45 | 4 | □ | 443-9 |
| DLC-RB-TPE | 1.5° | 12 | 1.2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 12 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 12 | 1.2 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 1.5° | 12 | 1.3 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 12 | 1.3 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 12 | 1.4 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 12 | 1.4 | 45 | 4 | □ | 443-10 |
| DLC-RB-TPE | 1.5° | 12 | 1.5 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 12 | 1.5 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 12 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 12 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 12 | 1.6 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 12 | 1.7 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 12 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 12 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 12 | 1.8 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1.5° | 12 | 1.9 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 12 | 1.9 | 45 | 4 | □ | 443-11 |
| DLC-RB-TPE | 1.5° | 12 | 2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 12 | 2 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 12 | 2 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1.5° | 12 | 2.5 | 45 | 4 | □ | 443-8 |
| MG-TPDS | 1.5° | 13 | 4 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 1.5° | 13 | 4 | 50 | 6 | □ | 443-2 |
| FX-MG-TPDS | 1.5° | 15 | 4 | 60 | 6 | ● | 441 |
| FXS-RB-TPE | 1.5° | 16 | 1 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1.5° | 16 | 1.2 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 1.5° | 16 | 1.4 | 50 | 4 | □ | 443-5 |
| RB-MG-TPE | 1.5° | 16 | 1.4 | 50 | 4 | □ | 443-10 |
| DLC-RB-TPE | 1.5° | 16 | 1.5 | 50 | 4 | □ | 443-12 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／テーパ
## CARBIDE END MILLS / TAPER

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPE | 1.5° | 16 | 1.5 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 16 | 1.5 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 16 | 1.6 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 16 | 1.6 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 16 | 1.7 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 16 | 1.7 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 16 | 1.8 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 16 | 1.8 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1.5° | 16 | 1.9 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 16 | 1.9 | 50 | 4 | □ | 443-11 |
| DLC-RB-TPE | 1.5° | 16 | 2 | 50 | 4 | □ | 443-12 |
| FXS-RB-TPE | 1.5° | 16 | 2 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 16 | 2 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1.5° | 16 | 2.5 | 50 | 4 | □ | 443-8 |
| MG-TPDS | 1.5° | 16 | 5 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 1.5° | 16 | 5 | 50 | 6 | □ | 443-2 |
| MG-TPDS | 1.5° | 16 | 6 | 60 | 8 | □ | 443-1 |
| MG-TPMS | 1.5° | 16 | 6 | 60 | 8 | □ | 443-2 |
| MG-TPDS | 1.5° | 19 | 8 | 70 | 10 | □ | 443-1 |
| MG-TPMS | 1.5° | 19 | 8 | 70 | 10 | □ | 443-2 |
| MG-TPDS | 1.5° | 19 | 10 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 1.5° | 19 | 10 | 75 | 12 | □ | 443-2 |
| FXS-RB-TPE | 1.5° | 20 | 1.5 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 20 | 1.5 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 20 | 1.6 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 20 | 1.6 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 20 | 1.7 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 1.5° | 20 | 1.7 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 1.5° | 20 | 1.8 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 20 | 1.8 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1.5° | 20 | 1.9 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 20 | 1.9 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1.5° | 20 | 2 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 1.5° | 20 | 2 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 1.5° | 20 | 2.5 | 55 | 4 | □ | 443-8 |
| FX-MG-TPDS | 1.5° | 20 | 5 | 60 | 6 | ● | 441 |
| FX-MG-TPDS | 1.5° | 20 | 6 | 60 | 6 | ● | 441 |
| MG-TPDS | 1.5° | 22 | 12 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 1.5° | 22 | 12 | 75 | 12 | □ | 443-2 |
| FXS-RB-TPE | 1.5° | 25 | 2 | 55 | 4 | □ | 443-8 |
| FXS-RB-TPE | 1.5° | 25 | 2.5 | 55 | 4 | □ | 443-8 |
| FXS-RB-TPE | 1.5° | 25 | 3 | 60 | 6 | □ | 443-8 |
| FX-MG-TPDS | 1.5° | 25 | 8 | 70 | 8 | ● | 442 |
| FXS-RB-TPE | 1.5° | 30 | 2.5 | 65 | 6 | □ | 443-8 |
| FX-MG-TPDS | 1.5° | 35 | 10 | 90 | 10 | ● | 442 |
| FXS-RB-TPE | 1.5° | 40 | 3 | 80 | 6 | □ | 443-8 |
| FX-MG-TPDS | 1.5° | 40 | 12 | 90 | 12 | ● | 442 |
| FXS-RB-TPE | 2° | 2 | 0.4 | 35 | 3 | □ | 443-4 |
| FX-MG-TPDS | 2° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 2° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FXS-RB-TPE | 2° | 3 | 0.4 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 2° | 4 | 0.4 | 35 | 3 | □ | 443-4 |
| DLC-RB-TPE | 2° | 4 | 0.5 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 2° | 4 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 2° | 4 | 0.5 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 2° | 4 | 0.6 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 2° | 4 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 2° | 4 | 0.6 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 2° | 4 | 0.7 | 35 | 3 | □ | 443-12 |
| RB-MG-TPE | 2° | 4 | 0.7 | 35 | 3 | □ | 443-9 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FX-MG-TPDS | 2° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 2° | 5 | 1.5 | 50 | 4 | ● | 440 |
| DLC-RB-TPE | 2° | 6 | 0.5 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 2° | 6 | 0.5 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 2° | 6 | 0.5 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 2° | 6 | 0.6 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 2° | 6 | 0.6 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 2° | 6 | 0.6 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 2° | 6 | 0.7 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 2° | 6 | 0.7 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 2° | 6 | 0.7 | 35 | 3 | □ | 443-9 |
| DLC-RB-TPE | 2° | 6 | 0.8 | 35 | 3 | □ | 443-12 |
| FXS-RB-TPE | 2° | 6 | 0.8 | 35 | 3 | □ | 443-4 |
| RB-MG-TPE | 2° | 6 | 0.8 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 2° | 6 | 0.9 | 35 | 3 | □ | 443-5 |
| RB-MG-TPE | 2° | 6 | 0.9 | 35 | 3 | □ | 443-9 |
| FXS-RB-TPE | 2° | 6 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 2° | 6 | 1.2 | 45 | 4 | □ | 443-5 |
| FX-MG-TPDS | 2° | 6 | 2 | 50 | 4 | ● | 440 |
| FXS-RB-TPE | 2° | 8 | 0.7 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 2° | 8 | 0.8 | 45 | 4 | □ | 443-4 |
| FXS-RB-TPE | 2° | 8 | 0.9 | 45 | 4 | □ | 443-5 |
| DLC-RB-TPE | 2° | 8 | 1 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 8 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 8 | 1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 2° | 8 | 1.1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 8 | 1.1 | 45 | 4 | □ | 443-9 |
| DLC-RB-TPE | 2° | 8 | 1.2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 8 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 8 | 1.2 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 2° | 8 | 1.3 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 8 | 1.3 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 8 | 1.4 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 8 | 1.4 | 45 | 4 | □ | 443-10 |
| DLC-RB-TPE | 2° | 8 | 1.5 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 8 | 1.5 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 2° | 8 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 8 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 2° | 8 | 1.6 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 8 | 1.7 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 8 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 8 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 8 | 1.8 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 2° | 8 | 1.9 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 8 | 1.9 | 45 | 4 | □ | 443-11 |
| DLC-RB-TPE | 2° | 8 | 2 | 45 | 4 | □ | 443-12 |
| RB-MG-TPE | 2° | 8 | 2 | 45 | 4 | □ | 443-11 |
| FX-MG-TPDS | 2° | 8 | 2.5 | 50 | 4 | ● | 441 |
| MG-TPDS | 2° | 9 | 1 | 45 | 4 | □ | 443-1 |
| DLC-RB-TPE | 2° | 10 | 0.8 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 10 | 0.8 | 45 | 4 | □ | 443-4 |
| RB-MG-TPE | 2° | 10 | 0.8 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 2° | 10 | 0.9 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 10 | 0.9 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 2° | 10 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 2° | 10 | 1.2 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 2° | 10 | 1.5 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 2° | 10 | 1.6 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 2° | 10 | 1.8 | 45 | 4 | □ | 443-7 |
| FXS-RB-TPE | 2° | 10 | 2 | 45 | 4 | □ | 443-8 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパ
CARBIDE END MILLS / TAPER

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPE | 2° | 10 | 2.5 | 45 | 4 | □ | 443-8 |
| FX-MG-TPDS | 2° | 10 | 3 | 60 | 6 | ● | 441 |
| MG-TPDS | 2° | 11 | 1.5 | 45 | 4 | □ | 443-1 |
| DLC-RB-TPE | 2° | 12 | 1 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 12 | 1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 12 | 1 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 2° | 12 | 1.1 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 12 | 1.1 | 45 | 4 | □ | 443-9 |
| DLC-RB-TPE | 2° | 12 | 1.2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 12 | 1.2 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 12 | 1.2 | 45 | 4 | □ | 443-9 |
| FXS-RB-TPE | 2° | 12 | 1.3 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 12 | 1.3 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 12 | 1.4 | 45 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 12 | 1.4 | 45 | 4 | □ | 443-10 |
| DLC-RB-TPE | 2° | 12 | 1.5 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 12 | 1.5 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 2° | 12 | 1.5 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 12 | 1.6 | 45 | 4 | □ | 443-6 |
| RB-MG-TPE | 2° | 12 | 1.6 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 12 | 1.7 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 12 | 1.7 | 45 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 12 | 1.8 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 12 | 1.8 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 2° | 12 | 1.9 | 45 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 12 | 1.9 | 45 | 4 | □ | 443-11 |
| DLC-RB-TPE | 2° | 12 | 2 | 45 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 12 | 2 | 45 | 4 | □ | 443-8 |
| RB-MG-TPE | 2° | 12 | 2 | 45 | 4 | □ | 443-11 |
| FXS-RB-TPE | 2° | 12 | 2.5 | 45 | 4 | □ | 443-8 |
| MG-TPDS | 2° | 15 | 2 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 2° | 15 | 2 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 2° | 15 | 2.5 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 2° | 15 | 2.5 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 2° | 15 | 3 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 2° | 15 | 3 | 50 | 6 | □ | 443-2 |
| FX-MG-TPDS | 2° | 15 | 4 | 60 | 6 | ● | 441 |
| FXS-RB-TPE | 2° | 16 | 1 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 2° | 16 | 1.2 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 2° | 16 | 1.4 | 50 | 4 | □ | 443-5 |
| RB-MG-TPE | 2° | 16 | 1.4 | 50 | 4 | □ | 443-10 |
| DLC-RB-TPE | 2° | 16 | 1.5 | 50 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 16 | 1.5 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 2° | 16 | 1.5 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 16 | 1.6 | 50 | 4 | □ | 443-6 |
| RB-MG-TPE | 2° | 16 | 1.6 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 16 | 1.7 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 16 | 1.7 | 50 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 16 | 1.8 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 16 | 1.8 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 2° | 16 | 1.9 | 50 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 16 | 1.9 | 50 | 4 | □ | 443-11 |
| DLC-RB-TPE | 2° | 16 | 2 | 50 | 4 | □ | 443-12 |
| FXS-RB-TPE | 2° | 16 | 2 | 50 | 4 | □ | 443-8 |
| RB-MG-TPE | 2° | 16 | 2 | 50 | 4 | □ | 443-11 |
| FXS-RB-TPE | 2° | 16 | 2.5 | 50 | 4 | □ | 443-8 |
| MG-TPDS | 2° | 18 | 4 | 60 | 6 | □ | 443-1 |
| MG-TPMS | 2° | 18 | 4 | 60 | 6 | □ | 443-2 |
| FXS-RB-TPE | 2° | 20 | 1.5 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 2° | 20 | 1.5 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 20 | 1.6 | 55 | 4 | □ | 443-6 |
| RB-MG-TPE | 2° | 20 | 1.6 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 20 | 1.7 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 20 | 1.7 | 55 | 4 | □ | 443-10 |
| FXS-RB-TPE | 2° | 20 | 1.8 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 20 | 1.8 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 2° | 20 | 1.9 | 55 | 4 | □ | 443-7 |
| RB-MG-TPE | 2° | 20 | 1.9 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 2° | 20 | 2 | 55 | 4 | □ | 443-8 |
| RB-MG-TPE | 2° | 20 | 2 | 55 | 4 | □ | 443-11 |
| FXS-RB-TPE | 2° | 20 | 2.5 | 55 | 4 | □ | 443-8 |
| FX-MG-TPDS | 2° | 20 | 5 | 60 | 6 | ● | 441 |
| FX-MG-TPDS | 2° | 20 | 6 | 60 | 6 | ● | 441 |
| MG-TPDS | 2° | 21 | 5 | 70 | 8 | □ | 443-1 |
| MG-TPMS | 2° | 21 | 5 | 70 | 8 | □ | 443-2 |
| MG-TPDS | 2° | 21 | 6 | 70 | 8 | □ | 443-1 |
| MG-TPMS | 2° | 21 | 6 | 70 | 8 | □ | 443-2 |
| FXS-RB-TPE | 2° | 25 | 2 | 55 | 4 | □ | 443-8 |
| FXS-RB-TPE | 2° | 25 | 2.5 | 60 | 6 | □ | 443-8 |
| FXS-RB-TPE | 2° | 25 | 3 | 60 | 6 | □ | 443-8 |
| FX-MG-TPDS | 2° | 25 | 8 | 70 | 8 | ● | 442 |
| MG-TPDS | 2° | 25 | 8 | 70 | 10 | □ | 443-1 |
| MG-TPMS | 2° | 25 | 8 | 70 | 10 | □ | 443-2 |
| MG-TPDS | 2° | 25 | 10 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 2° | 25 | 10 | 75 | 12 | □ | 443-2 |
| FXS-RB-TPE | 2° | 30 | 2.5 | 65 | 6 | □ | 443-8 |
| MG-TPDS | 2° | 30 | 12 | 90 | 12 | □ | 443-1 |
| MG-TPMS | 2° | 30 | 12 | 90 | 12 | □ | 443-2 |
| FX-MG-TPDS | 2° | 35 | 10 | 90 | 12 | ● | 442 |
| FXS-RB-TPE | 2° | 40 | 3 | 80 | 6 | □ | 443-8 |
| FX-MG-TPDS | 2° | 40 | 12 | 90 | 12 | ● | 442 |
| MG-TPDS | 2.5° | 9 | 1 | 45 | 4 | □ | 443-1 |
| MG-TPDS | 2.5° | 11 | 1.5 | 45 | 4 | □ | 443-1 |
| MG-TPDS | 2.5° | 15 | 2 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 2.5° | 15 | 2 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 2.5° | 15 | 2.5 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 2.5° | 15 | 2.5 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 2.5° | 15 | 3 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 2.5° | 15 | 3 | 50 | 6 | □ | 443-2 |
| MG-TPDS | 2.5° | 18 | 4 | 60 | 6 | □ | 443-1 |
| MG-TPMS | 2.5° | 18 | 4 | 60 | 6 | □ | 443-2 |
| MG-TPDS | 2.5° | 21 | 5 | 70 | 8 | □ | 443-1 |
| MG-TPMS | 2.5° | 21 | 5 | 70 | 8 | □ | 443-2 |
| MG-TPDS | 2.5° | 21 | 6 | 70 | 8 | □ | 443-1 |
| MG-TPMS | 2.5° | 21 | 6 | 70 | 8 | □ | 443-2 |
| MG-TPDS | 2.5° | 25 | 8 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 2.5° | 25 | 8 | 75 | 12 | □ | 443-2 |
| MG-TPDS | 2.5° | 25 | 10 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 2.5° | 25 | 10 | 75 | 12 | □ | 443-2 |
| MG-TPDS | 2.5° | 30 | 12 | 90 | 12 | □ | 443-1 |
| MG-TPMS | 2.5° | 30 | 12 | 90 | 12 | □ | 443-2 |
| FX-MG-TPDS | 3° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 3° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FXS-RB-TPE | 3° | 4 | 0.5 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 3° | 4 | 0.6 | 35 | 3 | □ | 443-4 |
| FX-MG-TPDS | 3° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 3° | 5 | 1.5 | 50 | 4 | ● | 440 |
| FXS-RB-TPE | 3° | 6 | 0.7 | 35 | 3 | □ | 443-4 |
| FXS-RB-TPE | 3° | 6 | 0.8 | 35 | 3 | □ | 443-4 |
| FX-MG-TPDS | 3° | 6 | 2 | 50 | 4 | ● | 440 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／テーパ
## CARBIDE END MILLS / TAPER

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPE | 3° | 8 | 0.9 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 3° | 8 | 1 | 45 | 4 | □ | 443-5 |
| FX-MG-TPDS | 3° | 8 | 2.5 | 50 | 4 | ● | 441 |
| MG-TPDS | 3° | 9 | 1 | 45 | 4 | □ | 443-1 |
| FXS-RB-TPE | 3° | 10 | 0.8 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 3° | 10 | 1.2 | 45 | 4 | □ | 443-5 |
| FX-MG-TPDS | 3° | 10 | 3 | 60 | 6 | ● | 441 |
| MG-TPDS | 3° | 11 | 1.5 | 45 | 4 | □ | 443-1 |
| FXS-RB-TPE | 3° | 12 | 1 | 45 | 4 | □ | 443-5 |
| FXS-RB-TPE | 3° | 12 | 1.5 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 3° | 12 | 1.6 | 45 | 4 | □ | 443-6 |
| FXS-RB-TPE | 3° | 12 | 1.8 | 45 | 4 | □ | 443-7 |
| MG-TPDS | 3° | 15 | 2 | 45 | 4 | □ | 443-1 |
| MG-TPMS | 3° | 15 | 2 | 45 | 4 | □ | 443-2 |
| MG-TPDS | 3° | 15 | 2.5 | 45 | 6 | □ | 443-1 |
| MG-TPMS | 3° | 15 | 2.5 | 50 | 6 | □ | 443-2 |
| MG-TPDS | 3° | 15 | 3 | 50 | 6 | □ | 443-1 |
| MG-TPMS | 3° | 15 | 3 | 50 | 6 | □ | 443-2 |
| FX-MG-TPDS | 3° | 15 | 4 | 60 | 6 | ● | 441 |
| FXS-RB-TPE | 3° | 16 | 1.2 | 50 | 4 | □ | 443-5 |
| FXS-RB-TPE | 3° | 16 | 2 | 50 | 4 | □ | 443-8 |
| MG-TPDS | 3° | 18 | 4 | 60 | 6 | □ | 443-1 |
| MG-TPMS | 3° | 18 | 4 | 60 | 6 | □ | 443-2 |
| FXS-RB-TPE | 3° | 20 | 1.5 | 55 | 4 | □ | 443-6 |
| FXS-RB-TPE | 3° | 20 | 1.6 | 55 | 4 | □ | 443-6 |
| FXS-RB-TPE | 3° | 20 | 1.8 | 55 | 4 | □ | 443-7 |
| FXS-RB-TPE | 3° | 20 | 2.5 | 60 | 6 | □ | 443-8 |
| FX-MG-TPDS | 3° | 20 | 5 | 60 | 6 | ● | 441 |
| FX-MG-TPDS | 3° | 20 | 6 | 70 | 8 | ● | 441 |
| MG-TPDS | 3° | 21 | 5 | 70 | 8 | □ | 443-1 |
| MG-TPMS | 3° | 21 | 5 | 70 | 8 | □ | 443-2 |
| MG-TPDS | 3° | 21 | 6 | 70 | 10 | □ | 443-1 |
| MG-TPMS | 3° | 21 | 6 | 70 | 10 | □ | 443-2 |
| FXS-RB-TPE | 3° | 25 | 2 | 60 | 6 | □ | 443-8 |
| FXS-RB-TPE | 3° | 25 | 3 | 60 | 6 | □ | 443-8 |
| MG-TPDS | 3° | 25 | 8 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 3° | 25 | 8 | 75 | 12 | □ | 443-2 |
| FX-MG-TPDS | 3° | 25 | 8 | 90 | 10 | ● | 442 |
| MG-TPDS | 3° | 25 | 10 | 75 | 12 | □ | 443-1 |
| MG-TPMS | 3° | 25 | 10 | 75 | 12 | □ | 443-2 |
| FXS-RB-TPE | 3° | 30 | 2.5 | 65 | 6 | □ | 443-8 |
| MG-TPDS | 3° | 30 | 12 | 90 | 12 | □ | 443-1 |
| MG-TPMS | 3° | 30 | 12 | 90 | 12 | □ | 443-2 |
| FX-MG-TPDS | 3° | 35 | 10 | 90 | 12 | ● | 442 |
| FXS-RB-TPE | 3° | 40 | 3 | 80 | 8 | □ | 443-8 |
| FX-MG-TPDS | 3° | 40 | 12 | 110 | 16 | ● | 442 |
| FX-MG-TPDS | 5° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 5° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 5° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 5° | 5 | 1.5 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 5° | 6 | 2 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 5° | 8 | 2.5 | 50 | 4 | ● | 441 |
| FX-MG-TPDS | 5° | 10 | 3 | 60 | 6 | ● | 441 |
| MG-TPDS | 5° | 15 | 2 | 50 | 6 | □ | 443-1 |
| MG-TPDS | 5° | 15 | 2.5 | 50 | 6 | □ | 443-1 |
| MG-TPDS | 5° | 15 | 3 | 50 | 6 | □ | 443-1 |
| FX-MG-TPDS | 5° | 15 | 4 | 60 | 6 | ● | 441 |
| MG-TPDS | 5° | 18 | 4 | 60 | 8 | □ | 443-1 |
| FX-MG-TPDS | 5° | 20 | 5 | 70 | 8 | ● | 441 |
| FX-MG-TPDS | 5° | 20 | 6 | 70 | 8 | ● | 441 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| MG-TPDS | 5° | 21 | 5 | 70 | 10 | □ | 443-1 |
| MG-TPDS | 5° | 21 | 6 | 70 | 10 | □ | 443-1 |
| MG-TPDS | 5° | 25 | 8 | 75 | 12 | □ | 443-1 |
| FX-MG-TPDS | 5° | 25 | 8 | 90 | 12 | ● | 442 |
| MG-TPDS | 5° | 25 | 10 | 75 | 12 | □ | 443-1 |
| MG-TPDS | 5° | 30 | 12 | 90 | 16 | □ | 443-1 |
| FX-MG-TPDS | 5° | 35 | 10 | 100 | 16 | ● | 442 |
| FX-MG-TPDS | 5° | 40 | 12 | 110 | 16 | ● | 442 |
| FX-MG-TPDS | 7° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 7° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 7° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 7° | 4 | 2 | 45 | 4 | □ | 443-3 |
| MG-TRC | 7° | 4 | 2 | 45 | 4 | ● | 443 |
| FX-MG-TPDS | 7° | 5 | 1.5 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 7° | 5 | 2.5 | 45 | 4 | □ | 443-3 |
| MG-TRC | 7° | 5 | 2.5 | 45 | 4 | ● | 443 |
| FX-MG-TPDS | 7° | 6 | 2 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 7° | 6 | 3 | 50 | 6 | □ | 443-3 |
| MG-TRC | 7° | 6 | 3 | 50 | 6 | ● | 443 |
| FX-MG-TRC | 7° | 7 | 3.5 | 50 | 6 | □ | 443-3 |
| MG-TRC | 7° | 7 | 3.5 | 50 | 6 | ● | 443 |
| FX-MG-TPDS | 7° | 8 | 2.5 | 50 | 4 | ● | 441 |
| FX-MG-TRC | 7° | 8 | 4 | 50 | 6 | □ | 443-3 |
| MG-TRC | 7° | 8 | 4 | 50 | 6 | ● | 443 |
| FX-MG-TRC | 7° | 9 | 4.5 | 60 | 8 | □ | 443-3 |
| MG-TRC | 7° | 9 | 4.5 | 60 | 8 | ● | 443 |
| FX-MG-TPDS | 7° | 10 | 3 | 60 | 6 | ● | 441 |
| FX-MG-TRC | 7° | 10 | 5 | 60 | 8 | □ | 443-3 |
| MG-TRC | 7° | 10 | 5 | 60 | 8 | ● | 443 |
| FX-MG-TRC | 7° | 12 | 6 | 70 | 10 | □ | 443-3 |
| MG-TRC | 7° | 12 | 6 | 70 | 10 | ● | 443 |
| FX-MG-TPDS | 7° | 15 | 4 | 60 | 6 | ● | 441 |
| MG-TPDS | 7° | 20 | 2 | 70 | 8 | □ | 443-1 |
| MG-TPDS | 7° | 20 | 2.5 | 70 | 8 | □ | 443-1 |
| MG-TPDS | 7° | 20 | 3 | 70 | 8 | □ | 443-1 |
| FX-MG-TPDS | 7° | 20 | 5 | 60 | 6 | ● | 441 |
| FX-MG-TPDS | 7° | 20 | 6 | 70 | 8 | ● | 441 |
| MG-TPDS | 7° | 24 | 4 | 70 | 10 | □ | 443-1 |
| FX-MG-TPDS | 7° | 25 | 8 | 80 | 10 | ● | 442 |
| MG-TPDS | 7° | 28 | 5 | 90 | 12 | □ | 443-1 |
| MG-TPDS | 7° | 28 | 6 | 90 | 12 | □ | 443-1 |
| MG-TPDS | 7° | 33 | 8 | 100 | 16 | □ | 443-1 |
| MG-TPDS | 7° | 33 | 10 | 100 | 16 | □ | 443-1 |
| FX-MG-TPDS | 7° | 35 | 10 | 100 | 16 | ● | 442 |
| MG-TPDS | 7° | 40 | 12 | 110 | 20 | □ | 443-1 |
| FX-MG-TPDS | 7° | 40 | 12 | 120 | 20 | ● | 442 |
| FX-MG-TPDS | 10° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 10° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 10° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 10° | 4 | 2 | 45 | 4 | □ | 443-3 |
| MG-TRC | 10° | 4 | 2 | 45 | 4 | ● | 443 |
| FX-MG-TPDS | 10° | 5 | 1.5 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 10° | 5 | 2.5 | 50 | 6 | □ | 443-3 |
| MG-TRC | 10° | 5 | 2.5 | 50 | 6 | ● | 443 |
| FX-MG-TPDS | 10° | 6 | 2 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 10° | 6 | 3 | 50 | 6 | □ | 443-3 |
| MG-TRC | 10° | 6 | 3 | 50 | 6 | ● | 443 |
| FX-MG-TRC | 10° | 7 | 3.5 | 50 | 6 | □ | 443-3 |
| MG-TRC | 10° | 7 | 3.5 | 50 | 6 | ● | 443 |
| FX-MG-TPDS | 10° | 8 | 2.5 | 50 | 4 | ● | 441 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパ
# CARBIDE END MILLS / TAPER

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FX-MG-TRC | 10° | 8 | 4 | 60 | 8 | □ | 443-3 |
| MG-TRC | 10° | 8 | 4 | 60 | 8 | ● | 443 |
| FX-MG-TRC | 10° | 9 | 4.5 | 60 | 8 | □ | 443-3 |
| MG-TRC | 10° | 9 | 4.5 | 60 | 8 | ● | 443 |
| FX-MG-TPDS | 10° | 10 | 3 | 50 | 6 | ● | 441 |
| FX-MG-TRC | 10° | 10 | 5 | 70 | 10 | □ | 443-3 |
| MG-TRC | 10° | 10 | 5 | 70 | 10 | ● | 443 |
| FX-MG-TRC | 10° | 12 | 6 | 75 | 12 | □ | 443-3 |
| MG-TRC | 10° | 12 | 6 | 75 | 12 | ● | 443 |
| FX-MG-TPDS | 10° | 15 | 4 | 60 | 6 | ● | 441 |
| FX-MG-TPDS | 10° | 20 | 5 | 60 | 6 | ● | 441 |
| FX-MG-TPDS | 10° | 20 | 6 | 90 | 12 | ● | 441 |
| FX-MG-TPDS | 10° | 25 | 8 | 80 | 10 | ● | 442 |
| FX-MG-TPDS | 10° | 35 | 10 | 100 | 16 | ● | 442 |
| FX-MG-TPDS | 10° | 40 | 12 | 120 | 20 | ● | 442 |
| FX-MG-TPDS | 12° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 12° | 2 | 0.8 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 12° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 12° | 4 | 2 | 45 | 4 | □ | 443-3 |
| MG-TRC | 12° | 4 | 2 | 45 | 4 | ● | 443 |
| FX-MG-TPDS | 12° | 5 | 1.5 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 12° | 5 | 2.5 | 50 | 6 | □ | 443-3 |
| MG-TRC | 12° | 5 | 2.5 | 50 | 6 | ● | 443 |
| FX-MG-TPDS | 12° | 6 | 2 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 12° | 6 | 3 | 50 | 6 | □ | 443-3 |
| MG-TRC | 12° | 6 | 3 | 50 | 6 | ● | 443 |
| FX-MG-TRC | 12° | 7 | 3.5 | 60 | 8 | □ | 443-3 |
| MG-TRC | 12° | 7 | 3.5 | 60 | 8 | ● | 443 |
| FX-MG-TPDS | 12° | 8 | 2.5 | 50 | 4 | ● | 441 |
| FX-MG-TRC | 12° | 8 | 4 | 60 | 8 | □ | 443-3 |
| MG-TRC | 12° | 8 | 4 | 60 | 8 | ● | 443 |
| FX-MG-TRC | 12° | 9 | 4.5 | 70 | 10 | □ | 443-3 |
| MG-TRC | 12° | 9 | 4.5 | 70 | 10 | ● | 443 |
| FX-MG-TPDS | 12° | 10 | 3 | 60 | 6 | ● | 441 |
| FX-MG-TRC | 12° | 10 | 5 | 70 | 10 | □ | 443-3 |
| MG-TRC | 12° | 10 | 5 | 70 | 10 | ● | 443 |
| FX-MG-TRC | 12° | 12 | 6 | 75 | 12 | □ | 443-3 |
| MG-TRC | 12° | 12 | 6 | 75 | 12 | ● | 443 |
| FX-MG-TPDS | 12° | 15 | 4 | 80 | 10 | ● | 441 |
| FX-MG-TPDS | 12° | 20 | 5 | 90 | 12 | ● | 441 |
| FX-MG-TPDS | 12° | 20 | 6 | 90 | 12 | ● | 442 |
| FX-MG-TPDS | 15° | 2 | 0.5 | 40 | 3 | ● | 439 |
| FX-MG-TPDS | 15° | 2 | 0.8 | 40 | 3 | ● | 440 |
| FX-MG-TPDS | 15° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 15° | 4 | 2 | 50 | 6 | □ | 443-3 |
| MG-TRC | 15° | 4 | 2 | 50 | 6 | ● | 443 |
| FX-MG-TPDS | 15° | 5 | 1.5 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 15° | 5 | 2.5 | 50 | 6 | □ | 443-3 |
| MG-TRC | 15° | 5 | 2.5 | 50 | 6 | ● | 443 |
| FX-MG-TPDS | 15° | 6 | 2 | 50 | 4 | ● | 440 |
| FX-MG-TRC | 15° | 6 | 3 | 60 | 8 | □ | 443-3 |
| MG-TRC | 15° | 6 | 3 | 60 | 8 | ● | 443 |
| FX-MG-TRC | 15° | 7 | 3.5 | 60 | 8 | □ | 443-3 |
| MG-TRC | 15° | 7 | 3.5 | 60 | 8 | ● | 443 |
| FX-MG-TPDS | 15° | 8 | 2.5 | 60 | 6 | ● | 441 |
| FX-MG-TRC | 15° | 8 | 4 | 70 | 10 | □ | 443-3 |
| MG-TRC | 15° | 8 | 4 | 70 | 10 | ● | 443 |
| FX-MG-TRC | 15° | 9 | 4.5 | 70 | 10 | □ | 443-3 |
| MG-TRC | 15° | 9 | 4.5 | 70 | 10 | ● | 443 |
| FX-MG-TPDS | 15° | 10 | 3 | 70 | 8 | ● | 441 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FX-MG-TRC | 15° | 10 | 5 | 75 | 12 | □ | 443-3 |
| MG-TRC | 15° | 10 | 5 | 75 | 12 | ● | 443 |
| FX-MG-TRC | 15° | 12 | 6 | 75 | 12 | □ | 443-3 |
| MG-TRC | 15° | 12 | 6 | 75 | 12 | ● | 443 |
| FX-MG-TPDS | 15° | 15 | 4 | 90 | 12 | ● | 441 |
| FX-MG-TPDS | 15° | 20 | 5 | 90 | 12 | ● | 441 |
| FX-MG-TPDS | 15° | 20 | 6 | 100 | 16 | ● | 442 |
| FX-MG-TPDS | 20° | 2 | 0.5 | 45 | 4 | ● | 439 |
| FX-MG-TPDS | 20° | 2 | 0.8 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 20° | 4 | 1 | 50 | 4 | ● | 440 |
| FX-MG-TPDS | 20° | 5 | 1.5 | 60 | 6 | ● | 440 |
| FX-MG-TPDS | 20° | 6 | 2 | 60 | 6 | ● | 440 |
| FX-MG-TPDS | 20° | 8 | 2.5 | 70 | 8 | ● | 441 |
| FX-MG-TPDS | 20° | 10 | 3 | 80 | 10 | ● | 441 |
| FX-MG-TPDS | 20° | 15 | 4 | 90 | 12 | ● | 441 |
| FX-MG-TPDS | 20° | 20 | 5 | 100 | 16 | ● | 441 |
| FX-MG-TPDS | 20° | 20 | 6 | 120 | 20 | ● | 442 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパボール
# CARBIDE END MILLS / TAPER-BALL

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPB | 0.5° | 4 | R0.3 | 35 | 3 | □ | 445-1 |
| MG-TPBDS | 0.5° | 4 | R0.5 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 0.5° | 6 | R0.3 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 6 | R0.4 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 6 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 6 | R0.6 | 45 | 4 | □ | 445-1 |
| MG-TPBDS | 0.5° | 6 | R0.75 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 0.5° | 8 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 8 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 8 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 8 | R0.75 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 8 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 8 | R0.9 | 45 | 4 | □ | 445-2 |
| MG-TPBDS | 0.5° | 8 | R1 | 40 | 4 | □ | 445-6 |
| TIN-MG-TPBDS | 0.5° | 8 | R1 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 0.5° | 8 | R1.25 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 0.5° | 8 | R1.5 | 45 | 4 | □ | 445-4 |
| FXS-RB-TPB | 0.5° | 10 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 10 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 10 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 10 | R0.75 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 10 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 10 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 10 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.5° | 10 | R1.25 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 0.5° | 10 | R1.25 | 45 | 4 | □ | 445-6 |
| TIN-MG-TPBDS | 0.5° | 10 | R2 | 50 | 6 | □ | 445-4 |
| FXS-RB-TPB | 0.5° | 12 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 12 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 12 | R0.75 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 12 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 12 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 12 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.5° | 12 | R1.25 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 0.5° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 0.5° | 12 | R2.5 | 50 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 0.5° | 12 | R3 | 60 | 8 | □ | 445-4 |
| TIN-MG-TPBDS | 0.5° | 14 | R4 | 70 | 10 | □ | 445-4 |
| TIN-MG-TPBDS | 0.5° | 14 | R5 | 75 | 12 | □ | 445-4 |
| MG-TPBDS | 0.5° | 15 | R2 | 50 | 6 | □ | 445-6 |
| FXS-RB-TPB | 0.5° | 16 | R0.5 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 16 | R0.6 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.5° | 16 | R0.75 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 16 | R0.8 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 16 | R0.9 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 16 | R1 | 50 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.5° | 16 | R1.25 | 50 | 4 | □ | 445-3 |
| TIN-MG-TPBDR | 0.5° | 17 | R1 | 50 | 4 | □ | 445-5 |
| TIN-MG-TPBDR | 0.5° | 17 | R1.25 | 50 | 4 | □ | 445-5 |
| TIN-MG-TPBDR | 0.5° | 17 | R1.5 | 50 | 4 | □ | 445-5 |
| TIN-MG-TPBDS | 0.5° | 17 | R6 | 75 | 12 | □ | 445-4 |
| MG-TPBDS | 0.5° | 18 | R2.5 | 55 | 6 | □ | 445-6 |
| FXS-RB-TPB | 0.5° | 20 | R0.75 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 20 | R0.8 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 20 | R0.9 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.5° | 20 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.5° | 20 | R1.25 | 55 | 4 | □ | 445-3 |
| TIN-MG-TPBDR | 0.5° | 20 | R2 | 70 | 6 | □ | 445-5 |
| MG-TPBDS | 0.5° | 22 | R3 | 60 | 6 | □ | 445-6 |
| TIN-MG-TPBDR | 0.5° | 24 | R2.5 | 70 | 6 | □ | 445-5 |
| TIN-MG-TPBDR | 0.5° | 24 | R3 | 70 | 8 | □ | 445-5 |
| FXS-RB-TPB | 0.5° | 25 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.5° | 25 | R1.25 | 55 | 4 | □ | 445-3 |
| MG-TPBDS | 0.5° | 26 | R4 | 70 | 8 | □ | 445-6 |
| TIN-MG-TPBDR | 0.5° | 28 | R4 | 80 | 10 | □ | 445-5 |
| TIN-MG-TPBDR | 0.5° | 28 | R5 | 90 | 12 | □ | 445-5 |
| MG-TPBDS | 0.5° | 30 | R5 | 75 | 10 | □ | 445-6 |
| TIN-MG-TPBDR | 0.5° | 34 | R6 | 90 | 12 | □ | 445-5 |
| MG-TPBDS | 0.5° | 36 | R6 | 90 | 12 | □ | 445-6 |
| FXS-RB-TPB | 0.75° | 4 | R0.3 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 6 | R0.3 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 6 | R0.4 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 8 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 8 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 8 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 8 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 8 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 8 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 10 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 10 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 10 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 10 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 10 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 10 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 10 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 10 | R1.25 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 12 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 12 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 12 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 12 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 12 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 12 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 12 | R1.25 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 16 | R0.6 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 0.75° | 16 | R0.75 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 16 | R0.8 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 16 | R0.9 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 16 | R1 | 50 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 16 | R1.25 | 50 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 20 | R0.75 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 20 | R0.8 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 20 | R0.9 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 0.75° | 20 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 20 | R1.25 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 25 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 0.75° | 25 | R1.25 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1° | 4 | R0.3 | 35 | 3 | □ | 445-1 |
| MG-TPBDS | 1° | 4 | R0.5 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 1° | 6 | R0.3 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 1° | 6 | R0.4 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 1° | 6 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 6 | R0.6 | 45 | 4 | □ | 445-1 |
| MG-TPBDS | 1° | 6 | R0.75 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 1° | 8 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 8 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 8 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 8 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 8 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 8 | R0.9 | 45 | 4 | □ | 445-2 |
| MG-TPBDS | 1° | 8 | R1 | 40 | 4 | □ | 445-6 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品 Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ ＝ 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品 Special order products.

# 超硬エンドミル／テーパボール
CARBIDE END MILLS / TAPER-BALL

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPB | 1° | 10 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 10 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 10 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 10 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 10 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 10 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 10 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1° | 10 | R1.25 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 1° | 10 | R1.25 | 45 | 4 | □ | 445-6 |
| TIN-MG-TPBDS | 1° | 11 | R1 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 1° | 11 | R1.25 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 1° | 11 | R1.5 | 45 | 4 | □ | 445-4 |
| FXS-RB-TPB | 1° | 12 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 12 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 12 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 12 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 12 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 12 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1° | 12 | R1.25 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 1° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 1° | 13 | R2 | 50 | 6 | □ | 445-4 |
| MG-TPBDS | 1° | 15 | R2 | 50 | 6 | □ | 445-6 |
| FXS-RB-TPB | 1° | 16 | R0.5 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 16 | R0.6 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1° | 16 | R0.75 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 16 | R0.8 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 16 | R0.9 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 16 | R1 | 50 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1° | 16 | R1.25 | 50 | 4 | □ | 445-3 |
| TIN-MG-TPBDS | 1° | 16 | R2.5 | 50 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 1° | 16 | R3 | 60 | 8 | □ | 445-4 |
| MG-TPBDS | 1° | 18 | R2.5 | 55 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 1° | 19 | R4 | 70 | 10 | □ | 445-4 |
| TIN-MG-TPBDS | 1° | 19 | R5 | 75 | 12 | □ | 445-4 |
| FXS-RB-TPB | 1° | 20 | R0.75 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 20 | R0.8 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 20 | R0.9 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1° | 20 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1° | 20 | R1.25 | 55 | 4 | □ | 445-3 |
| TIN-MG-TPBDR | 1° | 22 | R1 | 55 | 4 | □ | 445-5 |
| TIN-MG-TPBDR | 1° | 22 | R1.25 | 55 | 4 | □ | 445-5 |
| TIN-MG-TPBDR | 1° | 22 | R1.5 | 55 | 4 | □ | 445-5 |
| MG-TPBDS | 1° | 22 | R3 | 60 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 1° | 22 | R6 | 75 | 12 | □ | 445-4 |
| FXS-RB-TPB | 1° | 25 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1° | 25 | R1.25 | 55 | 4 | □ | 445-3 |
| TIN-MG-TPBDR | 1° | 26 | R2 | 70 | 6 | □ | 445-5 |
| MG-TPBDS | 1° | 26 | R4 | 70 | 8 | □ | 445-6 |
| MG-TPBDS | 1° | 30 | R5 | 75 | 10 | □ | 445-6 |
| TIN-MG-TPBDR | 1° | 32 | R2.5 | 80 | 8 | □ | 445-5 |
| TIN-MG-TPBDR | 1° | 32 | R3 | 80 | 8 | □ | 445-5 |
| MG-TPBDS | 1° | 36 | R6 | 90 | 12 | □ | 445-6 |
| TIN-MG-TPBDR | 1° | 38 | R4 | 100 | 10 | □ | 445-5 |
| TIN-MG-TPBDR | 1° | 38 | R5 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 1° | 45 | R6 | 110 | 12 | □ | 445-5 |
| FXS-RB-TPB | 1.5° | 4 | R0.3 | 35 | 3 | □ | 445-1 |
| MG-TPBDS | 1.5° | 4 | R0.5 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 1.5° | 6 | R0.3 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 6 | R0.4 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 6 | R0.5 | 45 | 4 | □ | 445-1 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| FXS-RB-TPB | 1.5° | 6 | R0.6 | 45 | 4 | □ | 445-1 |
| MG-TPBDS | 1.5° | 6 | R0.75 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 1.5° | 8 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 8 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 8 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 8 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 8 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 8 | R0.9 | 45 | 4 | □ | 445-2 |
| MG-TPBDS | 1.5° | 8 | R1 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 1.5° | 10 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 10 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 10 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 10 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 10 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 10 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 10 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1.5° | 10 | R1.25 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 1.5° | 10 | R1.25 | 45 | 4 | □ | 445-6 |
| TIN-MG-TPBDS | 1.5° | 11 | R1 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 1.5° | 11 | R1.25 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 1.5° | 11 | R1.5 | 45 | 4 | □ | 445-4 |
| FXS-RB-TPB | 1.5° | 12 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 12 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 12 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 12 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 12 | R0.9 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 12 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1.5° | 12 | R1.25 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 1.5° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 1.5° | 13 | R2 | 50 | 6 | □ | 445-4 |
| MG-TPBDS | 1.5° | 15 | R2 | 50 | 6 | □ | 445-6 |
| FXS-RB-TPB | 1.5° | 16 | R0.5 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 16 | R0.6 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 1.5° | 16 | R0.75 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 16 | R0.8 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 16 | R0.9 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 16 | R1 | 50 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1.5° | 16 | R1.25 | 50 | 4 | □ | 445-3 |
| TIN-MG-TPBDS | 1.5° | 16 | R2.5 | 50 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 1.5° | 16 | R3 | 60 | 8 | □ | 445-4 |
| MG-TPBDS | 1.5° | 18 | R2.5 | 55 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 1.5° | 19 | R4 | 70 | 10 | □ | 445-4 |
| TIN-MG-TPBDS | 1.5° | 19 | R5 | 75 | 12 | □ | 445-4 |
| FXS-RB-TPB | 1.5° | 20 | R0.75 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 20 | R0.8 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 1.5° | 20 | R0.9 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1.5° | 20 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1.5° | 20 | R1.25 | 55 | 4 | □ | 445-3 |
| TIN-MG-TPBDR | 1.5° | 22 | R1 | 55 | 4 | □ | 445-5 |
| TIN-MG-TPBDR | 1.5° | 22 | R1.25 | 55 | 4 | □ | 445-5 |
| TIN-MG-TPBDR | 1.5° | 22 | R1.5 | 70 | 6 | □ | 445-5 |
| MG-TPBDS | 1.5° | 22 | R3 | 60 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 1.5° | 22 | R6 | 75 | 12 | □ | 445-4 |
| FXS-RB-TPB | 1.5° | 25 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1.5° | 25 | R1.25 | 55 | 4 | □ | 445-3 |
| TIN-MG-TPBDR | 1.5° | 26 | R2 | 70 | 6 | □ | 445-5 |
| MG-TPBDS | 1.5° | 26 | R4 | 70 | 8 | □ | 445-6 |
| FXS-RB-TPB | 1.5° | 30 | R1 | 60 | 4 | □ | 445-3 |
| FXS-RB-TPB | 1.5° | 30 | R1.25 | 60 | 6 | □ | 445-3 |
| MG-TPBDS | 1.5° | 30 | R5 | 75 | 10 | □ | 445-6 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## 超硬エンドミル／テーパボール
## CARBIDE END MILLS / TAPER-BALL

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TIN-MG-TPBDR | 1.5° | 32 | R2.5 | 80 | 8 | □ | 445-5 |
| TIN-MG-TPBDR | 1.5° | 32 | R3 | 80 | 8 | □ | 445-5 |
| MG-TPBDS | 1.5° | 36 | R6 | 90 | 12 | □ | 445-6 |
| TIN-MG-TPBDR | 1.5° | 38 | R4 | 100 | 10 | □ | 445-5 |
| TIN-MG-TPBDR | 1.5° | 38 | R5 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 1.5° | 45 | R6 | 110 | 12 | □ | 445-5 |
| FXS-RB-TPB | 2° | 4 | R0.3 | 35 | 3 | □ | 445-1 |
| MG-TPBDS | 2° | 4 | R0.5 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 2° | 6 | R0.3 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 2° | 6 | R0.4 | 35 | 3 | □ | 445-1 |
| FXS-RB-TPB | 2° | 6 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 6 | R0.6 | 45 | 4 | □ | 445-1 |
| MG-TPBDS | 2° | 6 | R0.75 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 2° | 8 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 8 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 8 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 8 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 8 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 8 | R0.9 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 2° | 8 | R1 | 40 | 4 | □ | 445-6 |
| FXS-RB-TPB | 2° | 10 | R0.4 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 10 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 10 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 10 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 10 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 10 | R0.9 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 10 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 10 | R1.25 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 2° | 10 | R1.25 | 45 | 4 | □ | 445-6 |
| FXS-RB-TPB | 2° | 12 | R0.5 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 12 | R0.6 | 45 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 12 | R0.75 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 12 | R0.8 | 45 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 12 | R0.9 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 12 | R1 | 45 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 12 | R1.25 | 45 | 4 | □ | 445-3 |
| MG-TPBDS | 2° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 2° | 15 | R1 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 2° | 15 | R1.25 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 2° | 15 | R1.5 | 50 | 6 | □ | 445-4 |
| MG-TPBDS | 2° | 15 | R2 | 50 | 6 | □ | 445-6 |
| FXS-RB-TPB | 2° | 16 | R0.5 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 16 | R0.6 | 50 | 4 | □ | 445-1 |
| FXS-RB-TPB | 2° | 16 | R0.75 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 16 | R0.8 | 50 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 16 | R0.9 | 50 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 16 | R1 | 50 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 16 | R1.25 | 50 | 4 | □ | 445-3 |
| TIN-MG-TPBDS | 2° | 18 | R2 | 60 | 6 | □ | 445-4 |
| MG-TPBDS | 2° | 18 | R2.5 | 55 | 6 | □ | 445-6 |
| FXS-RB-TPB | 2° | 20 | R0.75 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 20 | R0.8 | 55 | 4 | □ | 445-2 |
| FXS-RB-TPB | 2° | 20 | R0.9 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 20 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 20 | R1.25 | 55 | 4 | □ | 445-3 |
| TIN-MG-TPBDS | 2° | 21 | R2.5 | 70 | 8 | □ | 445-4 |
| TIN-MG-TPBDS | 2° | 21 | R3 | 70 | 8 | □ | 445-4 |
| MG-TPBDS | 2° | 22 | R3 | 60 | 6 | □ | 445-6 |
| FXS-RB-TPB | 2° | 25 | R1 | 55 | 4 | □ | 445-3 |
| FXS-RB-TPB | 2° | 25 | R1.25 | 60 | 6 | □ | 445-3 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TIN-MG-TPBDS | 2° | 25 | R4 | 70 | 10 | □ | 445-4 |
| TIN-MG-TPBDS | 2° | 25 | R5 | 75 | 12 | □ | 445-4 |
| MG-TPBDS | 2° | 26 | R4 | 70 | 8 | □ | 445-6 |
| FXS-RB-TPB | 2° | 30 | R1 | 60 | 6 | □ | 445-3 |
| TIN-MG-TPBDR | 2° | 30 | R1 | 80 | 6 | □ | 445-5 |
| FXS-RB-TPB | 2° | 30 | R1.25 | 60 | 6 | □ | 445-3 |
| TIN-MG-TPBDR | 2° | 30 | R1.25 | 80 | 6 | □ | 445-5 |
| TIN-MG-TPBDR | 2° | 30 | R1.5 | 80 | 6 | □ | 445-5 |
| MG-TPBDS | 2° | 30 | R5 | 75 | 10 | □ | 445-6 |
| TIN-MG-TPBDS | 2° | 30 | R6 | 90 | 12 | □ | 445-4 |
| TIN-MG-TPBDR | 2° | 36 | R2 | 80 | 8 | □ | 445-5 |
| MG-TPBDS | 2° | 36 | R6 | 90 | 12 | □ | 445-6 |
| TIN-MG-TPBDR | 2° | 42 | R2.5 | 100 | 8 | □ | 445-5 |
| TIN-MG-TPBDR | 2° | 42 | R3 | 100 | 10 | □ | 445-5 |
| TIN-MG-TPBDR | 2° | 50 | R4 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 2° | 50 | R5 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 2° | 60 | R6 | 120 | 16 | □ | 445-5 |
| TIN-MG-TPBDS | 2.5° | 15 | R1 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 2.5° | 15 | R1.25 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 2.5° | 15 | R1.5 | 50 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 2.5° | 18 | R2 | 60 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 2.5° | 21 | R2.5 | 70 | 8 | □ | 445-4 |
| TIN-MG-TPBDS | 2.5° | 21 | R3 | 70 | 8 | □ | 445-4 |
| TIN-MG-TPBDS | 2.5° | 25 | R4 | 75 | 12 | □ | 445-4 |
| TIN-MG-TPBDS | 2.5° | 25 | R5 | 75 | 12 | □ | 445-4 |
| TIN-MG-TPBDS | 2.5° | 30 | R6 | 90 | 12 | □ | 445-4 |
| MG-TPBDS | 3° | 4 | R0.5 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 3° | 6 | R0.75 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 3° | 8 | R1 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 3° | 10 | R1.25 | 45 | 4 | □ | 445-6 |
| MG-TPBDS | 3° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 3° | 15 | R1 | 45 | 4 | □ | 445-4 |
| TIN-MG-TPBDS | 3° | 15 | R1.25 | 50 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 3° | 15 | R1.5 | 50 | 6 | □ | 445-4 |
| MG-TPBDS | 3° | 15 | R2 | 50 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 3° | 18 | R2 | 60 | 6 | □ | 445-4 |
| MG-TPBDS | 3° | 18 | R2.5 | 55 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 3° | 21 | R2.5 | 70 | 8 | □ | 445-4 |
| TIN-MG-TPBDS | 3° | 21 | R3 | 70 | 10 | □ | 445-4 |
| MG-TPBDS | 3° | 22 | R3 | 60 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 3° | 25 | R4 | 75 | 12 | □ | 445-4 |
| TIN-MG-TPBDS | 3° | 25 | R5 | 75 | 12 | □ | 445-4 |
| MG-TPBDS | 3° | 26 | R4 | 70 | 10 | □ | 445-6 |
| TIN-MG-TPBDR | 3° | 30 | R1 | 80 | 6 | □ | 445-5 |
| TIN-MG-TPBDR | 3° | 30 | R1.25 | 80 | 6 | □ | 445-5 |
| TIN-MG-TPBDR | 3° | 30 | R1.5 | 80 | 6 | □ | 445-5 |
| MG-TPBDS | 3° | 30 | R5 | 75 | 12 | □ | 445-6 |
| TIN-MG-TPBDS | 3° | 30 | R6 | 90 | 12 | □ | 445-4 |
| TIN-MG-TPBDR | 3° | 36 | R2 | 80 | 8 | □ | 445-5 |
| MG-TPBDS | 3° | 36 | R6 | 90 | 12 | □ | 445-6 |
| TIN-MG-TPBDR | 3° | 42 | R2.5 | 100 | 10 | □ | 445-5 |
| TIN-MG-TPBDR | 3° | 42 | R3 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 3° | 50 | R4 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 3° | 50 | R5 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 3° | 60 | R6 | 120 | 16 | □ | 445-5 |
| MG-TPBDS | 4° | 8 | R1 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 4° | 10 | R1.25 | 45 | 4 | □ | 445-6 |
| MG-TPBDS | 4° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 4° | 15 | R1 | 50 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 4° | 15 | R1.25 | 50 | 6 | □ | 445-4 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパボール
CARBIDE END MILLS / TAPER-BALL

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TIN-MG-TPBDS | 4° | 15 | R1.5 | 50 | 6 | □ | 445-4 |
| MG-TPBDS | 4° | 15 | R2 | 50 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 4° | 18 | R2 | 60 | 8 | □ | 445-4 |
| MG-TPBDS | 4° | 18 | R2.5 | 55 | 6 | □ | 445-6 |
| IB-TPBT | 4° | 20 | R0.5 | 65 | 6 | ※ | 444 |
| IB-TPBT | 4° | 20 | R0.5 | 65 | 6 | ※ | 444 |
| IB-TPBT | 4° | 20 | R0.5 | 65 | 6 | ※ | 444 |
| IB-TPBT | 4° | 20 | R1 | 65 | 6 | ※ | 444 |
| IB-TPBT | 4° | 20 | R1 | 65 | 6 | ※ | 444 |
| IB-TPBT | 4° | 20 | R1 | 65 | 6 | ※ | 444 |
| TIN-MG-TPBDS | 4° | 21 | R2.5 | 70 | 8 | □ | 445-4 |
| TIN-MG-TPBDS | 4° | 21 | R3 | 70 | 10 | □ | 445-4 |
| MG-TPBDS | 4° | 22 | R3 | 60 | 8 | □ | 445-6 |
| IB-TPBT | 4° | 22.9 | R1.5 | 65 | 6 | ※ | 444 |
| IB-TPBT | 4° | 22.9 | R1.5 | 65 | 6 | ※ | 444 |
| IB-TPBT | 4° | 22.9 | R1.5 | 65 | 6 | ※ | 444 |
| TIN-MG-TPBDS | 4° | 25 | R4 | 75 | 12 | □ | 445-4 |
| TIN-MG-TPBDS | 4° | 25 | R5 | 75 | 12 | □ | 445-4 |
| MG-TPBDS | 4° | 26 | R4 | 70 | 10 | □ | 445-6 |
| TIN-MG-TPBDR | 4° | 30 | R1 | 80 | 8 | □ | 445-5 |
| TIN-MG-TPBDR | 4° | 30 | R1.25 | 80 | 8 | □ | 445-5 |
| TIN-MG-TPBDR | 4° | 30 | R1.5 | 80 | 8 | □ | 445-5 |
| MG-TPBDS | 4° | 30 | R5 | 75 | 12 | □ | 445-6 |
| TIN-MG-TPBDS | 4° | 30 | R6 | 90 | 16 | □ | 445-4 |
| IB-TPBT | 4° | 30.5 | R2 | 75 | 8 | ※ | 444 |
| IB-TPBT | 4° | 30.5 | R2 | 75 | 8 | ※ | 444 |
| IB-TPBT | 4° | 30.5 | R2 | 75 | 8 | ※ | 444 |
| IB-TPBT | 4° | 31.5 | R3 | 80 | 10 | ※ | 444 |
| IB-TPBT | 4° | 31.5 | R3 | 80 | 10 | ※ | 444 |
| IB-TPBT | 4° | 31.5 | R3 | 80 | 10 | ※ | 444 |
| TIN-MG-TPBDR | 4° | 36 | R2 | 100 | 10 | □ | 445-5 |
| MG-TPBDS | 4° | 36 | R6 | 90 | 16 | □ | 445-6 |
| TIN-MG-TPBDR | 4° | 42 | R2.5 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 4° | 42 | R3 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 4° | 50 | R4 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 4° | 50 | R5 | 110 | 16 | □ | 445-5 |
| TIN-MG-TPBDR | 4° | 60 | R6 | 130 | 20 | □ | 445-5 |
| MG-TPBDS | 5° | 4 | R0.5 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 5° | 6 | R0.75 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 5° | 8 | R1 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 5° | 10 | R1.25 | 45 | 6 | □ | 445-6 |
| MG-TPBDS | 5° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 5° | 15 | R1 | 50 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 5° | 15 | R1.25 | 50 | 6 | □ | 445-4 |
| TIN-MG-TPBDS | 5° | 15 | R1.5 | 50 | 6 | □ | 445-4 |
| MG-TPBDS | 5° | 15 | R2 | 50 | 6 | □ | 445-6 |
| TIN-MG-TPBDS | 5° | 18 | R2 | 60 | 8 | □ | 445-4 |
| MG-TPBDS | 5° | 18 | R2.5 | 55 | 8 | □ | 445-6 |
| TIN-MG-TPBDS | 5° | 21 | R2.5 | 70 | 10 | □ | 445-4 |
| TIN-MG-TPBDS | 5° | 21 | R3 | 70 | 10 | □ | 445-4 |
| MG-TPBDS | 5° | 22 | R3 | 60 | 8 | □ | 445-6 |
| TIN-MG-TPBDS | 5° | 25 | R4 | 75 | 12 | □ | 445-4 |
| TIN-MG-TPBDS | 5° | 25 | R5 | 75 | 12 | □ | 445-4 |
| MG-TPBDS | 5° | 26 | R4 | 70 | 12 | □ | 445-6 |
| TIN-MG-TPBDR | 5° | 30 | R1 | 80 | 8 | □ | 445-5 |
| TIN-MG-TPBDR | 5° | 30 | R1.25 | 80 | 8 | □ | 445-5 |
| TIN-MG-TPBDR | 5° | 30 | R1.5 | 80 | 8 | □ | 445-5 |
| MG-TPBDS | 5° | 30 | R5 | 75 | 12 | □ | 445-6 |
| TIN-MG-TPBDS | 5° | 30 | R6 | 90 | 16 | □ | 445-4 |
| TIN-MG-TPBDR | 5° | 36 | R2 | 100 | 10 | □ | 445-5 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| MG-TPBDS | 5° | 36 | R6 | 90 | 16 | □ | 445-6 |
| TIN-MG-TPBDR | 5° | 42 | R2.5 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 5° | 42 | R3 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 5° | 50 | R4 | 110 | 16 | □ | 445-5 |
| TIN-MG-TPBDR | 5° | 50 | R5 | 110 | 16 | □ | 445-5 |
| TIN-MG-TPBDR | 5° | 60 | R6 | 130 | 20 | □ | 445-5 |
| MG-TPBDS | 7° | 6 | R0.75 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 7° | 8 | R1 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 7° | 10 | R1.25 | 45 | 6 | □ | 445-6 |
| MG-TPBDS | 7° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| MG-TPBDS | 7° | 15 | R2 | 50 | 6 | □ | 445-6 |
| MG-TPBDS | 7° | 18 | R2.5 | 55 | 8 | □ | 445-6 |
| TIN-MG-TPBDS | 7° | 20 | R1 | 70 | 8 | □ | 445-4 |
| TIN-MG-TPBDS | 7° | 20 | R1.25 | 70 | 8 | □ | 445-4 |
| TIN-MG-TPBDS | 7° | 20 | R1.5 | 70 | 8 | □ | 445-4 |
| MG-TPBDS | 7° | 22 | R3 | 60 | 10 | □ | 445-6 |
| TIN-MG-TPBDS | 7° | 24 | R2 | 70 | 10 | □ | 445-4 |
| MG-TPBDS | 7° | 26 | R4 | 70 | 12 | □ | 445-6 |
| TIN-MG-TPBDS | 7° | 28 | R2.5 | 90 | 12 | □ | 445-4 |
| TIN-MG-TPBDS | 7° | 28 | R3 | 90 | 12 | □ | 445-4 |
| MG-TPBDS | 7° | 30 | R5 | 75 | 16 | □ | 445-6 |
| TIN-MG-TPBDS | 7° | 33 | R4 | 100 | 16 | □ | 445-4 |
| TIN-MG-TPBDS | 7° | 33 | R5 | 100 | 16 | □ | 445-4 |
| MG-TPBDS | 7° | 36 | R6 | 90 | 16 | □ | 445-6 |
| TIN-MG-TPBDR | 7° | 40 | R1 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 7° | 40 | R1.25 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDR | 7° | 40 | R1.5 | 110 | 12 | □ | 445-5 |
| TIN-MG-TPBDS | 7° | 40 | R6 | 110 | 20 | □ | 445-4 |
| TIN-MG-TPBDR | 7° | 48 | R2 | 110 | 16 | □ | 445-5 |
| TIN-MG-TPBDR | 7° | 56 | R2.5 | 120 | 16 | □ | 445-5 |
| TIN-MG-TPBDR | 7° | 56 | R3 | 125 | 20 | □ | 445-5 |
| TIN-MG-TPBDR | 7° | 67 | R4 | 135 | 20 | □ | 445-5 |
| TIN-MG-TPBDR | 7° | 67 | R5 | 145 | 25 | □ | 445-5 |
| TIN-MG-TPBDR | 7° | 80 | R6 | 160 | 32 | □ | 445-5 |
| MG-TPBDS | 10° | 4 | R0.5 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 10° | 8 | R1 | 40 | 4 | □ | 445-6 |
| MG-TPBDS | 10° | 12 | R1.5 | 45 | 6 | □ | 445-6 |
| MG-TPBDS | 10° | 15 | R2 | 50 | 8 | □ | 445-6 |
| MG-TPBDS | 10° | 18 | R2.5 | 55 | 10 | □ | 445-6 |
| MG-TPBDS | 10° | 22 | R3 | 60 | 12 | □ | 445-6 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# 超硬エンドミル／テーパコーナR
## CARBIDE END MILLS / TAPER CORNER RADIUS

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia | 全長 LF | コーナ半径 RE | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|---|
| FXS-RB-TPCR | 0.5° | 8 | 1 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 8 | 1.2 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 8 | 1.5 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 12 | 1 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 12 | 1.2 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 12 | 1.5 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 12 | 2 | 45 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 16 | 2.5 | 50 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 20 | 2 | 55 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 0.5° | 25 | 2.5 | 55 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 8 | 1 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 8 | 1.2 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 8 | 1.5 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 12 | 1 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 12 | 1.2 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 12 | 1.5 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 12 | 2 | 45 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 16 | 2.5 | 50 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 20 | 2 | 55 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1° | 25 | 2.5 | 55 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 8 | 1 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 8 | 1.2 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 8 | 1.5 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 12 | 1 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 12 | 1.2 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 12 | 1.5 | 45 | R0.2 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 12 | 2 | 45 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 16 | 2.5 | 50 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 20 | 2 | 55 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 1.5° | 25 | 2.5 | 55 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 2° | 12 | 2 | 45 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 2° | 16 | 2.5 | 50 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 2° | 20 | 2 | 55 | R0.5 | 4 | □ | 445-7 |
| FXS-RB-TPCR | 2° | 25 | 2.5 | 55 | R0.5 | 6 | □ | 445-7 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EDS | 0.8 | 1.6 | 45 | 6 | ● | 761 |
| CPM-EDS | 0.8 | 2 | 45 | 6 | □ | 774 |
| EDS | 0.8 | 2 | 45 | 6 | ● | 766 |
| V-XPM-EDS | 0.8 | 2 | 50 | 6 | □ | 753 |
| XPM-EDS | 0.8 | 2 | 50 | 6 | ● | 757 |
| EDL | 0.8 | 6 | 50 | 6 | ● | 789 |
| EDS | 0.85 | 2.2 | 45 | 6 | □ | 766 |
| V-XPM-EDS | 0.85 | 2.2 | 50 | 6 | □ | 753 |
| EX-TIN-EDS | 0.9 | 1.8 | 45 | 6 | ● | 761 |
| CPM-EDS | 0.9 | 2.2 | 45 | 6 | □ | 774 |
| EDS | 0.9 | 2.2 | 45 | 6 | ● | 766 |
| V-XPM-EDS | 0.9 | 2.2 | 50 | 6 | □ | 753 |
| XPM-EDS | 0.9 | 2.2 | 50 | 6 | ● | 757 |
| EDL | 0.9 | 6 | 50 | 6 | ● | 789 |
| EDS | 0.95 | 2.5 | 45 | 6 | □ | 766 |
| V-XPM-EDS | 0.95 | 2.5 | 50 | 6 | □ | 753 |
| EX-TIN-EDS | 1 | 2 | 45 | 6 | ● | 761 |
| AL-EDS | 1 | 2.5 | 45 | 6 | □ | 776 |
| CPM-EDS | 1 | 2.5 | 45 | 6 | □ | 774 |
| EDS | 1 | 2.5 | 45 | 6 | ● | 766 |
| ETS | 1 | 2.5 | 45 | 6 | ● | 794 |
| EX-TIN-ETS | 1 | 2.5 | 45 | 6 | □ | 823-10 |
| SUS-EDS | 1 | 2.5 | 45 | 6 | □ | 777 |
| V-XPM-EDS | 1 | 2.5 | 50 | 6 | ● | 753 |
| XPM-EDS | 1 | 2.5 | 50 | 6 | ● | 757 |
| CPM-EDN | 1 | 3.5 | 45 | 6 | □ | 823-5 |
| EDN | 1 | 3.5 | 45 | 6 | ● | 782 |
| EX-TIN-EDN | 1 | 3.5 | 45 | 6 | ● | 782 |
| LN-EDN-OH | 1 | 3.5 | 50 | 6 | □ | 823-27 |
| V-XPM-EDN | 1 | 3.5 | 55 | 6 | ● | 778 |
| XPM-EDN | 1 | 3.5 | 55 | 6 | ● | 779 |
| AL-EDL | 1 | 6 | 50 | 6 | □ | 823-7 |
| CPM-EDL | 1 | 6 | 50 | 6 | □ | 823-8 |
| EDL | 1 | 6 | 50 | 6 | ● | 789 |
| EX-TIN-EDL | 1 | 6 | 50 | 6 | ● | 787 |
| EXDL | 1 | 8 | 55 | 6 | □ | 792 |
| EXDL | 1 | 10 | 55 | 6 | □ | 792 |
| EX-TIN-EXDL | 1 | 10 | 55 | 6 | □ | 823-6 |
| V-XPM-EDS | 1.05 | 2.5 | 50 | 6 | □ | 753 |
| EDS | 1.05 | 3 | 45 | 6 | □ | 766 |
| EX-TIN-EDS | 1.1 | 2.5 | 45 | 6 | ● | 761 |
| V-XPM-EDS | 1.1 | 2.5 | 50 | 6 | □ | 753 |
| XPM-EDS | 1.1 | 2.5 | 50 | 6 | ● | 757 |
| CPM-EDS | 1.1 | 3 | 45 | 6 | □ | 774 |
| EDS | 1.1 | 3 | 45 | 6 | ● | 766 |
| EDN | 1.1 | 5 | 45 | 6 | □ | 782 |
| XPM-EDN | 1.1 | 5 | 55 | 6 | □ | 779 |
| EDL | 1.1 | 6 | 50 | 6 | ● | 789 |
| EX-TIN-EDL | 1.1 | 6 | 50 | 6 | ● | 787 |
| EDL | 1.1 | 7.5 | 50 | 6 | □ | 789 |
| EX-TIN-EDL | 1.1 | 7.5 | 50 | 6 | □ | 787 |
| EDS | 1.15 | 3 | 45 | 6 | □ | 766 |
| V-XPM-EDS | 1.15 | 3 | 50 | 6 | □ | 753 |
| EX-TIN-EDS | 1.2 | 2.5 | 45 | 6 | ● | 761 |
| CPM-EDS | 1.2 | 3 | 45 | 6 | □ | 774 |
| EDS | 1.2 | 3 | 45 | 6 | ● | 766 |
| V-XPM-EDS | 1.2 | 3 | 50 | 6 | □ | 753 |
| XPM-EDS | 1.2 | 3 | 50 | 6 | ● | 757 |
| EDN | 1.2 | 5 | 45 | 6 | □ | 782 |
| XPM-EDN | 1.2 | 5 | 55 | 6 | □ | 779 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDL | 1.2 | 6 | 50 | 6 | ● | 789 |
| EX-TIN-EDL | 1.2 | 6 | 50 | 6 | ● | 787 |
| EDL | 1.2 | 7.5 | 50 | 6 | □ | 789 |
| EX-TIN-EDL | 1.2 | 7.5 | 50 | 6 | □ | 787 |
| V-XPM-EDS | 1.25 | 3 | 50 | 6 | □ | 753 |
| EDS | 1.25 | 3.5 | 45 | 6 | □ | 766 |
| EX-TIN-EDS | 1.3 | 3 | 45 | 6 | ● | 761 |
| V-XPM-EDS | 1.3 | 3 | 50 | 6 | □ | 753 |
| XPM-EDS | 1.3 | 3 | 50 | 6 | ● | 757 |
| CPM-EDS | 1.3 | 3.5 | 45 | 6 | □ | 774 |
| EDS | 1.3 | 3.5 | 45 | 6 | ● | 766 |
| EDN | 1.3 | 5 | 45 | 6 | □ | 782 |
| XPM-EDN | 1.3 | 5 | 55 | 6 | □ | 779 |
| EDL | 1.3 | 7.5 | 50 | 6 | ● | 789 |
| EX-TIN-EDL | 1.3 | 7.5 | 50 | 6 | ● | 787 |
| V-XPM-EDS | 1.35 | 3 | 50 | 6 | □ | 753 |
| EDS | 1.35 | 3.5 | 45 | 6 | □ | 766 |
| EX-TIN-EDS | 1.4 | 3 | 45 | 6 | ● | 761 |
| V-XPM-EDS | 1.4 | 3 | 50 | 6 | □ | 753 |
| XPM-EDS | 1.4 | 3 | 50 | 6 | ● | 757 |
| EDS | 1.4 | 3.5 | 45 | 6 | ● | 766 |
| EDN | 1.4 | 5 | 45 | 6 | □ | 782 |
| XPM-EDN | 1.4 | 5 | 55 | 6 | □ | 779 |
| EDL | 1.4 | 7.5 | 50 | 6 | ● | 789 |
| EX-TIN-EDL | 1.4 | 7.5 | 50 | 6 | ● | 787 |
| V-XPM-EDS | 1.45 | 3.5 | 50 | 6 | □ | 753 |
| EDS | 1.45 | 4 | 45 | 6 | □ | 766 |
| EX-TIN-EDS | 1.5 | 3 | 45 | 6 | ● | 761 |
| TIN-XPM-EDS | 1.5 | 3.5 | 50 | 6 | □ | 823-4 |
| V-XPM-EDS | 1.5 | 3.5 | 50 | 6 | ● | 753 |
| XPM-EDS | 1.5 | 3.5 | 50 | 6 | ● | 757 |
| AL-EDS | 1.5 | 4 | 45 | 6 | ● | 776 |
| CPM-EDS | 1.5 | 4 | 45 | 6 | □ | 774 |
| EDS | 1.5 | 4 | 45 | 6 | ● | 766 |
| ETS | 1.5 | 4 | 45 | 6 | ● | 794 |
| EX-TIN-ETS | 1.5 | 4 | 45 | 6 | □ | 823-10 |
| SUS-EDS | 1.5 | 4 | 45 | 6 | ● | 777 |
| CPM-EDN | 1.5 | 5 | 45 | 6 | □ | 823-5 |
| CPM-STDN | 1.5 | 5 | 45 | 6 | ● | 784 |
| EDN | 1.5 | 5 | 45 | 6 | ● | 782 |
| EX-TIN-EDN | 1.5 | 5 | 45 | 6 | ● | 782 |
| LN-EDN-OH | 1.5 | 5 | 55 | 6 | □ | 823-27 |
| TIN-XPM-EDN | 1.5 | 5 | 55 | 6 | □ | 779 |
| V-XPM-EDN | 1.5 | 5 | 55 | 6 | ● | 778 |
| XPM-EDN | 1.5 | 5 | 55 | 6 | ● | 779 |
| CPM-EDL | 1.5 | 7.5 | 50 | 6 | □ | 823-8 |
| EDL | 1.5 | 7.5 | 50 | 6 | ● | 789 |
| EX-TIN-EDL | 1.5 | 7.5 | 50 | 6 | ● | 787 |
| EXDL | 1.5 | 10 | 55 | 6 | □ | 792 |
| EXDL | 1.5 | 15 | 55 | 6 | □ | 792 |
| EX-TIN-EXDL | 1.5 | 15 | 55 | 6 | □ | 823-6 |
| V-XPM-EDS | 1.55 | 3.5 | 50 | 6 | □ | 753 |
| EDS | 1.55 | 4 | 45 | 6 | □ | 766 |
| EX-TIN-EDS | 1.6 | 3.5 | 45 | 6 | ● | 761 |
| V-XPM-EDS | 1.6 | 3.5 | 50 | 6 | □ | 753 |
| XPM-EDS | 1.6 | 3.5 | 50 | 6 | ● | 757 |
| EDS | 1.6 | 4 | 45 | 6 | ● | 766 |
| EDN | 1.6 | 7 | 50 | 6 | □ | 782 |
| XPM-EDN | 1.6 | 7 | 65 | 6 | □ | 779 |
| EDL | 1.6 | 7.5 | 50 | 6 | ● | 789 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EDL | 1.6 | 7.5 | 50 | 6 | ● | 787 |
| EDL | 1.6 | 10 | 60 | 6 | □ | 789 |
| EX-TIN-EDL | 1.6 | 10 | 60 | 6 | □ | 787 |
| V-XPM-EDS | 1.65 | 3.5 | 50 | 6 | □ | 753 |
| EDS | 1.65 | 4.5 | 45 | 6 | □ | 766 |
| EX-TIN-EDS | 1.7 | 3.5 | 45 | 6 | ● | 761 |
| V-XPM-EDS | 1.7 | 3.5 | 50 | 6 | □ | 753 |
| XPM-EDS | 1.7 | 3.5 | 50 | 6 | ● | 757 |
| EDS | 1.7 | 4.5 | 45 | 6 | ● | 766 |
| EDN | 1.7 | 7 | 50 | 6 | □ | 782 |
| XPM-EDN | 1.7 | 7 | 65 | 6 | □ | 779 |
| EDL | 1.7 | 10 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 1.7 | 10 | 60 | 6 | ● | 787 |
| V-XPM-EDS | 1.75 | 3.5 | 50 | 6 | □ | 753 |
| EDS | 1.75 | 4.5 | 45 | 6 | □ | 766 |
| V-XPM-EDS | 1.8 | 3.5 | 50 | 6 | □ | 753 |
| XPM-EDS | 1.8 | 3.5 | 50 | 6 | ● | 757 |
| EX-TIN-EDS | 1.8 | 4 | 45 | 6 | ● | 761 |
| EDS | 1.8 | 4.5 | 45 | 6 | ● | 766 |
| EDN | 1.8 | 7 | 50 | 6 | □ | 782 |
| XPM-EDN | 1.8 | 7 | 65 | 6 | □ | 779 |
| EDL | 1.8 | 10 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 1.8 | 10 | 60 | 6 | ● | 787 |
| V-XPM-EDS | 1.85 | 4 | 55 | 6 | □ | 753 |
| EDS | 1.85 | 5 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 1.9 | 4 | 50 | 6 | ● | 761 |
| V-XPM-EDS | 1.9 | 4 | 55 | 6 | □ | 753 |
| XPM-EDS | 1.9 | 4 | 55 | 6 | ● | 757 |
| CPM-EDS | 1.9 | 5 | 50 | 6 | □ | 774 |
| EDS | 1.9 | 5 | 50 | 6 | ● | 766 |
| EDN | 1.9 | 7 | 50 | 6 | □ | 782 |
| XPM-EDN | 1.9 | 7 | 65 | 6 | □ | 779 |
| EDL | 1.9 | 10 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 1.9 | 10 | 60 | 6 | ● | 787 |
| V-XPM-EDS | 1.95 | 4 | 55 | 6 | □ | 753 |
| EDS | 1.95 | 5 | 50 | 6 | □ | 766 |
| EDS-3 | 2 | 3 | 36 | 3 | □ | 765 |
| EX-TIN-EDS | 2 | 4 | 50 | 6 | ● | 761 |
| V-XPM-EDS | 2 | 4 | 55 | 6 | ● | 753 |
| XPM-EDS | 2 | 4 | 55 | 6 | ● | 757 |
| AL-EDS | 2 | 5 | 50 | 6 | ● | 776 |
| CPM-EDS | 2 | 5 | 50 | 6 | □ | 774 |
| EDS | 2 | 5 | 50 | 6 | ● | 766 |
| ETS | 2 | 5 | 50 | 6 | ● | 794 |
| EX-TIN-ETS | 2 | 5 | 50 | 6 | □ | 823-10 |
| SUS-EDS | 2 | 5 | 50 | 6 | ● | 777 |
| CPM-EDN | 2 | 7 | 50 | 6 | □ | 823-5 |
| CPM-STDN | 2 | 7 | 50 | 6 | ● | 784 |
| EDN | 2 | 7 | 50 | 6 | ● | 782 |
| EX-TIN-EDN | 2 | 7 | 50 | 6 | ● | 782 |
| EX-TIN-EMS | 2 | 7 | 50 | 6 | □ | 802 |
| LN-EDN-OH | 2 | 7 | 60 | 6 | □ | 823-27 |
| TIN-XPM-EDN | 2 | 7 | 65 | 6 | □ | 779 |
| V-XPM-EDN | 2 | 7 | 65 | 6 | ● | 778 |
| XPM-EDN | 2 | 7 | 65 | 6 | ● | 779 |
| CC-EMS | 2 | 8 | 50 | 6 | □ | 805 |
| XPM-EMS | 2 | 8 | 55 | 6 | □ | 797 |
| AL-EDL | 2 | 10 | 60 | 6 | □ | 823-7 |
| CC-EML | 2 | 10 | 60 | 6 | □ | 815 |
| CPM-EDL | 2 | 10 | 60 | 6 | □ | 823-8 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-EML | 2 | 10 | 60 | 6 | □ | 818 |
| EDL | 2 | 10 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2 | 10 | 60 | 6 | ● | 787 |
| EXDL | 2 | 15 | 60 | 6 | □ | 792 |
| EXDL | 2 | 16 | 60 | 6 | □ | 792 |
| EXDL | 2 | 20 | 70 | 6 | □ | 792 |
| EX-TIN-EXDL | 2 | 20 | 70 | 6 | □ | 823-6 |
| V-XPM-EDS | 2.05 | 5 | 55 | 6 | □ | 753 |
| EDS | 2.05 | 6 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 2.1 | 4.5 | 50 | 6 | ● | 761 |
| V-XPM-EDS | 2.1 | 5 | 55 | 6 | □ | 753 |
| XPM-EDS | 2.1 | 5 | 55 | 6 | ● | 757 |
| CPM-EDS | 2.1 | 6 | 50 | 6 | □ | 774 |
| EDS | 2.1 | 6 | 50 | 6 | ● | 766 |
| EX-TIN-EMS | 2.1 | 7 | 50 | 6 | □ | 802 |
| CC-EMS | 2.1 | 8 | 50 | 6 | □ | 805 |
| EDN | 2.1 | 8 | 50 | 6 | □ | 782 |
| XPM-EMS | 2.1 | 8 | 55 | 6 | □ | 797 |
| XPM-EDN | 2.1 | 8 | 65 | 6 | □ | 779 |
| CC-EML | 2.1 | 12 | 60 | 6 | □ | 815 |
| EDL | 2.1 | 12 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.1 | 12 | 60 | 6 | ● | 787 |
| EDL | 2.1 | 15 | 60 | 6 | □ | 789 |
| EX-TIN-EDL | 2.1 | 15 | 60 | 6 | □ | 787 |
| V-XPM-EDS | 2.15 | 5 | 55 | 6 | □ | 753 |
| EDS | 2.15 | 6 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 2.2 | 4.5 | 50 | 6 | ● | 761 |
| V-XPM-EDS | 2.2 | 5 | 55 | 6 | □ | 753 |
| XPM-EDS | 2.2 | 5 | 55 | 6 | ● | 757 |
| EDS | 2.2 | 6 | 50 | 6 | ● | 766 |
| EX-TIN-EMS | 2.2 | 7 | 50 | 6 | □ | 802 |
| CC-EMS | 2.2 | 8 | 50 | 6 | □ | 805 |
| EDN | 2.2 | 8 | 50 | 6 | □ | 782 |
| XPM-EMS | 2.2 | 8 | 55 | 6 | □ | 797 |
| XPM-EDN | 2.2 | 8 | 65 | 6 | □ | 779 |
| CC-EML | 2.2 | 12 | 60 | 6 | □ | 815 |
| EDL | 2.2 | 12 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.2 | 12 | 60 | 6 | ● | 787 |
| EDL | 2.2 | 15 | 60 | 6 | □ | 789 |
| EX-TIN-EDL | 2.2 | 15 | 60 | 6 | □ | 787 |
| V-XPM-EDS | 2.25 | 5 | 55 | 6 | □ | 753 |
| EDS | 2.25 | 6 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 2.3 | 5 | 50 | 6 | ● | 761 |
| V-XPM-EDS | 2.3 | 5 | 55 | 6 | □ | 753 |
| XPM-EDS | 2.3 | 5 | 55 | 6 | ● | 757 |
| CPM-EDS | 2.3 | 6 | 50 | 6 | □ | 774 |
| EDS | 2.3 | 6 | 50 | 6 | ● | 766 |
| EX-TIN-EMS | 2.3 | 7 | 50 | 6 | □ | 802 |
| CC-EMS | 2.3 | 8 | 50 | 6 | □ | 805 |
| EDN | 2.3 | 8 | 50 | 6 | □ | 782 |
| XPM-EMS | 2.3 | 8 | 55 | 6 | □ | 797 |
| XPM-EDN | 2.3 | 8 | 65 | 6 | □ | 779 |
| CC-EML | 2.3 | 12 | 60 | 6 | □ | 815 |
| EDL | 2.3 | 12 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.3 | 12 | 60 | 6 | ● | 787 |
| EDL | 2.3 | 15 | 60 | 6 | □ | 789 |
| EX-TIN-EDL | 2.3 | 15 | 60 | 6 | □ | 787 |
| V-XPM-EDS | 2.35 | 5 | 55 | 6 | □ | 753 |
| EDS | 2.35 | 6 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 2.4 | 5 | 50 | 6 | ● | 761 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EDS | 2.4 | 5 | 55 | 6 | □ | 753 |
| XPM-EDS | 2.4 | 5 | 55 | 6 | ● | 757 |
| CPM-EDS | 2.4 | 6 | 50 | 6 | □ | 774 |
| EDS | 2.4 | 6 | 50 | 6 | ● | 766 |
| EX-TIN-EMS | 2.4 | 7 | 50 | 6 | □ | 802 |
| CC-EMS | 2.4 | 8 | 50 | 6 | □ | 805 |
| EDN | 2.4 | 8 | 50 | 6 | □ | 782 |
| XPM-EMS | 2.4 | 8 | 55 | 6 | □ | 797 |
| XPM-EDN | 2.4 | 8 | 65 | 6 | □ | 779 |
| CC-EML | 2.4 | 12 | 60 | 6 | □ | 815 |
| EDL | 2.4 | 12 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.4 | 12 | 60 | 6 | ● | 787 |
| EDL | 2.4 | 15 | 60 | 6 | □ | 789 |
| EX-TIN-EDL | 2.4 | 15 | 60 | 6 | □ | 787 |
| V-XPM-EDS | 2.45 | 5 | 55 | 6 | □ | 753 |
| EDS | 2.45 | 6 | 50 | 6 | □ | 766 |
| EDS-3 | 2.5 | 4 | 36 | 3 | □ | 765 |
| EX-TIN-EDS | 2.5 | 5 | 50 | 6 | ● | 761 |
| TIN-XPM-EDS | 2.5 | 5 | 55 | 6 | □ | 823-4 |
| V-XPM-EDS | 2.5 | 5 | 55 | 6 | ● | 753 |
| XPM-EDS | 2.5 | 5 | 55 | 6 | ● | 757 |
| AL-EDS | 2.5 | 6 | 50 | 6 | ● | 776 |
| CPM-EDS | 2.5 | 6 | 50 | 6 | □ | 774 |
| EDS | 2.5 | 6 | 50 | 6 | ● | 766 |
| ETS | 2.5 | 6 | 50 | 6 | ● | 794 |
| EX-TIN-ETS | 2.5 | 6 | 50 | 6 | □ | 823-10 |
| SUS-EDS | 2.5 | 6 | 50 | 6 | ● | 777 |
| EX-TIN-EMS | 2.5 | 7 | 50 | 6 | ● | 802 |
| CPM-EDN | 2.5 | 8 | 50 | 6 | □ | 823-5 |
| CPM-STDN | 2.5 | 8 | 50 | 6 | ● | 784 |
| EDN | 2.5 | 8 | 50 | 6 | ● | 782 |
| EX-TIN-EDN | 2.5 | 8 | 50 | 6 | ● | 782 |
| LN-EDN-OH | 2.5 | 8 | 65 | 6 | □ | 823-27 |
| V-XPM-EDN | 2.5 | 8 | 65 | 6 | ● | 778 |
| XPM-EDN | 2.5 | 8 | 65 | 6 | ● | 779 |
| CC-EMS | 2.5 | 10 | 50 | 6 | ● | 805 |
| V-XPM-EMS | 2.5 | 10 | 55 | 6 | ● | 795 |
| XPM-EMS | 2.5 | 10 | 55 | 6 | ● | 797 |
| CC-EML | 2.5 | 15 | 60 | 6 | □ | 815 |
| CPM-EDL | 2.5 | 15 | 60 | 6 | □ | 823-8 |
| EDL | 2.5 | 15 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.5 | 15 | 60 | 6 | ● | 787 |
| V-XPM-EDS | 2.55 | 7 | 55 | 6 | □ | 753 |
| EDS | 2.55 | 8 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 2.6 | 5.5 | 50 | 6 | ● | 761 |
| V-XPM-EDS | 2.6 | 7 | 55 | 6 | □ | 753 |
| XPM-EDS | 2.6 | 7 | 55 | 6 | ● | 757 |
| CPM-EDS | 2.6 | 8 | 50 | 6 | □ | 774 |
| EDS | 2.6 | 8 | 50 | 6 | ● | 766 |
| EX-TIN-EMS | 2.6 | 9 | 50 | 6 | □ | 802 |
| CC-EMS | 2.6 | 10 | 50 | 6 | □ | 805 |
| EDN | 2.6 | 10 | 50 | 6 | □ | 782 |
| XPM-EMS | 2.6 | 10 | 55 | 6 | □ | 797 |
| XPM-EDN | 2.6 | 10 | 65 | 6 | □ | 779 |
| CC-EML | 2.6 | 15 | 60 | 6 | □ | 815 |
| EDL | 2.6 | 15 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.6 | 15 | 60 | 6 | ● | 787 |
| V-XPM-EDS | 2.65 | 7 | 55 | 6 | □ | 753 |
| EDS | 2.65 | 8 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 2.7 | 5.5 | 50 | 6 | ● | 761 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EDS | 2.7 | 7 | 55 | 6 | □ | 753 |
| XPM-EDS | 2.7 | 7 | 55 | 6 | ● | 757 |
| CPM-EDS | 2.7 | 8 | 50 | 6 | □ | 774 |
| EDS | 2.7 | 8 | 50 | 6 | ● | 766 |
| EX-TIN-EMS | 2.7 | 9 | 50 | 6 | □ | 802 |
| CC-EMS | 2.7 | 10 | 50 | 6 | □ | 805 |
| EDN | 2.7 | 10 | 50 | 6 | □ | 782 |
| XPM-EMS | 2.7 | 10 | 55 | 6 | □ | 797 |
| XPM-EDN | 2.7 | 10 | 65 | 6 | □ | 779 |
| CC-EML | 2.7 | 15 | 60 | 6 | □ | 815 |
| EDL | 2.7 | 15 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.7 | 15 | 60 | 6 | ● | 787 |
| V-XPM-EDS | 2.75 | 7 | 55 | 6 | □ | 753 |
| EDS | 2.75 | 8 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 2.8 | 6 | 50 | 6 | ● | 761 |
| V-XPM-EDS | 2.8 | 7 | 55 | 6 | □ | 753 |
| XPM-EDS | 2.8 | 7 | 55 | 6 | ● | 757 |
| EDS | 2.8 | 8 | 50 | 6 | ● | 766 |
| EX-TIN-EMS | 2.8 | 9 | 50 | 6 | □ | 802 |
| CC-EMS | 2.8 | 10 | 50 | 6 | □ | 805 |
| EDN | 2.8 | 10 | 50 | 6 | □ | 782 |
| XPM-EMS | 2.8 | 10 | 55 | 6 | □ | 797 |
| XPM-EDN | 2.8 | 10 | 65 | 6 | □ | 779 |
| CC-EML | 2.8 | 15 | 60 | 6 | □ | 815 |
| EDL | 2.8 | 15 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.8 | 15 | 60 | 6 | ● | 787 |
| V-XPM-EDS | 2.85 | 7 | 55 | 6 | □ | 753 |
| EDS | 2.85 | 8 | 50 | 6 | □ | 766 |
| EX-TIN-EDS | 2.9 | 6 | 50 | 6 | ● | 761 |
| V-XPM-EDS | 2.9 | 7 | 55 | 6 | □ | 753 |
| XPM-EDS | 2.9 | 7 | 55 | 6 | ● | 757 |
| CPM-EDS | 2.9 | 8 | 50 | 6 | □ | 774 |
| EDS | 2.9 | 8 | 50 | 6 | ● | 766 |
| EX-TIN-EMS | 2.9 | 9 | 50 | 6 | □ | 802 |
| CC-EMS | 2.9 | 10 | 50 | 6 | □ | 805 |
| EDN | 2.9 | 10 | 50 | 6 | □ | 782 |
| XPM-EMS | 2.9 | 10 | 55 | 6 | □ | 797 |
| XPM-EDN | 2.9 | 10 | 65 | 6 | □ | 779 |
| CC-EML | 2.9 | 15 | 60 | 6 | □ | 815 |
| EDL | 2.9 | 15 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 2.9 | 15 | 60 | 6 | ● | 787 |
| V-XPM-EDS | 2.95 | 7 | 55 | 6 | □ | 753 |
| EDS | 2.95 | 8 | 50 | 6 | □ | 766 |
| EDS-3 | 3 | 4 | 36 | 3 | □ | 765 |
| EKD | 3 | 5 | 50 | 6 | ● | 773 |
| EKD | 3 | 5 | 50 | 6 | ● | 773 |
| EX-TIN-EKD | 3 | 5 | 50 | 6 | ● | 765 |
| V-XPM-EKD | 3 | 5 | 50 | 6 | ● | 756 |
| LN-CPM-EDS | 3 | 5 | 62 | 6 | □ | 823-27 |
| EX-TIN-EDS | 3 | 6 | 50 | 6 | ● | 761 |
| V-XPM-EHS | 3 × 3F | 6 | 55 | 6 | ● | 821 |
| WH-NC-EDSS | 3 | 6 | 60 | 6 | □ | 823-3 |
| WH-NC-EMSS | 3 | 6 | 60 | 6 | □ | 823-16 |
| WH-NC-RESF | 3 | 6 | 60 | 6 | □ | 870-2 |
| TIN-XPM-EDS | 3 | 7 | 55 | 6 | □ | 823-4 |
| V-XPM-EDS | 3 | 7 | 55 | 6 | ● | 753 |
| XPM-EDS | 3 | 7 | 55 | 6 | ● | 757 |
| AL-EDS | 3 | 8 | 50 | 6 | ● | 776 |
| CPM-EDS | 3 | 8 | 50 | 6 | □ | 774 |
| EDS | 3 | 8 | 50 | 6 | ● | 766 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| ETS | 3 | 8 | 50 | 6 | ● | 794 |
| EX-TIN-ETS | 3 | 8 | 50 | 6 | □ | 823-10 |
| MR-EDS | 3 | 8 | 50 | 6 | □ | 823-3 |
| SUS-EDS | 3 | 8 | 50 | 6 | ● | 777 |
| EX-REES | 3 | 8 | 52 | 6 | □ | 848 |
| EX-TIN-EMS | 3 | 9 | 50 | 6 | ● | 802 |
| CC-EMS | 3 | 10 | 50 | 6 | ● | 805 |
| CPM-EDN | 3 | 10 | 50 | 6 | □ | 823-5 |
| CPM-STDN | 3 | 10 | 50 | 6 | ● | 784 |
| EDN | 3 | 10 | 50 | 6 | ● | 782 |
| EX-TIN-EDN | 3 | 10 | 50 | 6 | ● | 782 |
| TIN-XPM-EMS | 3 | 10 | 55 | 6 | □ | 823-14 |
| V-XPM-EMS | 3 | 10 | 55 | 6 | ● | 795 |
| XPM-EMS | 3 | 10 | 55 | 6 | ● | 797 |
| AL-EOS | 3 | 10 | 60 | 8 | □ | 823-21 |
| LN-EDN-OH | 3 | 10 | 65 | 6 | □ | 823-27 |
| V-XPM-EDN | 3 | 10 | 65 | 6 | ● | 778 |
| XPM-EDN | 3 | 10 | 65 | 6 | ● | 779 |
| CC-EMN | 3 | 12 | 55 | 6 | □ | 823-17 |
| AL-EDL | 3 | 15 | 60 | 6 | □ | 823-7 |
| CC-EML | 3 | 15 | 60 | 6 | ● | 815 |
| EDL | 3 | 15 | 60 | 6 | ● | 789 |
| EX-TIN-EDL | 3 | 15 | 60 | 6 | ● | 787 |
| EX-TIN-EML | 3 | 15 | 60 | 6 | ● | 814 |
| V-XPM-EDL | 3 | 15 | 65 | 6 | ● | 785 |
| V-XPM-EML | 3 | 15 | 65 | 6 | ● | 812 |
| XPM-EDL | 3 | 15 | 65 | 6 | ● | 786 |
| XPM-EML | 3 | 15 | 65 | 6 | ● | 813 |
| CPM-STD | 3 | 15 | 70 | 12 | □ | 823-5 |
| EX-REEL | 3 | 18 | 62 | 6 | □ | 857 |
| EXDL | 3 | 30 | 70 | 6 | ● | 792 |
| EXML | 3 | 30 | 70 | 6 | ● | 819 |
| EX-TIN-EXDL | 3 | 30 | 70 | 6 | □ | 823-6 |
| EX-TIN-EXML | 3 | 30 | 70 | 6 | □ | 823-19 |
| ETXL | 3 | 40 | 80 | 6 | □ | 823-11 |
| EXDL | 3 | 40 | 80 | 6 | □ | 792 |
| EXML | 3 | 40 | 80 | 6 | □ | 819 |
| EX-TIN-ETXL | 3 | 40 | 80 | 6 | □ | 823-10 |
| EDS | 3.05 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.05 | 8 | 65 | 8 | □ | 753 |
| EX-TIN-EDS | 3.1 | 6.5 | 60 | 8 | ● | 761 |
| EDS | 3.1 | 8 | 60 | 8 | ● | 766 |
| V-XPM-EDS | 3.1 | 8 | 65 | 8 | □ | 753 |
| XPM-EDS | 3.1 | 8 | 65 | 8 | ● | 757 |
| CC-EMS | 3.1 | 12 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 3.1 | 12 | 60 | 8 | □ | 802 |
| XPM-EMS | 3.1 | 12 | 65 | 8 | □ | 797 |
| XPM-EDN | 3.1 | 12 | 70 | 8 | □ | 779 |
| EDN | 3.1 | 15 | 60 | 6 | □ | 782 |
| CC-EML | 3.1 | 20 | 60 | 8 | □ | 815 |
| EDL | 3.1 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.1 | 20 | 60 | 8 | ● | 787 |
| EDS | 3.15 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.15 | 8 | 65 | 8 | □ | 753 |
| EX-TIN-EDS | 3.2 | 6.5 | 60 | 8 | ● | 761 |
| EDS | 3.2 | 8 | 60 | 8 | ● | 766 |
| V-XPM-EDS | 3.2 | 8 | 65 | 8 | □ | 753 |
| XPM-EDS | 3.2 | 8 | 65 | 8 | ● | 757 |
| CC-EMS | 3.2 | 12 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 3.2 | 12 | 60 | 8 | □ | 802 |
| XPM-EMS | 3.2 | 12 | 65 | 8 | □ | 797 |
| XPM-EDN | 3.2 | 12 | 70 | 8 | □ | 779 |
| EDN | 3.2 | 15 | 60 | 6 | □ | 782 |
| CC-EML | 3.2 | 20 | 60 | 8 | □ | 815 |
| EDL | 3.2 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.2 | 20 | 60 | 8 | ● | 787 |
| EDS | 3.25 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.25 | 8 | 65 | 8 | □ | 753 |
| EX-TIN-EDS | 3.3 | 7 | 60 | 8 | ● | 761 |
| CPM-EDS | 3.3 | 8 | 60 | 8 | □ | 774 |
| EDS | 3.3 | 8 | 60 | 8 | ● | 766 |
| V-XPM-EDS | 3.3 | 8 | 65 | 8 | □ | 753 |
| XPM-EDS | 3.3 | 8 | 65 | 8 | ● | 757 |
| CC-EMS | 3.3 | 12 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 3.3 | 12 | 60 | 8 | □ | 802 |
| XPM-EMS | 3.3 | 12 | 65 | 8 | □ | 797 |
| XPM-EDN | 3.3 | 12 | 70 | 8 | □ | 779 |
| EDN | 3.3 | 15 | 60 | 6 | □ | 782 |
| CC-EML | 3.3 | 20 | 60 | 8 | □ | 815 |
| EDL | 3.3 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.3 | 20 | 60 | 8 | ● | 787 |
| EDS | 3.35 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.35 | 8 | 65 | 8 | □ | 753 |
| EX-TIN-EDS | 3.4 | 7 | 60 | 8 | ● | 761 |
| CPM-EDS | 3.4 | 8 | 60 | 8 | □ | 774 |
| EDS | 3.4 | 8 | 60 | 8 | ● | 766 |
| V-XPM-EDS | 3.4 | 8 | 65 | 8 | □ | 753 |
| XPM-EDS | 3.4 | 8 | 65 | 8 | ● | 757 |
| CC-EMS | 3.4 | 12 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 3.4 | 12 | 60 | 8 | □ | 802 |
| XPM-EMS | 3.4 | 12 | 65 | 8 | □ | 797 |
| XPM-EDN | 3.4 | 12 | 70 | 8 | □ | 779 |
| EDN | 3.4 | 15 | 60 | 6 | □ | 782 |
| CC-EML | 3.4 | 20 | 60 | 8 | □ | 815 |
| EDL | 3.4 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.4 | 20 | 60 | 8 | ● | 787 |
| EDS | 3.45 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.45 | 8 | 65 | 8 | □ | 753 |
| LN-CPM-EDS | 3.5 | 6 | 67 | 8 | □ | 823-27 |
| AL-EDS | 3.5 | 8 | 60 | 8 | ● | 776 |
| CPM-EDS | 3.5 | 8 | 60 | 8 | □ | 774 |
| EDS | 3.5 | 8 | 60 | 8 | ● | 766 |
| ETS | 3.5 | 8 | 60 | 8 | ● | 794 |
| EX-TIN-EDS | 3.5 | 8 | 60 | 8 | ● | 761 |
| EX-TIN-ETS | 3.5 | 8 | 60 | 8 | □ | 823-10 |
| SUS-EDS | 3.5 | 8 | 60 | 8 | ● | 777 |
| V-XPM-EDS | 3.5 | 8 | 65 | 8 | ● | 753 |
| XPM-EDS | 3.5 | 8 | 65 | 8 | ● | 757 |
| CPM-EDN | 3.5 | 12 | 60 | 6 | □ | 823-5 |
| CPM-STDN | 3.5 | 12 | 60 | 6 | ● | 784 |
| EDN | 3.5 | 12 | 60 | 6 | □ | 782 |
| CC-EMS | 3.5 | 12 | 60 | 8 | ● | 805 |
| CPM-EDN | 3.5 | 12 | 60 | 8 | □ | 823-5 |
| EDN | 3.5 | 12 | 60 | 8 | ● | 782 |
| EX-TIN-EDN | 3.5 | 12 | 60 | 8 | ● | 782 |
| EX-TIN-EMS | 3.5 | 12 | 60 | 8 | ● | 802 |
| TIN-XPM-EMS | 3.5 | 12 | 65 | 8 | □ | 823-14 |
| V-XPM-EMS | 3.5 | 12 | 65 | 8 | ● | 795 |
| XPM-EMS | 3.5 | 12 | 65 | 8 | ● | 797 |
| LN-EDN-OH | 3.5 | 12 | 70 | 8 | □ | 823-27 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EDN | 3.5 | 12 | 70 | 8 | ● | 778 |
| XPM-EDN | 3.5 | 12 | 70 | 8 | ● | 779 |
| CC-EMN | 3.5 | 15 | 65 | 8 | □ | 823-17 |
| CC-EML | 3.5 | 20 | 60 | 8 | □ | 815 |
| CPM-EDL | 3.5 | 20 | 60 | 8 | □ | 823-8 |
| EDL | 3.5 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.5 | 20 | 60 | 8 | ● | 787 |
| EX-TIN-EML | 3.5 | 20 | 60 | 8 | □ | 814 |
| XPM-EDL | 3.5 | 20 | 70 | 8 | □ | 786 |
| EDS | 3.55 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.55 | 8 | 65 | 8 | □ | 753 |
| CPM-EDS | 3.6 | 8 | 60 | 8 | □ | 774 |
| EDS | 3.6 | 8 | 60 | 8 | ● | 766 |
| EX-TIN-EDS | 3.6 | 8 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 3.6 | 8 | 65 | 8 | □ | 753 |
| XPM-EDS | 3.6 | 8 | 65 | 8 | ● | 757 |
| CC-EMS | 3.6 | 12 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 3.6 | 12 | 60 | 8 | □ | 802 |
| XPM-EMS | 3.6 | 12 | 65 | 8 | □ | 797 |
| XPM-EDN | 3.6 | 12 | 70 | 8 | □ | 779 |
| EDN | 3.6 | 15 | 60 | 6 | □ | 782 |
| CC-EML | 3.6 | 20 | 60 | 8 | □ | 815 |
| EDL | 3.6 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.6 | 20 | 60 | 8 | ● | 787 |
| EDS | 3.65 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.65 | 8 | 65 | 8 | □ | 753 |
| CPM-EDS | 3.7 | 8 | 60 | 8 | □ | 774 |
| EDS | 3.7 | 8 | 60 | 8 | ● | 766 |
| EX-TIN-EDS | 3.7 | 8 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 3.7 | 8 | 65 | 8 | □ | 753 |
| XPM-EDS | 3.7 | 8 | 65 | 8 | ● | 757 |
| CC-EMS | 3.7 | 12 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 3.7 | 12 | 60 | 8 | □ | 802 |
| XPM-EMS | 3.7 | 12 | 65 | 8 | □ | 797 |
| XPM-EDN | 3.7 | 12 | 70 | 8 | □ | 779 |
| EDN | 3.7 | 15 | 60 | 6 | □ | 782 |
| CC-EML | 3.7 | 20 | 60 | 8 | □ | 815 |
| EDL | 3.7 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.7 | 20 | 60 | 8 | ● | 787 |
| EDS | 3.75 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.75 | 8 | 65 | 8 | □ | 753 |
| EDS | 3.8 | 8 | 60 | 8 | ● | 766 |
| EX-TIN-EDS | 3.8 | 8 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 3.8 | 8 | 65 | 8 | □ | 753 |
| XPM-EDS | 3.8 | 8 | 65 | 8 | ● | 757 |
| CC-EMS | 3.8 | 12 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 3.8 | 12 | 60 | 8 | □ | 802 |
| XPM-EMS | 3.8 | 12 | 65 | 8 | □ | 797 |
| XPM-EDN | 3.8 | 12 | 70 | 8 | □ | 779 |
| EDN | 3.8 | 15 | 60 | 6 | □ | 782 |
| CC-EML | 3.8 | 20 | 60 | 8 | □ | 815 |
| EDL | 3.8 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.8 | 20 | 60 | 8 | ● | 787 |
| EDS | 3.85 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.85 | 8 | 65 | 8 | □ | 753 |
| CPM-EDS | 3.9 | 8 | 60 | 8 | □ | 774 |
| EDS | 3.9 | 8 | 60 | 8 | ● | 766 |
| EX-TIN-EDS | 3.9 | 8 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 3.9 | 8 | 65 | 8 | □ | 753 |
| XPM-EDS | 3.9 | 8 | 65 | 8 | ● | 757 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CC-EMS | 3.9 | 12 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 3.9 | 12 | 60 | 8 | □ | 802 |
| XPM-EMS | 3.9 | 12 | 65 | 8 | □ | 797 |
| XPM-EDN | 3.9 | 12 | 70 | 8 | □ | 779 |
| EDN | 3.9 | 15 | 60 | 6 | □ | 782 |
| CC-EML | 3.9 | 20 | 60 | 8 | □ | 815 |
| EDL | 3.9 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 3.9 | 20 | 60 | 8 | ● | 787 |
| EDS | 3.95 | 8 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 3.95 | 8 | 65 | 8 | □ | 753 |
| WH-NC-EDSS | 4 | 6 | 60 | 6 | □ | 823-3 |
| WH-NC-EMSS | 4 | 6 | 60 | 6 | □ | 823-16 |
| WH-NC-RESF | 4 | 6 | 60 | 6 | □ | 870-2 |
| EKD | 4 | 6 | 60 | 8 | ● | 773 |
| EKD | 4 | 6 | 60 | 8 | ● | 773 |
| EX-TIN-EKD | 4 | 6 | 60 | 8 | ● | 765 |
| V-XPM-EKD | 4 | 6 | 60 | 8 | ● | 756 |
| LN-CPM-EDS | 4 | 7 | 75 | 8 | □ | 823-27 |
| EX-REES | 4 | 8 | 52 | 6 | □ | 848 |
| AL-EDS | 4 | 8 | 60 | 8 | ● | 776 |
| CPM-EDS | 4 | 8 | 60 | 8 | □ | 774 |
| EDS | 4 | 8 | 60 | 8 | ● | 766 |
| ETS | 4 | 8 | 60 | 8 | ● | 794 |
| EX-TIN-EDS | 4 | 8 | 60 | 8 | ● | 761 |
| EX-TIN-ETS | 4 | 8 | 60 | 8 | □ | 823-10 |
| MR-EDS | 4 | 8 | 60 | 8 | □ | 823-3 |
| SUS-EDS | 4 | 8 | 60 | 8 | ● | 777 |
| TIN-XPM-EDS | 4 | 8 | 65 | 8 | □ | 823-4 |
| V-XPM-EDS | 4 | 8 | 65 | 8 | ● | 753 |
| XPM-EDS | 4 | 8 | 65 | 8 | ● | 757 |
| V-XPM-EHS | 4 × 3F | 8 | 65 | 8 | ● | 821 |
| REES | 4 | 10 | 55 | 6 | □ | 870-3 |
| CPM-EDN | 4 | 12 | 60 | 6 | □ | 823-5 |
| CPM-STDN | 4 | 12 | 60 | 6 | ● | 784 |
| EDN | 4 | 12 | 60 | 6 | □ | 782 |
| AL-EOS | 4 | 12 | 60 | 8 | □ | 823-21 |
| CC-EMS | 4 | 12 | 60 | 8 | ● | 805 |
| CPM-EDN | 4 | 12 | 60 | 8 | □ | 823-5 |
| EDN | 4 | 12 | 60 | 8 | ● | 782 |
| EX-TIN-EDN | 4 | 12 | 60 | 8 | ● | 782 |
| EX-TIN-EMS | 4 | 12 | 60 | 8 | ● | 802 |
| TIN-XPM-EMS | 4 | 12 | 65 | 8 | □ | 823-14 |
| V-XPM-EMS | 4 | 12 | 65 | 8 | ● | 795 |
| XPM-EMS | 4 | 12 | 65 | 8 | ● | 797 |
| TIN-XPM-EDN | 4 | 12 | 70 | 8 | □ | 779 |
| V-XPM-EDN | 4 | 12 | 70 | 8 | ● | 778 |
| XPM-EDN | 4 | 12 | 70 | 8 | ● | 779 |
| LN-EDN-OH | 4 | 12 | 75 | 8 | □ | 823-27 |
| CC-EMN | 4 | 15 | 65 | 8 | □ | 823-17 |
| CPM-STD | 4 | 15 | 70 | 12 | □ | 823-5 |
| EX-REEL | 4 | 18 | 62 | 6 | □ | 857 |
| AL-EDL | 4 | 20 | 60 | 8 | □ | 823-7 |
| CC-EML | 4 | 20 | 60 | 8 | ● | 815 |
| EDL | 4 | 20 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4 | 20 | 60 | 8 | ● | 787 |
| EX-TIN-EML | 4 | 20 | 60 | 8 | ● | 814 |
| AL-EOL | 4 | 20 | 70 | 8 | □ | 823-21 |
| TIN-XPM-EML | 4 | 20 | 70 | 8 | □ | 823-15 |
| V-XPM-EDL | 4 | 20 | 70 | 8 | ● | 785 |
| V-XPM-EML | 4 | 20 | 70 | 8 | ● | 812 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDL | 4 | 20 | 70 | 8 | ● | 786 |
| XPM-EML | 4 | 20 | 70 | 8 | ● | 813 |
| REEL | 4 | 22 | 70 | 6 | □ | 870-9 |
| EXDL | 4 | 30 | 70 | 8 | ● | 792 |
| EXML | 4 | 30 | 70 | 8 | ● | 819 |
| EX-TIN-EXDL | 4 | 30 | 70 | 8 | □ | 823-6 |
| EX-TIN-EXML | 4 | 30 | 70 | 8 | □ | 823-19 |
| ETXL | 4 | 40 | 80 | 8 | □ | 823-11 |
| EXDL | 4 | 40 | 80 | 8 | □ | 792 |
| EXML | 4 | 40 | 80 | 8 | □ | 819 |
| EX-TIN-ETXL | 4 | 40 | 80 | 8 | □ | 823-10 |
| EDS | 4.05 | 10 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 4.05 | 10 | 65 | 8 | □ | 753 |
| CPM-EDS | 4.1 | 10 | 60 | 8 | □ | 774 |
| EDS | 4.1 | 10 | 60 | 8 | ● | 766 |
| EX-TIN-EDS | 4.1 | 10 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 4.1 | 10 | 65 | 8 | □ | 753 |
| XPM-EDS | 4.1 | 10 | 65 | 8 | ● | 757 |
| CC-EMS | 4.1 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 4.1 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 4.1 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 4.1 | 15 | 70 | 8 | □ | 779 |
| EDN | 4.1 | 18 | 65 | 6 | □ | 782 |
| CC-EML | 4.1 | 25 | 60 | 8 | □ | 815 |
| EDL | 4.1 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.1 | 25 | 60 | 8 | ● | 787 |
| EDS | 4.15 | 10 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 4.15 | 10 | 65 | 8 | □ | 753 |
| EDS | 4.2 | 10 | 60 | 8 | ● | 766 |
| EX-TIN-EDS | 4.2 | 10 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 4.2 | 10 | 65 | 8 | □ | 753 |
| XPM-EDS | 4.2 | 10 | 65 | 8 | ● | 757 |
| CC-EMS | 4.2 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 4.2 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 4.2 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 4.2 | 15 | 70 | 8 | □ | 779 |
| EDN | 4.2 | 18 | 65 | 6 | □ | 782 |
| CC-EML | 4.2 | 25 | 60 | 8 | □ | 815 |
| EDL | 4.2 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.2 | 25 | 60 | 8 | ● | 787 |
| EDS | 4.25 | 10 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 4.25 | 10 | 65 | 8 | □ | 753 |
| CPM-EDS | 4.3 | 10 | 60 | 8 | □ | 774 |
| EDS | 4.3 | 10 | 60 | 8 | ● | 766 |
| EX-TIN-EDS | 4.3 | 10 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 4.3 | 10 | 65 | 8 | □ | 753 |
| XPM-EDS | 4.3 | 10 | 65 | 8 | ● | 757 |
| CC-EMS | 4.3 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 4.3 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 4.3 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 4.3 | 15 | 70 | 8 | □ | 779 |
| EDN | 4.3 | 18 | 65 | 6 | □ | 782 |
| CC-EML | 4.3 | 25 | 60 | 8 | □ | 815 |
| EDL | 4.3 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.3 | 25 | 60 | 8 | ● | 787 |
| EDS | 4.35 | 10 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 4.35 | 10 | 65 | 8 | □ | 753 |
| CPM-EDS | 4.4 | 10 | 60 | 8 | □ | 774 |
| EDS | 4.4 | 10 | 60 | 8 | ● | 766 |
| EX-TIN-EDS | 4.4 | 10 | 60 | 8 | ● | 761 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EDS | 4.4 | 10 | 65 | 8 | □ | 753 |
| XPM-EDS | 4.4 | 10 | 65 | 8 | ● | 757 |
| CC-EMS | 4.4 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 4.4 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 4.4 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 4.4 | 15 | 70 | 8 | □ | 779 |
| EDN | 4.4 | 18 | 65 | 6 | □ | 782 |
| CC-EML | 4.4 | 25 | 60 | 8 | □ | 815 |
| EDL | 4.4 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.4 | 25 | 60 | 8 | ● | 787 |
| EDS | 4.45 | 10 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 4.45 | 10 | 65 | 8 | □ | 753 |
| LN-CPM-EDS | 4.5 | 7 | 75 | 8 | □ | 823-27 |
| AL-EDS | 4.5 | 10 | 60 | 8 | ● | 776 |
| CPM-EDS | 4.5 | 10 | 60 | 8 | □ | 774 |
| EDS | 4.5 | 10 | 60 | 8 | ● | 766 |
| ETS | 4.5 | 10 | 60 | 8 | ● | 794 |
| EX-TIN-EDS | 4.5 | 10 | 60 | 8 | ● | 761 |
| EX-TIN-ETS | 4.5 | 10 | 60 | 8 | □ | 823-10 |
| SUS-EDS | 4.5 | 10 | 60 | 8 | ● | 777 |
| V-XPM-EDS | 4.5 | 10 | 65 | 8 | ● | 753 |
| XPM-EDS | 4.5 | 10 | 65 | 8 | ● | 757 |
| CPM-EDN | 4.5 | 15 | 60 | 6 | □ | 823-5 |
| CPM-STDN | 4.5 | 15 | 60 | 6 | ● | 784 |
| EDN | 4.5 | 15 | 60 | 6 | □ | 782 |
| CC-EMS | 4.5 | 15 | 60 | 8 | ● | 805 |
| CPM-EDN | 4.5 | 15 | 60 | 8 | □ | 823-5 |
| EDN | 4.5 | 15 | 60 | 8 | ● | 782 |
| EX-TIN-EDN | 4.5 | 15 | 60 | 8 | ● | 782 |
| EX-TIN-EMS | 4.5 | 15 | 60 | 8 | ● | 802 |
| TIN-XPM-EMS | 4.5 | 15 | 65 | 8 | □ | 823-14 |
| V-XPM-EMS | 4.5 | 15 | 65 | 8 | ● | 795 |
| XPM-EMS | 4.5 | 15 | 65 | 8 | ● | 797 |
| TIN-XPM-EDN | 4.5 | 15 | 70 | 8 | □ | 779 |
| V-XPM-EDN | 4.5 | 15 | 70 | 8 | ● | 778 |
| XPM-EDN | 4.5 | 15 | 70 | 8 | ● | 779 |
| LN-EDN-OH | 4.5 | 15 | 75 | 8 | □ | 823-27 |
| CC-EMN | 4.5 | 20 | 65 | 8 | □ | 823-17 |
| CC-EML | 4.5 | 25 | 60 | 8 | □ | 815 |
| CPM-EDL | 4.5 | 25 | 60 | 8 | □ | 823-8 |
| EDL | 4.5 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.5 | 25 | 60 | 8 | ● | 787 |
| EX-TIN-EML | 4.5 | 25 | 60 | 8 | □ | 814 |
| XPM-EDL | 4.5 | 25 | 75 | 8 | □ | 786 |
| EDS | 4.55 | 10 | 60 | 8 | □ | 766 |
| V-XPM-EDS | 4.55 | 10 | 65 | 8 | □ | 753 |
| EDS | 4.6 | 10 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 4.6 | 10 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 4.6 | 10 | 65 | 8 | □ | 753 |
| XPM-EDS | 4.6 | 10 | 65 | 8 | ● | 757 |
| CC-EMS | 4.6 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 4.6 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 4.6 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 4.6 | 15 | 70 | 8 | □ | 779 |
| EDN | 4.6 | 18 | 65 | 6 | □ | 782 |
| CC-EML | 4.6 | 25 | 60 | 8 | □ | 815 |
| EDL | 4.6 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.6 | 25 | 60 | 8 | ● | 787 |
| EDS | 4.65 | 10 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 4.65 | 10 | 65 | 8 | □ | 753 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-EDS | 4.7 | 10 | 60 | 8 | □ | 774 |
| EDS | 4.7 | 10 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 4.7 | 10 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 4.7 | 10 | 65 | 8 | □ | 753 |
| XPM-EDS | 4.7 | 10 | 65 | 8 | ● | 757 |
| CC-EMS | 4.7 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 4.7 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 4.7 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 4.7 | 15 | 70 | 8 | □ | 779 |
| EDN | 4.7 | 18 | 65 | 6 | □ | 783 |
| CC-EML | 4.7 | 25 | 60 | 8 | □ | 815 |
| EDL | 4.7 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.7 | 25 | 60 | 8 | ● | 787 |
| EDS | 4.75 | 10 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 4.75 | 10 | 65 | 8 | □ | 753 |
| EDS | 4.8 | 10 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 4.8 | 10 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 4.8 | 10 | 65 | 8 | □ | 753 |
| XPM-EDS | 4.8 | 10 | 65 | 8 | ● | 757 |
| CC-EMS | 4.8 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 4.8 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 4.8 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 4.8 | 15 | 70 | 8 | □ | 779 |
| EDN | 4.8 | 18 | 65 | 6 | □ | 783 |
| CC-EML | 4.8 | 25 | 60 | 8 | □ | 815 |
| EDL | 4.8 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.8 | 25 | 60 | 8 | ● | 787 |
| EDS | 4.85 | 10 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 4.85 | 10 | 65 | 8 | □ | 753 |
| CPM-EDS | 4.9 | 10 | 60 | 8 | □ | 774 |
| EDS | 4.9 | 10 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 4.9 | 10 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 4.9 | 10 | 65 | 8 | □ | 753 |
| XPM-EDS | 4.9 | 10 | 65 | 8 | ● | 757 |
| CC-EMS | 4.9 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 4.9 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 4.9 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 4.9 | 15 | 70 | 8 | □ | 779 |
| EDN | 4.9 | 18 | 65 | 6 | □ | 783 |
| CC-EML | 4.9 | 25 | 60 | 8 | □ | 815 |
| EDL | 4.9 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 4.9 | 25 | 60 | 8 | ● | 787 |
| EDS | 4.95 | 10 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 4.95 | 10 | 65 | 8 | □ | 753 |
| WH-NC-EDSS | 5 | 6 | 60 | 6 | □ | 823-3 |
| WH-NC-EMSS | 5 | 6 | 60 | 6 | □ | 823-16 |
| WH-NC-RESF | 5 | 6 | 60 | 6 | □ | 870-2 |
| EKD | 5 | 8 | 60 | 8 | ● | 773 |
| EKD | 5 | 8 | 60 | 8 | ● | 773 |
| EX-TIN-EKD | 5 | 8 | 60 | 8 | ● | 765 |
| V-XPM-EKD | 5 | 8 | 60 | 8 | ● | 756 |
| LN-CPM-EDS | 5 | 8 | 83 | 8 | □ | 823-27 |
| AL-EDS | 5 | 10 | 60 | 8 | ● | 776 |
| CPM-EDS | 5 | 10 | 60 | 8 | □ | 774 |
| EDS | 5 | 10 | 60 | 8 | ● | 767 |
| ETS | 5 | 10 | 60 | 8 | ● | 794 |
| EX-TIN-EDS | 5 | 10 | 60 | 8 | ● | 761 |
| EX-TIN-ETS | 5 | 10 | 60 | 8 | □ | 823-10 |
| SUS-EDS | 5 | 10 | 60 | 8 | ● | 777 |
| TIN-XPM-EDS | 5 | 10 | 65 | 8 | □ | 823-4 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EDS | 5 | 10 | 65 | 8 | ● | 754 |
| XPM-EDS | 5 | 10 | 65 | 8 | ● | 757 |
| V-XPM-EHS | 5 × 3F | 10 | 65 | 8 | ● | 821 |
| VLS-XPM-RESF | 5 | 11 | 70 | 6 | □ | 841 |
| VP-RESF | 5 | 11 | 80 | 6 | □ | 840 |
| EX-REES | 5 | 13 | 57 | 6 | □ | 848 |
| TFGS | 5 | 13 | 57 | 6 | □ | 859 |
| TFS | 5 | 13 | 57 | 6 | □ | 860 |
| LS-REES | 5 | 13 | 70 | 6 | □ | 870-3 |
| LS-TFS | 5 | 13 | 80 | 6 | □ | 870-13 |
| SI-WH-RESF | 5 | 13 | 80 | 6 | □ | 838 |
| REES | 5 | 15 | 56 | 6 | □ | 870-3 |
| CPM-EDN | 5 | 15 | 60 | 6 | □ | 823-5 |
| CPM-STDN | 5 | 15 | 60 | 6 | ● | 784 |
| EDN | 5 | 15 | 60 | 6 | □ | 783 |
| CC-EMS | 5 | 15 | 60 | 8 | ● | 805 |
| CPM-EDN | 5 | 15 | 60 | 8 | □ | 823-5 |
| EDN | 5 | 15 | 60 | 8 | ● | 783 |
| EX-TIN-EDN | 5 | 15 | 60 | 8 | ● | 782 |
| EX-TIN-EMS | 5 | 15 | 60 | 8 | ● | 802 |
| AL-EOS | 5 | 15 | 65 | 8 | □ | 823-21 |
| V-XPM-EMS | 5 | 15 | 65 | 8 | ● | 795 |
| XPM-EMS | 5 | 15 | 65 | 8 | ● | 797 |
| TIN-XPM-EDN | 5 | 15 | 70 | 8 | □ | 779 |
| V-XPM-EDN | 5 | 15 | 70 | 8 | ● | 778 |
| XPM-EDN | 5 | 15 | 70 | 8 | ● | 780 |
| CPM-STD | 5 | 15 | 70 | 12 | □ | 823-5 |
| LN-EDN-OH | 5 | 15 | 85 | 8 | □ | 823-27 |
| TFGN | 5 | 16 | 60 | 6 | □ | 865 |
| TFN | 5 | 16 | 60 | 6 | □ | 866 |
| CC-EMN | 5 | 20 | 65 | 8 | □ | 823-17 |
| EX-REEL | 5 | 24 | 68 | 6 | □ | 857 |
| TFL | 5 | 24 | 68 | 6 | □ | 870-14 |
| AL-EDL | 5 | 25 | 60 | 8 | □ | 823-7 |
| CC-EML | 5 | 25 | 60 | 8 | ● | 815 |
| EDL | 5 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5 | 25 | 60 | 8 | ● | 787 |
| EX-TIN-EML | 5 | 25 | 60 | 8 | ● | 814 |
| AL-EOL | 5 | 25 | 75 | 8 | □ | 823-21 |
| V-XPM-EDL | 5 | 25 | 75 | 8 | ● | 785 |
| V-XPM-EML | 5 | 25 | 75 | 8 | ● | 812 |
| XPM-EDL | 5 | 25 | 75 | 8 | ● | 786 |
| XPM-EML | 5 | 25 | 75 | 8 | ● | 813 |
| REEL | 5 | 30 | 75 | 6 | □ | 870-9 |
| ETXL | 5 | 40 | 80 | 8 | □ | 823-11 |
| EXDL | 5 | 40 | 80 | 8 | ● | 792 |
| EXML | 5 | 40 | 80 | 8 | ● | 819 |
| EX-TIN-ETXL | 5 | 40 | 80 | 8 | □ | 823-10 |
| EX-TIN-EXDL | 5 | 40 | 80 | 8 | □ | 823-6 |
| EX-TIN-EXML | 5 | 40 | 80 | 8 | □ | 823-19 |
| EXDL | 5 | 50 | 90 | 8 | □ | 792 |
| EXML | 5 | 50 | 90 | 8 | □ | 819 |
| EDS | 5.05 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.05 | 12 | 65 | 8 | □ | 754 |
| CPM-EDS | 5.1 | 12 | 60 | 8 | □ | 774 |
| EDS | 5.1 | 12 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 5.1 | 12 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 5.1 | 12 | 65 | 8 | □ | 754 |
| XPM-EDS | 5.1 | 12 | 65 | 8 | ● | 757 |
| CC-EMS | 5.1 | 15 | 60 | 8 | □ | 805 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EMS | 5.1 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 5.1 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 5.1 | 15 | 70 | 8 | □ | 780 |
| EDN | 5.1 | 20 | 65 | 6 | □ | 783 |
| CC-EML | 5.1 | 25 | 60 | 8 | □ | 815 |
| EDL | 5.1 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.1 | 25 | 60 | 8 | ● | 787 |
| EDS | 5.15 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.15 | 12 | 65 | 8 | □ | 754 |
| CPM-EDS | 5.2 | 12 | 60 | 8 | □ | 774 |
| EDS | 5.2 | 12 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 5.2 | 12 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 5.2 | 12 | 65 | 8 | □ | 754 |
| XPM-EDS | 5.2 | 12 | 65 | 8 | ● | 757 |
| CC-EMS | 5.2 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 5.2 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 5.2 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 5.2 | 15 | 70 | 8 | □ | 780 |
| EDN | 5.2 | 20 | 65 | 6 | □ | 783 |
| CC-EML | 5.2 | 25 | 60 | 8 | □ | 815 |
| EDL | 5.2 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.2 | 25 | 60 | 8 | ● | 787 |
| EDS | 5.25 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.25 | 12 | 65 | 8 | □ | 754 |
| CPM-EDS | 5.3 | 12 | 60 | 8 | □ | 774 |
| EDS | 5.3 | 12 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 5.3 | 12 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 5.3 | 12 | 65 | 8 | □ | 754 |
| XPM-EDS | 5.3 | 12 | 65 | 8 | ● | 757 |
| CC-EMS | 5.3 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 5.3 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 5.3 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 5.3 | 15 | 70 | 8 | □ | 780 |
| EDN | 5.3 | 20 | 65 | 6 | □ | 783 |
| CC-EML | 5.3 | 25 | 60 | 8 | □ | 815 |
| EDL | 5.3 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.3 | 25 | 60 | 8 | ● | 787 |
| EDS | 5.35 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.35 | 12 | 65 | 8 | □ | 754 |
| CPM-EDS | 5.4 | 12 | 60 | 8 | □ | 774 |
| EDS | 5.4 | 12 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 5.4 | 12 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 5.4 | 12 | 65 | 8 | □ | 754 |
| XPM-EDS | 5.4 | 12 | 65 | 8 | ● | 757 |
| CC-EMS | 5.4 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 5.4 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 5.4 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 5.4 | 15 | 70 | 8 | □ | 780 |
| EDN | 5.4 | 20 | 65 | 6 | □ | 783 |
| CC-EML | 5.4 | 25 | 60 | 8 | □ | 815 |
| EDL | 5.4 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.4 | 25 | 60 | 8 | ● | 787 |
| EDS | 5.45 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.45 | 12 | 65 | 8 | □ | 754 |
| AL-EDS | 5.5 | 12 | 60 | 8 | ● | 776 |
| CPM-EDS | 5.5 | 12 | 60 | 8 | □ | 774 |
| EDS | 5.5 | 12 | 60 | 8 | ● | 767 |
| ETS | 5.5 | 12 | 60 | 8 | ● | 794 |
| EX-TIN-EDS | 5.5 | 12 | 60 | 8 | ● | 761 |
| EX-TIN-ETS | 5.5 | 12 | 60 | 8 | □ | 823-10 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| SUS-EDS | 5.5 | 12 | 60 | 8 | ● | 777 |
| TIN-XPM-EDS | 5.5 | 12 | 65 | 8 | □ | 823-4 |
| V-XPM-EDS | 5.5 | 12 | 65 | 8 | ● | 754 |
| XPM-EDS | 5.5 | 12 | 65 | 8 | ● | 757 |
| CPM-EDN | 5.5 | 15 | 60 | 6 | □ | 823-5 |
| CPM-STDN | 5.5 | 15 | 60 | 6 | ● | 784 |
| EDN | 5.5 | 15 | 60 | 6 | □ | 783 |
| CC-EMS | 5.5 | 15 | 60 | 8 | ● | 805 |
| CPM-EDN | 5.5 | 15 | 60 | 8 | □ | 823-5 |
| EDN | 5.5 | 15 | 60 | 8 | ● | 783 |
| EX-TIN-EDN | 5.5 | 15 | 60 | 8 | ● | 782 |
| EX-TIN-EMS | 5.5 | 15 | 60 | 8 | ● | 802 |
| TIN-XPM-EMS | 5.5 | 15 | 65 | 8 | □ | 823-14 |
| V-XPM-EMS | 5.5 | 15 | 65 | 8 | ● | 795 |
| XPM-EMS | 5.5 | 15 | 65 | 8 | ● | 797 |
| V-XPM-EDN | 5.5 | 15 | 70 | 8 | ● | 778 |
| XPM-EDN | 5.5 | 15 | 70 | 8 | ● | 780 |
| LN-EDN-OH | 5.5 | 15 | 85 | 8 | □ | 823-27 |
| CC-EMN | 5.5 | 20 | 65 | 8 | □ | 823-17 |
| CC-EML | 5.5 | 25 | 60 | 8 | □ | 815 |
| CPM-EDL | 5.5 | 25 | 60 | 8 | □ | 823-8 |
| EDL | 5.5 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.5 | 25 | 60 | 8 | ● | 787 |
| EX-TIN-EML | 5.5 | 25 | 60 | 8 | □ | 814 |
| XPM-EDL | 5.5 | 25 | 75 | 8 | □ | 786 |
| EDS | 5.55 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.55 | 12 | 65 | 8 | □ | 754 |
| CPM-EDS | 5.6 | 12 | 60 | 8 | □ | 774 |
| EDS | 5.6 | 12 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 5.6 | 12 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 5.6 | 12 | 65 | 8 | □ | 754 |
| XPM-EDS | 5.6 | 12 | 65 | 8 | ● | 757 |
| CC-EMS | 5.6 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 5.6 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 5.6 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 5.6 | 15 | 70 | 8 | □ | 780 |
| EDN | 5.6 | 20 | 65 | 6 | □ | 783 |
| CC-EML | 5.6 | 25 | 60 | 8 | □ | 815 |
| EDL | 5.6 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.6 | 25 | 60 | 8 | ● | 787 |
| EDS | 5.65 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.65 | 12 | 65 | 8 | □ | 754 |
| CPM-EDS | 5.7 | 12 | 60 | 8 | □ | 774 |
| EDS | 5.7 | 12 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 5.7 | 12 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 5.7 | 12 | 65 | 8 | □ | 754 |
| XPM-EDS | 5.7 | 12 | 65 | 8 | ● | 757 |
| CC-EMS | 5.7 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 5.7 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 5.7 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 5.7 | 15 | 70 | 8 | □ | 780 |
| EDN | 5.7 | 20 | 65 | 6 | □ | 783 |
| CC-EML | 5.7 | 25 | 60 | 8 | □ | 815 |
| EDL | 5.7 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.7 | 25 | 60 | 8 | ● | 787 |
| EDS | 5.75 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.75 | 12 | 65 | 8 | □ | 754 |
| EDS | 5.8 | 12 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 5.8 | 12 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 5.8 | 12 | 65 | 8 | □ | 754 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから



＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDS | 5.8 | 12 | 65 | 8 | ● | 757 |
| CC-EMS | 5.8 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 5.8 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 5.8 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 5.8 | 15 | 70 | 8 | □ | 780 |
| EDN | 5.8 | 20 | 65 | 6 | □ | 783 |
| CC-EML | 5.8 | 25 | 60 | 8 | □ | 815 |
| EDL | 5.8 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.8 | 25 | 60 | 8 | ● | 787 |
| EDS | 5.85 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.85 | 12 | 65 | 8 | □ | 754 |
| EDS | 5.9 | 12 | 60 | 8 | ● | 767 |
| EX-TIN-EDS | 5.9 | 12 | 60 | 8 | ● | 761 |
| V-XPM-EDS | 5.9 | 12 | 65 | 8 | □ | 754 |
| XPM-EDS | 5.9 | 12 | 65 | 8 | ● | 757 |
| CC-EMS | 5.9 | 15 | 60 | 8 | □ | 805 |
| EX-TIN-EMS | 5.9 | 15 | 60 | 8 | □ | 802 |
| XPM-EMS | 5.9 | 15 | 65 | 8 | □ | 797 |
| XPM-EDN | 5.9 | 15 | 70 | 8 | □ | 780 |
| EDN | 5.9 | 20 | 65 | 6 | □ | 783 |
| CC-EML | 5.9 | 25 | 60 | 8 | □ | 815 |
| EDL | 5.9 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 5.9 | 25 | 60 | 8 | ● | 787 |
| EDS | 5.95 | 12 | 60 | 8 | □ | 767 |
| V-XPM-EDS | 5.95 | 12 | 65 | 8 | □ | 754 |
| WH-NC-EDSS | 6 | 6 | 60 | 6 | □ | 823-3 |
| WH-NC-EMSS | 6 | 6 | 60 | 6 | □ | 823-16 |
| WH-NC-RESF | 6 | 6 | 60 | 6 | □ | 870-2 |
| LN-CPM-EDS | 6 | 8 | 83 | 8 | □ | 823-27 |
| EKD | 6 | 10 | 60 | 8 | ● | 773 |
| EKD | 6 | 10 | 60 | 8 | ● | 773 |
| EX-TIN-EKD | 6 | 10 | 60 | 8 | ● | 765 |
| V-XPM-EKD | 6 | 10 | 60 | 8 | ● | 756 |
| CPM-LS-RESF | 6 | 11 | 80 | 6 | □ | 870-2 |
| EX-LS-RESF | 6 | 11 | 80 | 6 | ● | 847 |
| LS-XPM-RESF | 6 | 11 | 80 | 6 | □ | 870-1 |
| TIN-LS-RESF | 6 | 11 | 80 | 6 | ● | 846 |
| VLS-XPM-RESF | 6 | 11 | 80 | 6 | ● | 841 |
| VP-RESF | 6 | 11 | 80 | 6 | ● | 840 |
| AL-EDS | 6 | 12 | 60 | 8 | ● | 776 |
| CPM-EDS | 6 | 12 | 60 | 8 | □ | 774 |
| EDS | 6 | 12 | 60 | 8 | ● | 767 |
| ETS | 6 | 12 | 60 | 8 | ● | 794 |
| EX-TIN-EDS | 6 | 12 | 60 | 8 | ● | 761 |
| EX-TIN-ETS | 6 | 12 | 60 | 8 | □ | 823-10 |
| MR-EDS | 6 | 12 | 60 | 8 | □ | 823-3 |
| SUS-EDS | 6 | 12 | 60 | 8 | ● | 777 |
| TIN-XPM-EDS | 6 | 12 | 65 | 8 | □ | 823-4 |
| V-XPM-EDS | 6 | 12 | 65 | 8 | ● | 754 |
| XPM-EDS | 6 | 12 | 65 | 8 | ● | 757 |
| EX-REES | 6 | 13 | 57 | 6 | ● | 848 |
| EX-TIN-RESF | 6 | 13 | 57 | 6 | ● | 845 |
| TFGS | 6 | 13 | 57 | 6 | ● | 859 |
| TFS | 6 | 13 | 57 | 6 | □ | 860 |
| EX-LS-REES | 6 | 13 | 80 | 6 | ● | 849 |
| SI-WH-RESF | 6 | 13 | 80 | 6 | ● | 838 |
| WH-REES | 6 | 13 | 80 | 6 | ● | 839 |
| WH-RESF | 6 | 13 | 80 | 6 | ● | 839 |
| REES | 6 | 15 | 56 | 6 | □ | 870-3 |
| RFES | 6 | 15 | 56 | 6 | ● | 862 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-EDN | 6 | 15 | 60 | 6 | □ | 823-5 |
| CPM-STDN | 6 | 15 | 60 | 6 | ● | 784 |
| EDN | 6 | 15 | 60 | 6 | □ | 783 |
| CC-EMS | 6 | 15 | 60 | 8 | ● | 805 |
| CPM-EDN | 6 | 15 | 60 | 8 | □ | 823-5 |
| EDN | 6 | 15 | 60 | 8 | ● | 783 |
| EX-TIN-EDN | 6 | 15 | 60 | 8 | ● | 782 |
| EX-TIN-EMS | 6 | 15 | 60 | 8 | ● | 802 |
| MR-EMS | 6 | 15 | 60 | 8 | □ | 823-13 |
| AL-EOS | 6 | 15 | 65 | 8 | □ | 823-21 |
| KFR | 6 | 15 | 65 | 8 | □ | 867 |
| TIN-KFR | 6 | 15 | 65 | 8 | □ | 870-18 |
| V-XPM-EMS | 6 | 15 | 65 | 8 | ● | 795 |
| V-XPM-NHS | 6 | 15 | 65 | 8 | ● | 859 |
| XPM-EMS | 6 | 15 | 65 | 8 | ● | 797 |
| TIN-XPM-EHS | 6 × 3F | 15 | 65 | 8 | ● | 822 |
| V-XPM-EHS | 6 × 3F | 15 | 65 | 8 | ● | 821 |
| XPM-EHS | 6 × 3F | 15 | 65 | 8 | ● | 823 |
| V-XPM-EHS | 6 × 4F | 15 | 65 | 8 | ● | 821 |
| TIN-XPM-EDN | 6 | 15 | 70 | 8 | □ | 779 |
| V-XPM-EDN | 6 | 15 | 70 | 8 | ● | 778 |
| XPM-EDN | 6 | 15 | 70 | 8 | ● | 780 |
| LS-REES | 6 | 15 | 80 | 6 | □ | 870-3 |
| V-SS-XPM-EDN | 6 | 15 | 85 | 5 | ● | 778 |
| V-SS-XPM-EMS | 6 | 15 | 85 | 5 | ● | 796 |
| LN-EDN-OH | 6 | 15 | 85 | 8 | □ | 823-27 |
| EX-REEN | 6 | 16 | 60 | 6 | ● | 853 |
| EX-TIN-RENF | 6 | 16 | 60 | 6 | ● | 851 |
| TFGN | 6 | 16 | 60 | 6 | ● | 865 |
| VP-RENF | 6 | 16 | 80 | 6 | ● | 850 |
| WH-REEN | 6 | 16 | 80 | 6 | ● | 852 |
| WH-RENF | 6 | 16 | 80 | 6 | ● | 850 |
| CPM-STD | 6 | 18 | 73 | 12 | □ | 823-5 |
| CC-EMN | 6 | 20 | 65 | 8 | □ | 823-17 |
| EX-REE-3F | 6 | 20 | 68 | 6 | □ | 870-6 |
| EX-XLS-REE | 6 | 20 | 150 | 6 | □ | 870-7 |
| LS-EMSS | 6 | 20 | 150 | 6 | □ | 823-11 |
| EX-REEL | 6 | 24 | 68 | 6 | ● | 857 |
| EX-TIN-RELF | 6 | 24 | 68 | 6 | □ | 856 |
| AL-EDL | 6 | 25 | 60 | 8 | □ | 823-7 |
| CC-EML | 6 | 25 | 60 | 8 | ● | 815 |
| EDL | 6 | 25 | 60 | 8 | ● | 789 |
| EX-TIN-EDL | 6 | 25 | 60 | 8 | ● | 787 |
| EX-TIN-EML | 6 | 25 | 60 | 8 | ● | 814 |
| AL-EOL | 6 | 25 | 75 | 8 | □ | 823-21 |
| TIN-XPM-EDL | 6 | 25 | 75 | 8 | □ | 823-9 |
| V-XPM-EDL | 6 | 25 | 75 | 8 | ● | 785 |
| V-XPM-EML | 6 | 25 | 75 | 8 | ● | 812 |
| XPM-EDL | 6 | 25 | 75 | 8 | ● | 786 |
| XPM-EML | 6 | 25 | 75 | 8 | ● | 813 |
| TIN-XPM-EHL | 6 × 3F | 25 | 75 | 8 | ● | 822 |
| V-XPM-EHL | 6 × 3F | 25 | 75 | 8 | ● | 821 |
| XPM-EHL | 6 × 3F | 25 | 75 | 8 | ● | 823 |
| REEL | 6 | 30 | 75 | 6 | □ | 870-9 |
| EX-REXL | 6 | 30 | 80 | 6 | □ | 858 |
| CPM-XLS-EDS | 6 | 30 | 150 | 6 | □ | 823-2 |
| XLS-EDS | 6 | 30 | 150 | 6 | □ | 823-1 |
| XLS-EMS | 6 | 30 | 150 | 6 | □ | 823-12 |
| ETXL | 6 | 40 | 80 | 8 | □ | 823-11 |
| EXDL | 6 | 40 | 80 | 8 | ● | 792 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EXML | 6 | 40 | 80 | 8 | ● | 819 |
| EX-TIN-ETXL | 6 | 40 | 80 | 8 | □ | 823-10 |
| EX-TIN-EXDL | 6 | 40 | 80 | 8 | □ | 823-6 |
| EX-TIN-EXML | 6 | 40 | 80 | 8 | □ | 823-19 |
| EX-REXL | 6 | 40 | 90 | 6 | □ | 858 |
| EXDL | 6 | 50 | 90 | 8 | □ | 792 |
| EXML | 6 | 50 | 90 | 8 | □ | 819 |
| EDS | 6.05 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.05 | 14 | 70 | 10 | □ | 754 |
| EDS | 6.1 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 6.1 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 6.1 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 6.1 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 6.1 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 6.1 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 6.1 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 6.1 | 20 | 75 | 10 | □ | 797 |
| EDN | 6.1 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 6.1 | 35 | 75 | 10 | □ | 815 |
| EDL | 6.1 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.1 | 35 | 75 | 10 | ● | 787 |
| EDS | 6.15 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.15 | 14 | 70 | 10 | □ | 754 |
| EDS | 6.2 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 6.2 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 6.2 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 6.2 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 6.2 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 6.2 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 6.2 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 6.2 | 20 | 75 | 10 | □ | 797 |
| EDN | 6.2 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 6.2 | 35 | 75 | 10 | □ | 815 |
| EDL | 6.2 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.2 | 35 | 75 | 10 | ● | 787 |
| EDS | 6.25 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.25 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 6.3 | 14 | 60 | 10 | □ | 774 |
| EDS | 6.3 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 6.3 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 6.3 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 6.3 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 6.3 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 6.3 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 6.3 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 6.3 | 20 | 75 | 10 | □ | 797 |
| EDN | 6.3 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 6.3 | 35 | 75 | 10 | □ | 815 |
| EDL | 6.3 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.3 | 35 | 75 | 10 | ● | 787 |
| EDS | 6.35 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.35 | 14 | 70 | 10 | □ | 754 |
| EDS | 6.4 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 6.4 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 6.4 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 6.4 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 6.4 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 6.4 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 6.4 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 6.4 | 20 | 75 | 10 | □ | 797 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDN | 6.4 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 6.4 | 35 | 75 | 10 | □ | 815 |
| EDL | 6.4 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.4 | 35 | 75 | 10 | ● | 787 |
| EDS | 6.45 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.45 | 14 | 70 | 10 | □ | 754 |
| AL-EDS | 6.5 | 14 | 60 | 10 | ● | 776 |
| CPM-EDS | 6.5 | 14 | 60 | 10 | □ | 774 |
| EDS | 6.5 | 14 | 60 | 10 | ● | 767 |
| ETS | 6.5 | 14 | 60 | 10 | ● | 794 |
| EX-TIN-EDS | 6.5 | 14 | 60 | 10 | ● | 761 |
| EX-TIN-ETS | 6.5 | 14 | 60 | 10 | □ | 823-10 |
| SUS-EDS | 6.5 | 14 | 60 | 10 | ● | 777 |
| V-XPM-EDS | 6.5 | 14 | 70 | 10 | ● | 754 |
| XPM-EDS | 6.5 | 14 | 70 | 10 | ● | 757 |
| CPM-EDN | 6.5 | 20 | 60 | 8 | □ | 823-5 |
| CPM-STDN | 6.5 | 20 | 60 | 8 | ● | 784 |
| EDN | 6.5 | 20 | 60 | 8 | □ | 783 |
| CC-EMS | 6.5 | 20 | 60 | 10 | ● | 805 |
| CPM-EDN | 6.5 | 20 | 60 | 10 | □ | 823-5 |
| EDN | 6.5 | 20 | 60 | 10 | ● | 783 |
| EX-TIN-EDN | 6.5 | 20 | 60 | 10 | ● | 782 |
| EX-TIN-EMS | 6.5 | 20 | 60 | 10 | ● | 802 |
| TIN-XPM-EMS | 6.5 | 20 | 75 | 10 | □ | 823-14 |
| V-XPM-EDN | 6.5 | 20 | 75 | 10 | ● | 778 |
| V-XPM-EMS | 6.5 | 20 | 75 | 10 | ● | 795 |
| XPM-EDN | 6.5 | 20 | 75 | 10 | ● | 780 |
| XPM-EMS | 6.5 | 20 | 75 | 10 | ● | 797 |
| LN-EDN-OH | 6.5 | 20 | 100 | 10 | □ | 823-27 |
| CC-EMN | 6.5 | 25 | 65 | 10 | □ | 823-17 |
| CC-EML | 6.5 | 35 | 75 | 10 | □ | 815 |
| CPM-EDL | 6.5 | 35 | 75 | 10 | □ | 823-8 |
| EDL | 6.5 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.5 | 35 | 75 | 10 | ● | 787 |
| EX-TIN-EML | 6.5 | 35 | 75 | 10 | □ | 814 |
| XPM-EDL | 6.5 | 35 | 95 | 10 | □ | 786 |
| EDS | 6.55 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.55 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 6.6 | 14 | 60 | 10 | □ | 774 |
| EDS | 6.6 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 6.6 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 6.6 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 6.6 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 6.6 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 6.6 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 6.6 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 6.6 | 20 | 75 | 10 | □ | 797 |
| EDN | 6.6 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 6.6 | 35 | 75 | 10 | □ | 815 |
| EDL | 6.6 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.6 | 35 | 75 | 10 | ● | 787 |
| EDS | 6.65 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.65 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 6.7 | 14 | 60 | 10 | □ | 774 |
| EDS | 6.7 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 6.7 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 6.7 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 6.7 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 6.7 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 6.7 | 20 | 60 | 10 | □ | 802 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから



＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDN | 6.7 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 6.7 | 20 | 75 | 10 | □ | 797 |
| EDN | 6.7 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 6.7 | 35 | 75 | 10 | □ | 815 |
| EDL | 6.7 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.7 | 35 | 75 | 10 | ● | 787 |
| EDS | 6.75 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.75 | 14 | 70 | 10 | □ | 754 |
| EDS | 6.8 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 6.8 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 6.8 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 6.8 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 6.8 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 6.8 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 6.8 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 6.8 | 20 | 75 | 10 | □ | 797 |
| EDN | 6.8 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 6.8 | 35 | 75 | 10 | □ | 815 |
| EDL | 6.8 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.8 | 35 | 75 | 10 | ● | 787 |
| EDS | 6.85 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.85 | 14 | 70 | 10 | □ | 754 |
| EDS | 6.9 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 6.9 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 6.9 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 6.9 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 6.9 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 6.9 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 6.9 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 6.9 | 20 | 75 | 10 | □ | 797 |
| EDN | 6.9 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 6.9 | 35 | 75 | 10 | □ | 815 |
| EDL | 6.9 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 6.9 | 35 | 75 | 10 | ● | 787 |
| EDS | 6.95 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 6.95 | 14 | 70 | 10 | □ | 754 |
| WH-NC-EDSS | 7 | 6 | 60 | 6 | □ | 823-3 |
| WH-NC-EMSS | 7 | 6 | 60 | 6 | □ | 823-16 |
| EKD | 7 | 10 | 60 | 10 | ● | 773 |
| EKD | 7 | 10 | 60 | 10 | ● | 773 |
| EX-TIN-EKD | 7 | 10 | 60 | 10 | ● | 765 |
| V-XPM-EKD | 7 | 10 | 60 | 10 | ● | 756 |
| LN-CPM-EDS | 7 | 10 | 98 | 10 | □ | 823-27 |
| AL-EDS | 7 | 14 | 60 | 10 | ● | 776 |
| CPM-EDS | 7 | 14 | 60 | 10 | □ | 774 |
| EDS | 7 | 14 | 60 | 10 | ● | 767 |
| ETS | 7 | 14 | 60 | 10 | ● | 794 |
| EX-TIN-EDS | 7 | 14 | 60 | 10 | ● | 761 |
| EX-TIN-ETS | 7 | 14 | 60 | 10 | □ | 823-10 |
| MR-EDS | 7 | 14 | 60 | 10 | □ | 823-3 |
| SUS-EDS | 7 | 14 | 60 | 10 | ● | 777 |
| V-XPM-EDS | 7 | 14 | 70 | 10 | ● | 754 |
| XPM-EDS | 7 | 14 | 70 | 10 | ● | 757 |
| CPM-LS-RESF | 7 | 14 | 80 | 8 | □ | 870-2 |
| EX-LS-RESF | 7 | 14 | 80 | 8 | ● | 847 |
| TIN-LS-RESF | 7 | 14 | 80 | 8 | ● | 846 |
| TLS-XPM-RESF | 7 | 14 | 80 | 8 | □ | 844 |
| VLS-XPM-RESF | 7 | 14 | 80 | 8 | ● | 841 |
| VP-RESF | 7 | 14 | 80 | 8 | ● | 840 |
| EX-REES | 7 | 16 | 66 | 10 | ● | 848 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-RESF | 7 | 16 | 66 | 10 | ● | 845 |
| TFGS | 7 | 16 | 66 | 10 | ● | 859 |
| EX-LS-REES | 7 | 16 | 80 | 8 | ● | 849 |
| SI-WH-RESF | 7 | 16 | 80 | 10 | □ | 838 |
| WH-REES | 7 | 16 | 80 | 10 | ● | 839 |
| WH-RESF | 7 | 16 | 80 | 10 | ● | 839 |
| CPM-STD | 7 | 18 | 73 | 12 | □ | 823-5 |
| REES | 7 | 20 | 56 | 8 | □ | 870-3 |
| RFES | 7 | 20 | 56 | 8 | ● | 862 |
| CPM-EDN | 7 | 20 | 60 | 8 | □ | 823-5 |
| CPM-STDN | 7 | 20 | 60 | 8 | ● | 784 |
| EDN | 7 | 20 | 60 | 8 | □ | 783 |
| CC-EMS | 7 | 20 | 60 | 10 | ● | 805 |
| CPM-EDN | 7 | 20 | 60 | 10 | □ | 823-5 |
| EDN | 7 | 20 | 60 | 10 | ● | 783 |
| EX-TIN-EDN | 7 | 20 | 60 | 10 | ● | 782 |
| EX-TIN-EMS | 7 | 20 | 60 | 10 | ● | 802 |
| MR-EMS | 7 | 20 | 60 | 10 | □ | 823-13 |
| EX-REEN | 7 | 20 | 70 | 10 | ● | 853 |
| EX-TIN-RENF | 7 | 20 | 70 | 10 | ● | 851 |
| TFGN | 7 | 20 | 70 | 10 | ● | 865 |
| TFN | 7 | 20 | 70 | 10 | □ | 866 |
| CPM-EHS | 7 | 20 | 75 | 10 | □ | 823-22 |
| TIN-XPM-EDN | 7 | 20 | 75 | 10 | □ | 779 |
| TIN-XPM-EMS | 7 | 20 | 75 | 10 | □ | 823-14 |
| V-XPM-EDN | 7 | 20 | 75 | 10 | ● | 778 |
| V-XPM-EMS | 7 | 20 | 75 | 10 | ● | 795 |
| V-XPM-NHS | 7 | 20 | 75 | 10 | ● | 859 |
| XPM-EDN | 7 | 20 | 75 | 10 | ● | 780 |
| XPM-EMS | 7 | 20 | 75 | 10 | ● | 797 |
| TIN-XPM-EHS | 7 × 3F | 20 | 75 | 10 | ● | 822 |
| V-XPM-EHS | 7 × 3F | 20 | 75 | 10 | ● | 821 |
| XPM-EHS | 7 × 3F | 20 | 75 | 10 | ● | 823 |
| LS-REES | 7 | 20 | 80 | 8 | □ | 870-3 |
| VP-RENF | 7 | 20 | 80 | 8 | ● | 850 |
| WH-REEN | 7 | 20 | 80 | 10 | ● | 852 |
| WH-RENF | 7 | 20 | 80 | 10 | ● | 850 |
| LN-EDN-OH | 7 | 20 | 100 | 10 | □ | 823-27 |
| LS-EMSS | 7 | 20 | 150 | 6 | □ | 823-11 |
| CC-EMN | 7 | 25 | 65 | 10 | □ | 823-17 |
| EX-REE-3F | 7 | 25 | 80 | 10 | □ | 870-6 |
| EX-REEL | 7 | 30 | 80 | 10 | ● | 857 |
| EX-TIN-RELF | 7 | 30 | 80 | 10 | □ | 856 |
| TFL | 7 | 30 | 80 | 10 | □ | 870-14 |
| AL-EDL | 7 | 35 | 75 | 10 | □ | 823-7 |
| CC-EML | 7 | 35 | 75 | 10 | ● | 815 |
| CPM-EDL | 7 | 35 | 75 | 10 | □ | 823-8 |
| EDL | 7 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7 | 35 | 75 | 10 | ● | 787 |
| EX-TIN-EML | 7 | 35 | 75 | 10 | ● | 814 |
| TIN-XPM-EHL | 7 × 3F | 35 | 90 | 10 | ● | 822 |
| V-XPM-EHL | 7 × 3F | 35 | 90 | 10 | ● | 821 |
| XPM-EHL | 7 × 3F | 35 | 90 | 10 | ● | 823 |
| V-XPM-EDL | 7 | 35 | 95 | 10 | ● | 785 |
| V-XPM-EML | 7 | 35 | 95 | 10 | ● | 812 |
| XPM-EDL | 7 | 35 | 95 | 10 | ● | 786 |
| XPM-EML | 7 | 35 | 95 | 10 | ● | 813 |
| CPM-XLS-EDS | 7 | 35 | 150 | 6 | □ | 823-2 |
| XLS-EDS | 7 | 35 | 150 | 6 | □ | 823-1 |
| XLS-EMS | 7 | 35 | 150 | 6 | □ | 823-12 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| ETXL | 7 | 40 | 80 | 10 | □ | 823-11 |
| EX-TIN-ETXL | 7 | 40 | 80 | 10 | □ | 823-10 |
| REEL | 7 | 40 | 85 | 8 | □ | 870-9 |
| EX-REXL | 7 | 40 | 90 | 8 | □ | 858 |
| EXDL | 7 | 45 | 90 | 10 | ● | 792 |
| EX-TIN-EXDL | 7 | 45 | 90 | 10 | □ | 823-6 |
| EXDL | 7 | 50 | 90 | 10 | □ | 792 |
| EXML | 7 | 50 | 95 | 10 | ● | 819 |
| EX-TIN-EXML | 7 | 50 | 95 | 10 | □ | 823-19 |
| EX-REXL | 7 | 50 | 100 | 8 | □ | 858 |
| EXDL | 7 | 60 | 100 | 10 | □ | 792 |
| EXML | 7 | 60 | 100 | 10 | □ | 819 |
| EDS | 7.05 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.05 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 7.1 | 14 | 60 | 10 | □ | 774 |
| EDS | 7.1 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 7.1 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 7.1 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 7.1 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 7.1 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 7.1 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 7.1 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 7.1 | 20 | 75 | 10 | □ | 797 |
| EDN | 7.1 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 7.1 | 35 | 75 | 10 | □ | 815 |
| EDL | 7.1 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.1 | 35 | 75 | 10 | ● | 787 |
| EDS | 7.15 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.15 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 7.2 | 14 | 60 | 10 | □ | 774 |
| EDS | 7.2 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 7.2 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 7.2 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 7.2 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 7.2 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 7.2 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 7.2 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 7.2 | 20 | 75 | 10 | □ | 797 |
| EDN | 7.2 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 7.2 | 35 | 75 | 10 | □ | 815 |
| EDL | 7.2 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.2 | 35 | 75 | 10 | ● | 787 |
| EDS | 7.25 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.25 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 7.3 | 14 | 60 | 10 | □ | 774 |
| EDS | 7.3 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 7.3 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 7.3 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 7.3 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 7.3 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 7.3 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 7.3 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 7.3 | 20 | 75 | 10 | □ | 797 |
| EDN | 7.3 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 7.3 | 35 | 75 | 10 | □ | 815 |
| EDL | 7.3 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.3 | 35 | 75 | 10 | ● | 787 |
| EDS | 7.35 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.35 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 7.4 | 14 | 60 | 10 | □ | 774 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDS | 7.4 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 7.4 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 7.4 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 7.4 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 7.4 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 7.4 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 7.4 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 7.4 | 20 | 75 | 10 | □ | 797 |
| EDN | 7.4 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 7.4 | 35 | 75 | 10 | □ | 815 |
| EDL | 7.4 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.4 | 35 | 75 | 10 | ● | 787 |
| EDS | 7.45 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.45 | 14 | 70 | 10 | □ | 754 |
| AL-EDS | 7.5 | 14 | 60 | 10 | ● | 776 |
| CPM-EDS | 7.5 | 14 | 60 | 10 | □ | 774 |
| EDS | 7.5 | 14 | 60 | 10 | ● | 767 |
| ETS | 7.5 | 14 | 60 | 10 | ● | 794 |
| EX-TIN-EDS | 7.5 | 14 | 60 | 10 | ● | 761 |
| EX-TIN-ETS | 7.5 | 14 | 60 | 10 | □ | 823-10 |
| SUS-EDS | 7.5 | 14 | 60 | 10 | ● | 777 |
| V-XPM-EDS | 7.5 | 14 | 70 | 10 | ● | 754 |
| XPM-EDS | 7.5 | 14 | 70 | 10 | ● | 757 |
| CPM-EDN | 7.5 | 20 | 60 | 8 | □ | 823-5 |
| CPM-STDN | 7.5 | 20 | 60 | 8 | ● | 784 |
| EDN | 7.5 | 20 | 60 | 8 | □ | 783 |
| CC-EMS | 7.5 | 20 | 60 | 10 | ● | 805 |
| CPM-EDN | 7.5 | 20 | 60 | 10 | □ | 823-5 |
| EDN | 7.5 | 20 | 60 | 10 | ● | 783 |
| EX-TIN-EDN | 7.5 | 20 | 60 | 10 | ● | 782 |
| EX-TIN-EMS | 7.5 | 20 | 60 | 10 | ● | 802 |
| V-XPM-EDN | 7.5 | 20 | 75 | 10 | ● | 778 |
| V-XPM-EMS | 7.5 | 20 | 75 | 10 | ● | 795 |
| XPM-EDN | 7.5 | 20 | 75 | 10 | ● | 780 |
| XPM-EMS | 7.5 | 20 | 75 | 10 | ● | 797 |
| LN-EDN-OH | 7.5 | 20 | 100 | 10 | □ | 823-27 |
| CC-EMN | 7.5 | 25 | 65 | 10 | □ | 823-17 |
| CC-EML | 7.5 | 35 | 75 | 10 | □ | 815 |
| CPM-EDL | 7.5 | 35 | 75 | 10 | □ | 823-8 |
| EDL | 7.5 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.5 | 35 | 75 | 10 | ● | 787 |
| EX-TIN-EML | 7.5 | 35 | 75 | 10 | □ | 814 |
| XPM-EDL | 7.5 | 35 | 95 | 10 | □ | 786 |
| EDS | 7.55 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.55 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 7.6 | 14 | 60 | 10 | □ | 774 |
| EDS | 7.6 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 7.6 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 7.6 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 7.6 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 7.6 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 7.6 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 7.6 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 7.6 | 20 | 75 | 10 | □ | 797 |
| EDN | 7.6 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 7.6 | 35 | 75 | 10 | □ | 815 |
| EDL | 7.6 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.6 | 35 | 75 | 10 | ● | 787 |
| EDS | 7.65 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.65 | 14 | 70 | 10 | □ | 754 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-EDS | 7.7 | 14 | 60 | 10 | □ | 774 |
| EDS | 7.7 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 7.7 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 7.7 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 7.7 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 7.7 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 7.7 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 7.7 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 7.7 | 20 | 75 | 10 | □ | 797 |
| EDN | 7.7 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 7.7 | 35 | 75 | 10 | □ | 815 |
| EDL | 7.7 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.7 | 35 | 75 | 10 | ● | 787 |
| EDS | 7.75 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.75 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 7.8 | 14 | 60 | 10 | □ | 774 |
| EDS | 7.8 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 7.8 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 7.8 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 7.8 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 7.8 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 7.8 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 7.8 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 7.8 | 20 | 75 | 10 | □ | 797 |
| EDN | 7.8 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 7.8 | 35 | 75 | 10 | □ | 815 |
| EDL | 7.8 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.8 | 35 | 75 | 10 | ● | 787 |
| EDS | 7.85 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.85 | 14 | 70 | 10 | □ | 754 |
| CPM-EDS | 7.9 | 14 | 60 | 10 | □ | 774 |
| EDS | 7.9 | 14 | 60 | 10 | ● | 767 |
| EX-TIN-EDS | 7.9 | 14 | 60 | 10 | ● | 761 |
| V-XPM-EDS | 7.9 | 14 | 70 | 10 | □ | 754 |
| XPM-EDS | 7.9 | 14 | 70 | 10 | ● | 757 |
| CC-EMS | 7.9 | 20 | 60 | 10 | □ | 805 |
| EX-TIN-EMS | 7.9 | 20 | 60 | 10 | □ | 802 |
| XPM-EDN | 7.9 | 20 | 75 | 10 | □ | 780 |
| XPM-EMS | 7.9 | 20 | 75 | 10 | □ | 797 |
| EDN | 7.9 | 25 | 65 | 8 | □ | 783 |
| CC-EML | 7.9 | 35 | 75 | 10 | □ | 815 |
| EDL | 7.9 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 7.9 | 35 | 75 | 10 | ● | 787 |
| EDS | 7.95 | 14 | 60 | 10 | □ | 767 |
| V-XPM-EDS | 7.95 | 14 | 70 | 10 | □ | 754 |
| WH-NC-EDSS | 8 | 6 | 60 | 6 | □ | 823-3 |
| WH-NC-EMSS | 8 | 6 | 60 | 6 | □ | 823-16 |
| WH-NC-RESF | 8 | 6 | 60 | 6 | □ | 870-2 |
| LN-CPM-EDS | 8 | 11 | 108 | 10 | □ | 823-27 |
| EKD | 8 | 12 | 60 | 10 | ● | 773 |
| EKD | 8 | 12 | 60 | 10 | ● | 773 |
| EX-TIN-EKD | 8 | 12 | 60 | 10 | ● | 765 |
| V-XPM-EKD | 8 | 12 | 60 | 10 | ● | 756 |
| AL-EDS | 8 | 14 | 60 | 10 | ● | 776 |
| CPM-EDS | 8 | 14 | 60 | 10 | □ | 774 |
| EDS | 8 | 14 | 60 | 10 | ● | 767 |
| ETS | 8 | 14 | 60 | 10 | ● | 794 |
| EX-TIN-EDS | 8 | 14 | 60 | 10 | ● | 761 |
| EX-TIN-ETS | 8 | 14 | 60 | 10 | □ | 823-10 |
| MR-EDS | 8 | 14 | 60 | 10 | □ | 823-3 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| SUS-EDS | 8 | 14 | 60 | 10 | ● | 777 |
| TIN-XPM-EDS | 8 | 14 | 70 | 10 | □ | 823-4 |
| V-XPM-EDS | 8 | 14 | 70 | 10 | ● | 754 |
| XPM-EDS | 8 | 14 | 70 | 10 | ● | 757 |
| CPM-LS-RESF | 8 | 17 | 85 | 8 | □ | 870-2 |
| EX-LS-RESF | 8 | 17 | 85 | 8 | ● | 847 |
| TIN-LS-RESF | 8 | 17 | 85 | 8 | ● | 846 |
| VLS-XPM-RESF | 8 | 17 | 85 | 8 | ● | 841 |
| VP-RESF | 8 | 17 | 85 | 8 | ● | 840 |
| CPM-STD | 8 | 18 | 73 | 12 | □ | 823-5 |
| EX-REES | 8 | 19 | 69 | 10 | ● | 848 |
| EX-TIN-RESF | 8 | 19 | 69 | 10 | ● | 845 |
| TFGS | 8 | 19 | 69 | 10 | ● | 859 |
| EX-LS-REES | 8 | 19 | 85 | 8 | ● | 849 |
| LS-TFS | 8 | 19 | 85 | 8 | □ | 870-13 |
| SI-WH-RESF | 8 | 19 | 85 | 10 | ● | 838 |
| WH-REES | 8 | 19 | 85 | 10 | ● | 839 |
| WH-RESF | 8 | 19 | 85 | 10 | ● | 839 |
| CPM-EDN | 8 | 20 | 60 | 8 | □ | 823-5 |
| CPM-STDN | 8 | 20 | 60 | 8 | ● | 784 |
| EDN | 8 | 20 | 60 | 8 | □ | 783 |
| CC-EMS | 8 | 20 | 60 | 10 | ● | 805 |
| CPM-EDN | 8 | 20 | 60 | 10 | □ | 823-5 |
| CPM-EMS | 8 | 20 | 60 | 10 | □ | 811 |
| EDN | 8 | 20 | 60 | 10 | ● | 783 |
| EX-TIN-EDN | 8 | 20 | 60 | 10 | ● | 782 |
| EX-TIN-EMS | 8 | 20 | 60 | 10 | ● | 802 |
| MR-EMS | 8 | 20 | 60 | 10 | □ | 823-13 |
| REES | 8 | 20 | 63 | 8 | □ | 870-3 |
| RFES | 8 | 20 | 63 | 8 | ● | 862 |
| AL-EOS | 8 | 20 | 75 | 8 | □ | 823-21 |
| TIN-XPM-EMS | 8 | 20 | 75 | 10 | □ | 823-14 |
| V-XPM-EDN | 8 | 20 | 75 | 10 | ● | 778 |
| V-XPM-EMS | 8 | 20 | 75 | 10 | ● | 795 |
| V-XPM-NHS | 8 | 20 | 75 | 10 | ● | 859 |
| XPM-EDN | 8 | 20 | 75 | 10 | ● | 780 |
| XPM-EMS | 8 | 20 | 75 | 10 | ● | 797 |
| TIN-XPM-EHS | 8 × 3F | 20 | 75 | 10 | ● | 822 |
| V-XPM-EHS | 8 × 3F | 20 | 75 | 10 | ● | 821 |
| XPM-EHS | 8 × 3F | 20 | 75 | 10 | ● | 823 |
| V-XPM-EHS | 8 × 4F | 20 | 75 | 10 | ● | 821 |
| DE-XPM-EDN | 8 | 20 | 80 | 6 | ● | 781 |
| DE-XPM-EMS | 8 | 20 | 80 | 6 | ● | 801 |
| LS-REES | 8 | 20 | 90 | 8 | □ | 870-3 |
| LS-RFES | 8 | 20 | 90 | 8 | ● | 863 |
| V-SS-XPM-EDN | 8 | 20 | 95 | 7 | ● | 778 |
| V-SS-XPM-EMS | 8 | 20 | 95 | 7 | ● | 796 |
| LN-EDN-OH | 8 | 20 | 110 | 10 | □ | 823-27 |
| DE-XPM-EDN | 8 | 20 | 125 | 6 | ● | 781 |
| DE-XPM-EMS | 8 | 20 | 125 | 6 | ● | 801 |
| EX-XLS-REE | 8 | 20 | 150 | 8 | □ | 870-7 |
| LS-EMSS | 8 | 20 | 150 | 8 | □ | 823-11 |
| CC-EMN | 8 | 25 | 65 | 10 | □ | 823-17 |
| EX-REEN | 8 | 25 | 75 | 10 | ● | 853 |
| EX-TIN-RENF | 8 | 25 | 75 | 10 | ● | 851 |
| TFGN | 8 | 25 | 75 | 10 | ● | 865 |
| VP-RENF | 8 | 25 | 85 | 8 | ● | 850 |
| WH-REEN | 8 | 25 | 85 | 10 | ● | 852 |
| WH-RENF | 8 | 25 | 85 | 10 | ● | 850 |
| EX-REE-3F | 8 | 30 | 88 | 10 | □ | 870-6 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AL-EDL | 8 | 35 | 75 | 10 | □ | 823-7 |
| CC-EML | 8 | 35 | 75 | 10 | ● | 815 |
| EDL | 8 | 35 | 75 | 10 | ● | 789 |
| EX-TIN-EDL | 8 | 35 | 75 | 10 | ● | 787 |
| EX-TIN-EML | 8 | 35 | 75 | 10 | ● | 814 |
| AL-EOL | 8 | 35 | 85 | 8 | □ | 823-21 |
| TIN-XPM-EHL | 8 × 3F | 35 | 90 | 10 | ● | 822 |
| V-XPM-EHL | 8 × 3F | 35 | 90 | 10 | ● | 821 |
| XPM-EHL | 8 × 3F | 35 | 90 | 10 | ● | 823 |
| TIN-XPM-EML | 8 | 35 | 95 | 10 | □ | 823-15 |
| V-XPM-EDL | 8 | 35 | 95 | 10 | ● | 785 |
| V-XPM-EML | 8 | 35 | 95 | 10 | ● | 812 |
| XPM-EDL | 8 | 35 | 95 | 10 | ● | 786 |
| XPM-EML | 8 | 35 | 95 | 10 | ● | 813 |
| CPM-XLS-EDS | 8 | 35 | 150 | 8 | □ | 823-2 |
| XLS-EDS | 8 | 35 | 150 | 8 | □ | 823-1 |
| XLS-EMS | 8 | 35 | 150 | 8 | □ | 823-12 |
| EX-REEL | 8 | 38 | 88 | 10 | ● | 857 |
| EX-TIN-RELF | 8 | 38 | 88 | 10 | □ | 856 |
| TFL | 8 | 38 | 88 | 10 | □ | 870-14 |
| REEL | 8 | 40 | 85 | 8 | □ | 870-9 |
| EX-REXL | 8 | 45 | 100 | 8 | □ | 858 |
| ETXL | 8 | 50 | 90 | 10 | □ | 823-11 |
| EXML | 8 | 50 | 90 | 10 | □ | 819 |
| EX-TIN-ETXL | 8 | 50 | 90 | 10 | □ | 823-10 |
| EXDL | 8 | 50 | 95 | 10 | ● | 792 |
| EX-TIN-EXDL | 8 | 50 | 95 | 10 | □ | 823-6 |
| EXDL | 8 | 60 | 100 | 10 | □ | 792 |
| EXML | 8 | 60 | 105 | 10 | ● | 819 |
| EX-TIN-EXML | 8 | 60 | 105 | 10 | □ | 823-19 |
| EX-TIN-REXL | 8 | 60 | 110 | 8 | □ | 870-8 |
| EX-REXL | 8 | 60 | 120 | 8 | □ | 858 |
| EXDL | 8 | 80 | 120 | 10 | □ | 792 |
| EXML | 8 | 80 | 120 | 10 | □ | 819 |
| EDS | 8.05 | 18 | 70 | 10 | □ | 767 |
| V-XPM-EDS | 8.05 | 18 | 75 | 10 | □ | 754 |
| EDS | 8.1 | 18 | 70 | 10 | ● | 767 |
| EX-TIN-EDS | 8.1 | 18 | 70 | 10 | ● | 761 |
| V-XPM-EDS | 8.1 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 8.1 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.1 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 8.1 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 8.1 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 8.1 | 25 | 80 | 10 | □ | 780 |
| EDN | 8.1 | 30 | 75 | 10 | □ | 783 |
| CC-EML | 8.1 | 45 | 90 | 10 | □ | 815 |
| EDL | 8.1 | 45 | 90 | 10 | ● | 789 |
| EX-TIN-EDL | 8.1 | 45 | 90 | 10 | ● | 787 |
| EDS | 8.15 | 18 | 70 | 10 | □ | 767 |
| V-XPM-EDS | 8.15 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 8.2 | 18 | 70 | 10 | □ | 775 |
| EDS | 8.2 | 18 | 70 | 10 | ● | 767 |
| EX-TIN-EDS | 8.2 | 18 | 70 | 10 | ● | 761 |
| V-XPM-EDS | 8.2 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 8.2 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.2 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 8.2 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 8.2 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 8.2 | 25 | 80 | 10 | □ | 780 |
| EDN | 8.2 | 30 | 75 | 10 | □ | 783 |
| CC-EML | 8.2 | 45 | 90 | 10 | □ | 815 |
| EDL | 8.2 | 45 | 90 | 10 | ● | 789 |
| EX-TIN-EDL | 8.2 | 45 | 90 | 10 | ● | 787 |
| EDS | 8.25 | 18 | 70 | 10 | □ | 767 |
| V-XPM-EDS | 8.25 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 8.3 | 18 | 70 | 10 | □ | 775 |
| EDS | 8.3 | 18 | 70 | 10 | ● | 767 |
| EX-TIN-EDS | 8.3 | 18 | 70 | 10 | ● | 761 |
| V-XPM-EDS | 8.3 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 8.3 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.3 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 8.3 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 8.3 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 8.3 | 25 | 80 | 10 | □ | 780 |
| EDN | 8.3 | 30 | 75 | 10 | □ | 783 |
| CC-EML | 8.3 | 45 | 90 | 10 | □ | 815 |
| EDL | 8.3 | 45 | 90 | 10 | ● | 789 |
| EX-TIN-EDL | 8.3 | 45 | 90 | 10 | ● | 787 |
| EDS | 8.35 | 18 | 70 | 10 | □ | 767 |
| V-XPM-EDS | 8.35 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 8.4 | 18 | 70 | 10 | □ | 775 |
| EDS | 8.4 | 18 | 70 | 10 | ● | 767 |
| EX-TIN-EDS | 8.4 | 18 | 70 | 10 | ● | 761 |
| V-XPM-EDS | 8.4 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 8.4 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.4 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 8.4 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 8.4 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 8.4 | 25 | 80 | 10 | □ | 780 |
| EDN | 8.4 | 30 | 75 | 10 | □ | 783 |
| CC-EML | 8.4 | 45 | 90 | 10 | □ | 815 |
| EDL | 8.4 | 45 | 90 | 10 | ● | 789 |
| EX-TIN-EDL | 8.4 | 45 | 90 | 10 | ● | 787 |
| EDS | 8.45 | 18 | 70 | 10 | □ | 767 |
| V-XPM-EDS | 8.45 | 18 | 75 | 10 | □ | 754 |
| AL-EDS | 8.5 | 18 | 70 | 10 | ● | 776 |
| CPM-EDS | 8.5 | 18 | 70 | 10 | □ | 775 |
| EDS | 8.5 | 18 | 70 | 10 | ● | 767 |
| ETS | 8.5 | 18 | 70 | 10 | ● | 794 |
| EX-TIN-EDS | 8.5 | 18 | 70 | 10 | ● | 761 |
| EX-TIN-ETS | 8.5 | 18 | 70 | 10 | □ | 823-10 |
| SUS-EDS | 8.5 | 18 | 70 | 10 | ● | 777 |
| V-XPM-EDS | 8.5 | 18 | 75 | 10 | ● | 754 |
| XPM-EDS | 8.5 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.5 | 25 | 70 | 10 | ● | 805 |
| CPM-EDN | 8.5 | 25 | 70 | 10 | □ | 823-5 |
| CPM-STDN | 8.5 | 25 | 70 | 10 | ● | 784 |
| EDN | 8.5 | 25 | 70 | 10 | ● | 783 |
| EX-TIN-EDN | 8.5 | 25 | 70 | 10 | ● | 782 |
| EX-TIN-EMS | 8.5 | 25 | 70 | 10 | ● | 802 |
| V-XPM-EMS | 8.5 | 25 | 75 | 10 | ● | 795 |
| XPM-EMS | 8.5 | 25 | 75 | 10 | ● | 797 |
| V-XPM-EDN | 8.5 | 25 | 80 | 10 | ● | 778 |
| XPM-EDN | 8.5 | 25 | 80 | 10 | ● | 780 |
| LN-EDN-OH | 8.5 | 25 | 110 | 10 | □ | 823-27 |
| CC-EMN | 8.5 | 35 | 80 | 10 | □ | 823-17 |
| CC-EML | 8.5 | 45 | 90 | 10 | □ | 815 |
| CPM-EDL | 8.5 | 45 | 90 | 10 | □ | 823-8 |
| EDL | 8.5 | 45 | 90 | 10 | ● | 789 |
| EX-TIN-EDL | 8.5 | 45 | 90 | 10 | ● | 787 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EML | 8.5 | 45 | 90 | 10 | □ | 814 |
| XPM-EDL | 8.5 | 45 | 100 | 10 | □ | 786 |
| EDS | 8.55 | 18 | 70 | 10 | □ | 767 |
| V-XPM-EDS | 8.55 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 8.6 | 18 | 70 | 10 | □ | 775 |
| EDS | 8.6 | 18 | 70 | 10 | ● | 767 |
| EX-TIN-EDS | 8.6 | 18 | 70 | 10 | ● | 761 |
| V-XPM-EDS | 8.6 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 8.6 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.6 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 8.6 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 8.6 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 8.6 | 25 | 80 | 10 | □ | 780 |
| EDN | 8.6 | 30 | 75 | 10 | □ | 783 |
| CC-EML | 8.6 | 45 | 90 | 10 | □ | 815 |
| EDL | 8.6 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 8.6 | 45 | 90 | 10 | ● | 787 |
| EDS | 8.65 | 18 | 70 | 10 | □ | 767 |
| V-XPM-EDS | 8.65 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 8.7 | 18 | 70 | 10 | □ | 775 |
| EDS | 8.7 | 18 | 70 | 10 | ● | 767 |
| EX-TIN-EDS | 8.7 | 18 | 70 | 10 | ● | 761 |
| V-XPM-EDS | 8.7 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 8.7 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.7 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 8.7 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 8.7 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 8.7 | 25 | 80 | 10 | □ | 780 |
| EDN | 8.7 | 30 | 75 | 10 | □ | 783 |
| CC-EML | 8.7 | 45 | 90 | 10 | □ | 815 |
| EDL | 8.7 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 8.7 | 45 | 90 | 10 | ● | 787 |
| EDS | 8.75 | 18 | 70 | 10 | □ | 767 |
| V-XPM-EDS | 8.75 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 8.8 | 18 | 70 | 10 | □ | 775 |
| EDS | 8.8 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 8.8 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 8.8 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 8.8 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.8 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 8.8 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 8.8 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 8.8 | 25 | 80 | 10 | □ | 780 |
| EDN | 8.8 | 30 | 75 | 10 | □ | 783 |
| CC-EML | 8.8 | 45 | 90 | 10 | □ | 815 |
| EDL | 8.8 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 8.8 | 45 | 90 | 10 | ● | 788 |
| EDS | 8.85 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 8.85 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 8.9 | 18 | 70 | 10 | □ | 775 |
| EDS | 8.9 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 8.9 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 8.9 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 8.9 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 8.9 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 8.9 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 8.9 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 8.9 | 25 | 80 | 10 | □ | 780 |
| EDN | 8.9 | 30 | 75 | 10 | □ | 783 |
| CC-EML | 8.9 | 45 | 90 | 10 | □ | 815 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDL | 8.9 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 8.9 | 45 | 90 | 10 | ● | 788 |
| EDS | 8.95 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 8.95 | 18 | 75 | 10 | □ | 754 |
| LN-CPM-EDS | 9 | 11 | 108 | 10 | □ | 823-27 |
| EKD | 9 | 12 | 65 | 10 | ● | 773 |
| EKD | 9 | 12 | 65 | 10 | ● | 773 |
| EX-TIN-EKD | 9 | 12 | 65 | 10 | ● | 765 |
| V-XPM-EKD | 9 | 12 | 65 | 10 | ● | 756 |
| AL-EDS | 9 | 18 | 70 | 10 | ● | 776 |
| CPM-EDS | 9 | 18 | 70 | 10 | □ | 775 |
| EDS | 9 | 18 | 70 | 10 | ● | 768 |
| ETS | 9 | 18 | 70 | 10 | ● | 794 |
| EX-TIN-EDS | 9 | 18 | 70 | 10 | ● | 762 |
| EX-TIN-ETS | 9 | 18 | 70 | 10 | □ | 823-10 |
| MR-EDS | 9 | 18 | 70 | 10 | □ | 823-3 |
| SUS-EDS | 9 | 18 | 70 | 10 | ● | 777 |
| V-XPM-EDS | 9 | 18 | 75 | 10 | ● | 754 |
| XPM-EDS | 9 | 18 | 75 | 10 | ● | 757 |
| EX-REES | 9 | 19 | 69 | 10 | ● | 848 |
| EX-TIN-RESF | 9 | 19 | 69 | 10 | ● | 845 |
| TFGS | 9 | 19 | 69 | 10 | ● | 859 |
| TFS | 9 | 19 | 69 | 10 | □ | 860 |
| CPM-STD | 9 | 19 | 73 | 12 | □ | 823-5 |
| EX-LS-REES | 9 | 19 | 95 | 10 | ● | 849 |
| EX-LS-RESF | 9 | 19 | 95 | 10 | ● | 847 |
| LS-TFS | 9 | 19 | 95 | 10 | □ | 870-13 |
| SI-WH-RESF | 9 | 19 | 95 | 10 | □ | 838 |
| TIN-LS-RESF | 9 | 19 | 95 | 10 | □ | 846 |
| VLS-XPM-RESF | 9 | 19 | 95 | 10 | □ | 841 |
| VP-RESF | 9 | 19 | 95 | 10 | □ | 840 |
| WH-REES | 9 | 19 | 95 | 10 | ● | 839 |
| WH-RESF | 9 | 19 | 95 | 10 | ● | 839 |
| LS-EMSS | 9 | 20 | 150 | 8 | □ | 823-11 |
| CC-EMS | 9 | 25 | 70 | 10 | ● | 805 |
| CPM-EDN | 9 | 25 | 70 | 10 | □ | 823-5 |
| CPM-STDN | 9 | 25 | 70 | 10 | ● | 784 |
| EDN | 9 | 25 | 70 | 10 | ● | 783 |
| EX-TIN-EDN | 9 | 25 | 70 | 10 | ● | 782 |
| EX-TIN-EMS | 9 | 25 | 70 | 10 | ● | 802 |
| MR-EMS | 9 | 25 | 70 | 10 | □ | 823-13 |
| EX-REEN | 9 | 25 | 75 | 10 | ● | 853 |
| EX-TIN-RENF | 9 | 25 | 75 | 10 | ● | 851 |
| TFGN | 9 | 25 | 75 | 10 | ● | 865 |
| V-XPM-EMS | 9 | 25 | 75 | 10 | ● | 795 |
| XPM-EMS | 9 | 25 | 75 | 10 | ● | 797 |
| CPM-EHS | 9 | 25 | 80 | 10 | □ | 823-22 |
| V-XPM-EDN | 9 | 25 | 80 | 10 | ● | 778 |
| V-XPM-NHS | 9 | 25 | 80 | 10 | ● | 859 |
| XPM-EDN | 9 | 25 | 80 | 10 | ● | 780 |
| TIN-XPM-EHS | 9 × 3F | 25 | 80 | 10 | ● | 822 |
| V-XPM-EHS | 9 × 3F | 25 | 80 | 10 | ● | 821 |
| XPM-EHS | 9 × 3F | 25 | 80 | 10 | ● | 823 |
| WH-REEN | 9 | 25 | 85 | 10 | ● | 852 |
| WH-RENF | 9 | 25 | 85 | 10 | ● | 850 |
| LS-REES | 9 | 25 | 90 | 8 | □ | 870-3 |
| DE-XPM-EDN | 9 | 25 | 100 | 8 | ● | 781 |
| DE-XPM-EMS | 9 | 25 | 100 | 8 | ● | 801 |
| LN-EDN-OH | 9 | 25 | 110 | 10 | □ | 823-27 |
| DE-XPM-EDN | 9 | 25 | 150 | 8 | ● | 781 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DE-XPM-EMS | 9 | 25 | 150 | 8 | ● | 801 |
| CC-EMN | 9 | 35 | 80 | 10 | □ | 823-17 |
| EX-REEL | 9 | 38 | 88 | 10 | ● | 857 |
| EX-TIN-RELF | 9 | 38 | 88 | 10 | □ | 856 |
| TFL | 9 | 38 | 88 | 10 | □ | 870-14 |
| CPM-XLS-EDS | 9 | 40 | 150 | 8 | □ | 823-2 |
| XLS-EDS | 9 | 40 | 150 | 8 | □ | 823-1 |
| XLS-EMS | 9 | 40 | 150 | 8 | □ | 823-12 |
| AL-EDL | 9 | 45 | 90 | 10 | □ | 823-7 |
| CC-EML | 9 | 45 | 90 | 10 | ● | 815 |
| EDL | 9 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9 | 45 | 90 | 10 | ● | 788 |
| EX-TIN-EML | 9 | 45 | 90 | 10 | ● | 814 |
| V-XPM-EDL | 9 | 45 | 100 | 10 | ● | 785 |
| V-XPM-EML | 9 | 45 | 100 | 10 | ● | 812 |
| XPM-EDL | 9 | 45 | 100 | 10 | ● | 786 |
| XPM-EML | 9 | 45 | 100 | 10 | ● | 813 |
| TIN-XPM-EHL | 9 × 3F | 45 | 100 | 10 | ● | 822 |
| V-XPM-EHL | 9 × 3F | 45 | 100 | 10 | ● | 821 |
| XPM-EHL | 9 × 3F | 45 | 100 | 10 | ● | 823 |
| ETXL | 9 | 50 | 90 | 10 | □ | 823-11 |
| EX-TIN-ETXL | 9 | 50 | 90 | 10 | □ | 823-10 |
| REEL | 9 | 50 | 100 | 10 | □ | 870-9 |
| EX-REXL | 9 | 50 | 110 | 10 | □ | 858 |
| EXDL | 9 | 55 | 100 | 10 | ● | 792 |
| EX-TIN-EXDL | 9 | 55 | 100 | 10 | □ | 823-6 |
| EXDL | 9 | 60 | 105 | 10 | □ | 792 |
| EXML | 9 | 60 | 105 | 10 | ● | 819 |
| EX-TIN-EXML | 9 | 60 | 105 | 10 | □ | 823-19 |
| EX-REXL | 9 | 60 | 120 | 10 | □ | 858 |
| EDS | 9.05 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.05 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 9.1 | 18 | 70 | 10 | □ | 775 |
| EDS | 9.1 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 9.1 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 9.1 | 18 | 75 | 10 | □ | 754 |
| XPM-EDS | 9.1 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.1 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 9.1 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 9.1 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 9.1 | 25 | 80 | 10 | □ | 780 |
| EDN | 9.1 | 35 | 80 | 10 | □ | 783 |
| CC-EML | 9.1 | 45 | 90 | 10 | □ | 815 |
| EDL | 9.1 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.1 | 45 | 90 | 10 | ● | 788 |
| EDS | 9.15 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.15 | 18 | 75 | 10 | □ | 754 |
| CPM-EDS | 9.2 | 18 | 70 | 10 | □ | 775 |
| EDS | 9.2 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 9.2 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 9.2 | 18 | 75 | 10 | □ | 755 |
| XPM-EDS | 9.2 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.2 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 9.2 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 9.2 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 9.2 | 25 | 80 | 10 | □ | 780 |
| EDN | 9.2 | 35 | 80 | 10 | □ | 783 |
| CC-EML | 9.2 | 45 | 90 | 10 | □ | 815 |
| EDL | 9.2 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.2 | 45 | 90 | 10 | ● | 788 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDS | 9.25 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.25 | 18 | 75 | 10 | □ | 755 |
| CPM-EDS | 9.3 | 18 | 70 | 10 | □ | 775 |
| EDS | 9.3 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 9.3 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 9.3 | 18 | 75 | 10 | □ | 755 |
| XPM-EDS | 9.3 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.3 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 9.3 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 9.3 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 9.3 | 25 | 80 | 10 | □ | 780 |
| EDN | 9.3 | 35 | 80 | 10 | □ | 783 |
| CC-EML | 9.3 | 45 | 90 | 10 | □ | 815 |
| EDL | 9.3 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.3 | 45 | 90 | 10 | ● | 788 |
| EDS | 9.35 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.35 | 18 | 75 | 10 | □ | 755 |
| CPM-EDS | 9.4 | 18 | 70 | 10 | □ | 775 |
| EDS | 9.4 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 9.4 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 9.4 | 18 | 75 | 10 | □ | 755 |
| XPM-EDS | 9.4 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.4 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 9.4 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 9.4 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 9.4 | 25 | 80 | 10 | □ | 780 |
| EDN | 9.4 | 35 | 80 | 10 | □ | 783 |
| CC-EML | 9.4 | 45 | 90 | 10 | □ | 815 |
| EDL | 9.4 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.4 | 45 | 90 | 10 | ● | 788 |
| EDS | 9.45 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.45 | 18 | 75 | 10 | □ | 755 |
| AL-EDS | 9.5 | 18 | 70 | 10 | ● | 776 |
| CPM-EDS | 9.5 | 18 | 70 | 10 | □ | 775 |
| EDS | 9.5 | 18 | 70 | 10 | ● | 768 |
| ETS | 9.5 | 18 | 70 | 10 | ● | 794 |
| EX-TIN-EDS | 9.5 | 18 | 70 | 10 | ● | 762 |
| EX-TIN-ETS | 9.5 | 18 | 70 | 10 | □ | 823-10 |
| SUS-EDS | 9.5 | 18 | 70 | 10 | ● | 777 |
| V-XPM-EDS | 9.5 | 18 | 75 | 10 | ● | 755 |
| XPM-EDS | 9.5 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.5 | 25 | 70 | 10 | ● | 805 |
| CPM-EDN | 9.5 | 25 | 70 | 10 | □ | 823-5 |
| CPM-STDN | 9.5 | 25 | 70 | 10 | ● | 784 |
| EDN | 9.5 | 25 | 70 | 10 | ● | 783 |
| EX-TIN-EDN | 9.5 | 25 | 70 | 10 | ● | 782 |
| EX-TIN-EMS | 9.5 | 25 | 70 | 10 | ● | 802 |
| V-XPM-EMS | 9.5 | 25 | 75 | 10 | ● | 795 |
| XPM-EMS | 9.5 | 25 | 75 | 10 | ● | 797 |
| V-XPM-EDN | 9.5 | 25 | 80 | 10 | ● | 778 |
| XPM-EDN | 9.5 | 25 | 80 | 10 | ● | 780 |
| LN-EDN-OH | 9.5 | 25 | 110 | 10 | □ | 823-27 |
| CC-EMN | 9.5 | 35 | 80 | 10 | □ | 823-17 |
| CC-EML | 9.5 | 45 | 90 | 10 | □ | 815 |
| CPM-EDL | 9.5 | 45 | 90 | 10 | □ | 823-8 |
| EDL | 9.5 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.5 | 45 | 90 | 10 | ● | 788 |
| EX-TIN-EML | 9.5 | 45 | 90 | 10 | □ | 814 |
| XPM-EDL | 9.5 | 45 | 100 | 10 | □ | 786 |
| EDS | 9.55 | 18 | 70 | 10 | □ | 768 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EDS | 9.55 | 18 | 75 | 10 | □ | 755 |
| CPM-EDS | 9.6 | 18 | 70 | 10 | □ | 775 |
| EDS | 9.6 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 9.6 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 9.6 | 18 | 75 | 10 | □ | 755 |
| XPM-EDS | 9.6 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.6 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 9.6 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 9.6 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 9.6 | 25 | 80 | 10 | □ | 780 |
| EDN | 9.6 | 35 | 80 | 10 | □ | 783 |
| CC-EML | 9.6 | 45 | 90 | 10 | □ | 815 |
| EDL | 9.6 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.6 | 45 | 90 | 10 | ● | 788 |
| EDS | 9.65 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.65 | 18 | 75 | 10 | □ | 755 |
| CPM-EDS | 9.7 | 18 | 70 | 10 | □ | 775 |
| EDS | 9.7 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 9.7 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 9.7 | 18 | 75 | 10 | □ | 755 |
| XPM-EDS | 9.7 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.7 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 9.7 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 9.7 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 9.7 | 25 | 80 | 10 | □ | 780 |
| EDN | 9.7 | 35 | 80 | 10 | □ | 783 |
| CC-EML | 9.7 | 45 | 90 | 10 | □ | 815 |
| EDL | 9.7 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.7 | 45 | 90 | 10 | ● | 788 |
| EDS | 9.75 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.75 | 18 | 75 | 10 | □ | 755 |
| EDS | 9.8 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 9.8 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 9.8 | 18 | 75 | 10 | □ | 755 |
| XPM-EDS | 9.8 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.8 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 9.8 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 9.8 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 9.8 | 25 | 80 | 10 | □ | 780 |
| EDN | 9.8 | 35 | 80 | 10 | □ | 783 |
| CC-EML | 9.8 | 45 | 90 | 10 | □ | 815 |
| EDL | 9.8 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.8 | 45 | 90 | 10 | ● | 788 |
| EDS | 9.85 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.85 | 18 | 75 | 10 | □ | 755 |
| CPM-EDS | 9.9 | 18 | 70 | 10 | □ | 775 |
| EDS | 9.9 | 18 | 70 | 10 | ● | 768 |
| EX-TIN-EDS | 9.9 | 18 | 70 | 10 | ● | 762 |
| V-XPM-EDS | 9.9 | 18 | 75 | 10 | □ | 755 |
| XPM-EDS | 9.9 | 18 | 75 | 10 | ● | 757 |
| CC-EMS | 9.9 | 25 | 70 | 10 | □ | 805 |
| EX-TIN-EMS | 9.9 | 25 | 70 | 10 | □ | 802 |
| XPM-EMS | 9.9 | 25 | 75 | 10 | □ | 797 |
| XPM-EDN | 9.9 | 25 | 80 | 10 | □ | 780 |
| EDN | 9.9 | 35 | 80 | 10 | □ | 783 |
| CC-EML | 9.9 | 45 | 90 | 10 | □ | 815 |
| EDL | 9.9 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 9.9 | 45 | 90 | 10 | ● | 788 |
| EDS | 9.95 | 18 | 70 | 10 | □ | 768 |
| V-XPM-EDS | 9.95 | 18 | 75 | 10 | □ | 755 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WH-NC-EDSS | 10 | 6 | 60 | 10 | □ | 823-3 |
| WH-NC-EMSS | 10 | 6 | 60 | 10 | □ | 823-16 |
| WH-NC-RESF | 10 | 6 | 60 | 10 | □ | 870-2 |
| LN-CPM-EDS | 10 | 13 | 120 | 10 | □ | 823-27 |
| EKD | 10 | 15 | 65 | 10 | ● | 773 |
| EKD | 10 | 15 | 65 | 10 | ● | 773 |
| EX-TIN-EKD | 10 | 15 | 65 | 10 | ● | 765 |
| V-XPM-EKD | 10 | 15 | 65 | 10 | ● | 756 |
| AL-EDS | 10 | 18 | 70 | 10 | ● | 776 |
| CPM-EDS | 10 | 18 | 70 | 10 | □ | 775 |
| EDS | 10 | 18 | 70 | 10 | ● | 768 |
| ETS | 10 | 18 | 70 | 10 | ● | 794 |
| EX-TIN-EDS | 10 | 18 | 70 | 10 | ● | 762 |
| EX-TIN-ETS | 10 | 18 | 70 | 10 | □ | 823-10 |
| MR-EDS | 10 | 18 | 70 | 10 | □ | 823-3 |
| SUS-EDS | 10 | 18 | 70 | 10 | ● | 777 |
| V-XPM-EDS | 10 | 18 | 75 | 10 | ● | 755 |
| XPM-EDS | 10 | 18 | 75 | 10 | ● | 757 |
| CPM-STD | 10 | 19 | 73 | 12 | □ | 823-5 |
| EX-REES | 10 | 22 | 72 | 10 | ● | 848 |
| EX-TIN-RESF | 10 | 22 | 72 | 10 | ● | 845 |
| TFGS | 10 | 22 | 72 | 10 | ● | 859 |
| TFS | 10 | 22 | 72 | 10 | □ | 860 |
| VSS-XPM-RESF | 10 | 22 | 100 | 9 | ● | 842 |
| CPM-LS-RESF | 10 | 22 | 100 | 10 | □ | 870-2 |
| EX-LS-REES | 10 | 22 | 100 | 10 | ● | 849 |
| EX-LS-RESF | 10 | 22 | 100 | 10 | ● | 847 |
| SI-WH-RESF | 10 | 22 | 100 | 10 | ● | 838 |
| TIN-LS-RESF | 10 | 22 | 100 | 10 | ● | 846 |
| TLS-XPM-RESF | 10 | 22 | 100 | 10 | □ | 844 |
| VLS-XPM-RESF | 10 | 22 | 100 | 10 | ● | 841 |
| VP-RESF | 10 | 22 | 100 | 10 | ● | 840 |
| WH-REES | 10 | 22 | 100 | 10 | ● | 839 |
| WH-RESF | 10 | 22 | 100 | 10 | ● | 839 |
| CC-EMS | 10 | 25 | 70 | 10 | ● | 805 |
| CPM-EDN | 10 | 25 | 70 | 10 | □ | 823-5 |
| CPM-STDN | 10 | 25 | 70 | 10 | ● | 784 |
| EDN | 10 | 25 | 70 | 10 | ● | 783 |
| EX-TIN-EDN | 10 | 25 | 70 | 10 | ● | 782 |
| EX-TIN-EMS | 10 | 25 | 70 | 10 | ● | 802 |
| MR-EMS | 10 | 25 | 70 | 10 | □ | 823-13 |
| REES | 10 | 25 | 70 | 10 | □ | 870-3 |
| RFES | 10 | 25 | 70 | 10 | ● | 862 |
| V-XPM-EMS | 10 | 25 | 75 | 10 | ● | 795 |
| XPM-EMS | 10 | 25 | 75 | 10 | ● | 797 |
| VPS-EMS | 10 × 6F | 25 | 75 | 10 | ● | 796 |
| VPS-EMS | 10 × 6F | 25 | 75 | 10 | ● | 837 |
| AL-EOS | 10 | 25 | 80 | 10 | □ | 823-21 |
| TIN-XPM-EDN | 10 | 25 | 80 | 10 | □ | 779 |
| V-XPM-EDN | 10 | 25 | 80 | 10 | ● | 778 |
| XPM-EDN | 10 | 25 | 80 | 10 | ● | 780 |
| V-XPM-NHS | 10 | 25 | 90 | 12 | ● | 859 |
| TIN-XPM-EHS | 10 × 3F | 25 | 90 | 12 | ● | 822 |
| V-XPM-EHS | 10 × 3F | 25 | 90 | 12 | ● | 821 |
| XPM-EHS | 10 × 3F | 25 | 90 | 12 | ● | 823 |
| V-XPM-EHS | 10 × 4F | 25 | 90 | 12 | ● | 821 |
| DE-XPM-EDN | 10 | 25 | 100 | 8 | ● | 781 |
| DE-XPM-EMS | 10 | 25 | 100 | 8 | ● | 801 |
| V-SS-XPM-EDN | 10 | 25 | 100 | 9 | ● | 778 |
| V-SS-XPM-EMS | 10 | 25 | 100 | 9 | ● | 796 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| LS-REES | 10 | 25 | 100 | 10 | □ | 870-3 |
| LS-RFES | 10 | 25 | 100 | 10 | ● | 863 |
| LN-EDN-OH | 10 | 25 | 120 | 10 | □ | 823-27 |
| LS-EDN | 10 | 25 | 125 | 10 | ● | 784 |
| LS-EMS | 10 | 25 | 125 | 10 | ● | 810 |
| DE-XPM-EDN | 10 | 25 | 150 | 8 | ● | 781 |
| DE-XPM-EMS | 10 | 25 | 150 | 8 | ● | 801 |
| LS-EMSS | 10 | 25 | 200 | 10 | □ | 823-11 |
| EX-REE | 10 | 30 | 80 | 10 | □ | 870-5 |
| EX-TIN-REE | 10 | 30 | 80 | 10 | □ | 870-4 |
| REE | 10 | 30 | 80 | 10 | □ | 870-6 |
| RFE | 10 | 30 | 80 | 10 | □ | 868 |
| EX-XLS-REE | 10 | 30 | 200 | 10 | □ | 870-7 |
| EX-REEN | 10 | 32 | 82 | 10 | ● | 853 |
| EX-TIN-RENF | 10 | 32 | 82 | 10 | ● | 851 |
| TFGN | 10 | 32 | 82 | 10 | ● | 865 |
| VP-RENF | 10 | 32 | 100 | 10 | ● | 850 |
| WH-REEN | 10 | 32 | 100 | 10 | ● | 852 |
| WH-RENF | 10 | 32 | 100 | 10 | ● | 850 |
| CC-EMN | 10 | 35 | 80 | 10 | □ | 823-17 |
| EX-REE-3F | 10 | 35 | 95 | 10 | □ | 870-6 |
| AL-EOL | 10 | 40 | 95 | 10 | □ | 823-21 |
| CPM-XLS-EDS | 10 | 40 | 200 | 10 | □ | 823-2 |
| XLS-EDS | 10 | 40 | 200 | 10 | □ | 823-1 |
| XLS-EMS | 10 | 40 | 200 | 10 | □ | 823-12 |
| AL-EDL | 10 | 45 | 90 | 10 | □ | 823-7 |
| CC-EML | 10 | 45 | 90 | 10 | ● | 815 |
| EDL | 10 | 45 | 90 | 10 | ● | 790 |
| EX-TIN-EDL | 10 | 45 | 90 | 10 | ● | 788 |
| EX-TIN-EML | 10 | 45 | 90 | 10 | ● | 814 |
| EX-REEL | 10 | 45 | 95 | 10 | ● | 857 |
| EX-TIN-RELF | 10 | 45 | 95 | 10 | ● | 856 |
| TFL | 10 | 45 | 95 | 10 | □ | 870-14 |
| VP-RELF | 10 | 45 | 100 | 10 | ● | 855 |
| V-XPM-EDL | 10 | 45 | 100 | 10 | ● | 785 |
| V-XPM-EML | 10 | 45 | 100 | 10 | ● | 812 |
| WH-REEL | 10 | 45 | 100 | 10 | ● | 854 |
| WH-RELF | 10 | 45 | 100 | 10 | ● | 854 |
| XPM-EDL | 10 | 45 | 100 | 10 | ● | 786 |
| XPM-EML | 10 | 45 | 100 | 10 | ● | 813 |
| CPM-EHL | 10 | 45 | 110 | 12 | □ | 823-24 |
| TIN-XPM-EHL | 10 × 3F | 45 | 110 | 12 | ● | 822 |
| V-XPM-EHL | 10 × 3F | 45 | 110 | 12 | ● | 821 |
| XPM-EHL | 10 × 3F | 45 | 110 | 12 | ● | 823 |
| EX-TIN-LS-EDL | 10 | 45 | 125 | 10 | □ | 823-6 |
| LS-EDL | 10 | 45 | 125 | 10 | □ | 823-7 |
| LS-EML | 10 | 45 | 125 | 10 | ● | 818 |
| REEL | 10 | 50 | 100 | 10 | □ | 870-9 |
| EX-REXL | 10 | 50 | 120 | 10 | □ | 858 |
| EXDL | 10 | 60 | 105 | 10 | □ | 792 |
| EXML | 10 | 60 | 105 | 10 | □ | 819 |
| EX-TIN-REXL | 10 | 60 | 120 | 10 | □ | 870-8 |
| EX-REXL | 10 | 60 | 130 | 10 | □ | 858 |
| ETXL | 10 | 80 | 125 | 10 | □ | 823-11 |
| EXDL | 10 | 80 | 125 | 10 | ● | 792 |
| EXML | 10 | 80 | 125 | 10 | ● | 819 |
| EX-TIN-ETXL | 10 | 80 | 125 | 10 | □ | 823-10 |
| EX-TIN-EXDL | 10 | 80 | 125 | 10 | □ | 823-6 |
| EX-TIN-EXML | 10 | 80 | 125 | 10 | □ | 823-19 |
| EX-REXL | 10 | 80 | 140 | 10 | □ | 858 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-REXL | 10 | 80 | 140 | 10 | □ | 870-8 |
| EX-REXL | 10 | 100 | 160 | 10 | □ | 858 |
| EDS | 10.1 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.1 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 10.1 | 22 | 85 | 12 | □ | 757 |
| CC-EMS | 10.1 | 30 | 80 | 12 | □ | 805 |
| EX-TIN-EMS | 10.1 | 30 | 80 | 12 | □ | 802 |
| XPM-EMS | 10.1 | 30 | 90 | 12 | □ | 797 |
| XPM-EDN | 10.1 | 30 | 95 | 12 | □ | 780 |
| EDN | 10.1 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.1 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.1 | 55 | 105 | 12 | ● | 790 |
| EDS | 10.2 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.2 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 10.2 | 22 | 85 | 12 | □ | 757 |
| CC-EMS | 10.2 | 30 | 80 | 12 | □ | 805 |
| EX-TIN-EMS | 10.2 | 30 | 80 | 12 | □ | 802 |
| XPM-EMS | 10.2 | 30 | 90 | 12 | □ | 797 |
| XPM-EDN | 10.2 | 30 | 95 | 12 | □ | 780 |
| EDN | 10.2 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.2 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.2 | 55 | 105 | 12 | ● | 790 |
| EDS | 10.3 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.3 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 10.3 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 10.3 | 30 | 80 | 12 | □ | 805 |
| EX-TIN-EMS | 10.3 | 30 | 80 | 12 | □ | 802 |
| XPM-EMS | 10.3 | 30 | 90 | 12 | □ | 797 |
| XPM-EDN | 10.3 | 30 | 95 | 12 | □ | 780 |
| EDN | 10.3 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.3 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.3 | 55 | 105 | 12 | ● | 790 |
| EDS | 10.4 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.4 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 10.4 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 10.4 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 10.4 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 10.4 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 10.4 | 30 | 95 | 12 | □ | 780 |
| EDN | 10.4 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.4 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.4 | 55 | 105 | 12 | ● | 790 |
| CPM-EDS | 10.5 | 22 | 80 | 12 | □ | 775 |
| EDS | 10.5 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.5 | 22 | 80 | 12 | ● | 762 |
| SUS-EDS | 10.5 | 22 | 80 | 12 | □ | 777 |
| XPM-EDS | 10.5 | 22 | 85 | 12 | ● | 758 |
| CC-EMS | 10.5 | 30 | 80 | 12 | ● | 806 |
| EX-TIN-EMS | 10.5 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 10.5 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 10.5 | 30 | 95 | 12 | □ | 780 |
| LN-EDN-OH | 10.5 | 30 | 125 | 12 | □ | 823-27 |
| CC-EMN | 10.5 | 40 | 90 | 12 | □ | 823-17 |
| EDN | 10.5 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.5 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.5 | 55 | 105 | 12 | ● | 790 |
| EX-TIN-EDL | 10.5 | 55 | 105 | 12 | ● | 788 |
| EX-TIN-EML | 10.5 | 55 | 105 | 12 | □ | 814 |
| EDS | 10.6 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.6 | 22 | 80 | 12 | □ | 762 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDS | 10.6 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 10.6 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 10.6 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 10.6 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 10.6 | 30 | 95 | 12 | □ | 780 |
| EDN | 10.6 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.6 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.6 | 55 | 105 | 12 | ● | 790 |
| EDS | 10.7 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.7 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 10.7 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 10.7 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 10.7 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 10.7 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 10.7 | 30 | 95 | 12 | □ | 780 |
| EDN | 10.7 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.7 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.7 | 55 | 105 | 12 | ● | 790 |
| EDS | 10.8 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.8 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 10.8 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 10.8 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 10.8 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 10.8 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 10.8 | 30 | 95 | 12 | □ | 780 |
| EDN | 10.8 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.8 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.8 | 55 | 105 | 12 | ● | 790 |
| EDS | 10.9 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 10.9 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 10.9 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 10.9 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 10.9 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 10.9 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 10.9 | 30 | 95 | 12 | □ | 780 |
| EDN | 10.9 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 10.9 | 55 | 105 | 12 | □ | 815 |
| EDL | 10.9 | 55 | 105 | 12 | ● | 790 |
| EKD | 11 | 15 | 70 | 12 | ● | 773 |
| EKD | 11 | 15 | 70 | 12 | ● | 773 |
| EX-TIN-EKD | 11 | 15 | 70 | 12 | ● | 765 |
| V-XPM-EKD | 11 | 15 | 70 | 12 | ● | 756 |
| CPM-STD | 11 | 19 | 73 | 12 | □ | 823-5 |
| EX-REES | 11 | 22 | 79 | 12 | ● | 848 |
| EX-TIN-RESF | 11 | 22 | 79 | 12 | ● | 845 |
| TFGS | 11 | 22 | 79 | 12 | ● | 859 |
| TFS | 11 | 22 | 79 | 12 | □ | 860 |
| AL-EDS | 11 | 22 | 80 | 12 | ● | 776 |
| CPM-EDS | 11 | 22 | 80 | 12 | □ | 775 |
| EDS | 11 | 22 | 80 | 12 | ● | 768 |
| ETS | 11 | 22 | 80 | 12 | ● | 794 |
| EX-TIN-EDS | 11 | 22 | 80 | 12 | ● | 762 |
| EX-TIN-ETS | 11 | 22 | 80 | 12 | □ | 823-10 |
| MR-EDS | 11 | 22 | 80 | 12 | □ | 823-3 |
| SUS-EDS | 11 | 22 | 80 | 12 | ● | 777 |
| TIN-XPM-EDS | 11 | 22 | 85 | 12 | □ | 823-4 |
| V-XPM-EDS | 11 | 22 | 85 | 12 | ● | 755 |
| XPM-EDS | 11 | 22 | 85 | 12 | ● | 758 |
| EX-LS-REES | 11 | 22 | 105 | 12 | ● | 849 |
| EX-LS-RESF | 11 | 22 | 105 | 12 | ● | 847 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| SI-WH-RESF | 11 | 22 | 105 | 12 | □ | 838 |
| TIN-LS-RESF | 11 | 22 | 105 | 12 | □ | 846 |
| VLS-XPM-RESF | 11 | 22 | 105 | 12 | □ | 841 |
| VP-RESF | 11 | 22 | 105 | 12 | □ | 840 |
| WH-REES | 11 | 22 | 105 | 12 | ● | 839 |
| WH-RESF | 11 | 22 | 105 | 12 | ● | 839 |
| LS-EMSS | 11 | 25 | 200 | 10 | □ | 823-11 |
| CC-EMS | 11 | 30 | 80 | 12 | ● | 806 |
| CPM-EDN | 11 | 30 | 80 | 12 | □ | 823-5 |
| CPM-STDN | 11 | 30 | 80 | 12 | ● | 784 |
| EDN | 11 | 30 | 80 | 12 | ● | 783 |
| EX-TIN-EDN | 11 | 30 | 80 | 12 | ● | 782 |
| EX-TIN-EMS | 11 | 30 | 80 | 12 | ● | 803 |
| MR-EMS | 11 | 30 | 80 | 12 | □ | 823-13 |
| BKMS | 11 | 30 | 90 | 12 | □ | 863 |
| CPM-BKMS | 11 | 30 | 90 | 12 | □ | 870-15 |
| TIN-XPM-EMS | 11 | 30 | 90 | 12 | □ | 823-14 |
| V-XPM-EMS | 11 | 30 | 90 | 12 | ● | 795 |
| XPM-EMS | 11 | 30 | 90 | 12 | ● | 798 |
| CPM-EHS | 11 | 30 | 95 | 12 | □ | 823-22 |
| TIN-XPM-EDN | 11 | 30 | 95 | 12 | □ | 779 |
| V-XPM-EDN | 11 | 30 | 95 | 12 | ● | 778 |
| V-XPM-NHS | 11 | 30 | 95 | 12 | ● | 859 |
| XPM-EDN | 11 | 30 | 95 | 12 | ● | 780 |
| TIN-XPM-EHS | 11 × 3F | 30 | 95 | 12 | ● | 822 |
| V-XPM-EHS | 11 × 3F | 30 | 95 | 12 | ● | 821 |
| XPM-EHS | 11 × 3F | 30 | 95 | 12 | ● | 823 |
| LN-EDN-OH | 11 | 30 | 125 | 12 | □ | 823-27 |
| DE-XPM-EDN | 11 | 30 | 150 | 10 | ● | 781 |
| DE-XPM-EMS | 11 | 30 | 150 | 10 | ● | 801 |
| LS-EMS | 11 | 30 | 150 | 10 | ● | 810 |
| DE-XPM-EDN | 11 | 30 | 200 | 10 | ● | 781 |
| DE-XPM-EMS | 11 | 30 | 200 | 10 | ● | 801 |
| EX-REEN | 11 | 32 | 89 | 12 | ● | 853 |
| EX-TIN-RENF | 11 | 32 | 89 | 12 | ● | 851 |
| TFGN | 11 | 32 | 89 | 12 | ● | 865 |
| WH-REEN | 11 | 32 | 100 | 12 | ● | 852 |
| WH-RENF | 11 | 32 | 100 | 12 | ● | 850 |
| CC-EMN | 11 | 40 | 90 | 12 | □ | 823-17 |
| EX-REE | 11 | 40 | 90 | 12 | □ | 870-5 |
| EX-TIN-REE | 11 | 40 | 90 | 12 | □ | 870-4 |
| REE | 11 | 40 | 90 | 12 | □ | 870-6 |
| RFE | 11 | 40 | 90 | 12 | □ | 868 |
| EX-REEL | 11 | 45 | 102 | 12 | ● | 857 |
| EX-TIN-RELF | 11 | 45 | 102 | 12 | □ | 856 |
| CPM-XLS-EDS | 11 | 45 | 200 | 10 | □ | 823-2 |
| XLS-EDS | 11 | 45 | 200 | 10 | □ | 823-1 |
| XLS-EMS | 11 | 45 | 200 | 10 | □ | 823-12 |
| AL-EDL | 11 | 55 | 105 | 12 | □ | 823-7 |
| CC-EML | 11 | 55 | 105 | 12 | ● | 815 |
| EDL | 11 | 55 | 105 | 12 | ● | 790 |
| EX-TIN-EDL | 11 | 55 | 105 | 12 | ● | 788 |
| EX-TIN-EML | 11 | 55 | 105 | 12 | ● | 814 |
| TIN-XPM-EDL | 11 | 55 | 120 | 12 | □ | 823-9 |
| V-XPM-EDL | 11 | 55 | 120 | 12 | ● | 785 |
| V-XPM-EML | 11 | 55 | 120 | 12 | ● | 812 |
| XPM-EDL | 11 | 55 | 120 | 12 | ● | 786 |
| XPM-EML | 11 | 55 | 120 | 12 | ● | 813 |
| TIN-XPM-EHL | 11 × 3F | 55 | 120 | 12 | ● | 822 |
| V-XPM-EHL | 11 × 3F | 55 | 120 | 12 | ● | 821 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EHL | 11 × 3F | 55 | 120 | 12 | ● | 823 |
| REEL | 11 | 60 | 110 | 12 | □ | 870-9 |
| ETXL | 11 | 80 | 130 | 12 | □ | 823-11 |
| EXDL | 11 | 80 | 130 | 12 | □ | 792 |
| EXML | 11 | 80 | 130 | 12 | □ | 819 |
| EX-TIN-ETXL | 11 | 80 | 130 | 12 | □ | 823-10 |
| EDS | 11.1 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.1 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 11.1 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 11.1 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 11.1 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.1 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.1 | 30 | 95 | 12 | □ | 780 |
| EDN | 11.1 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.1 | 55 | 105 | 12 | □ | 815 |
| EDL | 11.1 | 55 | 105 | 12 | ● | 790 |
| EDS | 11.2 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.2 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 11.2 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 11.2 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 11.2 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.2 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.2 | 30 | 95 | 12 | □ | 780 |
| EDN | 11.2 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.2 | 55 | 105 | 12 | □ | 815 |
| EDL | 11.2 | 55 | 105 | 12 | ● | 790 |
| EDS | 11.3 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.3 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 11.3 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 11.3 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 11.3 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.3 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.3 | 30 | 95 | 12 | □ | 780 |
| EDN | 11.3 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.3 | 55 | 105 | 12 | □ | 815 |
| EDL | 11.3 | 55 | 105 | 12 | ● | 790 |
| EDS | 11.4 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.4 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 11.4 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 11.4 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 11.4 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.4 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.4 | 30 | 95 | 12 | □ | 780 |
| EDN | 11.4 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.4 | 55 | 105 | 12 | □ | 815 |
| EDL | 11.4 | 55 | 105 | 12 | ● | 790 |
| CPM-EDS | 11.5 | 22 | 80 | 12 | □ | 775 |
| EDS | 11.5 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.5 | 22 | 80 | 12 | ● | 762 |
| XPM-EDS | 11.5 | 22 | 85 | 12 | ● | 758 |
| CC-EMS | 11.5 | 30 | 80 | 12 | ● | 806 |
| EX-TIN-EMS | 11.5 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.5 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.5 | 30 | 95 | 12 | □ | 780 |
| LN-EDN-OH | 11.5 | 30 | 125 | 12 | □ | 823-27 |
| CC-EMN | 11.5 | 40 | 90 | 12 | □ | 823-17 |
| EDN | 11.5 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.5 | 55 | 105 | 12 | □ | 815 |
| EDL | 11.5 | 55 | 105 | 12 | ● | 790 |
| EX-TIN-EDL | 11.5 | 55 | 105 | 12 | ● | 788 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EML | 11.5 | 55 | 105 | 12 | □ | 814 |
| EDS | 11.6 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.6 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 11.6 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 11.6 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 11.6 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.6 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.6 | 30 | 95 | 12 | □ | 780 |
| EDN | 11.6 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.6 | 55 | 105 | 12 | □ | 816 |
| EDL | 11.6 | 55 | 105 | 12 | ● | 790 |
| EDS | 11.7 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.7 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 11.7 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 11.7 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 11.7 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.7 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.7 | 30 | 95 | 12 | □ | 780 |
| EDN | 11.7 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.7 | 55 | 105 | 12 | □ | 816 |
| EDL | 11.7 | 55 | 105 | 12 | ● | 790 |
| EDS | 11.8 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.8 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 11.8 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 11.8 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 11.8 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.8 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.8 | 30 | 95 | 12 | □ | 780 |
| EDN | 11.8 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.8 | 55 | 105 | 12 | □ | 816 |
| EDL | 11.8 | 55 | 105 | 12 | ● | 790 |
| EDS | 11.9 | 22 | 80 | 12 | ● | 768 |
| EX-TIN-EDS | 11.9 | 22 | 80 | 12 | □ | 762 |
| XPM-EDS | 11.9 | 22 | 85 | 12 | □ | 758 |
| CC-EMS | 11.9 | 30 | 80 | 12 | □ | 806 |
| EX-TIN-EMS | 11.9 | 30 | 80 | 12 | □ | 803 |
| XPM-EMS | 11.9 | 30 | 90 | 12 | □ | 798 |
| XPM-EDN | 11.9 | 30 | 95 | 12 | □ | 780 |
| EDN | 11.9 | 40 | 90 | 12 | □ | 783 |
| CC-EML | 11.9 | 55 | 105 | 12 | □ | 816 |
| EDL | 11.9 | 55 | 105 | 12 | ● | 790 |
| WH-NC-EDSS | 12 | 6 | 60 | 10 | □ | 823-3 |
| WH-NC-EMSS | 12 | 6 | 60 | 10 | □ | 823-16 |
| WH-NC-RESF | 12 | 6 | 60 | 10 | □ | 870-2 |
| EKD | 12 | 15 | 70 | 12 | ● | 773 |
| EKD | 12 | 15 | 70 | 12 | ● | 773 |
| EX-TIN-EKD | 12 | 15 | 70 | 12 | ● | 765 |
| V-XPM-EKD | 12 | 15 | 70 | 12 | ● | 756 |
| CPM-STD | 12 | 19 | 73 | 12 | □ | 823-5 |
| AL-EDS | 12 | 22 | 80 | 12 | ● | 776 |
| CPM-EDS | 12 | 22 | 80 | 12 | □ | 775 |
| EDS | 12 | 22 | 80 | 12 | ● | 768 |
| ETS | 12 | 22 | 80 | 12 | ● | 794 |
| EX-TIN-EDS | 12 | 22 | 80 | 12 | ● | 762 |
| EX-TIN-ETS | 12 | 22 | 80 | 12 | □ | 823-10 |
| MR-EDS | 12 | 22 | 80 | 12 | □ | 823-3 |
| SUS-EDS | 12 | 22 | 80 | 12 | ● | 777 |
| V-XPM-EDS | 12 | 22 | 85 | 12 | ● | 755 |
| XPM-EDS | 12 | 22 | 85 | 12 | ● | 758 |
| EX-REES | 12 | 26 | 83 | 12 | ● | 848 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-RESF | 12 | 26 | 83 | 12 | ● | 845 |
| TFGS | 12 | 26 | 83 | 12 | ● | 859 |
| TFS | 12 | 26 | 83 | 12 | □ | 860 |
| VSS-XPM-RESF | 12 | 26 | 110 | 11 | ● | 842 |
| CPM-LS-RESF | 12 | 26 | 110 | 12 | □ | 870-2 |
| EX-LS-REES | 12 | 26 | 110 | 12 | ● | 849 |
| EX-LS-RESF | 12 | 26 | 110 | 12 | ● | 847 |
| LS-TFS | 12 | 26 | 110 | 12 | □ | 870-13 |
| SI-WH-RESF | 12 | 26 | 110 | 12 | ● | 838 |
| TIN-LS-RESF | 12 | 26 | 110 | 12 | ● | 846 |
| TLS-XPM-RESF | 12 | 26 | 110 | 12 | □ | 844 |
| VLS-XPM-RESF | 12 | 26 | 110 | 12 | ● | 841 |
| VP-RESF | 12 | 26 | 110 | 12 | ● | 840 |
| WH-REES | 12 | 26 | 110 | 12 | ● | 839 |
| WH-RESF | 12 | 26 | 110 | 12 | ● | 839 |
| LS-BKMS | 12 | 26 | 150 | 12 | □ | 864 |
| CC-EMS | 12 | 30 | 80 | 12 | ● | 806 |
| CPM-EDN | 12 | 30 | 80 | 12 | □ | 823-5 |
| CPM-STDN | 12 | 30 | 80 | 12 | ● | 784 |
| EDN | 12 | 30 | 80 | 12 | ● | 783 |
| EX-TIN-EDN | 12 | 30 | 80 | 12 | ● | 782 |
| EX-TIN-EMS | 12 | 30 | 80 | 12 | ● | 803 |
| MR-EMS | 12 | 30 | 80 | 12 | □ | 823-13 |
| AL-EOS | 12 | 30 | 85 | 12 | □ | 823-21 |
| CPM-BKMS | 12 | 30 | 90 | 12 | □ | 870-15 |
| TIN-KFR | 12 | 30 | 90 | 12 | □ | 870-18 |
| TIN-XPM-EMS | 12 | 30 | 90 | 12 | □ | 823-14 |
| V-XPM-EMS | 12 | 30 | 90 | 12 | ● | 795 |
| XPM-EMS | 12 | 30 | 90 | 12 | ● | 798 |
| VPS-EMS | 12 × 6F | 30 | 90 | 12 | ● | 796 |
| VPS-EMS | 12 × 6F | 30 | 90 | 12 | ● | 837 |
| VPS-EMS | 12 × 10F | 30 | 90 | 12 | ● | 796 |
| VPS-EMS | 12 × 10F | 30 | 90 | 12 | ● | 837 |
| TIN-XPM-EDN | 12 | 30 | 95 | 12 | □ | 779 |
| V-XPM-EDN | 12 | 30 | 95 | 12 | ● | 778 |
| V-XPM-NHS | 12 | 30 | 95 | 12 | ● | 859 |
| XPM-EDN | 12 | 30 | 95 | 12 | ● | 780 |
| TIN-XPM-EHS | 12 × 3F | 30 | 95 | 12 | ● | 822 |
| V-XPM-EHS | 12 × 3F | 30 | 95 | 12 | ● | 821 |
| XPM-EHS | 12 × 3F | 30 | 95 | 12 | ● | 823 |
| V-XPM-EHS | 12 × 4F | 30 | 95 | 12 | ● | 821 |
| V-SS-XPM-EDN | 12 | 30 | 110 | 11 | ● | 778 |
| V-SS-XPM-EMS | 12 | 30 | 110 | 11 | ● | 796 |
| LN-EDN-OH | 12 | 30 | 140 | 12 | □ | 823-27 |
| DE-XPM-EDN | 12 | 30 | 150 | 10 | ● | 781 |
| DE-XPM-EMS | 12 | 30 | 150 | 10 | ● | 801 |
| LS-EDN | 12 | 30 | 150 | 12 | ● | 784 |
| LS-EMS | 12 | 30 | 150 | 12 | ● | 810 |
| DE-XPM-EDN | 12 | 30 | 200 | 10 | ● | 781 |
| DE-XPM-EMS | 12 | 30 | 200 | 10 | ● | 801 |
| EX-XLS-REE | 12 | 30 | 200 | 12 | □ | 870-7 |
| LS-EMSS | 12 | 30 | 200 | 12 | □ | 823-11 |
| REES | 12 | 32 | 80 | 12 | □ | 870-3 |
| RFES | 12 | 32 | 80 | 12 | ● | 862 |
| LS-REES | 12 | 32 | 115 | 12 | □ | 870-3 |
| LS-RFES | 12 | 32 | 115 | 12 | ● | 863 |
| CC-EMN | 12 | 40 | 90 | 12 | □ | 823-17 |
| CPM-REE | 12 | 40 | 90 | 12 | □ | 870-7 |
| CPM-RFE | 12 | 40 | 90 | 12 | □ | 870-17 |
| EX-REE | 12 | 40 | 90 | 12 | □ | 870-5 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-REE | 12 | 40 | 90 | 12 | □ | 870-4 |
| REE | 12 | 40 | 90 | 12 | □ | 870-6 |
| RFE | 12 | 40 | 90 | 12 | ● | 868 |
| EX-REEN | 12 | 40 | 97 | 12 | ● | 853 |
| EX-TIN-RENF | 12 | 40 | 97 | 12 | ● | 851 |
| TFGN | 12 | 40 | 97 | 12 | ● | 865 |
| TFN | 12 | 40 | 97 | 12 | □ | 866 |
| VP-RENF | 12 | 40 | 110 | 12 | ● | 850 |
| WH-REEN | 12 | 40 | 110 | 12 | ● | 852 |
| WH-RENF | 12 | 40 | 110 | 12 | ● | 850 |
| EX-REE-3F | 12 | 42 | 110 | 12 | □ | 870-6 |
| CPM-XLS-EDS | 12 | 45 | 200 | 12 | □ | 823-2 |
| XLS-EDS | 12 | 45 | 200 | 12 | □ | 823-1 |
| XLS-EMS | 12 | 45 | 200 | 12 | □ | 823-12 |
| AL-EOL | 12 | 50 | 105 | 12 | □ | 823-21 |
| EX-REEL | 12 | 53 | 110 | 12 | ● | 857 |
| EX-TIN-RELF | 12 | 53 | 110 | 12 | ● | 856 |
| REEM | 12 | 53 | 110 | 12 | □ | 870-5 |
| TFL | 12 | 53 | 110 | 12 | □ | 870-14 |
| VP-RELF | 12 | 53 | 110 | 12 | ● | 855 |
| WH-REEL | 12 | 53 | 110 | 12 | ● | 854 |
| WH-RELF | 12 | 53 | 110 | 12 | ● | 854 |
| AL-EDL | 12 | 55 | 105 | 12 | □ | 823-7 |
| CC-EML | 12 | 55 | 105 | 12 | ● | 816 |
| CPM-EDL | 12 | 55 | 105 | 12 | □ | 823-8 |
| EDL | 12 | 55 | 105 | 12 | ● | 790 |
| EX-TIN-EDL | 12 | 55 | 105 | 12 | ● | 788 |
| EX-TIN-EML | 12 | 55 | 105 | 12 | ● | 814 |
| BKML | 12 | 55 | 115 | 12 | □ | 870-16 |
| TIN-XPM-EML | 12 | 55 | 120 | 12 | □ | 823-15 |
| V-XPM-EDL | 12 | 55 | 120 | 12 | ● | 785 |
| V-XPM-EML | 12 | 55 | 120 | 12 | ● | 812 |
| XPM-EDL | 12 | 55 | 120 | 12 | ● | 786 |
| XPM-EML | 12 | 55 | 120 | 12 | ● | 813 |
| TIN-XPM-EHL | 12 × 3F | 55 | 120 | 12 | ● | 822 |
| V-XPM-EHL | 12 × 3F | 55 | 120 | 12 | ● | 821 |
| XPM-EHL | 12 × 3F | 55 | 120 | 12 | ● | 823 |
| EX-TIN-LS-EDL | 12 | 55 | 150 | 12 | □ | 823-6 |
| LS-EDL | 12 | 55 | 150 | 12 | □ | 823-7 |
| LS-EML | 12 | 55 | 150 | 12 | ● | 818 |
| REEL | 12 | 60 | 110 | 12 | □ | 870-9 |
| EX-REXL | 12 | 60 | 130 | 12 | □ | 858 |
| EXDL | 12 | 80 | 130 | 12 | □ | 792 |
| EXML | 12 | 80 | 130 | 12 | □ | 819 |
| EX-TIN-REXL | 12 | 80 | 145 | 12 | □ | 870-8 |
| EX-REXL | 12 | 80 | 150 | 12 | □ | 858 |
| ETXL | 12 | 100 | 150 | 12 | □ | 823-11 |
| EXDL | 12 | 100 | 150 | 12 | ● | 792 |
| EXML | 12 | 100 | 150 | 12 | ● | 819 |
| EX-TIN-ETXL | 12 | 100 | 150 | 12 | □ | 823-10 |
| EX-TIN-EXDL | 12 | 100 | 150 | 12 | □ | 823-6 |
| EX-TIN-EXML | 12 | 100 | 150 | 12 | □ | 823-19 |
| EX-REXL | 12 | 100 | 165 | 12 | □ | 858 |
| EX-TIN-REXL | 12 | 100 | 165 | 12 | □ | 870-8 |
| EDS | 12.1 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.1 | 26 | 85 | 12 | □ | 762 |
| XPM-EDS | 12.1 | 26 | 90 | 12 | □ | 758 |
| CC-EMS | 12.1 | 35 | 85 | 12 | □ | 806 |
| EX-TIN-EMS | 12.1 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.1 | 35 | 95 | 12 | □ | 798 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDN | 12.1 | 35 | 100 | 12 | □ | 780 |
| EDN | 12.1 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.1 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.1 | 55 | 105 | 12 | ● | 790 |
| EDS | 12.2 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.2 | 26 | 85 | 12 | □ | 762 |
| XPM-EDS | 12.2 | 26 | 90 | 12 | □ | 758 |
| CC-EMS | 12.2 | 35 | 85 | 12 | □ | 806 |
| EX-TIN-EMS | 12.2 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.2 | 35 | 95 | 12 | □ | 798 |
| XPM-EDN | 12.2 | 35 | 100 | 12 | □ | 780 |
| EDN | 12.2 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.2 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.2 | 55 | 105 | 12 | ● | 790 |
| EDS | 12.3 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.3 | 26 | 85 | 12 | □ | 762 |
| XPM-EDS | 12.3 | 26 | 90 | 12 | □ | 758 |
| CC-EMS | 12.3 | 35 | 85 | 12 | □ | 806 |
| EX-TIN-EMS | 12.3 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.3 | 35 | 95 | 12 | □ | 798 |
| XPM-EDN | 12.3 | 35 | 100 | 12 | □ | 780 |
| EDN | 12.3 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.3 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.3 | 55 | 105 | 12 | ● | 790 |
| EDS | 12.4 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.4 | 26 | 85 | 12 | □ | 762 |
| XPM-EDS | 12.4 | 26 | 90 | 12 | □ | 758 |
| CC-EMS | 12.4 | 35 | 85 | 12 | □ | 806 |
| EX-TIN-EMS | 12.4 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.4 | 35 | 95 | 12 | □ | 798 |
| XPM-EDN | 12.4 | 35 | 100 | 12 | □ | 780 |
| EDN | 12.4 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.4 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.4 | 55 | 105 | 12 | ● | 790 |
| CPM-EDS | 12.5 | 26 | 85 | 12 | □ | 775 |
| EDS | 12.5 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.5 | 26 | 85 | 12 | ● | 762 |
| XPM-EDS | 12.5 | 26 | 90 | 12 | ● | 758 |
| CC-EMS | 12.5 | 35 | 85 | 12 | ● | 806 |
| EX-TIN-EMS | 12.5 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.5 | 35 | 95 | 12 | □ | 798 |
| XPM-EDN | 12.5 | 35 | 100 | 12 | □ | 780 |
| CC-EMN | 12.5 | 45 | 95 | 12 | □ | 823-17 |
| EDN | 12.5 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.5 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.5 | 55 | 105 | 12 | ● | 790 |
| EX-TIN-EDL | 12.5 | 55 | 105 | 12 | ● | 788 |
| EX-TIN-EML | 12.5 | 55 | 105 | 12 | □ | 814 |
| EDS | 12.6 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.6 | 26 | 85 | 12 | □ | 762 |
| XPM-EDS | 12.6 | 26 | 90 | 12 | □ | 758 |
| CC-EMS | 12.6 | 35 | 85 | 12 | □ | 806 |
| EX-TIN-EMS | 12.6 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.6 | 35 | 95 | 12 | □ | 798 |
| XPM-EDN | 12.6 | 35 | 100 | 12 | □ | 780 |
| EDN | 12.6 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.6 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.6 | 55 | 105 | 12 | ● | 790 |
| EDS | 12.7 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.7 | 26 | 85 | 12 | □ | 762 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDS | 12.7 | 26 | 90 | 12 | □ | 758 |
| CC-EMS | 12.7 | 35 | 85 | 12 | □ | 806 |
| EX-TIN-EMS | 12.7 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.7 | 35 | 95 | 12 | □ | 798 |
| XPM-EDN | 12.7 | 35 | 100 | 12 | □ | 780 |
| EDN | 12.7 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.7 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.7 | 55 | 105 | 12 | ● | 790 |
| EDS | 12.8 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.8 | 26 | 85 | 12 | □ | 762 |
| XPM-EDS | 12.8 | 26 | 90 | 12 | □ | 758 |
| CC-EMS | 12.8 | 35 | 85 | 12 | □ | 806 |
| EX-TIN-EMS | 12.8 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.8 | 35 | 95 | 12 | □ | 798 |
| XPM-EDN | 12.8 | 35 | 100 | 12 | □ | 780 |
| EDN | 12.8 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.8 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.8 | 55 | 105 | 12 | ● | 790 |
| EDS | 12.9 | 26 | 85 | 12 | ● | 768 |
| EX-TIN-EDS | 12.9 | 26 | 85 | 12 | □ | 762 |
| XPM-EDS | 12.9 | 26 | 90 | 12 | □ | 758 |
| CC-EMS | 12.9 | 35 | 85 | 12 | □ | 806 |
| EX-TIN-EMS | 12.9 | 35 | 85 | 12 | □ | 803 |
| XPM-EMS | 12.9 | 35 | 95 | 12 | □ | 798 |
| XPM-EDN | 12.9 | 35 | 100 | 12 | □ | 780 |
| EDN | 12.9 | 45 | 95 | 12 | □ | 783 |
| CC-EML | 12.9 | 55 | 105 | 12 | □ | 816 |
| EDL | 12.9 | 55 | 105 | 12 | ● | 790 |
| EKD | 13 | 15 | 75 | 12 | ● | 773 |
| EKD | 13 | 15 | 75 | 12 | ● | 773 |
| EX-TIN-EKD | 13 | 15 | 75 | 12 | ● | 765 |
| CPM-STD | 13 | 22 | 75 | 12 | □ | 823-5 |
| EX-REES | 13 | 26 | 83 | 12 | ● | 848 |
| EX-TIN-RESF | 13 | 26 | 83 | 12 | ● | 845 |
| TFGS | 13 | 26 | 83 | 12 | ● | 859 |
| AL-EDS | 13 | 26 | 85 | 12 | ● | 776 |
| CPM-EDS | 13 | 26 | 85 | 12 | □ | 775 |
| EDS | 13 | 26 | 85 | 12 | ● | 768 |
| ETS | 13 | 26 | 85 | 12 | ● | 794 |
| EX-TIN-EDS | 13 | 26 | 85 | 12 | ● | 762 |
| EX-TIN-ETS | 13 | 26 | 85 | 12 | □ | 823-10 |
| SUS-EDS | 13 | 26 | 85 | 12 | ● | 777 |
| V-XPM-EDS | 13 | 26 | 90 | 12 | ● | 755 |
| XPM-EDS | 13 | 26 | 90 | 12 | ● | 758 |
| EX-LS-REES | 13 | 26 | 110 | 12 | ● | 849 |
| EX-LS-RESF | 13 | 26 | 110 | 12 | ● | 847 |
| SI-WH-RESF | 13 | 26 | 110 | 12 | □ | 838 |
| TIN-LS-RESF | 13 | 26 | 110 | 12 | □ | 846 |
| VLS-XPM-RESF | 13 | 26 | 110 | 12 | □ | 841 |
| VP-RESF | 13 | 26 | 110 | 12 | □ | 840 |
| WH-REES | 13 | 26 | 110 | 12 | ● | 839 |
| WH-RESF | 13 | 26 | 110 | 12 | ● | 839 |
| LS-EMSS | 13 | 30 | 200 | 12 | □ | 823-11 |
| CC-EMS | 13 | 35 | 85 | 12 | ● | 806 |
| CPM-EDN | 13 | 35 | 85 | 12 | □ | 823-5 |
| CPM-STDN | 13 | 35 | 85 | 12 | ● | 784 |
| EDN | 13 | 35 | 85 | 12 | ● | 783 |
| EX-TIN-EDN | 13 | 35 | 85 | 12 | ● | 782 |
| EX-TIN-EMS | 13 | 35 | 85 | 12 | ● | 803 |
| MR-EMS | 13 | 35 | 85 | 12 | □ | 823-13 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EMS | 13 | 35 | 95 | 12 | ● | 795 |
| XPM-EMS | 13 | 35 | 95 | 12 | ● | 798 |
| CPM-BKMS | 13 | 35 | 95 | 16 | □ | 870-15 |
| CPM-EHS | 13 | 35 | 100 | 12 | □ | 823-22 |
| V-XPM-EDN | 13 | 35 | 100 | 12 | ● | 778 |
| XPM-EDN | 13 | 35 | 100 | 12 | ● | 780 |
| XPM-EHS | 13 × 3F | 35 | 100 | 12 | □ | 823 |
| LN-EDN-OH | 13 | 35 | 140 | 12 | □ | 823-27 |
| DE-XPM-EDN | 13 | 35 | 150 | 12 | ● | 781 |
| DE-XPM-EMS | 13 | 35 | 150 | 12 | ● | 801 |
| LS-EMS | 13 | 35 | 150 | 12 | ● | 810 |
| DE-XPM-EDN | 13 | 35 | 200 | 12 | ● | 781 |
| DE-XPM-EMS | 13 | 35 | 200 | 12 | ● | 801 |
| EX-REEN | 13 | 40 | 97 | 12 | ● | 853 |
| EX-TIN-RENF | 13 | 40 | 97 | 12 | ● | 851 |
| TFGN | 13 | 40 | 97 | 12 | ● | 865 |
| WH-REEN | 13 | 40 | 110 | 12 | ● | 852 |
| WH-RENF | 13 | 40 | 110 | 12 | ● | 850 |
| CC-EMN | 13 | 45 | 95 | 12 | □ | 823-17 |
| EX-REE | 13 | 45 | 95 | 16 | □ | 870-5 |
| EX-TIN-REE | 13 | 45 | 95 | 16 | □ | 870-4 |
| REE | 13 | 45 | 95 | 16 | □ | 870-6 |
| RFE | 13 | 45 | 95 | 16 | □ | 868 |
| CPM-XLS-EDS | 13 | 50 | 200 | 12 | □ | 823-2 |
| XLS-EDS | 13 | 50 | 200 | 12 | □ | 823-1 |
| XLS-EMS | 13 | 50 | 200 | 12 | □ | 823-12 |
| EX-REEL | 13 | 53 | 110 | 12 | ● | 857 |
| EX-TIN-RELF | 13 | 53 | 110 | 12 | □ | 856 |
| TFL | 13 | 53 | 110 | 12 | □ | 870-14 |
| AL-EDL | 13 | 55 | 105 | 12 | □ | 823-7 |
| CC-EML | 13 | 55 | 105 | 12 | ● | 816 |
| CPM-EML | 13 | 55 | 105 | 12 | □ | 818 |
| EDL | 13 | 55 | 105 | 12 | ● | 790 |
| EX-TIN-EDL | 13 | 55 | 105 | 12 | ● | 788 |
| EX-TIN-EML | 13 | 55 | 105 | 12 | ● | 814 |
| CPM-EHL | 13 | 55 | 120 | 12 | □ | 823-24 |
| V-XPM-EDL | 13 | 55 | 120 | 12 | ● | 785 |
| V-XPM-EML | 13 | 55 | 120 | 12 | ● | 812 |
| XPM-EDL | 13 | 55 | 120 | 12 | ● | 786 |
| XPM-EML | 13 | 55 | 120 | 12 | ● | 813 |
| LS-EDL | 13 | 55 | 150 | 12 | □ | 823-7 |
| REEL | 13 | 60 | 110 | 12 | □ | 870-9 |
| EXDL | 13 | 80 | 130 | 12 | □ | 792 |
| EXML | 13 | 80 | 130 | 12 | □ | 819 |
| ETXL | 13 | 100 | 150 | 12 | □ | 823-11 |
| EX-TIN-ETXL | 13 | 100 | 150 | 12 | □ | 823-10 |
| EDS | 13.1 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.1 | 26 | 90 | 16 | □ | 762 |
| XPM-EDS | 13.1 | 26 | 95 | 16 | □ | 758 |
| CC-EMS | 13.1 | 35 | 90 | 16 | □ | 806 |
| EX-TIN-EMS | 13.1 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.1 | 35 | 95 | 16 | □ | 798 |
| CC-EML | 13.1 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.1 | 55 | 110 | 16 | □ | 790 |
| EDS | 13.2 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.2 | 26 | 90 | 16 | □ | 762 |
| XPM-EDS | 13.2 | 26 | 95 | 16 | □ | 758 |
| CC-EMS | 13.2 | 35 | 90 | 16 | □ | 806 |
| EX-TIN-EMS | 13.2 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.2 | 35 | 95 | 16 | □ | 798 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CC-EML | 13.2 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.2 | 55 | 110 | 16 | □ | 790 |
| EDS | 13.3 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.3 | 26 | 90 | 16 | □ | 762 |
| XPM-EDS | 13.3 | 26 | 95 | 16 | □ | 758 |
| CC-EMS | 13.3 | 35 | 90 | 16 | □ | 806 |
| EX-TIN-EMS | 13.3 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.3 | 35 | 95 | 16 | □ | 798 |
| CC-EML | 13.3 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.3 | 55 | 110 | 16 | □ | 790 |
| EDS | 13.4 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.4 | 26 | 90 | 16 | □ | 762 |
| XPM-EDS | 13.4 | 26 | 95 | 16 | □ | 758 |
| CC-EMS | 13.4 | 35 | 90 | 16 | □ | 806 |
| EX-TIN-EMS | 13.4 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.4 | 35 | 95 | 16 | □ | 798 |
| CC-EML | 13.4 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.4 | 55 | 110 | 16 | □ | 790 |
| CPM-EDS | 13.5 | 26 | 90 | 16 | □ | 775 |
| EDS | 13.5 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.5 | 26 | 90 | 16 | ● | 762 |
| XPM-EDS | 13.5 | 26 | 95 | 16 | ● | 758 |
| CC-EMS | 13.5 | 35 | 90 | 16 | ● | 806 |
| EX-TIN-EMS | 13.5 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.5 | 35 | 95 | 16 | □ | 798 |
| CC-EMN | 13.5 | 45 | 100 | 16 | □ | 823-17 |
| CC-EML | 13.5 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.5 | 55 | 110 | 16 | ● | 790 |
| EX-TIN-EDL | 13.5 | 55 | 110 | 16 | ● | 788 |
| EX-TIN-EML | 13.5 | 55 | 110 | 16 | □ | 814 |
| EDS | 13.6 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.6 | 26 | 90 | 16 | □ | 762 |
| XPM-EDS | 13.6 | 26 | 95 | 16 | □ | 758 |
| CC-EMS | 13.6 | 35 | 90 | 16 | □ | 806 |
| EX-TIN-EMS | 13.6 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.6 | 35 | 95 | 16 | □ | 798 |
| CC-EML | 13.6 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.6 | 55 | 110 | 16 | □ | 790 |
| EDS | 13.7 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.7 | 26 | 90 | 16 | □ | 762 |
| XPM-EDS | 13.7 | 26 | 95 | 16 | □ | 758 |
| CC-EMS | 13.7 | 35 | 90 | 16 | □ | 806 |
| EX-TIN-EMS | 13.7 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.7 | 35 | 95 | 16 | □ | 798 |
| CC-EML | 13.7 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.7 | 55 | 110 | 16 | □ | 790 |
| EDS | 13.8 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.8 | 26 | 90 | 16 | □ | 762 |
| XPM-EDS | 13.8 | 26 | 95 | 16 | □ | 758 |
| CC-EMS | 13.8 | 35 | 90 | 16 | □ | 806 |
| EX-TIN-EMS | 13.8 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.8 | 35 | 95 | 16 | □ | 798 |
| CC-EML | 13.8 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.8 | 55 | 110 | 16 | □ | 790 |
| EDS | 13.9 | 26 | 90 | 16 | ● | 768 |
| EX-TIN-EDS | 13.9 | 26 | 90 | 16 | □ | 762 |
| XPM-EDS | 13.9 | 26 | 95 | 16 | □ | 758 |
| CC-EMS | 13.9 | 35 | 90 | 16 | □ | 806 |
| EX-TIN-EMS | 13.9 | 35 | 90 | 16 | □ | 803 |
| XPM-EMS | 13.9 | 35 | 95 | 16 | □ | 798 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CC-EML | 13.9 | 55 | 110 | 16 | □ | 816 |
| EDL | 13.9 | 55 | 110 | 16 | □ | 790 |
| WH-NC-EDSS | 14 | 6 | 60 | 10 | □ | 823-3 |
| WH-NC-EMSS | 14 | 6 | 60 | 10 | □ | 823-16 |
| WH-NC-RESF | 14 | 8 | 60 | 10 | □ | 870-2 |
| EKD | 14 | 15 | 75 | 16 | ● | 773 |
| EKD | 14 | 15 | 75 | 16 | ● | 773 |
| EX-TIN-EKD | 14 | 15 | 75 | 16 | ● | 765 |
| EX-REES | 14 | 26 | 83 | 12 | ● | 848 |
| EX-TIN-RESF | 14 | 26 | 83 | 12 | ● | 845 |
| TFGS | 14 | 26 | 86 | 16 | ● | 859 |
| AL-EDS | 14 | 26 | 90 | 16 | ● | 776 |
| CPM-EDS | 14 | 26 | 90 | 16 | □ | 775 |
| EDS | 14 | 26 | 90 | 16 | ● | 768 |
| ETS | 14 | 26 | 90 | 16 | ● | 794 |
| EX-TIN-EDS | 14 | 26 | 90 | 16 | ● | 762 |
| EX-TIN-ETS | 14 | 26 | 90 | 16 | □ | 823-10 |
| MR-EDS | 14 | 26 | 90 | 16 | □ | 823-3 |
| SUS-EDS | 14 | 26 | 90 | 16 | ● | 777 |
| V-XPM-EDS | 14 | 26 | 95 | 16 | ● | 755 |
| XPM-EDS | 14 | 26 | 95 | 16 | ● | 758 |
| CPM-LS-RESF | 14 | 26 | 110 | 12 | □ | 870-2 |
| EX-LS-REES | 14 | 26 | 110 | 12 | ● | 849 |
| EX-LS-RESF | 14 | 26 | 110 | 12 | ● | 847 |
| SI-WH-RESF | 14 | 26 | 110 | 12 | □ | 838 |
| TIN-LS-RESF | 14 | 26 | 110 | 12 | ● | 846 |
| TLS-XPM-RESF | 14 | 26 | 110 | 12 | □ | 844 |
| VLS-XPM-RESF | 14 | 26 | 110 | 12 | ● | 841 |
| VP-RESF | 14 | 26 | 110 | 12 | ● | 840 |
| WH-REES | 14 | 26 | 110 | 12 | ● | 839 |
| WH-RESF | 14 | 26 | 110 | 12 | ● | 839 |
| LS-BKMS | 14 | 26 | 150 | 12 | □ | 864 |
| PC-CPM-EDS | 14 | 26 | 300 | 25 | □ | 823-28 |
| CPM-STD | 14 | 30 | 134 | 16 | □ | 823-5 |
| REES | 14 | 32 | 80 | 12 | □ | 870-3 |
| RFES | 14 | 32 | 80 | 12 | ● | 862 |
| LS-REES | 14 | 32 | 115 | 12 | □ | 870-3 |
| LS-RFES | 14 | 32 | 115 | 12 | ● | 863 |
| CC-EMS | 14 | 35 | 90 | 16 | ● | 806 |
| CPM-EDN | 14 | 35 | 90 | 16 | □ | 823-5 |
| CPM-STDN | 14 | 35 | 90 | 16 | ● | 784 |
| EDN | 14 | 35 | 90 | 16 | ● | 783 |
| EX-TIN-EDN | 14 | 35 | 90 | 16 | ● | 782 |
| EX-TIN-EMS | 14 | 35 | 90 | 16 | ● | 803 |
| BKMS | 14 | 35 | 95 | 16 | □ | 863 |
| TIN-XPM-EMS | 14 | 35 | 95 | 16 | □ | 823-14 |
| V-XPM-EMS | 14 | 35 | 95 | 16 | ● | 795 |
| XPM-EMS | 14 | 35 | 95 | 16 | ● | 798 |
| CPM-EHS | 14 | 35 | 105 | 16 | □ | 823-22 |
| V-XPM-EDN | 14 | 35 | 105 | 16 | ● | 778 |
| V-XPM-NHS | 14 | 35 | 105 | 16 | ● | 859 |
| XPM-EDN | 14 | 35 | 105 | 16 | ● | 780 |
| TIN-XPM-EHS | 14 × 3F | 35 | 105 | 16 | ● | 822 |
| V-XPM-EHS | 14 × 3F | 35 | 105 | 16 | ● | 821 |
| XPM-EHS | 14 × 3F | 35 | 105 | 16 | ● | 823 |
| V-XPM-EHS | 14 × 4F | 35 | 105 | 16 | ● | 821 |
| LN-EDN-OH | 14 | 35 | 145 | 16 | □ | 823-27 |
| DE-XPM-EDN | 14 | 35 | 150 | 12 | ● | 781 |
| DE-XPM-EMS | 14 | 35 | 150 | 12 | ● | 801 |
| LS-EDN | 14 | 35 | 150 | 12 | ● | 784 |
| LS-EMS | 14 | 35 | 150 | 12 | ● | 810 |
| DE-XPM-EDN | 14 | 35 | 200 | 12 | ● | 781 |
| DE-XPM-EMS | 14 | 35 | 200 | 12 | ● | 801 |
| EX-XLS-REE | 14 | 35 | 200 | 12 | □ | 870-7 |
| LS-EMSS | 14 | 35 | 200 | 12 | □ | 823-11 |
| EX-REEN | 14 | 40 | 97 | 12 | ● | 853 |
| EX-TIN-RENF | 14 | 40 | 97 | 12 | ● | 851 |
| TFGN | 14 | 40 | 100 | 16 | ● | 865 |
| TFN | 14 | 40 | 100 | 16 | □ | 866 |
| VP-RENF | 14 | 40 | 110 | 12 | ● | 850 |
| WH-REEN | 14 | 40 | 110 | 12 | ● | 852 |
| WH-RENF | 14 | 40 | 110 | 12 | ● | 850 |
| EX-REE-3F | 14 | 42 | 115 | 16 | □ | 870-6 |
| EX-REE | 14 | 45 | 95 | 16 | □ | 870-5 |
| EX-TIN-REE | 14 | 45 | 95 | 16 | □ | 870-4 |
| REE | 14 | 45 | 95 | 16 | □ | 870-6 |
| RFE | 14 | 45 | 95 | 16 | □ | 868 |
| CC-EMN | 14 | 45 | 100 | 16 | □ | 823-17 |
| CPM-XLS-EDS | 14 | 50 | 200 | 12 | □ | 823-2 |
| XLS-EDS | 14 | 50 | 200 | 12 | □ | 823-1 |
| XLS-EMS | 14 | 50 | 200 | 12 | □ | 823-12 |
| EX-REEL | 14 | 53 | 110 | 12 | ● | 857 |
| EX-TIN-RELF | 14 | 53 | 110 | 12 | ● | 856 |
| REEM | 14 | 53 | 110 | 12 | □ | 870-5 |
| VP-RELF | 14 | 53 | 110 | 12 | ● | 855 |
| WH-REEL | 14 | 53 | 110 | 12 | ● | 854 |
| WH-RELF | 14 | 53 | 110 | 12 | ● | 854 |
| TFL | 14 | 53 | 113 | 16 | □ | 870-14 |
| AL-EDL | 14 | 55 | 110 | 16 | □ | 823-7 |
| CC-EML | 14 | 55 | 110 | 16 | ● | 816 |
| EDL | 14 | 55 | 110 | 16 | ● | 790 |
| EX-TIN-EDL | 14 | 55 | 110 | 16 | ● | 788 |
| EX-TIN-EML | 14 | 55 | 110 | 16 | ● | 814 |
| BKML | 14 | 55 | 115 | 16 | □ | 870-16 |
| TIN-XPM-EML | 14 | 55 | 125 | 16 | □ | 823-15 |
| V-XPM-EDL | 14 | 55 | 125 | 16 | ● | 785 |
| V-XPM-EML | 14 | 55 | 125 | 16 | ● | 812 |
| XPM-EDL | 14 | 55 | 125 | 16 | ● | 786 |
| XPM-EML | 14 | 55 | 125 | 16 | ● | 813 |
| EX-TIN-LS-EDL | 14 | 55 | 150 | 16 | □ | 823-6 |
| LS-EDL | 14 | 55 | 150 | 16 | □ | 823-7 |
| LS-EML | 14 | 55 | 150 | 16 | ● | 818 |
| REEL | 14 | 60 | 110 | 16 | □ | 870-9 |
| TIN-XPM-EHL | 14 × 3F | 65 | 135 | 16 | ● | 822 |
| V-XPM-EHL | 14 × 3F | 65 | 135 | 16 | ● | 821 |
| XPM-EHL | 14 × 3F | 65 | 135 | 16 | ● | 823 |
| EX-TIN-REXL | 14 | 80 | 150 | 16 | □ | 870-8 |
| ETXL | 14 | 100 | 150 | 16 | □ | 823-11 |
| EXML | 14 | 100 | 150 | 16 | ● | 819 |
| EX-TIN-ETXL | 14 | 100 | 150 | 16 | □ | 823-10 |
| EX-TIN-EXML | 14 | 100 | 150 | 16 | □ | 823-19 |
| EXDL | 14 | 100 | 155 | 16 | ● | 792 |
| EX-TIN-EXDL | 14 | 100 | 155 | 16 | □ | 823-6 |
| EX-TIN-REXL | 14 | 100 | 170 | 16 | □ | 870-8 |
| EDS | 14.1 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.1 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 14.1 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 14.1 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 14.1 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.1 | 40 | 100 | 16 | □ | 798 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CC-EML | 14.1 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.1 | 65 | 120 | 16 | □ | 790 |
| EDS | 14.2 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.2 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 14.2 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 14.2 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 14.2 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.2 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 14.2 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.2 | 65 | 120 | 16 | □ | 790 |
| EDS | 14.3 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.3 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 14.3 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 14.3 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 14.3 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.3 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 14.3 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.3 | 65 | 120 | 16 | □ | 790 |
| EDS | 14.4 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.4 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 14.4 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 14.4 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 14.4 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.4 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 14.4 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.4 | 65 | 120 | 16 | □ | 790 |
| CPM-EDS | 14.5 | 30 | 95 | 16 | □ | 775 |
| EDS | 14.5 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.5 | 30 | 95 | 16 | ● | 762 |
| XPM-EDS | 14.5 | 30 | 100 | 16 | ● | 758 |
| CC-EMS | 14.5 | 40 | 95 | 16 | ● | 806 |
| EX-TIN-EMS | 14.5 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.5 | 40 | 100 | 16 | □ | 798 |
| CC-EMN | 14.5 | 50 | 105 | 16 | □ | 823-17 |
| CC-EML | 14.5 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.5 | 65 | 120 | 16 | ● | 790 |
| EX-TIN-EDL | 14.5 | 65 | 120 | 16 | ● | 788 |
| EX-TIN-EML | 14.5 | 65 | 120 | 16 | □ | 814 |
| EDS | 14.6 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.6 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 14.6 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 14.6 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 14.6 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.6 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 14.6 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.6 | 65 | 120 | 16 | □ | 790 |
| EDS | 14.7 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.7 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 14.7 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 14.7 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 14.7 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.7 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 14.7 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.7 | 65 | 120 | 16 | □ | 790 |
| EDS | 14.8 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.8 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 14.8 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 14.8 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 14.8 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.8 | 40 | 100 | 16 | □ | 798 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CC-EML | 14.8 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.8 | 65 | 120 | 16 | □ | 790 |
| EDS | 14.9 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 14.9 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 14.9 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 14.9 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 14.9 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 14.9 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 14.9 | 65 | 120 | 16 | □ | 816 |
| EDL | 14.9 | 65 | 120 | 16 | □ | 790 |
| RF-TSC | 15 | 5 | 120 | 12 | ● | 894 |
| TIN-TUF-TSC | 15 | 5 | 120 | 12 | □ | 895-1 |
| RF-TSC | 15 | 6 | 120 | 12 | ● | 894 |
| TIN-TUF-TSC | 15 | 6 | 120 | 12 | □ | 895-1 |
| RF-TSC | 15 | 7 | 120 | 12 | □ | 894 |
| TIN-TUF-TSC | 15 | 7 | 120 | 12 | □ | 895-1 |
| WH-NC-RESF | 15 | 8 | 60 | 10 | □ | 870-2 |
| RF-TSC | 15 | 8 | 120 | 12 | □ | 894 |
| TIN-TUF-TSC | 15 | 8 | 120 | 12 | □ | 895-1 |
| RF-TSC | 15 | 10 | 120 | 12 | □ | 894 |
| TIN-TUF-TSC | 15 | 10 | 120 | 12 | □ | 895-1 |
| EKD | 15 | 15 | 75 | 16 | ● | 773 |
| EKD | 15 | 15 | 75 | 16 | ● | 773 |
| EX-TIN-EKD | 15 | 15 | 75 | 16 | ● | 765 |
| EX-REES | 15 | 26 | 83 | 12 | ● | 848 |
| EX-TIN-RESF | 15 | 26 | 83 | 12 | ● | 845 |
| TFGS | 15 | 26 | 86 | 16 | ● | 859 |
| SI-WH-RESF | 15 | 26 | 120 | 12 | □ | 838 |
| WH-REES | 15 | 26 | 120 | 12 | ● | 839 |
| WH-RESF | 15 | 26 | 120 | 12 | ● | 839 |
| CPM-LS-RESF | 15 | 26 | 120 | 16 | □ | 870-2 |
| EX-LS-REES | 15 | 26 | 120 | 16 | ● | 849 |
| EX-LS-RESF | 15 | 26 | 120 | 16 | ● | 847 |
| TIN-LS-RESF | 15 | 26 | 120 | 16 | ● | 846 |
| VLS-XPM-RESF | 15 | 26 | 120 | 16 | ● | 841 |
| VP-RESF | 15 | 26 | 120 | 16 | ● | 840 |
| LS-BKMS | 15 | 26 | 155 | 12 | □ | 864 |
| AL-EDS | 15 | 30 | 95 | 16 | ● | 776 |
| CPM-EDS | 15 | 30 | 95 | 16 | □ | 775 |
| EDS | 15 | 30 | 95 | 16 | ● | 768 |
| ETS | 15 | 30 | 95 | 16 | ● | 794 |
| EX-TIN-EDS | 15 | 30 | 95 | 16 | ● | 762 |
| EX-TIN-ETS | 15 | 30 | 95 | 16 | □ | 823-10 |
| SUS-EDS | 15 | 30 | 95 | 16 | ● | 777 |
| V-XPM-EDS | 15 | 30 | 100 | 16 | ● | 755 |
| XPM-EDS | 15 | 30 | 100 | 16 | ● | 758 |
| CPM-STD | 15 | 31 | 135 | 16 | □ | 823-5 |
| EX-XLS-REE | 15 | 35 | 200 | 12 | □ | 870-7 |
| REES | 15 | 36 | 90 | 16 | □ | 870-3 |
| RFES | 15 | 36 | 90 | 16 | ● | 862 |
| LS-REES | 15 | 36 | 130 | 16 | □ | 870-3 |
| LS-RFES | 15 | 36 | 130 | 16 | ● | 863 |
| CC-EMS | 15 | 40 | 95 | 16 | ● | 806 |
| CPM-EDN | 15 | 40 | 95 | 16 | □ | 823-5 |
| CPM-STDN | 15 | 40 | 95 | 16 | ● | 784 |
| EDN | 15 | 40 | 95 | 16 | ● | 783 |
| EX-TIN-EDN | 15 | 40 | 95 | 16 | ● | 782 |
| EX-TIN-EMS | 15 | 40 | 95 | 16 | ● | 803 |
| EX-REEN | 15 | 40 | 97 | 12 | ● | 853 |
| EX-TIN-RENF | 15 | 40 | 97 | 12 | ● | 851 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-BKMS | 15 | 40 | 100 | 16 | □ | 870-15 |
| TFGN | 15 | 40 | 100 | 16 | ● | 865 |
| TIN-KFR | 15 | 40 | 100 | 16 | □ | 870-18 |
| V-XPM-EMS | 15 | 40 | 100 | 16 | ● | 795 |
| XPM-EMS | 15 | 40 | 100 | 16 | ● | 798 |
| V-XPM-EDN | 15 | 40 | 110 | 16 | ● | 778 |
| V-XPM-NHS | 15 | 40 | 110 | 16 | ● | 859 |
| XPM-EDN | 15 | 40 | 110 | 16 | ● | 780 |
| TIN-XPM-EHS | 15 × 3F | 40 | 110 | 16 | ● | 822 |
| V-XPM-EHS | 15 × 3F | 40 | 110 | 16 | ● | 821 |
| XPM-EHS | 15 × 3F | 40 | 110 | 16 | ● | 823 |
| V-XPM-EHS | 15 × 4F | 40 | 110 | 16 | ● | 821 |
| WH-REEN | 15 | 40 | 120 | 12 | ● | 852 |
| WH-RENF | 15 | 40 | 120 | 12 | ● | 850 |
| VP-RENF | 15 | 40 | 120 | 16 | ● | 850 |
| LN-EDN-OH | 15 | 40 | 145 | 16 | □ | 823-27 |
| DE-XPM-EDN | 15 | 40 | 150 | 12 | ● | 781 |
| DE-XPM-EMS | 15 | 40 | 150 | 12 | ● | 801 |
| LS-EDN | 15 | 40 | 155 | 12 | ● | 784 |
| LS-EMS | 15 | 40 | 155 | 12 | ● | 810 |
| DE-XPM-EDN | 15 | 40 | 200 | 12 | ● | 781 |
| DE-XPM-EMS | 15 | 40 | 200 | 12 | ● | 801 |
| LS-EMSS | 15 | 40 | 200 | 12 | □ | 823-11 |
| EX-REE-3F | 15 | 42 | 115 | 16 | □ | 870-6 |
| CPM-REE | 15 | 45 | 95 | 16 | □ | 870-7 |
| CPM-RFE | 15 | 45 | 95 | 16 | □ | 870-17 |
| EX-REE | 15 | 45 | 95 | 16 | □ | 870-5 |
| EX-TIN-REE | 15 | 45 | 95 | 16 | □ | 870-4 |
| REE | 15 | 45 | 95 | 16 | □ | 870-6 |
| RFE | 15 | 45 | 95 | 16 | ● | 868 |
| MT-REE | 15 | 45 | 125 | MT2 | □ | 870-11 |
| BS-REE | 15 | 45 | 135 | BS7 | □ | 870-10 |
| CC-EMN | 15 | 50 | 105 | 16 | □ | 823-17 |
| EX-REEL | 15 | 53 | 110 | 12 | ● | 857 |
| EX-TIN-RELF | 15 | 53 | 110 | 12 | ● | 856 |
| REEM | 15 | 53 | 110 | 12 | □ | 870-5 |
| TFL | 15 | 53 | 113 | 16 | □ | 870-14 |
| WH-REEL | 15 | 53 | 115 | 12 | ● | 854 |
| WH-RELF | 15 | 53 | 115 | 12 | ● | 854 |
| VP-RELF | 15 | 53 | 115 | 16 | ● | 855 |
| CPM-XLS-EDS | 15 | 55 | 200 | 12 | □ | 823-2 |
| XLS-EDS | 15 | 55 | 200 | 12 | □ | 823-1 |
| XLS-EMS | 15 | 55 | 200 | 12 | □ | 823-12 |
| EX-REXL | 15 | 60 | 110 | 16 | □ | 858 |
| EX-TIN-REXL | 15 | 60 | 110 | 16 | □ | 870-8 |
| REEL | 15 | 60 | 110 | 16 | □ | 870-9 |
| RFEL | 15 | 60 | 110 | 16 | □ | 869 |
| AL-EDL | 15 | 65 | 120 | 16 | □ | 823-7 |
| CC-EML | 15 | 65 | 120 | 16 | ● | 816 |
| EDL | 15 | 65 | 120 | 16 | ● | 790 |
| EX-TIN-EDL | 15 | 65 | 120 | 16 | ● | 788 |
| EX-TIN-EML | 15 | 65 | 120 | 16 | ● | 814 |
| CPM-EHL | 15 | 65 | 135 | 16 | □ | 823-24 |
| V-XPM-EDL | 15 | 65 | 135 | 16 | ● | 785 |
| V-XPM-EML | 15 | 65 | 135 | 16 | ● | 812 |
| XPM-EDL | 15 | 65 | 135 | 16 | ● | 786 |
| XPM-EML | 15 | 65 | 135 | 16 | ● | 813 |
| TIN-XPM-EHL | 15 × 3F | 65 | 135 | 16 | ● | 822 |
| V-XPM-EHL | 15 × 3F | 65 | 135 | 16 | ● | 821 |
| XPM-EHL | 15 × 3F | 65 | 135 | 16 | ● | 823 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-LS-EDL | 15 | 65 | 155 | 16 | □ | 823-6 |
| LS-EDL | 15 | 65 | 155 | 16 | □ | 823-7 |
| LS-EML | 15 | 65 | 155 | 16 | ● | 818 |
| EX-REXL | 15 | 80 | 150 | 16 | □ | 858 |
| ETXL | 15 | 100 | 155 | 16 | □ | 823-11 |
| EXDL | 15 | 100 | 155 | 16 | ● | 792 |
| EXML | 15 | 100 | 155 | 16 | ● | 819 |
| EX-TIN-ETXL | 15 | 100 | 155 | 16 | □ | 823-10 |
| EX-TIN-EXDL | 15 | 100 | 155 | 16 | □ | 823-6 |
| EX-TIN-EXML | 15 | 100 | 155 | 16 | □ | 823-19 |
| EX-REXL | 15 | 100 | 170 | 16 | □ | 858 |
| EX-TIN-REXL | 15 | 100 | 170 | 16 | □ | 870-8 |
| EX-REXL | 15 | 120 | 190 | 16 | □ | 858 |
| EX-REXL | 15 | 150 | 220 | 16 | □ | 858 |
| EDS | 15.1 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.1 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 15.1 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 15.1 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 15.1 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.1 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 15.1 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.1 | 65 | 120 | 16 | □ | 790 |
| EDS | 15.2 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.2 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 15.2 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 15.2 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 15.2 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.2 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 15.2 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.2 | 65 | 120 | 16 | □ | 790 |
| EDS | 15.3 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.3 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 15.3 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 15.3 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 15.3 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.3 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 15.3 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.3 | 65 | 120 | 16 | □ | 790 |
| EDS | 15.4 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.4 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 15.4 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 15.4 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 15.4 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.4 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 15.4 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.4 | 65 | 120 | 16 | □ | 790 |
| EDS | 15.5 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.5 | 30 | 95 | 16 | ● | 762 |
| XPM-EDS | 15.5 | 30 | 100 | 16 | ● | 758 |
| CC-EMS | 15.5 | 40 | 95 | 16 | ● | 806 |
| EX-TIN-EMS | 15.5 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.5 | 40 | 100 | 16 | □ | 798 |
| CC-EMN | 15.5 | 50 | 105 | 16 | □ | 823-17 |
| CC-EML | 15.5 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.5 | 65 | 120 | 16 | ● | 790 |
| EX-TIN-EDL | 15.5 | 65 | 120 | 16 | ● | 788 |
| EX-TIN-EML | 15.5 | 65 | 120 | 16 | □ | 814 |
| EDS | 15.6 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.6 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 15.6 | 30 | 100 | 16 | □ | 758 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CC-EMS | 15.6 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 15.6 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.6 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 15.6 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.6 | 65 | 120 | 16 | □ | 790 |
| EDS | 15.7 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.7 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 15.7 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 15.7 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 15.7 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.7 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 15.7 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.7 | 65 | 120 | 16 | □ | 790 |
| EDS | 15.8 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.8 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 15.8 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 15.8 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 15.8 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.8 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 15.8 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.8 | 65 | 120 | 16 | □ | 790 |
| EDS | 15.9 | 30 | 95 | 16 | ● | 768 |
| EX-TIN-EDS | 15.9 | 30 | 95 | 16 | □ | 762 |
| XPM-EDS | 15.9 | 30 | 100 | 16 | □ | 758 |
| CC-EMS | 15.9 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 15.9 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 15.9 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 15.9 | 65 | 120 | 16 | □ | 816 |
| EDL | 15.9 | 65 | 120 | 16 | □ | 790 |
| TIN-TUF-TSC | 16 | 5 | 120 | 12 | □ | 895-1 |
| WH-NC-EDSS | 16 | 6 | 60 | 10 | □ | 823-3 |
| WH-NC-EMSS | 16 | 6 | 60 | 10 | □ | 823-16 |
| TIN-TUF-TSC | 16 | 6 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 16 | 7 | 120 | 12 | □ | 895-1 |
| WH-NC-RESF | 16 | 8 | 60 | 10 | □ | 870-2 |
| TIN-TUF-TSC | 16 | 8 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 16 | 10 | 120 | 12 | □ | 895-1 |
| EKD | 16 | 18 | 80 | 16 | ● | 773 |
| EKD | 16 | 18 | 80 | 16 | ● | 773 |
| EX-TIN-EKD | 16 | 18 | 80 | 16 | ● | 765 |
| AL-EDS | 16 | 30 | 95 | 16 | ● | 776 |
| CPM-EDS | 16 | 30 | 95 | 16 | □ | 775 |
| EDS | 16 | 30 | 95 | 16 | ● | 769 |
| ETS | 16 | 30 | 95 | 16 | ● | 794 |
| EX-TIN-EDS | 16 | 30 | 95 | 16 | ● | 762 |
| EX-TIN-ETS | 16 | 30 | 95 | 16 | □ | 823-10 |
| MR-EDS | 16 | 30 | 95 | 16 | □ | 823-3 |
| SUS-EDS | 16 | 30 | 95 | 16 | ● | 777 |
| V-XPM-EDS | 16 | 30 | 100 | 16 | ● | 755 |
| XPM-EDS | 16 | 30 | 100 | 16 | ● | 758 |
| CPM-STD | 16 | 31 | 135 | 16 | □ | 823-5 |
| EX-REES | 16 | 32 | 92 | 16 | ● | 848 |
| EX-TIN-RESF | 16 | 32 | 92 | 16 | ● | 845 |
| TFGS | 16 | 32 | 92 | 16 | ● | 859 |
| VSS-XPM-RESF | 16 | 32 | 125 | 15 | ● | 842 |
| CPM-LS-RESF | 16 | 32 | 125 | 16 | □ | 870-2 |
| EX-LS-REES | 16 | 32 | 125 | 16 | ● | 849 |
| EX-LS-RESF | 16 | 32 | 125 | 16 | ● | 847 |
| SI-WH-RESF | 16 | 32 | 125 | 16 | ● | 838 |
| TIN-LS-RESF | 16 | 32 | 125 | 16 | ● | 846 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| VLS-XPM-RESF | 16 | 32 | 125 | 16 | ● | 841 |
| VP-RESF | 16 | 32 | 125 | 16 | ● | 840 |
| WH-REES | 16 | 32 | 125 | 16 | ● | 839 |
| WH-RESF | 16 | 32 | 125 | 16 | ● | 839 |
| LS-BKMS | 16 | 32 | 155 | 16 | □ | 864 |
| VP-DE-RESF | 16 | 32 | 180 | 16 | ● | 843 |
| REES | 16 | 36 | 90 | 16 | □ | 870-3 |
| RFES | 16 | 36 | 90 | 16 | ● | 862 |
| LS-REES | 16 | 36 | 130 | 16 | □ | 870-3 |
| LS-RFES | 16 | 36 | 130 | 16 | ● | 863 |
| CC-EMS | 16 | 40 | 95 | 16 | ● | 806 |
| CE-EMS | 16 | 40 | 95 | 16 | □ | 809 |
| CPM-EDN | 16 | 40 | 95 | 16 | □ | 823-5 |
| CPM-EMS | 16 | 40 | 95 | 16 | □ | 811 |
| CPM-STDN | 16 | 40 | 95 | 16 | ● | 784 |
| EDN | 16 | 40 | 95 | 16 | ● | 783 |
| EX-TIN-EDN | 16 | 40 | 95 | 16 | ● | 782 |
| EX-TIN-EMS | 16 | 40 | 95 | 16 | ● | 803 |
| MR-EMS | 16 | 40 | 95 | 16 | □ | 823-13 |
| CPM-BKMS | 16 | 40 | 100 | 16 | □ | 870-15 |
| TIN-XPM-EMS | 16 | 40 | 100 | 16 | □ | 823-14 |
| V-XPM-EMS | 16 | 40 | 100 | 16 | ● | 795 |
| XPM-EMS | 16 | 40 | 100 | 16 | ● | 798 |
| VPS-EMS | 16 × 6F | 40 | 100 | 16 | ● | 796 |
| VPS-EMS | 16 × 6F | 40 | 100 | 16 | ● | 837 |
| VPS-EMS | 16 × 10F | 40 | 100 | 16 | ● | 796 |
| VPS-EMS | 16 × 10F | 40 | 100 | 16 | ● | 837 |
| CPM-EHS | 16 | 40 | 110 | 16 | □ | 823-22 |
| V-XPM-EDN | 16 | 40 | 110 | 16 | ● | 778 |
| V-XPM-NHS | 16 | 40 | 110 | 16 | ● | 859 |
| XPM-EDN | 16 | 40 | 110 | 16 | ● | 780 |
| TIN-XPM-EHS | 16 × 3F | 40 | 110 | 16 | ● | 822 |
| V-XPM-EHS | 16 × 3F | 40 | 110 | 16 | ● | 821 |
| XPM-EHS | 16 × 3F | 40 | 110 | 16 | ● | 823 |
| V-XPM-EHS | 16 × 4F | 40 | 110 | 16 | ● | 821 |
| V-SS-XPM-EDN | 16 | 40 | 125 | 15 | ● | 778 |
| V-SS-XPM-EMS | 16 | 40 | 125 | 15 | ● | 796 |
| DE-XPM-EDN | 16 | 40 | 150 | 12 | ● | 781 |
| DE-XPM-EMS | 16 | 40 | 150 | 12 | ● | 801 |
| LS-EDN | 16 | 40 | 155 | 16 | ● | 784 |
| LS-EMS | 16 | 40 | 155 | 16 | ● | 810 |
| LN-EDN-OH | 16 | 40 | 160 | 16 | □ | 823-27 |
| DE-XPM-EDN | 16 | 40 | 200 | 12 | ● | 781 |
| DE-XPM-EMS | 16 | 40 | 200 | 12 | ● | 801 |
| EX-XLS-REE | 16 | 40 | 250 | 16 | □ | 870-7 |
| LS-EMSS | 16 | 40 | 250 | 16 | □ | 823-11 |
| EX-REEN | 16 | 48 | 108 | 16 | ● | 853 |
| EX-TIN-RENF | 16 | 48 | 108 | 16 | ● | 851 |
| TFGN | 16 | 48 | 108 | 16 | ● | 865 |
| TFN | 16 | 48 | 108 | 16 | □ | 866 |
| VP-RENF | 16 | 48 | 125 | 16 | ● | 850 |
| WH-REEN | 16 | 48 | 125 | 16 | ● | 852 |
| WH-RENF | 16 | 48 | 125 | 16 | ● | 850 |
| CC-EMN | 16 | 50 | 105 | 16 | □ | 823-17 |
| EX-REE | 16 | 50 | 105 | 16 | □ | 870-5 |
| EX-TIN-REE | 16 | 50 | 105 | 16 | □ | 870-4 |
| REE | 16 | 50 | 105 | 16 | □ | 870-6 |
| RFE | 16 | 50 | 105 | 16 | □ | 868 |
| EX-REE-3F | 16 | 52 | 123 | 16 | □ | 870-6 |
| XPM-EMN | 16 | 55 | 150 | 16 | □ | 823-16 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-XLS-EDS | 16 | 55 | 250 | 16 | □ | 823-2 |
| XLS-EDS | 16 | 55 | 250 | 16 | □ | 823-1 |
| XLS-EMS | 16 | 55 | 250 | 16 | □ | 823-12 |
| EX-REXL | 16 | 60 | 110 | 16 | □ | 858 |
| EX-TIN-REXL | 16 | 60 | 110 | 16 | □ | 870-8 |
| REEL | 16 | 60 | 110 | 16 | □ | 870-9 |
| EX-REEL | 16 | 63 | 123 | 16 | ● | 857 |
| EX-TIN-RELF | 16 | 63 | 123 | 16 | ● | 856 |
| VP-RELF | 16 | 63 | 125 | 16 | ● | 855 |
| WH-REEL | 16 | 63 | 125 | 16 | ● | 854 |
| WH-RELF | 16 | 63 | 125 | 16 | ● | 854 |
| AL-EDL | 16 | 65 | 120 | 16 | □ | 823-7 |
| CC-EML | 16 | 65 | 120 | 16 | ● | 816 |
| EDL | 16 | 65 | 120 | 16 | ● | 790 |
| EX-TIN-EDL | 16 | 65 | 120 | 16 | ● | 788 |
| EX-TIN-EML | 16 | 65 | 120 | 16 | ● | 814 |
| TIN-XPM-EML | 16 | 65 | 135 | 16 | □ | 823-15 |
| V-XPM-EDL | 16 | 65 | 135 | 16 | ● | 785 |
| V-XPM-EML | 16 | 65 | 135 | 16 | ● | 812 |
| XPM-EDL | 16 | 65 | 135 | 16 | ● | 786 |
| XPM-EML | 16 | 65 | 135 | 16 | ● | 813 |
| TIN-XPM-EHL | 16 × 3F | 65 | 135 | 16 | ● | 822 |
| V-XPM-EHL | 16 × 3F | 65 | 135 | 16 | ● | 821 |
| XPM-EHL | 16 × 3F | 65 | 135 | 16 | ● | 823 |
| EX-TIN-LS-EDL | 16 | 65 | 155 | 16 | □ | 823-6 |
| LS-EDL | 16 | 65 | 155 | 16 | □ | 823-7 |
| LS-EML | 16 | 65 | 155 | 16 | ● | 818 |
| EX-REXL | 16 | 80 | 150 | 16 | □ | 858 |
| ETXL | 16 | 100 | 155 | 16 | □ | 823-11 |
| EXDL | 16 | 100 | 155 | 16 | ● | 792 |
| EXML | 16 | 100 | 155 | 16 | ● | 819 |
| EX-TIN-ETXL | 16 | 100 | 155 | 16 | □ | 823-10 |
| EX-TIN-EXDL | 16 | 100 | 155 | 16 | □ | 823-6 |
| EX-TIN-EXML | 16 | 100 | 155 | 16 | □ | 823-19 |
| EX-REXL | 16 | 100 | 170 | 16 | □ | 858 |
| EX-TIN-REXL | 16 | 100 | 170 | 16 | □ | 870-8 |
| EX-REXL | 16 | 120 | 190 | 16 | □ | 858 |
| EX-REXL | 16 | 150 | 220 | 16 | □ | 858 |
| EDS | 16.1 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.1 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 16.1 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 16.1 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 16.1 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.1 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 16.1 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.1 | 65 | 120 | 16 | □ | 790 |
| EDS | 16.2 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.2 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 16.2 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 16.2 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 16.2 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.2 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 16.2 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.2 | 65 | 120 | 16 | □ | 790 |
| EDS | 16.3 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.3 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 16.3 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 16.3 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 16.3 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.3 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 16.3 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.3 | 65 | 120 | 16 | □ | 790 |
| EDS | 16.4 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.4 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 16.4 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 16.4 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 16.4 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.4 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 16.4 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.4 | 65 | 120 | 16 | □ | 790 |
| EDS | 16.5 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.5 | 34 | 95 | 16 | ● | 762 |
| XPM-EDS | 16.5 | 34 | 100 | 16 | ● | 758 |
| CC-EMS | 16.5 | 40 | 95 | 16 | ● | 806 |
| EX-TIN-EMS | 16.5 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.5 | 40 | 100 | 16 | □ | 798 |
| CC-EMN | 16.5 | 50 | 105 | 16 | □ | 823-17 |
| CC-EML | 16.5 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.5 | 65 | 120 | 16 | ● | 790 |
| EX-TIN-EDL | 16.5 | 65 | 120 | 16 | ● | 788 |
| EX-TIN-EML | 16.5 | 65 | 120 | 16 | □ | 814 |
| EDS | 16.6 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.6 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 16.6 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 16.6 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 16.6 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.6 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 16.6 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.6 | 65 | 120 | 16 | □ | 790 |
| EDS | 16.7 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.7 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 16.7 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 16.7 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 16.7 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.7 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 16.7 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.7 | 65 | 120 | 16 | □ | 790 |
| EDS | 16.8 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.8 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 16.8 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 16.8 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 16.8 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.8 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 16.8 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.8 | 65 | 120 | 16 | □ | 790 |
| EDS | 16.9 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 16.9 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 16.9 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 16.9 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 16.9 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 16.9 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 16.9 | 65 | 120 | 16 | □ | 816 |
| EDL | 16.9 | 65 | 120 | 16 | □ | 790 |
| EX-REES | 17 | 32 | 92 | 16 | ● | 848 |
| EX-TIN-RESF | 17 | 32 | 92 | 16 | ● | 845 |
| TFGS | 17 | 32 | 92 | 16 | ● | 859 |
| EX-LS-REES | 17 | 32 | 125 | 16 | ● | 849 |
| EX-LS-RESF | 17 | 32 | 125 | 16 | ● | 847 |
| LS-TFS | 17 | 32 | 125 | 16 | □ | 870-13 |
| SI-WH-RESF | 17 | 32 | 125 | 16 | □ | 838 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

# ハイスエンドミル／スクエア
HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| TIN-LS-RESF | 17 | 32 | 125 | 16 | □ | 846 |
| VLS-XPM-RESF | 17 | 32 | 125 | 16 | □ | 841 |
| VP-RESF | 17 | 32 | 125 | 16 | □ | 840 |
| WH-REES | 17 | 32 | 125 | 16 | ● | 839 |
| WH-RESF | 17 | 32 | 125 | 16 | ● | 839 |
| AL-EDS | 17 | 34 | 95 | 16 | ● | 776 |
| CPM-EDS | 17 | 34 | 95 | 16 | □ | 775 |
| EDS | 17 | 34 | 95 | 16 | ● | 769 |
| ETS | 17 | 34 | 95 | 16 | ● | 794 |
| EX-TIN-EDS | 17 | 34 | 95 | 16 | ● | 762 |
| EX-TIN-ETS | 17 | 34 | 95 | 16 | □ | 823-10 |
| MR-EDS | 17 | 34 | 95 | 16 | □ | 823-3 |
| SUS-EDS | 17 | 34 | 95 | 16 | ● | 777 |
| V-XPM-EDS | 17 | 34 | 100 | 16 | ● | 755 |
| XPM-EDS | 17 | 34 | 100 | 16 | ● | 758 |
| CPM-STD | 17 | 34 | 138 | 20 | □ | 823-5 |
| CC-EMS | 17 | 40 | 95 | 16 | ● | 806 |
| CPM-EDN | 17 | 40 | 95 | 16 | □ | 823-5 |
| CPM-STDN | 17 | 40 | 95 | 16 | ● | 784 |
| EDN | 17 | 40 | 95 | 16 | ● | 783 |
| EX-TIN-EDN | 17 | 40 | 95 | 16 | ● | 782 |
| EX-TIN-EMS | 17 | 40 | 95 | 16 | ● | 803 |
| TIN-XPM-EMS | 17 | 40 | 100 | 16 | □ | 823-14 |
| V-XPM-EMS | 17 | 40 | 100 | 16 | ● | 795 |
| XPM-EMS | 17 | 40 | 100 | 16 | ● | 798 |
| V-XPM-EDN | 17 | 40 | 110 | 16 | ● | 778 |
| XPM-EDN | 17 | 40 | 110 | 16 | ● | 780 |
| BKMS | 17 | 40 | 110 | 20 | □ | 863 |
| CPM-BKMS | 17 | 40 | 110 | 20 | □ | 870-15 |
| CPM-EHS | 17 | 40 | 120 | 20 | □ | 823-22 |
| XPM-EHS | 17 × 3F | 40 | 120 | 20 | □ | 823 |
| LS-REES | 17 | 40 | 130 | 16 | □ | 870-3 |
| LS-EMS | 17 | 40 | 155 | 16 | ● | 810 |
| LN-EDN-OH | 17 | 40 | 160 | 16 | □ | 823-27 |
| DE-XPM-EDN | 17 | 40 | 180 | 16 | ● | 781 |
| DE-XPM-EMS | 17 | 40 | 180 | 16 | ● | 801 |
| DE-XPM-EDN | 17 | 40 | 250 | 16 | ● | 781 |
| DE-XPM-EMS | 17 | 40 | 250 | 16 | ● | 801 |
| LS-EMSS | 17 | 45 | 250 | 16 | □ | 823-11 |
| EX-REEN | 17 | 48 | 108 | 16 | ● | 853 |
| EX-TIN-RENF | 17 | 48 | 108 | 16 | ● | 851 |
| TFGN | 17 | 48 | 108 | 16 | ● | 865 |
| WH-REEN | 17 | 48 | 125 | 16 | ● | 852 |
| WH-RENF | 17 | 48 | 125 | 16 | ● | 850 |
| CC-EMN | 17 | 50 | 105 | 16 | □ | 823-17 |
| EX-REE | 17 | 50 | 105 | 16 | □ | 870-5 |
| EX-TIN-REE | 17 | 50 | 105 | 16 | □ | 870-4 |
| REE | 17 | 50 | 105 | 16 | □ | 870-6 |
| RFE | 17 | 50 | 105 | 16 | □ | 868 |
| CPM-XLS-EDS | 17 | 60 | 250 | 16 | □ | 823-2 |
| XLS-EDS | 17 | 60 | 250 | 16 | □ | 823-1 |
| XLS-EMS | 17 | 60 | 250 | 16 | □ | 823-12 |
| EX-REEL | 17 | 63 | 123 | 16 | ● | 857 |
| EX-TIN-RELF | 17 | 63 | 123 | 16 | □ | 856 |
| AL-EDL | 17 | 65 | 120 | 16 | □ | 823-7 |
| CC-EML | 17 | 65 | 120 | 16 | ● | 816 |
| CPM-EDL | 17 | 65 | 120 | 16 | □ | 823-8 |
| CPM-EML | 17 | 65 | 120 | 16 | □ | 818 |
| EDL | 17 | 65 | 120 | 16 | ● | 790 |
| EX-TIN-EDL | 17 | 65 | 120 | 16 | ● | 788 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EML | 17 | 65 | 120 | 16 | ● | 814 |
| V-XPM-EDL | 17 | 65 | 135 | 16 | ● | 785 |
| V-XPM-EML | 17 | 65 | 135 | 16 | ● | 812 |
| XPM-EDL | 17 | 65 | 135 | 16 | ● | 786 |
| XPM-EML | 17 | 65 | 135 | 16 | ● | 813 |
| ETXL | 17 | 100 | 155 | 16 | □ | 823-11 |
| EXDL | 17 | 100 | 155 | 16 | □ | 792 |
| EXML | 17 | 100 | 155 | 16 | □ | 819 |
| EX-TIN-ETXL | 17 | 100 | 155 | 16 | □ | 823-10 |
| EDS | 17.1 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.1 | 34 | 95 | 16 | □ | 762 |
| XPM-EDS | 17.1 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 17.1 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 17.1 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.1 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 17.1 | 65 | 120 | 16 | □ | 816 |
| EDL | 17.1 | 65 | 120 | 16 | □ | 791 |
| EDS | 17.2 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.2 | 34 | 95 | 16 | □ | 763 |
| XPM-EDS | 17.2 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 17.2 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 17.2 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.2 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 17.2 | 65 | 120 | 16 | □ | 816 |
| EDL | 17.2 | 65 | 120 | 16 | □ | 791 |
| EDS | 17.3 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.3 | 34 | 95 | 16 | □ | 763 |
| XPM-EDS | 17.3 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 17.3 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 17.3 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.3 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 17.3 | 65 | 120 | 16 | □ | 816 |
| EDL | 17.3 | 65 | 120 | 16 | □ | 791 |
| EDS | 17.4 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.4 | 34 | 95 | 16 | □ | 763 |
| XPM-EDS | 17.4 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 17.4 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 17.4 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.4 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 17.4 | 65 | 120 | 16 | □ | 816 |
| EDL | 17.4 | 65 | 120 | 16 | □ | 791 |
| CPM-EDS | 17.5 | 34 | 95 | 16 | □ | 775 |
| EDS | 17.5 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.5 | 34 | 95 | 16 | ● | 763 |
| XPM-EDS | 17.5 | 34 | 100 | 16 | ● | 758 |
| CC-EMS | 17.5 | 40 | 95 | 16 | ● | 806 |
| EX-TIN-EMS | 17.5 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.5 | 40 | 100 | 16 | □ | 798 |
| CC-EMN | 17.5 | 50 | 105 | 16 | □ | 823-17 |
| CC-EML | 17.5 | 65 | 120 | 16 | □ | 816 |
| EDL | 17.5 | 65 | 120 | 16 | ● | 791 |
| EX-TIN-EDL | 17.5 | 65 | 120 | 16 | ● | 788 |
| EX-TIN-EML | 17.5 | 65 | 120 | 16 | □ | 814 |
| EDS | 17.6 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.6 | 34 | 95 | 16 | □ | 763 |
| XPM-EDS | 17.6 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 17.6 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 17.6 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.6 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 17.6 | 65 | 120 | 16 | □ | 816 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDL | 17.6 | 65 | 120 | 16 | □ | 791 |
| EDS | 17.7 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.7 | 34 | 95 | 16 | □ | 763 |
| XPM-EDS | 17.7 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 17.7 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 17.7 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.7 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 17.7 | 65 | 120 | 16 | □ | 816 |
| EDL | 17.7 | 65 | 120 | 16 | □ | 791 |
| EDS | 17.8 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.8 | 34 | 95 | 16 | □ | 763 |
| XPM-EDS | 17.8 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 17.8 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 17.8 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.8 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 17.8 | 65 | 120 | 16 | □ | 816 |
| EDL | 17.8 | 65 | 120 | 16 | □ | 791 |
| EDS | 17.9 | 34 | 95 | 16 | ● | 769 |
| EX-TIN-EDS | 17.9 | 34 | 95 | 16 | □ | 763 |
| XPM-EDS | 17.9 | 34 | 100 | 16 | □ | 758 |
| CC-EMS | 17.9 | 40 | 95 | 16 | □ | 806 |
| EX-TIN-EMS | 17.9 | 40 | 95 | 16 | □ | 803 |
| XPM-EMS | 17.9 | 40 | 100 | 16 | □ | 798 |
| CC-EML | 17.9 | 65 | 120 | 16 | □ | 816 |
| EDL | 17.9 | 65 | 120 | 16 | □ | 791 |
| TIN-TUF-TSC | 18 | 5 | 120 | 12 | □ | 895-1 |
| WH-NC-EDSS | 18 | 6 | 60 | 10 | □ | 823-3 |
| WH-NC-EMSS | 18 | 6 | 60 | 10 | □ | 823-16 |
| TIN-TUF-TSC | 18 | 6 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 18 | 7 | 120 | 12 | □ | 895-1 |
| WH-NC-RESF | 18 | 8 | 60 | 10 | □ | 870-2 |
| TIN-TUF-TSC | 18 | 8 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 18 | 10 | 120 | 12 | □ | 895-1 |
| EKD | 18 | 18 | 80 | 16 | ● | 773 |
| EKD | 18 | 18 | 80 | 16 | ● | 773 |
| EX-TIN-EKD | 18 | 18 | 80 | 16 | ● | 765 |
| EX-REES | 18 | 32 | 92 | 16 | ● | 848 |
| EX-TIN-RESF | 18 | 32 | 92 | 16 | ● | 845 |
| TFGS | 18 | 32 | 92 | 16 | ● | 859 |
| CPM-LS-RESF | 18 | 32 | 125 | 16 | □ | 870-2 |
| EX-LS-REES | 18 | 32 | 125 | 16 | ● | 849 |
| EX-LS-RESF | 18 | 32 | 125 | 16 | ● | 847 |
| SI-WH-RESF | 18 | 32 | 125 | 16 | □ | 838 |
| TIN-LS-RESF | 18 | 32 | 125 | 16 | ● | 846 |
| TLS-XPM-RESF | 18 | 32 | 125 | 16 | □ | 844 |
| VLS-XPM-RESF | 18 | 32 | 125 | 16 | ● | 841 |
| VP-RESF | 18 | 32 | 125 | 16 | ● | 840 |
| WH-REES | 18 | 32 | 125 | 16 | ● | 839 |
| WH-RESF | 18 | 32 | 125 | 16 | ● | 839 |
| LS-BKMS | 18 | 32 | 155 | 16 | □ | 864 |
| VP-DE-RESF | 18 | 32 | 180 | 16 | ● | 843 |
| AL-EDS | 18 | 34 | 95 | 16 | ● | 776 |
| CPM-EDS | 18 | 34 | 95 | 16 | □ | 775 |
| EDS | 18 | 34 | 95 | 16 | ● | 769 |
| ETS | 18 | 34 | 95 | 16 | ● | 794 |
| EX-TIN-EDS | 18 | 34 | 95 | 16 | ● | 763 |
| EX-TIN-ETS | 18 | 34 | 95 | 16 | □ | 823-10 |
| MR-EDS | 18 | 34 | 95 | 16 | □ | 823-3 |
| SUS-EDS | 18 | 34 | 95 | 16 | ● | 777 |
| V-XPM-EDS | 18 | 34 | 100 | 16 | ● | 755 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDS | 18 | 34 | 100 | 16 | ● | 758 |
| CPM-STD | 18 | 34 | 138 | 20 | □ | 823-5 |
| CC-EMS | 18 | 40 | 95 | 16 | ● | 806 |
| CPM-EDN | 18 | 40 | 95 | 16 | □ | 823-5 |
| CPM-STDN | 18 | 40 | 95 | 16 | ● | 784 |
| EDN | 18 | 40 | 95 | 16 | ● | 783 |
| EX-TIN-EDN | 18 | 40 | 95 | 16 | ● | 782 |
| EX-TIN-EMS | 18 | 40 | 95 | 16 | ● | 803 |
| REES | 18 | 40 | 100 | 16 | □ | 870-3 |
| RFES | 18 | 40 | 100 | 16 | ● | 862 |
| TIN-XPM-EMS | 18 | 40 | 100 | 16 | □ | 823-14 |
| V-XPM-EMS | 18 | 40 | 100 | 16 | ● | 795 |
| XPM-EMS | 18 | 40 | 100 | 16 | ● | 798 |
| TIN-XPM-EDN | 18 | 40 | 110 | 16 | □ | 779 |
| V-XPM-EDN | 18 | 40 | 110 | 16 | ● | 778 |
| XPM-EDN | 18 | 40 | 110 | 16 | ● | 780 |
| CPM-BKMS | 18 | 40 | 110 | 20 | □ | 870-15 |
| CPM-EHS | 18 | 40 | 120 | 20 | □ | 823-22 |
| V-XPM-NHS | 18 | 40 | 120 | 20 | ● | 859 |
| TIN-XPM-EHS | 18 × 3F | 40 | 120 | 20 | ● | 822 |
| V-XPM-EHS | 18 × 3F | 40 | 120 | 20 | ● | 821 |
| XPM-EHS | 18 × 3F | 40 | 120 | 20 | ● | 823 |
| V-XPM-EHS | 18 × 4F | 40 | 120 | 20 | ● | 821 |
| LS-REES | 18 | 40 | 130 | 16 | □ | 870-3 |
| LS-RFES | 18 | 40 | 130 | 16 | ● | 863 |
| LS-EDN | 18 | 40 | 155 | 16 | ● | 784 |
| LS-EMS | 18 | 40 | 155 | 16 | ● | 810 |
| LN-EDN-OH | 18 | 40 | 160 | 16 | □ | 823-27 |
| DE-XPM-EDN | 18 | 40 | 180 | 16 | ● | 781 |
| DE-XPM-EMS | 18 | 40 | 180 | 16 | ● | 801 |
| DE-XPM-EDN | 18 | 40 | 250 | 16 | ● | 781 |
| DE-XPM-EMS | 18 | 40 | 250 | 16 | ● | 801 |
| EX-XLS-REE | 18 | 40 | 250 | 16 | □ | 870-7 |
| LS-EMSS | 18 | 45 | 250 | 16 | □ | 823-11 |
| EX-REEN | 18 | 48 | 108 | 16 | ● | 853 |
| EX-TIN-RENF | 18 | 48 | 108 | 16 | ● | 851 |
| TFGN | 18 | 48 | 108 | 16 | ● | 865 |
| VP-RENF | 18 | 48 | 125 | 16 | ● | 850 |
| WH-REEN | 18 | 48 | 125 | 16 | ● | 852 |
| WH-RENF | 18 | 48 | 125 | 16 | ● | 850 |
| CC-EMN | 18 | 50 | 105 | 16 | □ | 823-17 |
| CPM-REE | 18 | 50 | 105 | 16 | □ | 870-7 |
| CPM-RFE | 18 | 50 | 105 | 16 | □ | 870-17 |
| EX-REE | 18 | 50 | 105 | 16 | □ | 870-5 |
| EX-TIN-REE | 18 | 50 | 105 | 16 | □ | 870-4 |
| REE | 18 | 50 | 105 | 16 | □ | 870-6 |
| RFE | 18 | 50 | 105 | 16 | ● | 868 |
| EX-REE-3F | 18 | 52 | 123 | 16 | □ | 870-6 |
| EX-REXL | 18 | 60 | 115 | 16 | □ | 858 |
| EX-TIN-REXL | 18 | 60 | 115 | 16 | □ | 870-8 |
| REEL | 18 | 60 | 115 | 16 | □ | 870-9 |
| RFEL | 18 | 60 | 115 | 16 | □ | 869 |
| CPM-XLS-EDS | 18 | 60 | 250 | 16 | □ | 823-2 |
| XLS-EDS | 18 | 60 | 250 | 16 | □ | 823-1 |
| XLS-EMS | 18 | 60 | 250 | 16 | □ | 823-12 |
| EX-REEL | 18 | 63 | 123 | 16 | ● | 857 |
| EX-TIN-RELF | 18 | 63 | 123 | 16 | ● | 856 |
| REEM | 18 | 63 | 123 | 16 | □ | 870-5 |
| TFL | 18 | 63 | 123 | 16 | □ | 870-14 |
| VP-RELF | 18 | 63 | 125 | 16 | ● | 855 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

# ハイスエンドミル／スクエア
HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WH-REEL | 18 | 63 | 125 | 16 | ● | 854 |
| WH-RELF | 18 | 63 | 125 | 16 | ● | 854 |
| AL-EDL | 18 | 65 | 120 | 16 | □ | 823-7 |
| CC-EML | 18 | 65 | 120 | 16 | ● | 816 |
| EDL | 18 | 65 | 120 | 16 | ● | 791 |
| EX-TIN-EDL | 18 | 65 | 120 | 16 | ● | 788 |
| EX-TIN-EML | 18 | 65 | 120 | 16 | ● | 814 |
| V-XPM-EDL | 18 | 65 | 135 | 16 | ● | 785 |
| V-XPM-EML | 18 | 65 | 135 | 16 | ● | 812 |
| XPM-EDL | 18 | 65 | 135 | 16 | ● | 786 |
| XPM-EML | 18 | 65 | 135 | 16 | ● | 813 |
| EX-TIN-LS-EDL | 18 | 65 | 155 | 16 | □ | 823-6 |
| LS-EDL | 18 | 65 | 155 | 16 | □ | 823-7 |
| LS-EML | 18 | 65 | 155 | 16 | ● | 818 |
| TIN-XPM-EHL | 18 × 3F | 75 | 155 | 20 | ● | 822 |
| V-XPM-EHL | 18 × 3F | 75 | 155 | 20 | ● | 821 |
| XPM-EHL | 18 × 3F | 75 | 155 | 20 | ● | 823 |
| ETXL | 18 | 100 | 155 | 16 | □ | 823-11 |
| EXDL | 18 | 100 | 155 | 16 | ● | 792 |
| EXML | 18 | 100 | 155 | 16 | ● | 819 |
| EX-TIN-ETXL | 18 | 100 | 155 | 16 | □ | 823-10 |
| EX-TIN-EXDL | 18 | 100 | 155 | 16 | □ | 823-6 |
| EX-TIN-EXML | 18 | 100 | 155 | 16 | □ | 823-19 |
| EX-TIN-REXL | 18 | 100 | 180 | 20 | □ | 870-8 |
| EX-REXL | 18 | 120 | 200 | 20 | □ | 858 |
| EX-REXL | 18 | 150 | 230 | 20 | □ | 858 |
| EDS | 18.1 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 18.1 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 18.1 | 38 | 115 | 20 | □ | 758 |
| CC-EMS | 18.1 | 45 | 110 | 20 | □ | 806 |
| EX-TIN-EMS | 18.1 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.1 | 45 | 115 | 20 | □ | 798 |
| CC-EML | 18.1 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.1 | 75 | 140 | 20 | □ | 791 |
| EDS | 18.2 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 18.2 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 18.2 | 38 | 115 | 20 | □ | 758 |
| CC-EMS | 18.2 | 45 | 110 | 20 | □ | 806 |
| EX-TIN-EMS | 18.2 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.2 | 45 | 115 | 20 | □ | 798 |
| CC-EML | 18.2 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.2 | 75 | 140 | 20 | □ | 791 |
| EDS | 18.3 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 18.3 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 18.3 | 38 | 115 | 20 | □ | 758 |
| CC-EMS | 18.3 | 45 | 110 | 20 | □ | 806 |
| EX-TIN-EMS | 18.3 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.3 | 45 | 115 | 20 | □ | 798 |
| CC-EML | 18.3 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.3 | 75 | 140 | 20 | □ | 791 |
| EDS | 18.4 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 18.4 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 18.4 | 38 | 115 | 20 | □ | 758 |
| CC-EMS | 18.4 | 45 | 110 | 20 | □ | 806 |
| EX-TIN-EMS | 18.4 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.4 | 45 | 115 | 20 | □ | 798 |
| CC-EML | 18.4 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.4 | 75 | 140 | 20 | □ | 791 |
| CPM-EDS | 18.5 | 38 | 110 | 20 | □ | 775 |
| EDS | 18.5 | 38 | 110 | 20 | ● | 769 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EDS | 18.5 | 38 | 110 | 20 | ● | 763 |
| XPM-EDS | 18.5 | 38 | 115 | 20 | ● | 758 |
| CC-EMS | 18.5 | 45 | 110 | 20 | ● | 806 |
| EX-TIN-EMS | 18.5 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.5 | 45 | 115 | 20 | □ | 798 |
| CC-EMN | 18.5 | 60 | 125 | 20 | □ | 823-17 |
| CC-EML | 18.5 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.5 | 75 | 140 | 20 | ● | 791 |
| EX-TIN-EDL | 18.5 | 75 | 140 | 20 | ● | 788 |
| EX-TIN-EML | 18.5 | 75 | 140 | 20 | □ | 814 |
| EDS | 18.6 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 18.6 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 18.6 | 38 | 115 | 20 | □ | 758 |
| CC-EMS | 18.6 | 45 | 110 | 20 | □ | 806 |
| EX-TIN-EMS | 18.6 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.6 | 45 | 115 | 20 | □ | 798 |
| CC-EML | 18.6 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.6 | 75 | 140 | 20 | □ | 791 |
| EDS | 18.7 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 18.7 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 18.7 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 18.7 | 45 | 110 | 20 | □ | 806 |
| EX-TIN-EMS | 18.7 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.7 | 45 | 115 | 20 | □ | 798 |
| CC-EML | 18.7 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.7 | 75 | 140 | 20 | □ | 791 |
| EDS | 18.8 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 18.8 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 18.8 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 18.8 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 18.8 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.8 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 18.8 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.8 | 75 | 140 | 20 | □ | 791 |
| EDS | 18.9 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 18.9 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 18.9 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 18.9 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 18.9 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 18.9 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 18.9 | 75 | 140 | 20 | □ | 816 |
| EDL | 18.9 | 75 | 140 | 20 | □ | 791 |
| TIN-TUF-TSC | 19 | 5 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 19 | 6 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 19 | 7 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 19 | 8 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 19 | 10 | 120 | 12 | □ | 895-1 |
| EX-REES | 19 | 32 | 92 | 16 | ● | 848 |
| EX-TIN-RESF | 19 | 32 | 92 | 16 | ● | 845 |
| TFGS | 19 | 32 | 92 | 16 | ● | 859 |
| SI-WH-RESF | 19 | 32 | 135 | 16 | □ | 838 |
| WH-REES | 19 | 32 | 135 | 16 | ● | 839 |
| WH-RESF | 19 | 32 | 135 | 16 | ● | 839 |
| EX-LS-REES | 19 | 32 | 135 | 20 | ● | 849 |
| EX-LS-RESF | 19 | 32 | 135 | 20 | ● | 847 |
| TIN-LS-RESF | 19 | 32 | 135 | 20 | □ | 846 |
| VLS-XPM-RESF | 19 | 32 | 135 | 20 | □ | 841 |
| VP-RESF | 19 | 32 | 135 | 20 | □ | 840 |
| CPM-STD | 19 | 36 | 140 | 20 | □ | 823-5 |
| AL-EDS | 19 | 38 | 110 | 20 | ● | 776 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-EDS | 19 | 38 | 110 | 20 | □ | 775 |
| EDS | 19 | 38 | 110 | 20 | ● | 769 |
| ETS | 19 | 38 | 110 | 20 | ● | 794 |
| EX-TIN-EDS | 19 | 38 | 110 | 20 | ● | 763 |
| EX-TIN-ETS | 19 | 38 | 110 | 20 | □ | 823-10 |
| SUS-EDS | 19 | 38 | 110 | 20 | ● | 777 |
| V-XPM-EDS | 19 | 38 | 115 | 20 | ● | 755 |
| XPM-EDS | 19 | 38 | 115 | 20 | ● | 759 |
| CC-EMS | 19 | 45 | 110 | 20 | ● | 807 |
| CE-EMS | 19 | 45 | 110 | 20 | □ | 809 |
| CPM-EDN | 19 | 45 | 110 | 20 | □ | 823-5 |
| CPM-STDN | 19 | 45 | 110 | 20 | ● | 784 |
| EDN | 19 | 45 | 110 | 20 | ● | 783 |
| EX-TIN-EDN | 19 | 45 | 110 | 20 | ● | 782 |
| EX-TIN-EMS | 19 | 45 | 110 | 20 | ● | 803 |
| BKMS | 19 | 45 | 115 | 20 | □ | 863 |
| CPM-BKMS | 19 | 45 | 115 | 20 | □ | 870-15 |
| TIN-XPM-EMS | 19 | 45 | 115 | 20 | □ | 823-14 |
| V-XPM-EMS | 19 | 45 | 115 | 20 | ● | 795 |
| XPM-EMS | 19 | 45 | 115 | 20 | ● | 799 |
| CPM-EHS | 19 | 45 | 125 | 20 | □ | 823-22 |
| V-XPM-EDN | 19 | 45 | 125 | 20 | ● | 778 |
| XPM-EDN | 19 | 45 | 125 | 20 | ● | 780 |
| XPM-EHS | 19 × 3F | 45 | 125 | 20 | □ | 823 |
| LN-EDN-OH | 19 | 45 | 160 | 20 | □ | 823-27 |
| DE-XPM-EDN | 19 | 45 | 180 | 16 | ● | 781 |
| DE-XPM-EMS | 19 | 45 | 180 | 16 | ● | 801 |
| LS-EMS | 19 | 45 | 185 | 16 | ● | 810 |
| DE-XPM-EDN | 19 | 45 | 250 | 16 | ● | 781 |
| DE-XPM-EMS | 19 | 45 | 250 | 16 | ● | 801 |
| EX-REEN | 19 | 48 | 108 | 16 | ● | 853 |
| EX-TIN-RENF | 19 | 48 | 108 | 16 | ● | 851 |
| TFGN | 19 | 48 | 108 | 16 | ● | 865 |
| WH-REEN | 19 | 48 | 125 | 16 | ● | 852 |
| WH-RENF | 19 | 48 | 125 | 16 | ● | 850 |
| LS-EMSS | 19 | 50 | 250 | 16 | □ | 823-11 |
| EX-REE | 19 | 55 | 120 | 20 | □ | 870-5 |
| EX-TIN-REE | 19 | 55 | 120 | 20 | □ | 870-4 |
| REE | 19 | 55 | 120 | 20 | □ | 870-6 |
| RFE | 19 | 55 | 120 | 20 | □ | 868 |
| CC-EMN | 19 | 60 | 125 | 20 | □ | 823-17 |
| EX-REEL | 19 | 63 | 123 | 16 | ● | 857 |
| EX-TIN-RELF | 19 | 63 | 123 | 16 | □ | 856 |
| CPM-XLS-EDS | 19 | 65 | 250 | 16 | □ | 823-2 |
| XLS-EDS | 19 | 65 | 250 | 16 | □ | 823-1 |
| XLS-EMS | 19 | 65 | 250 | 16 | □ | 823-12 |
| AL-EDL | 19 | 75 | 140 | 20 | □ | 823-7 |
| CC-EML | 19 | 75 | 140 | 20 | ● | 816 |
| EDL | 19 | 75 | 140 | 20 | ● | 791 |
| EX-TIN-EDL | 19 | 75 | 140 | 20 | ● | 788 |
| EX-TIN-EML | 19 | 75 | 140 | 20 | ● | 814 |
| CPM-EHL | 19 | 75 | 155 | 20 | □ | 823-24 |
| TIN-XPM-EDL | 19 | 75 | 155 | 20 | □ | 823-9 |
| V-XPM-EDL | 19 | 75 | 155 | 20 | ● | 785 |
| V-XPM-EML | 19 | 75 | 155 | 20 | ● | 812 |
| XPM-EDL | 19 | 75 | 155 | 20 | ● | 786 |
| XPM-EML | 19 | 75 | 155 | 20 | ● | 813 |
| ETXL | 19 | 100 | 165 | 20 | □ | 823-11 |
| EXDL | 19 | 100 | 165 | 20 | □ | 792 |
| EXML | 19 | 100 | 165 | 20 | □ | 819 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-ETXL | 19 | 100 | 165 | 20 | □ | 823-10 |
| EDS | 19.1 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.1 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 19.1 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 19.1 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 19.1 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.1 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 19.1 | 75 | 140 | 20 | □ | 816 |
| EDL | 19.1 | 75 | 140 | 20 | □ | 791 |
| EDS | 19.2 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.2 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 19.2 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 19.2 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 19.2 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.2 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 19.2 | 75 | 140 | 20 | □ | 816 |
| EDL | 19.2 | 75 | 140 | 20 | □ | 791 |
| EDS | 19.3 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.3 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 19.3 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 19.3 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 19.3 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.3 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 19.3 | 75 | 140 | 20 | □ | 816 |
| EDL | 19.3 | 75 | 140 | 20 | □ | 791 |
| EDS | 19.4 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.4 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 19.4 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 19.4 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 19.4 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.4 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 19.4 | 75 | 140 | 20 | □ | 816 |
| EDL | 19.4 | 75 | 140 | 20 | □ | 791 |
| CPM-EDS | 19.5 | 38 | 110 | 20 | □ | 775 |
| EDS | 19.5 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.5 | 38 | 110 | 20 | ● | 763 |
| XPM-EDS | 19.5 | 38 | 115 | 20 | ● | 759 |
| CC-EMS | 19.5 | 45 | 110 | 20 | ● | 807 |
| EX-TIN-EMS | 19.5 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.5 | 45 | 115 | 20 | □ | 799 |
| CC-EMN | 19.5 | 60 | 125 | 20 | □ | 823-17 |
| CC-EML | 19.5 | 75 | 140 | 20 | □ | 816 |
| EDL | 19.5 | 75 | 140 | 20 | ● | 791 |
| EX-TIN-EDL | 19.5 | 75 | 140 | 20 | ● | 788 |
| EX-TIN-EML | 19.5 | 75 | 140 | 20 | □ | 814 |
| EDS | 19.6 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.6 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 19.6 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 19.6 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 19.6 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.6 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 19.6 | 75 | 140 | 20 | □ | 816 |
| EDL | 19.6 | 75 | 140 | 20 | □ | 791 |
| EDS | 19.7 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.7 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 19.7 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 19.7 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 19.7 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.7 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 19.7 | 75 | 140 | 20 | □ | 816 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDL | 19.7 | 75 | 140 | 20 | □ | 791 |
| EDS | 19.8 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.8 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 19.8 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 19.8 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 19.8 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.8 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 19.8 | 75 | 140 | 20 | □ | 816 |
| EDL | 19.8 | 75 | 140 | 20 | □ | 791 |
| EDS | 19.9 | 38 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 19.9 | 38 | 110 | 20 | □ | 763 |
| XPM-EDS | 19.9 | 38 | 115 | 20 | □ | 759 |
| CC-EMS | 19.9 | 45 | 110 | 20 | □ | 807 |
| EX-TIN-EMS | 19.9 | 45 | 110 | 20 | □ | 803 |
| XPM-EMS | 19.9 | 45 | 115 | 20 | □ | 799 |
| CC-EML | 19.9 | 75 | 140 | 20 | □ | 816 |
| EDL | 19.9 | 75 | 140 | 20 | □ | 791 |
| TIN-TUF-TSC | 20 | 5 | 120 | 12 | □ | 895-1 |
| RF-TSC | 20 | 5 | 130 | 12 | ● | 894 |
| WH-NC-EDSS | 20 | 6 | 60 | 10 | □ | 823-3 |
| WH-NC-EMSS | 20 | 6 | 60 | 10 | □ | 823-16 |
| TIN-TUF-TSC | 20 | 6 | 120 | 12 | □ | 895-1 |
| RF-TSC | 20 | 6 | 130 | 12 | ● | 894 |
| TIN-TUF-TSC | 20 | 7 | 120 | 12 | □ | 895-1 |
| RF-TSC | 20 | 7 | 130 | 12 | ● | 894 |
| WH-NC-RESF | 20 | 8 | 60 | 10 | □ | 870-2 |
| TIN-TUF-TSC | 20 | 8 | 120 | 12 | □ | 895-1 |
| RF-TSC | 20 | 8 | 130 | 12 | □ | 894 |
| TIN-TUF-TSC | 20 | 10 | 120 | 12 | □ | 895-1 |
| RF-TSC | 20 | 10 | 130 | 12 | □ | 894 |
| EKD | 20 | 20 | 85 | 20 | ● | 773 |
| EKD | 20 | 20 | 85 | 20 | ● | 773 |
| EX-TIN-EKD | 20 | 20 | 85 | 20 | ● | 765 |
| CPM-STD | 20 | 36 | 140 | 20 | □ | 823-5 |
| EX-REES | 20 | 38 | 104 | 20 | ● | 848 |
| EX-TIN-RESF | 20 | 38 | 104 | 20 | ● | 845 |
| TFGS | 20 | 38 | 104 | 20 | ● | 859 |
| TFS | 20 | 38 | 104 | 20 | □ | 860 |
| AL-EDS | 20 | 38 | 110 | 20 | ● | 776 |
| CPM-EDS | 20 | 38 | 110 | 20 | □ | 775 |
| EDS | 20 | 38 | 110 | 20 | ● | 769 |
| ETS | 20 | 38 | 110 | 20 | ● | 794 |
| EX-TIN-EDS | 20 | 38 | 110 | 20 | ● | 763 |
| EX-TIN-ETS | 20 | 38 | 110 | 20 | □ | 823-10 |
| MR-EDS | 20 | 38 | 110 | 20 | □ | 823-3 |
| SUS-EDS | 20 | 38 | 110 | 20 | ● | 777 |
| TIN-XPM-EDS | 20 | 38 | 115 | 20 | □ | 823-4 |
| V-XPM-EDS | 20 | 38 | 115 | 20 | ● | 755 |
| XPM-EDS | 20 | 38 | 115 | 20 | ● | 759 |
| VSS-XPM-RESF | 20 | 38 | 140 | 19 | ● | 842 |
| CPM-LS-RESF | 20 | 38 | 140 | 20 | □ | 870-2 |
| EX-LS-REES | 20 | 38 | 140 | 20 | ● | 849 |
| EX-LS-RESF | 20 | 38 | 140 | 20 | ● | 847 |
| SI-WH-RESF | 20 | 38 | 140 | 20 | ● | 838 |
| TIN-LS-RESF | 20 | 38 | 140 | 20 | ● | 846 |
| VLS-XPM-RESF | 20 | 38 | 140 | 20 | ● | 841 |
| VP-RESF | 20 | 38 | 140 | 20 | ● | 840 |
| WH-REES | 20 | 38 | 140 | 20 | ● | 839 |
| WH-RESF | 20 | 38 | 140 | 20 | ● | 839 |
| LS-BKMS | 20 | 38 | 185 | 20 | □ | 864 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| VP-DE-RESF | 20 | 38 | 200 | 20 | ● | 843 |
| CC-EMS | 20 | 45 | 110 | 20 | ● | 807 |
| CE-EMS | 20 | 45 | 110 | 20 | □ | 809 |
| CPM-EDN | 20 | 45 | 110 | 20 | □ | 823-5 |
| CPM-EMS | 20 | 45 | 110 | 20 | □ | 811 |
| CPM-STDN | 20 | 45 | 110 | 20 | ● | 784 |
| EDN | 20 | 45 | 110 | 20 | ● | 783 |
| EX-TIN-EDN | 20 | 45 | 110 | 20 | ● | 782 |
| EX-TIN-EMS | 20 | 45 | 110 | 20 | ● | 803 |
| MR-EMS | 20 | 45 | 110 | 20 | □ | 823-13 |
| REES | 20 | 45 | 110 | 20 | □ | 870-3 |
| RFES | 20 | 45 | 110 | 20 | ● | 862 |
| BKMS | 20 | 45 | 115 | 20 | □ | 863 |
| CPM-BKMS | 20 | 45 | 115 | 20 | □ | 870-15 |
| TIN-KFR | 20 | 45 | 115 | 20 | □ | 870-18 |
| TIN-XPM-EMS | 20 | 45 | 115 | 20 | □ | 823-14 |
| V-XPM-EMS | 20 | 45 | 115 | 20 | ● | 795 |
| XPM-EMS | 20 | 45 | 115 | 20 | ● | 799 |
| VPS-EMS | 20 × 6F | 45 | 115 | 20 | ● | 796 |
| VPS-EMS | 20 × 6F | 45 | 115 | 20 | ● | 837 |
| VPS-EMS | 20 × 10F | 45 | 115 | 20 | ● | 796 |
| VPS-EMS | 20 × 10F | 45 | 115 | 20 | ● | 837 |
| CPM-EHS | 20 | 45 | 125 | 20 | □ | 823-22 |
| V-XPM-EDN | 20 | 45 | 125 | 20 | ● | 778 |
| V-XPM-NHS | 20 | 45 | 125 | 20 | ● | 859 |
| XPM-EDN | 20 | 45 | 125 | 20 | ● | 780 |
| TIN-XPM-EHS | 20 × 3F | 45 | 125 | 20 | ● | 822 |
| V-XPM-EHS | 20 × 3F | 45 | 125 | 20 | ● | 821 |
| XPM-EHS | 20 × 3F | 45 | 125 | 20 | ● | 823 |
| V-XPM-EHS | 20 × 4F | 45 | 125 | 20 | ● | 821 |
| V-SS-XPM-EDN | 20 | 45 | 140 | 19 | ● | 778 |
| V-SS-XPM-EMS | 20 | 45 | 140 | 19 | ● | 796 |
| LS-REES | 20 | 45 | 145 | 20 | □ | 870-3 |
| LS-RFES | 20 | 45 | 145 | 20 | ● | 863 |
| DE-XPM-EDN | 20 | 45 | 180 | 16 | ● | 781 |
| DE-XPM-EMS | 20 | 45 | 180 | 16 | ● | 801 |
| LN-EDN-OH | 20 | 45 | 180 | 20 | □ | 823-27 |
| LS-EDN | 20 | 45 | 185 | 20 | ● | 784 |
| LS-EMS | 20 | 45 | 185 | 20 | ● | 810 |
| LS-EMS | 20 | 45 | 235 | 20 | ● | 810 |
| DE-XPM-EDN | 20 | 45 | 250 | 16 | ● | 781 |
| DE-XPM-EMS | 20 | 45 | 250 | 16 | ● | 801 |
| PS-EXML | 20 | 50 | 200 | 20 | □ | 823-20 |
| EX-XLS-REE | 20 | 50 | 300 | 20 | □ | 870-7 |
| LS-EMSS | 20 | 50 | 300 | 20 | □ | 823-11 |
| CPM-REE | 20 | 55 | 120 | 20 | □ | 870-7 |
| CPM-RFE | 20 | 55 | 120 | 20 | □ | 870-17 |
| EX-REE | 20 | 55 | 120 | 20 | □ | 870-5 |
| EX-TIN-REE | 20 | 55 | 120 | 20 | □ | 870-4 |
| REE | 20 | 55 | 120 | 20 | □ | 870-6 |
| RFE | 20 | 55 | 120 | 20 | ● | 868 |
| MT-REE | 20 | 55 | 135 | MT2 | □ | 870-11 |
| MT-RFE | 20 | 55 | 135 | MT2 | □ | 870-20 |
| BS-REE | 20 | 55 | 145 | BS7 | □ | 870-10 |
| BS-RFE | 20 | 55 | 145 | BS7 | □ | 870-19 |
| EX-REEN | 20 | 56 | 122 | 20 | ● | 853 |
| EX-TIN-RENF | 20 | 56 | 122 | 20 | ● | 851 |
| TFGN | 20 | 56 | 122 | 20 | ● | 865 |
| TFN | 20 | 56 | 122 | 20 | □ | 866 |
| VP-RENF | 20 | 56 | 140 | 20 | ● | 850 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WH-REEN | 20 | 56 | 140 | 20 | ● | 852 |
| WH-RENF | 20 | 56 | 140 | 20 | ● | 850 |
| CC-EMN | 20 | 60 | 125 | 20 | □ | 823-17 |
| EX-REXL | 20 | 60 | 125 | 20 | □ | 858 |
| EX-TIN-REXL | 20 | 60 | 125 | 20 | □ | 870-8 |
| REEL | 20 | 60 | 125 | 20 | □ | 870-9 |
| MT-EHL | 20 | 60 | 140 | MT2 | □ | 823-25 |
| EX-REE-3F | 20 | 60 | 141 | 20 | □ | 870-6 |
| XPM-EMN | 20 | 60 | 150 | 20 | □ | 823-16 |
| CPM-XLS-EDS | 20 | 65 | 300 | 20 | □ | 823-2 |
| XLS-EDS | 20 | 65 | 300 | 20 | □ | 823-1 |
| XLS-EMS | 20 | 65 | 300 | 20 | □ | 823-12 |
| AL-EDL | 20 | 75 | 140 | 20 | □ | 823-7 |
| CC-EML | 20 | 75 | 140 | 20 | ● | 817 |
| EDL | 20 | 75 | 140 | 20 | ● | 791 |
| EX-TIN-EDL | 20 | 75 | 140 | 20 | ● | 788 |
| EX-TIN-EML | 20 | 75 | 140 | 20 | ● | 814 |
| VP-RELF | 20 | 75 | 140 | 20 | ● | 855 |
| WH-REEL | 20 | 75 | 140 | 20 | ● | 854 |
| WH-RELF | 20 | 75 | 140 | 20 | ● | 854 |
| EX-REEL | 20 | 75 | 141 | 20 | ● | 857 |
| EX-TIN-RELF | 20 | 75 | 141 | 20 | ● | 856 |
| REEM | 20 | 75 | 141 | 20 | □ | 870-5 |
| TFL | 20 | 75 | 141 | 20 | □ | 870-14 |
| BKML | 20 | 75 | 145 | 20 | □ | 870-16 |
| TIN-XPM-EDL | 20 | 75 | 155 | 20 | □ | 823-9 |
| TIN-XPM-EML | 20 | 75 | 155 | 20 | □ | 823-15 |
| V-XPM-EDL | 20 | 75 | 155 | 20 | ● | 785 |
| V-XPM-EML | 20 | 75 | 155 | 20 | ● | 812 |
| XPM-EDL | 20 | 75 | 155 | 20 | ● | 786 |
| XPM-EML | 20 | 75 | 155 | 20 | ● | 813 |
| EX-TIN-LS-EDL | 20 | 75 | 185 | 20 | □ | 823-6 |
| LS-EDL | 20 | 75 | 185 | 20 | □ | 823-7 |
| LS-EML | 20 | 75 | 185 | 20 | ● | 818 |
| CPM-XLS-EDS | 20 | 75 | 400 | 20 | □ | 823-2 |
| EX-XLS-REE | 20 | 75 | 400 | 20 | □ | 870-7 |
| EX-REXL | 20 | 80 | 145 | 20 | □ | 858 |
| EX-TIN-REXL | 20 | 80 | 145 | 20 | □ | 870-8 |
| REEL | 20 | 80 | 145 | 20 | □ | 870-9 |
| RFEL | 20 | 80 | 145 | 20 | □ | 869 |
| CPM-EHL | 20 | 85 | 165 | 20 | □ | 823-24 |
| TIN-XPM-EHL | 20 × 3F | 85 | 165 | 20 | ● | 822 |
| V-XPM-EHL | 20 × 3F | 85 | 165 | 20 | ● | 821 |
| XPM-EHL | 20 × 3F | 85 | 165 | 20 | ● | 823 |
| EXDL | 20 | 100 | 165 | 20 | □ | 792 |
| EXML | 20 | 100 | 165 | 20 | □ | 819 |
| EX-REXL | 20 | 100 | 165 | 20 | □ | 858 |
| EX-TIN-REXL | 20 | 100 | 165 | 20 | □ | 870-8 |
| REEL | 20 | 100 | 165 | 20 | □ | 870-9 |
| PS-EXML | 20 | 100 | 250 | 20 | □ | 823-20 |
| PS-EXML | 20 | 100 | 300 | 20 | □ | 823-20 |
| CPM-XLS-EDS | 20 | 100 | 500 | 20 | □ | 823-2 |
| EX-XLS-REE | 20 | 100 | 500 | 20 | □ | 870-7 |
| EX-REXL | 20 | 106 | 180 | 20 | ● | 858 |
| EX-TIN-REXL | 20 | 106 | 180 | 20 | □ | 870-8 |
| REEL | 20 | 106 | 180 | 20 | □ | 870-9 |
| RFEL | 20 | 106 | 180 | 20 | ● | 869 |
| ETXL | 20 | 120 | 185 | 20 | □ | 823-11 |
| EXDL | 20 | 120 | 185 | 20 | ● | 792 |
| EXML | 20 | 120 | 185 | 20 | ● | 819 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-ETXL | 20 | 120 | 185 | 20 | □ | 823-10 |
| EX-TIN-EXDL | 20 | 120 | 185 | 20 | □ | 823-6 |
| EX-TIN-EXML | 20 | 120 | 185 | 20 | □ | 823-19 |
| EX-REXL | 20 | 125 | 200 | 20 | ● | 858 |
| EX-TIN-REXL | 20 | 125 | 200 | 20 | □ | 870-8 |
| REEL | 20 | 125 | 200 | 20 | □ | 870-9 |
| RFEL | 20 | 125 | 200 | 20 | ● | 869 |
| EXDL | 20 | 150 | 215 | 20 | □ | 792 |
| EXML | 20 | 150 | 215 | 20 | □ | 819 |
| EX-REXL | 20 | 150 | 230 | 20 | □ | 858 |
| PS-EXML | 20 | 200 | 300 | 20 | □ | 823-20 |
| PS-EXML | 20 | 250 | 350 | 20 | □ | 823-20 |
| CC-EMS | 20.1 | 45 | 110 | 20 | □ | 807 |
| EDS | 20.1 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 20.1 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.1 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 20.2 | 45 | 110 | 20 | □ | 807 |
| EDS | 20.2 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 20.2 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.2 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 20.3 | 45 | 110 | 20 | □ | 807 |
| EDS | 20.3 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 20.3 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.3 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 20.4 | 45 | 110 | 20 | □ | 807 |
| EDS | 20.4 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 20.4 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.4 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 20.5 | 45 | 110 | 20 | ● | 807 |
| CPM-EDS | 20.5 | 45 | 110 | 20 | □ | 775 |
| EDS | 20.5 | 45 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 20.5 | 45 | 110 | 20 | ● | 763 |
| EX-TIN-EMS | 20.5 | 45 | 110 | 20 | □ | 803 |
| XPM-EDS | 20.5 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.5 | 45 | 115 | 20 | □ | 799 |
| EDL | 20.5 | 75 | 140 | 20 | ● | 791 |
| EX-TIN-EDL | 20.5 | 75 | 140 | 20 | ● | 788 |
| CC-EMS | 20.6 | 45 | 110 | 20 | □ | 807 |
| EDS | 20.6 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 20.6 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.6 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 20.7 | 45 | 110 | 20 | □ | 807 |
| EDS | 20.7 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 20.7 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.7 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 20.8 | 45 | 110 | 20 | □ | 807 |
| EDS | 20.8 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 20.8 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.8 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 20.9 | 45 | 110 | 20 | □ | 807 |
| EDS | 20.9 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 20.9 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 20.9 | 45 | 115 | 20 | □ | 799 |
| EX-REES | 21 | 38 | 104 | 20 | ● | 848 |
| EX-TIN-RESF | 21 | 38 | 104 | 20 | ● | 845 |
| TFGS | 21 | 38 | 104 | 20 | ● | 859 |
| EX-LS-REES | 21 | 38 | 140 | 20 | ● | 849 |
| EX-LS-RESF | 21 | 38 | 140 | 20 | ● | 847 |
| SI-WH-RESF | 21 | 38 | 140 | 20 | □ | 838 |
| TIN-LS-RESF | 21 | 38 | 140 | 20 | □ | 846 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| VLS-XPM-RESF | 21 | 38 | 140 | 20 | □ | 841 |
| VP-RESF | 21 | 38 | 140 | 20 | □ | 840 |
| WH-REES | 21 | 38 | 140 | 20 | ● | 839 |
| WH-RESF | 21 | 38 | 140 | 20 | ● | 839 |
| CPM-STD | 21 | 41 | 145 | 20 | □ | 823-5 |
| AL-EDS | 21 | 45 | 110 | 20 | ● | 776 |
| CC-EMS | 21 | 45 | 110 | 20 | ● | 807 |
| CPM-EDS | 21 | 45 | 110 | 20 | □ | 775 |
| EDS | 21 | 45 | 110 | 20 | ● | 769 |
| ETS | 21 | 45 | 110 | 20 | ● | 794 |
| EX-TIN-EDS | 21 | 45 | 110 | 20 | ● | 763 |
| EX-TIN-EMS | 21 | 45 | 110 | 20 | ● | 804 |
| EX-TIN-ETS | 21 | 45 | 110 | 20 | □ | 823-10 |
| SUS-EDS | 21 | 45 | 110 | 20 | ● | 777 |
| CPM-BKMS | 21 | 45 | 115 | 20 | □ | 870-15 |
| V-XPM-EDS | 21 | 45 | 115 | 20 | ● | 755 |
| V-XPM-EMS | 21 | 45 | 115 | 20 | ● | 795 |
| XPM-EDS | 21 | 45 | 115 | 20 | ● | 759 |
| XPM-EMS | 21 | 45 | 115 | 20 | ● | 799 |
| XPM-EHS | 21 × 3F | 45 | 125 | 20 | □ | 823 |
| CPM-EHS | 21 | 45 | 135 | 25 | □ | 823-22 |
| LS-EMS | 21 | 45 | 185 | 20 | ● | 810 |
| EX-REEN | 21 | 56 | 122 | 20 | ● | 853 |
| EX-TIN-RENF | 21 | 56 | 122 | 20 | ● | 851 |
| TFGN | 21 | 56 | 122 | 20 | ● | 865 |
| WH-REEN | 21 | 56 | 140 | 20 | ● | 852 |
| WH-RENF | 21 | 56 | 140 | 20 | ● | 850 |
| EX-REE | 21 | 60 | 120 | 20 | □ | 870-5 |
| EX-TIN-REE | 21 | 60 | 120 | 20 | □ | 870-4 |
| REE | 21 | 60 | 120 | 20 | □ | 870-6 |
| RFE | 21 | 60 | 120 | 20 | □ | 868 |
| CC-EMN | 21 | 60 | 125 | 20 | □ | 823-17 |
| CC-EML | 21 | 75 | 140 | 20 | ● | 817 |
| CPM-EDL | 21 | 75 | 140 | 20 | □ | 823-8 |
| EDL | 21 | 75 | 140 | 20 | ● | 791 |
| EX-TIN-EDL | 21 | 75 | 140 | 20 | ● | 788 |
| EX-TIN-EML | 21 | 75 | 140 | 20 | ● | 814 |
| EX-REEL | 21 | 75 | 141 | 20 | ● | 857 |
| EX-TIN-RELF | 21 | 75 | 141 | 20 | □ | 856 |
| TFL | 21 | 75 | 141 | 20 | □ | 870-14 |
| V-XPM-EDL | 21 | 75 | 155 | 20 | ● | 785 |
| V-XPM-EML | 21 | 75 | 155 | 20 | ● | 812 |
| XPM-EDL | 21 | 75 | 155 | 20 | ● | 786 |
| XPM-EML | 21 | 75 | 155 | 20 | ● | 813 |
| EXDL | 21 | 100 | 165 | 20 | □ | 792 |
| EXML | 21 | 100 | 165 | 20 | □ | 819 |
| ETXL | 21 | 120 | 185 | 20 | □ | 823-11 |
| EXDL | 21 | 120 | 185 | 20 | □ | 792 |
| EXML | 21 | 120 | 185 | 20 | □ | 819 |
| EX-TIN-ETXL | 21 | 120 | 185 | 20 | □ | 823-10 |
| EXDL | 21 | 150 | 215 | 20 | □ | 792 |
| EXML | 21 | 150 | 215 | 20 | □ | 819 |
| CC-EMS | 21.1 | 45 | 110 | 20 | □ | 807 |
| EDS | 21.1 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 21.1 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.1 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 21.2 | 45 | 110 | 20 | □ | 807 |
| EDS | 21.2 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 21.2 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.2 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 21.3 | 45 | 110 | 20 | □ | 807 |
| EDS | 21.3 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 21.3 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.3 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 21.4 | 45 | 110 | 20 | □ | 807 |
| EDS | 21.4 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 21.4 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.4 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 21.5 | 45 | 110 | 20 | ● | 807 |
| CPM-EDS | 21.5 | 45 | 110 | 20 | □ | 775 |
| EDS | 21.5 | 45 | 110 | 20 | ● | 769 |
| EX-TIN-EDS | 21.5 | 45 | 110 | 20 | ● | 763 |
| EX-TIN-EMS | 21.5 | 45 | 110 | 20 | □ | 804 |
| XPM-EDS | 21.5 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.5 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 21.6 | 45 | 110 | 20 | □ | 807 |
| EDS | 21.6 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 21.6 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.6 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 21.7 | 45 | 110 | 20 | □ | 807 |
| EDS | 21.7 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 21.7 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.7 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 21.8 | 45 | 110 | 20 | □ | 807 |
| EDS | 21.8 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 21.8 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.8 | 45 | 115 | 20 | □ | 799 |
| CC-EMS | 21.9 | 45 | 110 | 20 | □ | 807 |
| EDS | 21.9 | 45 | 110 | 20 | □ | 769 |
| XPM-EDS | 21.9 | 45 | 115 | 20 | □ | 759 |
| XPM-EMS | 21.9 | 45 | 115 | 20 | □ | 799 |
| TIN-TUF-TSC | 22 | 5 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 22 | 6 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 22 | 7 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 22 | 8 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 22 | 10 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 22 | 12 | 120 | 12 | □ | 895-1 |
| EKD | 22 | 25 | 90 | 20 | ● | 773 |
| EKD | 22 | 25 | 90 | 20 | ● | 773 |
| EX-TIN-EKD | 22 | 25 | 90 | 20 | ● | 765 |
| EX-REES | 22 | 38 | 104 | 20 | ● | 848 |
| EX-TIN-RESF | 22 | 38 | 104 | 20 | ● | 845 |
| TFGS | 22 | 38 | 104 | 20 | ● | 859 |
| CPM-LS-RESF | 22 | 38 | 140 | 20 | □ | 870-2 |
| EX-LS-REES | 22 | 38 | 140 | 20 | ● | 849 |
| EX-LS-RESF | 22 | 38 | 140 | 20 | ● | 847 |
| LS-TFS | 22 | 38 | 140 | 20 | □ | 870-13 |
| SI-WH-RESF | 22 | 38 | 140 | 20 | □ | 838 |
| TIN-LS-RESF | 22 | 38 | 140 | 20 | ● | 846 |
| VLS-XPM-RESF | 22 | 38 | 140 | 20 | ● | 841 |
| VP-RESF | 22 | 38 | 140 | 20 | ● | 840 |
| WH-REES | 22 | 38 | 140 | 20 | ● | 839 |
| WH-RESF | 22 | 38 | 140 | 20 | ● | 839 |
| LS-BKMS | 22 | 38 | 185 | 20 | □ | 864 |
| VP-DE-RESF | 22 | 38 | 200 | 20 | ● | 843 |
| CPM-STD | 22 | 41 | 145 | 20 | □ | 823-5 |
| AL-EDS | 22 | 45 | 110 | 20 | ● | 776 |
| CC-EMS | 22 | 45 | 110 | 20 | ● | 807 |
| CPM-EDS | 22 | 45 | 110 | 20 | □ | 775 |
| EDS | 22 | 45 | 110 | 20 | ● | 769 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| ETS | 22 | 45 | 110 | 20 | ● | 794 |
| EX-TIN-EDS | 22 | 45 | 110 | 20 | ● | 763 |
| EX-TIN-EMS | 22 | 45 | 110 | 20 | ● | 804 |
| EX-TIN-ETS | 22 | 45 | 110 | 20 | □ | 823-10 |
| REES | 22 | 45 | 110 | 20 | □ | 870-3 |
| RFES | 22 | 45 | 110 | 20 | ● | 862 |
| SUS-EDS | 22 | 45 | 110 | 20 | ● | 777 |
| CPM-BKMS | 22 | 45 | 115 | 20 | □ | 870-15 |
| TIN-KFR | 22 | 45 | 115 | 20 | □ | 870-18 |
| V-XPM-EDS | 22 | 45 | 115 | 20 | ● | 755 |
| V-XPM-EMS | 22 | 45 | 115 | 20 | ● | 795 |
| XPM-EDS | 22 | 45 | 115 | 20 | ● | 759 |
| XPM-EMS | 22 | 45 | 115 | 20 | ● | 799 |
| CPM-EHS | 22 | 45 | 135 | 25 | □ | 823-22 |
| TIN-XPM-EHS | 22 × 3F | 45 | 135 | 25 | ● | 822 |
| V-XPM-EHS | 22 × 3F | 45 | 135 | 25 | ● | 821 |
| V-XPM-NHS | 22 × 3F | 45 | 135 | 25 | ● | 859 |
| XPM-EHS | 22 × 3F | 45 | 135 | 25 | ● | 823 |
| TIN-XPM-EHS | 22 × 4F | 45 | 135 | 25 | ● | 822 |
| V-XPM-EHS | 22 × 4F | 45 | 135 | 25 | ● | 821 |
| V-XPM-NHS | 22 × 4F | 45 | 135 | 25 | ● | 859 |
| XPM-EHS | 22 × 4F | 45 | 135 | 25 | ● | 823 |
| LS-REES | 22 | 45 | 145 | 20 | □ | 870-3 |
| LS-RFES | 22 | 45 | 145 | 20 | ● | 863 |
| LS-EDN | 22 | 45 | 185 | 20 | ● | 784 |
| LS-EMS | 22 | 45 | 185 | 20 | ● | 810 |
| DE-XPM-EDN | 22 | 45 | 225 | 20 | ● | 781 |
| DE-XPM-EMS | 22 | 45 | 225 | 20 | ● | 801 |
| LS-EMS | 22 | 45 | 235 | 20 | ● | 810 |
| DE-XPM-EDN | 22 | 45 | 300 | 20 | ● | 781 |
| DE-XPM-EMS | 22 | 45 | 300 | 20 | ● | 801 |
| EX-XLS-REE | 22 | 50 | 300 | 20 | □ | 870-7 |
| LS-EMSS | 22 | 55 | 300 | 20 | □ | 823-11 |
| EX-REEN | 22 | 56 | 122 | 20 | ● | 853 |
| EX-TIN-RENF | 22 | 56 | 122 | 20 | ● | 851 |
| TFGN | 22 | 56 | 122 | 20 | ● | 865 |
| VP-RENF | 22 | 56 | 140 | 20 | ● | 850 |
| WH-REEN | 22 | 56 | 140 | 20 | ● | 852 |
| WH-RENF | 22 | 56 | 140 | 20 | ● | 850 |
| CPM-REE | 22 | 60 | 120 | 20 | □ | 870-7 |
| CPM-RFE | 22 | 60 | 120 | 20 | □ | 870-17 |
| EX-REE | 22 | 60 | 120 | 20 | □ | 870-5 |
| EX-TIN-REE | 22 | 60 | 120 | 20 | □ | 870-4 |
| REE | 22 | 60 | 120 | 20 | □ | 870-6 |
| RFE | 22 | 60 | 120 | 20 | ● | 868 |
| CC-EMN | 22 | 60 | 125 | 20 | □ | 823-17 |
| MT-REE | 22 | 60 | 140 | MT2 | □ | 870-11 |
| MT-RFE | 22 | 60 | 140 | MT2 | □ | 870-20 |
| EX-REE-3F | 22 | 60 | 141 | 20 | □ | 870-6 |
| CPM-XLS-EDS | 22 | 65 | 300 | 20 | □ | 823-2 |
| XLS-EDS | 22 | 65 | 300 | 20 | □ | 823-1 |
| XLS-EMS | 22 | 65 | 300 | 20 | □ | 823-12 |
| CC-EML | 22 | 75 | 140 | 20 | ● | 817 |
| EDL | 22 | 75 | 140 | 20 | ● | 791 |
| EX-TIN-EDL | 22 | 75 | 140 | 20 | ● | 788 |
| EX-TIN-EML | 22 | 75 | 140 | 20 | ● | 814 |
| VP-RELF | 22 | 75 | 140 | 20 | ● | 855 |
| WH-REEL | 22 | 75 | 140 | 20 | ● | 854 |
| WH-RELF | 22 | 75 | 140 | 20 | ● | 854 |
| EX-REEL | 22 | 75 | 141 | 20 | ● | 857 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-RELF | 22 | 75 | 141 | 20 | ● | 856 |
| REEM | 22 | 75 | 141 | 20 | □ | 870-5 |
| BKML | 22 | 75 | 145 | 20 | □ | 870-16 |
| TIN-XPM-EDL | 22 | 75 | 155 | 20 | □ | 823-9 |
| V-XPM-EDL | 22 | 75 | 155 | 20 | ● | 785 |
| V-XPM-EML | 22 | 75 | 155 | 20 | ● | 812 |
| XPM-EDL | 22 | 75 | 155 | 20 | ● | 786 |
| XPM-EML | 22 | 75 | 155 | 20 | ● | 813 |
| EX-TIN-LS-EDL | 22 | 75 | 185 | 20 | □ | 823-6 |
| LS-EDL | 22 | 75 | 185 | 20 | □ | 823-7 |
| LS-EML | 22 | 75 | 185 | 20 | ● | 818 |
| CPM-EHL | 22 | 85 | 175 | 25 | □ | 823-24 |
| TIN-XPM-EHL | 22 × 3F | 85 | 175 | 25 | ● | 822 |
| V-XPM-EHL | 22 × 3F | 85 | 175 | 25 | ● | 821 |
| XPM-EHL | 22 × 3F | 85 | 175 | 25 | ● | 823 |
| TIN-XPM-EHL | 22 × 4F | 85 | 175 | 25 | ● | 822 |
| V-XPM-EHL | 22 × 4F | 85 | 175 | 25 | ● | 821 |
| XPM-EHL | 22 × 4F | 85 | 175 | 25 | ● | 823 |
| EXDL | 22 | 100 | 165 | 20 | □ | 792 |
| EXML | 22 | 100 | 165 | 20 | ● | 819 |
| EX-REXL | 22 | 100 | 165 | 20 | □ | 858 |
| EX-TIN-EXML | 22 | 100 | 165 | 20 | □ | 823-19 |
| EX-TIN-REXL | 22 | 100 | 165 | 20 | □ | 870-8 |
| REEL | 22 | 100 | 165 | 20 | □ | 870-9 |
| RFEL | 22 | 100 | 165 | 20 | □ | 869 |
| ETXL | 22 | 120 | 185 | 20 | □ | 823-11 |
| EXDL | 22 | 120 | 185 | 20 | ● | 792 |
| EXML | 22 | 120 | 185 | 20 | ● | 819 |
| EX-TIN-ETXL | 22 | 120 | 185 | 20 | □ | 823-10 |
| EX-TIN-EXDL | 22 | 120 | 185 | 20 | □ | 823-6 |
| EX-TIN-EXML | 22 | 120 | 185 | 20 | □ | 823-19 |
| EXDL | 22 | 150 | 215 | 20 | □ | 792 |
| EXML | 22 | 150 | 215 | 20 | □ | 819 |
| EX-REXL | 22 | 150 | 240 | 25 | □ | 858 |
| CC-EMS | 22.1 | 50 | 120 | 25 | □ | 807 |
| EDS | 22.1 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 22.1 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 22.1 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 22.2 | 50 | 120 | 25 | □ | 807 |
| EDS | 22.2 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 22.2 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 22.2 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 22.3 | 50 | 120 | 25 | □ | 807 |
| EDS | 22.3 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 22.3 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 22.3 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 22.4 | 50 | 120 | 25 | □ | 807 |
| EDS | 22.4 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 22.4 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 22.4 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 22.5 | 50 | 120 | 25 | ● | 807 |
| CPM-EDS | 22.5 | 50 | 120 | 25 | □ | 775 |
| EDS | 22.5 | 50 | 120 | 25 | ● | 769 |
| EX-TIN-EDS | 22.5 | 50 | 120 | 25 | ● | 763 |
| EX-TIN-EMS | 22.5 | 50 | 120 | 25 | □ | 804 |
| XPM-EDS | 22.5 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 22.5 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 22.6 | 50 | 120 | 25 | □ | 807 |
| EDS | 22.6 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 22.6 | 50 | 125 | 25 | □ | 759 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EMS | 22.6 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 22.7 | 50 | 120 | 25 | □ | 807 |
| EDS | 22.7 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 22.7 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 22.7 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 22.8 | 50 | 120 | 25 | □ | 807 |
| EDS | 22.8 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 22.8 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 22.8 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 22.9 | 50 | 120 | 25 | □ | 807 |
| EDS | 22.9 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 22.9 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 22.9 | 50 | 125 | 25 | □ | 799 |
| EX-REES | 23 | 38 | 104 | 20 | ● | 848 |
| EX-TIN-RESF | 23 | 38 | 104 | 20 | ● | 845 |
| TFGS | 23 | 38 | 104 | 20 | ● | 859 |
| EX-LS-REES | 23 | 38 | 140 | 20 | ● | 849 |
| EX-LS-RESF | 23 | 38 | 140 | 20 | ● | 847 |
| SI-WH-RESF | 23 | 38 | 140 | 20 | □ | 838 |
| TIN-LS-RESF | 23 | 38 | 140 | 20 | □ | 846 |
| VLS-XPM-RESF | 23 | 38 | 140 | 20 | □ | 841 |
| VP-RESF | 23 | 38 | 140 | 20 | □ | 840 |
| WH-REES | 23 | 38 | 140 | 20 | ● | 839 |
| WH-RESF | 23 | 38 | 140 | 20 | ● | 839 |
| CPM-STD | 23 | 41 | 145 | 20 | □ | 823-5 |
| AL-EDS | 23 | 50 | 120 | 25 | ● | 776 |
| CC-EMS | 23 | 50 | 120 | 25 | ● | 807 |
| CPM-EDS | 23 | 50 | 120 | 25 | □ | 775 |
| CPM-EMS | 23 | 50 | 120 | 25 | □ | 811 |
| EDS | 23 | 50 | 120 | 25 | ● | 769 |
| ETS | 23 | 50 | 120 | 25 | ● | 794 |
| EX-TIN-EDS | 23 | 50 | 120 | 25 | ● | 763 |
| EX-TIN-EMS | 23 | 50 | 120 | 25 | ● | 804 |
| EX-TIN-ETS | 23 | 50 | 120 | 25 | □ | 823-10 |
| SUS-EDS | 23 | 50 | 120 | 25 | ● | 777 |
| CPM-BKMS | 23 | 50 | 125 | 25 | □ | 870-15 |
| V-XPM-EDS | 23 | 50 | 125 | 25 | ● | 755 |
| V-XPM-EMS | 23 | 50 | 125 | 25 | ● | 795 |
| XPM-EDS | 23 | 50 | 125 | 25 | ● | 759 |
| XPM-EMS | 23 | 50 | 125 | 25 | ● | 799 |
| CPM-EHS | 23 | 50 | 140 | 25 | □ | 823-22 |
| XPM-EHS | 23 × 3F | 50 | 140 | 25 | □ | 823 |
| LS-EMS | 23 | 50 | 190 | 20 | ● | 810 |
| EX-REEN | 23 | 56 | 122 | 20 | ● | 853 |
| EX-TIN-RENF | 23 | 56 | 122 | 20 | ● | 851 |
| TFGN | 23 | 56 | 122 | 20 | ● | 865 |
| WH-REEN | 23 | 56 | 140 | 20 | ● | 852 |
| WH-RENF | 23 | 56 | 140 | 20 | ● | 850 |
| CC-EMN | 23 | 70 | 140 | 25 | □ | 823-17 |
| EX-REE | 23 | 70 | 140 | 25 | □ | 870-5 |
| EX-TIN-REE | 23 | 70 | 140 | 25 | □ | 870-4 |
| REE | 23 | 70 | 140 | 25 | □ | 870-6 |
| RFE | 23 | 70 | 140 | 25 | □ | 868 |
| EX-REEL | 23 | 75 | 141 | 20 | ● | 857 |
| EX-TIN-RELF | 23 | 75 | 141 | 20 | □ | 856 |
| TFL | 23 | 75 | 141 | 20 | □ | 870-14 |
| CC-EML | 23 | 90 | 160 | 25 | ● | 817 |
| EDL | 23 | 90 | 160 | 25 | ● | 791 |
| EX-TIN-EDL | 23 | 90 | 160 | 25 | ● | 788 |
| EX-TIN-EML | 23 | 90 | 160 | 25 | ● | 814 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EDL | 23 | 90 | 180 | 25 | ● | 785 |
| V-XPM-EML | 23 | 90 | 180 | 25 | ● | 812 |
| XPM-EDL | 23 | 90 | 180 | 25 | ● | 786 |
| XPM-EML | 23 | 90 | 180 | 25 | ● | 813 |
| EXDL | 23 | 100 | 170 | 25 | □ | 792 |
| EXML | 23 | 100 | 170 | 25F | □ | 819 |
| ETXL | 23 | 120 | 190 | 25 | □ | 823-11 |
| EXDL | 23 | 120 | 190 | 25 | □ | 792 |
| EXML | 23 | 120 | 190 | 25F | □ | 819 |
| EX-TIN-ETXL | 23 | 120 | 190 | 25 | □ | 823-10 |
| EXDL | 23 | 150 | 220 | 25 | □ | 792 |
| EXML | 23 | 150 | 220 | 25F | □ | 819 |
| CC-EMS | 23.1 | 50 | 120 | 25 | □ | 807 |
| EDS | 23.1 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 23.1 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.1 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 23.2 | 50 | 120 | 25 | □ | 807 |
| EDS | 23.2 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 23.2 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.2 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 23.3 | 50 | 120 | 25 | □ | 807 |
| EDS | 23.3 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 23.3 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.3 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 23.4 | 50 | 120 | 25 | □ | 807 |
| EDS | 23.4 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 23.4 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.4 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 23.5 | 50 | 120 | 25 | ● | 807 |
| CPM-EDS | 23.5 | 50 | 120 | 25 | □ | 775 |
| CPM-EMS | 23.5 | 50 | 120 | 25 | □ | 811 |
| EDS | 23.5 | 50 | 120 | 25 | ● | 769 |
| EX-TIN-EDS | 23.5 | 50 | 120 | 25 | ● | 763 |
| EX-TIN-EMS | 23.5 | 50 | 120 | 25 | □ | 804 |
| XPM-EDS | 23.5 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.5 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 23.6 | 50 | 120 | 25 | □ | 807 |
| EDS | 23.6 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 23.6 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.6 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 23.7 | 50 | 120 | 25 | □ | 807 |
| EDS | 23.7 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 23.7 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.7 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 23.8 | 50 | 120 | 25 | □ | 807 |
| EDS | 23.8 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 23.8 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.8 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 23.9 | 50 | 120 | 25 | □ | 807 |
| EDS | 23.9 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 23.9 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 23.9 | 50 | 125 | 25 | □ | 799 |
| TIN-TUF-TSC | 24 | 5 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 24 | 6 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 24 | 7 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 24 | 8 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 24 | 10 | 120 | 12 | □ | 895-1 |
| TIN-TUF-TSC | 24 | 12 | 120 | 12 | □ | 895-1 |
| EKD | 24 | 25 | 95 | 25 | ● | 773 |
| EKD | 24 | 25 | 95 | 25 | ● | 773 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EKD | 24 | 25 | 95 | 25 | ● | 765 |
| CPM-STD | 24 | 41 | 148 | 25 | □ | 823-5 |
| EX-REES | 24 | 45 | 121 | 25 | ● | 848 |
| EX-TIN-RESF | 24 | 45 | 121 | 25 | ● | 845 |
| TFGS | 24 | 45 | 121 | 25 | ● | 859 |
| TFS | 24 | 45 | 121 | 25 | □ | 860 |
| EX-LS-REES | 24 | 45 | 160 | 25 | ● | 849 |
| EX-LS-RESF | 24 | 45 | 160 | 25 | ● | 847 |
| LS-TFS | 24 | 45 | 160 | 25 | □ | 870-13 |
| SI-WH-RESF | 24 | 45 | 160 | 25 | □ | 838 |
| TIN-LS-RESF | 24 | 45 | 160 | 25 | □ | 846 |
| VLS-XPM-RESF | 24 | 45 | 160 | 25 | □ | 841 |
| VP-RESF | 24 | 45 | 160 | 25 | □ | 840 |
| WH-REES | 24 | 45 | 160 | 25 | ● | 839 |
| WH-RESF | 24 | 45 | 160 | 25 | ● | 839 |
| AL-EDS | 24 | 50 | 120 | 25 | ● | 776 |
| CC-EMS | 24 | 50 | 120 | 25 | ● | 807 |
| CPM-EDS | 24 | 50 | 120 | 25 | □ | 775 |
| EDS | 24 | 50 | 120 | 25 | ● | 769 |
| ETS | 24 | 50 | 120 | 25 | ● | 794 |
| EX-TIN-EDS | 24 | 50 | 120 | 25 | ● | 763 |
| EX-TIN-EMS | 24 | 50 | 120 | 25 | ● | 804 |
| EX-TIN-ETS | 24 | 50 | 120 | 25 | □ | 823-10 |
| SUS-EDS | 24 | 50 | 120 | 25 | ● | 777 |
| BKMS | 24 | 50 | 125 | 25 | □ | 863 |
| CPM-BKMS | 24 | 50 | 125 | 25 | □ | 870-15 |
| TIN-XPM-EDS | 24 | 50 | 125 | 25 | □ | 823-4 |
| TIN-XPM-EMS | 24 | 50 | 125 | 25 | □ | 823-14 |
| V-XPM-EDS | 24 | 50 | 125 | 25 | ● | 755 |
| V-XPM-EMS | 24 | 50 | 125 | 25 | ● | 795 |
| XPM-EDS | 24 | 50 | 125 | 25 | ● | 759 |
| XPM-EMS | 24 | 50 | 125 | 25 | ● | 799 |
| CPM-EHS | 24 | 50 | 140 | 25 | □ | 823-22 |
| TIN-XPM-EHS | 24 × 3F | 50 | 140 | 25 | ● | 822 |
| V-XPM-EHS | 24 × 3F | 50 | 140 | 25 | ● | 821 |
| V-XPM-NHS | 24 × 3F | 50 | 140 | 25 | ● | 859 |
| XPM-EHS | 24 × 3F | 50 | 140 | 25 | ● | 823 |
| TIN-XPM-EHS | 24 × 4F | 50 | 140 | 25 | ● | 822 |
| V-XPM-EHS | 24 × 4F | 50 | 140 | 25 | ● | 821 |
| V-XPM-NHS | 24 × 4F | 50 | 140 | 25 | ● | 859 |
| XPM-EHS | 24 × 4F | 50 | 140 | 25 | ● | 823 |
| LS-EDN | 24 | 50 | 190 | 20 | ● | 784 |
| LS-EMS | 24 | 50 | 190 | 20 | ● | 810 |
| DE-XPM-EDN | 24 | 50 | 225 | 20 | ● | 781 |
| DE-XPM-EMS | 24 | 50 | 225 | 20 | ● | 801 |
| LS-EMS | 24 | 50 | 235 | 20 | ● | 810 |
| DE-XPM-EDN | 24 | 50 | 300 | 20 | ● | 781 |
| DE-XPM-EMS | 24 | 50 | 300 | 20 | ● | 801 |
| LS-EMSS | 24 | 55 | 300 | 20 | □ | 823-11 |
| EX-REEN | 24 | 67 | 143 | 25 | ● | 853 |
| EX-TIN-RENF | 24 | 67 | 143 | 25 | ● | 851 |
| TFGN | 24 | 67 | 143 | 25 | ● | 865 |
| WH-REEN | 24 | 67 | 160 | 25 | ● | 852 |
| WH-RENF | 24 | 67 | 160 | 25 | ● | 850 |
| CC-EMN | 24 | 70 | 140 | 25 | □ | 823-17 |
| EX-REE | 24 | 70 | 140 | 25 | □ | 870-5 |
| EX-TIN-REE | 24 | 70 | 140 | 25 | □ | 870-4 |
| REE | 24 | 70 | 140 | 25 | □ | 870-6 |
| RFE | 24 | 70 | 140 | 25 | □ | 868 |
| CPM-XLS-EDS | 24 | 70 | 300 | 20 | □ | 823-2 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XLS-EDS | 24 | 70 | 300 | 20 | □ | 823-1 |
| XLS-EMS | 24 | 70 | 300 | 20 | □ | 823-12 |
| CC-EML | 24 | 90 | 160 | 25 | ● | 817 |
| EDL | 24 | 90 | 160 | 25 | ● | 791 |
| EX-TIN-EDL | 24 | 90 | 160 | 25 | ● | 788 |
| EX-TIN-EML | 24 | 90 | 160 | 25 | ● | 814 |
| EX-REEL | 24 | 90 | 166 | 25 | ● | 857 |
| EX-TIN-RELF | 24 | 90 | 166 | 25 | □ | 856 |
| TFL | 24 | 90 | 166 | 25 | □ | 870-14 |
| V-XPM-EDL | 24 | 90 | 180 | 25 | ● | 785 |
| V-XPM-EML | 24 | 90 | 180 | 25 | ● | 812 |
| XPM-EDL | 24 | 90 | 180 | 25 | ● | 786 |
| XPM-EML | 24 | 90 | 180 | 25 | ● | 813 |
| EX-TIN-LS-EDL | 24 | 90 | 190 | 25 | □ | 823-6 |
| LS-EDL | 24 | 90 | 190 | 25 | □ | 823-7 |
| LS-EML | 24 | 90 | 190 | 25 | ● | 818 |
| EXDL | 24 | 100 | 170 | 25 | □ | 792 |
| EXML | 24 | 100 | 170 | 25F | □ | 819 |
| REEL | 24 | 100 | 170 | 25 | □ | 870-9 |
| EX-REXL | 24 | 100 | 190 | 25 | □ | 858 |
| TIN-XPM-EHL | 24 × 3F | 105 | 195 | 25 | ● | 822 |
| V-XPM-EHL | 24 × 3F | 105 | 195 | 25 | ● | 821 |
| XPM-EHL | 24 × 3F | 105 | 195 | 25 | ● | 823 |
| TIN-XPM-EHL | 24 × 4F | 105 | 195 | 25 | ● | 822 |
| V-XPM-EHL | 24 × 4F | 105 | 195 | 25 | ● | 821 |
| XPM-EHL | 24 × 4F | 105 | 195 | 25 | ● | 823 |
| EXDL | 24 | 120 | 190 | 25 | ● | 792 |
| EXML | 24 | 120 | 190 | 25 | ● | 819 |
| EX-TIN-EXDL | 24 | 120 | 190 | 25 | □ | 823-6 |
| EX-TIN-EXML | 24 | 120 | 190 | 25 | □ | 823-19 |
| EX-REXL | 24 | 120 | 210 | 25 | □ | 858 |
| REEL | 24 | 125 | 195 | 25 | □ | 870-9 |
| ETXL | 24 | 150 | 220 | 25 | □ | 823-11 |
| EXDL | 24 | 150 | 220 | 25 | □ | 792 |
| EXML | 24 | 150 | 220 | 25F | □ | 819 |
| EX-TIN-ETXL | 24 | 150 | 220 | 25 | □ | 823-10 |
| REEL | 24 | 150 | 220 | 25 | □ | 870-9 |
| EX-REXL | 24 | 150 | 240 | 25 | □ | 858 |
| CC-EMS | 24.1 | 50 | 120 | 25 | □ | 807 |
| EDS | 24.1 | 50 | 120 | 25 | □ | 769 |
| XPM-EDS | 24.1 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 24.1 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 24.2 | 50 | 120 | 25 | □ | 807 |
| EDS | 24.2 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 24.2 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 24.2 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 24.3 | 50 | 120 | 25 | □ | 807 |
| EDS | 24.3 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 24.3 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 24.3 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 24.4 | 50 | 120 | 25 | □ | 807 |
| EDS | 24.4 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 24.4 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 24.4 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 24.5 | 50 | 120 | 25 | ● | 807 |
| CPM-EDS | 24.5 | 50 | 120 | 25 | □ | 775 |
| EDS | 24.5 | 50 | 120 | 25 | ● | 770 |
| EX-TIN-EDS | 24.5 | 50 | 120 | 25 | ● | 763 |
| EX-TIN-EMS | 24.5 | 50 | 120 | 25 | □ | 804 |
| XPM-EDS | 24.5 | 50 | 125 | 25 | □ | 759 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EMS | 24.5 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 24.6 | 50 | 120 | 25 | □ | 807 |
| EDS | 24.6 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 24.6 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 24.6 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 24.7 | 50 | 120 | 25 | □ | 807 |
| EDS | 24.7 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 24.7 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 24.7 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 24.8 | 50 | 120 | 25 | □ | 807 |
| EDS | 24.8 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 24.8 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 24.8 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 24.9 | 50 | 120 | 25 | □ | 807 |
| EDS | 24.9 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 24.9 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 24.9 | 50 | 125 | 25 | □ | 799 |
| RF-TSC | 25 | 5 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 25 | 5 | 150 | 16 | □ | 895-1 |
| RF-TSC | 25 | 6 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 25 | 6 | 150 | 16 | □ | 895-1 |
| RF-TSC | 25 | 7 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 25 | 7 | 150 | 16 | □ | 895-1 |
| RF-TSC | 25 | 8 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 25 | 8 | 150 | 16 | □ | 895-1 |
| RF-TSC | 25 | 10 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 25 | 10 | 150 | 16 | □ | 895-1 |
| RF-TSC | 25 | 11 | 145 | 16 | □ | 894 |
| RF-TSC | 25 | 12 | 145 | 16 | □ | 894 |
| TIN-TUF-TSC | 25 | 12 | 150 | 16 | □ | 895-1 |
| RF-TSC | 25 | 14 | 145 | 16 | □ | 894 |
| RF-TSC | 25 | 15 | 145 | 16 | □ | 894 |
| TIN-TUF-TSC | 25 | 15 | 150 | 16 | □ | 895-1 |
| EKD | 25 | 25 | 95 | 25 | ● | 773 |
| EKD | 25 | 25 | 95 | 25 | ● | 773 |
| EX-TIN-EKD | 25 | 25 | 95 | 25 | ● | 765 |
| CPM-STD | 25 | 41 | 148 | 25 | □ | 823-5 |
| EX-REES | 25 | 45 | 121 | 25 | ● | 848 |
| EX-TIN-RESF | 25 | 45 | 121 | 25 | ● | 845 |
| TFGS | 25 | 45 | 121 | 25 | ● | 859 |
| VSS-XPM-RESF | 25 | 45 | 160 | 24 | ● | 842 |
| CPM-LS-RESF | 25 | 45 | 160 | 25 | □ | 870-2 |
| EX-LS-REES | 25 | 45 | 160 | 25 | ● | 849 |
| EX-LS-RESF | 25 | 45 | 160 | 25 | ● | 847 |
| SI-WH-RESF | 25 | 45 | 160 | 25 | ● | 838 |
| TIN-LS-RESF | 25 | 45 | 160 | 25 | ● | 846 |
| VLS-XPM-RESF | 25 | 45 | 160 | 25 | ● | 841 |
| VP-RESF | 25 | 45 | 160 | 25 | ● | 840 |
| WH-REES | 25 | 45 | 160 | 25 | ● | 839 |
| WH-RESF | 25 | 45 | 160 | 25 | ● | 839 |
| VP-DE-RESF | 25 | 45 | 225 | 25 | ● | 843 |
| AL-EDS | 25 | 50 | 120 | 25 | ● | 776 |
| CC-EMS | 25 | 50 | 120 | 25 | ● | 807 |
| CPM-EDS | 25 | 50 | 120 | 25 | □ | 775 |
| CPM-EMS | 25 | 50 | 120 | 25 | □ | 811 |
| EDS | 25 | 50 | 120 | 25 | ● | 770 |
| ETS | 25 | 50 | 120 | 25 | ● | 794 |
| EX-TIN-EDS | 25 | 50 | 120 | 25 | ● | 763 |
| EX-TIN-EMS | 25 | 50 | 120 | 25 | ● | 804 |
| EX-TIN-ETS | 25 | 50 | 120 | 25 | □ | 823-10 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| SUS-EDS | 25 | 50 | 120 | 25 | ● | 777 |
| BKMS | 25 | 50 | 125 | 25 | □ | 863 |
| CPM-BKMS | 25 | 50 | 125 | 25 | □ | 870-15 |
| REES | 25 | 50 | 125 | 25 | □ | 870-3 |
| RFES | 25 | 50 | 125 | 25 | ● | 862 |
| TIN-XPM-EMS | 25 | 50 | 125 | 25 | □ | 823-14 |
| V-XPM-EDS | 25 | 50 | 125 | 25 | ● | 755 |
| V-XPM-EMS | 25 | 50 | 125 | 25 | ● | 795 |
| XPM-EDS | 25 | 50 | 125 | 25 | ● | 759 |
| XPM-EMS | 25 | 50 | 125 | 25 | ● | 799 |
| VPS-EMS | 25 × 6F | 50 | 125 | 25 | ● | 796 |
| VPS-EMS | 25 × 6F | 50 | 125 | 25 | ● | 837 |
| VPS-EMS | 25 × 10F | 50 | 125 | 25 | ● | 796 |
| VPS-EMS | 25 × 10F | 50 | 125 | 25 | ● | 837 |
| CPM-EHS | 25 | 50 | 140 | 25 | □ | 823-22 |
| TIN-XPM-EHS | 25 × 3F | 50 | 140 | 25 | ● | 822 |
| V-XPM-EHS | 25 × 3F | 50 | 140 | 25 | ● | 821 |
| V-XPM-NHS | 25 × 3F | 50 | 140 | 25 | ● | 859 |
| XPM-EHS | 25 × 3F | 50 | 140 | 25 | ● | 823 |
| TIN-XPM-EHS | 25 × 4F | 50 | 140 | 25 | ● | 822 |
| V-XPM-EHS | 25 × 4F | 50 | 140 | 25 | ● | 821 |
| V-XPM-NHS | 25 × 4F | 50 | 140 | 25 | ● | 859 |
| XPM-EHS | 25 × 4F | 50 | 140 | 25 | ● | 823 |
| V-SS-XPM-EDN | 25 | 50 | 160 | 24 | ● | 778 |
| V-SS-XPM-EMS | 25 | 50 | 160 | 24 | ● | 796 |
| LS-REES | 25 | 50 | 165 | 25 | □ | 870-3 |
| LS-RFES | 25 | 50 | 165 | 25 | ● | 863 |
| LS-EDN | 25 | 50 | 220 | 25 | ● | 784 |
| LS-EMS | 25 | 50 | 220 | 25 | ● | 810 |
| DE-XPM-EDN | 25 | 50 | 225 | 20 | ● | 781 |
| DE-XPM-EMS | 25 | 50 | 225 | 20 | ● | 801 |
| LS-EMS | 25 | 50 | 270 | 25 | ● | 810 |
| DE-XPM-EDN | 25 | 50 | 300 | 20 | ● | 781 |
| DE-XPM-EMS | 25 | 50 | 300 | 20 | ● | 801 |
| EX-XLS-REE | 25 | 60 | 300 | 25 | □ | 870-7 |
| LS-EMSS | 25 | 60 | 300 | 25 | □ | 823-11 |
| EX-REEN | 25 | 67 | 143 | 25 | ● | 853 |
| EX-TIN-RENF | 25 | 67 | 143 | 25 | ● | 851 |
| TFGN | 25 | 67 | 143 | 25 | ● | 865 |
| TFN | 25 | 67 | 143 | 25 | □ | 866 |
| VP-RENF | 25 | 67 | 160 | 25 | ● | 850 |
| WH-REEN | 25 | 67 | 160 | 25 | ● | 852 |
| WH-RENF | 25 | 67 | 160 | 25 | ● | 850 |
| CC-EMN | 25 | 70 | 140 | 25 | □ | 823-17 |
| CPM-REE | 25 | 70 | 140 | 25 | □ | 870-7 |
| CPM-RFE | 25 | 70 | 140 | 25 | □ | 870-17 |
| EX-REE | 25 | 70 | 140 | 25 | □ | 870-5 |
| EX-TIN-REE | 25 | 70 | 140 | 25 | □ | 870-4 |
| REE | 25 | 70 | 140 | 25 | □ | 870-6 |
| RFE | 25 | 70 | 140 | 25 | ● | 868 |
| XPM-EMN | 25 | 70 | 150 | 25 | □ | 823-16 |
| MT-REE | 25 | 70 | 170 | MT3 | □ | 870-11 |
| MT-RFE | 25 | 70 | 170 | MT3 | □ | 870-20 |
| BS-REE | 25 | 70 | 190 | BS9 | □ | 870-10 |
| BS-RFE | 25 | 70 | 190 | BS9 | □ | 870-19 |
| CPM-XLS-EDS | 25 | 70 | 300 | 25 | □ | 823-2 |
| XLS-EDS | 25 | 70 | 300 | 25 | □ | 823-1 |
| XLS-EMS | 25 | 70 | 300 | 25 | □ | 823-12 |
| EX-REE-3F | 25 | 72 | 166 | 25 | □ | 870-6 |
| MT-EHL | 25 | 75 | 175 | MT3 | □ | 823-25 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CC-EML | 25 | 90 | 160 | 25 | ● | 817 |
| CE-EML | 25 | 90 | 160 | 25 | □ | 823-18 |
| EDL | 25 | 90 | 160 | 25 | ● | 791 |
| EX-TIN-EDL | 25 | 90 | 160 | 25 | ● | 788 |
| EX-TIN-EML | 25 | 90 | 160 | 25 | ● | 814 |
| BKML | 25 | 90 | 165 | 25 | □ | 870-16 |
| EX-REEL | 25 | 90 | 166 | 25 | ● | 857 |
| EX-TIN-RELF | 25 | 90 | 166 | 25 | ● | 856 |
| REEM | 25 | 90 | 166 | 25 | □ | 870-5 |
| TFL | 25 | 90 | 166 | 25 | □ | 870-14 |
| VP-RELF | 25 | 90 | 170 | 25 | ● | 855 |
| WH-REEL | 25 | 90 | 170 | 25 | ● | 854 |
| WH-RELF | 25 | 90 | 170 | 25 | ● | 854 |
| TIN-XPM-EML | 25 | 90 | 180 | 25 | □ | 823-15 |
| V-XPM-EDL | 25 | 90 | 180 | 25 | ● | 785 |
| V-XPM-EML | 25 | 90 | 180 | 25 | ● | 812 |
| XPM-EDL | 25 | 90 | 180 | 25 | ● | 786 |
| XPM-EML | 25 | 90 | 180 | 25 | ● | 813 |
| EX-TIN-LS-EDL | 25 | 90 | 220 | 25 | □ | 823-6 |
| LS-EDL | 25 | 90 | 220 | 25 | □ | 823-7 |
| LS-EML | 25 | 90 | 220 | 25 | ● | 818 |
| CPM-XLS-EDS | 25 | 90 | 400 | 25 | □ | 823-2 |
| EX-XLS-REE | 25 | 90 | 400 | 25 | □ | 870-7 |
| EXDL | 25 | 100 | 170 | 25 | □ | 792 |
| EXML | 25 | 100 | 170 | 25F | □ | 819 |
| EX-REXL | 25 | 100 | 170 | 25 | □ | 858 |
| EX-TIN-REXL | 25 | 100 | 170 | 25 | □ | 870-8 |
| REEL | 25 | 100 | 170 | 25 | □ | 870-9 |
| RFEL | 25 | 100 | 170 | 25 | □ | 869 |
| CPM-EHL | 25 | 105 | 195 | 25 | □ | 823-24 |
| TIN-XPM-EHL | 25 × 3F | 105 | 195 | 25 | ● | 822 |
| V-XPM-EHL | 25 × 3F | 105 | 195 | 25 | ● | 821 |
| XPM-EHL | 25 × 3F | 105 | 195 | 25 | ● | 823 |
| TIN-XPM-EHL | 25 × 4F | 105 | 195 | 25 | ● | 822 |
| V-XPM-EHL | 25 × 4F | 105 | 195 | 25 | ● | 821 |
| XPM-EHL | 25 × 4F | 105 | 195 | 25 | ● | 823 |
| EXDL | 25 | 120 | 190 | 25 | □ | 792 |
| EXML | 25 | 120 | 190 | 25F | □ | 819 |
| EX-REXL | 25 | 120 | 190 | 25 | □ | 858 |
| EX-TIN-REXL | 25 | 120 | 190 | 25 | □ | 870-8 |
| REEL | 25 | 120 | 190 | 25 | □ | 870-9 |
| CPM-XLS-EDS | 25 | 120 | 500 | 25 | □ | 823-2 |
| EX-XLS-REE | 25 | 120 | 500 | 25 | □ | 870-7 |
| EX-REXL | 25 | 125 | 210 | 25 | ● | 858 |
| EX-TIN-REXL | 25 | 125 | 210 | 25 | □ | 870-8 |
| REEL | 25 | 125 | 210 | 25 | □ | 870-9 |
| RFEL | 25 | 125 | 210 | 25 | ● | 869 |
| ETXL | 25 | 150 | 220 | 25 | □ | 823-11 |
| EXDL | 25 | 150 | 220 | 25 | ● | 792 |
| EXML | 25 | 150 | 220 | 25 | ● | 819 |
| EX-TIN-ETXL | 25 | 150 | 220 | 25 | □ | 823-10 |
| EX-TIN-EXDL | 25 | 150 | 220 | 25 | □ | 823-6 |
| EX-TIN-EXML | 25 | 150 | 220 | 25 | □ | 823-19 |
| REEL | 25 | 150 | 220 | 25 | □ | 870-9 |
| EX-REXL | 25 | 150 | 235 | 25 | ● | 858 |
| EX-TIN-REXL | 25 | 150 | 235 | 25 | □ | 870-8 |
| RFEL | 25 | 150 | 235 | 25 | ● | 869 |
| PS-EXML | 25 | 150 | 250 | 25 | □ | 823-20 |
| EXDL | 25 | 200 | 270 | 25 | □ | 792 |
| EXML | 25 | 200 | 270 | 25F | □ | 819 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PS-EXML | 25 | 200 | 300 | 25 | □ | 823-20 |
| CC-EMS | 25.1 | 50 | 120 | 25 | □ | 807 |
| EDS | 25.1 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 25.1 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.1 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 25.2 | 50 | 120 | 25 | □ | 807 |
| EDS | 25.2 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 25.2 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.2 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 25.3 | 50 | 120 | 25 | □ | 807 |
| EDS | 25.3 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 25.3 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.3 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 25.4 | 50 | 120 | 25 | □ | 807 |
| EDS | 25.4 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 25.4 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.4 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 25.5 | 50 | 120 | 25 | ● | 807 |
| CPM-EDS | 25.5 | 50 | 120 | 25 | □ | 775 |
| CPM-EMS | 25.5 | 50 | 120 | 25 | □ | 811 |
| EDS | 25.5 | 50 | 120 | 25 | ● | 770 |
| EX-TIN-EDS | 25.5 | 50 | 120 | 25 | ● | 763 |
| EX-TIN-EMS | 25.5 | 50 | 120 | 25 | □ | 804 |
| XPM-EDS | 25.5 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.5 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 25.6 | 50 | 120 | 25 | □ | 807 |
| EDS | 25.6 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 25.6 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.6 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 25.7 | 50 | 120 | 25 | □ | 807 |
| EDS | 25.7 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 25.7 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.7 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 25.8 | 50 | 120 | 25 | □ | 807 |
| EDS | 25.8 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 25.8 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.8 | 50 | 125 | 25 | □ | 799 |
| CC-EMS | 25.9 | 50 | 120 | 25 | □ | 807 |
| EDS | 25.9 | 50 | 120 | 25 | □ | 770 |
| XPM-EDS | 25.9 | 50 | 125 | 25 | □ | 759 |
| XPM-EMS | 25.9 | 50 | 125 | 25 | □ | 799 |
| TIN-TUF-TSC | 26 | 5 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 26 | 6 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 26 | 7 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 26 | 8 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 26 | 10 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 26 | 12 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 26 | 15 | 150 | 16 | □ | 895-1 |
| CPM-STD | 26 | 41 | 148 | 25 | □ | 823-5 |
| EX-REES | 26 | 45 | 121 | 25 | ● | 848 |
| EX-TIN-RESF | 26 | 45 | 121 | 25 | ● | 845 |
| TFGS | 26 | 45 | 121 | 25 | ● | 859 |
| EX-LS-REES | 26 | 45 | 160 | 25 | ● | 849 |
| EX-LS-RESF | 26 | 45 | 160 | 25 | ● | 847 |
| SI-WH-RESF | 26 | 45 | 160 | 25 | □ | 838 |
| TIN-LS-RESF | 26 | 45 | 160 | 25 | □ | 846 |
| VLS-XPM-RESF | 26 | 45 | 160 | 25 | □ | 841 |
| VP-RESF | 26 | 45 | 160 | 25 | □ | 840 |
| WH-REES | 26 | 45 | 160 | 25 | ● | 839 |
| WH-RESF | 26 | 45 | 160 | 25 | ● | 839 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| AL-EDS | 26 | 50 | 120 | 25 | ● | 776 |
| CC-EMS | 26 | 50 | 120 | 25 | ● | 807 |
| CPM-EDS | 26 | 50 | 120 | 25 | □ | 775 |
| EDS | 26 | 50 | 120 | 25 | ● | 770 |
| ETS | 26 | 50 | 120 | 25 | ● | 794 |
| EX-TIN-EDS | 26 | 50 | 120 | 25 | ● | 763 |
| EX-TIN-EMS | 26 | 50 | 120 | 25 | ● | 804 |
| EX-TIN-ETS | 26 | 50 | 120 | 25 | □ | 823-10 |
| SUS-EDS | 26 | 50 | 120 | 25 | ● | 777 |
| BKMS | 26 | 50 | 125 | 25 | □ | 863 |
| CPM-BKMS | 26 | 50 | 125 | 25 | □ | 870-15 |
| V-XPM-EDS | 26 | 50 | 125 | 25 | ● | 755 |
| V-XPM-EMS | 26 | 50 | 125 | 25 | ● | 795 |
| XPM-EDS | 26 | 50 | 125 | 25 | ● | 759 |
| XPM-EMS | 26 | 50 | 125 | 25 | ● | 799 |
| CPM-EHS | 26 | 50 | 140 | 25 | □ | 823-22 |
| XPM-EHS | 26 × 3F | 50 | 140 | 25 | □ | 823 |
| LS-EMS | 26 | 50 | 220 | 25 | ● | 810 |
| DE-XPM-EDN | 26 | 50 | 225 | 25 | ● | 781 |
| DE-XPM-EMS | 26 | 50 | 225 | 25 | ● | 801 |
| DE-XPM-EDN | 26 | 50 | 300 | 25 | ● | 781 |
| DE-XPM-EMS | 26 | 50 | 300 | 25 | ● | 801 |
| LS-EMSS | 26 | 60 | 300 | 25 | □ | 823-11 |
| EX-REEN | 26 | 67 | 143 | 25 | ● | 853 |
| EX-TIN-RENF | 26 | 67 | 143 | 25 | ● | 851 |
| TFGN | 26 | 67 | 143 | 25 | ● | 865 |
| WH-REEN | 26 | 67 | 160 | 25 | ● | 852 |
| WH-RENF | 26 | 67 | 160 | 25 | ● | 850 |
| CC-EMN | 26 | 70 | 140 | 25 | □ | 823-17 |
| EX-REE | 26 | 70 | 140 | 25 | □ | 870-5 |
| EX-TIN-REE | 26 | 70 | 140 | 25 | □ | 870-4 |
| REE | 26 | 70 | 140 | 25 | □ | 870-6 |
| RFE | 26 | 70 | 140 | 25 | □ | 868 |
| CPM-XLS-EDS | 26 | 70 | 300 | 25 | □ | 823-2 |
| XLS-EDS | 26 | 70 | 300 | 25 | □ | 823-1 |
| XLS-EMS | 26 | 70 | 300 | 25 | □ | 823-12 |
| CC-EML | 26 | 90 | 160 | 25 | ● | 817 |
| EDL | 26 | 90 | 160 | 25 | ● | 791 |
| EX-TIN-EDL | 26 | 90 | 160 | 25 | ● | 788 |
| EX-TIN-EML | 26 | 90 | 160 | 25 | ● | 814 |
| EX-REEL | 26 | 90 | 166 | 25 | ● | 857 |
| EX-TIN-RELF | 26 | 90 | 166 | 25 | □ | 856 |
| TFL | 26 | 90 | 166 | 25 | □ | 870-14 |
| V-XPM-EDL | 26 | 90 | 180 | 25 | ● | 785 |
| V-XPM-EML | 26 | 90 | 180 | 25 | ● | 812 |
| XPM-EDL | 26 | 90 | 180 | 25 | ● | 786 |
| XPM-EML | 26 | 90 | 180 | 25 | ● | 813 |
| REEL | 26 | 100 | 170 | 25 | □ | 870-9 |
| XPM-EHL | 26 × 3F | 105 | 195 | 25 | □ | 823 |
| XPM-EHL | 26 × 4F | 105 | 195 | 25 | □ | 823 |
| EXDL | 26 | 120 | 190 | 25 | □ | 792 |
| EXML | 26 | 120 | 190 | 25F | □ | 819 |
| REEL | 26 | 125 | 195 | 25 | □ | 870-9 |
| ETXL | 26 | 150 | 220 | 25 | □ | 823-11 |
| EXDL | 26 | 150 | 220 | 25 | □ | 792 |
| EXML | 26 | 150 | 220 | 25F | □ | 819 |
| EX-TIN-ETXL | 26 | 150 | 220 | 25 | □ | 823-10 |
| REEL | 26 | 150 | 220 | 25 | □ | 870-9 |
| CC-EMS | 26.1 | 55 | 125 | 25 | □ | 807 |
| EDS | 26.1 | 55 | 125 | 25 | □ | 770 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDS | 26.1 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.1 | 55 | 130 | 25 | □ | 799 |
| CC-EMS | 26.2 | 55 | 125 | 25 | □ | 807 |
| EDS | 26.2 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 26.2 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.2 | 55 | 130 | 25 | □ | 799 |
| CC-EMS | 26.3 | 55 | 125 | 25 | □ | 807 |
| EDS | 26.3 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 26.3 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.3 | 55 | 130 | 25 | □ | 799 |
| CC-EMS | 26.4 | 55 | 125 | 25 | □ | 807 |
| EDS | 26.4 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 26.4 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.4 | 55 | 130 | 25 | □ | 799 |
| CC-EMS | 26.5 | 55 | 125 | 25 | ● | 807 |
| CPM-EDS | 26.5 | 55 | 125 | 25 | □ | 775 |
| CPM-EMS | 26.5 | 55 | 125 | 25 | □ | 811 |
| EDS | 26.5 | 55 | 125 | 25 | ● | 770 |
| EX-TIN-EDS | 26.5 | 55 | 125 | 25 | ● | 763 |
| EX-TIN-EMS | 26.5 | 55 | 125 | 25 | □ | 804 |
| XPM-EDS | 26.5 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.5 | 55 | 130 | 25 | □ | 799 |
| CC-EMS | 26.6 | 55 | 125 | 25 | □ | 807 |
| EDS | 26.6 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 26.6 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.6 | 55 | 130 | 25 | □ | 799 |
| CC-EMS | 26.7 | 55 | 125 | 25 | □ | 807 |
| EDS | 26.7 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 26.7 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.7 | 55 | 130 | 25 | □ | 799 |
| CC-EMS | 26.8 | 55 | 125 | 25 | □ | 808 |
| EDS | 26.8 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 26.8 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.8 | 55 | 130 | 25 | □ | 799 |
| CC-EMS | 26.9 | 55 | 125 | 25 | □ | 808 |
| EDS | 26.9 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 26.9 | 55 | 130 | 25 | □ | 759 |
| XPM-EMS | 26.9 | 55 | 130 | 25 | □ | 799 |
| EX-REES | 27 | 45 | 121 | 25 | ● | 848 |
| EX-TIN-RESF | 27 | 45 | 121 | 25 | ● | 845 |
| TFGS | 27 | 45 | 121 | 25 | ● | 859 |
| EX-LS-REES | 27 | 45 | 160 | 25 | ● | 849 |
| EX-LS-RESF | 27 | 45 | 160 | 25 | ● | 847 |
| LS-TFS | 27 | 45 | 160 | 25 | □ | 870-13 |
| SI-WH-RESF | 27 | 45 | 160 | 25 | □ | 838 |
| TIN-LS-RESF | 27 | 45 | 160 | 25 | □ | 846 |
| VLS-XPM-RESF | 27 | 45 | 160 | 25 | □ | 841 |
| VP-RESF | 27 | 45 | 160 | 25 | □ | 840 |
| WH-REES | 27 | 45 | 160 | 25 | ● | 839 |
| WH-RESF | 27 | 45 | 160 | 25 | ● | 839 |
| CPM-STD | 27 | 46 | 153 | 25 | □ | 823-5 |
| AL-EDS | 27 | 55 | 125 | 25 | ● | 776 |
| CC-EMS | 27 | 55 | 125 | 25 | ● | 808 |
| CPM-EDS | 27 | 55 | 125 | 25 | □ | 775 |
| EDS | 27 | 55 | 125 | 25 | ● | 770 |
| EX-TIN-EDS | 27 | 55 | 125 | 25 | ● | 763 |
| EX-TIN-EMS | 27 | 55 | 125 | 25 | ● | 804 |
| SUS-EDS | 27 | 55 | 125 | 25 | ● | 777 |
| CPM-BKMS | 27 | 55 | 130 | 25 | □ | 870-15 |
| V-XPM-EDS | 27 | 55 | 130 | 25 | ● | 755 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EMS | 27 | 55 | 130 | 25 | ● | 795 |
| XPM-EDS | 27 | 55 | 130 | 25 | ● | 760 |
| XPM-EMS | 27 | 55 | 130 | 25 | ● | 800 |
| XPM-EHS | 27 × 3F | 55 | 145 | 25 | □ | 823 |
| CPM-EHS | 27 | 55 | 150 | 32 | □ | 823-22 |
| LS-EMS | 27 | 55 | 220 | 25 | ● | 810 |
| EX-REEN | 27 | 67 | 143 | 25 | ● | 853 |
| EX-TIN-RENF | 27 | 67 | 143 | 25 | ● | 851 |
| TFGN | 27 | 67 | 143 | 25 | ● | 865 |
| WH-REEN | 27 | 67 | 160 | 25 | ● | 852 |
| WH-RENF | 27 | 67 | 160 | 25 | ● | 850 |
| EX-REE | 27 | 70 | 140 | 25 | □ | 870-5 |
| EX-TIN-REE | 27 | 70 | 140 | 25 | □ | 870-4 |
| REE | 27 | 70 | 140 | 25 | □ | 870-6 |
| CC-EML | 27 | 90 | 160 | 25 | ● | 817 |
| CE-EML | 27 | 90 | 160 | 25 | □ | 823-18 |
| CPM-EDL | 27 | 90 | 160 | 25 | □ | 823-8 |
| CPM-EML | 27 | 90 | 160 | 25 | □ | 818 |
| EDL | 27 | 90 | 160 | 25 | ● | 791 |
| EX-TIN-EDL | 27 | 90 | 160 | 25 | ● | 788 |
| EX-TIN-EML | 27 | 90 | 160 | 25 | ● | 814 |
| EX-REEL | 27 | 90 | 166 | 25 | ● | 857 |
| EX-TIN-RELF | 27 | 90 | 166 | 25 | □ | 856 |
| TFL | 27 | 90 | 166 | 25 | □ | 870-14 |
| TIN-XPM-EML | 27 | 90 | 180 | 25 | □ | 823-15 |
| V-XPM-EDL | 27 | 90 | 180 | 25 | ● | 785 |
| V-XPM-EML | 27 | 90 | 180 | 25 | ● | 812 |
| XPM-EDL | 27 | 90 | 180 | 25 | ● | 786 |
| XPM-EML | 27 | 90 | 180 | 25 | ● | 813 |
| XPM-EHL | 27 × 3F | 105 | 195 | 25 | □ | 823 |
| ETXL | 27 | 150 | 220 | 25 | □ | 823-11 |
| EX-TIN-ETXL | 27 | 150 | 220 | 25 | □ | 823-10 |
| CC-EMS | 27.1 | 55 | 125 | 25 | □ | 808 |
| EDS | 27.1 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 27.1 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.1 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 27.2 | 55 | 125 | 25 | □ | 808 |
| EDS | 27.2 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 27.2 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.2 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 27.3 | 55 | 125 | 25 | □ | 808 |
| EDS | 27.3 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 27.3 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.3 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 27.4 | 55 | 125 | 25 | □ | 808 |
| EDS | 27.4 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 27.4 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.4 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 27.5 | 55 | 125 | 25 | ● | 808 |
| EDS | 27.5 | 55 | 125 | 25 | ● | 770 |
| EX-TIN-EDS | 27.5 | 55 | 125 | 25 | ● | 763 |
| EX-TIN-EMS | 27.5 | 55 | 125 | 25 | □ | 804 |
| XPM-EDS | 27.5 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.5 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 27.6 | 55 | 125 | 25 | □ | 808 |
| EDS | 27.6 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 27.6 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.6 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 27.7 | 55 | 125 | 25 | □ | 808 |
| EDS | 27.7 | 55 | 125 | 25 | □ | 770 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EDS | 27.7 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.7 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 27.8 | 55 | 125 | 25 | □ | 808 |
| EDS | 27.8 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 27.8 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.8 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 27.9 | 55 | 125 | 25 | □ | 808 |
| EDS | 27.9 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 27.9 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 27.9 | 55 | 130 | 25 | □ | 800 |
| TIN-TUF-TSC | 28 | 5 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 28 | 6 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 28 | 7 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 28 | 8 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 28 | 10 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 28 | 12 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 28 | 15 | 150 | 16 | □ | 895-1 |
| EX-REES | 28 | 45 | 121 | 25 | ● | 848 |
| EX-TIN-RESF | 28 | 45 | 121 | 25 | ● | 845 |
| TFGS | 28 | 45 | 121 | 25 | ● | 859 |
| CPM-LS-RESF | 28 | 45 | 160 | 25 | □ | 870-2 |
| EX-LS-REES | 28 | 45 | 160 | 25 | ● | 849 |
| EX-LS-RESF | 28 | 45 | 160 | 25 | ● | 847 |
| SI-WH-RESF | 28 | 45 | 160 | 25 | □ | 838 |
| TIN-LS-RESF | 28 | 45 | 160 | 25 | ● | 846 |
| VLS-XPM-RESF | 28 | 45 | 160 | 25 | ● | 841 |
| VP-RESF | 28 | 45 | 160 | 25 | ● | 840 |
| WH-REES | 28 | 45 | 160 | 25 | ● | 839 |
| WH-RESF | 28 | 45 | 160 | 25 | ● | 839 |
| VP-DE-RESF | 28 | 45 | 225 | 25 | ● | 843 |
| CPM-STD | 28 | 46 | 153 | 25 | □ | 823-5 |
| AL-EDS | 28 | 55 | 125 | 25 | ● | 776 |
| CC-EMS | 28 | 55 | 125 | 25 | ● | 808 |
| CPM-EDS | 28 | 55 | 125 | 25 | □ | 775 |
| CPM-EMS | 28 | 55 | 125 | 25 | □ | 811 |
| EDS | 28 | 55 | 125 | 25 | ● | 770 |
| ETS | 28 | 55 | 125 | 25 | ● | 794 |
| EX-TIN-EDS | 28 | 55 | 125 | 25 | ● | 763 |
| EX-TIN-EMS | 28 | 55 | 125 | 25 | ● | 804 |
| EX-TIN-ETS | 28 | 55 | 125 | 25 | □ | 823-10 |
| SUS-EDS | 28 | 55 | 125 | 25 | ● | 777 |
| BKMS | 28 | 55 | 130 | 25 | □ | 863 |
| V-XPM-EDS | 28 | 55 | 130 | 25 | ● | 755 |
| V-XPM-EMS | 28 | 55 | 130 | 25 | ● | 795 |
| XPM-EDS | 28 | 55 | 130 | 25 | ● | 760 |
| XPM-EMS | 28 | 55 | 130 | 25 | ● | 800 |
| CPM-EHS | 28 | 55 | 150 | 32 | □ | 823-22 |
| TIN-XPM-EHS | 28 × 3F | 55 | 150 | 32 | ● | 822 |
| V-XPM-EHS | 28 × 3F | 55 | 150 | 32 | ● | 821 |
| V-XPM-NHS | 28 × 3F | 55 | 150 | 32 | ● | 859 |
| XPM-EHS | 28 × 3F | 55 | 150 | 32 | ● | 823 |
| TIN-XPM-EHS | 28 × 4F | 55 | 150 | 32 | ● | 822 |
| V-XPM-EHS | 28 × 4F | 55 | 150 | 32 | ● | 821 |
| V-XPM-NHS | 28 × 4F | 55 | 150 | 32 | ● | 859 |
| XPM-EHS | 28 × 4F | 55 | 150 | 32 | ● | 823 |
| LS-EDN | 28 | 55 | 220 | 25 | ● | 784 |
| LS-EMS | 28 | 55 | 220 | 25 | ● | 810 |
| DE-XPM-EDN | 28 | 55 | 225 | 25 | ● | 781 |
| DE-XPM-EMS | 28 | 55 | 225 | 25 | ● | 801 |
| LS-EMS | 28 | 55 | 270 | 25 | ● | 810 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DE-XPM-EDN | 28 | 55 | 300 | 25 | ● | 781 |
| DE-XPM-EMS | 28 | 55 | 300 | 25 | ● | 801 |
| REES | 28 | 56 | 125 | 25 | □ | 870-3 |
| RFES | 28 | 56 | 125 | 25 | ● | 862 |
| LS-REES | 28 | 56 | 170 | 25 | □ | 870-3 |
| LS-RFES | 28 | 56 | 170 | 25 | ● | 863 |
| EX-XLS-REE | 28 | 60 | 300 | 25 | □ | 870-7 |
| EX-REEN | 28 | 67 | 143 | 25 | ● | 853 |
| EX-TIN-RENF | 28 | 67 | 143 | 25 | ● | 851 |
| TFGN | 28 | 67 | 143 | 25 | ● | 865 |
| VP-RENF | 28 | 67 | 160 | 25 | ● | 850 |
| WH-REEN | 28 | 67 | 160 | 25 | ● | 852 |
| WH-RENF | 28 | 67 | 160 | 25 | ● | 850 |
| CC-EMN | 28 | 70 | 140 | 25 | □ | 823-17 |
| CPM-REE | 28 | 70 | 140 | 25 | □ | 870-7 |
| CPM-RFE | 28 | 70 | 140 | 25 | □ | 870-17 |
| EX-REE | 28 | 70 | 140 | 25 | □ | 870-5 |
| EX-TIN-REE | 28 | 70 | 140 | 25 | □ | 870-4 |
| REE | 28 | 70 | 140 | 25 | □ | 870-6 |
| RFE | 28 | 70 | 140 | 25 | ● | 868 |
| MT-REE | 28 | 70 | 170 | MT3 | □ | 870-11 |
| MT-RFE | 28 | 70 | 170 | MT3 | □ | 870-20 |
| CPM-XLS-EDS | 28 | 70 | 300 | 25 | □ | 823-2 |
| LS-EMSS | 28 | 70 | 300 | 25 | □ | 823-11 |
| XLS-EDS | 28 | 70 | 300 | 25 | □ | 823-1 |
| XLS-EMS | 28 | 70 | 300 | 25 | □ | 823-12 |
| EX-REE-3F | 28 | 72 | 166 | 25 | □ | 870-6 |
| CC-EML | 28 | 90 | 160 | 25 | ● | 817 |
| CE-EML | 28 | 90 | 160 | 25 | □ | 823-18 |
| CPM-EDL | 28 | 90 | 160 | 25 | □ | 823-8 |
| EDL | 28 | 90 | 160 | 25 | ● | 791 |
| EX-TIN-EDL | 28 | 90 | 160 | 25 | ● | 788 |
| EX-TIN-EML | 28 | 90 | 160 | 25 | ● | 814 |
| EX-REEL | 28 | 90 | 166 | 25 | ● | 857 |
| EX-TIN-RELF | 28 | 90 | 166 | 25 | ● | 856 |
| REEM | 28 | 90 | 166 | 25 | □ | 870-5 |
| TFL | 28 | 90 | 166 | 25 | □ | 870-14 |
| VP-RELF | 28 | 90 | 170 | 25 | ● | 855 |
| WH-REEL | 28 | 90 | 170 | 25 | ● | 854 |
| WH-RELF | 28 | 90 | 170 | 25 | ● | 854 |
| V-XPM-EDL | 28 | 90 | 180 | 25 | ● | 785 |
| V-XPM-EML | 28 | 90 | 180 | 25 | ● | 812 |
| XPM-EDL | 28 | 90 | 180 | 25 | ● | 786 |
| XPM-EML | 28 | 90 | 180 | 25 | ● | 813 |
| EX-TIN-LS-EDL | 28 | 90 | 220 | 25 | □ | 823-6 |
| LS-EDL | 28 | 90 | 220 | 25 | □ | 823-7 |
| LS-EML | 28 | 90 | 220 | 25 | ● | 818 |
| EX-REXL | 28 | 100 | 170 | 25 | □ | 858 |
| EX-TIN-REXL | 28 | 100 | 170 | 25 | □ | 870-8 |
| REEL | 28 | 100 | 170 | 25 | □ | 870-9 |
| CPM-EHL | 28 | 105 | 200 | 32 | □ | 823-24 |
| TIN-XPM-EHL | 28 × 3F | 105 | 200 | 32 | ● | 822 |
| V-XPM-EHL | 28 × 3F | 105 | 200 | 32 | ● | 821 |
| XPM-EHL | 28 × 3F | 105 | 200 | 32 | ● | 823 |
| TIN-XPM-EHL | 28 × 4F | 105 | 200 | 32 | ● | 822 |
| V-XPM-EHL | 28 × 4F | 105 | 200 | 32 | ● | 821 |
| XPM-EHL | 28 × 4F | 105 | 200 | 32 | ● | 823 |
| EXDL | 28 | 120 | 190 | 25 | □ | 792 |
| EXML | 28 | 120 | 190 | 25F | □ | 819 |
| EX-REXL | 28 | 120 | 190 | 25 | □ | 858 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-REXL | 28 | 120 | 190 | 25 | □ | 870-8 |
| REEL | 28 | 120 | 190 | 25 | □ | 870-9 |
| ETXL | 28 | 150 | 220 | 25 | □ | 823-11 |
| EXDL | 28 | 150 | 220 | 25 | ● | 792 |
| EXML | 28 | 150 | 220 | 25 | ● | 819 |
| EX-REXL | 28 | 150 | 220 | 25 | □ | 858 |
| EX-TIN-ETXL | 28 | 150 | 220 | 25 | □ | 823-10 |
| EX-TIN-EXDL | 28 | 150 | 220 | 25 | □ | 823-6 |
| EX-TIN-EXML | 28 | 150 | 220 | 25 | □ | 823-19 |
| EX-TIN-REXL | 28 | 150 | 220 | 25 | □ | 870-8 |
| REEL | 28 | 150 | 220 | 25 | □ | 870-9 |
| CC-EMS | 28.1 | 55 | 125 | 25 | □ | 808 |
| EDS | 28.1 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 28.1 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.1 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 28.2 | 55 | 125 | 25 | □ | 808 |
| EDS | 28.2 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 28.2 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.2 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 28.3 | 55 | 125 | 25 | □ | 808 |
| EDS | 28.3 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 28.3 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.3 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 28.4 | 55 | 125 | 25 | □ | 808 |
| EDS | 28.4 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 28.4 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.4 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 28.5 | 55 | 125 | 25 | ● | 808 |
| CPM-EDS | 28.5 | 55 | 125 | 25 | □ | 775 |
| CPM-EMS | 28.5 | 55 | 125 | 25 | □ | 811 |
| EDS | 28.5 | 55 | 125 | 25 | ● | 770 |
| EX-TIN-EDS | 28.5 | 55 | 125 | 25 | ● | 763 |
| EX-TIN-EMS | 28.5 | 55 | 125 | 25 | □ | 804 |
| XPM-EDS | 28.5 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.5 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 28.6 | 55 | 125 | 25 | □ | 808 |
| EDS | 28.6 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 28.6 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.6 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 28.7 | 55 | 125 | 25 | □ | 808 |
| EDS | 28.7 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 28.7 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.7 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 28.8 | 55 | 125 | 25 | □ | 808 |
| EDS | 28.8 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 28.8 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.8 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 28.9 | 55 | 125 | 25 | □ | 808 |
| EDS | 28.9 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 28.9 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 28.9 | 55 | 130 | 25 | □ | 800 |
| EX-REES | 29 | 45 | 121 | 25 | ● | 848 |
| EX-TIN-RESF | 29 | 45 | 121 | 25 | ● | 845 |
| TFGS | 29 | 45 | 121 | 25 | ● | 859 |
| EX-LS-REES | 29 | 45 | 160 | 25 | ● | 849 |
| EX-LS-RESF | 29 | 45 | 160 | 25 | ● | 847 |
| SI-WH-RESF | 29 | 45 | 160 | 25 | □ | 838 |
| TIN-LS-RESF | 29 | 45 | 160 | 25 | □ | 846 |
| VLS-XPM-RESF | 29 | 45 | 160 | 25 | □ | 841 |
| VP-RESF | 29 | 45 | 160 | 25 | □ | 840 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WH-REES | 29 | 45 | 160 | 25 | ● | 839 |
| WH-RESF | 29 | 45 | 160 | 25 | ● | 839 |
| CPM-STD | 29 | 46 | 153 | 25 | □ | 823-5 |
| AL-EDS | 29 | 55 | 125 | 25 | ● | 776 |
| CC-EMS | 29 | 55 | 125 | 25 | ● | 808 |
| CPM-EDS | 29 | 55 | 125 | 25 | □ | 775 |
| CPM-EMS | 29 | 55 | 125 | 25 | □ | 811 |
| EDS | 29 | 55 | 125 | 25 | ● | 770 |
| EX-TIN-EDS | 29 | 55 | 125 | 25 | ● | 763 |
| EX-TIN-EMS | 29 | 55 | 125 | 25 | ● | 804 |
| SUS-EDS | 29 | 55 | 125 | 25 | ● | 777 |
| CPM-BKMS | 29 | 55 | 130 | 25 | □ | 870-15 |
| V-XPM-EDS | 29 | 55 | 130 | 25 | ● | 755 |
| V-XPM-EMS | 29 | 55 | 130 | 25 | ● | 795 |
| XPM-EDS | 29 | 55 | 130 | 25 | ● | 760 |
| XPM-EMS | 29 | 55 | 130 | 25 | ● | 800 |
| CPM-EHS | 29 | 55 | 150 | 32 | □ | 823-22 |
| XPM-EHS | 29 × 3F | 55 | 150 | 32 | □ | 823 |
| LS-EMS | 29 | 55 | 220 | 25 | ● | 810 |
| EX-REEN | 29 | 67 | 143 | 25 | ● | 853 |
| EX-TIN-RENF | 29 | 67 | 143 | 25 | ● | 851 |
| TFGN | 29 | 67 | 143 | 25 | ● | 865 |
| TFN | 29 | 67 | 143 | 25 | □ | 866 |
| REE | 29 | 70 | 140 | 25 | □ | 870-6 |
| EX-REE | 29 | 80 | 165 | 32 | □ | 870-5 |
| EX-TIN-REE | 29 | 80 | 165 | 32 | □ | 870-4 |
| CC-EML | 29 | 90 | 160 | 25 | ● | 817 |
| CPM-EDL | 29 | 90 | 160 | 25 | □ | 823-8 |
| CPM-EML | 29 | 90 | 160 | 25 | □ | 818 |
| EDL | 29 | 90 | 160 | 25 | ● | 791 |
| EX-TIN-EDL | 29 | 90 | 160 | 25 | ● | 788 |
| EX-TIN-EML | 29 | 90 | 160 | 25 | ● | 814 |
| EX-REEL | 29 | 90 | 166 | 25 | ● | 857 |
| EX-TIN-RELF | 29 | 90 | 166 | 25 | □ | 856 |
| TFL | 29 | 90 | 166 | 25 | □ | 870-14 |
| V-XPM-EDL | 29 | 90 | 180 | 25 | ● | 785 |
| V-XPM-EML | 29 | 90 | 180 | 25 | ● | 812 |
| XPM-EDL | 29 | 90 | 180 | 25 | ● | 786 |
| XPM-EML | 29 | 90 | 180 | 25 | ● | 813 |
| XPM-EHL | 29 × 3F | 105 | 200 | 32 | □ | 823 |
| ETXL | 29 | 150 | 220 | 25 | □ | 823-11 |
| EX-TIN-ETXL | 29 | 150 | 220 | 25 | □ | 823-10 |
| CC-EMS | 29.1 | 55 | 125 | 25 | □ | 808 |
| EDS | 29.1 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 29.1 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.1 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 29.2 | 55 | 125 | 25 | □ | 808 |
| EDS | 29.2 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 29.2 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.2 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 29.3 | 55 | 125 | 25 | □ | 808 |
| EDS | 29.3 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 29.3 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.3 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 29.4 | 55 | 125 | 25 | □ | 808 |
| EDS | 29.4 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 29.4 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.4 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 29.5 | 55 | 125 | 25 | ● | 808 |
| EDS | 29.5 | 55 | 125 | 25 | ● | 770 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EDS | 29.5 | 55 | 125 | 25 | ● | 763 |
| EX-TIN-EMS | 29.5 | 55 | 125 | 25 | □ | 804 |
| XPM-EDS | 29.5 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.5 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 29.6 | 55 | 125 | 25 | □ | 808 |
| EDS | 29.6 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 29.6 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.6 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 29.7 | 55 | 125 | 25 | □ | 808 |
| EDS | 29.7 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 29.7 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.7 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 29.8 | 55 | 125 | 25 | □ | 808 |
| EDS | 29.8 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 29.8 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.8 | 55 | 130 | 25 | □ | 800 |
| CC-EMS | 29.9 | 55 | 125 | 25 | □ | 808 |
| EDS | 29.9 | 55 | 125 | 25 | □ | 770 |
| XPM-EDS | 29.9 | 55 | 130 | 25 | □ | 760 |
| XPM-EMS | 29.9 | 55 | 130 | 25 | □ | 800 |
| RF-TSC | 30 | 5 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 30 | 5 | 150 | 16 | □ | 895-1 |
| RF-TSC | 30 | 6 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 30 | 6 | 150 | 16 | □ | 895-1 |
| RF-TSC | 30 | 7 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 30 | 7 | 150 | 16 | □ | 895-1 |
| RF-TSC | 30 | 8 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 30 | 8 | 150 | 16 | □ | 895-1 |
| RF-TSC | 30 | 10 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 30 | 10 | 150 | 16 | □ | 895-1 |
| RF-TSC | 30 | 12 | 145 | 16 | ● | 894 |
| TIN-TUF-TSC | 30 | 12 | 150 | 16 | □ | 895-1 |
| RF-TSC | 30 | 14 | 145 | 16 | □ | 894 |
| RF-TSC | 30 | 15 | 145 | 16 | □ | 894 |
| TIN-TUF-TSC | 30 | 15 | 150 | 16 | □ | 895-1 |
| EX-REES | 30 | 45 | 121 | 25 | ● | 848 |
| EX-TIN-RESF | 30 | 45 | 121 | 25 | ● | 845 |
| TFGS | 30 | 45 | 121 | 25 | ● | 859 |
| CPM-LS-RESF | 30 | 45 | 160 | 25 | □ | 870-2 |
| EX-LS-REES | 30 | 45 | 160 | 25 | ● | 849 |
| EX-LS-RESF | 30 | 45 | 160 | 25 | ● | 847 |
| SI-WH-RESF | 30 | 45 | 160 | 25 | ● | 838 |
| TIN-LS-RESF | 30 | 45 | 160 | 25 | ● | 846 |
| VLS-XPM-RESF | 30 | 45 | 160 | 25 | ● | 841 |
| VP-RESF | 30 | 45 | 160 | 25 | ● | 840 |
| WH-REES | 30 | 45 | 160 | 25 | ● | 839 |
| WH-RESF | 30 | 45 | 160 | 25 | ● | 839 |
| LS-BKMS | 30 | 45 | 220 | 25 | □ | 864 |
| VP-DE-RESF | 30 | 45 | 225 | 25 | ● | 843 |
| CPM-STD | 30 | 46 | 153 | 25 | □ | 823-5 |
| AL-EDS | 30 | 55 | 125 | 25 | ● | 776 |
| CC-EMS | 30 | 55 | 125 | 25 | ● | 808 |
| CE-EMS | 30 | 55 | 125 | 25 | □ | 809 |
| CPM-EDS | 30 | 55 | 125 | 25 | □ | 775 |
| CPM-EMS | 30 | 55 | 125 | 25 | □ | 811 |
| EDS | 30 | 55 | 125 | 25 | ● | 770 |
| ETS | 30 | 55 | 125 | 25 | ● | 794 |
| EX-TIN-EDS | 30 | 55 | 125 | 25 | ● | 763 |
| EX-TIN-EMS | 30 | 55 | 125 | 25 | ● | 804 |
| EX-TIN-ETS | 30 | 55 | 125 | 25 | □ | 823-10 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| SUS-EDS | 30 | 55 | 125 | 25 | ● | 777 |
| TIN-XPM-EMS | 30 | 55 | 130 | 25 | □ | 823-14 |
| V-XPM-EDS | 30 | 55 | 130 | 25 | ● | 755 |
| V-XPM-EMS | 30 | 55 | 130 | 25 | ● | 795 |
| XPM-EDS | 30 | 55 | 130 | 25 | ● | 760 |
| XPM-EMS | 30 | 55 | 130 | 25 | ● | 800 |
| VPS-EMS | 30 × 6F | 55 | 130 | 25 | ● | 796 |
| VPS-EMS | 30 × 6F | 55 | 130 | 25 | ● | 837 |
| VPS-EMS | 30 × 10F | 55 | 130 | 25 | ● | 796 |
| VPS-EMS | 30 × 10F | 55 | 130 | 25 | ● | 837 |
| TIN-XPM-EHS | 30 × 3F | 55 | 150 | 32 | ● | 822 |
| V-XPM-EHS | 30 × 3F | 55 | 150 | 32 | ● | 821 |
| V-XPM-NHS | 30 × 3F | 55 | 150 | 32 | ● | 859 |
| XPM-EHS | 30 × 3F | 55 | 150 | 32 | ● | 823 |
| TIN-XPM-EHS | 30 × 4F | 55 | 150 | 32 | ● | 822 |
| V-XPM-EHS | 30 × 4F | 55 | 150 | 32 | ● | 821 |
| V-XPM-NHS | 30 × 4F | 55 | 150 | 32 | ● | 859 |
| XPM-EHS | 30 × 4F | 55 | 150 | 32 | ● | 823 |
| LS-EDN | 30 | 55 | 220 | 25 | ● | 784 |
| LS-EMS | 30 | 55 | 220 | 25 | ● | 810 |
| DE-XPM-EDN | 30 | 55 | 225 | 25 | ● | 781 |
| DE-XPM-EMS | 30 | 55 | 225 | 25 | ● | 801 |
| LS-EMS | 30 | 55 | 270 | 25 | ● | 810 |
| DE-XPM-EDN | 30 | 55 | 300 | 25 | ● | 781 |
| DE-XPM-EMS | 30 | 55 | 300 | 25 | ● | 801 |
| PC-CPM-EDS | 30 | 55 | 350 | 42 | □ | 823-28 |
| EX-XLS-REE | 30 | 60 | 300 | 25 | □ | 870-7 |
| REES | 30 | 63 | 140 | 25 | □ | 870-3 |
| RFES | 30 | 63 | 140 | 25 | ● | 862 |
| LS-REES | 30 | 63 | 180 | 25 | □ | 870-3 |
| LS-RFES | 30 | 63 | 180 | 25 | ● | 863 |
| EX-REEN | 30 | 67 | 143 | 25 | ● | 853 |
| EX-TIN-RENF | 30 | 67 | 143 | 25 | ● | 851 |
| TFGN | 30 | 67 | 143 | 25 | ● | 865 |
| VP-RENF | 30 | 67 | 160 | 25 | ● | 850 |
| WH-REEN | 30 | 67 | 160 | 25 | ● | 852 |
| WH-RENF | 30 | 67 | 160 | 25 | ● | 850 |
| CC-EMN | 30 | 70 | 140 | 25 | □ | 823-17 |
| CPM-XLS-EDS | 30 | 70 | 300 | 25 | □ | 823-2 |
| LS-EMSS | 30 | 70 | 300 | 25 | □ | 823-11 |
| XLS-EDS | 30 | 70 | 300 | 25 | □ | 823-1 |
| XLS-EMS | 30 | 70 | 300 | 25 | □ | 823-12 |
| EX-REE-3F | 30 | 72 | 166 | 25 | □ | 870-6 |
| CPM-REE | 30 | 80 | 165 | 32 | □ | 870-7 |
| CPM-RFE | 30 | 80 | 165 | 32 | □ | 870-17 |
| EX-REE | 30 | 80 | 165 | 32 | □ | 870-5 |
| EX-TIN-REE | 30 | 80 | 165 | 32 | □ | 870-4 |
| REE | 30 | 80 | 165 | 32 | □ | 870-6 |
| RFE | 30 | 80 | 165 | 32 | ● | 868 |
| BS-REE | 30 | 80 | 200 | BS9 | □ | 870-10 |
| BS-RFE | 30 | 80 | 200 | BS9 | □ | 870-19 |
| MT-REE | 30 | 80 | 205 | MT4 | □ | 870-11 |
| MT-RFE | 30 | 80 | 205 | MT4 | □ | 870-20 |
| CC-EML | 30 | 90 | 160 | 25 | ● | 817 |
| EDL | 30 | 90 | 160 | 25 | ● | 791 |
| EX-TIN-EDL | 30 | 90 | 160 | 25 | ● | 788 |
| EX-TIN-EML | 30 | 90 | 160 | 25 | ● | 814 |
| BKML | 30 | 90 | 165 | 25 | □ | 870-16 |
| EX-REEL | 30 | 90 | 166 | 25 | ● | 857 |
| EX-TIN-RELF | 30 | 90 | 166 | 25 | ● | 856 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| REEM | 30 | 90 | 166 | 25 | □ | 870-5 |
| VP-RELF | 30 | 90 | 170 | 25 | ● | 855 |
| WH-REEL | 30 | 90 | 170 | 25 | ● | 854 |
| WH-RELF | 30 | 90 | 170 | 25 | ● | 854 |
| V-XPM-EDL | 30 | 90 | 180 | 25 | ● | 785 |
| V-XPM-EML | 30 | 90 | 180 | 25 | ● | 812 |
| XPM-EDL | 30 | 90 | 180 | 25 | ● | 786 |
| XPM-EML | 30 | 90 | 180 | 25 | ● | 813 |
| MT-EHL | 30 | 90 | 215 | MT4 | □ | 823-25 |
| EX-TIN-LS-EDL | 30 | 90 | 220 | 25 | □ | 823-6 |
| LS-EDL | 30 | 90 | 220 | 25 | □ | 823-7 |
| LS-EML | 30 | 90 | 220 | 25 | ● | 818 |
| CPM-XLS-EDS | 30 | 90 | 400 | 25 | □ | 823-2 |
| EX-XLS-REE | 30 | 90 | 400 | 32 | □ | 870-7 |
| EX-REXL | 30 | 100 | 185 | 32 | □ | 858 |
| EX-TIN-REXL | 30 | 100 | 185 | 32 | □ | 870-8 |
| REEL | 30 | 100 | 185 | 32 | □ | 870-9 |
| RFEL | 30 | 100 | 185 | 32 | □ | 869 |
| CPM-EHL | 30 | 105 | 200 | 32 | □ | 823-24 |
| TIN-XPM-EHL | 30 × 3F | 105 | 200 | 32 | ● | 822 |
| V-XPM-EHL | 30 × 3F | 105 | 200 | 32 | ● | 821 |
| XPM-EHL | 30 × 3F | 105 | 200 | 32 | ● | 823 |
| TIN-XPM-EHL | 30 × 4F | 105 | 200 | 32 | ● | 822 |
| V-XPM-EHL | 30 × 4F | 105 | 200 | 32 | ● | 821 |
| XPM-EHL | 30 × 4F | 105 | 200 | 32 | ● | 823 |
| EXDL | 30 | 120 | 190 | 25 | □ | 792 |
| EXML | 30 | 120 | 190 | 25F | □ | 819 |
| EX-REXL | 30 | 120 | 205 | 32 | □ | 858 |
| EX-TIN-REXL | 30 | 120 | 205 | 32 | □ | 870-8 |
| REEL | 30 | 120 | 205 | 32 | □ | 870-9 |
| CPM-XLS-EDS | 30 | 120 | 500 | 25 | □ | 823-2 |
| EX-XLS-REE | 30 | 120 | 500 | 32 | □ | 870-7 |
| EX-REXL | 30 | 125 | 210 | 25 | ● | 858 |
| EX-TIN-REXL | 30 | 125 | 210 | 25 | □ | 870-8 |
| RFEL | 30 | 125 | 210 | 25 | ● | 869 |
| REEL | 30 | 125 | 210 | 32 | □ | 870-9 |
| ETXL | 30 | 150 | 220 | 25 | □ | 823-11 |
| EXDL | 30 | 150 | 220 | 25 | ● | 792 |
| EXML | 30 | 150 | 220 | 25 | ● | 819 |
| EX-TIN-ETXL | 30 | 150 | 220 | 25 | □ | 823-10 |
| EX-TIN-EXDL | 30 | 150 | 220 | 25 | □ | 823-6 |
| EX-TIN-EXML | 30 | 150 | 220 | 25 | □ | 823-19 |
| EX-REXL | 30 | 150 | 235 | 25 | ● | 858 |
| EX-TIN-REXL | 30 | 150 | 235 | 25 | □ | 870-8 |
| REEL | 30 | 150 | 235 | 25 | □ | 870-9 |
| RFEL | 30 | 150 | 235 | 25 | ● | 869 |
| EX-REXL | 30 | 150 | 235 | 32 | □ | 858 |
| REEL | 30 | 150 | 235 | 32 | □ | 870-9 |
| PS-EXML | 30 | 150 | 250 | 32 | □ | 823-20 |
| EXDL | 30 | 200 | 270 | 25 | □ | 792 |
| EXML | 30 | 200 | 270 | 25F | □ | 819 |
| EX-TIN-EXDL | 30 | 200 | 270 | 25 | □ | 823-6 |
| EX-REXL | 30 | 200 | 285 | 32 | □ | 858 |
| EX-TIN-REXL | 30 | 200 | 285 | 32 | □ | 870-8 |
| REEL | 30 | 200 | 285 | 32 | □ | 870-9 |
| PS-EXML | 30 | 200 | 300 | 32 | □ | 823-20 |
| EXDL | 30 | 250 | 320 | 25 | □ | 792 |
| EXML | 30 | 250 | 320 | 25F | □ | 819 |
| PS-EXML | 30 | 250 | 350 | 32 | □ | 823-20 |
| PS-EXML | 30 | 300 | 400 | 32 | □ | 823-20 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PS-EXML | 30 | 320 | 450 | 32 | □ | 823-20 |
| EDS | 30.1 | 60 | 145 | 32 | □ | 770 |
| EDS | 30.2 | 60 | 145 | 32 | □ | 770 |
| EDS | 30.3 | 60 | 145 | 32 | □ | 770 |
| EDS | 30.4 | 60 | 145 | 32 | □ | 770 |
| EDS | 30.5 | 60 | 145 | 32 | □ | 770 |
| EX-TIN-EDS | 30.5 | 60 | 145 | 32 | □ | 763 |
| EDS | 30.6 | 60 | 145 | 32 | □ | 770 |
| EDS | 30.7 | 60 | 145 | 32 | □ | 770 |
| EDS | 30.8 | 60 | 145 | 32 | □ | 770 |
| EDS | 30.9 | 60 | 145 | 32 | □ | 770 |
| EX-REES | 31 | 53 | 133 | 32 | ● | 848 |
| EX-TIN-RESF | 31 | 53 | 133 | 32 | ● | 845 |
| TFGS | 31 | 53 | 133 | 32 | ● | 859 |
| EX-LS-REES | 31 | 53 | 170 | 25 | ● | 849 |
| EX-LS-RESF | 31 | 53 | 170 | 25 | ● | 847 |
| TIN-LS-RESF | 31 | 53 | 170 | 25 | □ | 846 |
| VLS-XPM-RESF | 31 | 53 | 170 | 25 | □ | 841 |
| VP-RESF | 31 | 53 | 170 | 25 | □ | 840 |
| WH-RESF | 31 | 53 | 170 | 32 | ● | 839 |
| AL-EDS | 31 | 60 | 145 | 32 | □ | 776 |
| CC-EMS | 31 | 60 | 145 | 32 | ● | 808 |
| CPM-EDS | 31 | 60 | 145 | 32 | □ | 775 |
| EDS | 31 | 60 | 145 | 32 | ● | 770 |
| EX-TIN-EDS | 31 | 60 | 145 | 32 | ● | 763 |
| EX-TIN-EMS | 31 | 60 | 145 | 32 | ● | 804 |
| SUS-EDS | 31 | 60 | 145 | 32 | □ | 777 |
| CPM-EHS | 31 | 60 | 155 | 32 | □ | 823-22 |
| XPM-EHS | 31 × 4F | 60 | 155 | 32 | □ | 823 |
| BKMS | 31 | 60 | 160 | 32 | □ | 863 |
| CPM-BKMS | 31 | 60 | 160 | 32 | □ | 870-15 |
| V-XPM-EDS | 31 | 60 | 160 | 32 | ● | 755 |
| V-XPM-EMS | 31 | 60 | 160 | 32 | ● | 795 |
| XPM-EDS | 31 | 60 | 160 | 32 | ● | 760 |
| XPM-EMS | 31 | 60 | 160 | 32 | ● | 800 |
| LS-EMS | 31 | 60 | 235 | 25 | ● | 810 |
| EX-REEN | 31 | 80 | 160 | 32 | ● | 853 |
| EX-TIN-RENF | 31 | 80 | 160 | 32 | ● | 851 |
| TFGN | 31 | 80 | 160 | 32 | ● | 865 |
| EX-REE | 31 | 80 | 165 | 32 | □ | 870-5 |
| EX-TIN-REE | 31 | 80 | 165 | 32 | □ | 870-4 |
| REE | 31 | 80 | 165 | 32 | □ | 870-6 |
| CC-EML | 31 | 95 | 180 | 32 | ● | 817 |
| EDL | 31 | 95 | 180 | 32 | ● | 791 |
| EX-TIN-EDL | 31 | 95 | 180 | 32 | ● | 788 |
| EX-TIN-EML | 31 | 95 | 180 | 32 | ● | 814 |
| XPM-EDL | 31 | 95 | 195 | 32 | ● | 786 |
| XPM-EML | 31 | 95 | 195 | 32 | ● | 813 |
| EX-REEL | 31 | 106 | 186 | 32 | ● | 857 |
| EX-TIN-RELF | 31 | 106 | 186 | 32 | □ | 856 |
| TFL | 31 | 106 | 186 | 32 | □ | 870-14 |
| EDS | 31.1 | 60 | 145 | 32 | □ | 770 |
| EDS | 31.2 | 60 | 145 | 32 | □ | 770 |
| EDS | 31.3 | 60 | 145 | 32 | □ | 770 |
| EDS | 31.4 | 60 | 145 | 32 | □ | 770 |
| EDS | 31.5 | 60 | 145 | 32 | □ | 770 |
| EX-TIN-EDS | 31.5 | 60 | 145 | 32 | □ | 763 |
| EDS | 31.6 | 60 | 145 | 32 | □ | 770 |
| EDS | 31.7 | 60 | 145 | 32 | □ | 770 |
| EDS | 31.8 | 60 | 145 | 32 | □ | 770 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDS | 31.9 | 60 | 145 | 32 | □ | 770 |
| TIN-TUF-TSC | 32 | 7 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 32 | 8 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 32 | 10 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 32 | 12 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 32 | 15 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 32 | 16 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 32 | 18 | 150 | 16 | □ | 895-1 |
| TIN-TUF-TSC | 32 | 20 | 150 | 16 | □ | 895-1 |
| EX-REES | 32 | 53 | 133 | 32 | ● | 848 |
| EX-TIN-RESF | 32 | 53 | 133 | 32 | ● | 845 |
| TFGS | 32 | 53 | 133 | 32 | ● | 859 |
| CPM-LS-RESF | 32 | 53 | 170 | 25 | □ | 870-2 |
| EX-LS-REES | 32 | 53 | 170 | 25 | ● | 849 |
| EX-LS-RESF | 32 | 53 | 170 | 25 | ● | 847 |
| TIN-LS-RESF | 32 | 53 | 170 | 25 | ● | 846 |
| VLS-XPM-RESF | 32 | 53 | 170 | 25 | ● | 841 |
| VP-RESF | 32 | 53 | 170 | 25 | ● | 840 |
| WH-REES | 32 | 53 | 170 | 32 | ● | 839 |
| WH-RESF | 32 | 53 | 170 | 32 | ● | 839 |
| LS-BKMS | 32 | 53 | 235 | 32 | □ | 864 |
| AL-EDS | 32 | 60 | 145 | 32 | □ | 776 |
| CC-EMS | 32 | 60 | 145 | 32 | ● | 808 |
| CPM-EDS | 32 | 60 | 145 | 32 | □ | 775 |
| EDS | 32 | 60 | 145 | 32 | ● | 770 |
| EX-TIN-EDS | 32 | 60 | 145 | 32 | ● | 763 |
| EX-TIN-EMS | 32 | 60 | 145 | 32 | ● | 804 |
| SUS-EDS | 32 | 60 | 145 | 32 | □ | 777 |
| CPM-EHS | 32 | 60 | 155 | 32 | □ | 823-22 |
| XPM-EHS | 32 × 4F | 60 | 155 | 32 | □ | 823 |
| BKMS | 32 | 60 | 160 | 32 | □ | 863 |
| CPM-BKMS | 32 | 60 | 160 | 32 | □ | 870-15 |
| TIN-KFR | 32 | 60 | 160 | 32 | □ | 870-18 |
| V-XPM-EDS | 32 | 60 | 160 | 32 | ● | 755 |
| V-XPM-EMS | 32 | 60 | 160 | 32 | ● | 795 |
| XPM-EDS | 32 | 60 | 160 | 32 | ● | 760 |
| XPM-EMS | 32 | 60 | 160 | 32 | ● | 800 |
| DE-XPM-EDN | 32 | 60 | 225 | 25 | ● | 781 |
| DE-XPM-EMS | 32 | 60 | 225 | 25 | ● | 801 |
| LS-EDN | 32 | 60 | 235 | 32 | ● | 784 |
| LS-EMS | 32 | 60 | 235 | 32 | ● | 810 |
| LS-EMS | 32 | 60 | 285 | 32 | ● | 810 |
| DE-XPM-EDN | 32 | 60 | 300 | 25 | ● | 781 |
| DE-XPM-EMS | 32 | 60 | 300 | 25 | ● | 801 |
| EX-XLS-REE | 32 | 60 | 300 | 32 | □ | 870-7 |
| REES | 32 | 63 | 140 | 25 | □ | 870-3 |
| RFES | 32 | 63 | 140 | 25 | ● | 862 |
| LS-REES | 32 | 63 | 180 | 25 | □ | 870-3 |
| LS-RFES | 32 | 63 | 180 | 25 | ● | 863 |
| EX-REEN | 32 | 80 | 160 | 32 | ● | 853 |
| EX-TIN-RENF | 32 | 80 | 160 | 32 | ● | 851 |
| TFGN | 32 | 80 | 160 | 32 | ● | 865 |
| TFN | 32 | 80 | 160 | 32 | □ | 866 |
| CC-EMN | 32 | 80 | 165 | 32 | □ | 823-17 |
| CPM-REE | 32 | 80 | 165 | 32 | □ | 870-7 |
| CPM-RFE | 32 | 80 | 165 | 32 | □ | 870-17 |
| EX-REE | 32 | 80 | 165 | 32 | □ | 870-5 |
| EX-TIN-REE | 32 | 80 | 165 | 32 | □ | 870-4 |
| REE | 32 | 80 | 165 | 32 | □ | 870-6 |
| RFE | 32 | 80 | 165 | 32 | ● | 868 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# ハイスエンドミル／スクエア
HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| VP-RENF | 32 | 80 | 180 | 32 | ● | 850 |
| WH-REEN | 32 | 80 | 180 | 32 | ● | 852 |
| WH-RENF | 32 | 80 | 180 | 32 | ● | 850 |
| MT-REE | 32 | 80 | 205 | MT4 | □ | 870-11 |
| MT-RFE | 32 | 80 | 205 | MT4 | □ | 870-20 |
| CPM-XLS-EMS | 32 | 80 | 350 | 32 | □ | 823-13 |
| XLS-EDS | 32 | 80 | 350 | 32 | □ | 823-1 |
| XLS-EMS | 32 | 80 | 350 | 32 | □ | 823-12 |
| EX-REE-3F | 32 | 85 | 186 | 32 | □ | 870-6 |
| CC-EML | 32 | 95 | 180 | 32 | ● | 817 |
| EDL | 32 | 95 | 180 | 32 | ● | 791 |
| EX-TIN-EDL | 32 | 95 | 180 | 32 | ● | 788 |
| EX-TIN-EML | 32 | 95 | 180 | 32 | ● | 814 |
| BKML | 32 | 95 | 195 | 32 | □ | 870-16 |
| XPM-EDL | 32 | 95 | 195 | 32 | ● | 786 |
| XPM-EML | 32 | 95 | 195 | 32 | ● | 813 |
| EX-TIN-LS-EDL | 32 | 95 | 235 | 32 | □ | 823-6 |
| LS-EDL | 32 | 95 | 235 | 32 | □ | 823-7 |
| LS-EML | 32 | 95 | 235 | 32 | ● | 818 |
| CPM-XLS-EMS | 32 | 100 | 400 | 32 | □ | 823-13 |
| EX-XLS-REE | 32 | 100 | 400 | 32 | □ | 870-7 |
| EX-REEL | 32 | 106 | 186 | 32 | ● | 857 |
| EX-TIN-RELF | 32 | 106 | 186 | 32 | ● | 856 |
| REEM | 32 | 106 | 186 | 32 | □ | 870-5 |
| VP-RELF | 32 | 106 | 200 | 32 | ● | 855 |
| WH-REEL | 32 | 106 | 200 | 32 | ● | 854 |
| WH-RELF | 32 | 106 | 200 | 32 | ● | 854 |
| ETXL | 32 | 150 | 235 | 32 | □ | 823-11 |
| EXDL | 32 | 150 | 235 | 32 | ● | 792 |
| EXML | 32 | 150 | 235 | 32 | ● | 819 |
| EX-REXL | 32 | 150 | 235 | 32 | □ | 858 |
| EX-TIN-ETXL | 32 | 150 | 235 | 32 | □ | 823-10 |
| EX-TIN-EXDL | 32 | 150 | 235 | 32 | □ | 823-6 |
| EX-TIN-EXML | 32 | 150 | 235 | 32 | □ | 823-19 |
| EX-TIN-REXL | 32 | 150 | 235 | 32 | □ | 870-8 |
| REEL | 32 | 150 | 235 | 32 | □ | 870-9 |
| CPM-XLS-EMS | 32 | 150 | 500 | 32 | □ | 823-13 |
| EX-XLS-REE | 32 | 150 | 500 | 32 | □ | 870-7 |
| EXDL | 32 | 200 | 285 | 32 | □ | 792 |
| EXML | 32 | 200 | 285 | 32F | □ | 819 |
| EX-REXL | 32 | 200 | 285 | 32 | □ | 858 |
| EX-TIN-REXL | 32 | 200 | 285 | 32 | □ | 870-8 |
| REEL | 32 | 200 | 285 | 32 | □ | 870-9 |
| PS-EXML | 32 | 200 | 300 | 32 | □ | 823-20 |
| PS-EXML | 32 | 250 | 350 | 32 | □ | 823-20 |
| EDS | 32.1 | 60 | 145 | 32 | □ | 770 |
| EDS | 32.2 | 60 | 145 | 32 | □ | 770 |
| EDS | 32.3 | 60 | 145 | 32 | □ | 770 |
| EDS | 32.4 | 60 | 145 | 32 | □ | 771 |
| EDS | 32.5 | 60 | 145 | 32 | □ | 771 |
| EX-TIN-EDS | 32.5 | 60 | 145 | 32 | □ | 763 |
| EDS | 32.6 | 60 | 145 | 32 | □ | 771 |
| EDS | 32.7 | 60 | 145 | 32 | □ | 771 |
| EDS | 32.8 | 60 | 145 | 32 | □ | 771 |
| EDS | 32.9 | 60 | 145 | 32 | □ | 771 |
| EX-REES | 33 | 53 | 133 | 32 | ● | 848 |
| EX-TIN-RESF | 33 | 53 | 133 | 32 | ● | 845 |
| TFGS | 33 | 53 | 133 | 32 | ● | 859 |
| EX-LS-REES | 33 | 53 | 170 | 25 | ● | 849 |
| EX-LS-RESF | 33 | 53 | 170 | 25 | ● | 847 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| TIN-LS-RESF | 33 | 53 | 170 | 25 | □ | 846 |
| VLS-XPM-RESF | 33 | 53 | 170 | 25 | □ | 841 |
| VP-RESF | 33 | 53 | 170 | 25 | □ | 840 |
| WH-RESF | 33 | 53 | 170 | 32 | ● | 839 |
| AL-EDS | 33 | 60 | 145 | 32 | □ | 776 |
| CC-EMS | 33 | 60 | 145 | 32 | ● | 808 |
| CPM-EDS | 33 | 60 | 145 | 32 | □ | 775 |
| CPM-EMS | 33 | 60 | 145 | 32 | □ | 811 |
| EDS | 33 | 60 | 145 | 32 | ● | 771 |
| EX-TIN-EDS | 33 | 60 | 145 | 32 | ● | 763 |
| EX-TIN-EMS | 33 | 60 | 145 | 32 | ● | 804 |
| CPM-EHS | 33 | 60 | 155 | 32 | □ | 823-22 |
| XPM-EHS | 33 × 4F | 60 | 155 | 32 | □ | 823 |
| BKMS | 33 | 60 | 160 | 32 | □ | 863 |
| CPM-BKMS | 33 | 60 | 160 | 32 | □ | 870-15 |
| V-XPM-EDS | 33 | 60 | 160 | 32 | ● | 755 |
| V-XPM-EMS | 33 | 60 | 160 | 32 | ● | 795 |
| XPM-EDS | 33 | 60 | 160 | 32 | ● | 760 |
| XPM-EMS | 33 | 60 | 160 | 32 | ● | 800 |
| LS-EMS | 33 | 60 | 235 | 32 | ● | 810 |
| EX-REEN | 33 | 80 | 160 | 32 | ● | 853 |
| EX-TIN-RENF | 33 | 80 | 160 | 32 | ● | 851 |
| TFGN | 33 | 80 | 160 | 32 | ● | 865 |
| EX-REE | 33 | 90 | 175 | 32 | □ | 870-5 |
| REE | 33 | 90 | 175 | 32 | □ | 870-6 |
| CC-EML | 33 | 100 | 185 | 32 | ● | 817 |
| EDL | 33 | 100 | 185 | 32 | ● | 791 |
| EX-TIN-EDL | 33 | 100 | 185 | 32 | ● | 788 |
| EX-TIN-EML | 33 | 100 | 185 | 32 | ● | 814 |
| XPM-EDL | 33 | 100 | 200 | 32 | ● | 786 |
| XPM-EML | 33 | 100 | 200 | 32 | ● | 813 |
| EX-REEL | 33 | 106 | 186 | 32 | ● | 857 |
| EX-TIN-RELF | 33 | 106 | 186 | 32 | □ | 856 |
| TFL | 33 | 106 | 186 | 32 | □ | 870-14 |
| EDS | 33.1 | 60 | 145 | 32 | □ | 771 |
| EDS | 33.2 | 60 | 145 | 32 | □ | 771 |
| EDS | 33.3 | 60 | 145 | 32 | □ | 771 |
| EDS | 33.4 | 60 | 145 | 32 | □ | 771 |
| EDS | 33.5 | 60 | 145 | 32 | □ | 771 |
| EX-TIN-EDS | 33.5 | 60 | 145 | 32 | □ | 763 |
| EDS | 33.6 | 60 | 145 | 32 | □ | 771 |
| EDS | 33.7 | 60 | 145 | 32 | □ | 771 |
| EDS | 33.8 | 60 | 145 | 32 | □ | 771 |
| EDS | 33.9 | 60 | 145 | 32 | □ | 771 |
| EX-REES | 34 | 53 | 133 | 32 | ● | 848 |
| EX-TIN-RESF | 34 | 53 | 133 | 32 | ● | 845 |
| TFGS | 34 | 53 | 133 | 32 | ● | 859 |
| EX-LS-REES | 34 | 53 | 175 | 32 | ● | 849 |
| EX-LS-RESF | 34 | 53 | 175 | 32 | ● | 847 |
| TIN-LS-RESF | 34 | 53 | 175 | 32 | □ | 846 |
| VLS-XPM-RESF | 34 | 53 | 175 | 32 | □ | 841 |
| VP-RESF | 34 | 53 | 175 | 32 | □ | 840 |
| WH-RESF | 34 | 53 | 175 | 32 | ● | 839 |
| AL-EDS | 34 | 60 | 145 | 32 | □ | 776 |
| CC-EMS | 34 | 60 | 145 | 32 | ● | 808 |
| CPM-EDS | 34 | 60 | 145 | 32 | □ | 775 |
| EDS | 34 | 60 | 145 | 32 | ● | 771 |
| EX-TIN-EDS | 34 | 60 | 145 | 32 | ● | 763 |
| EX-TIN-EMS | 34 | 60 | 145 | 32 | ● | 804 |
| SUS-EDS | 34 | 60 | 145 | 32 | □ | 777 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-EHS | 34 | 60 | 155 | 32 | □ | 823-22 |
| XPM-EHS | 34 × 4F | 60 | 155 | 32 | □ | 823 |
| BKMS | 34 | 60 | 160 | 32 | □ | 863 |
| CPM-BKMS | 34 | 60 | 160 | 32 | □ | 870-15 |
| V-XPM-EDS | 34 | 60 | 160 | 32 | ● | 755 |
| V-XPM-EMS | 34 | 60 | 160 | 32 | ● | 795 |
| XPM-EDS | 34 | 60 | 160 | 32 | ● | 760 |
| XPM-EMS | 34 | 60 | 160 | 32 | ● | 800 |
| LS-EDN | 34 | 60 | 235 | 32 | ● | 784 |
| LS-EMS | 34 | 60 | 235 | 32 | ● | 810 |
| DE-XPM-EDN | 34 | 60 | 250 | 32 | ● | 781 |
| DE-XPM-EMS | 34 | 60 | 250 | 32 | ● | 801 |
| DE-XPM-EDN | 34 | 60 | 350 | 32 | ● | 781 |
| DE-XPM-EMS | 34 | 60 | 350 | 32 | ● | 801 |
| EX-REEN | 34 | 80 | 160 | 32 | ● | 853 |
| EX-TIN-RENF | 34 | 80 | 160 | 32 | ● | 851 |
| TFGN | 34 | 80 | 160 | 32 | ● | 865 |
| CC-EMN | 34 | 80 | 165 | 32 | □ | 823-17 |
| CPM-XLS-EMS | 34 | 80 | 350 | 32 | □ | 823-13 |
| XLS-EDS | 34 | 80 | 350 | 32 | □ | 823-1 |
| XLS-EMS | 34 | 80 | 350 | 32 | □ | 823-12 |
| EX-REE | 34 | 90 | 175 | 32 | □ | 870-5 |
| REE | 34 | 90 | 175 | 32 | □ | 870-6 |
| CC-EML | 34 | 100 | 185 | 32 | ● | 817 |
| EDL | 34 | 100 | 185 | 32 | ● | 791 |
| EX-TIN-EDL | 34 | 100 | 185 | 32 | ● | 788 |
| EX-TIN-EML | 34 | 100 | 185 | 32 | ● | 814 |
| XPM-EDL | 34 | 100 | 200 | 32 | ● | 786 |
| XPM-EML | 34 | 100 | 200 | 32 | ● | 813 |
| EX-TIN-LS-EDL | 34 | 100 | 235 | 32 | □ | 823-6 |
| LS-EDL | 34 | 100 | 235 | 32 | □ | 823-7 |
| LS-EML | 34 | 100 | 235 | 32 | ● | 818 |
| EX-REEL | 34 | 106 | 186 | 32 | ● | 857 |
| EX-TIN-RELF | 34 | 106 | 186 | 32 | □ | 856 |
| TFL | 34 | 106 | 186 | 32 | □ | 870-14 |
| ETXL | 34 | 150 | 235 | 32 | □ | 823-11 |
| EXDL | 34 | 150 | 235 | 32 | ● | 792 |
| EXML | 34 | 150 | 235 | 32 | ● | 819 |
| EX-TIN-ETXL | 34 | 150 | 235 | 32 | □ | 823-10 |
| EX-TIN-EXDL | 34 | 150 | 235 | 32 | □ | 823-6 |
| EX-TIN-EXML | 34 | 150 | 235 | 32 | □ | 823-19 |
| EDS | 34.1 | 60 | 145 | 32 | □ | 771 |
| EDS | 34.2 | 60 | 145 | 32 | □ | 771 |
| EDS | 34.3 | 60 | 145 | 32 | □ | 771 |
| EDS | 34.4 | 60 | 145 | 32 | □ | 771 |
| EDS | 34.5 | 60 | 145 | 32 | □ | 771 |
| EX-TIN-EDS | 34.5 | 60 | 145 | 32 | □ | 763 |
| EDS | 34.6 | 60 | 145 | 32 | □ | 771 |
| EDS | 34.7 | 60 | 145 | 32 | □ | 771 |
| EDS | 34.8 | 60 | 145 | 32 | □ | 771 |
| EDS | 34.9 | 60 | 145 | 32 | □ | 771 |
| RF-TSC | 35 | 7 | 160 | 20 | ● | 894 |
| TIN-TUF-TSC | 35 | 7 | 180 | 16 | □ | 895-1 |
| RF-TSC | 35 | 8 | 160 | 20 | ● | 894 |
| TIN-TUF-TSC | 35 | 8 | 180 | 16 | □ | 895-1 |
| RF-TSC | 35 | 10 | 160 | 20 | ● | 894 |
| TIN-TUF-TSC | 35 | 10 | 180 | 16 | □ | 895-1 |
| RF-TSC | 35 | 12 | 160 | 20 | ● | 894 |
| TIN-TUF-TSC | 35 | 12 | 180 | 16 | □ | 895-1 |
| RF-TSC | 35 | 14 | 160 | 20 | □ | 894 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| RF-TSC | 35 | 15 | 160 | 20 | □ | 894 |
| TIN-TUF-TSC | 35 | 15 | 180 | 16 | □ | 895-1 |
| RF-TSC | 35 | 16 | 160 | 20 | □ | 894 |
| TIN-TUF-TSC | 35 | 16 | 180 | 16 | □ | 895-1 |
| RF-TSC | 35 | 18 | 160 | 20 | □ | 894 |
| TIN-TUF-TSC | 35 | 18 | 180 | 16 | □ | 895-1 |
| RF-TSC | 35 | 20 | 160 | 20 | □ | 894 |
| TIN-TUF-TSC | 35 | 20 | 180 | 16 | □ | 895-1 |
| EX-REES | 35 | 53 | 133 | 32 | ● | 848 |
| EX-TIN-RESF | 35 | 53 | 133 | 32 | ● | 845 |
| TFGS | 35 | 53 | 133 | 32 | ● | 859 |
| CPM-LS-RESF | 35 | 53 | 175 | 32 | □ | 870-2 |
| EX-LS-REES | 35 | 53 | 175 | 32 | ● | 849 |
| EX-LS-RESF | 35 | 53 | 175 | 32 | ● | 847 |
| TIN-LS-RESF | 35 | 53 | 175 | 32 | ● | 846 |
| VLS-XPM-RESF | 35 | 53 | 175 | 32 | ● | 841 |
| VP-RESF | 35 | 53 | 175 | 32 | ● | 840 |
| WH-REES | 35 | 53 | 175 | 32 | ● | 839 |
| WH-RESF | 35 | 53 | 175 | 32 | ● | 839 |
| VP-DE-RESF | 35 | 53 | 250 | 32 | ● | 843 |
| AL-EDS | 35 | 60 | 145 | 32 | □ | 776 |
| CC-EMS | 35 | 60 | 145 | 32 | ● | 808 |
| CE-EMS | 35 | 60 | 145 | 32 | □ | 809 |
| CPM-EDS | 35 | 60 | 145 | 32 | □ | 775 |
| EDS | 35 | 60 | 145 | 32 | ● | 771 |
| ETS | 35 | 60 | 145 | 32 | □ | 794 |
| EX-TIN-EDS | 35 | 60 | 145 | 32 | ● | 763 |
| EX-TIN-EMS | 35 | 60 | 145 | 32 | ● | 804 |
| SUS-EDS | 35 | 60 | 145 | 32 | □ | 777 |
| CPM-EHS | 35 | 60 | 155 | 32 | □ | 823-22 |
| XPM-EHS | 35 × 4F | 60 | 155 | 32 | □ | 823 |
| CPM-BKMS | 35 | 60 | 160 | 32 | □ | 870-15 |
| KFR | 35 | 60 | 160 | 32 | □ | 867 |
| V-XPM-EDS | 35 | 60 | 160 | 32 | ● | 755 |
| V-XPM-EMS | 35 | 60 | 160 | 32 | ● | 795 |
| XPM-EDS | 35 | 60 | 160 | 32 | ● | 760 |
| XPM-EMS | 35 | 60 | 160 | 32 | ● | 800 |
| LS-EDN | 35 | 60 | 235 | 32 | ● | 784 |
| LS-EMS | 35 | 60 | 235 | 32 | ● | 810 |
| DE-XPM-EDN | 35 | 60 | 250 | 32 | ● | 781 |
| DE-XPM-EMS | 35 | 60 | 250 | 32 | ● | 801 |
| LS-EMS | 35 | 60 | 285 | 32 | ● | 810 |
| DE-XPM-EDN | 35 | 60 | 350 | 32 | ● | 781 |
| DE-XPM-EMS | 35 | 60 | 350 | 32 | ● | 801 |
| REES | 35 | 70 | 160 | 32 | □ | 870-3 |
| RFES | 35 | 70 | 160 | 32 | ● | 862 |
| LS-REES | 35 | 70 | 190 | 32 | □ | 870-3 |
| LS-RFES | 35 | 70 | 190 | 32 | ● | 863 |
| EX-XLS-REE | 35 | 70 | 350 | 32 | □ | 870-7 |
| EX-REEN | 35 | 80 | 160 | 32 | ● | 853 |
| EX-TIN-RENF | 35 | 80 | 160 | 32 | ● | 851 |
| TFGN | 35 | 80 | 160 | 32 | ● | 865 |
| TFN | 35 | 80 | 160 | 32 | □ | 866 |
| CC-EMN | 35 | 80 | 165 | 32 | □ | 823-17 |
| VP-RENF | 35 | 80 | 180 | 32 | ● | 850 |
| WH-REEN | 35 | 80 | 180 | 32 | ● | 852 |
| WH-RENF | 35 | 80 | 180 | 32 | ● | 850 |
| CPM-XLS-EMS | 35 | 80 | 350 | 32 | □ | 823-13 |
| XLS-EDS | 35 | 80 | 350 | 32 | □ | 823-1 |
| XLS-EMS | 35 | 80 | 350 | 32 | □ | 823-12 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

# ハイスエンドミル／スクエア
HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-REE-3F | 35 | 85 | 186 | 32 | □ | 870-6 |
| CPM-REE | 35 | 90 | 175 | 32 | □ | 870-7 |
| CPM-RFE | 35 | 90 | 175 | 32 | □ | 870-17 |
| EX-REE | 35 | 90 | 175 | 32 | □ | 870-5 |
| EX-TIN-REE | 35 | 90 | 175 | 32 | □ | 870-4 |
| REE | 35 | 90 | 175 | 32 | □ | 870-6 |
| RFE | 35 | 90 | 175 | 32 | ● | 868 |
| BS-REE | 35 | 90 | 210 | BS9 | □ | 870-10 |
| BS-RFE | 35 | 90 | 210 | BS9 | □ | 870-19 |
| MT-REE | 35 | 90 | 215 | MT4 | □ | 870-11 |
| MT-RFE | 35 | 90 | 215 | MT4 | □ | 870-20 |
| CC-EML | 35 | 100 | 185 | 32 | ● | 817 |
| CE-EML | 35 | 100 | 185 | 32 | □ | 823-18 |
| EDL | 35 | 100 | 185 | 32 | ● | 791 |
| EX-TIN-EDL | 35 | 100 | 185 | 32 | ● | 788 |
| EX-TIN-EML | 35 | 100 | 185 | 32 | ● | 814 |
| BKML | 35 | 100 | 200 | 32 | □ | 870-16 |
| XPM-EDL | 35 | 100 | 200 | 32 | ● | 786 |
| XPM-EML | 35 | 100 | 200 | 32 | ● | 813 |
| EX-TIN-LS-EDL | 35 | 100 | 235 | 32 | □ | 823-6 |
| LS-EDL | 35 | 100 | 235 | 32 | □ | 823-7 |
| LS-EML | 35 | 100 | 235 | 32 | ● | 818 |
| CPM-XLS-EMS | 35 | 100 | 400 | 32 | □ | 823-13 |
| EX-XLS-REE | 35 | 100 | 400 | 32 | □ | 870-7 |
| MT-EHL | 35 | 105 | 230 | MT4 | □ | 823-25 |
| EX-REEL | 35 | 106 | 186 | 32 | ● | 857 |
| EX-TIN-RELF | 35 | 106 | 186 | 32 | ● | 856 |
| REEM | 35 | 106 | 186 | 32 | □ | 870-5 |
| VP-RELF | 35 | 106 | 200 | 32 | ● | 855 |
| WH-REEL | 35 | 106 | 200 | 32 | ● | 854 |
| WH-RELF | 35 | 106 | 200 | 32 | ● | 854 |
| CPM-EHL | 35 | 110 | 205 | 32 | □ | 823-24 |
| EX-REXL | 35 | 120 | 205 | 32 | □ | 858 |
| EX-TIN-REXL | 35 | 120 | 205 | 32 | □ | 870-8 |
| REEL | 35 | 120 | 205 | 32 | □ | 870-9 |
| RFEL | 35 | 120 | 205 | 32 | □ | 869 |
| EX-REXL | 35 | 125 | 215 | 32 | ● | 858 |
| EX-TIN-REXL | 35 | 125 | 215 | 32 | □ | 870-8 |
| REEL | 35 | 125 | 215 | 32 | □ | 870-9 |
| RFEL | 35 | 125 | 215 | 32 | ● | 869 |
| ETXL | 35 | 150 | 235 | 32 | □ | 823-11 |
| EXDL | 35 | 150 | 235 | 32 | ● | 792 |
| EXML | 35 | 150 | 235 | 32 | ● | 819 |
| EX-TIN-ETXL | 35 | 150 | 235 | 32 | □ | 823-10 |
| EX-TIN-EXDL | 35 | 150 | 235 | 32 | □ | 823-6 |
| EX-TIN-EXML | 35 | 150 | 235 | 32 | □ | 823-19 |
| EX-REXL | 35 | 150 | 240 | 32 | ● | 858 |
| EX-TIN-REXL | 35 | 150 | 240 | 32 | □ | 870-8 |
| REEL | 35 | 150 | 240 | 32 | □ | 870-9 |
| RFEL | 35 | 150 | 240 | 32 | ● | 869 |
| CPM-XLS-EMS | 35 | 150 | 500 | 32 | □ | 823-13 |
| EX-XLS-REE | 35 | 150 | 500 | 32 | □ | 870-7 |
| EXDL | 35 | 200 | 285 | 32 | □ | 792 |
| EXML | 35 | 200 | 285 | 32F | □ | 819 |
| EX-REXL | 35 | 200 | 285 | 32 | □ | 858 |
| EX-TIN-EXDL | 35 | 200 | 285 | 32 | □ | 823-6 |
| EX-TIN-EXML | 35 | 200 | 285 | 32 | □ | 823-19 |
| EX-TIN-REXL | 35 | 200 | 285 | 32 | □ | 870-8 |
| REEL | 35 | 200 | 285 | 32 | □ | 870-9 |
| PS-EXML | 35 | 200 | 300 | 32 | □ | 823-20 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EXDL | 35 | 250 | 335 | 32 | □ | 792 |
| EXML | 35 | 250 | 335 | 32F | □ | 819 |
| PS-EXML | 35 | 250 | 350 | 32 | □ | 823-20 |
| PS-EXML | 35 | 300 | 400 | 32 | □ | 823-20 |
| PS-EXML | 35 | 350 | 450 | 32 | □ | 823-20 |
| EDS | 35.1 | 65 | 150 | 32 | □ | 771 |
| EDS | 35.2 | 65 | 150 | 32 | □ | 771 |
| EDS | 35.3 | 65 | 150 | 32 | □ | 771 |
| EDS | 35.4 | 65 | 150 | 32 | □ | 771 |
| EDS | 35.5 | 65 | 150 | 32 | □ | 771 |
| EX-TIN-EDS | 35.5 | 65 | 150 | 32 | □ | 763 |
| EDS | 35.6 | 65 | 150 | 32 | □ | 771 |
| EDS | 35.7 | 65 | 150 | 32 | □ | 771 |
| EDS | 35.8 | 65 | 150 | 32 | □ | 771 |
| EDS | 35.9 | 65 | 150 | 32 | □ | 771 |
| EX-REES | 36 | 53 | 133 | 32 | ● | 848 |
| EX-TIN-RESF | 36 | 53 | 133 | 32 | ● | 845 |
| TFGS | 36 | 53 | 133 | 32 | ● | 859 |
| EX-LS-REES | 36 | 53 | 175 | 32 | ● | 849 |
| EX-LS-RESF | 36 | 53 | 175 | 32 | ● | 847 |
| TIN-LS-RESF | 36 | 53 | 175 | 32 | □ | 846 |
| VLS-XPM-RESF | 36 | 53 | 175 | 32 | □ | 841 |
| VP-RESF | 36 | 53 | 175 | 32 | □ | 840 |
| WH-RESF | 36 | 53 | 175 | 32 | ● | 839 |
| AL-EDS | 36 | 65 | 150 | 32 | □ | 776 |
| CC-EMS | 36 | 65 | 150 | 32 | ● | 808 |
| EDS | 36 | 65 | 150 | 32 | ● | 771 |
| EX-TIN-EDS | 36 | 65 | 150 | 32 | ● | 763 |
| EX-TIN-EMS | 36 | 65 | 150 | 32 | ● | 804 |
| CPM-EHS | 36 | 65 | 160 | 32 | □ | 823-22 |
| XPM-EHS | 36 × 4F | 65 | 160 | 32 | □ | 823 |
| CPM-BKMS | 36 | 65 | 165 | 32 | □ | 870-15 |
| V-XPM-EDS | 36 | 65 | 165 | 32 | ● | 755 |
| V-XPM-EMS | 36 | 65 | 165 | 32 | ● | 795 |
| XPM-EDS | 36 | 65 | 165 | 32 | ● | 760 |
| XPM-EMS | 36 | 65 | 165 | 32 | ● | 800 |
| LS-EMS | 36 | 65 | 235 | 32 | ● | 810 |
| DE-XPM-EDN | 36 | 65 | 250 | 32 | ● | 781 |
| DE-XPM-EMS | 36 | 65 | 250 | 32 | ● | 801 |
| DE-XPM-EDN | 36 | 65 | 350 | 32 | ● | 781 |
| DE-XPM-EMS | 36 | 65 | 350 | 32 | ● | 801 |
| EX-REEN | 36 | 80 | 160 | 32 | ● | 853 |
| EX-TIN-RENF | 36 | 80 | 160 | 32 | ● | 851 |
| TFGN | 36 | 80 | 160 | 32 | ● | 865 |
| CPM-XLS-EMS | 36 | 80 | 350 | 32 | □ | 823-13 |
| XLS-EDS | 36 | 80 | 350 | 32 | □ | 823-1 |
| XLS-EMS | 36 | 80 | 350 | 32 | □ | 823-12 |
| CC-EMN | 36 | 85 | 170 | 32 | □ | 823-17 |
| EX-REE-3F | 36 | 85 | 186 | 32 | □ | 870-6 |
| EX-REE | 36 | 90 | 175 | 32 | □ | 870-5 |
| EX-TIN-REE | 36 | 90 | 175 | 32 | □ | 870-4 |
| REE | 36 | 90 | 175 | 32 | □ | 870-6 |
| RFE | 36 | 90 | 175 | 32 | □ | 868 |
| CC-EML | 36 | 105 | 190 | 32 | ● | 817 |
| EDL | 36 | 105 | 190 | 32 | ● | 791 |
| EX-TIN-EDL | 36 | 105 | 190 | 32 | ● | 788 |
| EX-TIN-EML | 36 | 105 | 190 | 32 | ● | 814 |
| XPM-EDL | 36 | 105 | 205 | 32 | ● | 786 |
| XPM-EML | 36 | 105 | 205 | 32 | ● | 813 |
| EX-REEL | 36 | 106 | 186 | 32 | ● | 857 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-RELF | 36 | 106 | 186 | 32 | □ | 856 |
| TFL | 36 | 106 | 186 | 32 | □ | 870-14 |
| ETXL | 36 | 150 | 235 | 32 | □ | 823-11 |
| EX-TIN-ETXL | 36 | 150 | 235 | 32 | □ | 823-10 |
| EDS | 36.1 | 65 | 150 | 32 | □ | 771 |
| EDS | 36.2 | 65 | 150 | 32 | □ | 771 |
| EDS | 36.3 | 65 | 150 | 32 | □ | 771 |
| EDS | 36.4 | 65 | 150 | 32 | □ | 771 |
| EDS | 36.5 | 65 | 150 | 32 | □ | 771 |
| EX-TIN-EDS | 36.5 | 65 | 150 | 32 | □ | 763 |
| EDS | 36.6 | 65 | 150 | 32 | □ | 771 |
| EDS | 36.7 | 65 | 150 | 32 | □ | 771 |
| EDS | 36.8 | 65 | 150 | 32 | □ | 771 |
| EDS | 36.9 | 65 | 150 | 32 | □ | 771 |
| EX-REES | 37 | 53 | 133 | 32 | ● | 848 |
| EX-TIN-RESF | 37 | 53 | 133 | 32 | ● | 845 |
| TFGS | 37 | 53 | 133 | 32 | ● | 859 |
| EX-LS-REES | 37 | 53 | 175 | 32 | ● | 849 |
| EX-LS-RESF | 37 | 53 | 175 | 32 | ● | 847 |
| TIN-LS-RESF | 37 | 53 | 175 | 32 | □ | 846 |
| VLS-XPM-RESF | 37 | 53 | 175 | 32 | □ | 841 |
| VP-RESF | 37 | 53 | 175 | 32 | □ | 840 |
| WH-RESF | 37 | 53 | 175 | 32 | ● | 839 |
| AL-EDS | 37 | 65 | 150 | 32 | □ | 776 |
| CC-EMS | 37 | 65 | 150 | 32 | ● | 808 |
| EDS | 37 | 65 | 150 | 32 | ● | 771 |
| EX-TIN-EDS | 37 | 65 | 150 | 32 | ● | 763 |
| EX-TIN-EMS | 37 | 65 | 150 | 32 | ● | 804 |
| CPM-EHS | 37 | 65 | 160 | 32 | □ | 823-22 |
| XPM-EHS | 37 × 4F | 65 | 160 | 32 | □ | 823 |
| BKMS | 37 | 65 | 165 | 32 | □ | 863 |
| CPM-BKMS | 37 | 65 | 165 | 32 | □ | 870-15 |
| V-XPM-EDS | 37 | 65 | 165 | 32 | ● | 755 |
| V-XPM-EMS | 37 | 65 | 165 | 32 | ● | 795 |
| XPM-EDS | 37 | 65 | 165 | 32 | ● | 760 |
| XPM-EMS | 37 | 65 | 165 | 32 | ● | 800 |
| LS-EMS | 37 | 65 | 235 | 32 | ● | 810 |
| EX-REEN | 37 | 80 | 160 | 32 | ● | 853 |
| EX-TIN-RENF | 37 | 80 | 160 | 32 | ● | 851 |
| TFGN | 37 | 80 | 160 | 32 | ● | 865 |
| EX-REE | 37 | 90 | 175 | 32 | □ | 870-5 |
| REE | 37 | 90 | 175 | 32 | □ | 870-6 |
| CC-EML | 37 | 105 | 190 | 32 | ● | 817 |
| EDL | 37 | 105 | 190 | 32 | ● | 791 |
| EX-TIN-EDL | 37 | 105 | 190 | 32 | ● | 788 |
| EX-TIN-EML | 37 | 105 | 190 | 32 | ● | 814 |
| XPM-EDL | 37 | 105 | 205 | 32 | ● | 786 |
| XPM-EML | 37 | 105 | 205 | 32 | ● | 813 |
| EX-REEL | 37 | 106 | 186 | 32 | ● | 857 |
| EX-TIN-RELF | 37 | 106 | 186 | 32 | □ | 856 |
| TFL | 37 | 106 | 186 | 32 | □ | 870-14 |
| EDS | 37.1 | 65 | 150 | 32 | □ | 771 |
| EDS | 37.2 | 65 | 150 | 32 | □ | 771 |
| EDS | 37.3 | 65 | 150 | 32 | □ | 771 |
| EDS | 37.4 | 65 | 150 | 32 | □ | 771 |
| EDS | 37.5 | 65 | 150 | 32 | □ | 771 |
| EX-TIN-EDS | 37.5 | 65 | 150 | 32 | □ | 763 |
| EDS | 37.6 | 65 | 150 | 32 | □ | 771 |
| EDS | 37.7 | 65 | 150 | 32 | □ | 771 |
| EDS | 37.8 | 65 | 150 | 32 | □ | 771 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDS | 37.9 | 65 | 150 | 32 | □ | 771 |
| TIN-TUF-TSC | 38 | 7 | 180 | 20 | □ | 895-1 |
| TIN-TUF-TSC | 38 | 8 | 180 | 20 | □ | 895-1 |
| TIN-TUF-TSC | 38 | 10 | 180 | 20 | □ | 895-1 |
| TIN-TUF-TSC | 38 | 12 | 180 | 20 | □ | 895-1 |
| TIN-TUF-TSC | 38 | 15 | 180 | 20 | □ | 895-1 |
| TIN-TUF-TSC | 38 | 16 | 180 | 20 | □ | 895-1 |
| TIN-TUF-TSC | 38 | 18 | 180 | 20 | □ | 895-1 |
| TIN-TUF-TSC | 38 | 20 | 180 | 20 | □ | 895-1 |
| EX-REES | 38 | 63 | 143 | 32 | ● | 848 |
| EX-TIN-RESF | 38 | 63 | 143 | 32 | ● | 845 |
| TFGS | 38 | 63 | 143 | 32 | ● | 859 |
| EX-LS-REES | 38 | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 38 | 63 | 185 | 32 | ● | 847 |
| LS-XPM-RESF | 38 | 63 | 185 | 32 | □ | 870-1 |
| TIN-LS-RESF | 38 | 63 | 185 | 32 | □ | 846 |
| VLS-XPM-RESF | 38 | 63 | 185 | 32 | □ | 841 |
| VP-RESF | 38 | 63 | 185 | 32 | □ | 840 |
| WH-RESF | 38 | 63 | 185 | 32 | ● | 839 |
| AL-EDS | 38 | 65 | 150 | 32 | □ | 776 |
| CC-EMS | 38 | 65 | 150 | 32 | ● | 808 |
| CPM-EMS | 38 | 65 | 150 | 32 | □ | 811 |
| EDS | 38 | 65 | 150 | 32 | ● | 771 |
| EX-TIN-EDS | 38 | 65 | 150 | 32 | ● | 763 |
| EX-TIN-EMS | 38 | 65 | 150 | 32 | ● | 804 |
| CPM-EHS | 38 | 65 | 160 | 32 | □ | 823-22 |
| XPM-EHS | 38 × 4F | 65 | 160 | 32 | □ | 823 |
| BKMS | 38 | 65 | 165 | 32 | □ | 863 |
| CPM-BKMS | 38 | 65 | 165 | 32 | □ | 870-15 |
| V-XPM-EDS | 38 | 65 | 165 | 32 | ● | 755 |
| V-XPM-EMS | 38 | 65 | 165 | 32 | ● | 795 |
| XPM-EDS | 38 | 65 | 165 | 32 | ● | 760 |
| XPM-EMS | 38 | 65 | 165 | 32 | ● | 800 |
| LS-EDN | 38 | 65 | 235 | 32 | ● | 784 |
| LS-EMS | 38 | 65 | 235 | 32 | ● | 810 |
| DE-XPM-EDN | 38 | 65 | 250 | 32 | ● | 781 |
| DE-XPM-EMS | 38 | 65 | 250 | 32 | ● | 801 |
| LS-EMS | 38 | 65 | 285 | 32 | ● | 810 |
| DE-XPM-EDN | 38 | 65 | 350 | 32 | ● | 781 |
| DE-XPM-EMS | 38 | 65 | 350 | 32 | ● | 801 |
| REES | 38 | 70 | 160 | 32 | □ | 870-3 |
| EX-XLS-REE | 38 | 70 | 350 | 32 | □ | 870-7 |
| CC-EMN | 38 | 85 | 170 | 32 | □ | 823-17 |
| EX-REE | 38 | 90 | 175 | 32 | □ | 870-5 |
| EX-TIN-REE | 38 | 90 | 175 | 32 | □ | 870-4 |
| REE | 38 | 90 | 175 | 32 | □ | 870-6 |
| RFE | 38 | 90 | 175 | 32 | □ | 868 |
| MT-REE | 38 | 90 | 215 | MT4 | □ | 870-11 |
| MT-RFE | 38 | 90 | 215 | MT4 | □ | 870-20 |
| EX-REEN | 38 | 95 | 175 | 32 | ● | 853 |
| EX-TIN-RENF | 38 | 95 | 175 | 32 | ● | 851 |
| TFGN | 38 | 95 | 175 | 32 | ● | 865 |
| CPM-XLS-EMS | 38 | 100 | 350 | 32 | □ | 823-13 |
| XLS-EDS | 38 | 100 | 350 | 32 | □ | 823-1 |
| XLS-EMS | 38 | 100 | 350 | 32 | □ | 823-12 |
| CC-EML | 38 | 105 | 190 | 32 | ● | 817 |
| EDL | 38 | 105 | 190 | 32 | ● | 791 |
| EX-TIN-EDL | 38 | 105 | 190 | 32 | ● | 788 |
| EX-TIN-EML | 38 | 105 | 190 | 32 | ● | 814 |
| XPM-EDL | 38 | 105 | 205 | 32 | ● | 786 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから



＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EML | 38 | 105 | 205 | 32 | ● | 813 |
| EX-TIN-LS-EDL | 38 | 105 | 235 | 32 | □ | 823-6 |
| LS-EDL | 38 | 105 | 235 | 32 | □ | 823-7 |
| LS-EML | 38 | 105 | 235 | 32 | ● | 818 |
| EX-REXL | 38 | 120 | 235 | 32 | □ | 858 |
| EX-REEL | 38 | 125 | 205 | 32 | ● | 857 |
| EX-TIN-RELF | 38 | 125 | 205 | 32 | □ | 856 |
| TFL | 38 | 125 | 205 | 32 | □ | 870-14 |
| ETXL | 38 | 150 | 235 | 32 | □ | 823-11 |
| EXDL | 38 | 150 | 235 | 32 | ● | 792 |
| EXML | 38 | 150 | 235 | 32 | ● | 819 |
| EX-REXL | 38 | 150 | 235 | 32 | □ | 858 |
| EX-TIN-ETXL | 38 | 150 | 235 | 32 | □ | 823-10 |
| EX-TIN-EXML | 38 | 150 | 235 | 32 | □ | 823-19 |
| EX-TIN-REXL | 38 | 150 | 235 | 32 | □ | 870-8 |
| REEL | 38 | 150 | 235 | 32 | □ | 870-9 |
| EXDL | 38 | 200 | 285 | 32 | □ | 792 |
| EXML | 38 | 200 | 285 | 32F | □ | 819 |
| EX-REXL | 38 | 200 | 285 | 32 | □ | 858 |
| EX-TIN-REXL | 38 | 200 | 285 | 32 | □ | 870-8 |
| REEL | 38 | 200 | 285 | 32 | □ | 870-9 |
| EXDL | 38 | 250 | 335 | 32 | □ | 792 |
| EXML | 38 | 250 | 335 | 32F | □ | 819 |
| EDS | 38.1 | 65 | 150 | 32 | □ | 771 |
| EDS | 38.2 | 65 | 150 | 32 | □ | 771 |
| EDS | 38.3 | 65 | 150 | 32 | □ | 771 |
| EDS | 38.4 | 65 | 150 | 32 | □ | 771 |
| EDS | 38.5 | 65 | 150 | 32 | □ | 771 |
| EX-TIN-EDS | 38.5 | 65 | 150 | 32 | □ | 763 |
| EDS | 38.6 | 65 | 150 | 32 | □ | 771 |
| EDS | 38.7 | 65 | 150 | 32 | □ | 771 |
| EDS | 38.8 | 65 | 150 | 32 | □ | 771 |
| EDS | 38.9 | 65 | 150 | 32 | □ | 771 |
| EX-REES | 39 | 63 | 143 | 32 | ● | 848 |
| EX-TIN-RESF | 39 | 63 | 143 | 32 | ● | 845 |
| TFGS | 39 | 63 | 143 | 32 | ● | 859 |
| EX-LS-REES | 39 | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 39 | 63 | 185 | 32 | ● | 847 |
| TIN-LS-RESF | 39 | 63 | 185 | 32 | □ | 846 |
| VLS-XPM-RESF | 39 | 63 | 185 | 32 | □ | 841 |
| VP-RESF | 39 | 63 | 185 | 32 | □ | 840 |
| WH-RESF | 39 | 63 | 185 | 32 | ● | 839 |
| AL-EDS | 39 | 65 | 150 | 32 | □ | 776 |
| CC-EMS | 39 | 65 | 150 | 32 | ● | 808 |
| CPM-EDS | 39 | 65 | 150 | 32 | □ | 775 |
| EDS | 39 | 65 | 150 | 32 | ● | 771 |
| EX-TIN-EDS | 39 | 65 | 150 | 32 | ● | 763 |
| EX-TIN-EMS | 39 | 65 | 150 | 32 | ● | 804 |
| CPM-EHS | 39 | 65 | 160 | 32 | □ | 823-22 |
| XPM-EHS | 39 × 4F | 65 | 160 | 32 | □ | 823 |
| BKMS | 39 | 65 | 165 | 32 | □ | 863 |
| CPM-BKMS | 39 | 65 | 165 | 32 | □ | 870-15 |
| V-XPM-EDS | 39 | 65 | 165 | 32 | ● | 755 |
| V-XPM-EMS | 39 | 65 | 165 | 32 | ● | 795 |
| XPM-EDS | 39 | 65 | 165 | 32 | ● | 760 |
| XPM-EMS | 39 | 65 | 165 | 32 | ● | 800 |
| LS-EMS | 39 | 65 | 235 | 32 | ● | 810 |
| EX-REE | 39 | 90 | 175 | 32 | □ | 870-5 |
| REE | 39 | 90 | 175 | 32 | □ | 870-6 |
| EX-REEN | 39 | 95 | 175 | 32 | ● | 853 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-RENF | 39 | 95 | 175 | 32 | ● | 851 |
| TFGN | 39 | 95 | 175 | 32 | ● | 865 |
| CC-EML | 39 | 110 | 195 | 32 | ● | 817 |
| EDL | 39 | 110 | 195 | 32 | ● | 791 |
| EX-TIN-EDL | 39 | 110 | 195 | 32 | ● | 788 |
| EX-TIN-EML | 39 | 110 | 195 | 32 | ● | 814 |
| XPM-EDL | 39 | 110 | 210 | 32 | ● | 786 |
| XPM-EML | 39 | 110 | 210 | 32 | ● | 813 |
| EX-REEL | 39 | 125 | 205 | 32 | ● | 857 |
| EX-TIN-RELF | 39 | 125 | 205 | 32 | □ | 856 |
| TFL | 39 | 125 | 205 | 32 | □ | 870-14 |
| EDS | 39.1 | 65 | 150 | 32 | □ | 771 |
| EDS | 39.2 | 65 | 150 | 32 | □ | 771 |
| EDS | 39.3 | 65 | 150 | 32 | □ | 771 |
| EDS | 39.4 | 65 | 150 | 32 | □ | 771 |
| EDS | 39.5 | 65 | 150 | 32 | □ | 771 |
| EX-TIN-EDS | 39.5 | 65 | 150 | 32 | □ | 763 |
| EDS | 39.6 | 65 | 150 | 32 | □ | 771 |
| EDS | 39.7 | 65 | 150 | 32 | □ | 771 |
| EDS | 39.8 | 65 | 150 | 32 | □ | 771 |
| EDS | 39.9 | 65 | 150 | 32 | □ | 771 |
| RF-TSC | 40 | 7 | 165 | 20 | ● | 894 |
| TIN-TUF-TSC | 40 | 7 | 200 | 20 | □ | 895-1 |
| RF-TSC | 40 | 8 | 165 | 20 | ● | 894 |
| TIN-TUF-TSC | 40 | 8 | 200 | 20 | □ | 895-1 |
| RF-TSC | 40 | 10 | 165 | 20 | ● | 894 |
| TIN-TUF-TSC | 40 | 10 | 200 | 20 | □ | 895-1 |
| RF-TSC | 40 | 12 | 165 | 20 | ● | 894 |
| TIN-TUF-TSC | 40 | 12 | 200 | 20 | □ | 895-1 |
| RF-TSC | 40 | 14 | 165 | 20 | □ | 894 |
| RF-TSC | 40 | 15 | 165 | 20 | □ | 894 |
| TIN-TUF-TSC | 40 | 15 | 200 | 20 | □ | 895-1 |
| RF-TSC | 40 | 16 | 165 | 20 | □ | 894 |
| TIN-TUF-TSC | 40 | 16 | 200 | 20 | □ | 895-1 |
| RF-TSC | 40 | 18 | 165 | 20 | □ | 894 |
| TIN-TUF-TSC | 40 | 18 | 200 | 20 | □ | 895-1 |
| RF-TSC | 40 | 20 | 165 | 20 | □ | 894 |
| TIN-TUF-TSC | 40 | 20 | 200 | 20 | □ | 895-2 |
| EX-REES | 40 | 63 | 143 | 32 | ● | 848 |
| EX-TIN-RESF | 40 | 63 | 143 | 32 | ● | 845 |
| TFGS | 40 | 63 | 143 | 32 | ● | 859 |
| CPM-LS-RESF | 40 | 63 | 185 | 32 | □ | 870-2 |
| EX-LS-REES | 40 | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 40 | 63 | 185 | 32 | ● | 847 |
| TIN-LS-RESF | 40 | 63 | 185 | 32 | ● | 846 |
| VLS-XPM-RESF | 40 | 63 | 185 | 32 | ● | 841 |
| VP-RESF | 40 | 63 | 185 | 32 | ● | 840 |
| WH-REES | 40 | 63 | 185 | 32 | ● | 839 |
| WH-RESF | 40 | 63 | 185 | 32 | ● | 839 |
| VP-DE-RESF | 40 | 63 | 250 | 32 | ● | 843 |
| AL-EDS | 40 | 65 | 150 | 32 | □ | 776 |
| CC-EMS | 40 | 65 | 150 | 32 | ● | 808 |
| CE-EMS | 40 | 65 | 150 | 32 | □ | 809 |
| CPM-EDS | 40 | 65 | 150 | 32 | □ | 775 |
| EDS | 40 | 65 | 150 | 32 | ● | 771 |
| ETS | 40 | 65 | 150 | 32 | □ | 794 |
| EX-TIN-EDS | 40 | 65 | 150 | 32 | ● | 763 |
| EX-TIN-EMS | 40 | 65 | 150 | 32 | ● | 804 |
| CPM-EHS | 40 | 65 | 160 | 32 | □ | 823-22 |
| XPM-EHS | 40 × 4F | 65 | 160 | 32 | □ | 823 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EDS | 40 | 65 | 165 | 32 | ● | 755 |
| V-XPM-EMS | 40 | 65 | 165 | 32 | ● | 795 |
| XPM-EDS | 40 | 65 | 165 | 32 | ● | 760 |
| XPM-EMS | 40 | 65 | 165 | 32 | ● | 800 |
| LS-EDN | 40 | 65 | 235 | 32 | ● | 784 |
| LS-EMS | 40 | 65 | 235 | 32 | ● | 810 |
| DE-XPM-EDN | 40 | 65 | 250 | 32 | ● | 781 |
| DE-XPM-EMS | 40 | 65 | 250 | 32 | ● | 801 |
| LS-EMS | 40 | 65 | 285 | 32 | ● | 810 |
| DE-XPM-EDN | 40 | 65 | 350 | 32 | ● | 781 |
| DE-XPM-EMS | 40 | 65 | 350 | 32 | ● | 801 |
| REES | 40 | 70 | 160 | 32 | □ | 870-3 |
| RFES | 40 | 70 | 160 | 32 | ● | 862 |
| LS-REES | 40 | 70 | 190 | 32 | □ | 870-3 |
| LS-RFES | 40 | 70 | 190 | 32 | ● | 863 |
| EX-XLS-REE | 40 | 80 | 350 | 32 | □ | 870-7 |
| CC-EMN | 40 | 90 | 175 | 32 | □ | 823-17 |
| EX-REEN | 40 | 95 | 175 | 32 | ● | 853 |
| EX-TIN-RENF | 40 | 95 | 175 | 32 | ● | 851 |
| TFGN | 40 | 95 | 175 | 32 | ● | 865 |
| VP-RENF | 40 | 95 | 200 | 32 | ● | 850 |
| WH-REEN | 40 | 95 | 200 | 32 | ● | 852 |
| WH-RENF | 40 | 95 | 200 | 32 | ● | 850 |
| CPM-REE | 40 | 100 | 185 | 32 | □ | 870-7 |
| CPM-RFE | 40 | 100 | 185 | 32 | □ | 870-17 |
| EX-REE | 40 | 100 | 185 | 32 | □ | 870-5 |
| EX-TIN-REE | 40 | 100 | 185 | 32 | □ | 870-4 |
| REE | 40 | 100 | 185 | 32 | □ | 870-6 |
| RFE | 40 | 100 | 185 | 32 | ● | 868 |
| EX-REE-3F | 40 | 100 | 205 | 32 | □ | 870-6 |
| BS-REE | 40 | 100 | 220 | BS9 | □ | 870-10 |
| BS-RFE | 40 | 100 | 220 | BS9 | □ | 870-19 |
| MT-REE | 40 | 100 | 225 | MT4 | □ | 870-11 |
| MT-RFE | 40 | 100 | 225 | MT4 | □ | 870-20 |
| CPM-XLS-EMS | 40 | 100 | 350 | 32 | □ | 823-13 |
| XLS-EDS | 40 | 100 | 350 | 32 | □ | 823-1 |
| XLS-EMS | 40 | 100 | 350 | 32 | □ | 823-12 |
| CC-EML | 40 | 110 | 195 | 32 | ● | 817 |
| CE-EML | 40 | 110 | 195 | 32 | □ | 823-18 |
| EDL | 40 | 110 | 195 | 32 | ● | 791 |
| EX-TIN-EDL | 40 | 110 | 195 | 32 | ● | 788 |
| EX-TIN-EML | 40 | 110 | 195 | 32 | ● | 814 |
| CPM-EHL | 40 | 110 | 205 | 32 | □ | 823-24 |
| XPM-EDL | 40 | 110 | 210 | 32 | ● | 786 |
| XPM-EML | 40 | 110 | 210 | 32 | ● | 813 |
| EX-TIN-LS-EDL | 40 | 110 | 285 | 32 | □ | 823-6 |
| LS-EDL | 40 | 110 | 285 | 32 | □ | 823-7 |
| LS-EML | 40 | 110 | 285 | 32 | ● | 818 |
| CPM-XLS-EMS | 40 | 110 | 400 | 32 | □ | 823-13 |
| EX-XLS-REE | 40 | 110 | 400 | 32 | □ | 870-7 |
| EX-REXL | 40 | 120 | 205 | 32 | □ | 858 |
| EX-TIN-REXL | 40 | 120 | 205 | 32 | □ | 870-8 |
| REEL | 40 | 120 | 205 | 32 | □ | 870-9 |
| MT-EHL | 40 | 120 | 245 | MT4 | □ | 823-25 |
| EX-REEL | 40 | 125 | 205 | 32 | ● | 857 |
| EX-TIN-RELF | 40 | 125 | 205 | 32 | ● | 856 |
| REEM | 40 | 125 | 205 | 32 | □ | 870-5 |
| TFL | 40 | 125 | 205 | 32 | □ | 870-14 |
| VP-RELF | 40 | 125 | 220 | 32 | ● | 855 |
| WH-REEL | 40 | 125 | 220 | 32 | ● | 854 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| WH-RELF | 40 | 125 | 220 | 32 | ● | 854 |
| EXDL | 40 | 150 | 235 | 32 | ● | 792 |
| EXML | 40 | 150 | 235 | 32 | ● | 819 |
| EX-TIN-EXDL | 40 | 150 | 235 | 32 | □ | 823-6 |
| EX-TIN-EXML | 40 | 150 | 235 | 32 | □ | 823-19 |
| REEL | 40 | 150 | 235 | 32 | □ | 870-9 |
| EXDL | 40 × 42 | 150 | 235 | 42 | □ | 792 |
| EXML | 40 × 42 | 150 | 235 | 42F | □ | 819 |
| EX-REXL | 40 | 150 | 240 | 32 | ● | 858 |
| EX-TIN-REXL | 40 | 150 | 240 | 32 | □ | 870-8 |
| RFEL | 40 | 150 | 240 | 32 | ● | 869 |
| NI-EXML | 40 | 150 | 250 | 42 | □ | 870-19 |
| CPM-XLS-EMS | 40 | 150 | 500 | 32 | □ | 823-13 |
| EX-XLS-REE | 40 | 150 | 500 | 32 | □ | 870-7 |
| EX-REXL | 40 | 180 | 270 | 32 | ● | 858 |
| EX-TIN-REXL | 40 | 180 | 270 | 32 | □ | 870-8 |
| REEL | 40 | 180 | 270 | 32 | □ | 870-9 |
| RFEL | 40 | 180 | 270 | 32 | ● | 869 |
| ETXL | 40 | 200 | 285 | 32 | □ | 823-11 |
| EXDL | 40 | 200 | 285 | 32 | □ | 793 |
| EXML | 40 | 200 | 285 | 32F | □ | 819 |
| EX-REXL | 40 | 200 | 285 | 32 | □ | 858 |
| EX-TIN-ETXL | 40 | 200 | 285 | 32 | □ | 823-10 |
| EX-TIN-EXDL | 40 | 200 | 285 | 32 | □ | 823-6 |
| EX-TIN-EXML | 40 | 200 | 285 | 32 | □ | 823-19 |
| EX-TIN-REXL | 40 | 200 | 285 | 32 | □ | 870-8 |
| REEL | 40 | 200 | 285 | 32 | □ | 870-9 |
| RFEL | 40 | 200 | 285 | 32 | □ | 869 |
| EXDL | 40 × 42 | 200 | 285 | 42 | □ | 793 |
| EXML | 40 × 42 | 200 | 285 | 42F | □ | 819 |
| NI-EXML | 40 | 200 | 300 | 42 | □ | 870-19 |
| PS-EXML | 40 | 200 | 300 | 42 | □ | 823-20 |
| EXDL | 40 | 250 | 335 | 32 | □ | 793 |
| EXML | 40 | 250 | 335 | 32F | □ | 819 |
| EX-REXL | 40 | 250 | 335 | 32 | □ | 858 |
| EX-TIN-REXL | 40 | 250 | 335 | 32 | □ | 870-8 |
| REEL | 40 | 250 | 335 | 32 | □ | 870-9 |
| EXDL | 40 × 42 | 250 | 335 | 42 | □ | 793 |
| EXML | 40 × 42 | 250 | 335 | 42F | □ | 819 |
| NI-EXML | 40 | 250 | 350 | 42 | □ | 870-19 |
| PS-EXML | 40 | 250 | 350 | 42 | □ | 823-20 |
| NI-EXML | 40 | 300 | 400 | 42 | □ | 870-19 |
| PS-EXML | 40 | 300 | 400 | 42 | □ | 823-20 |
| PS-EXML | 40 | 300 | 450 | 42 | □ | 823-20 |
| NI-EXML | 40 | 400 | 500 | 42 | □ | 870-19 |
| PS-EXML | 40 | 400 | 500 | 42 | □ | 823-20 |
| EX-REES | 41 | 63 | 165 | 42 | ● | 848 |
| EX-TIN-RESF | 41 | 63 | 165 | 42 | ● | 845 |
| TFGS | 41 | 63 | 165 | 42 | ● | 859 |
| EX-LS-REES | 41 | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 41 | 63 | 185 | 32 | ● | 847 |
| TIN-LS-RESF | 41 | 63 | 185 | 32 | □ | 846 |
| VLS-XPM-RESF | 41 | 63 | 185 | 32 | □ | 841 |
| VP-RESF | 41 | 63 | 185 | 32 | □ | 840 |
| CE-EMS | 41 × 32 | 70 | 160 | 32 | □ | 809 |
| EDS | 41 × 32 | 70 | 160 | 32 | ● | 771 |
| EX-TIN-EDS | 41 × 32 | 70 | 160 | 32 | □ | 763 |
| EX-TIN-EMS | 41 | 70 | 160 | 32 | □ | 804 |
| EDS | 41 | 70 | 160 | 42 | ● | 771 |
| EX-TIN-EDS | 41 | 70 | 160 | 42 | □ | 763 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-TIN-EMS | 41 | | 70 | 160 | 42 | □ | 804 |
| EX-REEN | 41 | | 95 | 197 | 42 | ● | 853 |
| EX-TIN-RENF | 41 | | 95 | 197 | 42 | ● | 851 |
| TFGN | 41 | | 95 | 197 | 42 | ● | 865 |
| CE-EML | 41 | × 32 | 115 | 205 | 32 | □ | 823-18 |
| EDL | 41 | × 32 | 115 | 205 | 32 | □ | 791 |
| EX-TIN-EDL | 41 | | 115 | 205 | 32 | □ | 788 |
| EX-TIN-EML | 41 | × 32 | 115 | 205 | 32 | □ | 814 |
| CE-EML | 41 | | 115 | 205 | 42 | □ | 823-18 |
| EDL | 41 | | 115 | 205 | 42 | □ | 791 |
| EX-TIN-EML | 41 | | 115 | 205 | 42 | □ | 814 |
| EX-REEL | 41 | | 125 | 227 | 42 | ● | 857 |
| EX-TIN-RELF | 41 | | 125 | 227 | 42 | □ | 856 |
| TFL | 41 | | 125 | 227 | 42 | □ | 870-14 |
| EX-REES | 42 | | 63 | 165 | 42 | ● | 848 |
| EX-TIN-RESF | 42 | | 63 | 165 | 42 | ● | 845 |
| TFGS | 42 | | 63 | 165 | 42 | ● | 859 |
| EX-LS-REES | 42 | | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 42 | | 63 | 185 | 32 | ● | 847 |
| LS-XPM-RESF | 42 | | 63 | 185 | 32 | □ | 870-1 |
| TIN-LS-RESF | 42 | | 63 | 185 | 32 | □ | 846 |
| VLS-XPM-RESF | 42 | | 63 | 185 | 32 | □ | 841 |
| CE-EMS | 42 | × 32 | 70 | 160 | 32 | □ | 809 |
| EDS | 42 | × 32 | 70 | 160 | 32 | ● | 771 |
| EX-TIN-EDS | 42 | × 32 | 70 | 160 | 32 | ● | 763 |
| EX-TIN-EMS | 42 | × 32 | 70 | 160 | 32 | ● | 804 |
| AL-EDS | 42 | | 70 | 160 | 42 | □ | 776 |
| CE-EMS | 42 | | 70 | 160 | 42 | □ | 809 |
| EDS | 42 | | 70 | 160 | 42 | ● | 771 |
| EX-TIN-EDS | 42 | | 70 | 160 | 42 | ● | 763 |
| EX-TIN-EMS | 42 | | 70 | 160 | 42 | ● | 804 |
| CPM-EHS | 42 | | 70 | 170 | 42 | □ | 823-22 |
| CPM-BKMS | 42 | | 70 | 180 | 42 | □ | 870-15 |
| XPM-EDS | 42 | | 70 | 180 | 42 | □ | 760 |
| XPM-EMS | 42 | | 70 | 180 | 42 | □ | 800 |
| DE-XPM-EDN | 42 | | 70 | 280 | 32 | ● | 781 |
| DE-XPM-EMS | 42 | | 70 | 280 | 32 | ● | 801 |
| LS-EMS | 42 | × 32 | 70 | 285 | 32 | ● | 810 |
| LS-EMS | 42 | | 70 | 285 | 42 | ● | 810 |
| LS-EMS | 42 | × 32 | 70 | 340 | 32 | ● | 810 |
| LS-EMS | 42 | | 70 | 340 | 42 | ● | 810 |
| DE-XPM-EDN | 42 | | 70 | 350 | 32 | ● | 781 |
| DE-XPM-EMS | 42 | | 70 | 350 | 32 | ● | 801 |
| EX-REEN | 42 | | 95 | 197 | 42 | ● | 853 |
| EX-TIN-RENF | 42 | | 95 | 197 | 42 | ● | 851 |
| TFGN | 42 | | 95 | 197 | 42 | ● | 865 |
| EX-REE | 42 | | 100 | 190 | 42 | □ | 870-5 |
| EX-TIN-REE | 42 | | 100 | 190 | 42 | □ | 870-4 |
| REE | 42 | | 100 | 190 | 42 | □ | 870-6 |
| RFE | 42 | | 100 | 190 | 42 | □ | 868 |
| EX-REE-3F | 42 | | 100 | 227 | 42 | □ | 870-6 |
| MT-REE | 42 | | 100 | 255 | MT5 | □ | 870-11 |
| MT-RFE | 42 | | 100 | 255 | MT5 | □ | 870-20 |
| CPM-XLS-EMS | 42 | | 100 | 350 | 42 | □ | 823-13 |
| XLS-EDS | 42 | | 100 | 350 | 42 | □ | 823-1 |
| XLS-EMS | 42 | | 100 | 350 | 42 | □ | 823-12 |
| CE-EML | 42 | × 32 | 115 | 205 | 32 | □ | 823-18 |
| EDL | 42 | × 32 | 115 | 205 | 32 | □ | 791 |
| EX-TIN-EDL | 42 | | 115 | 205 | 32 | □ | 788 |
| EX-TIN-EML | 42 | × 32 | 115 | 205 | 32 | □ | 814 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| CE-EML | 42 | | 115 | 205 | 42 | □ | 823-18 |
| EDL | 42 | | 115 | 205 | 42 | □ | 791 |
| EX-TIN-EML | 42 | | 115 | 205 | 42 | □ | 814 |
| XPM-EDL | 42 | | 115 | 225 | 42 | □ | 786 |
| XPM-EML | 42 | | 115 | 225 | 42 | □ | 813 |
| EX-REEL | 42 | | 125 | 227 | 42 | ● | 857 |
| EX-TIN-RELF | 42 | | 125 | 227 | 42 | □ | 856 |
| TFL | 42 | | 125 | 227 | 42 | □ | 870-14 |
| EX-REXL | 42 | | 150 | 240 | 42 | □ | 858 |
| EX-TIN-REXL | 42 | | 150 | 240 | 42 | □ | 870-8 |
| REEL | 42 | | 150 | 240 | 42 | □ | 870-9 |
| EX-REXL | 42 | | 200 | 290 | 42 | □ | 858 |
| EX-TIN-REXL | 42 | | 200 | 290 | 42 | □ | 870-8 |
| REEL | 42 | | 200 | 290 | 42 | □ | 870-9 |
| ETXL | 42 | | 200 | 300 | 42 | □ | 823-11 |
| EX-TIN-ETXL | 42 | | 200 | 300 | 42 | □ | 823-10 |
| EXML | 42 | | 250 | 335 | 42F | □ | 819 |
| EX-REES | 43 | | 63 | 165 | 42 | ● | 848 |
| EX-TIN-RESF | 43 | | 63 | 165 | 42 | ● | 845 |
| TFGS | 43 | | 63 | 165 | 42 | ● | 859 |
| TFS | 43 | | 63 | 165 | 42 | □ | 860 |
| EX-LS-REES | 43 | | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 43 | | 63 | 185 | 32 | ● | 847 |
| TIN-LS-RESF | 43 | | 63 | 185 | 32 | □ | 846 |
| VLS-XPM-RESF | 43 | | 63 | 185 | 32 | □ | 841 |
| VP-RESF | 43 | | 63 | 185 | 32 | □ | 840 |
| CE-EMS | 43 | × 32 | 70 | 160 | 32 | □ | 809 |
| EDS | 43 | × 32 | 70 | 160 | 32 | ● | 772 |
| EX-TIN-EDS | 43 | × 32 | 70 | 160 | 32 | □ | 763 |
| EX-TIN-EMS | 43 | | 70 | 160 | 32 | □ | 804 |
| EDS | 43 | | 70 | 160 | 42 | ● | 771 |
| EX-TIN-EDS | 43 | | 70 | 160 | 42 | □ | 763 |
| EX-TIN-EMS | 43 | | 70 | 160 | 42 | □ | 804 |
| EX-REEN | 43 | | 95 | 197 | 42 | ● | 853 |
| EX-TIN-RENF | 43 | | 95 | 197 | 42 | ● | 851 |
| TFGN | 43 | | 95 | 197 | 42 | ● | 865 |
| CE-EML | 43 | × 32 | 115 | 205 | 32 | □ | 823-18 |
| EDL | 43 | × 32 | 115 | 205 | 32 | □ | 791 |
| EX-TIN-EDL | 43 | | 115 | 205 | 32 | □ | 788 |
| EX-TIN-EML | 43 | × 32 | 115 | 205 | 32 | □ | 814 |
| CE-EML | 43 | | 115 | 205 | 42 | □ | 823-18 |
| EDL | 43 | | 115 | 205 | 42 | □ | 791 |
| EX-TIN-EML | 43 | | 115 | 205 | 42 | □ | 814 |
| EX-REEL | 43 | | 125 | 227 | 42 | ● | 857 |
| EX-TIN-RELF | 43 | | 125 | 227 | 42 | □ | 856 |
| TFL | 43 | | 125 | 227 | 42 | □ | 870-14 |
| EX-REES | 44 | | 63 | 165 | 42 | ● | 848 |
| EX-TIN-RESF | 44 | | 63 | 165 | 42 | ● | 845 |
| TFGS | 44 | | 63 | 165 | 42 | ● | 859 |
| EX-LS-REES | 44 | | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 44 | | 63 | 185 | 32 | ● | 847 |
| TIN-LS-RESF | 44 | | 63 | 185 | 32 | □ | 846 |
| VLS-XPM-RESF | 44 | | 63 | 185 | 32 | □ | 841 |
| VP-RESF | 44 | | 63 | 185 | 32 | □ | 840 |
| EDS | 44 | × 32 | 70 | 160 | 32 | ● | 772 |
| EX-TIN-EDS | 44 | × 32 | 70 | 160 | 32 | □ | 763 |
| EX-TIN-EMS | 44 | × 32 | 70 | 160 | 32 | □ | 804 |
| AL-EDS | 44 | | 70 | 160 | 42 | □ | 776 |
| EDS | 44 | | 70 | 160 | 42 | ● | 772 |
| EX-TIN-EDS | 44 | | 70 | 160 | 42 | □ | 763 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EMS | 44 | 70 | 160 | 42 | □ | 804 |
| EX-REEN | 44 | 95 | 197 | 42 | ● | 853 |
| EX-TIN-RENF | 44 | 95 | 197 | 42 | ● | 851 |
| TFGN | 44 | 95 | 197 | 42 | ● | 865 |
| CPM-XLS-EMS | 44 | 100 | 350 | 42 | □ | 823-13 |
| XLS-EDS | 44 | 100 | 350 | 42 | □ | 823-1 |
| XLS-EMS | 44 | 100 | 350 | 42 | □ | 823-12 |
| CE-EML | 44 × 32 | 115 | 205 | 32 | □ | 823-18 |
| EDL | 44 × 32 | 115 | 205 | 32 | □ | 791 |
| EX-TIN-EDL | 44 | 115 | 205 | 32 | □ | 788 |
| EX-TIN-EML | 44 × 32 | 115 | 205 | 32 | □ | 814 |
| CE-EML | 44 | 115 | 205 | 42 | □ | 823-18 |
| EDL | 44 | 115 | 205 | 42 | □ | 791 |
| EX-TIN-EML | 44 | 115 | 205 | 42 | □ | 814 |
| EX-REEL | 44 | 125 | 227 | 42 | ● | 857 |
| EX-TIN-RELF | 44 | 125 | 227 | 42 | □ | 856 |
| TFL | 44 | 125 | 227 | 42 | □ | 870-14 |
| RF-TSC | 45 | 8 | 175 | 25 | ● | 894 |
| TIN-TUF-TSC | 45 | 8 | 200 | 20 | □ | 895-2 |
| RF-TSC | 45 | 10 | 175 | 25 | ● | 894 |
| TIN-TUF-TSC | 45 | 10 | 200 | 20 | □ | 895-2 |
| RF-TSC | 45 | 12 | 175 | 25 | ● | 894 |
| TIN-TUF-TSC | 45 | 12 | 200 | 20 | □ | 895-2 |
| RF-TSC | 45 | 14 | 175 | 25 | □ | 894 |
| RF-TSC | 45 | 15 | 175 | 25 | □ | 894 |
| TIN-TUF-TSC | 45 | 15 | 200 | 20 | □ | 895-2 |
| RF-TSC | 45 | 16 | 175 | 25 | □ | 894 |
| TIN-TUF-TSC | 45 | 16 | 200 | 20 | □ | 895-2 |
| RF-TSC | 45 | 18 | 175 | 25 | □ | 894 |
| TIN-TUF-TSC | 45 | 18 | 200 | 20 | □ | 895-2 |
| RF-TSC | 45 | 20 | 175 | 25 | □ | 894 |
| TIN-TUF-TSC | 45 | 20 | 200 | 20 | □ | 895-2 |
| TIN-TUF-TSC | 45 | 22 | 200 | 20 | □ | 895-2 |
| TIN-TUF-TSC | 45 | 25 | 200 | 20 | □ | 895-2 |
| EX-REES | 45 | 63 | 165 | 42 | ● | 848 |
| EX-TIN-RESF | 45 | 63 | 165 | 42 | ● | 845 |
| TFGS | 45 | 63 | 165 | 42 | ● | 859 |
| CPM-LS-RESF | 45 | 63 | 185 | 32 | □ | 870-2 |
| EX-LS-REES | 45 | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 45 | 63 | 185 | 32 | ● | 847 |
| TIN-LS-RESF | 45 | 63 | 185 | 32 | ● | 846 |
| VLS-XPM-RESF | 45 | 63 | 185 | 32 | ● | 841 |
| VP-RESF | 45 | 63 | 200 | 42 | ● | 840 |
| CE-EMS | 45 × 32 | 70 | 160 | 32 | □ | 809 |
| CPM-EDS | 45 × 32 | 70 | 160 | 32 | □ | 775 |
| EDS | 45 × 32 | 70 | 160 | 32 | ● | 772 |
| EX-TIN-EDS | 45 × 32 | 70 | 160 | 32 | ● | 763 |
| EX-TIN-EMS | 45 × 32 | 70 | 160 | 32 | ● | 804 |
| AL-EDS | 45 | 70 | 160 | 42 | □ | 776 |
| CE-EMS | 45 | 70 | 160 | 42 | □ | 809 |
| CPM-EDS | 45 | 70 | 160 | 42 | □ | 775 |
| EDS | 45 | 70 | 160 | 42 | ● | 772 |
| EX-TIN-EDS | 45 | 70 | 160 | 42 | ● | 763 |
| EX-TIN-EMS | 45 | 70 | 160 | 42 | ● | 804 |
| REES | 45 | 70 | 165 | 42 | □ | 870-3 |
| CPM-EHS | 45 | 70 | 170 | 42 | □ | 823-22 |
| XPM-EHS | 45 × 4F | 70 | 170 | 42 | □ | 823 |
| XPM-EDS | 45 | 70 | 180 | 42 | □ | 760 |
| XPM-EMS | 45 | 70 | 180 | 42 | □ | 800 |
| DE-XPM-EDN | 45 | 70 | 280 | 32 | ● | 781 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| DE-XPM-EMS | 45 | 70 | 280 | 32 | ● | 801 |
| DE-XPM-EDN | 45 | 70 | 280 | 42 | ● | 781 |
| DE-XPM-EMS | 45 | 70 | 280 | 42 | ● | 801 |
| LS-EMS | 45 × 32 | 70 | 285 | 32 | ● | 810 |
| LS-EMS | 45 | 70 | 285 | 42 | ● | 810 |
| LS-EMS | 45 × 32 | 70 | 340 | 32 | ● | 810 |
| LS-EMS | 45 | 70 | 340 | 42 | ● | 810 |
| DE-XPM-EDN | 45 | 70 | 350 | 32 | ● | 781 |
| DE-XPM-EMS | 45 | 70 | 350 | 32 | ● | 801 |
| DE-XPM-EDN | 45 | 70 | 350 | 42 | ● | 781 |
| DE-XPM-EMS | 45 | 70 | 350 | 42 | ● | 801 |
| LS-REES | 45 | 80 | 215 | 42 | □ | 870-3 |
| LS-RFES | 45 | 80 | 215 | 42 | ● | 863 |
| EX-XLS-REE | 45 | 90 | 350 | 42 | □ | 870-7 |
| EX-REEN | 45 | 95 | 197 | 42 | ● | 853 |
| EX-TIN-RENF | 45 | 95 | 197 | 42 | ● | 851 |
| TFGN | 45 | 95 | 197 | 42 | ● | 865 |
| VP-RENF | 45 | 95 | 210 | 42 | ● | 850 |
| EX-REE-3F | 45 | 100 | 227 | 42 | □ | 870-6 |
| CN-EHL | 45 | 106 | 201 | 50.8 | □ | 823-23 |
| CN-EML | 45 | 106 | 201 | 50.8 | □ | 823-23 |
| EX-CN-REE | 45 | 106 | 201 | 50.8 | □ | 870-11 |
| CPM-REE | 45 | 110 | 200 | 42 | □ | 870-7 |
| CPM-RFE | 45 | 110 | 200 | 42 | □ | 870-17 |
| EX-REE | 45 | 110 | 200 | 42 | □ | 870-5 |
| EX-TIN-REE | 45 | 110 | 200 | 42 | □ | 870-4 |
| REE | 45 | 110 | 200 | 42 | □ | 870-6 |
| RFE | 45 | 110 | 200 | 42 | ● | 868 |
| BS-REE | 45 | 110 | 230 | BS9 | □ | 870-10 |
| BS-RFE | 45 | 110 | 230 | BS9 | □ | 870-19 |
| MT-REE | 45 | 110 | 265 | MT5 | □ | 870-11 |
| MT-RFE | 45 | 110 | 265 | MT5 | □ | 870-20 |
| CE-EML | 45 × 32 | 115 | 205 | 32 | □ | 823-18 |
| EDL | 45 × 32 | 115 | 205 | 32 | □ | 791 |
| EX-TIN-EDL | 45 | 115 | 205 | 32 | □ | 788 |
| EX-TIN-EML | 45 × 32 | 115 | 205 | 32 | □ | 814 |
| CE-EML | 45 | 115 | 205 | 42 | □ | 823-18 |
| EDL | 45 | 115 | 205 | 42 | □ | 791 |
| EX-TIN-EML | 45 | 115 | 205 | 42 | □ | 814 |
| XPM-EDL | 45 | 115 | 225 | 42 | □ | 786 |
| XPM-EML | 45 | 115 | 225 | 42 | □ | 813 |
| CN-EHL | 45 | 125 | 220 | 50.8 | □ | 823-23 |
| CN-EML | 45 | 125 | 220 | 50.8 | □ | 823-23 |
| EX-CN-REE | 45 | 125 | 220 | 50.8 | □ | 870-11 |
| VP-RELF | 45 | 125 | 225 | 42 | ● | 855 |
| EX-REEL | 45 | 125 | 227 | 42 | ● | 857 |
| EX-TIN-RELF | 45 | 125 | 227 | 42 | ● | 856 |
| REEM | 45 | 125 | 227 | 42 | □ | 870-5 |
| CPM-XLS-EMS | 45 | 125 | 350 | 42 | □ | 823-13 |
| XLS-EDS | 45 | 125 | 350 | 42 | □ | 823-1 |
| XLS-EMS | 45 | 125 | 350 | 42 | □ | 823-12 |
| CPM-XLS-EMS | 45 | 125 | 400 | 42 | □ | 823-13 |
| EX-XLS-REE | 45 | 125 | 400 | 42 | □ | 870-7 |
| MT-EHL | 45 | 135 | 290 | MT5 | □ | 823-25 |
| EXDL | 45 × 32 | 150 | 235 | 32 | □ | 793 |
| EXML | 45 × 32 | 150 | 235 | 32F | □ | 819 |
| EXDL | 45 | 150 | 235 | 42 | □ | 793 |
| EXML | 45 | 150 | 235 | 42F | □ | 819 |
| CN-EML | 45 | 150 | 245 | 50.8 | □ | 823-23 |
| EX-CN-REE | 45 | 150 | 245 | 50.8 | □ | 870-11 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-REXL | 45 | | 150 | 250 | 42 | ● | 858 |
| EX-TIN-REXL | 45 | | 150 | 250 | 42 | □ | 870-8 |
| REEL | 45 | | 150 | 250 | 42 | □ | 870-9 |
| RFEL | 45 | | 150 | 250 | 42 | ● | 869 |
| MT-EHL | 45 | | 150 | 305 | MT5 | □ | 823-25 |
| MT-REEL | 45 | | 150 | 305 | MT5 | □ | 870-12 |
| CPM-XLS-EMS | 45 | | 150 | 500 | 42 | □ | 823-13 |
| EX-XLS-REE | 45 | | 150 | 500 | 42 | □ | 870-7 |
| EX-REXL | 45 | | 180 | 280 | 42 | ● | 858 |
| EX-TIN-REXL | 45 | | 180 | 280 | 42 | □ | 870-8 |
| REEL | 45 | | 180 | 280 | 42 | □ | 870-9 |
| RFEL | 45 | | 180 | 280 | 42 | ● | 869 |
| EXDL | 45 | × 32 | 200 | 285 | 32 | □ | 793 |
| EXML | 45 | × 32 | 200 | 285 | 32F | □ | 819 |
| EXDL | 45 | | 200 | 285 | 42 | □ | 793 |
| EXML | 45 | | 200 | 285 | 42F | □ | 819 |
| EX-REXL | 45 | | 200 | 290 | 42 | □ | 858 |
| EX-TIN-REXL | 45 | | 200 | 290 | 42 | □ | 870-8 |
| RFEL | 45 | | 200 | 290 | 42 | □ | 869 |
| REEL | 45 | | 200 | 295 | 42 | □ | 870-9 |
| ETXL | 45 | | 200 | 300 | 42 | □ | 823-11 |
| EX-TIN-ETXL | 45 | | 200 | 300 | 42 | □ | 823-10 |
| MT-EHL | 45 | | 200 | 355 | MT5 | □ | 823-25 |
| MT-REEL | 45 | | 200 | 355 | MT5 | □ | 870-12 |
| EXDL | 45 | × 32 | 250 | 335 | 32 | □ | 793 |
| EXML | 45 | × 32 | 250 | 335 | 32F | □ | 819 |
| EXDL | 45 | | 250 | 335 | 42 | □ | 793 |
| EXML | 45 | | 250 | 335 | 42F | □ | 819 |
| EX-REXL | 45 | | 250 | 340 | 42 | □ | 858 |
| EX-TIN-REXL | 45 | | 250 | 340 | 42 | □ | 870-8 |
| REEL | 45 | | 250 | 340 | 42 | □ | 870-9 |
| MT-EHL | 45 | | 250 | 405 | MT5 | □ | 823-25 |
| MT-REEL | 45 | | 250 | 405 | MT5 | □ | 870-12 |
| EX-REES | 46 | | 63 | 165 | 42 | ● | 848 |
| EX-TIN-RESF | 46 | | 63 | 165 | 42 | ● | 845 |
| TFGS | 46 | | 63 | 165 | 42 | ● | 859 |
| EX-LS-REES | 46 | | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 46 | | 63 | 185 | 32 | ● | 847 |
| TIN-LS-RESF | 46 | | 63 | 185 | 32 | □ | 846 |
| VLS-XPM-RESF | 46 | | 63 | 185 | 32 | □ | 841 |
| VP-RESF | 46 | | 63 | 185 | 32 | □ | 840 |
| CPM-EHS | 46 | | 70 | 170 | 42 | □ | 823-22 |
| CE-EMS | 46 | × 32 | 75 | 165 | 32 | □ | 809 |
| EDS | 46 | × 32 | 75 | 165 | 32 | ● | 772 |
| EX-TIN-EDS | 46 | × 32 | 75 | 165 | 32 | □ | 763 |
| EX-TIN-EMS | 46 | × 32 | 75 | 165 | 32 | □ | 804 |
| EDS | 46 | | 75 | 165 | 42 | ● | 772 |
| EX-TIN-EDS | 46 | | 75 | 165 | 42 | □ | 763 |
| EX-TIN-EMS | 46 | | 75 | 165 | 42 | □ | 804 |
| EX-REEN | 46 | | 95 | 197 | 42 | ● | 853 |
| EX-TIN-RENF | 46 | | 95 | 197 | 42 | ● | 851 |
| TFGN | 46 | | 95 | 197 | 42 | ● | 865 |
| CE-EML | 46 | × 32 | 125 | 215 | 32 | □ | 823-18 |
| EDL | 46 | × 32 | 125 | 215 | 32 | □ | 791 |
| EX-TIN-EDL | 46 | | 125 | 215 | 32 | □ | 788 |
| EX-TIN-EML | 46 | × 32 | 125 | 215 | 32 | □ | 814 |
| CE-EML | 46 | | 125 | 215 | 42 | □ | 823-18 |
| EDL | 46 | | 125 | 215 | 42 | □ | 791 |
| EX-TIN-EML | 46 | | 125 | 215 | 42 | □ | 814 |
| EX-REEL | 46 | | 125 | 227 | 42 | ● | 857 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-TIN-RELF | 46 | | 125 | 227 | 42 | □ | 856 |
| TFL | 46 | | 125 | 227 | 42 | □ | 870-14 |
| CPM-XLS-EMS | 46 | | 125 | 350 | 42 | □ | 823-13 |
| XLS-EDS | 46 | | 125 | 350 | 42 | □ | 823-1 |
| XLS-EMS | 46 | | 125 | 350 | 42 | □ | 823-12 |
| EX-REES | 47 | | 63 | 165 | 42 | ● | 848 |
| EX-TIN-RESF | 47 | | 63 | 165 | 42 | ● | 845 |
| TFGS | 47 | | 63 | 165 | 42 | ● | 860 |
| EX-LS-REES | 47 | | 63 | 185 | 32 | ● | 849 |
| EX-LS-RESF | 47 | | 63 | 185 | 32 | ● | 847 |
| TIN-LS-RESF | 47 | | 63 | 185 | 32 | □ | 846 |
| VLS-XPM-RESF | 47 | | 63 | 185 | 32 | □ | 841 |
| VP-RESF | 47 | | 63 | 185 | 32 | □ | 840 |
| EDS | 47 | × 32 | 75 | 165 | 32 | ● | 772 |
| EX-TIN-EDS | 47 | × 32 | 75 | 165 | 32 | □ | 763 |
| EX-TIN-EMS | 47 | × 32 | 75 | 165 | 32 | □ | 804 |
| EDS | 47 | | 75 | 165 | 42 | ● | 772 |
| EX-TIN-EDS | 47 | | 75 | 165 | 42 | □ | 764 |
| EX-TIN-EMS | 47 | | 75 | 165 | 42 | □ | 804 |
| EX-REEN | 47 | | 95 | 197 | 42 | ● | 853 |
| EX-TIN-RENF | 47 | | 95 | 197 | 42 | ● | 851 |
| TFGN | 47 | | 95 | 197 | 42 | ● | 865 |
| CE-EML | 47 | × 32 | 125 | 215 | 32 | □ | 823-18 |
| EDL | 47 | × 32 | 125 | 215 | 32 | □ | 791 |
| EX-TIN-EDL | 47 | | 125 | 215 | 32 | □ | 788 |
| EX-TIN-EML | 47 | × 32 | 125 | 215 | 32 | □ | 814 |
| CE-EML | 47 | | 125 | 215 | 42 | □ | 823-18 |
| EDL | 47 | | 125 | 215 | 42 | □ | 791 |
| EX-TIN-EML | 47 | | 125 | 215 | 42 | □ | 814 |
| EX-REEL | 47 | | 125 | 227 | 42 | ● | 857 |
| EX-TIN-RELF | 47 | | 125 | 227 | 42 | □ | 856 |
| TFL | 47 | | 125 | 227 | 42 | □ | 870-14 |
| CPM-EHS | 48 | | 70 | 170 | 42 | □ | 823-22 |
| CE-EMS | 48 | × 32 | 75 | 165 | 32 | □ | 809 |
| EDS | 48 | × 32 | 75 | 165 | 32 | ● | 772 |
| EX-TIN-EDS | 48 | × 32 | 75 | 165 | 32 | ● | 764 |
| EX-TIN-EMS | 48 | × 32 | 75 | 165 | 32 | ● | 804 |
| AL-EDS | 48 | | 75 | 165 | 42 | □ | 776 |
| EDS | 48 | | 75 | 165 | 42 | ● | 772 |
| EX-TIN-EDS | 48 | | 75 | 165 | 42 | ● | 764 |
| EX-TIN-EMS | 48 | | 75 | 165 | 42 | ● | 804 |
| EX-REES | 48 | | 75 | 177 | 42 | ● | 848 |
| EX-TIN-RESF | 48 | | 75 | 177 | 42 | ● | 845 |
| TFGS | 48 | | 75 | 177 | 42 | ● | 860 |
| CPM-BKMS | 48 | | 75 | 185 | 42 | □ | 870-15 |
| XPM-EDS | 48 | | 75 | 185 | 42 | □ | 760 |
| XPM-EMS | 48 | | 75 | 185 | 42 | □ | 800 |
| EX-LS-REES | 48 | | 75 | 210 | 42 | ● | 849 |
| EX-LS-RESF | 48 | | 75 | 210 | 42 | ● | 847 |
| LS-XPM-RESF | 48 | | 75 | 210 | 42 | □ | 870-1 |
| TIN-LS-RESF | 48 | | 75 | 210 | 42 | □ | 846 |
| VLS-XPM-RESF | 48 | | 75 | 210 | 42 | □ | 841 |
| VP-RESF | 48 | | 75 | 210 | 42 | □ | 840 |
| LS-EMS | 48 | × 32 | 75 | 285 | 32 | ● | 810 |
| LS-EMS | 48 | | 75 | 285 | 42 | ● | 810 |
| LS-EMS | 48 | × 32 | 75 | 340 | 32 | ● | 810 |
| LS-EMS | 48 | | 75 | 340 | 42 | ● | 810 |
| EX-REE | 48 | | 110 | 200 | 42 | □ | 870-5 |
| EX-TIN-REE | 48 | | 110 | 200 | 42 | □ | 870-4 |
| REE | 48 | | 110 | 200 | 42 | □ | 870-6 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| RFE | 48 | 110 | 200 | 42 | □ | 868 |
| MT-REE | 48 | 110 | 265 | MT5 | □ | 870-11 |
| MT-RFE | 48 | 110 | 265 | MT5 | □ | 870-20 |
| EX-REEN | 48 | 112 | 214 | 42 | ● | 853 |
| EX-TIN-RENF | 48 | 112 | 214 | 42 | ● | 851 |
| TFGN | 48 | 112 | 214 | 42 | ● | 865 |
| CE-EML | 48 × 32 | 125 | 215 | 32 | □ | 823-18 |
| EDL | 48 × 32 | 125 | 215 | 32 | □ | 791 |
| EX-TIN-EDL | 48 | 125 | 215 | 32 | □ | 788 |
| EX-TIN-EML | 48 × 32 | 125 | 215 | 32 | □ | 814 |
| CE-EML | 48 | 125 | 215 | 42 | □ | 823-18 |
| EDL | 48 | 125 | 215 | 42 | □ | 791 |
| EX-TIN-EML | 48 | 125 | 215 | 42 | □ | 814 |
| XPM-EDL | 48 | 125 | 235 | 42 | □ | 786 |
| XPM-EML | 48 | 125 | 235 | 42 | □ | 813 |
| CPM-XLS-EMS | 48 | 125 | 350 | 42 | □ | 823-13 |
| XLS-EDS | 48 | 125 | 350 | 42 | □ | 823-1 |
| XLS-EMS | 48 | 125 | 350 | 42 | □ | 823-12 |
| EX-REEL | 48 | 150 | 252 | 42 | ● | 857 |
| EX-TIN-RELF | 48 | 150 | 252 | 42 | □ | 856 |
| TFL | 48 | 150 | 252 | 42 | □ | 870-14 |
| EDS | 49 × 32 | 75 | 165 | 32 | ● | 772 |
| EX-TIN-EDS | 49 × 32 | 75 | 165 | 32 | □ | 764 |
| EX-TIN-EMS | 49 × 32 | 75 | 165 | 32 | □ | 804 |
| CE-EMS | 49 | 75 | 165 | 42 | □ | 809 |
| EDS | 49 | 75 | 165 | 42 | ● | 772 |
| EX-TIN-EDS | 49 | 75 | 165 | 42 | □ | 764 |
| EX-TIN-EMS | 49 | 75 | 165 | 42 | □ | 804 |
| EX-REES | 49 | 75 | 177 | 42 | ● | 848 |
| EX-TIN-RESF | 49 | 75 | 177 | 42 | ● | 845 |
| TFGS | 49 | 75 | 177 | 42 | ● | 860 |
| EX-LS-REES | 49 | 75 | 210 | 42 | ● | 849 |
| EX-LS-RESF | 49 | 75 | 210 | 42 | ● | 847 |
| TIN-LS-RESF | 49 | 75 | 210 | 42 | □ | 846 |
| VLS-XPM-RESF | 49 | 75 | 210 | 42 | □ | 841 |
| VP-RESF | 49 | 75 | 210 | 42 | □ | 840 |
| EX-REEN | 49 | 112 | 214 | 42 | ● | 853 |
| EX-TIN-RENF | 49 | 112 | 214 | 42 | ● | 851 |
| TFGN | 49 | 112 | 214 | 42 | ● | 865 |
| CE-EML | 49 × 32 | 125 | 215 | 32 | □ | 823-18 |
| EDL | 49 × 32 | 125 | 215 | 32 | □ | 791 |
| EX-TIN-EDL | 49 | 125 | 215 | 32 | □ | 788 |
| EX-TIN-EML | 49 × 32 | 125 | 215 | 32 | □ | 814 |
| CE-EML | 49 | 125 | 215 | 42 | □ | 823-18 |
| EDL | 49 | 125 | 215 | 42 | □ | 791 |
| EX-TIN-EML | 49 | 125 | 215 | 42 | □ | 814 |
| EX-REEL | 49 | 150 | 252 | 42 | ● | 857 |
| EX-TIN-RELF | 49 | 150 | 252 | 42 | □ | 856 |
| TFL | 49 | 150 | 252 | 42 | □ | 870-14 |
| RF-TSC | 50 | 8 | 185 | 25 | ● | 894 |
| TIN-TUF-TSC | 50 | 8 | 200 | 25 | □ | 895-2 |
| RF-TSC | 50 | 10 | 185 | 25 | ● | 894 |
| TIN-TUF-TSC | 50 | 10 | 200 | 25 | □ | 895-2 |
| RF-TSC | 50 | 12 | 185 | 25 | ● | 894 |
| TIN-TUF-TSC | 50 | 12 | 200 | 25 | □ | 895-2 |
| RF-TSC | 50 | 14 | 185 | 25 | □ | 894 |
| RF-TSC | 50 | 15 | 185 | 25 | □ | 894 |
| TIN-TUF-TSC | 50 | 15 | 200 | 25 | □ | 895-2 |
| RF-TSC | 50 | 16 | 185 | 25 | □ | 894 |
| TIN-TUF-TSC | 50 | 16 | 200 | 25 | □ | 895-2 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| RF-TSC | 50 | 18 | 185 | 25 | □ | 894 |
| TIN-TUF-TSC | 50 | 18 | 200 | 25 | □ | 895-2 |
| RF-TSC | 50 | 20 | 185 | 25 | □ | 894 |
| TIN-TUF-TSC | 50 | 20 | 200 | 25 | □ | 895-2 |
| RF-TSC | 50 | 22 | 185 | 25 | □ | 894 |
| TIN-TUF-TSC | 50 | 22 | 200 | 25 | □ | 895-2 |
| RF-TSC | 50 | 25 | 185 | 25 | □ | 894 |
| TIN-TUF-TSC | 50 | 25 | 200 | 25 | □ | 895-2 |
| RF-TSC | 50 | 30 | 185 | 25 | □ | 894 |
| TIN-TUF-TSC | 50 | 30 | 200 | 25 | □ | 895-2 |
| CE-EMS | 50 × 32 | 75 | 165 | 32 | □ | 809 |
| CPM-EDS | 50 × 32 | 75 | 165 | 32 | □ | 775 |
| EDS | 50 × 32 | 75 | 165 | 32 | ● | 772 |
| EX-TIN-EDS | 50 × 32 | 75 | 165 | 32 | ● | 764 |
| EX-TIN-EMS | 50 × 32 | 75 | 165 | 32 | ● | 804 |
| AL-EDS | 50 | 75 | 165 | 42 | □ | 776 |
| CE-EMS | 50 | 75 | 165 | 42 | □ | 809 |
| CPM-EMS | 50 | 75 | 165 | 42 | □ | 811 |
| EDS | 50 | 75 | 165 | 42 | ● | 772 |
| EX-TIN-EDS | 50 | 75 | 165 | 42 | ● | 764 |
| EX-TIN-EMS | 50 | 75 | 165 | 42 | ● | 804 |
| CPM-EHS | 50 | 75 | 175 | 42 | □ | 823-22 |
| XPM-EHS | 50 × 4F | 75 | 175 | 42 | □ | 823 |
| EX-REES | 50 | 75 | 177 | 42 | ● | 848 |
| EX-TIN-RESF | 50 | 75 | 177 | 42 | ● | 845 |
| REES | 50 | 75 | 177 | 42 | □ | 870-3 |
| TFGS | 50 | 75 | 177 | 42 | ● | 860 |
| BKMS | 50 | 75 | 185 | 42 | □ | 863 |
| XPM-EDS | 50 | 75 | 185 | 42 | □ | 760 |
| XPM-EMS | 50 | 75 | 185 | 42 | □ | 800 |
| CPM-LS-RESF | 50 | 75 | 210 | 42 | □ | 870-2 |
| EX-LS-REES | 50 | 75 | 210 | 42 | ● | 849 |
| EX-LS-RESF | 50 | 75 | 210 | 42 | ● | 847 |
| TIN-LS-RESF | 50 | 75 | 210 | 42 | ● | 846 |
| VLS-XPM-RESF | 50 | 75 | 210 | 42 | ● | 841 |
| VP-RESF | 50 | 75 | 210 | 42 | ● | 840 |
| DE-XPM-EDN | 50 | 75 | 280 | 32 | ● | 781 |
| DE-XPM-EMS | 50 | 75 | 280 | 32 | ● | 801 |
| DE-XPM-EDN | 50 | 75 | 280 | 42 | ● | 781 |
| DE-XPM-EMS | 50 | 75 | 280 | 42 | ● | 801 |
| LS-EMS | 50 × 32 | 75 | 285 | 32 | ● | 810 |
| LS-EMS | 50 | 75 | 285 | 42 | ● | 810 |
| LS-EMS | 50 × 32 | 75 | 340 | 32 | ● | 810 |
| LS-EMS | 50 | 75 | 340 | 42 | ● | 810 |
| DE-XPM-EDN | 50 | 75 | 350 | 32 | ● | 781 |
| DE-XPM-EMS | 50 | 75 | 350 | 32 | ● | 801 |
| DE-XPM-EDN | 50 | 75 | 350 | 42 | ● | 781 |
| DE-XPM-EMS | 50 | 75 | 350 | 42 | ● | 801 |
| LS-REES | 50 | 90 | 225 | 42 | □ | 870-3 |
| LS-RFES | 50 | 90 | 225 | 42 | ● | 863 |
| EX-XLS-REE | 50 | 100 | 400 | 42 | □ | 870-7 |
| CN-EHL | 50 | 106 | 201 | 50.8 | □ | 823-23 |
| CN-EML | 50 | 106 | 201 | 50.8 | □ | 823-23 |
| EX-CN-REE | 50 | 106 | 201 | 50.8 | □ | 870-11 |
| EX-REEN | 50 | 112 | 214 | 42 | ● | 853 |
| EX-TIN-RENF | 50 | 112 | 214 | 42 | ● | 851 |
| TFGN | 50 | 112 | 214 | 42 | ● | 865 |
| VP-RENF | 50 | 112 | 225 | 42 | ● | 850 |
| CPM-REE | 50 | 120 | 210 | 42 | □ | 870-7 |
| CPM-RFE | 50 | 120 | 210 | 42 | □ | 870-17 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-REE | 50 | | 120 | 210 | 42 | □ | 870-5 |
| EX-TIN-REE | 50 | | 120 | 210 | 42 | □ | 870-4 |
| REE | 50 | | 120 | 210 | 42 | □ | 870-6 |
| RFE | 50 | | 120 | 210 | 42 | ● | 868 |
| BS-REE | 50 | | 120 | 240 | BS9 | □ | 870-10 |
| BS-RFE | 50 | | 120 | 240 | BS9 | □ | 870-19 |
| EX-REE-3F | 50 | | 120 | 252 | 42 | □ | 870-6 |
| MT-REE | 50 | | 120 | 275 | MT5 | □ | 870-11 |
| MT-RFE | 50 | | 120 | 275 | MT5 | □ | 870-20 |
| REXL-NT50 | 50 | | 120 | 295 | NT50 | □ | 870-12 |
| CE-EML | 50 | × 32 | 125 | 215 | 32 | □ | 823-18 |
| EDL | 50 | × 32 | 125 | 215 | 32 | □ | 791 |
| EX-TIN-EDL | 50 | | 125 | 215 | 32 | □ | 788 |
| EX-TIN-EML | 50 | × 32 | 125 | 215 | 32 | □ | 814 |
| CE-EML | 50 | | 125 | 215 | 42 | □ | 823-18 |
| EDL | 50 | | 125 | 215 | 42 | □ | 791 |
| EX-TIN-EML | 50 | | 125 | 215 | 42 | □ | 814 |
| CN-EHL | 50 | | 125 | 220 | 50.8 | □ | 823-23 |
| CN-EML | 50 | | 125 | 220 | 50.8 | □ | 823-23 |
| EX-CN-REE | 50 | | 125 | 220 | 50.8 | □ | 870-11 |
| XPM-EDL | 50 | | 125 | 235 | 42 | □ | 786 |
| XPM-EML | 50 | | 125 | 235 | 42 | □ | 813 |
| CPM-XLS-EMS | 50 | | 125 | 350 | 42 | □ | 823-13 |
| XLS-EDS | 50 | | 125 | 350 | 42 | □ | 823-1 |
| XLS-EMS | 50 | | 125 | 350 | 42 | □ | 823-12 |
| CPM-XLS-EMS | 50 | | 125 | 400 | 42 | □ | 823-13 |
| EXDL | 50 | × 32 | 150 | 235 | 32 | □ | 793 |
| EXML | 50 | × 32 | 150 | 235 | 32F | □ | 819 |
| EXDL | 50 | | 150 | 235 | 42 | □ | 793 |
| EXML | 50 | | 150 | 235 | 42F | □ | 819 |
| EX-TIN-EXDL | 50 | | 150 | 235 | 42 | □ | 823-6 |
| EX-TIN-EXML | 50 | | 150 | 235 | 42 | □ | 823-19 |
| EX-REXL | 50 | | 150 | 240 | 42 | □ | 858 |
| EX-TIN-REXL | 50 | | 150 | 240 | 42 | □ | 870-8 |
| REEL | 50 | | 150 | 240 | 42 | □ | 870-9 |
| RFEL | 50 | | 150 | 240 | 42 | □ | 869 |
| CN-EHL | 50 | | 150 | 245 | 50.8 | □ | 823-23 |
| CN-EML | 50 | | 150 | 245 | 50.8 | □ | 823-23 |
| CN-REE | 50 | | 150 | 245 | 50.8 | □ | 870-10 |
| EX-CN-REE | 50 | | 150 | 245 | 50.8 | □ | 870-11 |
| NI-EXML | 50 | | 150 | 250 | 42 | □ | 870-19 |
| VP-RELF | 50 | | 150 | 250 | 42 | ● | 855 |
| EX-REEL | 50 | | 150 | 252 | 42 | ● | 857 |
| EX-TIN-RELF | 50 | | 150 | 252 | 42 | ● | 856 |
| REEM | 50 | | 150 | 252 | 42 | □ | 870-5 |
| TFL | 50 | | 150 | 252 | 42 | □ | 870-14 |
| MT-REEL | 50 | | 150 | 305 | MT5 | □ | 870-12 |
| REXL-NT50 | 50 | | 150 | 325 | NT50 | □ | 870-12 |
| EX-XLS-REE | 50 | | 150 | 400 | 42 | □ | 870-7 |
| CPM-XLS-EMS | 50 | | 150 | 500 | 42 | □ | 823-13 |
| EX-REXL | 50 | | 180 | 280 | 42 | ● | 858 |
| EX-TIN-REXL | 50 | | 180 | 280 | 42 | □ | 870-8 |
| REEL | 50 | | 180 | 280 | 42 | □ | 870-9 |
| RFEL | 50 | | 180 | 280 | 42 | ● | 869 |
| EXDL | 50 | × 32 | 200 | 285 | 32 | □ | 793 |
| EXML | 50 | × 32 | 200 | 285 | 32F | □ | 819 |
| EXDL | 50 | | 200 | 285 | 42 | □ | 793 |
| EXML | 50 | | 200 | 285 | 42F | □ | 819 |
| EX-TIN-EXDL | 50 | | 200 | 285 | 42 | □ | 823-6 |
| EX-TIN-EXML | 50 | | 200 | 285 | 42 | □ | 823-19 |

| 製品記号 Abbreviation | 外径（×首下長） Mill Dia | | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-REXL | 50 | | 200 | 290 | 42 | □ | 858 |
| EX-TIN-REXL | 50 | | 200 | 290 | 42 | □ | 870-8 |
| REEL | 50 | | 200 | 290 | 42 | □ | 870-9 |
| RFEL | 50 | | 200 | 290 | 42 | □ | 869 |
| CN-EHL | 50 | | 200 | 295 | 50.8 | □ | 823-23 |
| CN-REE | 50 | | 200 | 295 | 50.8 | □ | 870-10 |
| ETXL | 50 | | 200 | 300 | 42 | □ | 823-11 |
| EX-TIN-ETXL | 50 | | 200 | 300 | 42 | □ | 823-10 |
| NI-EXML | 50 | | 200 | 300 | 42 | □ | 870-19 |
| EXML-NT40 | 50 | | 200 | 335 | NT40 | □ | 823-26 |
| MT-REEL | 50 | | 200 | 355 | MT5 | □ | 870-12 |
| EXML-NT50 | 50 | | 200 | 375 | NT50 | □ | 823-26 |
| REXL-NT50 | 50 | | 200 | 375 | NT50 | □ | 870-12 |
| EX-XLS-REE | 50 | | 200 | 500 | 42 | □ | 870-7 |
| CN-EHL | 50 | | 212 | 307 | 50.8 | □ | 823-23 |
| CN-EML | 50 | | 212 | 307 | 50.8 | □ | 823-23 |
| EX-CN-REE | 50 | | 212 | 307 | 50.8 | □ | 870-11 |
| EX-REXL | 50 | | 212 | 315 | 42 | ● | 858 |
| EX-TIN-REXL | 50 | | 212 | 315 | 42 | □ | 870-8 |
| REEL | 50 | | 212 | 315 | 42 | □ | 870-9 |
| RFEL | 50 | | 212 | 315 | 42 | ● | 869 |
| EXDL | 50 | × 32 | 250 | 335 | 32 | □ | 793 |
| EXML | 50 | × 32 | 250 | 335 | 32F | □ | 820 |
| EXDL | 50 | | 250 | 335 | 42 | □ | 793 |
| EXML | 50 | | 250 | 335 | 42F | □ | 820 |
| EX-REXL | 50 | | 250 | 340 | 42 | □ | 858 |
| EX-TIN-REXL | 50 | | 250 | 340 | 42 | □ | 870-8 |
| REEL | 50 | | 250 | 340 | 42 | □ | 870-9 |
| RFEL | 50 | | 250 | 340 | 42 | □ | 869 |
| CN-EHL | 50 | | 250 | 345 | 50.8 | □ | 823-23 |
| CN-EML | 50 | | 250 | 345 | 50.8 | □ | 823-23 |
| CN-REE | 50 | | 250 | 345 | 50.8 | □ | 870-10 |
| EX-CN-REE | 50 | | 250 | 345 | 50.8 | □ | 870-11 |
| NI-EXML | 50 | | 250 | 350 | 42 | □ | 870-19 |
| EXML-NT40 | 50 | | 250 | 385 | NT40 | □ | 823-26 |
| MT-REEL | 50 | | 250 | 405 | MT5 | □ | 870-12 |
| EXML-NT50 | 50 | | 250 | 425 | NT50 | □ | 823-26 |
| REXL-NT50 | 50 | | 250 | 425 | NT50 | □ | 870-12 |
| EXDL | 50 | | 300 | 385 | 42 | □ | 793 |
| EX-REXL | 50 | | 300 | 390 | 42 | □ | 858 |
| EX-TIN-REXL | 50 | | 300 | 390 | 42 | □ | 870-8 |
| REEL | 50 | | 300 | 390 | 42 | □ | 870-9 |
| RFEL | 50 | | 300 | 390 | 42 | □ | 869 |
| CN-EHL | 50 | | 300 | 395 | 50.8 | □ | 823-23 |
| EXML | 50 | | 300 | 400 | 42F | □ | 820 |
| NI-EXML | 50 | | 300 | 400 | 42 | □ | 870-19 |
| EXML-NT50 | 50 | | 300 | 475 | NT50 | □ | 823-26 |
| EXML | 50 | | 400 | 500 | 42F | □ | 820 |
| NI-EXML | 50 | | 400 | 500 | 42 | □ | 870-19 |
| REEL | 50 | | 400 | 500 | 42 | □ | 870-9 |
| CN-EHL | 50 | | 400 | 500 | 50.8 | □ | 823-23 |
| EDS | 51 | × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 51 | | 80 | 170 | 42 | □ | 809 |
| EDS | 51 | | 80 | 170 | 42 | □ | 772 |
| EX-TIN-EDS | 51 | | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 51 | | 80 | 170 | 42 | □ | 804 |
| EDS | 52 | × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 52 | | 80 | 170 | 42 | □ | 809 |
| EDS | 52 | | 80 | 170 | 42 | □ | 772 |
| EX-TIN-EDS | 52 | | 80 | 170 | 42 | □ | 764 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EMS | 52 | 80 | 170 | 42 | □ | 804 |
| EDS | 53 × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 53 | 80 | 170 | 42 | □ | 809 |
| EDS | 53 | 80 | 170 | 42 | □ | 772 |
| EX-TIN-EDS | 53 | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 53 | 80 | 170 | 42 | □ | 804 |
| EDS | 54 × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 54 | 80 | 170 | 42 | □ | 809 |
| EDS | 54 | 80 | 170 | 42 | □ | 772 |
| EX-TIN-EDS | 54 | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 54 | 80 | 170 | 42 | □ | 804 |
| TIN-TUF-TSC | 55 | 10 | 200 | 25 | □ | 895-2 |
| TIN-TUF-TSC | 55 | 12 | 200 | 25 | □ | 895-2 |
| TIN-TUF-TSC | 55 | 15 | 200 | 25 | □ | 895-2 |
| TIN-TUF-TSC | 55 | 16 | 200 | 25 | □ | 895-2 |
| TIN-TUF-TSC | 55 | 18 | 200 | 25 | □ | 895-2 |
| TIN-TUF-TSC | 55 | 20 | 200 | 25 | □ | 895-2 |
| TIN-TUF-TSC | 55 | 22 | 200 | 25 | □ | 895-2 |
| TIN-TUF-TSC | 55 | 25 | 200 | 25 | □ | 895-2 |
| TIN-TUF-TSC | 55 | 30 | 200 | 25 | □ | 895-2 |
| EX-REES | 55 | 75 | 177 | 42 | □ | 848 |
| EX-TIN-RESF | 55 | 75 | 177 | 42 | □ | 845 |
| TFS | 55 | 75 | 177 | 42 | □ | 861 |
| EDS | 55 × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 55 | 80 | 170 | 42 | □ | 809 |
| CPM-EDS | 55 | 80 | 170 | 42 | □ | 775 |
| CPM-EMS | 55 | 80 | 170 | 42 | □ | 811 |
| EDS | 55 | 80 | 170 | 42 | ● | 772 |
| EX-TIN-EDS | 55 | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 55 | 80 | 170 | 42 | □ | 804 |
| CPM-EHS | 55 | 80 | 180 | 42 | □ | 823-22 |
| CPM-BKMS | 55 | 80 | 190 | 42 | □ | 870-15 |
| CPM-REE | 55 | 130 | 220 | 42 | □ | 870-7 |
| CPM-RFE | 55 | 130 | 220 | 42 | □ | 870-17 |
| EX-REE | 55 | 130 | 220 | 42 | □ | 870-5 |
| EX-TIN-REE | 55 | 130 | 220 | 42 | □ | 870-4 |
| REE | 55 | 130 | 220 | 42 | □ | 870-6 |
| RFE | 55 | 130 | 220 | 42 | □ | 868 |
| MT-REE | 55 | 130 | 290 | MT5 | □ | 870-11 |
| MT-RFE | 55 | 130 | 290 | MT5 | □ | 870-20 |
| EX-REEL | 55 | 150 | 252 | 42 | □ | 857 |
| EX-TIN-RELF | 55 | 150 | 252 | 42 | □ | 856 |
| REXL-NT50 | 55 | 150 | 325 | NT50 | □ | 870-12 |
| EXML-NT40 | 55 | 200 | 335 | NT40 | □ | 823-26 |
| EXML-NT50 | 55 | 200 | 375 | NT50 | □ | 823-26 |
| REXL-NT50 | 55 | 200 | 375 | NT50 | □ | 870-12 |
| EXML-NT40 | 55 | 250 | 385 | NT40 | □ | 823-26 |
| EXML-NT50 | 55 | 250 | 425 | NT50 | □ | 823-26 |
| REXL-NT50 | 55 | 250 | 425 | NT50 | □ | 870-12 |
| EXML-NT50 | 55 | 300 | 475 | NT50 | □ | 823-26 |
| EDS | 56 × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 56 | 80 | 170 | 42 | □ | 809 |
| EDS | 56 | 80 | 170 | 42 | □ | 772 |
| EX-TIN-EDS | 56 | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 56 | 80 | 170 | 42 | □ | 804 |
| EDS | 57 × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 57 | 80 | 170 | 42 | □ | 809 |
| EDS | 57 | 80 | 170 | 42 | □ | 772 |
| EX-TIN-EDS | 57 | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 57 | 80 | 170 | 42 | □ | 804 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EDS | 58 × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 58 | 80 | 170 | 42 | □ | 809 |
| EDS | 58 | 80 | 170 | 42 | □ | 772 |
| EX-TIN-EDS | 58 | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 58 | 80 | 170 | 42 | □ | 804 |
| EDS | 59 × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 59 | 80 | 170 | 42 | □ | 809 |
| EDS | 59 | 80 | 170 | 42 | □ | 772 |
| EX-TIN-EDS | 59 | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 59 | 80 | 170 | 42 | □ | 804 |
| RF-TSC | 60 | 10 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 10 | 200 | 32 | □ | 895-2 |
| RF-TSC | 60 | 12 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 12 | 200 | 32 | □ | 895-2 |
| RF-TSC | 60 | 14 | 195 | 32 | □ | 894 |
| RF-TSC | 60 | 15 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 15 | 200 | 32 | □ | 895-2 |
| RF-TSC | 60 | 16 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 16 | 200 | 32 | □ | 895-2 |
| RF-TSC | 60 | 18 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 18 | 200 | 32 | □ | 895-2 |
| RF-TSC | 60 | 20 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 20 | 200 | 32 | □ | 895-2 |
| RF-TSC | 60 | 22 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 22 | 200 | 32 | □ | 895-2 |
| RF-TSC | 60 | 25 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 25 | 200 | 32 | □ | 895-2 |
| RF-TSC | 60 | 28 | 195 | 32 | □ | 894 |
| RF-TSC | 60 | 30 | 195 | 32 | □ | 894 |
| TIN-TUF-TSC | 60 | 30 | 200 | 32 | □ | 895-2 |
| EX-REES | 60 | 75 | 177 | 42 | □ | 848 |
| EX-TIN-RESF | 60 | 75 | 177 | 42 | □ | 845 |
| TFS | 60 | 75 | 177 | 42 | □ | 861 |
| EDS | 60 × 32 | 80 | 170 | 32 | □ | 772 |
| CE-EMS | 60 | 80 | 170 | 42 | □ | 809 |
| CPM-EDS | 60 | 80 | 170 | 42 | □ | 775 |
| CPM-EMS | 60 | 80 | 170 | 42 | □ | 811 |
| EDS | 60 | 80 | 170 | 42 | ● | 772 |
| EX-TIN-EDS | 60 | 80 | 170 | 42 | □ | 764 |
| EX-TIN-EMS | 60 | 80 | 170 | 42 | □ | 804 |
| CPM-EHS | 60 | 80 | 180 | 42 | □ | 823-22 |
| CPM-BKMS | 60 | 80 | 190 | 42 | □ | 870-15 |
| EX-XLS-REE | 60 | 100 | 400 | 42 | □ | 870-7 |
| CN-EHL | 60 | 106 | 201 | 50.8 | □ | 823-23 |
| CN-EML | 60 | 106 | 201 | 50.8 | □ | 823-23 |
| EX-CN-REE | 60 | 106 | 201 | 50.8 | □ | 870-11 |
| CN-EHL | 60 | 125 | 220 | 50.8 | □ | 823-23 |
| CN-EML | 60 | 125 | 220 | 50.8 | □ | 823-23 |
| EX-CN-REE | 60 | 125 | 220 | 50.8 | □ | 870-11 |
| CPM-XLS-EMS | 60 | 125 | 400 | 42 | □ | 823-13 |
| CPM-REE | 60 | 140 | 230 | 42 | □ | 870-7 |
| CPM-RFE | 60 | 140 | 230 | 42 | □ | 870-17 |
| EX-REE | 60 | 140 | 230 | 42 | □ | 870-5 |
| EX-TIN-REE | 60 | 140 | 230 | 42 | □ | 870-4 |
| REE | 60 | 140 | 230 | 42 | □ | 870-6 |
| RFE | 60 | 140 | 230 | 42 | □ | 868 |
| MT-REE | 60 | 140 | 305 | MT5 | □ | 870-11 |
| MT-RFE | 60 | 140 | 305 | MT5 | □ | 870-20 |
| EX-REXL | 60 | 150 | 240 | 42 | □ | 858 |
| EX-TIN-REXL | 60 | 150 | 240 | 42 | □ | 870-8 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| REEL | 60 | 150 | 240 | 42 | □ | 870-9 |
| RFEL | 60 | 150 | 240 | 42 | □ | 869 |
| CN-EHL | 60 | 150 | 245 | 50.8 | □ | 823-23 |
| CN-EML | 60 | 150 | 245 | 50.8 | □ | 823-23 |
| CN-REE | 60 | 150 | 245 | 50.8 | □ | 870-10 |
| EX-CN-REE | 60 | 150 | 245 | 50.8 | □ | 870-11 |
| EXDL | 60 | 150 | 250 | 42 | □ | 793 |
| EXML | 60 | 150 | 250 | 42F | □ | 820 |
| NI-EXML | 60 | 150 | 250 | 42 | □ | 870-19 |
| EX-REEL | 60 | 150 | 252 | 42 | □ | 857 |
| EX-TIN-RELF | 60 | 150 | 252 | 42 | □ | 856 |
| MT-REEL | 60 | 150 | 315 | MT5 | □ | 870-12 |
| REXL-NT50 | 60 | 150 | 330 | NT50 | □ | 870-12 |
| EX-XLS-REE | 60 | 150 | 400 | 42 | □ | 870-7 |
| CPM-XLS-EMS | 60 | 150 | 500 | 42 | □ | 823-13 |
| EX-REXL | 60 | 200 | 290 | 42 | □ | 858 |
| EX-TIN-REXL | 60 | 200 | 290 | 42 | □ | 870-8 |
| REEL | 60 | 200 | 290 | 42 | □ | 870-9 |
| RFEL | 60 | 200 | 290 | 42 | □ | 869 |
| CN-EHL | 60 | 200 | 295 | 50.8 | □ | 823-23 |
| CN-REE | 60 | 200 | 295 | 50.8 | □ | 870-10 |
| ETXL | 60 | 200 | 300 | 42 | □ | 823-11 |
| EXDL | 60 | 200 | 300 | 42 | □ | 793 |
| EXML | 60 | 200 | 300 | 42F | □ | 820 |
| EX-TIN-ETXL | 60 | 200 | 300 | 42 | □ | 823-10 |
| NI-EXML | 60 | 200 | 300 | 42 | □ | 870-19 |
| EXML-NT40 | 60 | 200 | 340 | NT40 | □ | 823-26 |
| MT-REEL | 60 | 200 | 365 | MT5 | □ | 870-12 |
| EXML-NT50 | 60 | 200 | 380 | NT50 | □ | 823-26 |
| REXL-NT50 | 60 | 200 | 380 | NT50 | □ | 870-12 |
| EX-XLS-REE | 60 | 200 | 500 | 42 | □ | 870-7 |
| CN-EHL | 60 | 212 | 307 | 50.8 | □ | 823-23 |
| CN-EML | 60 | 212 | 307 | 50.8 | □ | 823-23 |
| EX-CN-REE | 60 | 212 | 307 | 50.8 | □ | 870-11 |
| EX-REXL | 60 | 250 | 340 | 42 | □ | 858 |
| EX-TIN-REXL | 60 | 250 | 340 | 42 | □ | 870-8 |
| REEL | 60 | 250 | 340 | 42 | □ | 870-9 |
| RFEL | 60 | 250 | 340 | 42 | □ | 869 |
| CN-EHL | 60 | 250 | 345 | 50.8 | □ | 823-23 |
| CN-EML | 60 | 250 | 345 | 50.8 | □ | 823-23 |
| CN-REE | 60 | 250 | 345 | 50.8 | □ | 870-10 |
| EX-CN-REE | 60 | 250 | 345 | 50.8 | □ | 870-11 |
| EXDL | 60 | 250 | 350 | 42 | □ | 793 |
| EXML | 60 | 250 | 350 | 42F | □ | 820 |
| NI-EXML | 60 | 250 | 350 | 42 | □ | 870-19 |
| EXML-NT40 | 60 | 250 | 390 | NT40 | □ | 823-26 |
| MT-EHL | 60 | 250 | 415 | MT5 | □ | 823-25 |
| MT-REEL | 60 | 250 | 415 | MT5 | □ | 870-12 |
| EXML-NT50 | 60 | 250 | 430 | NT50 | □ | 823-26 |
| REXL-NT50 | 60 | 250 | 430 | NT50 | □ | 870-12 |
| EX-REXL | 60 | 300 | 390 | 42 | □ | 858 |
| EX-TIN-REXL | 60 | 300 | 390 | 42 | □ | 870-8 |
| REEL | 60 | 300 | 390 | 42 | □ | 870-9 |
| RFEL | 60 | 300 | 390 | 42 | □ | 869 |
| CN-EHL | 60 | 300 | 395 | 50.8 | □ | 823-23 |
| EXML | 60 | 300 | 400 | 42F | □ | 820 |
| NI-EXML | 60 | 300 | 400 | 42 | □ | 870-19 |
| EXML-NT50 | 60 | 300 | 480 | NT50 | □ | 823-26 |
| EX-REXL | 60 | 400 | 490 | 42 | □ | 858 |
| EX-TIN-REXL | 60 | 400 | 490 | 42 | □ | 870-8 |

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| REEL | 60 | 400 | 490 | 42 | □ | 870-9 |
| EXML | 60 | 400 | 500 | 42F | □ | 820 |
| NI-EXML | 60 | 400 | 500 | 42 | □ | 870-19 |
| CN-EHL | 60 | 400 | 500 | 50.8 | □ | 823-23 |
| EDS | 62 × 32 | 85 | 175 | 32 | □ | 772 |
| EDS | 62 | 85 | 175 | 42 | □ | 772 |
| EDS | 64 × 32 | 85 | 175 | 32 | □ | 772 |
| EDS | 64 | 85 | 175 | 42 | □ | 772 |
| EDS | 65 × 32 | 85 | 175 | 32 | □ | 772 |
| CE-EMS | 65 | 85 | 175 | 42 | □ | 809 |
| EDS | 65 | 85 | 175 | 42 | □ | 772 |
| EX-TIN-EDS | 65 | 85 | 175 | 42 | □ | 764 |
| EX-TIN-EMS | 65 | 85 | 175 | 42 | □ | 804 |
| EX-REES | 65 | 90 | 192 | 42 | □ | 848 |
| EX-TIN-RESF | 65 | 90 | 192 | 42 | □ | 845 |
| REE | 65 | 150 | 260 | 42 | □ | 870-6 |
| EX-REEL | 65 | 180 | 282 | 42 | □ | 857 |
| EX-TIN-RELF | 65 | 180 | 282 | 42 | □ | 856 |
| EXML-NT40 | 65 | 200 | 340 | NT40 | □ | 823-26 |
| EXML-NT50 | 65 | 200 | 380 | NT50 | □ | 823-26 |
| REXL-NT50 | 65 | 200 | 380 | NT50 | □ | 870-12 |
| EXML-NT40 | 65 | 250 | 390 | NT40 | □ | 823-26 |
| EXML-NT50 | 65 | 250 | 430 | NT50 | □ | 823-26 |
| REXL-NT50 | 65 | 250 | 430 | NT50 | □ | 870-12 |
| EXML-NT50 | 65 | 300 | 480 | NT50 | □ | 823-26 |
| EDS | 66 × 32 | 90 | 180 | 32 | □ | 772 |
| EDS | 66 | 90 | 180 | 42 | □ | 772 |
| EDS | 68 × 32 | 90 | 180 | 32 | □ | 772 |
| EDS | 68 | 90 | 180 | 42 | □ | 772 |
| EDS | 70 × 32 | 90 | 180 | 32 | □ | 772 |
| CE-EMS | 70 | 90 | 180 | 42 | □ | 809 |
| EDS | 70 | 90 | 180 | 42 | □ | 772 |
| EX-TIN-EDS | 70 | 90 | 180 | 42 | □ | 764 |
| EX-TIN-EMS | 70 | 90 | 180 | 42 | □ | 804 |
| EX-REES | 70 | 90 | 192 | 42 | □ | 848 |
| EX-TIN-RESF | 70 | 90 | 192 | 42 | □ | 845 |
| CN-EHL | 70 | 106 | 201 | 50.8 | □ | 823-23 |
| CN-EML | 70 | 106 | 201 | 50.8 | □ | 823-23 |
| EX-CN-REE | 70 | 106 | 201 | 50.8 | □ | 870-11 |
| CN-EHL | 70 | 125 | 220 | 50.8 | □ | 823-23 |
| CN-EML | 70 | 125 | 220 | 50.8 | □ | 823-23 |
| EX-CN-REE | 70 | 125 | 220 | 50.8 | □ | 870-11 |
| CN-EHL | 70 | 150 | 245 | 50.8 | □ | 823-23 |
| CN-EML | 70 | 150 | 245 | 50.8 | □ | 823-23 |
| EX-CN-REE | 70 | 150 | 245 | 50.8 | □ | 870-11 |
| REE | 70 | 150 | 260 | 42 | □ | 870-6 |
| EX-REEL | 70 | 180 | 282 | 42 | □ | 857 |
| EX-TIN-RELF | 70 | 180 | 282 | 42 | □ | 856 |
| EXML-NT40 | 70 | 200 | 345 | NT40 | □ | 823-26 |
| EXML-NT50 | 70 | 200 | 385 | NT50 | □ | 823-26 |
| REXL-NT50 | 70 | 200 | 385 | NT50 | □ | 870-12 |
| EXML-NT40 | 70 | 250 | 395 | NT40 | □ | 823-26 |
| EXML-NT50 | 70 | 250 | 435 | NT50 | □ | 823-26 |
| REXL-NT50 | 70 | 250 | 435 | NT50 | □ | 870-12 |
| EXML-NT50 | 70 | 300 | 485 | NT50 | □ | 823-26 |
| RF-TSC | 75 | 8 | 220 | 42 | □ | 894 |
| RF-TSC | 75 | 10 | 220 | 42 | □ | 895 |
| RF-TSC | 75 | 12 | 220 | 42 | □ | 894 |
| RF-TSC | 75 | 14 | 220 | 42 | □ | 894 |
| RF-TSC | 75 | 15 | 220 | 42 | □ | 894 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／スクエア
## HSS END MILLS / SQUARE

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| RF-TSC | 75 | 16 | 220 | 42 | □ | 895 |
| RF-TSC | 75 | 18 | 220 | 42 | □ | 895 |
| RF-TSC | 75 | 20 | 220 | 42 | □ | 894 |
| RF-TSC | 75 | 22 | 220 | 42 | □ | 895 |
| RF-TSC | 75 | 25 | 220 | 42 | □ | 894 |
| RF-TSC | 75 | 30 | 220 | 42 | □ | 894 |
| EX-REES | 75 | 90 | 192 | 42 | □ | 848 |
| EX-TIN-RESF | 75 | 90 | 192 | 42 | □ | 845 |
| CE-EMS | 75 | 100 | 190 | 42 | □ | 809 |
| EDS | 75 | 100 | 190 | 42 | □ | 772 |
| EX-TIN-EDS | 75 | 100 | 190 | 42 | □ | 764 |
| EX-TIN-EMS | 75 | 100 | 190 | 42 | □ | 804 |
| REE | 75 | 150 | 260 | 42 | □ | 870-6 |
| EX-REEL | 75 | 180 | 282 | 42 | □ | 857 |
| EX-TIN-RELF | 75 | 180 | 282 | 42 | □ | 856 |
| EXML-NT40 | 75 | 200 | 345 | NT40 | □ | 823-26 |
| EXML-NT50 | 75 | 200 | 385 | NT50 | □ | 823-26 |
| REXL-NT50 | 75 | 200 | 385 | NT50 | □ | 870-12 |
| EXML-NT40 | 75 | 250 | 395 | NT40 | □ | 823-26 |
| EXML-NT50 | 75 | 250 | 435 | NT50 | □ | 823-26 |
| REXL-NT50 | 75 | 250 | 435 | NT50 | □ | 870-12 |
| EXML-NT50 | 75 | 300 | 485 | NT50 | □ | 823-26 |
| RF-TSC | 80 | 10 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 12 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 14 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 15 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 16 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 18 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 20 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 22 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 25 | 230 | 42 | □ | 895 |
| RF-TSC | 80 | 30 | 230 | 42 | □ | 895 |
| CE-EMS | 80 | 100 | 190 | 42 | □ | 809 |
| EDS | 80 | 100 | 190 | 42 | □ | 772 |
| EX-TIN-EDS | 80 | 100 | 190 | 42 | □ | 764 |
| EX-TIN-EMS | 80 | 100 | 190 | 42 | □ | 804 |
| EX-REES | 80 | 106 | 208 | 42 | □ | 848 |
| EX-TIN-RESF | 80 | 106 | 208 | 42 | □ | 845 |
| REE | 80 | 150 | 260 | 42 | □ | 870-6 |
| EXML-NT40 | 80 | 200 | 345 | NT40 | □ | 823-26 |
| EXML-NT50 | 80 | 200 | 385 | NT50 | □ | 823-26 |
| REXL-NT50 | 80 | 200 | 385 | NT50 | □ | 870-12 |
| EX-REEL | 80 | 212 | 314 | 42 | □ | 857 |
| EX-TIN-RELF | 80 | 212 | 314 | 42 | □ | 856 |
| EXML-NT40 | 80 | 250 | 395 | NT40 | □ | 823-26 |
| EXML-NT50 | 80 | 250 | 435 | NT50 | □ | 823-26 |
| REXL-NT50 | 80 | 250 | 435 | NT50 | □ | 870-12 |
| EXML-NT50 | 80 | 300 | 485 | NT50 | □ | 823-26 |
| RF-TSC | 100 | 10 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 12 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 14 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 15 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 16 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 18 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 20 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 22 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 25 | 245 | 42 | □ | 895 |
| RF-TSC | 100 | 30 | 245 | 42 | □ | 895 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／ボール
HSS END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EBD | R0.4 × 0.8 | 2 | 50 | 6 | □ | 830 |
| EBD | R0.45 × 0.9 | 2 | 50 | 6 | □ | 830 |
| EBD | R0.5 × 1 | 2.5 | 50 | 6 | ● | 830 |
| EX-TIN-EBD | R0.5 × 1 | 2.5 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.5 × 1 | 2.5 | 60 | 6 | ● | 824 |
| XPM-EBD | R0.5 × 1 | 2.5 | 60 | 6 | ● | 827 |
| EBDL | R0.5 × 1 | 5 | 60 | 6 | □ | 835-4 |
| EBDL | R0.5 × 1 | 8 | 60 | 6 | □ | 835-4 |
| EBD | R0.55 × 1.1 | 3 | 50 | 6 | □ | 830 |
| EX-TIN-EBD | R0.55 × 1.1 | 3 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.55 × 1.1 | 3 | 60 | 6 | □ | 824 |
| EBD | R0.6 × 1.2 | 3 | 50 | 6 | ● | 830 |
| EX-TIN-EBD | R0.6 × 1.2 | 3 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.6 × 1.2 | 3 | 60 | 6 | □ | 824 |
| XPM-EBD | R0.6 × 1.2 | 3 | 60 | 6 | □ | 827 |
| EBD | R0.65 × 1.3 | 3 | 50 | 6 | □ | 830 |
| EX-TIN-EBD | R0.65 × 1.3 | 3 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.65 × 1.3 | 3.5 | 60 | 6 | □ | 824 |
| EBD | R0.7 × 1.4 | 3.5 | 50 | 6 | ● | 830 |
| EX-TIN-EBD | R0.7 × 1.4 | 3.5 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.7 × 1.4 | 3.5 | 60 | 6 | □ | 824 |
| XPM-EBD | R0.7 × 1.4 | 3.5 | 60 | 6 | □ | 827 |
| EBD | R0.75 × 1.5 | 4 | 50 | 6 | ● | 830 |
| EX-TIN-EBD | R0.75 × 1.5 | 4 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.75 × 1.5 | 4 | 60 | 6 | ● | 824 |
| XPM-EBD | R0.75 × 1.5 | 4 | 60 | 6 | ● | 827 |
| EBDL | R0.75 × 1.5 | 7 | 60 | 6 | □ | 835-4 |
| EBDL | R0.75 × 1.5 | 10 | 60 | 6 | □ | 835-4 |
| EBD | R0.8 × 1.6 | 4 | 50 | 6 | ● | 830 |
| EX-TIN-EBD | R0.8 × 1.6 | 4 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.8 × 1.6 | 4 | 60 | 6 | □ | 824 |
| XPM-EBD | R0.8 × 1.6 | 4 | 60 | 6 | □ | 827 |
| EBD | R0.85 × 1.7 | 4 | 50 | 6 | □ | 830 |
| EX-TIN-EBD | R0.85 × 1.7 | 4 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.85 × 1.7 | 4.5 | 60 | 6 | □ | 824 |
| EBD | R0.9 × 1.8 | 4.5 | 50 | 6 | ● | 830 |
| EX-TIN-EBD | R0.9 × 1.8 | 4.5 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.9 × 1.8 | 4.5 | 60 | 6 | □ | 824 |
| XPM-EBD | R0.9 × 1.8 | 4.5 | 60 | 6 | □ | 827 |
| EBD | R0.95 × 1.9 | 4.5 | 50 | 6 | □ | 830 |
| EX-TIN-EBD | R0.95 × 1.9 | 4.5 | 50 | 6 | □ | 829 |
| V-XPM-EBD | R0.95 × 1.9 | 5 | 60 | 6 | □ | 824 |
| CPM-EBDS | R1 × 2 | 2 | 50 | 6 | □ | 835-6 |
| EBD | R1 × 2 | 5 | 50 | 6 | ● | 830 |
| EX-TIN-EBD | R1 × 2 | 5 | 50 | 6 | ● | 829 |
| V-XPM-EBD | R1 × 2 | 5 | 60 | 6 | ● | 824 |
| XPM-EBD | R1 × 2 | 5 | 60 | 6 | ● | 827 |
| EBDL | R1 × 2 | 8 | 70 | 6 | □ | 835-4 |
| EBDL | R1 × 2 | 15 | 70 | 6 | □ | 835-4 |
| EBD | R1.05 × 2.1 | 6 | 60 | 6 | □ | 830 |
| EX-TIN-EBD | R1.05 × 2.1 | 6 | 60 | 6 | □ | 829 |
| V-XPM-EBD | R1.05 × 2.1 | 6 | 70 | 6 | □ | 824 |
| EBD | R1.1 × 2.2 | 6 | 60 | 6 | □ | 830 |
| EX-TIN-EBD | R1.1 × 2.2 | 6 | 60 | 6 | □ | 829 |
| V-XPM-EBD | R1.1 × 2.2 | 6 | 70 | 6 | □ | 824 |
| EBD | R1.15 × 2.3 | 6 | 60 | 6 | □ | 830 |
| EX-TIN-EBD | R1.15 × 2.3 | 6 | 60 | 6 | □ | 829 |
| V-XPM-EBD | R1.15 × 2.3 | 6 | 70 | 6 | □ | 824 |
| EBD | R1.2 × 2.4 | 6 | 60 | 6 | □ | 830 |
| EX-TIN-EBD | R1.2 × 2.4 | 6 | 60 | 6 | □ | 829 |

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EBD | R1.2 × 2.4 | 6 | 70 | 6 | □ | 824 |
| CPM-EBDS | R1.25 × 2.5 | 2.5 | 50 | 6 | □ | 835-6 |
| CPM-EBD | R1.25 × 2.5 | 6 | 60 | 6 | □ | 835-1 |
| EBD | R1.25 × 2.5 | 6 | 60 | 6 | ● | 830 |
| EX-TIN-EBD | R1.25 × 2.5 | 6 | 60 | 6 | □ | 829 |
| V-XPM-EBD | R1.25 × 2.5 | 6 | 70 | 6 | ● | 824 |
| XPM-EBD | R1.25 × 2.5 | 6 | 70 | 6 | ● | 827 |
| EBDL | R1.25 × 2.5 | 12 | 70 | 6 | □ | 835-4 |
| EBDL | R1.25 × 2.5 | 18 | 70 | 6 | □ | 835-4 |
| EBD | R1.3 × 2.6 | 6 | 60 | 6 | □ | 830 |
| EX-TIN-EBD | R1.3 × 2.6 | 6 | 60 | 6 | □ | 829 |
| V-XPM-EBD | R1.3 × 2.6 | 8 | 70 | 6 | □ | 824 |
| EBD | R1.35 × 2.7 | 6 | 60 | 6 | □ | 830 |
| EX-TIN-EBD | R1.35 × 2.7 | 6 | 60 | 6 | □ | 829 |
| V-XPM-EBD | R1.35 × 2.7 | 8 | 70 | 6 | □ | 824 |
| EBD | R1.4 × 2.8 | 6 | 60 | 6 | □ | 830 |
| EX-TIN-EBD | R1.4 × 2.8 | 6 | 60 | 6 | □ | 829 |
| V-XPM-EBD | R1.4 × 2.8 | 8 | 70 | 6 | □ | 824 |
| EBD | R1.45 × 2.9 | 6 | 60 | 6 | □ | 830 |
| EX-TIN-EBD | R1.45 × 2.9 | 6 | 60 | 6 | □ | 829 |
| V-XPM-EBD | R1.45 × 2.9 | 8 | 70 | 6 | □ | 824 |
| CPM-EBDS | R1.5 × 3 | 3 | 60 | 6 | □ | 835-6 |
| EBD | R1.5 × 3 | 8 | 60 | 6 | ● | 830 |
| EX-TIN-EBD | R1.5 × 3 | 8 | 60 | 6 | ● | 829 |
| V-XPM-EBD | R1.5 × 3 | 8 | 70 | 6 | ● | 824 |
| XPM-EBD | R1.5 × 3 | 8 | 70 | 6 | ● | 827 |
| PC-CPM-EBD | R1.5 × 3 | 8 | 160 | 10 | □ | 835-14 |
| SPC-CPM-EBD | R1.5 × 3 | 10 | 80 | 8 | □ | 835-15 |
| EBDL | R1.5 × 3 | 15 | 80 | 6 | □ | 835-4 |
| EBDL | R1.5 × 3 | 22 | 80 | 6 | □ | 835-4 |
| EBD | R1.55 × 3.1 | 8 | 70 | 6 | □ | 830 |
| EX-TIN-EBD | R1.55 × 3.1 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.55 × 3.1 | 8 | 70 | 6 | □ | 824 |
| EBD | R1.6 × 3.2 | 8 | 70 | 6 | □ | 830 |
| EX-TIN-EBD | R1.6 × 3.2 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.6 × 3.2 | 8 | 70 | 6 | □ | 824 |
| EBD | R1.65 × 3.3 | 8 | 70 | 6 | □ | 830 |
| EX-TIN-EBD | R1.65 × 3.3 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.65 × 3.3 | 8 | 70 | 6 | □ | 824 |
| EBD | R1.7 × 3.4 | 8 | 70 | 6 | □ | 830 |
| EX-TIN-EBD | R1.7 × 3.4 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.7 × 3.4 | 8 | 70 | 6 | □ | 824 |
| CPM-EBDS | R1.75 × 3.5 | 3.5 | 60 | 6 | □ | 835-6 |
| CPM-EBD | R1.75 × 3.5 | 8 | 70 | 6 | □ | 835-1 |
| EBD | R1.75 × 3.5 | 8 | 70 | 6 | ● | 830 |
| EX-TIN-EBD | R1.75 × 3.5 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.75 × 3.5 | 8 | 70 | 6 | ● | 824 |
| XPM-EBD | R1.75 × 3.5 | 8 | 70 | 6 | ● | 827 |
| EBDL | R1.75 × 3.5 | 18 | 80 | 6 | □ | 835-4 |
| EBDL | R1.75 × 3.5 | 25 | 80 | 6 | □ | 835-4 |
| EBD | R1.8 × 3.6 | 8 | 70 | 6 | □ | 830 |
| EX-TIN-EBD | R1.8 × 3.6 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.8 × 3.6 | 8 | 70 | 6 | □ | 824 |
| EBD | R1.85 × 3.7 | 8 | 70 | 6 | □ | 830 |
| EX-TIN-EBD | R1.85 × 3.7 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.85 × 3.7 | 8 | 70 | 6 | □ | 824 |
| EBD | R1.9 × 3.8 | 8 | 70 | 6 | □ | 830 |
| EX-TIN-EBD | R1.9 × 3.8 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.9 × 3.8 | 8 | 80 | 6 | □ | 824 |
| EBD | R1.95 × 3.9 | 8 | 70 | 6 | □ | 830 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／ボール
## HSS END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EBD | R1.95 × 3.9 | 8 | 70 | 6 | □ | 829 |
| V-XPM-EBD | R1.95 × 3.9 | 8 | 80 | 6 | □ | 824 |
| CPM-EBDS | R2 × 4 | 4 | 60 | 8 | □ | 835-6 |
| EBD | R2 × 4 | 8 | 70 | 6 | ● | 830 |
| EX-TIN-EBD | R2 × 4 | 8 | 70 | 6 | ● | 829 |
| MR-XPM-EBD | R2 × 4 | 8 | 80 | 6 | □ | 835-3 |
| TIN-XPM-EBD | R2 × 4 | 8 | 80 | 6 | □ | 835-2 |
| V-XPM-EBD | R2 × 4 | 8 | 80 | 6 | ● | 824 |
| XPM-EBD | R2 × 4 | 8 | 80 | 6 | ● | 827 |
| PCS-CPM-EBD | R2 × 4 | 8 | 100 | 12 | □ | 835-13 |
| PC-CPM-EBD | R2 × 4 | 8 | 180 | 12 | □ | 835-14 |
| SPC-CPM-EBD | R2 × 4 | 12 | 80 | 8 | □ | 835-15 |
| EBDL | R2 × 4 | 15 | 90 | 6 | □ | 835-4 |
| EBDL | R2 × 4 | 20 | 90 | 6 | □ | 835-4 |
| EBDL | R2 × 4 | 30 | 90 | 6 | □ | 835-4 |
| EBD | R2.05 × 4.1 | 10 | 80 | 6 | □ | 830 |
| EBD | R2.1 × 4.2 | 10 | 80 | 6 | □ | 830 |
| EX-TIN-EBD | R2.1 × 4.2 | 10 | 80 | 6 | □ | 829 |
| V-XPM-EBD | R2.1 × 4.2 | 10 | 80 | 6 | □ | 824 |
| EBD | R2.15 × 4.3 | 10 | 80 | 6 | □ | 830 |
| EBD | R2.2 × 4.4 | 10 | 80 | 6 | □ | 830 |
| EX-TIN-EBD | R2.2 × 4.4 | 10 | 80 | 6 | □ | 829 |
| V-XPM-EBD | R2.2 × 4.4 | 10 | 80 | 6 | □ | 824 |
| CPM-EBD | R2.25 × 4.5 | 10 | 80 | 6 | □ | 835-1 |
| EBD | R2.25 × 4.5 | 10 | 80 | 6 | ● | 830 |
| EX-TIN-EBD | R2.25 × 4.5 | 10 | 80 | 6 | □ | 829 |
| V-XPM-EBD | R2.25 × 4.5 | 10 | 80 | 6 | □ | 824 |
| XPM-EBD | R2.25 × 4.5 | 10 | 80 | 6 | □ | 827 |
| EBDL | R2.25 × 4.5 | 20 | 90 | 6 | □ | 835-4 |
| EBDL | R2.25 × 4.5 | 30 | 90 | 6 | □ | 835-4 |
| EBD | R2.3 × 4.6 | 10 | 80 | 6 | □ | 830 |
| EX-TIN-EBD | R2.3 × 4.6 | 10 | 80 | 6 | □ | 829 |
| V-XPM-EBD | R2.3 × 4.6 | 10 | 80 | 6 | □ | 824 |
| EBD | R2.35 × 4.7 | 10 | 80 | 6 | □ | 830 |
| EBD | R2.4 × 4.8 | 10 | 80 | 6 | □ | 831 |
| EX-TIN-EBD | R2.4 × 4.8 | 10 | 80 | 6 | □ | 829 |
| V-XPM-EBD | R2.4 × 4.8 | 10 | 90 | 6 | □ | 824 |
| EBD | R2.45 × 4.9 | 10 | 80 | 6 | □ | 831 |
| EX-TIN-EBD | R2.45 × 4.9 | 10 | 80 | 6 | □ | 829 |
| V-XPM-EBD | R2.45 × 4.9 | 10 | 90 | 6 | □ | 824 |
| CPM-EBDS | R2.5 × 5 | 4.5 | 60 | 8 | □ | 835-6 |
| EBD | R2.5 × 5 | 10 | 80 | 6 | ● | 831 |
| EX-TIN-EBD | R2.5 × 5 | 10 | 80 | 6 | ● | 829 |
| MR-XPM-EBD | R2.5 × 5 | 10 | 90 | 6 | □ | 835-3 |
| V-XPM-EBD | R2.5 × 5 | 10 | 90 | 6 | ● | 824 |
| XPM-EBD | R2.5 × 5 | 10 | 90 | 6 | ● | 827 |
| PC-CPM-EBD | R2.5 × 5 | 10 | 200 | 16 | □ | 835-14 |
| SPC-CPM-EBD | R2.5 × 5 | 15 | 120 | 12 | □ | 835-15 |
| EBDL | R2.5 × 5 | 25 | 100 | 6 | □ | 835-4 |
| EBDL | R2.5 × 5 | 35 | 100 | 6 | □ | 835-4 |
| EBD | R2.55 × 5.1 | 12 | 90 | 6 | □ | 831 |
| EBD | R2.6 × 5.2 | 12 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R2.6 × 5.2 | 12 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R2.6 × 5.2 | 12 | 90 | 6 | □ | 824 |
| EBD | R2.65 × 5.3 | 12 | 90 | 6 | □ | 831 |
| EBD | R2.7 × 5.4 | 12 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R2.7 × 5.4 | 12 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R2.7 × 5.4 | 12 | 90 | 6 | □ | 824 |
| CPM-EBD | R2.75 × 5.5 | 12 | 90 | 6 | □ | 835-1 |
| EBD | R2.75 × 5.5 | 12 | 90 | 6 | ● | 831 |

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EBD | R2.75 × 5.5 | 12 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R2.75 × 5.5 | 12 | 90 | 6 | □ | 824 |
| XPM-EBD | R2.75 × 5.5 | 12 | 90 | 6 | □ | 827 |
| EBDL | R2.75 × 5.5 | 25 | 100 | 6 | □ | 835-4 |
| EBDL | R2.75 × 5.5 | 40 | 110 | 6 | □ | 835-4 |
| EBD | R2.8 × 5.6 | 12 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R2.8 × 5.6 | 12 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R2.8 × 5.6 | 12 | 90 | 6 | □ | 824 |
| EBD | R2.85 × 5.7 | 12 | 90 | 6 | □ | 831 |
| EBD | R2.9 × 5.8 | 12 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R2.9 × 5.8 | 12 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R2.9 × 5.8 | 12 | 90 | 6 | □ | 824 |
| EBD | R2.95 × 5.9 | 12 | 90 | 6 | □ | 831 |
| WH-NC-EQD | R3 | 4.3 | 60 | 6 | □ | 835-10 |
| CPM-EBDS | R3 × 6 | 5 | 60 | 10 | □ | 835-6 |
| EBD | R3 × 6 | 12 | 90 | 6 | ● | 831 |
| EX-TIN-EBD | R3 × 6 | 12 | 90 | 6 | ● | 829 |
| MR-XPM-EBD | R3 × 6 | 12 | 90 | 6 | □ | 835-3 |
| TIN-XPM-EBD | R3 × 6 | 12 | 90 | 6 | □ | 835-2 |
| V-XPM-EBD | R3 × 6 | 12 | 90 | 6 | ● | 824 |
| XPM-EBD | R3 × 6 | 12 | 90 | 6 | ● | 827 |
| V-SS-XPM-EBD | R3 × 6 | 12 | 120 | 5 | ● | 825 |
| PCS-CPM-EBD | R3 × 6 | 12 | 120 | 16 | □ | 835-13 |
| PC-CPM-EBD | R3 × 6 | 12 | 220 | 16 | □ | 835-14 |
| CPM-EBM | R3 × 6 | 15 | 90 | 6 | □ | 835-8 |
| EBM | R3 × 6 | 15 | 90 | 6 | ● | 835 |
| SPC-CPM-EBD | R3 × 6 | 15 | 120 | 12 | □ | 835-15 |
| EBDL | R3 × 6 | 25 | 100 | 6 | □ | 835-4 |
| EX-TIN-LS-EBD | R3 × 6 | 30 | 150 | 6 | □ | 835-3 |
| LS-EBD | R3 × 6 | 30 | 150 | 6 | □ | 835-5 |
| LS-EBM | R3 × 6 | 30 | 150 | 6 | □ | 835-7 |
| PC-CPM-EBL | R3 × 6 | 30 | 300 | 20 | □ | 835-16 |
| EBDL | R3 × 6 | 40 | 110 | 6 | □ | 835-4 |
| EBD | R3.05 × 6.1 | 14 | 90 | 6 | □ | 831 |
| EBD | R3.1 × 6.2 | 14 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R3.1 × 6.2 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.1 × 6.2 | 14 | 100 | 6 | □ | 824 |
| EBD | R3.15 × 6.3 | 14 | 90 | 6 | □ | 831 |
| EBD | R3.2 × 6.4 | 14 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R3.2 × 6.4 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.2 × 6.4 | 14 | 100 | 6 | □ | 824 |
| CPM-EBD | R3.25 × 6.5 | 14 | 90 | 6 | □ | 835-1 |
| EBD | R3.25 × 6.5 | 14 | 90 | 6 | ● | 831 |
| EX-TIN-EBD | R3.25 × 6.5 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.25 × 6.5 | 14 | 100 | 6 | □ | 824 |
| XPM-EBD | R3.25 × 6.5 | 14 | 100 | 6 | □ | 827 |
| LS-EBD | R3.25 × 6.5 | 35 | 150 | 6 | □ | 835-5 |
| EBD | R3.3 × 6.6 | 14 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R3.3 × 6.6 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.3 × 6.6 | 14 | 100 | 6 | □ | 824 |
| EBD | R3.35 × 6.7 | 14 | 90 | 6 | □ | 831 |
| EBD | R3.4 × 6.8 | 14 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R3.4 × 6.8 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.4 × 6.8 | 14 | 100 | 6 | □ | 824 |
| EBD | R3.45 × 6.9 | 14 | 90 | 6 | □ | 831 |
| WH-NC-EQD | R3.5 | 5 | 60 | 6 | □ | 835-10 |
| EBD | R3.5 × 7 | 14 | 90 | 6 | ● | 831 |
| EX-TIN-EBD | R3.5 × 7 | 14 | 90 | 6 | ● | 829 |
| TIN-XPM-EBD | R3.5 × 7 | 14 | 100 | 6 | □ | 835-2 |
| V-XPM-EBD | R3.5 × 7 | 14 | 100 | 6 | ● | 824 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／ボール
HSS END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| XPM-EBD | R3.5 × 7 | 14 | 100 | 6 | ● | 827 |
| CPM-EBM | R3.5 × 7 | 15 | 90 | 6 | □ | 835-8 |
| EBM | R3.5 × 7 | 15 | 90 | 6 | ● | 835 |
| EBDL | R3.5 × 7 | 30 | 100 | 6 | □ | 835-4 |
| PC-CPM-EBL | R3.5 × 7 | 30 | 300 | 20 | □ | 835-16 |
| EX-TIN-LS-EBD | R3.5 × 7 | 35 | 150 | 6 | □ | 835-3 |
| LS-EBD | R3.5 × 7 | 35 | 150 | 6 | □ | 835-5 |
| EBDL | R3.5 × 7 | 50 | 120 | 6 | □ | 835-4 |
| EBD | R3.55 × 7.1 | 14 | 90 | 6 | □ | 831 |
| EBD | R3.6 × 7.2 | 14 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R3.6 × 7.2 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.6 × 7.2 | 14 | 100 | 6 | □ | 824 |
| EBD | R3.65 × 7.3 | 14 | 90 | 6 | □ | 831 |
| EBD | R3.7 × 7.4 | 14 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R3.7 × 7.4 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.7 × 7.4 | 14 | 100 | 6 | □ | 824 |
| CPM-EBD | R3.75 × 7.5 | 14 | 90 | 6 | □ | 835-1 |
| EBD | R3.75 × 7.5 | 14 | 90 | 6 | ● | 831 |
| EX-TIN-EBD | R3.75 × 7.5 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.75 × 7.5 | 14 | 100 | 6 | □ | 824 |
| XPM-EBD | R3.75 × 7.5 | 14 | 100 | 6 | □ | 827 |
| LS-EBD | R3.75 × 7.5 | 35 | 150 | 6 | □ | 835-5 |
| EBD | R3.8 × 7.6 | 14 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R3.8 × 7.6 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.8 × 7.6 | 14 | 110 | 6 | □ | 824 |
| EBD | R3.85 × 7.7 | 14 | 90 | 6 | □ | 831 |
| EBD | R3.9 × 7.8 | 14 | 90 | 6 | □ | 831 |
| EX-TIN-EBD | R3.9 × 7.8 | 14 | 90 | 6 | □ | 829 |
| V-XPM-EBD | R3.9 × 7.8 | 14 | 110 | 6 | □ | 824 |
| EBD | R3.95 × 7.9 | 14 | 90 | 6 | □ | 831 |
| WH-NC-EQD | R4 | 5.7 | 60 | 6 | □ | 835-10 |
| CPM-EBDS | R4 × 8 | 6 | 75 | 12 | □ | 835-6 |
| T-LS-XPM-EBD | R4 × 8 | 8 | 125 | 8 | □ | 826 |
| EBD | R4 × 8 | 14 | 100 | 8 | ● | 831 |
| EX-TIN-EBD | R4 × 8 | 14 | 100 | 8 | ● | 829 |
| V-XPM-EBD | R4 × 8 | 14 | 110 | 8 | ● | 824 |
| XPM-EBD | R4 × 8 | 14 | 110 | 8 | ● | 827 |
| V-SS-XPM-EBD | R4 × 8 | 14 | 130 | 7 | ● | 825 |
| PCS-CPM-EBD | R4 × 8 | 14 | 160 | 16 | □ | 835-13 |
| SPC-CPM-EBD | R4 × 8 | 16 | 150 | 12 | □ | 835-15 |
| EX-LS-REBS | R4 × 8 | 20 | 90 | 8 | ● | 870 |
| EX-TIN-LS-REBS | R4 × 8 | 20 | 90 | 8 | □ | 870-20 |
| LS-REBS | R4 × 8 | 20 | 90 | 8 | □ | 870-21 |
| CPM-EBM | R4 × 8 | 20 | 100 | 8 | □ | 835-8 |
| EBM | R4 × 8 | 20 | 100 | 8 | ● | 835 |
| PC-CPM-EBL | R4 × 8 | 30 | 300 | 20 | □ | 835-16 |
| EBDL | R4 × 8 | 35 | 110 | 8 | □ | 835-4 |
| EX-TIN-LS-EBD | R4 × 8 | 35 | 150 | 8 | □ | 835-3 |
| LS-EBD | R4 × 8 | 35 | 150 | 8 | □ | 835-5 |
| LS-EBM | R4 × 8 | 35 | 150 | 8 | □ | 835-7 |
| EBDL | R4 × 8 | 50 | 120 | 8 | □ | 835-4 |
| EBD | R4.05 × 8.1 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.1 × 8.2 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.15 × 8.3 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.2 × 8.4 | 18 | 100 | 8 | □ | 831 |
| CPM-EBD | R4.25 × 8.5 | 18 | 100 | 8 | □ | 835-1 |
| EBD | R4.25 × 8.5 | 18 | 100 | 8 | ● | 831 |
| EX-TIN-EBD | R4.25 × 8.5 | 18 | 100 | 8 | □ | 829 |
| V-XPM-EBD | R4.25 × 8.5 | 18 | 110 | 8 | □ | 824 |
| XPM-EBD | R4.25 × 8.5 | 18 | 110 | 8 | □ | 827 |

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| LS-EBD | R4.25 × 8.5 | 40 | 150 | 8 | □ | 835-5 |
| EBD | R4.3 × 8.6 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.35 × 8.7 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.4 × 8.8 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.45 × 8.9 | 18 | 100 | 8 | □ | 831 |
| WH-NC-EQD | R4.5 | 6.4 | 60 | 8 | □ | 835-10 |
| EBD | R4.5 × 9 | 18 | 100 | 8 | ● | 831 |
| EX-TIN-EBD | R4.5 × 9 | 18 | 100 | 8 | ● | 829 |
| V-XPM-EBD | R4.5 × 9 | 18 | 110 | 8 | ● | 824 |
| XPM-EBD | R4.5 × 9 | 18 | 110 | 8 | ● | 827 |
| CPM-EBM | R4.5 × 9 | 20 | 100 | 8 | □ | 835-8 |
| EBM | R4.5 × 9 | 20 | 100 | 8 | ● | 835 |
| PC-CPM-EBL | R4.5 × 9 | 30 | 300 | 20 | □ | 835-16 |
| EBDL | R4.5 × 9 | 40 | 120 | 8 | □ | 835-4 |
| EX-TIN-LS-EBD | R4.5 × 9 | 40 | 150 | 8 | □ | 835-3 |
| LS-EBD | R4.5 × 9 | 40 | 150 | 8 | □ | 835-5 |
| EBDL | R4.5 × 9 | 60 | 140 | 8 | □ | 835-4 |
| EBD | R4.55 × 9.1 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.6 × 9.2 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.65 × 9.3 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.7 × 9.4 | 18 | 100 | 8 | □ | 831 |
| CPM-EBD | R4.75 × 9.5 | 18 | 100 | 8 | □ | 835-1 |
| EBD | R4.75 × 9.5 | 18 | 100 | 8 | ● | 831 |
| EX-TIN-EBD | R4.75 × 9.5 | 18 | 100 | 8 | □ | 829 |
| V-XPM-EBD | R4.75 × 9.5 | 18 | 110 | 8 | □ | 824 |
| XPM-EBD | R4.75 × 9.5 | 18 | 110 | 8 | □ | 827 |
| LS-EBD | R4.75 × 9.5 | 40 | 150 | 8 | □ | 835-5 |
| EBD | R4.8 × 9.6 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.85 × 9.7 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.9 × 9.8 | 18 | 100 | 8 | □ | 831 |
| EBD | R4.95 × 9.9 | 18 | 100 | 8 | □ | 831 |
| WH-NC-EQD | R5 | 7.1 | 60 | 8 | □ | 835-10 |
| CPM-EBDS | R5 ×10 | 8 | 75 | 12 | □ | 835-6 |
| LS-XPM-EBD | R5 ×10 | 10 | 140 | 10 | □ | 828 |
| T-LS-XPM-EBD | R5 ×10 | 10 | 140 | 10 | □ | 826 |
| EBD | R5 ×10 | 18 | 100 | 10 | ● | 831 |
| EX-TIN-EBD | R5 ×10 | 18 | 100 | 10 | ● | 829 |
| V-XPM-EBD | R5 ×10 | 18 | 125 | 10 | ● | 824 |
| XPM-EBD | R5 ×10 | 18 | 125 | 10 | ● | 827 |
| V-SS-XPM-EBD | R5 ×10 | 18 | 150 | 9 | ● | 825 |
| PCS-CPM-EBD | R5 ×10 | 18 | 180 | 20 | □ | 835-13 |
| PC-CPM-EBD | R5 ×10 | 18 | 280 | 20 | □ | 835-14 |
| SPC-CPM-EBD | R5 ×10 | 20 | 160 | 16 | □ | 835-15 |
| CPM-EBM | R5 ×10 | 25 | 100 | 10 | □ | 835-8 |
| EBM | R5 ×10 | 25 | 100 | 10 | ● | 835 |
| EX-LS-REBS | R5 ×10 | 25 | 100 | 10 | ● | 870 |
| EX-TIN-LS-REBS | R5 ×10 | 25 | 100 | 10 | □ | 870-20 |
| LS-REBS | R5 ×10 | 25 | 100 | 10 | □ | 870-21 |
| REB | R5 ×10 | 30 | 80 | 10 | □ | 870-21 |
| RFB | R5 ×10 | 30 | 80 | 10 | □ | 870-22 |
| EBDL | R5 ×10 | 40 | 120 | 10 | □ | 835-4 |
| EX-TIN-LS-EBD | R5 ×10 | 40 | 200 | 10 | □ | 835-3 |
| LS-EBD | R5 ×10 | 40 | 200 | 10 | □ | 835-5 |
| LS-EBM | R5 ×10 | 40 | 200 | 10 | □ | 835-7 |
| XLS-REB | R5 ×10 | 40 | 200 | 10 | □ | 870-22 |
| PC-CPM-EBL | R5 ×10 | 40 | 300 | 25 | □ | 835-16 |
| EBDL | R5 ×10 | 60 | 140 | 10 | □ | 835-4 |
| EBD | R5.05 ×10.1 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.1 ×10.2 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.15 ×10.3 | 22 | 100 | 10 | □ | 831 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／ボール
## HSS END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EBD | R5.2 ×10.4 | 22 | 100 | 10 | □ | 831 |
| CPM-EBD | R5.25 ×10.5 | 22 | 100 | 10 | □ | 835-1 |
| EBD | R5.25 ×10.5 | 22 | 100 | 10 | □ | 831 |
| EX-TIN-EBD | R5.25 ×10.5 | 22 | 100 | 10 | □ | 829 |
| V-XPM-EBD | R5.25 ×10.5 | 22 | 125 | 10 | □ | 824 |
| XPM-EBD | R5.25 ×10.5 | 22 | 125 | 10 | □ | 827 |
| LS-EBD | R5.25 ×10.5 | 45 | 200 | 10 | □ | 835-5 |
| EBD | R5.3 ×10.6 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.35 ×10.7 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.4 ×10.8 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.45 ×10.9 | 22 | 100 | 10 | □ | 831 |
| WH-NC-EQD | R5.5 | 7.8 | 65 | 10 | □ | 835-10 |
| CPM-EBD | R5.5 ×11 | 22 | 100 | 10 | □ | 835-1 |
| EBD | R5.5 ×11 | 22 | 100 | 10 | ● | 831 |
| EX-TIN-EBD | R5.5 ×11 | 22 | 100 | 10 | □ | 829 |
| V-XPM-EBD | R5.5 ×11 | 22 | 125 | 10 | □ | 824 |
| XPM-EBD | R5.5 ×11 | 22 | 125 | 10 | □ | 827 |
| EBM | R5.5 ×11 | 25 | 100 | 10 | □ | 835 |
| RFB | R5.5 ×11 | 40 | 90 | 12 | □ | 870-22 |
| PC-CPM-EBL | R5.5 ×11 | 40 | 300 | 25 | □ | 835-16 |
| EX-TIN-LS-EBD | R5.5 ×11 | 45 | 200 | 10 | □ | 835-3 |
| LS-EBD | R5.5 ×11 | 45 | 200 | 10 | □ | 835-5 |
| EBDL | R5.5 ×11 | 50 | 140 | 10 | □ | 835-4 |
| EBD | R5.55 ×11.1 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.6 ×11.2 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.65 ×11.3 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.7 ×11.4 | 22 | 100 | 10 | □ | 831 |
| CPM-EBD | R5.75 ×11.5 | 22 | 100 | 10 | □ | 835-1 |
| EBD | R5.75 ×11.5 | 22 | 100 | 10 | □ | 831 |
| EX-TIN-EBD | R5.75 ×11.5 | 22 | 100 | 10 | □ | 829 |
| V-XPM-EBD | R5.75 ×11.5 | 22 | 125 | 10 | □ | 824 |
| XPM-EBD | R5.75 ×11.5 | 22 | 125 | 10 | □ | 827 |
| LS-EBD | R5.75 ×11.5 | 45 | 200 | 10 | □ | 835-5 |
| EBD | R5.8 ×11.6 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.85 ×11.7 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.9 ×11.8 | 22 | 100 | 10 | □ | 831 |
| EBD | R5.95 ×11.9 | 22 | 100 | 10 | □ | 831 |
| WH-NC-EQD | R6 | 8.5 | 65 | 10 | □ | 835-10 |
| EBD | R6 ×12 | 22 | 110 | 12 | ● | 831 |
| EX-TIN-EBD | R6 ×12 | 22 | 110 | 12 | ● | 829 |
| V-XPM-EBD | R6 ×12 | 22 | 140 | 12 | ● | 824 |
| XPM-EBD | R6 ×12 | 22 | 140 | 12 | ● | 827 |
| V-SS-XPM-EBD | R6 ×12 | 22 | 160 | 11 | ● | 825 |
| SPC-CPM-EBD | R6 ×12 | 25 | 180 | 16 | □ | 835-15 |
| CPM-EBM | R6 ×12 | 30 | 110 | 12 | □ | 835-8 |
| EBM | R6 ×12 | 30 | 110 | 12 | ● | 835 |
| EX-LS-REBS | R6 ×12 | 32 | 115 | 12 | ● | 870 |
| EX-TIN-LS-REBS | R6 ×12 | 32 | 115 | 12 | □ | 870-20 |
| LS-REBS | R6 ×12 | 32 | 115 | 12 | □ | 870-21 |
| REB | R6 ×12 | 40 | 90 | 12 | □ | 870-21 |
| RFB | R6 ×12 | 40 | 90 | 12 | □ | 870-22 |
| PC-CPM-EBL | R6 ×12 | 40 | 300 | 25 | □ | 835-16 |
| EX-TIN-LS-EBD | R6 ×12 | 45 | 200 | 12 | □ | 835-3 |
| LS-EBD | R6 ×12 | 45 | 200 | 12 | □ | 835-5 |
| LS-EBM | R6 ×12 | 45 | 200 | 12 | □ | 835-7 |
| XLS-REB | R6 ×12 | 45 | 200 | 12 | □ | 870-22 |
| EBDL | R6 ×12 | 50 | 140 | 12 | □ | 835-4 |
| EBDL | R6 ×12 | 80 | 160 | 12 | □ | 835-4 |
| EBD | R6.05 ×12.1 | 26 | 110 | 12 | □ | 831 |
| EBD | R6.1 ×12.2 | 26 | 110 | 12 | □ | 831 |

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EBD | R6.15 ×12.3 | 26 | 110 | 12 | □ | 831 |
| EBD | R6.2 ×12.4 | 26 | 110 | 12 | □ | 831 |
| CPM-EBD | R6.25 ×12.5 | 26 | 110 | 12 | □ | 835-1 |
| EBD | R6.25 ×12.5 | 26 | 110 | 12 | □ | 831 |
| EX-TIN-EBD | R6.25 ×12.5 | 26 | 110 | 12 | □ | 829 |
| V-XPM-EBD | R6.25 ×12.5 | 26 | 140 | 12 | □ | 824 |
| XPM-EBD | R6.25 ×12.5 | 26 | 140 | 12 | □ | 827 |
| LS-EBD | R6.25 ×12.5 | 50 | 200 | 12 | □ | 835-5 |
| EBD | R6.3 ×12.6 | 26 | 110 | 12 | □ | 831 |
| EBD | R6.35 ×12.7 | 26 | 110 | 12 | □ | 831 |
| EBD | R6.4 ×12.8 | 26 | 110 | 12 | □ | 831 |
| EBD | R6.45 ×12.9 | 26 | 110 | 12 | □ | 831 |
| CPM-EBD | R6.5 ×13 | 26 | 110 | 12 | □ | 835-1 |
| EBD | R6.5 ×13 | 26 | 110 | 12 | ● | 831 |
| EX-TIN-EBD | R6.5 ×13 | 26 | 110 | 12 | □ | 829 |
| V-XPM-EBD | R6.5 ×13 | 26 | 140 | 12 | □ | 824 |
| XPM-EBD | R6.5 ×13 | 26 | 140 | 12 | □ | 827 |
| EBM | R6.5 ×13 | 30 | 110 | 12 | □ | 835 |
| PC-CPM-EBL | R6.5 ×13 | 40 | 300 | 25 | □ | 835-16 |
| RFB | R6.5 ×13 | 45 | 95 | 16 | □ | 870-22 |
| EX-TIN-LS-EBD | R6.5 ×13 | 50 | 200 | 12 | □ | 835-3 |
| LS-EBD | R6.5 ×13 | 50 | 200 | 12 | □ | 835-5 |
| EBDL | R6.5 ×13 | 70 | 150 | 12 | □ | 835-4 |
| EBD | R6.55 ×13.1 | 26 | 110 | 12 | □ | 831 |
| EBD | R6.6 ×13.2 | 26 | 110 | 12 | □ | 832 |
| EBD | R6.65 ×13.3 | 26 | 110 | 12 | □ | 832 |
| EBD | R6.7 ×13.4 | 26 | 110 | 12 | □ | 832 |
| CPM-EBD | R6.75 ×13.5 | 26 | 110 | 12 | □ | 835-1 |
| EBD | R6.75 ×13.5 | 26 | 110 | 12 | □ | 832 |
| EX-TIN-EBD | R6.75 ×13.5 | 26 | 110 | 12 | □ | 829 |
| V-XPM-EBD | R6.75 ×13.5 | 26 | 140 | 12 | □ | 824 |
| XPM-EBD | R6.75 ×13.5 | 26 | 140 | 12 | □ | 827 |
| LS-EBD | R6.75 ×13.5 | 50 | 200 | 12 | □ | 835-5 |
| EBD | R6.8 ×13.6 | 26 | 110 | 12 | □ | 832 |
| EBD | R6.85 ×13.7 | 26 | 110 | 12 | □ | 832 |
| EBD | R6.9 ×13.8 | 26 | 110 | 12 | □ | 832 |
| EBD | R6.95 ×13.9 | 26 | 110 | 12 | □ | 832 |
| SPC-CPM-EBD | R7 ×14 | 25 | 220 | 20 | □ | 835-15 |
| EBD | R7 ×14 | 26 | 110 | 12 | ● | 832 |
| EX-TIN-EBD | R7 ×14 | 26 | 110 | 12 | ● | 829 |
| V-XPM-EBD | R7 ×14 | 26 | 140 | 12 | ● | 824 |
| XPM-EBD | R7 ×14 | 26 | 140 | 12 | ● | 827 |
| EX-LS-REBS | R7 ×14 | 32 | 115 | 12 | ● | 870 |
| EX-TIN-LS-REBS | R7 ×14 | 32 | 115 | 12 | □ | 870-20 |
| LS-REBS | R7 ×14 | 32 | 115 | 12 | □ | 870-21 |
| CPM-EBM | R7 ×14 | 35 | 110 | 12 | □ | 835-8 |
| EBM | R7 ×14 | 35 | 110 | 12 | ● | 835 |
| RFB | R7 ×14 | 45 | 95 | 16 | □ | 870-22 |
| EX-TIN-LS-EBD | R7 ×14 | 50 | 200 | 12 | □ | 835-3 |
| LS-EBD | R7 ×14 | 50 | 200 | 12 | □ | 835-5 |
| LS-EBM | R7 ×14 | 50 | 200 | 12 | □ | 835-7 |
| XLS-REB | R7 ×14 | 50 | 200 | 12 | □ | 870-22 |
| PC-CPM-EBL | R7 ×14 | 50 | 300 | 25 | □ | 835-16 |
| EBDL | R7 ×14 | 60 | 150 | 12 | □ | 835-4 |
| EBDL | R7 ×14 | 80 | 160 | 12 | □ | 835-4 |
| EBD | R7.05 ×14.1 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.1 ×14.2 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.15 ×14.3 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.2 ×14.4 | 30 | 110 | 12 | □ | 832 |
| V-XPM-EBD | R7.25 ×14.5 | 26 | 140 | 12 | □ | 824 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／ボール
## HSS END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-EBD | R7.25 ×14.5 | 30 | 110 | 12 | □ | 835-1 |
| EBD | R7.25 ×14.5 | 30 | 110 | 12 | □ | 832 |
| EX-TIN-EBD | R7.25 ×14.5 | 30 | 110 | 12 | □ | 829 |
| XPM-EBD | R7.25 ×14.5 | 30 | 140 | 12 | □ | 827 |
| LS-EBD | R7.25 ×14.5 | 55 | 200 | 12 | □ | 835-5 |
| EBD | R7.3 ×14.6 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.35 ×14.7 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.4 ×14.8 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.45 ×14.9 | 30 | 110 | 12 | □ | 832 |
| V-XPM-EBD | R7.5 ×15 | 26 | 140 | 12 | □ | 824 |
| EBD | R7.5 ×15 | 30 | 110 | 12 | ● | 832 |
| EX-TIN-EBD | R7.5 ×15 | 30 | 110 | 12 | □ | 829 |
| XPM-EBD | R7.5 ×15 | 30 | 140 | 12 | □ | 827 |
| EBM | R7.5 ×15 | 35 | 110 | 12 | □ | 835 |
| RFB | R7.5 ×15 | 45 | 95 | 16 | □ | 870-22 |
| PC-CPM-EBL | R7.5 ×15 | 50 | 300 | 25 | □ | 835-16 |
| EX-TIN-LS-EBD | R7.5 ×15 | 55 | 200 | 12 | □ | 835-3 |
| LS-EBD | R7.5 ×15 | 55 | 200 | 12 | □ | 835-5 |
| EBDL | R7.5 ×15 | 80 | 160 | 16 | □ | 835-4 |
| EBD | R7.55 ×15.1 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.6 ×15.2 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.65 ×15.3 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.7 ×15.4 | 30 | 110 | 12 | □ | 832 |
| CPM-EBD | R7.75 ×15.5 | 30 | 110 | 12 | □ | 835-1 |
| EBD | R7.75 ×15.5 | 30 | 110 | 12 | □ | 832 |
| EX-TIN-EBD | R7.75 ×15.5 | 30 | 110 | 12 | □ | 829 |
| XPM-EBD | R7.75 ×15.5 | 30 | 140 | 12 | □ | 827 |
| V-XPM-EBD | R7.75 ×15.5 | 30 | 160 | 12 | □ | 824 |
| LS-EBD | R7.75 ×15.5 | 55 | 200 | 12 | □ | 835-5 |
| EBD | R7.8 ×15.6 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.85 ×15.7 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.9 ×15.8 | 30 | 110 | 12 | □ | 832 |
| EBD | R7.95 ×15.9 | 30 | 110 | 12 | □ | 832 |
| CPM-EBD | R8 ×16 | 30 | 140 | 16 | □ | 835-1 |
| EBD | R8 ×16 | 30 | 140 | 16 | ● | 832 |
| EX-TIN-EBD | R8 ×16 | 30 | 140 | 16 | ● | 829 |
| V-XPM-EBD | R8 ×16 | 30 | 160 | 16 | ● | 824 |
| XPM-EBD | R8 ×16 | 30 | 160 | 16 | ● | 827 |
| V-SS-XPM-EBD | R8 ×16 | 30 | 180 | 15 | ● | 825 |
| SPC-CPM-EBD | R8 ×16 | 30 | 220 | 20 | □ | 835-15 |
| PCS-CPM-EBD | R8 ×16 | 30 | 250 | 32 | □ | 835-13 |
| EX-LS-REBS | R8 ×16 | 36 | 130 | 16 | ● | 870 |
| EX-TIN-LS-REBS | R8 ×16 | 36 | 130 | 16 | □ | 870-20 |
| LS-REBS | R8 ×16 | 36 | 130 | 16 | □ | 870-21 |
| CPM-EBM | R8 ×16 | 40 | 140 | 16 | □ | 835-8 |
| EBM | R8 ×16 | 40 | 140 | 16 | ● | 835 |
| REB | R8 ×16 | 50 | 105 | 16 | □ | 870-21 |
| RFB | R8 ×16 | 50 | 105 | 16 | □ | 870-22 |
| PS-EBXML | R8 ×16 | 50 | 200 | 16 | □ | 835-9 |
| PC-CPM-EBL | R8 ×16 | 50 | 300 | 25 | □ | 835-16 |
| EX-TIN-LS-EBD | R8 ×16 | 55 | 250 | 16 | □ | 835-3 |
| LS-EBD | R8 ×16 | 55 | 250 | 16 | □ | 835-5 |
| LS-EBM | R8 ×16 | 55 | 250 | 16 | □ | 835-7 |
| XLS-REB | R8 ×16 | 55 | 250 | 16 | □ | 870-22 |
| EBDL | R8 ×16 | 60 | 150 | 16 | □ | 835-4 |
| EBDL | R8 ×16 | 100 | 180 | 16 | □ | 835-4 |
| PS-EBXML | R8 ×16 | 100 | 250 | 16 | □ | 835-9 |
| PS-EBXML | R8 ×16 | 100 | 300 | 16 | □ | 835-9 |
| PS-EBXML | R8 ×16 | 200 | 300 | 16 | □ | 835-9 |
| EBD | R8.05 ×16.1 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.1 ×16.2 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.15 ×16.3 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.2 ×16.4 | 34 | 140 | 16 | □ | 832 |
| CPM-EBD | R8.25 ×16.5 | 34 | 140 | 16 | □ | 835-1 |
| EBD | R8.25 ×16.5 | 34 | 140 | 16 | □ | 832 |
| EX-TIN-EBD | R8.25 ×16.5 | 34 | 140 | 16 | □ | 829 |
| V-XPM-EBD | R8.25 ×16.5 | 34 | 160 | 16 | □ | 824 |
| XPM-EBD | R8.25 ×16.5 | 34 | 160 | 16 | □ | 827 |
| LS-EBD | R8.25 ×16.5 | 60 | 250 | 16 | □ | 835-5 |
| EBD | R8.3 ×16.6 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.35 ×16.7 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.4 ×16.8 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.45 ×16.9 | 34 | 140 | 16 | □ | 832 |
| CPM-EBD | R8.5 ×17 | 34 | 140 | 16 | □ | 835-1 |
| EBD | R8.5 ×17 | 34 | 140 | 16 | ● | 832 |
| EX-TIN-EBD | R8.5 ×17 | 34 | 140 | 16 | □ | 829 |
| V-XPM-EBD | R8.5 ×17 | 34 | 160 | 16 | □ | 824 |
| XPM-EBD | R8.5 ×17 | 34 | 160 | 16 | □ | 827 |
| EBM | R8.5 ×17 | 40 | 140 | 16 | □ | 835 |
| RFB | R8.5 ×17 | 50 | 105 | 16 | □ | 870-22 |
| PC-CPM-EBL | R8.5 ×17 | 50 | 300 | 25 | □ | 835-16 |
| EX-TIN-LS-EBD | R8.5 ×17 | 60 | 250 | 16 | □ | 835-3 |
| LS-EBD | R8.5 ×17 | 60 | 250 | 16 | □ | 835-5 |
| EBD | R8.55 ×17.1 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.6 ×17.2 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.65 ×17.3 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.7 ×17.4 | 34 | 140 | 16 | □ | 832 |
| CPM-EBD | R8.75 ×17.5 | 34 | 140 | 16 | □ | 835-1 |
| EBD | R8.75 ×17.5 | 34 | 140 | 16 | □ | 832 |
| EX-TIN-EBD | R8.75 ×17.5 | 34 | 140 | 16 | □ | 829 |
| V-XPM-EBD | R8.75 ×17.5 | 34 | 160 | 16 | □ | 824 |
| XPM-EBD | R8.75 ×17.5 | 34 | 160 | 16 | □ | 827 |
| LS-EBD | R8.75 ×17.5 | 60 | 250 | 16 | □ | 835-5 |
| EBD | R8.8 ×17.6 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.85 ×17.7 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.9 ×17.8 | 34 | 140 | 16 | □ | 832 |
| EBD | R8.95 ×17.9 | 34 | 140 | 16 | □ | 832 |
| EBD | R9 ×18 | 34 | 140 | 16 | ● | 832 |
| EX-TIN-EBD | R9 ×18 | 34 | 140 | 16 | ● | 829 |
| V-XPM-EBD | R9 ×18 | 34 | 160 | 16 | ● | 824 |
| XPM-EBD | R9 ×18 | 34 | 160 | 16 | ● | 827 |
| SPC-CPM-EBD | R9 ×18 | 35 | 250 | 25 | □ | 835-15 |
| EX-LS-REBS | R9 ×18 | 40 | 130 | 16 | ● | 870 |
| EX-TIN-LS-REBS | R9 ×18 | 40 | 130 | 16 | □ | 870-20 |
| LS-REBS | R9 ×18 | 40 | 130 | 16 | □ | 870-21 |
| CPM-EBM | R9 ×18 | 40 | 140 | 16 | □ | 835-8 |
| EBM | R9 ×18 | 40 | 140 | 16 | ● | 835 |
| RFB | R9 ×18 | 50 | 105 | 16 | □ | 870-22 |
| EX-TIN-LS-EBD | R9 ×18 | 60 | 250 | 16 | □ | 835-3 |
| LS-EBD | R9 ×18 | 60 | 250 | 16 | □ | 835-5 |
| LS-EBM | R9 ×18 | 60 | 250 | 16 | □ | 835-7 |
| XLS-REB | R9 ×18 | 60 | 250 | 16 | □ | 870-22 |
| PC-CPM-EBL | R9 ×18 | 60 | 300 | 25 | □ | 835-16 |
| EBDL | R9 ×18 | 70 | 160 | 16 | □ | 835-4 |
| EBD | R9.05 ×18.1 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.1 ×18.2 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.15 ×18.3 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.2 ×18.4 | 38 | 140 | 16 | □ | 832 |
| CPM-EBD | R9.25 ×18.5 | 38 | 140 | 16 | □ | 835-1 |
| EBD | R9.25 ×18.5 | 38 | 140 | 16 | □ | 832 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／ボール
## HSS END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EX-TIN-EBD | R9.25 ×18.5 | 38 | 140 | 16 | □ | 829 |
| V-XPM-EBD | R9.25 ×18.5 | 38 | 160 | 16 | □ | 824 |
| XPM-EBD | R9.25 ×18.5 | 38 | 160 | 16 | □ | 827 |
| LS-EBD | R9.25 ×18.5 | 65 | 250 | 16 | □ | 835-5 |
| EBD | R9.3 ×18.6 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.35 ×18.7 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.4 ×18.8 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.45 ×18.9 | 38 | 140 | 16 | □ | 832 |
| CPM-EBD | R9.5 ×19 | 38 | 140 | 16 | □ | 835-1 |
| EBD | R9.5 ×19 | 38 | 140 | 16 | ● | 832 |
| EX-TIN-EBD | R9.5 ×19 | 38 | 140 | 16 | □ | 829 |
| V-XPM-EBD | R9.5 ×19 | 38 | 160 | 16 | □ | 824 |
| XPM-EBD | R9.5 ×19 | 38 | 160 | 16 | □ | 827 |
| EBM | R9.5 ×19 | 40 | 140 | 16 | □ | 835 |
| RFB | R9.5 ×19 | 55 | 120 | 20 | □ | 870-22 |
| PC-CPM-EBL | R9.5 ×19 | 60 | 300 | 25 | □ | 835-16 |
| EX-TIN-LS-EBD | R9.5 ×19 | 65 | 250 | 16 | □ | 835-3 |
| LS-EBD | R9.5 ×19 | 65 | 250 | 16 | □ | 835-5 |
| EBD | R9.55 ×19.1 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.6 ×19.2 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.65 ×19.3 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.7 ×19.4 | 38 | 140 | 16 | □ | 832 |
| CPM-EBD | R9.75 ×19.5 | 38 | 140 | 16 | □ | 835-1 |
| EBD | R9.75 ×19.5 | 38 | 140 | 16 | □ | 832 |
| EX-TIN-EBD | R9.75 ×19.5 | 38 | 140 | 16 | □ | 829 |
| XPM-EBD | R9.75 ×19.5 | 38 | 160 | 16 | □ | 827 |
| V-XPM-EBD | R9.75 ×19.5 | 38 | 180 | 16 | □ | 824 |
| LS-EBD | R9.75 ×19.5 | 65 | 250 | 16 | □ | 835-5 |
| EBD | R9.8 ×19.6 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.85 ×19.7 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.9 ×19.8 | 38 | 140 | 16 | □ | 832 |
| EBD | R9.95 ×19.9 | 38 | 140 | 16 | □ | 832 |
| EBD | R10 ×20 | 38 | 160 | 20 | ● | 832 |
| EX-TIN-EBD | R10 ×20 | 38 | 160 | 20 | ● | 829 |
| V-XPM-EBD | R10 ×20 | 38 | 180 | 20 | ● | 824 |
| XPM-EBD | R10 ×20 | 38 | 180 | 20 | ● | 827 |
| V-SS-XPM-EBD | R10 ×20 | 38 | 200 | 19 | ● | 825 |
| SPC-CPM-EBD | R10 ×20 | 38 | 250 | 25 | □ | 835-15 |
| PC-CPM-EBD | R10 ×20 | 38 | 350 | 32 | □ | 835-14 |
| EX-LS-REBS | R10 ×20 | 45 | 145 | 20 | ● | 870 |
| EX-TIN-LS-REBS | R10 ×20 | 45 | 145 | 20 | □ | 870-20 |
| LS-REBS | R10 ×20 | 45 | 145 | 20 | □ | 870-21 |
| CPM-EBM | R10 ×20 | 45 | 160 | 20 | □ | 835-8 |
| EBM | R10 ×20 | 45 | 160 | 20 | ● | 835 |
| PS-EBXML | R10 ×20 | 50 | 200 | 20 | □ | 835-9 |
| PS-EBXML | R10 ×20 | 50 | 250 | 20 | □ | 835-9 |
| REB | R10 ×20 | 55 | 120 | 20 | □ | 870-21 |
| RFB | R10 ×20 | 55 | 120 | 20 | □ | 870-22 |
| EX-TIN-LS-EBD | R10 ×20 | 65 | 300 | 20 | □ | 835-3 |
| LS-EBD | R10 ×20 | 65 | 300 | 20 | □ | 835-5 |
| LS-EBM | R10 ×20 | 65 | 300 | 20 | □ | 835-7 |
| XLS-REB | R10 ×20 | 65 | 300 | 20 | □ | 870-22 |
| XLS-EBD | R10 ×20 | 65 | 400 | 20 | □ | 835-5 |
| XLS-EBD | R10 ×20 | 65 | 500 | 20 | □ | 835-5 |
| PC-CPM-EBL | R10 ×20 | 70 | 300 | 32 | □ | 835-16 |
| EBDL | R10 ×20 | 80 | 190 | 20 | □ | 835-4 |
| PS-EBXML | R10 ×20 | 100 | 200 | 20 | □ | 835-9 |
| PS-EBXML | R10 ×20 | 100 | 250 | 20 | □ | 835-9 |
| PS-EBXML | R10 ×20 | 100 | 300 | 20 | □ | 835-9 |
| EBDL | R10 ×20 | 120 | 210 | 20 | □ | 835-4 |

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PS-EBXML | R10 ×20 | 150 | 250 | 20 | □ | 835-9 |
| PS-EBXML | R10 ×20 | 200 | 300 | 20 | □ | 835-9 |
| PS-EBXML | R10 ×20 | 200 | 350 | 20 | □ | 835-9 |
| PS-EBXML | R10 ×20 | 250 | 350 | 20 | □ | 835-9 |
| PS-EBXML | R10 ×20 | 300 | 400 | 20 | □ | 835-9 |
| EBD | R10.05×20.1 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.1 ×20.2 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.15×20.3 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.2 ×20.4 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.25×20.5 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.3 ×20.6 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.35×20.7 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.4 ×20.8 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.45×20.9 | 45 | 160 | 20 | □ | 832 |
| CPM-EBD | R10.5 ×21 | 45 | 160 | 20 | □ | 835-1 |
| EBD | R10.5 ×21 | 45 | 160 | 20 | □ | 832 |
| EX-TIN-EBD | R10.5 ×21 | 45 | 160 | 20 | □ | 829 |
| V-XPM-EBD | R10.5 ×21 | 45 | 180 | 20 | □ | 824 |
| RFB | R10.5 ×21 | 60 | 120 | 20 | □ | 870-22 |
| LS-EBD | R10.5 ×21 | 65 | 300 | 20 | □ | 835-5 |
| EBD | R10.55×21.1 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.6 ×21.2 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.65×21.3 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.7 ×21.4 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.75×21.5 | 45 | 160 | 20 | □ | 832 |
| EBD | R10.8 ×21.6 | 45 | 160 | 20 | □ | 833 |
| EBD | R10.85×21.7 | 45 | 160 | 20 | □ | 833 |
| EBD | R10.9 ×21.8 | 45 | 160 | 20 | □ | 833 |
| EBD | R10.95×21.9 | 45 | 160 | 20 | □ | 833 |
| CPM-EBD | R11 ×22 | 45 | 160 | 20 | □ | 835-1 |
| EBD | R11 ×22 | 45 | 160 | 20 | □ | 833 |
| EBM | R11 ×22 | 45 | 160 | 20 | □ | 835 |
| EX-TIN-EBD | R11 ×22 | 45 | 160 | 20 | □ | 829 |
| V-XPM-EBD | R11 ×22 | 45 | 180 | 20 | □ | 824 |
| XPM-EBD | R11 ×22 | 45 | 180 | 20 | □ | 827 |
| REB | R11 ×22 | 60 | 120 | 20 | □ | 870-21 |
| RFB | R11 ×22 | 60 | 120 | 20 | □ | 870-22 |
| EX-TIN-LS-EBD | R11 ×22 | 65 | 300 | 20 | □ | 835-3 |
| LS-EBD | R11 ×22 | 65 | 300 | 20 | □ | 835-5 |
| XLS-REB | R11 ×22 | 65 | 300 | 20 | □ | 870-22 |
| EBD | R11.05×22.1 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.1 ×22.2 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.15×22.3 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.2 ×22.4 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.25×22.5 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.3 ×22.6 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.35×22.7 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.4 ×22.8 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.45×22.9 | 50 | 160 | 20 | □ | 833 |
| EX-TIN-EBD | R11.5 ×23 | 45 | 160 | 20 | □ | 829 |
| CPM-EBD | R11.5 ×23 | 50 | 160 | 20 | □ | 835-1 |
| EBD | R11.5 ×23 | 50 | 160 | 20 | □ | 833 |
| V-XPM-EBD | R11.5 ×23 | 50 | 180 | 20 | □ | 824 |
| LS-EBD | R11.5 ×23 | 70 | 300 | 20 | □ | 835-5 |
| EBD | R11.55×23.1 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.6 ×23.2 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.65×23.3 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.7 ×23.4 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.75×23.5 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.8 ×23.6 | 50 | 160 | 20 | □ | 833 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／ボール
HSS END MILLS / BALL-END

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EBD | R11.85×23.7 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.9 ×23.8 | 50 | 160 | 20 | □ | 833 |
| EBD | R11.95×23.9 | 50 | 160 | 20 | □ | 833 |
| EX-TIN-EBD | R12 ×24 | 45 | 160 | 20 | □ | 829 |
| XPM-EBD | R12 ×24 | 45 | 180 | 20 | □ | 827 |
| CPM-EBD | R12 ×24 | 50 | 160 | 20 | □ | 835-1 |
| EBD | R12 ×24 | 50 | 160 | 20 | □ | 833 |
| EBM | R12 ×24 | 50 | 160 | 20 | □ | 835 |
| V-XPM-EBD | R12 ×24 | 50 | 200 | 20 | □ | 824 |
| REB | R12 ×24 | 70 | 140 | 25 | □ | 870-21 |
| RFB | R12 ×24 | 70 | 140 | 25 | □ | 870-22 |
| EX-TIN-LS-EBD | R12 ×24 | 70 | 300 | 20 | □ | 835-3 |
| LS-EBD | R12 ×24 | 70 | 300 | 20 | □ | 835-5 |
| XLS-REB | R12 ×24 | 70 | 300 | 20 | □ | 870-22 |
| PC-CPM-EBL | R12 ×24 | 80 | 300 | 32 | □ | 835-16 |
| EBD | R12.05×24.1 | 50 | 160 | 20 | □ | 833 |
| EBD | R12.1 ×24.2 | 50 | 160 | 20 | □ | 833 |
| EBD | R12.15×24.3 | 50 | 160 | 20 | □ | 833 |
| EBD | R12.2 ×24.4 | 50 | 160 | 20 | □ | 833 |
| EBD | R12.25×24.5 | 50 | 160 | 20 | □ | 833 |
| EBD | R12.3 ×24.6 | 50 | 160 | 20 | □ | 833 |
| EBD | R12.35×24.7 | 50 | 160 | 20 | □ | 833 |
| EBD | R12.4 ×24.8 | 50 | 160 | 20 | □ | 833 |
| EBD | R12.45×24.9 | 50 | 160 | 20 | □ | 833 |
| EX-LS-REBS | R12.5 ×25 | 50 | 165 | 25 | ● | 870 |
| EX-TIN-LS-REBS | R12.5 ×25 | 50 | 165 | 25 | □ | 870-20 |
| LS-REBS | R12.5 ×25 | 50 | 165 | 25 | □ | 870-21 |
| CPM-EBM | R12.5 ×25 | 50 | 180 | 25 | □ | 835-8 |
| EBD | R12.5 ×25 | 50 | 180 | 25 | ● | 833 |
| EBM | R12.5 ×25 | 50 | 180 | 25 | ● | 835 |
| EX-TIN-EBD | R12.5 ×25 | 50 | 180 | 25 | ● | 830 |
| V-XPM-EBD | R12.5 ×25 | 50 | 200 | 25 | ● | 825 |
| XPM-EBD | R12.5 ×25 | 50 | 200 | 25 | ● | 827 |
| V-SS-XPM-EBD | R12.5 ×25 | 50 | 220 | 24 | ● | 825 |
| REB | R12.5 ×25 | 70 | 140 | 25 | □ | 870-21 |
| RFB | R12.5 ×25 | 70 | 140 | 25 | □ | 870-22 |
| EX-TIN-LS-EBD | R12.5 ×25 | 70 | 300 | 25 | □ | 835-3 |
| LS-EBD | R12.5 ×25 | 70 | 300 | 25 | □ | 835-5 |
| LS-EBM | R12.5 ×25 | 70 | 300 | 25 | □ | 835-7 |
| XLS-REB | R12.5 ×25 | 70 | 300 | 25 | □ | 870-22 |
| XLS-EBD | R12.5 ×25 | 70 | 400 | 25 | □ | 835-5 |
| XLS-EBD | R12.5 ×25 | 70 | 500 | 25 | □ | 835-5 |
| PC-CPM-EBL | R12.5 ×25 | 80 | 300 | 32 | □ | 835-16 |
| PS-EBXML | R12.5 ×25 | 100 | 350 | 25 | □ | 835-9 |
| EBDL | R12.5 ×25 | 120 | 220 | 25 | □ | 835-4 |
| PS-EBXML | R12.5 ×25 | 250 | 350 | 25 | □ | 835-9 |
| PS-EBXML | R12.5 ×25 | 300 | 400 | 25 | □ | 835-9 |
| EBD | R12.55×25.1 | 50 | 180 | 25 | □ | 833 |
| EBD | R12.6 ×25.2 | 50 | 180 | 25 | □ | 833 |
| EBD | R12.65×25.3 | 50 | 180 | 25 | □ | 833 |
| EBD | R12.7 ×25.4 | 50 | 180 | 25 | □ | 833 |
| EBD | R12.75×25.5 | 50 | 180 | 25 | □ | 833 |
| EBD | R12.8 ×25.6 | 50 | 180 | 25 | □ | 833 |
| EBD | R12.85×25.7 | 50 | 180 | 25 | □ | 833 |
| EBD | R12.9 ×25.8 | 50 | 180 | 25 | □ | 833 |
| EBD | R12.95×25.9 | 50 | 180 | 25 | □ | 833 |
| CPM-EBD | R13 ×26 | 50 | 180 | 25 | □ | 835-1 |
| EBD | R13 ×26 | 50 | 180 | 25 | □ | 833 |
| EBM | R13 ×26 | 50 | 180 | 25 | □ | 835 |
| EX-TIN-EBD | R13 ×26 | 50 | 180 | 25 | □ | 830 |

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| V-XPM-EBD | R13 ×26 | 50 | 200 | 25 | □ | 825 |
| XPM-EBD | R13 ×26 | 50 | 200 | 25 | □ | 827 |
| REB | R13 ×26 | 70 | 140 | 25 | □ | 870-21 |
| RFB | R13 ×26 | 70 | 140 | 25 | □ | 870-22 |
| EX-TIN-LS-EBD | R13 ×26 | 70 | 300 | 25 | □ | 835-3 |
| LS-EBD | R13 ×26 | 70 | 300 | 25 | □ | 835-5 |
| XLS-REB | R13 ×26 | 70 | 300 | 25 | □ | 870-22 |
| EBD | R13.05×26.1 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.1 ×26.2 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.15×26.3 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.2 ×26.4 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.25×26.5 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.3 ×26.6 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.35×26.7 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.4 ×26.8 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.45×26.9 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.5 ×27 | 55 | 180 | 25 | □ | 833 |
| EX-TIN-EBD | R13.5 ×27 | 55 | 180 | 25 | □ | 830 |
| V-XPM-EBD | R13.5 ×27 | 55 | 200 | 25 | □ | 825 |
| LS-EBD | R13.5 ×27 | 75 | 300 | 25 | □ | 835-5 |
| EBD | R13.55×27.1 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.6 ×27.2 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.65×27.3 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.7 ×27.4 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.75×27.5 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.8 ×27.6 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.85×27.7 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.9 ×27.8 | 55 | 180 | 25 | □ | 833 |
| EBD | R13.95×27.9 | 55 | 180 | 25 | □ | 833 |
| CPM-EBD | R14 ×28 | 55 | 180 | 25 | □ | 835-1 |
| EBD | R14 ×28 | 55 | 180 | 25 | □ | 833 |
| EBM | R14 ×28 | 55 | 180 | 25 | □ | 835 |
| EX-TIN-EBD | R14 ×28 | 55 | 180 | 25 | □ | 830 |
| V-XPM-EBD | R14 ×28 | 55 | 200 | 25 | □ | 825 |
| XPM-EBD | R14 ×28 | 55 | 200 | 25 | □ | 827 |
| REB | R14 ×28 | 70 | 140 | 25 | □ | 870-21 |
| RFB | R14 ×28 | 70 | 140 | 25 | □ | 870-22 |
| EX-TIN-LS-EBD | R14 ×28 | 75 | 300 | 25 | □ | 835-3 |
| LS-EBD | R14 ×28 | 75 | 300 | 25 | □ | 835-5 |
| XLS-REB | R14 ×28 | 75 | 300 | 25 | □ | 870-22 |
| EBD | R14.05×28.1 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.1 ×28.2 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.15×28.3 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.2 ×28.4 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.25×28.5 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.3 ×28.6 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.35×28.7 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.4 ×28.8 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.45×28.9 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.5 ×29 | 55 | 180 | 25 | □ | 833 |
| EX-TIN-EBD | R14.5 ×29 | 55 | 180 | 25 | □ | 830 |
| V-XPM-EBD | R14.5 ×29 | 55 | 200 | 25 | □ | 825 |
| LS-EBD | R14.5 ×29 | 75 | 300 | 25 | □ | 835-5 |
| EBD | R14.55×29.1 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.6 ×29.2 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.65×29.3 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.7 ×29.4 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.75×29.5 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.8 ×29.6 | 55 | 180 | 25 | □ | 833 |
| EBD | R14.85×29.7 | 55 | 180 | 25 | □ | 833 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／ボール
## HSS END MILLS / BALL-END

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| EBD | R14.9 ×29.8 | 55 | 180 | 25 | □ | 834 |
| EBD | R14.95×29.9 | 55 | 180 | 25 | □ | 834 |
| CPM-EBM | R15 ×30 | 55 | 180 | 25 | □ | 835-8 |
| EBD | R15 ×30 | 55 | 180 | 25 | ● | 834 |
| EBM | R15 ×30 | 55 | 180 | 25 | ● | 835 |
| EX-TIN-EBD | R15 ×30 | 55 | 180 | 25 | ● | 830 |
| V-XPM-EBD | R15 ×30 | 55 | 200 | 25 | ● | 825 |
| XPM-EBD | R15 ×30 | 55 | 200 | 25 | ● | 827 |
| EX-LS-REBS | R15 ×30 | 63 | 180 | 25 | ● | 870 |
| EX-TIN-LS-REBS | R15 ×30 | 63 | 180 | 25 | □ | 870-20 |
| LS-REBS | R15 ×30 | 63 | 180 | 25 | □ | 870-21 |
| EX-TIN-LS-EBD | R15 ×30 | 75 | 300 | 25 | □ | 835-3 |
| LS-EBD | R15 ×30 | 75 | 300 | 25 | □ | 835-5 |
| LS-EBM | R15 ×30 | 75 | 300 | 25 | □ | 835-7 |
| XLS-REB | R15 ×30 | 75 | 300 | 25 | □ | 870-22 |
| XLS-EBD | R15 ×30 | 75 | 400 | 25 | □ | 835-5 |
| XLS-EBD | R15 ×30 | 75 | 500 | 25 | □ | 835-5 |
| REB | R15 ×30 | 80 | 165 | 32 | □ | 870-21 |
| RFB | R15 ×30 | 80 | 165 | 32 | □ | 870-22 |
| PC-CPM-EBL | R15 ×30 | 80 | 350 | 32 | □ | 835-16 |
| EBDL | R15 ×30 | 150 | 250 | 25 | □ | 835-4 |
| PS-EBXML | R15 ×30 | 150 | 250 | 32 | □ | 835-9 |
| PS-EBXML | R15 ×30 | 150 | 400 | 32 | □ | 835-9 |
| PS-EBXML | R15 ×30 | 200 | 300 | 32 | □ | 835-9 |
| PS-EBXML | R15 ×30 | 200 | 350 | 32 | □ | 835-9 |
| PS-EBXML | R15 ×30 | 200 | 400 | 32 | □ | 835-9 |
| PS-EBXML | R15 ×30 | 250 | 350 | 32 | □ | 835-9 |
| PS-EBXML | R15 ×30 | 300 | 400 | 32 | □ | 835-9 |
| PS-EBXML | R15 ×30 | 350 | 450 | 32 | □ | 835-9 |
| EBD | R15.5 ×31 | 60 | 180 | 32 | □ | 834 |
| EX-TIN-EBD | R15.5 ×31 | 60 | 180 | 32 | □ | 830 |
| LS-EBD | R15.5 ×31 | 75 | 300 | 25 | □ | 835-5 |
| CPM-EBM | R16 ×32 | 60 | 180 | 32 | □ | 835-8 |
| EBD | R16 ×32 | 60 | 180 | 32 | ● | 834 |
| EBM | R16 ×32 | 60 | 180 | 32 | ● | 835 |
| EX-TIN-EBD | R16 ×32 | 60 | 180 | 32 | □ | 830 |
| XPM-EBD | R16 ×32 | 60 | 200 | 32 | □ | 827 |
| EX-LS-REBS | R16 ×32 | 63 | 180 | 25 | ● | 870 |
| EX-TIN-LS-REBS | R16 ×32 | 63 | 180 | 25 | □ | 870-20 |
| LS-REBS | R16 ×32 | 63 | 180 | 25 | □ | 870-21 |
| REB | R16 ×32 | 80 | 165 | 32 | □ | 870-21 |
| RFB | R16 ×32 | 80 | 165 | 32 | □ | 870-22 |
| XLS-REB | R16 ×32 | 80 | 300 | 25 | □ | 870-22 |
| EX-TIN-LS-EBM | R16 ×32 | 80 | 350 | 32 | □ | 835-6 |
| LS-EBM | R16 ×32 | 80 | 350 | 32 | □ | 835-7 |
| XLS-EBM | R16 ×32 | 80 | 400 | 32 | □ | 835-7 |
| PC-CPM-EBL | R16 ×32 | 80 | 400 | 42 | □ | 835-16 |
| XLS-EBM | R16 ×32 | 80 | 500 | 32 | □ | 835-7 |
| EBD | R16.5 ×33 | 60 | 180 | 32 | □ | 834 |
| EX-TIN-EBD | R16.5 ×33 | 60 | 180 | 32 | □ | 830 |
| LS-EBM | R16.5 ×33 | 80 | 350 | 32 | □ | 835-7 |
| CPM-EBM | R17 ×34 | 60 | 180 | 32 | □ | 835-8 |
| EBD | R17 ×34 | 60 | 180 | 32 | □ | 834 |
| EBM | R17 ×34 | 60 | 180 | 32 | □ | 835 |
| EX-TIN-EBD | R17 ×34 | 60 | 180 | 32 | □ | 830 |
| XPM-EBD | R17 ×34 | 60 | 200 | 32 | □ | 827 |
| EX-TIN-LS-EBM | R17 ×34 | 80 | 350 | 32 | □ | 835-6 |
| LS-EBM | R17 ×34 | 80 | 350 | 32 | □ | 835-7 |
| XLS-REB | R17 ×34 | 80 | 350 | 32 | □ | 870-22 |
| CPM-EBD | R17.5 ×35 | 60 | 180 | 32 | □ | 835-1 |

| 製品記号 Abbreviation | ボール半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CPM-EBM | R17.5 ×35 | 60 | 180 | 32 | □ | 835-8 |
| EBD | R17.5 ×35 | 60 | 180 | 32 | ● | 834 |
| EBM | R17.5 ×35 | 60 | 180 | 32 | □ | 835 |
| EX-TIN-EBD | R17.5 ×35 | 60 | 180 | 32 | □ | 830 |
| XPM-EBD | R17.5 ×35 | 60 | 200 | 32 | □ | 827 |
| EX-LS-REBS | R17.5 ×35 | 70 | 190 | 32 | ● | 870 |
| EX-TIN-LS-REBS | R17.5 ×35 | 70 | 190 | 32 | □ | 870-20 |
| LS-REBS | R17.5 ×35 | 70 | 190 | 32 | □ | 870-21 |
| EX-TIN-LS-EBM | R17.5 ×35 | 80 | 350 | 32 | □ | 835-6 |
| LS-EBM | R17.5 ×35 | 80 | 350 | 32 | □ | 835-7 |
| XLS-REB | R17.5 ×35 | 80 | 350 | 32 | □ | 870-22 |
| XLS-EBM | R17.5 ×35 | 80 | 400 | 32 | □ | 835-7 |
| XLS-EBM | R17.5 ×35 | 80 | 500 | 32 | □ | 835-7 |
| REB | R17.5 ×35 | 90 | 175 | 32 | □ | 870-21 |
| RFB | R17.5 ×35 | 90 | 175 | 32 | □ | 870-22 |
| CPM-EBD | R18 ×36 | 60 | 180 | 32 | □ | 835-1 |
| CPM-EBM | R18 ×36 | 60 | 180 | 32 | □ | 835-8 |
| EBD | R18 ×36 | 60 | 180 | 32 | □ | 834 |
| EBM | R18 ×36 | 60 | 180 | 32 | ● | 835 |
| EX-TIN-EBD | R18 ×36 | 60 | 180 | 32 | □ | 830 |
| XPM-EBD | R18 ×36 | 60 | 200 | 32 | □ | 827 |
| EX-TIN-LS-EBM | R18 ×36 | 80 | 350 | 32 | □ | 835-6 |
| LS-EBM | R18 ×36 | 80 | 350 | 32 | □ | 835-7 |
| XLS-REB | R18 ×36 | 80 | 350 | 32 | □ | 870-22 |
| REB | R18 ×36 | 90 | 175 | 32 | □ | 870-21 |
| PC-CPM-EBL | R18 ×36 | 90 | 400 | 42 | □ | 835-16 |
| EBD | R18.5 ×37 | 65 | 200 | 32 | □ | 834 |
| EX-TIN-EBD | R18.5 ×37 | 65 | 200 | 32 | □ | 830 |
| LS-EBM | R18.5 ×37 | 100 | 350 | 32 | □ | 835-7 |
| CPM-EBM | R19 ×38 | 65 | 200 | 32 | □ | 835-8 |
| EBD | R19 ×38 | 65 | 200 | 32 | □ | 834 |
| EBM | R19 ×38 | 65 | 200 | 32 | □ | 835 |
| EX-TIN-EBD | R19 ×38 | 65 | 200 | 32 | □ | 830 |
| XPM-EBD | R19 ×38 | 65 | 220 | 32 | □ | 827 |
| REB | R19 ×38 | 90 | 175 | 32 | □ | 870-21 |
| RFB | R19 ×38 | 90 | 175 | 32 | □ | 870-22 |
| EX-TIN-LS-EBM | R19 ×38 | 100 | 350 | 32 | □ | 835-6 |
| LS-EBM | R19 ×38 | 100 | 350 | 32 | □ | 835-7 |
| XLS-REB | R19 ×38 | 100 | 350 | 32 | □ | 870-22 |
| EBD | R19.5 ×39 | 65 | 200 | 32 | □ | 834 |
| EX-TIN-EBD | R19.5 ×39 | 65 | 200 | 32 | □ | 830 |
| LS-EBM | R19.5 ×39 | 100 | 350 | 32 | □ | 835-7 |
| CPM-EBD | R20 ×40 | 65 | 200 | 32 | □ | 835-1 |
| CPM-EBM | R20 ×40 | 65 | 200 | 32 | □ | 835-8 |
| EBD | R20 ×40 | 65 | 200 | 32 | ● | 834 |
| EBM | R20 ×40 | 65 | 200 | 32 | ● | 835 |
| EX-TIN-EBD | R20 ×40 | 65 | 200 | 32 | □ | 830 |
| XPM-EBD | R20 ×40 | 65 | 220 | 32 | □ | 827 |
| EX-LS-REBS | R20 ×40 | 70 | 190 | 32 | ● | 870 |
| EX-TIN-LS-REBS | R20 ×40 | 70 | 190 | 32 | □ | 870-20 |
| LS-REBS | R20 ×40 | 70 | 190 | 32 | □ | 870-21 |
| REB | R20 ×40 | 100 | 185 | 32 | □ | 870-21 |
| RFB | R20 ×40 | 100 | 185 | 32 | □ | 870-22 |
| EX-TIN-LS-EBM | R20 ×40 | 100 | 350 | 32 | □ | 835-6 |
| LS-EBM | R20 ×40 | 100 | 350 | 32 | □ | 835-7 |
| XLS-REB | R20 ×40 | 100 | 350 | 32 | □ | 870-22 |
| XLS-EBM | R20 ×40 | 100 | 400 | 32 | □ | 835-7 |
| PC-CPM-EBL | R20 ×40 | 100 | 400 | 42 | □ | 835-16 |
| XLS-EBM | R20 ×40 | 100 | 500 | 32 | □ | 835-7 |
| PS-EBXML | R20 ×40 | 250 | 350 | 32 | □ | 835-9 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／ボール
## HSS END MILLS / BALL-END

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | ボール半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PS-EBXML | R20 ×40 | 300 | 400 | 42 | □ | 835-9 |
| EBD | R20.5 ×41 | 70 | 205 | 42 | □ | 834 |
| EBM | R20.5 ×41 | 70 | 205 | 42 | □ | 835 |
| CPM-EBM | R21 ×42 | 70 | 205 | 42 | □ | 835-8 |
| EBD | R21 ×42 | 70 | 205 | 42 | □ | 834 |
| EBM | R21 ×42 | 70 | 205 | 42 | □ | 835 |
| EX-TIN-EBD | R21 ×42 | 70 | 205 | 42 | □ | 830 |
| RFB | R21 ×42 | 100 | 190 | 42 | □ | 870-22 |
| EX-TIN-LS-EBM | R21 ×42 | 100 | 350 | 42 | □ | 835-6 |
| LS-EBM | R21 ×42 | 100 | 350 | 42 | □ | 835-7 |
| EBD | R21.5 ×43 | 70 | 205 | 42 | □ | 834 |
| EBM | R21.5 ×43 | 70 | 205 | 42 | □ | 835 |
| CPM-EBM | R22 ×44 | 70 | 205 | 42 | □ | 835-8 |
| EBD | R22 ×44 | 70 | 205 | 42 | □ | 834 |
| EBM | R22 ×44 | 70 | 205 | 42 | □ | 835 |
| EX-TIN-EBD | R22 ×44 | 70 | 205 | 42 | □ | 830 |
| EX-TIN-LS-EBM | R22 ×44 | 100 | 350 | 42 | □ | 835-6 |
| LS-EBM | R22 ×44 | 100 | 350 | 42 | □ | 835-7 |
| CPM-EBD | R22.5 ×45 | 75 | 210 | 42 | □ | 835-1 |
| CPM-EBM | R22.5 ×45 | 75 | 210 | 42 | □ | 835-8 |
| EBD | R22.5 ×45 | 75 | 210 | 42 | □ | 834 |
| EBM | R22.5 ×45 | 75 | 210 | 42 | □ | 835 |
| EX-TIN-EBD | R22.5 ×45 | 75 | 210 | 42 | □ | 830 |
| REB | R22.5 ×45 | 110 | 200 | 42 | □ | 870-21 |
| RFB | R22.5 ×45 | 110 | 200 | 42 | □ | 870-22 |
| EX-TIN-LS-EBM | R22.5 ×45 | 125 | 350 | 42 | □ | 835-6 |
| LS-EBM | R22.5 ×45 | 125 | 350 | 42 | □ | 835-7 |
| XLS-REB | R22.5 ×45 | 125 | 350 | 42 | □ | 870-22 |
| CPM-EBM | R23 ×46 | 75 | 210 | 42 | □ | 835-8 |
| EBD | R23 ×46 | 75 | 210 | 42 | □ | 834 |
| EBM | R23 ×46 | 75 | 210 | 42 | □ | 835 |
| EX-TIN-EBD | R23 ×46 | 75 | 210 | 42 | □ | 830 |
| EX-TIN-LS-EBM | R23 ×46 | 125 | 350 | 42 | □ | 835-6 |
| LS-EBM | R23 ×46 | 125 | 350 | 42 | □ | 835-7 |
| EBD | R23.5 ×47 | 75 | 210 | 42 | □ | 834 |
| EBM | R23.5 ×47 | 75 | 210 | 42 | □ | 835 |
| CPM-EBM | R24 ×48 | 75 | 210 | 42 | □ | 835-8 |
| EBD | R24 ×48 | 75 | 210 | 42 | □ | 834 |
| EBM | R24 ×48 | 75 | 210 | 42 | □ | 835 |
| EX-TIN-EBD | R24 ×48 | 75 | 210 | 42 | □ | 830 |
| RFB | R24 ×48 | 110 | 200 | 42 | □ | 870-22 |
| EX-TIN-LS-EBM | R24 ×48 | 125 | 350 | 42 | □ | 835-6 |
| LS-EBM | R24 ×48 | 125 | 350 | 42 | □ | 835-7 |
| EBD | R24.5 ×49 | 75 | 210 | 42 | □ | 834 |
| EBM | R24.5 ×49 | 75 | 210 | 42 | □ | 835 |
| CPM-EBM | R25 ×50 | 75 | 210 | 42 | □ | 835-8 |
| EBD | R25 ×50 | 75 | 210 | 42 | ● | 834 |
| EBM | R25 ×50 | 75 | 210 | 42 | ● | 835 |
| EX-TIN-EBD | R25 ×50 | 75 | 210 | 42 | □ | 830 |
| EX-LS-REBS | R25 ×50 | 90 | 225 | 42 | ● | 870 |
| EX-TIN-LS-REBS | R25 ×50 | 90 | 225 | 42 | □ | 870-20 |
| LS-REBS | R25 ×50 | 90 | 225 | 42 | □ | 870-21 |
| REB | R25 ×50 | 120 | 210 | 42 | □ | 870-21 |
| RFB | R25 ×50 | 120 | 210 | 42 | □ | 870-22 |
| EX-TIN-LS-EBM | R25 ×50 | 125 | 350 | 42 | □ | 835-6 |
| LS-EBM | R25 ×50 | 125 | 350 | 42 | □ | 835-7 |
| XLS-REB | R25 ×50 | 125 | 350 | 42 | □ | 870-22 |
| XLS-EBM | R25 ×50 | 125 | 400 | 42 | □ | 835-7 |
| XLS-EBM | R25 ×50 | 125 | 500 | 42 | □ | 835-7 |
| EBD | R25.5 ×51 | 75 | 215 | 42 | □ | 834 |
| EBM | R25.5 ×51 | 80 | 215 | 42 | □ | 835 |
| EBD | R26 ×52 | 75 | 215 | 42 | □ | 834 |
| EX-TIN-EBD | R26 ×52 | 75 | 215 | 42 | □ | 830 |
| EBM | R26 ×52 | 80 | 215 | 42 | □ | 835 |
| EBD | R26.5 ×53 | 75 | 215 | 42 | □ | 834 |
| EBM | R26.5 ×53 | 80 | 215 | 42 | □ | 835 |
| EBD | R27 ×54 | 75 | 215 | 42 | □ | 834 |
| EBM | R27 ×54 | 80 | 215 | 42 | □ | 835 |
| EBD | R27.5 ×55 | 75 | 215 | 42 | □ | 834 |
| EX-TIN-EBD | R27.5 ×55 | 75 | 215 | 42 | □ | 830 |
| EBM | R27.5 ×55 | 80 | 215 | 42 | □ | 835 |
| EBD | R28 ×56 | 75 | 215 | 42 | □ | 834 |
| EX-TIN-EBD | R28 ×56 | 75 | 215 | 42 | □ | 830 |
| EBM | R28 ×56 | 80 | 215 | 42 | □ | 835 |
| EBD | R28.5 ×57 | 75 | 215 | 42 | □ | 834 |
| EBM | R28.5 ×57 | 80 | 215 | 42 | □ | 835 |
| EBD | R29 ×58 | 75 | 215 | 42 | □ | 834 |
| EBM | R29 ×58 | 80 | 215 | 42 | □ | 835 |
| EBD | R29.5 ×59 | 75 | 215 | 42 | □ | 834 |
| EBM | R29.5 ×59 | 80 | 215 | 42 | □ | 835 |
| REBM | R30 ×60 | 60 | 300 | 42 | □ | 835-8 |
| EBD | R30 ×60 | 75 | 215 | 42 | □ | 834 |
| EX-TIN-EBD | R30 ×60 | 75 | 215 | 42 | □ | 830 |
| EBM | R30 ×60 | 80 | 215 | 42 | □ | 835 |
| REBM | R35 ×70 | 60 | 300 | 42 | □ | 835-8 |
| REBM | R40 ×80 | 75 | 300 | 42 | □ | 835-8 |
| REBM | R45 ×90 | 75 | 300 | 42 | □ | 835-8 |
| ER | R50 ×50 | 50 | 150 | 42 | □ | 835-9 |
| REBM | R50 ×100 | 75 | 300 | 42 | □ | 835-8 |
| REBM | R55 ×110 | 75 | 300 | 42 | □ | 835-8 |
| ER | R60 ×50 | 50 | 150 | 42 | □ | 835-9 |
| REBM | R60 ×120 | 85 | 300 | 42 | □ | 835-8 |
| ER | R70 ×50 | 50 | 150 | 42 | □ | 835-9 |
| ER | R80 ×60 | 50 | 150 | 42 | □ | 835-9 |
| ER | R90 ×60 | 50 | 150 | 42 | □ | 835-9 |
| ER | R100 ×60 | 50 | 150 | 42 | □ | 835-9 |
| ER | R110 ×80 | 50 | 175 | 42 | □ | 835-9 |
| ER | R120 ×80 | 50 | 175 | 42 | □ | 835-9 |
| ER | R150 ×100 | 60 | 185 | 42 | □ | 835-9 |
| EBD | R1/16 | 8 | 70 | 6 | □ | 834 |
| EBD | R1/8 | 14 | 90 | 6 | □ | 834 |
| EBD | R3/16 | 18 | 100 | 8 | □ | 834 |
| EBD | R5/16 | 30 | 110 | 12 | □ | 834 |
| EBD | R3/8 | 38 | 140 | 16 | □ | 834 |
| EBD | R5/8 | 60 | 180 | 32 | □ | 834 |
| EBD | R3/4 | 65 | 200 | 32 | □ | 834 |
| EBD | R7/8 | 70 | 205 | 42 | □ | 834 |
| EBD | R1 | 75 | 215 | 42 | □ | 834 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／コーナR
## HSS END MILLS / WITH CORNER RADIUS

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナー半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CS-EDS | 1 × 0.2 | 2.5 | 45 | 6 | □ | 837-6 |
| CS-EDS | 2 × 0.2 | 5 | 50 | 6 | □ | 837-6 |
| CS-EDS | 2 × 0.3 | 5 | 50 | 6 | □ | 837-6 |
| CS-EDS | 2 × 0.5 | 5 | 50 | 6 | □ | 837-6 |
| WH-NC-CSDS | 3 × C0.2 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 3 × R0.5 | 6 | 60 | 6 | □ | 837-3 |
| CR-XPM-EDS | 3 × R0.5 | 7 | 55 | 6 | ● | 836 |
| CS-EDS | 3 × 0.2 | 8 | 50 | 6 | □ | 837-6 |
| CS-EDS | 3 × 0.3 | 8 | 50 | 6 | □ | 837-6 |
| CR-EDS | 3 × R0.4 | 8 | 50 | 6 | □ | 837-2 |
| CR-EDS | 3 × R0.5 | 8 | 50 | 6 | □ | 837-2 |
| CS-EDS | 3 × 0.5 | 8 | 50 | 6 | □ | 837-6 |
| CR-EDS | 3 × R0.75 | 8 | 50 | 6 | □ | 837-2 |
| CR-EDS | 3 × R0.8 | 8 | 50 | 6 | □ | 837-2 |
| CR-EDS | 3 × R1 | 8 | 50 | 6 | □ | 837-2 |
| CS-EDS | 3 × 1 | 8 | 50 | 6 | □ | 837-6 |
| WH-NC-CSDS | 4 × C0.2 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 4 × R0.5 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CSDS | 4 × C0.5 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 4 × R1 | 6 | 60 | 6 | □ | 837-3 |
| CS-EDS | 4 × 0.2 | 8 | 60 | 8 | □ | 837-6 |
| CS-EDS | 4 × 0.3 | 8 | 60 | 8 | □ | 837-6 |
| CR-EDS | 4 × R0.4 | 8 | 60 | 8 | □ | 837-2 |
| CR-EDS | 4 × R0.5 | 8 | 60 | 8 | □ | 837-2 |
| CS-EDS | 4 × 0.5 | 8 | 60 | 8 | □ | 837-6 |
| CR-EDS | 4 × R0.75 | 8 | 60 | 8 | □ | 837-2 |
| CR-EDS | 4 × R0.8 | 8 | 60 | 8 | □ | 837-2 |
| CR-EDS | 4 × R1 | 8 | 60 | 8 | □ | 837-2 |
| CS-EDS | 4 × 1 | 8 | 60 | 8 | □ | 837-6 |
| CS-EDS | 4 × 1.5 | 8 | 60 | 8 | □ | 837-6 |
| CR-XPM-EDS | 4 × R0.5 | 8 | 65 | 8 | ● | 836 |
| CR-XPM-EDS | 4 × R1 | 8 | 65 | 8 | ● | 836 |
| WH-NC-CSDS | 5 × C0.2 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 5 × R0.5 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CSDS | 5 × C0.5 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 5 × R1 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CSDS | 5 × C1 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 5 × R1.5 | 6 | 60 | 6 | □ | 837-3 |
| CS-EDS | 5 × 0.2 | 10 | 60 | 8 | □ | 837-6 |
| CS-EDS | 5 × 0.3 | 10 | 60 | 8 | □ | 837-6 |
| CR-EDS | 5 × R0.4 | 10 | 60 | 8 | □ | 837-2 |
| CR-EDS | 5 × R0.5 | 10 | 60 | 8 | □ | 837-2 |
| CS-EDS | 5 × 0.5 | 10 | 60 | 8 | □ | 837-6 |
| CR-EDS | 5 × R0.75 | 10 | 60 | 8 | □ | 837-2 |
| CR-EDS | 5 × R0.8 | 10 | 60 | 8 | □ | 837-2 |
| CR-EDS | 5 × R1 | 10 | 60 | 8 | □ | 837-2 |
| CS-EDS | 5 × 1 | 10 | 60 | 8 | □ | 837-6 |
| CR-EDS | 5 × R1.5 | 10 | 60 | 8 | □ | 837-2 |
| CS-EDS | 5 × 1.5 | 10 | 60 | 8 | □ | 837-6 |
| CR-XPM-EDS | 5 × R0.5 | 10 | 65 | 8 | ● | 836 |
| CR-XPM-EDS | 5 × R1 | 10 | 65 | 8 | ● | 836 |
| CR-XPM-EDS | 5 × R1.5 | 10 | 65 | 8 | ● | 836 |
| WH-NC-CSDS | 6 × C0.2 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 6 × R0.5 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CSDS | 6 × C0.5 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 6 × R1 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CRDS | 6 × R1.5 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CSDS | 6 × C1.5 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 6 × R2 | 6 | 60 | 6 | □ | 837-3 |
| CS-EDS | 6 × 0.2 | 12 | 60 | 8 | □ | 837-6 |
| CS-EDS | 6 × 0.3 | 12 | 60 | 8 | □ | 837-6 |
| CR-EDS | 6 × R0.4 | 12 | 60 | 8 | □ | 837-2 |
| CR-EDS | 6 × R0.5 | 12 | 60 | 8 | □ | 837-2 |
| CS-EDS | 6 × 0.5 | 12 | 60 | 8 | □ | 837-6 |
| CR-EDS | 6 × R0.75 | 12 | 60 | 8 | □ | 837-2 |
| CR-EDS | 6 × R0.8 | 12 | 60 | 8 | □ | 837-2 |
| CR-EDS | 6 × R1 | 12 | 60 | 8 | □ | 837-2 |
| CS-EDS | 6 × 1 | 12 | 60 | 8 | □ | 837-6 |
| EX-TIN-CR-EDS | 6 × R1 | 12 | 60 | 8 | □ | 837-1 |
| CR-EDS | 6 × R1.5 | 12 | 60 | 8 | □ | 837-2 |
| CS-EDS | 6 × 1.5 | 12 | 60 | 8 | □ | 837-6 |
| EX-TIN-CR-EDS | 6 × R1.5 | 12 | 60 | 8 | □ | 837-1 |
| CR-EDS | 6 × R2 | 12 | 60 | 8 | □ | 837-2 |
| CS-EDS | 6 × 2 | 12 | 60 | 8 | □ | 837-6 |
| EX-TIN-CR-EDS | 6 × R2 | 12 | 60 | 8 | □ | 837-1 |
| CR-XPM-EDS | 6 × R0.5 | 12 | 65 | 8 | ● | 836 |
| CR-XPM-EDS | 6 × R1 | 12 | 65 | 8 | ● | 836 |
| CR-XPM-EDS | 6 × R1.5 | 12 | 65 | 8 | ● | 836 |
| CR-XPM-EDS | 6 × R2 | 12 | 65 | 8 | ● | 836 |
| CR-EMS | 6 × R0.5 | 15 | 60 | 8 | □ | 837-4 |
| CR-EMS | 6 × R1 | 15 | 60 | 8 | □ | 837-4 |
| CR-EMS | 6 × R1.5 | 15 | 60 | 8 | □ | 837-4 |
| CR-EMS | 6 × R2 | 15 | 60 | 8 | □ | 837-4 |
| CR-EDL | 6 × R0.5 | 30 | 90 | 8 | □ | 837-3 |
| CR-EDL | 6 × R1 | 30 | 90 | 8 | □ | 837-3 |
| CR-EDL | 6 × R1.5 | 30 | 90 | 8 | □ | 837-3 |
| CR-EDL | 6 × R2 | 30 | 90 | 8 | □ | 837-3 |
| WH-NC-CSDS | 8 × C0.2 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 8 × R0.5 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CSDS | 8 × C0.5 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 8 × R1 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CSDS | 8 × C1 | 6 | 60 | 6 | □ | 837-7 |
| WH-NC-CRDS | 8 × R1.5 | 6 | 60 | 6 | □ | 837-3 |
| WH-NC-CRDS | 8 × R2 | 6 | 60 | 6 | □ | 837-3 |
| CS-EDS | 8 × 0.2 | 14 | 60 | 10 | □ | 837-6 |
| CS-EDS | 8 × 0.3 | 14 | 60 | 10 | □ | 837-6 |
| CR-EDS | 8 × R0.4 | 14 | 60 | 10 | □ | 837-2 |
| CR-EDS | 8 × R0.5 | 14 | 60 | 10 | □ | 837-2 |
| CS-EDS | 8 × 0.5 | 14 | 60 | 10 | □ | 837-6 |
| CR-EDS | 8 × R0.8 | 14 | 60 | 10 | □ | 837-2 |
| CR-EDS | 8 × R1 | 14 | 60 | 10 | □ | 837-2 |
| CS-EDS | 8 × 1 | 14 | 60 | 10 | □ | 837-6 |
| EX-TIN-CR-EDS | 8 × R1 | 14 | 60 | 10 | □ | 837-1 |
| CR-EDS | 8 × R1.5 | 14 | 60 | 10 | □ | 837-2 |
| CS-EDS | 8 × 1.5 | 14 | 60 | 10 | □ | 837-6 |
| EX-TIN-CR-EDS | 8 × R1.5 | 14 | 60 | 10 | □ | 837-1 |
| CR-EDS | 8 × R2 | 14 | 60 | 10 | □ | 837-2 |
| CS-EDS | 8 × 2 | 14 | 60 | 10 | □ | 837-6 |
| EX-TIN-CR-EDS | 8 × R2 | 14 | 60 | 10 | □ | 837-1 |
| CR-EDS | 8 × R2.5 | 14 | 60 | 10 | □ | 837-2 |
| EX-TIN-CR-EDS | 8 × R2.5 | 14 | 60 | 10 | □ | 837-1 |
| CR-EDS | 8 × R3 | 14 | 60 | 10 | □ | 837-2 |
| CS-EDS | 8 × 3 | 14 | 60 | 10 | □ | 837-6 |
| EX-TIN-CR-EDS | 8 × R3 | 14 | 60 | 10 | □ | 837-1 |
| CR-XPM-EDS | 8 × R0.5 | 14 | 70 | 10 | ● | 836 |
| CR-XPM-EDS | 8 × R1 | 14 | 70 | 10 | ● | 836 |
| CR-XPM-EDS | 8 × R1.5 | 14 | 70 | 10 | ● | 836 |
| CR-XPM-EDS | 8 × R2 | 14 | 70 | 10 | ● | 836 |
| CR-XPM-EDS | 8 × R3 | 14 | 70 | 10 | ● | 836 |
| CR-EMS | 8 × R0.5 | 20 | 60 | 10 | □ | 837-4 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# ハイスエンドミル／コーナR
## HSS END MILLS / WITH CORNER RADIUS

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナー半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CR-EMS | 8 × R1 | 20 | 60 | 10 | □ | 837-4 |
| CR-EMS | 8 × R1.5 | 20 | 60 | 10 | □ | 837-4 |
| CR-EMS | 8 × R2 | 20 | 60 | 10 | □ | 837-4 |
| CR-EMS | 8 × R2.5 | 20 | 60 | 10 | □ | 837-4 |
| CR-EMS | 8 × R3 | 20 | 60 | 10 | □ | 837-4 |
| CR-EDL | 8 × R0.5 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 8 × R1 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 8 × R1.5 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 8 × R2 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 8 × R2.5 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 8 × R3 | 30 | 100 | 10 | □ | 837-3 |
| WH-NC-CSDS | 10 × C0.2 | 6 | 60 | 10 | □ | 837-7 |
| WH-NC-CRDS | 10 × R0.5 | 6 | 60 | 10 | □ | 837-3 |
| WH-NC-CSDS | 10 × C0.5 | 6 | 60 | 10 | □ | 837-7 |
| WH-NC-CRDS | 10 × R1 | 6 | 60 | 10 | □ | 837-3 |
| WH-NC-CSDS | 10 × C1 | 6 | 60 | 10 | □ | 837-7 |
| WH-NC-CRDS | 10 × R1.5 | 6 | 60 | 10 | □ | 837-3 |
| WH-NC-CRDS | 10 × R2 | 6 | 60 | 10 | □ | 837-3 |
| CS-EDS | 10 × 0.2 | 18 | 70 | 10 | □ | 837-6 |
| CS-EDS | 10 × 0.3 | 18 | 70 | 10 | □ | 837-6 |
| CR-EDS | 10 × R0.4 | 18 | 70 | 10 | □ | 837-2 |
| CR-EDS | 10 × R0.5 | 18 | 70 | 10 | □ | 837-2 |
| CS-EDS | 10 × 0.5 | 18 | 70 | 10 | □ | 837-6 |
| CR-EDS | 10 × R0.8 | 18 | 70 | 10 | □ | 837-2 |
| CR-EDS | 10 × R1 | 18 | 70 | 10 | □ | 837-2 |
| CS-EDS | 10 × 1 | 18 | 70 | 10 | □ | 837-6 |
| EX-TIN-CR-EDS | 10 × R1 | 18 | 70 | 10 | □ | 837-1 |
| CR-EDS | 10 × R1.5 | 18 | 70 | 10 | □ | 837-2 |
| CS-EDS | 10 × 1.5 | 18 | 70 | 10 | □ | 837-6 |
| EX-TIN-CR-EDS | 10 × R1.5 | 18 | 70 | 10 | □ | 837-1 |
| CR-EDS | 10 × R2 | 18 | 70 | 10 | □ | 837-2 |
| CS-EDS | 10 × 2 | 18 | 70 | 10 | □ | 837-6 |
| EX-TIN-CR-EDS | 10 × R2 | 18 | 70 | 10 | □ | 837-1 |
| CR-EDS | 10 × R2.5 | 18 | 70 | 10 | □ | 837-2 |
| EX-TIN-CR-EDS | 10 × R2.5 | 18 | 70 | 10 | □ | 837-1 |
| CR-EDS | 10 × R3 | 18 | 70 | 10 | □ | 837-2 |
| CS-EDS | 10 × 3 | 18 | 70 | 10 | □ | 837-6 |
| EX-TIN-CR-EDS | 10 × R3 | 18 | 70 | 10 | □ | 837-1 |
| CR-XPM-EDS | 10 × R0.5 | 18 | 75 | 10 | ● | 836 |
| CR-XPM-EDS | 10 × R1 | 18 | 75 | 10 | ● | 836 |
| CR-XPM-EDS | 10 × R1.5 | 18 | 75 | 10 | ● | 836 |
| CR-XPM-EDS | 10 × R2 | 18 | 75 | 10 | ● | 836 |
| CR-XPM-EDS | 10 × R3 | 18 | 75 | 10 | ● | 836 |
| CR-EMS | 10 × R0.5 | 25 | 70 | 10 | □ | 837-4 |
| CR-EMS | 10 × R1 | 25 | 70 | 10 | □ | 837-4 |
| CR-EMS | 10 × R1.5 | 25 | 70 | 10 | □ | 837-4 |
| CR-EMS | 10 × R2 | 25 | 70 | 10 | □ | 837-4 |
| CR-EMS | 10 × R2.5 | 25 | 70 | 10 | □ | 837-4 |
| CR-EMS | 10 × R3 | 25 | 70 | 10 | □ | 837-4 |
| CR-EDL | 10 × R0.5 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 10 × R1 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 10 × R1.5 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 10 × R2 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 10 × R2.5 | 30 | 100 | 10 | □ | 837-3 |
| CR-EDL | 10 × R3 | 30 | 100 | 10 | □ | 837-3 |
| WH-NC-CSDS | 12 × C0.2 | 6 | 60 | 10 | □ | 837-7 |
| WH-NC-CRDS | 12 × R0.5 | 6 | 60 | 10 | □ | 837-3 |
| WH-NC-CSDS | 12 × C0.5 | 6 | 60 | 10 | □ | 837-7 |
| WH-NC-CRDS | 12 × R1 | 6 | 60 | 10 | □ | 837-3 |
| WH-NC-CSDS | 12 × C1 | 6 | 60 | 10 | □ | 837-7 |
| WH-NC-CRDS | 12 × R1.5 | 6 | 60 | 10 | □ | 837-3 |
| WH-NC-CRDS | 12 × R2 | 6 | 60 | 10 | □ | 837-3 |
| CS-EDS | 12 × 0.2 | 22 | 80 | 12 | □ | 837-6 |
| CS-EDS | 12 × 0.3 | 22 | 80 | 12 | □ | 837-6 |
| CR-EDS | 12 × R0.4 | 22 | 80 | 12 | □ | 837-2 |
| CR-EDS | 12 × R0.5 | 22 | 80 | 12 | □ | 837-2 |
| CS-EDS | 12 × 0.5 | 22 | 80 | 12 | □ | 837-6 |
| CR-EDS | 12 × R0.8 | 22 | 80 | 12 | □ | 837-2 |
| CR-EDS | 12 × R1 | 22 | 80 | 12 | □ | 837-2 |
| CS-EDS | 12 × 1 | 22 | 80 | 12 | □ | 837-6 |
| EX-TIN-CR-EDS | 12 × R1 | 22 | 80 | 12 | □ | 837-1 |
| CR-EDS | 12 × R1.5 | 22 | 80 | 12 | □ | 837-2 |
| CS-EDS | 12 × 1.5 | 22 | 80 | 12 | □ | 837-6 |
| EX-TIN-CR-EDS | 12 × R1.5 | 22 | 80 | 12 | □ | 837-1 |
| CR-EDS | 12 × R2 | 22 | 80 | 12 | □ | 837-2 |
| CS-EDS | 12 × 2 | 22 | 80 | 12 | □ | 837-6 |
| EX-TIN-CR-EDS | 12 × R2 | 22 | 80 | 12 | □ | 837-1 |
| CR-EDS | 12 × R2.5 | 22 | 80 | 12 | □ | 837-2 |
| EX-TIN-CR-EDS | 12 × R2.5 | 22 | 80 | 12 | □ | 837-1 |
| CR-EDS | 12 × R3 | 22 | 80 | 12 | □ | 837-2 |
| CS-EDS | 12 × 3 | 22 | 80 | 12 | □ | 837-6 |
| EX-TIN-CR-EDS | 12 × R3 | 22 | 80 | 12 | □ | 837-1 |
| CR-EDS | 12 × R4 | 22 | 80 | 12 | □ | 837-2 |
| EX-TIN-CR-EDS | 12 × R4 | 22 | 80 | 12 | □ | 837-1 |
| CR-EDS | 12 × R5 | 22 | 80 | 12 | □ | 837-2 |
| EX-TIN-CR-EDS | 12 × R5 | 22 | 80 | 12 | □ | 837-1 |
| CR-XPM-EDS | 12 × R1 | 22 | 85 | 12 | ● | 836 |
| CR-XPM-EDS | 12 × R1.5 | 22 | 85 | 12 | ● | 836 |
| CR-XPM-EDS | 12 × R2 | 22 | 85 | 12 | ● | 836 |
| CR-XPM-EDS | 12 × R3 | 22 | 85 | 12 | ● | 836 |
| CR-XPM-EDS | 12 × R4 | 22 | 85 | 12 | ● | 836 |
| VP-CR-BKMS | 12 × R1 | 26 | 110 | 12 | □ | 870-17 |
| VP-CR-BKMS | 12 × R2 | 26 | 110 | 12 | □ | 870-17 |
| VP-CR-BKMS | 12 × R2.5 | 26 | 110 | 12 | □ | 870-17 |
| VP-CR-BKMS | 12 × R3 | 26 | 110 | 12 | □ | 870-17 |
| CR-EMS | 12 × R1 | 30 | 80 | 12 | □ | 837-4 |
| CR-EMS | 12 × R1.5 | 30 | 80 | 12 | □ | 837-4 |
| CR-EMS | 12 × R2 | 30 | 80 | 12 | □ | 837-4 |
| CR-EMS | 12 × R2.5 | 30 | 80 | 12 | □ | 837-4 |
| CR-EMS | 12 × R3 | 30 | 80 | 12 | □ | 837-4 |
| CR-EMS | 12 × R4 | 30 | 80 | 12 | □ | 837-4 |
| CR-EDL | 12 × R1 | 30 | 110 | 12 | □ | 837-3 |
| CR-EDL | 12 × R1.5 | 30 | 110 | 12 | □ | 837-3 |
| CR-EDL | 12 × R2 | 30 | 110 | 12 | □ | 837-3 |
| CR-EDL | 12 × R2.5 | 30 | 110 | 12 | □ | 837-3 |
| CR-EDL | 12 × R3 | 30 | 110 | 12 | □ | 837-3 |
| CR-EDL | 12 × R4 | 30 | 110 | 12 | □ | 837-3 |
| CR-EDL | 12 × R5 | 30 | 110 | 12 | □ | 837-3 |
| CR-EDS | 15 × R1 | 30 | 95 | 16 | □ | 837-2 |
| CR-EDS | 15 × R1.5 | 30 | 95 | 16 | □ | 837-2 |
| CR-EDS | 15 × R2 | 30 | 95 | 16 | □ | 837-2 |
| CR-EDS | 15 × R2.5 | 30 | 95 | 16 | □ | 837-2 |
| CR-EDS | 15 × R3 | 30 | 95 | 16 | □ | 837-2 |
| CR-EDS | 15 × R4 | 30 | 95 | 16 | □ | 837-2 |
| CR-EDS | 15 × R5 | 30 | 95 | 16 | □ | 837-2 |
| CR-XPM-EDS | 15 × R1 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 15 × R1.5 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 15 × R2 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 15 × R3 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 15 × R4 | 30 | 100 | 16 | ● | 836 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／コーナR
## HSS END MILLS / WITH CORNER RADIUS

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナー半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CR-XPM-EDS | 15 × R5 | 30 | 100 | 16 | ● | 836 |
| CS-EDS | 16 × 0.5 | 30 | 95 | 16 | □ | 837-6 |
| CR-EDS | 16 × R1 | 30 | 95 | 16 | □ | 837-2 |
| CS-EDS | 16 × 1 | 30 | 95 | 16 | □ | 837-6 |
| CR-EDS | 16 × R1.5 | 30 | 95 | 16 | □ | 837-2 |
| CS-EDS | 16 × 1.5 | 30 | 95 | 16 | □ | 837-6 |
| CR-EDS | 16 × R2 | 30 | 95 | 16 | □ | 837-2 |
| CS-EDS | 16 × 2 | 30 | 95 | 16 | □ | 837-6 |
| EX-TIN-CR-EDS | 16 × R2 | 30 | 95 | 16 | □ | 837-1 |
| CR-EDS | 16 × R2.5 | 30 | 95 | 16 | □ | 837-2 |
| EX-TIN-CR-EDS | 16 × R2.5 | 30 | 95 | 16 | □ | 837-1 |
| CR-EDS | 16 × R3 | 30 | 95 | 16 | □ | 837-2 |
| CS-EDS | 16 × 3 | 30 | 95 | 16 | □ | 837-6 |
| EX-TIN-CR-EDS | 16 × R3 | 30 | 95 | 16 | □ | 837-1 |
| CR-EDS | 16 × R4 | 30 | 95 | 16 | □ | 837-2 |
| EX-TIN-CR-EDS | 16 × R4 | 30 | 95 | 16 | □ | 837-1 |
| CR-EDS | 16 × R5 | 30 | 95 | 16 | □ | 837-2 |
| EX-TIN-CR-EDS | 16 × R5 | 30 | 95 | 16 | □ | 837-1 |
| CR-EDS | 16 × R6 | 30 | 95 | 16 | □ | 837-2 |
| EX-TIN-CR-EDS | 16 × R6 | 30 | 95 | 16 | □ | 837-1 |
| CR-XPM-EDS | 16 × R1 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 16 × R1.5 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 16 × R2 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 16 × R3 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 16 × R4 | 30 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 16 × R5 | 30 | 100 | 16 | ● | 836 |
| VP-CR-BKMS | 16 × R1 | 32 | 125 | 16 | □ | 870-17 |
| VP-CR-BKMS | 16 × R2 | 32 | 125 | 16 | □ | 870-17 |
| VP-CR-BKMS | 16 × R2.5 | 32 | 125 | 16 | □ | 870-17 |
| VP-CR-BKMS | 16 × R3 | 32 | 125 | 16 | □ | 870-17 |
| CR-EMS | 16 × R1 | 40 | 95 | 16 | □ | 837-4 |
| CR-EMS | 16 × R1.5 | 40 | 95 | 16 | □ | 837-4 |
| CR-EMS | 16 × R2 | 40 | 95 | 16 | □ | 837-4 |
| CR-EMS | 16 × R2.5 | 40 | 95 | 16 | □ | 837-4 |
| CR-EMS | 16 × R3 | 40 | 95 | 16 | □ | 837-4 |
| CR-EMS | 16 × R4 | 40 | 95 | 16 | □ | 837-4 |
| CR-EMS | 16 × R5 | 40 | 95 | 16 | □ | 837-4 |
| VPS-EMS | 16 × R1 ×6F | 40 | 100 | 16 | ● | 796 |
| VPS-EMS | 16 × R1 ×6F | 40 | 100 | 16 | ● | 837 |
| VPS-EMS | 16 × R1 ×10F | 40 | 100 | 16 | ● | 796 |
| VPS-EMS | 16 × R1 ×10F | 40 | 100 | 16 | ● | 837 |
| CR-EDS | 18 × R1 | 34 | 95 | 16 | □ | 837-2 |
| CR-EDS | 18 × R1.5 | 34 | 95 | 16 | □ | 837-2 |
| CR-EDS | 18 × R2 | 34 | 95 | 16 | □ | 837-2 |
| CR-EDS | 18 × R2.5 | 34 | 95 | 16 | □ | 837-2 |
| CR-EDS | 18 × R3 | 34 | 95 | 16 | □ | 837-2 |
| CR-EDS | 18 × R4 | 34 | 95 | 16 | □ | 837-2 |
| CR-EDS | 18 × R5 | 34 | 95 | 16 | □ | 837-2 |
| CR-EDS | 18 × R6 | 34 | 95 | 16 | □ | 837-2 |
| CR-XPM-EDS | 18 × R1 | 34 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 18 × R1.5 | 34 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 18 × R2 | 34 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 18 × R3 | 34 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 18 × R4 | 34 | 100 | 16 | ● | 836 |
| CR-XPM-EDS | 18 × R5 | 34 | 100 | 16 | ● | 836 |
| CS-EDS | 20 × 0.5 | 38 | 110 | 20 | □ | 837-6 |
| CR-EDS | 20 × R1 | 38 | 110 | 20 | □ | 837-2 |
| CS-EDS | 20 × 1 | 38 | 110 | 20 | □ | 837-6 |
| CR-EDS | 20 × R1.5 | 38 | 110 | 20 | □ | 837-2 |
| CS-EDS | 20 × 1.5 | 38 | 110 | 20 | □ | 837-6 |

| 製品記号 Abbreviation | 外径×コーナー半径(×首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CR-EDS | 20 × R2 | 38 | 110 | 20 | □ | 837-2 |
| CS-EDS | 20 × 2 | 38 | 110 | 20 | □ | 837-6 |
| EX-TIN-CR-EDS | 20 × R2 | 38 | 110 | 20 | □ | 837-1 |
| CR-EDS | 20 × R2.5 | 38 | 110 | 20 | □ | 837-2 |
| CR-EDS | 20 × R3 | 38 | 110 | 20 | □ | 837-2 |
| CS-EDS | 20 × 3 | 38 | 110 | 20 | □ | 837-6 |
| EX-TIN-CR-EDS | 20 × R3 | 38 | 110 | 20 | □ | 837-1 |
| CR-EDS | 20 × R4 | 38 | 110 | 20 | □ | 837-2 |
| EX-TIN-CR-EDS | 20 × R4 | 38 | 110 | 20 | □ | 837-1 |
| CR-EDS | 20 × R5 | 38 | 110 | 20 | □ | 837-2 |
| EX-TIN-CR-EDS | 20 × R5 | 38 | 110 | 20 | □ | 837-1 |
| CR-EDS | 20 × R6 | 38 | 110 | 20 | □ | 837-2 |
| EX-TIN-CR-EDS | 20 × R6 | 38 | 110 | 20 | □ | 837-1 |
| CR-XPM-EDS | 20 × R2 | 38 | 115 | 20 | ● | 836 |
| CR-XPM-EDS | 20 × R3 | 38 | 115 | 20 | ● | 836 |
| CR-XPM-EDS | 20 × R4 | 38 | 115 | 20 | ● | 836 |
| CR-XPM-EDS | 20 × R5 | 38 | 115 | 20 | ● | 836 |
| VP-CR-BKMS | 20 × R1 | 38 | 140 | 20 | □ | 870-17 |
| VP-CR-BKMS | 20 × R2 | 38 | 140 | 20 | □ | 870-17 |
| VP-CR-BKMS | 20 × R2.5 | 38 | 140 | 20 | □ | 870-17 |
| VP-CR-BKMS | 20 × R3 | 38 | 140 | 20 | □ | 870-17 |
| CR-EMS | 20 × R1 | 45 | 110 | 20 | □ | 837-4 |
| CR-EMS | 20 × R1.5 | 45 | 110 | 20 | □ | 837-4 |
| CR-EMS | 20 × R2 | 45 | 110 | 20 | □ | 837-4 |
| CR-EMS | 20 × R2.5 | 45 | 110 | 20 | □ | 837-4 |
| CR-EMS | 20 × R3 | 45 | 110 | 20 | □ | 837-4 |
| CR-EMS | 20 × R4 | 45 | 110 | 20 | □ | 837-4 |
| CR-EMS | 20 × R5 | 45 | 110 | 20 | □ | 837-4 |
| VPS-EMS | 20 × R1 ×6F | 45 | 115 | 20 | ● | 796 |
| VPS-EMS | 20 × R1 ×6F | 45 | 115 | 20 | ● | 837 |
| VPS-EMS | 20 × R1 ×10F | 45 | 115 | 20 | ● | 796 |
| VPS-EMS | 20 × R1 ×10F | 45 | 115 | 20 | ● | 837 |
| LS-CR-EMN | 20 × R1 | 65 | 200 | 20 | □ | 837-5 |
| LS-CR-EMN | 20 × R1.5 | 65 | 200 | 20 | □ | 837-5 |
| LS-CR-EMN | 20 × R2 | 65 | 200 | 20 | □ | 837-5 |
| LS-CR-EMN | 20 × R3 | 65 | 200 | 20 | □ | 837-5 |
| LS-CR-EMN | 20 × R4 | 65 | 200 | 20 | □ | 837-5 |
| LS-CR-EMN | 20 × R5 | 65 | 200 | 20 | □ | 837-5 |
| LS-CR-EMN | 20 × R6 | 65 | 200 | 20 | □ | 837-5 |
| PS-CR-EXML | 20 × 3R | 100 | 250 | 20 | □ | 837-5 |
| PS-CR-EXML | 20 × 3R | 100 | 300 | 20 | □ | 837-5 |
| PS-CR-EXML | 20 × 5R | 100 | 300 | 20 | □ | 837-5 |
| PS-CR-EXML | 20 × 3R | 200 | 300 | 20 | □ | 837-5 |
| PS-CR-EXML | 20 × 5R | 200 | 300 | 20 | □ | 837-5 |
| VP-CR-BKMS | 25 × R1 | 45 | 160 | 25 | □ | 870-17 |
| VP-CR-BKMS | 25 × R2 | 45 | 160 | 25 | □ | 870-17 |
| VP-CR-BKMS | 25 × R2.5 | 45 | 160 | 25 | □ | 870-17 |
| VP-CR-BKMS | 25 × R3 | 45 | 160 | 25 | □ | 870-17 |
| CS-EDS | 25 × 0.5 | 50 | 120 | 25 | □ | 837-6 |
| CR-EDS | 25 × R1 | 50 | 120 | 25 | □ | 837-2 |
| CR-EMS | 25 × R1 | 50 | 120 | 25 | □ | 837-4 |
| CS-EDS | 25 × 1 | 50 | 120 | 25 | □ | 837-6 |
| CS-EDS | 25 × 1.5 | 50 | 120 | 25 | □ | 837-6 |
| CR-EDS | 25 × R2 | 50 | 120 | 25 | □ | 837-2 |
| CR-EMS | 25 × R2 | 50 | 120 | 25 | □ | 837-4 |
| CS-EDS | 25 × 2 | 50 | 120 | 25 | □ | 837-6 |
| CR-EDS | 25 × R3 | 50 | 120 | 25 | □ | 837-2 |
| CR-EMS | 25 × R3 | 50 | 120 | 25 | □ | 837-4 |
| CS-EDS | 25 × 3 | 50 | 120 | 25 | □ | 837-6 |
| EX-TIN-CR-EDS | 25 × R3 | 50 | 120 | 25 | □ | 837-1 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# ハイスエンドミル／コーナR
## HSS END MILLS / WITH CORNER RADIUS

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 外径×コーナー半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| CR-EDS | 25 × R4 | 50 | 120 | 25 | □ | 837-2 |
| CR-EMS | 25 × R4 | 50 | 120 | 25 | □ | 837-4 |
| EX-TIN-CR-EDS | 25 × R4 | 50 | 120 | 25 | □ | 837-1 |
| CR-EDS | 25 × R5 | 50 | 120 | 25 | □ | 837-2 |
| CR-EMS | 25 × R5 | 50 | 120 | 25 | □ | 837-4 |
| EX-TIN-CR-EDS | 25 × R5 | 50 | 120 | 25 | □ | 837-1 |
| CR-EDS | 25 × R6 | 50 | 120 | 25 | □ | 837-2 |
| EX-TIN-CR-EDS | 25 × R6 | 50 | 120 | 25 | □ | 837-1 |
| CR-EDS | 25 × R8 | 50 | 120 | 25 | □ | 837-2 |
| EX-TIN-CR-EDS | 25 × R8 | 50 | 120 | 25 | □ | 837-1 |
| VPS-EMS | 25 × R1　×6F | 50 | 125 | 25 | ● | 796 |
| VPS-EMS | 25 × R1　×6F | 50 | 125 | 25 | ● | 837 |
| VPS-EMS | 25 × R1　×10F | 50 | 125 | 25 | ● | 796 |
| VPS-EMS | 25 × R1　×10F | 50 | 125 | 25 | ● | 837 |
| LS-CR-EMN | 25 × R2 | 70 | 220 | 25 | □ | 837-5 |
| LS-CR-EMN | 25 × R3 | 70 | 220 | 25 | □ | 837-5 |
| LS-CR-EMN | 25 × R4 | 70 | 220 | 25 | □ | 837-5 |
| LS-CR-EMN | 25 × R5 | 70 | 220 | 25 | □ | 837-5 |
| LS-CR-EMN | 25 × R6 | 70 | 220 | 25 | □ | 837-5 |
| CR-EDS | 30 × R2 | 55 | 125 | 25 | □ | 837-2 |
| CR-EDS | 30 × R3 | 55 | 125 | 25 | □ | 837-2 |
| CR-EDS | 30 × R4 | 55 | 125 | 25 | □ | 837-2 |
| CR-EDS | 30 × R5 | 55 | 125 | 25 | □ | 837-2 |
| EX-TIN-CR-EDS | 30 × R5 | 55 | 125 | 25 | □ | 837-1 |
| CR-EDS | 30 × R6 | 55 | 125 | 25 | □ | 837-2 |
| EX-TIN-CR-EDS | 30 × R6 | 55 | 125 | 25 | □ | 837-1 |
| CR-EDS | 30 × R8 | 55 | 125 | 25 | □ | 837-2 |
| EX-TIN-CR-EDS | 30 × R8 | 55 | 125 | 25 | □ | 837-1 |
| CR-EDS | 30 × R10 | 55 | 125 | 25 | □ | 837-2 |
| EX-TIN-CR-EDS | 30 × R10 | 55 | 125 | 25 | □ | 837-1 |
| VPS-EMS | 30 × R1　×6F | 55 | 130 | 25 | ● | 796 |
| VPS-EMS | 30 × R1　×6F | 55 | 130 | 25 | ● | 837 |
| VPS-EMS | 30 × R1　×10F | 55 | 130 | 25 | ● | 796 |
| VPS-EMS | 30 × R1　×10F | 55 | 130 | 25 | ● | 837 |
| LS-CR-EMN | 30 × R3 | 70 | 250 | 25 | □ | 837-5 |
| LS-CR-EMN | 30 × R4 | 70 | 250 | 25 | □ | 837-5 |
| LS-CR-EMN | 30 × R5 | 70 | 250 | 25 | □ | 837-5 |
| LS-CR-EMN | 30 × R6 | 70 | 250 | 25 | □ | 837-5 |
| LS-CR-EMN | 30 × R8 | 70 | 250 | 25 | □ | 837-5 |
| LS-CR-EMN | 30 × R10 | 70 | 250 | 25 | □ | 837-5 |
| PS-CR-EXML | 30 × 5R | 100 | 250 | 32 | □ | 837-5 |
| PS-CR-EXML | 30 × 5R | 100 | 300 | 32 | □ | 837-5 |
| PS-CR-EXML | 30 × 5R | 200 | 300 | 32 | □ | 837-5 |
| PS-CR-EXML | 30 × 5R | 250 | 350 | 32 | □ | 837-5 |
| PS-CR-EXML | 30 × 10R | 250 | 350 | 32 | □ | 837-5 |
| PS-CR-EXML | 30 × 10R | 250 | 350 | 32 | □ | 837-5 |
| PS-CR-EXML | 30 × 10R | 300 | 400 | 32 | □ | 837-5 |
| PS-CR-EXML | 30 × 10R | 300 | 400 | 32 | □ | 837-5 |
| VP-CR-BKMS | 32 × R1 | 53 | 160 | 32 | □ | 870-17 |
| VP-CR-BKMS | 32 × R2 | 53 | 160 | 32 | □ | 870-17 |
| VP-CR-BKMS | 32 × R2.5 | 53 | 160 | 32 | □ | 870-17 |
| VP-CR-BKMS | 32 × R3 | 53 | 160 | 32 | □ | 870-17 |
| CR-EDS | 35 × R3 | 60 | 145 | 32 | □ | 837-2 |
| CR-EDS | 35 × R4 | 60 | 145 | 32 | □ | 837-2 |
| CR-EDS | 35 × R5 | 60 | 145 | 32 | □ | 837-2 |
| CR-EDS | 35 × R6 | 60 | 145 | 32 | □ | 837-2 |
| LS-CR-EMN | 35 × R5 | 85 | 300 | 32 | □ | 837-5 |
| LS-CR-EMN | 35 × R6 | 85 | 300 | 32 | □ | 837-5 |
| LS-CR-EMN | 35 × R8 | 85 | 300 | 32 | □ | 837-5 |
| LS-CR-EMN | 35 × R10 | 85 | 300 | 32 | □ | 837-5 |

| 製品記号 Abbreviation | 外径×コーナー半径(X首下長) Mill Dia | 刃長 APMX | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|
| PS-CR-EXML | 35 × 10R | 250 | 350 | 32 | □ | 837-5 |
| PS-CR-EXML | 35 × 10R | 300 | 400 | 32 | □ | 837-5 |
| PS-CR-EXML | 35 × 10R | 350 | 450 | 32 | □ | 837-5 |
| CR-EDS | 40 × R3 | 65 | 150 | 32 | □ | 837-2 |
| CR-EDS | 40 × R4 | 65 | 150 | 32 | □ | 837-2 |
| CR-EDS | 40 × R5 | 65 | 150 | 32 | □ | 837-2 |
| CR-EDS | 40 × R6 | 65 | 150 | 32 | □ | 837-2 |
| CR-EDS | 40 × R10 | 65 | 150 | 32 | □ | 837-2 |
| LS-CR-EMN | 40 × R3 | 90 | 350 | 32 | □ | 837-5 |
| LS-CR-EMN | 40 × R4 | 90 | 350 | 32 | □ | 837-5 |
| LS-CR-EMN | 40 × R5 | 90 | 350 | 32 | □ | 837-5 |
| LS-CR-EMN | 40 × R6 | 90 | 350 | 32 | □ | 837-5 |
| LS-CR-EMN | 40 × R8 | 90 | 350 | 32 | □ | 837-5 |
| LS-CR-EMN | 40 × R10 | 90 | 350 | 32 | □ | 837-5 |
| PS-CR-EXML | 40 × 10R | 300 | 400 | 42 | □ | 837-5 |
| PS-CR-EXML | 40 × 10R | 300 | 400 | 42 | □ | 837-5 |
| PS-CR-EXML | 40 × 15R | 350 | 450 | 42 | □ | 837-5 |
| LS-CR-EMN | 45 × R5 | 125 | 350 | 42 | □ | 837-5 |
| LS-CR-EMN | 45 × R6 | 125 | 350 | 42 | □ | 837-5 |
| LS-CR-EMN | 45 × R8 | 125 | 350 | 42 | □ | 837-5 |
| LS-CR-EMN | 45 × R10 | 125 | 350 | 42 | □ | 837-5 |
| LS-CR-EMN | 50 × R5 | 125 | 400 | 42 | □ | 837-5 |
| LS-CR-EMN | 50 × R6 | 125 | 400 | 42 | □ | 837-5 |
| LS-CR-EMN | 50 × R8 | 125 | 400 | 42 | □ | 837-5 |
| LS-CR-EMN | 50 × R10 | 125 | 400 | 42 | □ | 837-5 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDS | 0.5° | 2 | 0.8 | 45 | 6 | □ | 874 |
| TPDSS | 0.5° | 2.5 | 1 | 47 | 6 | ● | 871 |
| XPM-TPDSS | 0.5° | 2.5 | 1 | 47 | 6 | ● | 871 |
| TPDSS | 0.5° | 3 | 1.5 | 47 | 6 | ● | 871 |
| XPM-TPDSS | 0.5° | 3 | 1.5 | 47 | 6 | ● | 871 |
| TPDS | 0.5° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 0.5° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDS | 0.5° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDSS | 0.5° | 5 | 2 | 49 | 6 | ● | 871 |
| XPM-TPDSS | 0.5° | 5 | 2 | 49 | 6 | ● | 871 |
| TPDSS | 0.5° | 5 | 2.5 | 49 | 6 | ● | 871 |
| XPM-TPDSS | 0.5° | 5 | 2.5 | 49 | 6 | ● | 871 |
| TPDSS | 0.5° | 6 | 3 | 50 | 6 | ● | 871 |
| XPM-TPDSS | 0.5° | 6 | 3 | 50 | 6 | ● | 871 |
| TPDSS | 0.5° | 8 | 4 | 52 | 6 | ● | 871 |
| XPM-TPDSS | 0.5° | 8 | 4 | 52 | 6 | ● | 871 |
| EX-TIN-TPDS | 0.5° | 10 | 2 | 54 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 0.5° | 10 | 2 | 54 | 6 | □ | 887-8 |
| TPDS | 0.5° | 10 | 2 | 54 | 6 | ● | 874 |
| TPMS | 0.5° | 10 | 2 | 54 | 6 | ● | 882 |
| XPM-TPDS | 0.5° | 10 | 2 | 54 | 6 | ● | 872 |
| XPM-TPMS | 0.5° | 10 | 2 | 54 | 6 | ● | 881 |
| EX-TIN-TPDS | 0.5° | 10 | 2.5 | 54 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 0.5° | 10 | 2.5 | 54 | 6 | □ | 887-8 |
| TPDS | 0.5° | 10 | 2.5 | 54 | 6 | ● | 875 |
| TPMS | 0.5° | 10 | 2.5 | 54 | 6 | ● | 882 |
| XPM-TPDS | 0.5° | 10 | 2.5 | 54 | 6 | ● | 872 |
| XPM-TPMS | 0.5° | 10 | 2.5 | 54 | 6 | ● | 881 |
| EX-TIN-TPDS | 0.5° | 10 | 3 | 54 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 0.5° | 10 | 3 | 54 | 6 | □ | 887-8 |
| TPDS | 0.5° | 10 | 3 | 54 | 6 | ● | 875 |
| TPMS | 0.5° | 10 | 3 | 54 | 6 | ● | 882 |
| XPM-TPDS | 0.5° | 10 | 3 | 54 | 6 | ● | 872 |
| XPM-TPMS | 0.5° | 10 | 3 | 54 | 6 | ● | 881 |
| EX-TIN-TPDS | 0.5° | 12 | 4 | 56 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 0.5° | 12 | 4 | 56 | 6 | □ | 887-8 |
| TPDS | 0.5° | 12 | 4 | 56 | 6 | ● | 875 |
| TPMS | 0.5° | 12 | 4 | 56 | 6 | ● | 882 |
| XPM-TPDS | 0.5° | 12 | 4 | 56 | 6 | ● | 872 |
| XPM-TPMS | 0.5° | 12 | 4 | 56 | 6 | ● | 881 |
| EX-TIN-TPDS | 0.5° | 14 | 5 | 58 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 0.5° | 14 | 5 | 58 | 6 | □ | 887-8 |
| TPDS | 0.5° | 14 | 5 | 58 | 6 | ● | 875 |
| TPMS | 0.5° | 14 | 5 | 58 | 6 | ● | 882 |
| XPM-TPDS | 0.5° | 14 | 5 | 58 | 6 | ● | 872 |
| XPM-TPMS | 0.5° | 14 | 5 | 58 | 6 | ● | 881 |
| EX-TIN-TPDS | 0.5° | 14 | 6 | 58 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 0.5° | 14 | 6 | 58 | 8 | □ | 887-8 |
| TPDS | 0.5° | 14 | 6 | 58 | 8 | ● | 875 |
| TPMS | 0.5° | 14 | 6 | 58 | 8 | ● | 883 |
| XPM-TPDS | 0.5° | 14 | 6 | 58 | 8 | ● | 872 |
| XPM-TPMS | 0.5° | 14 | 6 | 58 | 8 | ● | 881 |
| TPDR | 0.5° | 17 | 2 | 61 | 6 | □ | 878 |
| TPMR | 0.5° | 17 | 2 | 61 | 6 | □ | 885 |
| EX-TIN-TPDR | 0.5° | 17 | 2.5 | 61 | 6 | □ | 887-3 |
| TPDR | 0.5° | 17 | 2.5 | 61 | 6 | ● | 878 |
| TPMR | 0.5° | 17 | 2.5 | 61 | 6 | □ | 885 |
| XPM-TPDR | 0.5° | 17 | 2.5 | 61 | 6 | ● | 877 |
| EX-TIN-TPDR | 0.5° | 17 | 3 | 61 | 6 | □ | 887-3 |
| TPDR | 0.5° | 17 | 3 | 61 | 6 | ● | 878 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPMR | 0.5° | 17 | 3 | 61 | 6 | □ | 885 |
| XPM-TPDR | 0.5° | 17 | 3 | 61 | 6 | ● | 877 |
| TPDS | 0.5° | 17 | 8 | 67 | 10 | □ | 876 |
| TPMS | 0.5° | 17 | 8 | 67 | 10 | □ | 883 |
| TPDS | 0.5° | 17 | 10 | 74 | 12 | □ | 876 |
| TPMS | 0.5° | 17 | 10 | 74 | 12 | □ | 883 |
| EX-TIN-TPDR | 0.5° | 20 | 4 | 64 | 6 | □ | 887-3 |
| TPDR | 0.5° | 20 | 4 | 64 | 6 | ● | 878 |
| TPMR | 0.5° | 20 | 4 | 64 | 6 | □ | 885 |
| XPM-TPDR | 0.5° | 20 | 4 | 64 | 6 | ● | 877 |
| EX-TIN-TPDR | 0.5° | 24 | 5 | 68 | 6 | □ | 887-3 |
| TPDR | 0.5° | 24 | 5 | 68 | 6 | ● | 878 |
| TPMR | 0.5° | 24 | 5 | 68 | 6 | □ | 885 |
| XPM-TPDR | 0.5° | 24 | 5 | 68 | 6 | ● | 877 |
| EX-TIN-TPDR | 0.5° | 24 | 6 | 68 | 8 | □ | 887-3 |
| EX-TIN-TPMR | 0.5° | 24 | 6 | 68 | 8 | □ | 887-9 |
| TPDR | 0.5° | 24 | 6 | 68 | 8 | ● | 878 |
| TPMR | 0.5° | 24 | 6 | 68 | 8 | ● | 885 |
| XPM-TPDR | 0.5° | 24 | 6 | 68 | 8 | ● | 877 |
| XPM-TPMR | 0.5° | 24 | 6 | 68 | 8 | ● | 884 |
| TPDN | 0.5° | 28 | 2 | 72 | 6 | □ | 887-4 |
| TPMN | 0.5° | 28 | 2 | 72 | 6 | □ | 887-10 |
| TPDN | 0.5° | 28 | 2.5 | 72 | 6 | □ | 887-4 |
| TPMN | 0.5° | 28 | 2.5 | 72 | 6 | □ | 887-10 |
| TPDN | 0.5° | 28 | 3 | 72 | 6 | □ | 887-4 |
| TPMN | 0.5° | 28 | 3 | 72 | 6 | □ | 887-10 |
| EX-TIN-TPDR | 0.5° | 28 | 8 | 78 | 10 | □ | 887-3 |
| EX-TIN-TPMR | 0.5° | 28 | 8 | 78 | 10 | □ | 887-9 |
| TPDR | 0.5° | 28 | 8 | 78 | 10 | ● | 879 |
| TPMR | 0.5° | 28 | 8 | 78 | 10 | ● | 886 |
| XPM-TPDR | 0.5° | 28 | 8 | 78 | 10 | ● | 877 |
| XPM-TPMR | 0.5° | 28 | 8 | 78 | 10 | ● | 884 |
| EX-TIN-TPDR | 0.5° | 28 | 10 | 85 | 12 | □ | 887-3 |
| EX-TIN-TPMR | 0.5° | 28 | 10 | 85 | 12 | □ | 887-9 |
| TPDR | 0.5° | 28 | 10 | 85 | 12 | ● | 879 |
| TPMR | 0.5° | 28 | 10 | 85 | 12 | ● | 886 |
| XPM-TPDR | 0.5° | 28 | 10 | 85 | 12 | ● | 877 |
| XPM-TPMR | 0.5° | 28 | 10 | 85 | 12 | ● | 884 |
| TPDL | 0.5° | 34 | 2.5 | 78 | 6 | □ | 887-6 |
| TPML | 0.5° | 34 | 2.5 | 78 | 6 | □ | 887-12 |
| TPDL | 0.5° | 34 | 3 | 78 | 6 | □ | 887-6 |
| TPML | 0.5° | 34 | 3 | 78 | 6 | □ | 887-12 |
| TPDN | 0.5° | 34 | 4 | 78 | 6 | □ | 887-4 |
| TPMN | 0.5° | 34 | 4 | 78 | 6 | □ | 887-10 |
| EX-TIN-TPDR | 0.5° | 34 | 12 | 91 | 12 | □ | 887-3 |
| EX-TIN-TPMR | 0.5° | 34 | 12 | 91 | 12 | □ | 887-9 |
| TPDR | 0.5° | 34 | 12 | 91 | 12 | ● | 879 |
| TPMR | 0.5° | 34 | 12 | 91 | 12 | ● | 886 |
| XPM-TPDR | 0.5° | 34 | 12 | 91 | 12 | ● | 877 |
| XPM-TPMR | 0.5° | 34 | 12 | 91 | 12 | ● | 884 |
| TPDR | 0.5° | 34 | 16 | 94 | 16 | □ | 879 |
| TPMR | 0.5° | 34 | 16 | 94 | 16 | □ | 886 |
| TPDL | 0.5° | 40 | 4 | 84 | 6 | □ | 887-6 |
| TPML | 0.5° | 40 | 4 | 84 | 6 | □ | 887-12 |
| TPDN | 0.5° | 40 | 5 | 84 | 6 | □ | 887-4 |
| TPMN | 0.5° | 40 | 5 | 84 | 6 | □ | 887-10 |
| TPDN | 0.5° | 40 | 6 | 84 | 8 | □ | 887-4 |
| TPMN | 0.5° | 40 | 6 | 84 | 8 | □ | 887-10 |
| TPDR | 0.5° | 40 | 20 | 106 | 20 | □ | 879 |
| TPMR | 0.5° | 40 | 20 | 106 | 20 | □ | 886 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDL | 0.5° | 48 | 5 | 92 | 6 | □ | 887-6 |
| TPML | 0.5° | 48 | 5 | 92 | 6 | □ | 887-12 |
| TPDL | 0.5° | 48 | 6 | 92 | 8 | □ | 887-6 |
| TPML | 0.5° | 48 | 6 | 92 | 8 | □ | 887-12 |
| TPDN | 0.5° | 48 | 8 | 98 | 10 | □ | 887-5 |
| TPMN | 0.5° | 48 | 8 | 98 | 10 | □ | 887-10 |
| TPDN | 0.5° | 48 | 10 | 105 | 12 | □ | 887-5 |
| TPMN | 0.5° | 48 | 10 | 105 | 12 | □ | 887-10 |
| TPDL | 0.5° | 56 | 8 | 106 | 10 | □ | 887-6 |
| TPML | 0.5° | 56 | 8 | 106 | 10 | □ | 887-12 |
| TPDL | 0.5° | 56 | 10 | 113 | 12 | □ | 887-6 |
| TPML | 0.5° | 56 | 10 | 113 | 12 | □ | 887-12 |
| TPDN | 0.5° | 56 | 12 | 113 | 12 | □ | 887-5 |
| TPMN | 0.5° | 56 | 12 | 113 | 12 | □ | 887-10 |
| TPDN | 0.5° | 56 | 16 | 116 | 16 | □ | 887-5 |
| TPMN | 0.5° | 56 | 16 | 116 | 16 | □ | 887-11 |
| TPDN | 0.5° | 57 | 20 | 123 | 20 | □ | 887-5 |
| TPMN | 0.5° | 57 | 20 | 123 | 20 | □ | 887-11 |
| TPDL | 0.5° | 67 | 12 | 124 | 12 | □ | 887-6 |
| TPML | 0.5° | 67 | 12 | 124 | 12 | □ | 887-12 |
| TPDL | 0.5° | 67 | 16 | 127 | 16 | □ | 887-6 |
| TPML | 0.5° | 67 | 16 | 127 | 16 | □ | 887-12 |
| TPDL | 0.5° | 80 | 20 | 146 | 20 | □ | 887-7 |
| TPML | 0.5° | 80 | 20 | 146 | 20 | □ | 887-13 |
| TPDS | 0.75° | 2 | 0.8 | 45 | 6 | □ | 874 |
| TPDS | 0.75° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 0.75° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDS | 0.75° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDS | 0.75° | 10 | 2 | 54 | 6 | □ | 874 |
| TPMS | 0.75° | 10 | 2 | 54 | 6 | □ | 882 |
| TPDS | 0.75° | 10 | 2.5 | 54 | 6 | □ | 875 |
| TPMS | 0.75° | 10 | 2.5 | 54 | 6 | □ | 882 |
| TPDS | 0.75° | 10 | 3 | 54 | 6 | □ | 875 |
| TPMS | 0.75° | 10 | 3 | 54 | 6 | □ | 882 |
| TPDS | 0.75° | 12 | 4 | 56 | 6 | □ | 875 |
| TPMS | 0.75° | 12 | 4 | 56 | 6 | □ | 882 |
| TPDS | 0.75° | 14 | 5 | 58 | 6 | □ | 875 |
| TPMS | 0.75° | 14 | 5 | 58 | 6 | □ | 882 |
| TPDS | 0.75° | 14 | 6 | 58 | 8 | □ | 875 |
| TPMS | 0.75° | 14 | 6 | 58 | 8 | □ | 883 |
| TPDS | 1° | 2 | 0.8 | 45 | 6 | □ | 874 |
| TPDSS | 1° | 3.5 | 1 | 48 | 6 | ● | 871 |
| XPM-TPDSS | 1° | 3.5 | 1 | 48 | 6 | ● | 871 |
| TPDS | 1° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 1° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDSS | 1° | 4 | 1.5 | 48 | 6 | ● | 871 |
| XPM-TPDSS | 1° | 4 | 1.5 | 48 | 6 | ● | 871 |
| TPDS | 1° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDSS | 1° | 7 | 2 | 51 | 6 | ● | 871 |
| XPM-TPDSS | 1° | 7 | 2 | 51 | 6 | ● | 871 |
| TPDSS | 1° | 7 | 2.5 | 51 | 6 | ● | 871 |
| XPM-TPDSS | 1° | 7 | 2.5 | 51 | 6 | ● | 871 |
| TPDSS | 1° | 8 | 3 | 52 | 6 | ● | 871 |
| XPM-TPDSS | 1° | 8 | 3 | 52 | 6 | ● | 871 |
| TPDSS | 1° | 11 | 4 | 55 | 6 | ● | 871 |
| XPM-TPDSS | 1° | 11 | 4 | 55 | 6 | ● | 871 |
| EX-TIN-TPDS | 1° | 13 | 2 | 57 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1° | 13 | 2 | 57 | 6 | □ | 887-8 |
| TPDS | 1° | 13 | 2 | 57 | 6 | ● | 874 |
| TPMS | 1° | 13 | 2 | 57 | 6 | ● | 882 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| XPM-TPDS | 1° | 13 | 2 | 57 | 6 | ● | 872 |
| XPM-TPMS | 1° | 13 | 2 | 57 | 6 | ● | 881 |
| EX-TIN-TPDS | 1° | 13 | 2.5 | 57 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1° | 13 | 2.5 | 57 | 6 | □ | 887-8 |
| TPDS | 1° | 13 | 2.5 | 57 | 6 | ● | 875 |
| TPMS | 1° | 13 | 2.5 | 57 | 6 | ● | 882 |
| XPM-TPDS | 1° | 13 | 2.5 | 57 | 6 | ● | 872 |
| XPM-TPMS | 1° | 13 | 2.5 | 57 | 6 | ● | 881 |
| EX-TIN-TPDS | 1° | 13 | 3 | 57 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1° | 13 | 3 | 57 | 6 | □ | 887-8 |
| TPDS | 1° | 13 | 3 | 57 | 6 | ● | 875 |
| TPMS | 1° | 13 | 3 | 57 | 6 | ● | 882 |
| XPM-TPDS | 1° | 13 | 3 | 57 | 6 | ● | 872 |
| XPM-TPMS | 1° | 13 | 3 | 57 | 6 | ● | 881 |
| EX-TIN-TPDS | 1° | 16 | 4 | 60 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1° | 16 | 4 | 60 | 6 | □ | 887-8 |
| TPDS | 1° | 16 | 4 | 60 | 6 | ● | 875 |
| TPMS | 1° | 16 | 4 | 60 | 6 | ● | 882 |
| XPM-TPDS | 1° | 16 | 4 | 60 | 6 | ● | 872 |
| XPM-TPMS | 1° | 16 | 4 | 60 | 6 | ● | 881 |
| EX-TIN-TPDS | 1° | 19 | 5 | 63 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1° | 19 | 5 | 63 | 6 | □ | 887-8 |
| TPDS | 1° | 19 | 5 | 63 | 6 | ● | 875 |
| TPMS | 1° | 19 | 5 | 63 | 6 | ● | 882 |
| XPM-TPDS | 1° | 19 | 5 | 63 | 6 | ● | 872 |
| XPM-TPMS | 1° | 19 | 5 | 63 | 6 | ● | 881 |
| EX-TIN-TPDS | 1° | 19 | 6 | 63 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 1° | 19 | 6 | 63 | 8 | □ | 887-8 |
| TPDS | 1° | 19 | 6 | 63 | 8 | ● | 875 |
| TPMS | 1° | 19 | 6 | 63 | 8 | ● | 883 |
| XPM-TPDS | 1° | 19 | 6 | 63 | 8 | ● | 872 |
| XPM-TPMS | 1° | 19 | 6 | 63 | 8 | ● | 881 |
| EX-TIN-TPDR | 1° | 22 | 2 | 66 | 6 | □ | 887-3 |
| TPDR | 1° | 22 | 2 | 66 | 6 | ● | 878 |
| TPMR | 1° | 22 | 2 | 66 | 6 | □ | 885 |
| XPM-TPDR | 1° | 22 | 2 | 66 | 6 | ● | 877 |
| EX-TIN-TPDR | 1° | 22 | 2.5 | 66 | 6 | □ | 887-3 |
| TPDR | 1° | 22 | 2.5 | 66 | 6 | ● | 878 |
| TPMR | 1° | 22 | 2.5 | 66 | 6 | □ | 885 |
| XPM-TPDR | 1° | 22 | 2.5 | 66 | 6 | ● | 877 |
| EX-TIN-TPDR | 1° | 22 | 3 | 66 | 6 | □ | 887-3 |
| TPDR | 1° | 22 | 3 | 66 | 6 | ● | 878 |
| TPMR | 1° | 22 | 3 | 66 | 6 | □ | 885 |
| XPM-TPDR | 1° | 22 | 3 | 66 | 6 | ● | 877 |
| TPDS | 1° | 22 | 8 | 72 | 10 | □ | 876 |
| TPMS | 1° | 22 | 8 | 72 | 10 | □ | 883 |
| TPDS | 1° | 22 | 10 | 79 | 12 | □ | 876 |
| TPMS | 1° | 22 | 10 | 79 | 12 | □ | 883 |
| EX-TIN-TPDR | 1° | 26 | 4 | 70 | 6 | □ | 887-3 |
| TPDR | 1° | 26 | 4 | 70 | 6 | ● | 878 |
| TPMR | 1° | 26 | 4 | 70 | 6 | □ | 885 |
| XPM-TPDR | 1° | 26 | 4 | 70 | 6 | ● | 877 |
| EX-TIN-TPDR | 1° | 32 | 5 | 76 | 8 | □ | 887-3 |
| TPDR | 1° | 32 | 5 | 76 | 8 | ● | 878 |
| TPMR | 1° | 32 | 5 | 76 | 8 | □ | 885 |
| XPM-TPDR | 1° | 32 | 5 | 76 | 8 | ● | 877 |
| EX-TIN-TPDR | 1° | 32 | 6 | 76 | 8 | □ | 887-3 |
| EX-TIN-TPMR | 1° | 32 | 6 | 76 | 8 | □ | 887-9 |
| TPDR | 1° | 32 | 6 | 76 | 8 | ● | 878 |
| TPMR | 1° | 32 | 6 | 76 | 8 | ● | 885 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| XPM-TPDR | 1° | 32 | 6 | 76 | 8 | ● | 877 |
| XPM-TPMR | 1° | 32 | 6 | 76 | 8 | ● | 884 |
| TPDN | 1° | 38 | 2 | 82 | 6 | □ | 887-4 |
| TPMN | 1° | 38 | 2 | 82 | 6 | □ | 887-10 |
| TPDN | 1° | 38 | 2.5 | 82 | 6 | □ | 887-4 |
| TPMN | 1° | 38 | 2.5 | 82 | 6 | □ | 887-10 |
| TPDN | 1° | 38 | 3 | 82 | 6 | □ | 887-4 |
| TPMN | 1° | 38 | 3 | 82 | 6 | □ | 887-10 |
| EX-TIN-TPDR | 1° | 38 | 8 | 88 | 10 | □ | 887-3 |
| EX-TIN-TPMR | 1° | 38 | 8 | 88 | 10 | □ | 887-9 |
| TPDR | 1° | 38 | 8 | 88 | 10 | ● | 879 |
| TPMR | 1° | 38 | 8 | 88 | 10 | ● | 886 |
| XPM-TPDR | 1° | 38 | 8 | 88 | 10 | ● | 877 |
| XPM-TPMR | 1° | 38 | 8 | 88 | 10 | ● | 884 |
| EX-TIN-TPDR | 1° | 38 | 10 | 95 | 12 | □ | 887-3 |
| EX-TIN-TPMR | 1° | 38 | 10 | 95 | 12 | □ | 887-9 |
| TPDR | 1° | 38 | 10 | 95 | 12 | ● | 879 |
| TPMR | 1° | 38 | 10 | 95 | 12 | ● | 886 |
| XPM-TPDR | 1° | 38 | 10 | 95 | 12 | ● | 877 |
| XPM-TPMR | 1° | 38 | 10 | 95 | 12 | ● | 884 |
| TPDL | 1° | 45 | 2.5 | 89 | 6 | □ | 887-6 |
| TPML | 1° | 45 | 2.5 | 89 | 6 | □ | 887-12 |
| TPDL | 1° | 45 | 3 | 89 | 6 | □ | 887-6 |
| TPML | 1° | 45 | 3 | 89 | 6 | □ | 887-12 |
| TPDN | 1° | 45 | 4 | 89 | 6 | □ | 887-4 |
| TPMN | 1° | 45 | 4 | 89 | 6 | □ | 887-10 |
| EX-TIN-TPDR | 1° | 45 | 12 | 102 | 12 | □ | 887-3 |
| EX-TIN-TPMR | 1° | 45 | 12 | 102 | 12 | □ | 887-9 |
| TPDR | 1° | 45 | 12 | 102 | 12 | ● | 879 |
| TPMR | 1° | 45 | 12 | 102 | 12 | ● | 886 |
| XPM-TPDR | 1° | 45 | 12 | 102 | 12 | ● | 877 |
| XPM-TPMR | 1° | 45 | 12 | 102 | 12 | ● | 884 |
| TPDR | 1° | 45 | 16 | 105 | 16 | □ | 879 |
| TPMR | 1° | 45 | 16 | 105 | 16 | □ | 886 |
| TPDL | 1° | 53 | 4 | 97 | 6 | □ | 887-6 |
| TPML | 1° | 53 | 4 | 97 | 6 | □ | 887-12 |
| TPDN | 1° | 53 | 5 | 97 | 8 | □ | 887-4 |
| TPMN | 1° | 53 | 5 | 97 | 8 | □ | 887-10 |
| TPDN | 1° | 53 | 6 | 97 | 8 | □ | 887-4 |
| TPMN | 1° | 53 | 6 | 97 | 8 | □ | 887-10 |
| TPDR | 1° | 53 | 20 | 119 | 20 | □ | 880 |
| TPMR | 1° | 53 | 20 | 119 | 20 | □ | 887 |
| TPDL | 1° | 63 | 5 | 107 | 8 | □ | 887-6 |
| TPML | 1° | 63 | 5 | 107 | 8 | □ | 887-12 |
| TPDL | 1° | 63 | 6 | 113 | 10 | □ | 887-6 |
| TPML | 1° | 63 | 6 | 113 | 10 | □ | 887-12 |
| TPDN | 1° | 63 | 8 | 120 | 12 | □ | 887-5 |
| TPMN | 1° | 63 | 8 | 120 | 12 | □ | 887-10 |
| TPDN | 1° | 63 | 10 | 120 | 12 | □ | 887-5 |
| TPMN | 1° | 63 | 10 | 120 | 12 | □ | 887-10 |
| TPDL | 1° | 75 | 8 | 132 | 12 | □ | 887-6 |
| TPML | 1° | 75 | 8 | 132 | 12 | □ | 887-12 |
| TPDL | 1° | 75 | 10 | 132 | 12 | □ | 887-6 |
| TPML | 1° | 75 | 10 | 132 | 12 | □ | 887-12 |
| TPDN | 1° | 75 | 12 | 132 | 12 | □ | 887-5 |
| TPMN | 1° | 75 | 12 | 132 | 12 | □ | 887-10 |
| TPDN | 1° | 75 | 16 | 135 | 16 | □ | 887-5 |
| TPMN | 1° | 75 | 16 | 135 | 16 | □ | 887-11 |
| TPDL | 1° | 90 | 12 | 150 | 16 | □ | 887-6 |
| TPML | 1° | 90 | 12 | 150 | 16 | □ | 887-12 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDL | 1° | 90 | 16 | 156 | 20 | □ | 887-6 |
| TPML | 1° | 90 | 16 | 156 | 20 | □ | 887-12 |
| TPDN | 1° | 90 | 20 | 156 | 20 | □ | 887-5 |
| TPMN | 1° | 90 | 20 | 156 | 20 | □ | 887-11 |
| TPDL | 1° | 106 | 20 | 182 | 25 | □ | 887-7 |
| TPML | 1° | 106 | 20 | 182 | 25 | □ | 887-13 |
| TPDS | 1.25° | 2 | 0.8 | 45 | 6 | □ | 874 |
| TPDS | 1.25° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 1.25° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDS | 1.25° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDS | 1.25° | 13 | 2 | 57 | 6 | □ | 874 |
| TPMS | 1.25° | 13 | 2 | 57 | 6 | □ | 882 |
| TPDS | 1.25° | 13 | 2.5 | 57 | 6 | □ | 875 |
| TPMS | 1.25° | 13 | 2.5 | 57 | 6 | □ | 882 |
| TPDS | 1.25° | 13 | 3 | 57 | 6 | □ | 875 |
| TPMS | 1.25° | 13 | 3 | 57 | 6 | □ | 882 |
| TPDS | 1.25° | 16 | 4 | 60 | 6 | □ | 875 |
| TPMS | 1.25° | 16 | 4 | 60 | 6 | □ | 882 |
| TPDS | 1.25° | 19 | 5 | 63 | 6 | □ | 875 |
| TPMS | 1.25° | 19 | 5 | 63 | 6 | □ | 882 |
| TPDS | 1.25° | 19 | 6 | 63 | 8 | □ | 875 |
| TPMS | 1.25° | 19 | 6 | 63 | 8 | □ | 883 |
| TPDS | 1.25° | 22 | 8 | 72 | 10 | □ | 876 |
| TPMS | 1.25° | 22 | 8 | 72 | 10 | □ | 883 |
| TPDS | 1.25° | 22 | 10 | 79 | 12 | □ | 876 |
| TPMS | 1.25° | 22 | 10 | 79 | 12 | □ | 883 |
| TPDS | 1.5° | 2 | 0.8 | 45 | 6 | □ | 874 |
| TPDSS | 1.5° | 3.5 | 1 | 48 | 6 | ● | 871 |
| XPM-TPDSS | 1.5° | 3.5 | 1 | 48 | 6 | ● | 871 |
| TPDS | 1.5° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 1.5° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDSS | 1.5° | 4 | 1.5 | 48 | 6 | ● | 871 |
| XPM-TPDSS | 1.5° | 4 | 1.5 | 48 | 6 | ● | 871 |
| TPDS | 1.5° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDSS | 1.5° | 7 | 2 | 51 | 6 | ● | 871 |
| XPM-TPDSS | 1.5° | 7 | 2 | 51 | 6 | ● | 871 |
| TPDSS | 1.5° | 7 | 2.5 | 51 | 6 | ● | 871 |
| XPM-TPDSS | 1.5° | 7 | 2.5 | 51 | 6 | ● | 871 |
| TPDSS | 1.5° | 8 | 3 | 52 | 6 | ● | 871 |
| XPM-TPDSS | 1.5° | 8 | 3 | 52 | 6 | ● | 871 |
| TPDSS | 1.5° | 11 | 4 | 55 | 6 | ● | 871 |
| XPM-TPDSS | 1.5° | 11 | 4 | 55 | 6 | ● | 871 |
| EX-TIN-TPDS | 1.5° | 13 | 2 | 57 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1.5° | 13 | 2 | 57 | 6 | □ | 887-8 |
| TPDS | 1.5° | 13 | 2 | 57 | 6 | ● | 874 |
| TPMS | 1.5° | 13 | 2 | 57 | 6 | ● | 882 |
| XPM-TPDS | 1.5° | 13 | 2 | 57 | 6 | ● | 872 |
| XPM-TPMS | 1.5° | 13 | 2 | 57 | 6 | ● | 881 |
| EX-TIN-TPDS | 1.5° | 13 | 2.5 | 57 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1.5° | 13 | 2.5 | 57 | 6 | □ | 887-8 |
| TPDS | 1.5° | 13 | 2.5 | 57 | 6 | ● | 875 |
| TPMS | 1.5° | 13 | 2.5 | 57 | 6 | ● | 882 |
| XPM-TPDS | 1.5° | 13 | 2.5 | 57 | 6 | ● | 872 |
| XPM-TPMS | 1.5° | 13 | 2.5 | 57 | 6 | ● | 881 |
| EX-TIN-TPDS | 1.5° | 13 | 3 | 57 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1.5° | 13 | 3 | 57 | 6 | □ | 887-8 |
| TPDS | 1.5° | 13 | 3 | 57 | 6 | ● | 875 |
| TPMS | 1.5° | 13 | 3 | 57 | 6 | ● | 882 |
| XPM-TPDS | 1.5° | 13 | 3 | 57 | 6 | ● | 872 |
| XPM-TPMS | 1.5° | 13 | 3 | 57 | 6 | ● | 881 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
HSS END MILLS / TAPER

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-TIN-TPDS | 1.5° | 16 | 4 | 60 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1.5° | 16 | 4 | 60 | 6 | □ | 887-8 |
| TPDS | 1.5° | 16 | 4 | 60 | 6 | ● | 875 |
| TPMS | 1.5° | 16 | 4 | 60 | 6 | ● | 882 |
| XPM-TPDS | 1.5° | 16 | 4 | 60 | 6 | ● | 872 |
| XPM-TPMS | 1.5° | 16 | 4 | 60 | 6 | ● | 881 |
| EX-TIN-TPDS | 1.5° | 19 | 5 | 63 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 1.5° | 19 | 5 | 63 | 6 | □ | 887-8 |
| TPDS | 1.5° | 19 | 5 | 63 | 6 | ● | 875 |
| TPMS | 1.5° | 19 | 5 | 63 | 6 | ● | 882 |
| XPM-TPDS | 1.5° | 19 | 5 | 63 | 6 | ● | 872 |
| XPM-TPMS | 1.5° | 19 | 5 | 63 | 6 | ● | 881 |
| EX-TIN-TPDS | 1.5° | 19 | 6 | 63 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 1.5° | 19 | 6 | 63 | 8 | □ | 887-8 |
| TPDS | 1.5° | 19 | 6 | 63 | 8 | ● | 875 |
| TPMS | 1.5° | 19 | 6 | 63 | 8 | ● | 883 |
| XPM-TPDS | 1.5° | 19 | 6 | 63 | 8 | ● | 872 |
| XPM-TPMS | 1.5° | 19 | 6 | 63 | 8 | ● | 881 |
| EX-TIN-TPDR | 1.5° | 22 | 2 | 66 | 6 | □ | 887-3 |
| TPDR | 1.5° | 22 | 2 | 66 | 6 | ● | 878 |
| TPMR | 1.5° | 22 | 2 | 66 | 6 | □ | 885 |
| XPM-TPDR | 1.5° | 22 | 2 | 66 | 6 | ● | 877 |
| EX-TIN-TPDR | 1.5° | 22 | 2.5 | 66 | 6 | □ | 887-3 |
| TPDR | 1.5° | 22 | 2.5 | 66 | 6 | ● | 878 |
| TPMR | 1.5° | 22 | 2.5 | 66 | 6 | □ | 885 |
| XPM-TPDR | 1.5° | 22 | 2.5 | 66 | 6 | ● | 877 |
| EX-TIN-TPDR | 1.5° | 22 | 3 | 66 | 6 | □ | 887-3 |
| TPDR | 1.5° | 22 | 3 | 66 | 6 | ● | 878 |
| TPMR | 1.5° | 22 | 3 | 66 | 6 | □ | 885 |
| XPM-TPDR | 1.5° | 22 | 3 | 66 | 6 | ● | 877 |
| EX-TIN-TPDS | 1.5° | 22 | 8 | 72 | 10 | □ | 887-1 |
| EX-TIN-TPMS | 1.5° | 22 | 8 | 72 | 10 | □ | 887-8 |
| TPDS | 1.5° | 22 | 8 | 72 | 10 | ● | 876 |
| TPMS | 1.5° | 22 | 8 | 72 | 10 | ● | 883 |
| XPM-TPDS | 1.5° | 22 | 8 | 72 | 10 | ● | 872 |
| XPM-TPMS | 1.5° | 22 | 8 | 72 | 10 | ● | 881 |
| EX-TIN-TPDS | 1.5° | 22 | 10 | 79 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 1.5° | 22 | 10 | 79 | 12 | □ | 887-8 |
| TPDS | 1.5° | 22 | 10 | 79 | 12 | ● | 876 |
| TPMS | 1.5° | 22 | 10 | 79 | 12 | ● | 883 |
| XPM-TPDS | 1.5° | 22 | 10 | 79 | 12 | ● | 872 |
| XPM-TPMS | 1.5° | 22 | 10 | 79 | 12 | ● | 881 |
| EX-TIN-TPDR | 1.5° | 26 | 4 | 70 | 6 | □ | 887-3 |
| TPDR | 1.5° | 26 | 4 | 70 | 6 | ● | 878 |
| TPMR | 1.5° | 26 | 4 | 70 | 6 | □ | 885 |
| XPM-TPDR | 1.5° | 26 | 4 | 70 | 6 | ● | 877 |
| EX-TIN-TPDR | 1.5° | 32 | 5 | 76 | 8 | □ | 887-3 |
| TPDR | 1.5° | 32 | 5 | 76 | 8 | ● | 878 |
| TPMR | 1.5° | 32 | 5 | 76 | 8 | □ | 885 |
| XPM-TPDR | 1.5° | 32 | 5 | 76 | 8 | ● | 877 |
| EX-TIN-TPDR | 1.5° | 32 | 6 | 76 | 8 | □ | 887-3 |
| TPDR | 1.5° | 32 | 6 | 76 | 8 | ● | 878 |
| TPMR | 1.5° | 32 | 6 | 76 | 8 | □ | 885 |
| XPM-TPDR | 1.5° | 32 | 6 | 76 | 8 | ● | 877 |
| TPDN | 1.5° | 38 | 2 | 82 | 6 | □ | 887-4 |
| TPMN | 1.5° | 38 | 2 | 82 | 6 | □ | 887-10 |
| TPDN | 1.5° | 38 | 2.5 | 82 | 6 | □ | 887-4 |
| TPMN | 1.5° | 38 | 2.5 | 82 | 6 | □ | 887-10 |
| TPDN | 1.5° | 38 | 3 | 82 | 6 | □ | 887-4 |
| TPMN | 1.5° | 38 | 3 | 82 | 6 | □ | 887-10 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-TIN-TPDR | 1.5° | 38 | 8 | 88 | 10 | □ | 887-3 |
| EX-TIN-TPMR | 1.5° | 38 | 8 | 88 | 10 | □ | 887-9 |
| TPDR | 1.5° | 38 | 8 | 88 | 10 | ● | 879 |
| TPMR | 1.5° | 38 | 8 | 88 | 10 | ● | 886 |
| XPM-TPDR | 1.5° | 38 | 8 | 88 | 10 | ● | 877 |
| XPM-TPMR | 1.5° | 38 | 8 | 88 | 10 | ● | 884 |
| EX-TIN-TPDR | 1.5° | 38 | 10 | 95 | 12 | □ | 887-3 |
| EX-TIN-TPMR | 1.5° | 38 | 10 | 95 | 12 | □ | 887-9 |
| TPDR | 1.5° | 38 | 10 | 95 | 12 | ● | 879 |
| TPMR | 1.5° | 38 | 10 | 95 | 12 | ● | 886 |
| XPM-TPDR | 1.5° | 38 | 10 | 95 | 12 | ● | 877 |
| XPM-TPMR | 1.5° | 38 | 10 | 95 | 12 | ● | 884 |
| TPDL | 1.5° | 45 | 2.5 | 89 | 6 | □ | 887-6 |
| TPML | 1.5° | 45 | 2.5 | 89 | 6 | □ | 887-12 |
| TPDL | 1.5° | 45 | 3 | 89 | 6 | □ | 887-6 |
| TPML | 1.5° | 45 | 3 | 89 | 6 | □ | 887-12 |
| TPDN | 1.5° | 45 | 4 | 89 | 8 | □ | 887-4 |
| TPMN | 1.5° | 45 | 4 | 89 | 8 | □ | 887-10 |
| EX-TIN-TPDR | 1.5° | 45 | 12 | 102 | 12 | □ | 887-3 |
| EX-TIN-TPMR | 1.5° | 45 | 12 | 102 | 12 | □ | 887-9 |
| TPDR | 1.5° | 45 | 12 | 102 | 12 | ● | 879 |
| TPMR | 1.5° | 45 | 12 | 102 | 12 | ● | 886 |
| XPM-TPDR | 1.5° | 45 | 12 | 102 | 12 | ● | 877 |
| XPM-TPMR | 1.5° | 45 | 12 | 102 | 12 | ● | 884 |
| EX-TIN-TPDR | 1.5° | 45 | 16 | 105 | 16 | □ | 887-3 |
| EX-TIN-TPMR | 1.5° | 45 | 16 | 105 | 16 | □ | 887-9 |
| TPDR | 1.5° | 45 | 16 | 105 | 16 | ● | 879 |
| TPMR | 1.5° | 45 | 16 | 105 | 16 | ● | 886 |
| XPM-TPDR | 1.5° | 45 | 16 | 105 | 16 | ● | 877 |
| XPM-TPMR | 1.5° | 45 | 16 | 105 | 16 | ● | 884 |
| TPDL | 1.5° | 53 | 4 | 97 | 8 | □ | 887-6 |
| TPML | 1.5° | 53 | 4 | 97 | 8 | □ | 887-12 |
| TPDN | 1.5° | 53 | 5 | 97 | 8 | □ | 887-4 |
| TPMN | 1.5° | 53 | 5 | 97 | 8 | □ | 887-10 |
| TPDN | 1.5° | 53 | 6 | 103 | 10 | □ | 887-4 |
| TPMN | 1.5° | 53 | 6 | 103 | 10 | □ | 887-10 |
| TPDR | 1.5° | 53 | 20 | 119 | 20 | □ | 880 |
| TPMR | 1.5° | 53 | 20 | 119 | 20 | □ | 887 |
| TPDL | 1.5° | 63 | 5 | 113 | 10 | □ | 887-6 |
| TPML | 1.5° | 63 | 5 | 113 | 10 | □ | 887-12 |
| TPDL | 1.5° | 63 | 6 | 113 | 10 | □ | 887-6 |
| TPML | 1.5° | 63 | 6 | 113 | 10 | □ | 887-12 |
| TPDN | 1.5° | 63 | 8 | 120 | 12 | □ | 887-5 |
| TPMN | 1.5° | 63 | 8 | 120 | 12 | □ | 887-10 |
| TPDN | 1.5° | 63 | 10 | 120 | 12 | □ | 887-5 |
| TPMN | 1.5° | 63 | 10 | 120 | 12 | □ | 887-10 |
| TPDL | 1.5° | 75 | 8 | 132 | 12 | □ | 887-6 |
| TPML | 1.5° | 75 | 8 | 132 | 12 | □ | 887-12 |
| TPDL | 1.5° | 75 | 10 | 132 | 12 | □ | 887-6 |
| TPML | 1.5° | 75 | 10 | 132 | 12 | □ | 887-12 |
| TPDN | 1.5° | 75 | 12 | 135 | 16 | □ | 887-5 |
| TPMN | 1.5° | 75 | 12 | 135 | 16 | □ | 887-10 |
| TPDN | 1.5° | 75 | 16 | 141 | 20 | □ | 887-5 |
| TPMN | 1.5° | 75 | 16 | 141 | 20 | □ | 887-11 |
| TPDL | 1.5° | 90 | 12 | 150 | 16 | □ | 887-6 |
| TPML | 1.5° | 90 | 12 | 150 | 16 | □ | 887-12 |
| TPDL | 1.5° | 90 | 16 | 156 | 20 | □ | 887-6 |
| TPML | 1.5° | 90 | 16 | 156 | 20 | □ | 887-12 |
| TPDN | 1.5° | 90 | 20 | 166 | 25 | □ | 887-5 |
| TPMN | 1.5° | 90 | 20 | 166 | 25 | □ | 887-11 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDL | 1.5° | 106 | 20 | 182 | 25 | □ | 887-7 |
| TPML | 1.5° | 106 | 20 | 182 | 25 | □ | 887-13 |
| TPDS | 1.75° | 2 | 0.8 | 45 | 6 | □ | 874 |
| TPDS | 1.75° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 1.75° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDS | 1.75° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDS | 1.75° | 13 | 2 | 57 | 6 | □ | 874 |
| TPMS | 1.75° | 13 | 2 | 57 | 6 | □ | 882 |
| TPDS | 1.75° | 13 | 2.5 | 57 | 6 | □ | 875 |
| TPMS | 1.75° | 13 | 2.5 | 57 | 6 | □ | 882 |
| TPDS | 1.75° | 13 | 3 | 57 | 6 | □ | 875 |
| TPMS | 1.75° | 13 | 3 | 57 | 6 | □ | 882 |
| TPDS | 1.75° | 16 | 4 | 60 | 6 | □ | 875 |
| TPMS | 1.75° | 16 | 4 | 60 | 6 | □ | 882 |
| TPDS | 1.75° | 19 | 5 | 63 | 6 | □ | 875 |
| TPMS | 1.75° | 19 | 5 | 63 | 6 | □ | 882 |
| TPDS | 1.75° | 19 | 6 | 63 | 8 | □ | 875 |
| TPMS | 1.75° | 19 | 6 | 63 | 8 | □ | 883 |
| TPDS | 1.75° | 22 | 8 | 72 | 10 | □ | 876 |
| TPMS | 1.75° | 22 | 8 | 72 | 10 | □ | 883 |
| TPDS | 1.75° | 22 | 10 | 79 | 12 | □ | 876 |
| TPMS | 1.75° | 22 | 10 | 79 | 12 | □ | 883 |
| TPDS | 2° | 2 | 0.8 | 45 | 6 | □ | 874 |
| TPDSS | 2° | 4 | 1 | 48 | 6 | ● | 871 |
| XPM-TPDSS | 2° | 4 | 1 | 48 | 6 | ● | 871 |
| TPDS | 2° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 2° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDSS | 2° | 5 | 1.5 | 49 | 6 | ● | 871 |
| XPM-TPDSS | 2° | 5 | 1.5 | 49 | 6 | ● | 871 |
| TPDS | 2° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDSS | 2° | 9 | 2 | 53 | 6 | ● | 871 |
| XPM-TPDSS | 2° | 9 | 2 | 53 | 6 | ● | 871 |
| XPM-TPDSS | 2° | 9 | 2.5 | 53 | 6 | ● | 871 |
| TPDSS | 2° | 9 | 2.5 | 55 | 6 | ● | 871 |
| TPDSS | 2° | 11 | 3 | 55 | 6 | ● | 871 |
| XPM-TPDSS | 2° | 11 | 3 | 55 | 6 | ● | 871 |
| TPDSS | 2° | 15 | 4 | 59 | 6 | ● | 871 |
| XPM-TPDSS | 2° | 15 | 4 | 59 | 6 | ● | 871 |
| EX-TIN-TPDS | 2° | 18 | 2 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 2° | 18 | 2 | 62 | 6 | □ | 887-8 |
| TPDS | 2° | 18 | 2 | 62 | 6 | ● | 874 |
| TPMS | 2° | 18 | 2 | 62 | 6 | ● | 882 |
| XPM-TPDS | 2° | 18 | 2 | 62 | 6 | ● | 872 |
| XPM-TPMS | 2° | 18 | 2 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 2° | 18 | 2.5 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 2° | 18 | 2.5 | 62 | 6 | □ | 887-8 |
| TPDS | 2° | 18 | 2.5 | 62 | 6 | ● | 875 |
| TPMS | 2° | 18 | 2.5 | 62 | 6 | ● | 882 |
| XPM-TPDS | 2° | 18 | 2.5 | 62 | 6 | ● | 872 |
| XPM-TPMS | 2° | 18 | 2.5 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 2° | 18 | 3 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 2° | 18 | 3 | 62 | 6 | □ | 887-8 |
| TPDS | 2° | 18 | 3 | 62 | 6 | ● | 875 |
| TPMS | 2° | 18 | 3 | 62 | 6 | ● | 882 |
| XPM-TPDS | 2° | 18 | 3 | 62 | 6 | ● | 872 |
| XPM-TPMS | 2° | 18 | 3 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 2° | 21 | 4 | 65 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 2° | 21 | 4 | 65 | 6 | □ | 887-8 |
| TPDS | 2° | 21 | 4 | 65 | 6 | ● | 875 |
| TPMS | 2° | 21 | 4 | 65 | 6 | ● | 882 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| XPM-TPDS | 2° | 21 | 4 | 65 | 6 | ● | 872 |
| XPM-TPMS | 2° | 21 | 4 | 65 | 6 | ● | 881 |
| EX-TIN-TPDS | 2° | 25 | 5 | 69 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 2° | 25 | 5 | 69 | 8 | □ | 887-8 |
| TPDS | 2° | 25 | 5 | 69 | 8 | ● | 875 |
| TPMS | 2° | 25 | 5 | 69 | 8 | ● | 882 |
| XPM-TPDS | 2° | 25 | 5 | 69 | 8 | ● | 872 |
| XPM-TPMS | 2° | 25 | 5 | 69 | 8 | ● | 881 |
| EX-TIN-TPDS | 2° | 25 | 6 | 69 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 2° | 25 | 6 | 69 | 8 | □ | 887-8 |
| TPDS | 2° | 25 | 6 | 69 | 8 | ● | 875 |
| TPMS | 2° | 25 | 6 | 69 | 8 | ● | 883 |
| XPM-TPDS | 2° | 25 | 6 | 69 | 8 | ● | 872 |
| XPM-TPMS | 2° | 25 | 6 | 69 | 8 | ● | 881 |
| TPDR | 2° | 30 | 2 | 74 | 6 | □ | 878 |
| TPMR | 2° | 30 | 2 | 74 | 6 | □ | 885 |
| EX-TIN-TPDR | 2° | 30 | 2.5 | 74 | 6 | □ | 887-3 |
| TPDR | 2° | 30 | 2.5 | 74 | 6 | ● | 878 |
| TPMR | 2° | 30 | 2.5 | 74 | 6 | □ | 885 |
| XPM-TPDR | 2° | 30 | 2.5 | 74 | 6 | ● | 877 |
| EX-TIN-TPDR | 2° | 30 | 3 | 74 | 6 | □ | 887-3 |
| TPDR | 2° | 30 | 3 | 74 | 6 | ● | 878 |
| TPMR | 2° | 30 | 3 | 74 | 6 | □ | 885 |
| XPM-TPDR | 2° | 30 | 3 | 74 | 6 | ● | 877 |
| EX-TIN-TPDS | 2° | 30 | 8 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 2° | 30 | 8 | 87 | 12 | □ | 887-8 |
| TPDS | 2° | 30 | 8 | 87 | 12 | ● | 876 |
| TPMS | 2° | 30 | 8 | 87 | 12 | ● | 883 |
| XPM-TPDS | 2° | 30 | 8 | 87 | 12 | ● | 872 |
| XPM-TPMS | 2° | 30 | 8 | 87 | 12 | ● | 881 |
| EX-TIN-TPDS | 2° | 30 | 10 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 2° | 30 | 10 | 87 | 12 | □ | 887-8 |
| TPDS | 2° | 30 | 10 | 87 | 12 | ● | 876 |
| TPMS | 2° | 30 | 10 | 87 | 12 | ● | 883 |
| XPM-TPDS | 2° | 30 | 10 | 87 | 12 | ● | 872 |
| XPM-TPMS | 2° | 30 | 10 | 87 | 12 | ● | 881 |
| EX-TIN-TPDR | 2° | 36 | 4 | 80 | 8 | □ | 887-3 |
| TPDR | 2° | 36 | 4 | 80 | 8 | ● | 878 |
| TPMR | 2° | 36 | 4 | 80 | 8 | □ | 885 |
| XPM-TPDR | 2° | 36 | 4 | 80 | 8 | ● | 877 |
| EX-TIN-TPDR | 2° | 42 | 5 | 86 | 8 | □ | 887-3 |
| TPDR | 2° | 42 | 5 | 86 | 8 | ● | 878 |
| TPMR | 2° | 42 | 5 | 86 | 8 | □ | 885 |
| XPM-TPDR | 2° | 42 | 5 | 86 | 8 | ● | 877 |
| EX-TIN-TPDR | 2° | 42 | 6 | 92 | 10 | □ | 887-3 |
| TPDR | 2° | 42 | 6 | 92 | 10 | ● | 878 |
| TPMR | 2° | 42 | 6 | 92 | 10 | □ | 885 |
| XPM-TPDR | 2° | 42 | 6 | 92 | 10 | ● | 877 |
| TPDN | 2° | 50 | 2 | 94 | 6 | □ | 887-4 |
| TPMN | 2° | 50 | 2 | 94 | 6 | □ | 887-10 |
| TPDN | 2° | 50 | 2.5 | 94 | 6 | □ | 887-4 |
| TPMN | 2° | 50 | 2.5 | 94 | 6 | □ | 887-10 |
| TPDN | 2° | 50 | 3 | 94 | 8 | □ | 887-4 |
| TPMN | 2° | 50 | 3 | 94 | 8 | □ | 887-10 |
| EX-TIN-TPDR | 2° | 50 | 8 | 107 | 12 | □ | 887-3 |
| TPDR | 2° | 50 | 8 | 107 | 12 | ● | 879 |
| TPMR | 2° | 50 | 8 | 107 | 12 | □ | 886 |
| XPM-TPDR | 2° | 50 | 8 | 107 | 12 | ● | 877 |
| EX-TIN-TPDR | 2° | 50 | 10 | 107 | 12 | □ | 887-3 |
| EX-TIN-TPMR | 2° | 50 | 10 | 107 | 12 | □ | 887-9 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# ハイスエンドミル／テーパ
HSS END MILLS / TAPER

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDR | 2° | 50 | 10 | 107 | 12 | ● | 879 |
| TPMR | 2° | 50 | 10 | 107 | 12 | ● | 886 |
| XPM-TPDR | 2° | 50 | 10 | 107 | 12 | ● | 877 |
| XPM-TPMR | 2° | 50 | 10 | 107 | 12 | ● | 884 |
| TPDL | 2° | 60 | 2.5 | 104 | 8 | □ | 887-6 |
| TPML | 2° | 60 | 2.5 | 104 | 8 | □ | 887-12 |
| TPDL | 2° | 60 | 3 | 104 | 8 | □ | 887-6 |
| TPML | 2° | 60 | 3 | 104 | 8 | □ | 887-12 |
| TPDN | 2° | 60 | 4 | 110 | 10 | □ | 887-4 |
| TPMN | 2° | 60 | 4 | 110 | 10 | □ | 887-10 |
| EX-TIN-TPDR | 2° | 60 | 12 | 120 | 16 | □ | 887-3 |
| EX-TIN-TPMR | 2° | 60 | 12 | 120 | 16 | □ | 887-9 |
| TPDR | 2° | 60 | 12 | 120 | 16 | ● | 879 |
| TPMR | 2° | 60 | 12 | 120 | 16 | ● | 886 |
| XPM-TPDR | 2° | 60 | 12 | 120 | 16 | ● | 877 |
| XPM-TPMR | 2° | 60 | 12 | 120 | 16 | ● | 884 |
| EX-TIN-TPDR | 2° | 60 | 16 | 126 | 20 | □ | 887-3 |
| EX-TIN-TPMR | 2° | 60 | 16 | 126 | 20 | □ | 887-9 |
| TPDR | 2° | 60 | 16 | 126 | 20 | ● | 879 |
| TPMR | 2° | 60 | 16 | 126 | 20 | ● | 886 |
| XPM-TPDR | 2° | 60 | 16 | 126 | 20 | ● | 877 |
| XPM-TPMR | 2° | 60 | 16 | 126 | 20 | ● | 884 |
| TPDL | 2° | 71 | 4 | 121 | 10 | □ | 887-6 |
| TPML | 2° | 71 | 4 | 121 | 10 | □ | 887-12 |
| TPDN | 2° | 71 | 5 | 121 | 10 | □ | 887-4 |
| TPMN | 2° | 71 | 5 | 121 | 10 | □ | 887-10 |
| TPDN | 2° | 71 | 6 | 128 | 12 | □ | 887-4 |
| TPMN | 2° | 71 | 6 | 128 | 12 | □ | 887-10 |
| EX-TIN-TPDR | 2° | 71 | 20 | 147 | 25 | □ | 887-3 |
| EX-TIN-TPMR | 2° | 71 | 20 | 147 | 25 | □ | 887-9 |
| TPDR | 2° | 71 | 20 | 147 | 25 | ● | 880 |
| TPMR | 2° | 71 | 20 | 147 | 25 | ● | 887 |
| XPM-TPDR | 2° | 71 | 20 | 147 | 25 | ● | 877 |
| XPM-TPMR | 2° | 71 | 20 | 147 | 25 | ● | 884 |
| TPDL | 2° | 85 | 5 | 142 | 12 | □ | 887-6 |
| TPML | 2° | 85 | 5 | 142 | 12 | □ | 887-12 |
| TPDL | 2° | 85 | 6 | 142 | 12 | □ | 887-6 |
| TPML | 2° | 85 | 6 | 142 | 12 | □ | 887-12 |
| TPDN | 2° | 85 | 8 | 142 | 12 | □ | 887-5 |
| TPMN | 2° | 85 | 8 | 142 | 12 | □ | 887-10 |
| TPDN | 2° | 85 | 10 | 145 | 16 | □ | 887-5 |
| TPMN | 2° | 85 | 10 | 145 | 16 | □ | 887-10 |
| TPDL | 2° | 100 | 8 | 157 | 12 | □ | 887-6 |
| TPML | 2° | 100 | 8 | 157 | 12 | □ | 887-12 |
| TPDL | 2° | 100 | 10 | 160 | 16 | □ | 887-6 |
| TPML | 2° | 100 | 10 | 160 | 16 | □ | 887-12 |
| TPDN | 2° | 100 | 12 | 160 | 16 | □ | 887-5 |
| TPMN | 2° | 100 | 12 | 160 | 16 | □ | 887-10 |
| TPDN | 2° | 100 | 16 | 166 | 20 | □ | 887-5 |
| TPMN | 2° | 100 | 16 | 166 | 20 | □ | 887-11 |
| TPDL | 2° | 118 | 12 | 184 | 20 | □ | 887-6 |
| TPML | 2° | 118 | 12 | 184 | 20 | □ | 887-12 |
| TPDL | 2° | 118 | 16 | 194 | 25 | □ | 887-6 |
| TPML | 2° | 118 | 16 | 194 | 25 | □ | 887-12 |
| TPDN | 2° | 118 | 20 | 194 | 25 | □ | 887-5 |
| TPMN | 2° | 118 | 20 | 194 | 25 | □ | 887-11 |
| TPDL | 2° | 140 | 20 | 216 | 25 | □ | 887-7 |
| TPML | 2° | 140 | 20 | 216 | 25 | □ | 887-13 |
| TPDS | 2.25° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 2.25° | 4 | 1.2 | 50 | 6 | □ | 874 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDS | 2.25° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDS | 2.25° | 18 | 2 | 62 | 6 | □ | 874 |
| TPMS | 2.25° | 18 | 2 | 62 | 6 | □ | 882 |
| TPDS | 2.25° | 18 | 2.5 | 62 | 6 | □ | 875 |
| TPMS | 2.25° | 18 | 2.5 | 62 | 6 | □ | 882 |
| TPDS | 2.25° | 18 | 3 | 62 | 6 | □ | 875 |
| TPMS | 2.25° | 18 | 3 | 62 | 6 | □ | 882 |
| TPDS | 2.25° | 21 | 4 | 65 | 6 | □ | 875 |
| TPMS | 2.25° | 21 | 4 | 65 | 6 | □ | 882 |
| TPDS | 2.25° | 25 | 5 | 69 | 8 | □ | 875 |
| TPMS | 2.25° | 25 | 5 | 69 | 8 | □ | 882 |
| TPDS | 2.25° | 25 | 6 | 75 | 10 | □ | 875 |
| TPMS | 2.25° | 25 | 6 | 75 | 10 | □ | 883 |
| TPDS | 2.25° | 30 | 8 | 87 | 12 | □ | 876 |
| TPMS | 2.25° | 30 | 8 | 87 | 12 | □ | 883 |
| TPDS | 2.25° | 30 | 10 | 87 | 12 | □ | 876 |
| TPMS | 2.25° | 30 | 10 | 87 | 12 | □ | 883 |
| TPDSS | 2.5° | 4 | 1 | 48 | 6 | ● | 871 |
| XPM-TPDSS | 2.5° | 4 | 1 | 48 | 6 | ● | 871 |
| TPDS | 2.5° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 2.5° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDSS | 2.5° | 5 | 1.5 | 49 | 6 | ● | 871 |
| XPM-TPDSS | 2.5° | 5 | 1.5 | 49 | 6 | ● | 871 |
| TPDS | 2.5° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDSS | 2.5° | 9 | 2 | 53 | 6 | ● | 871 |
| XPM-TPDSS | 2.5° | 9 | 2 | 53 | 6 | ● | 871 |
| TPDSS | 2.5° | 9 | 2.5 | 53 | 6 | ● | 871 |
| XPM-TPDSS | 2.5° | 9 | 2.5 | 53 | 6 | ● | 871 |
| TPDSS | 2.5° | 11 | 3 | 55 | 6 | ● | 871 |
| XPM-TPDSS | 2.5° | 11 | 3 | 55 | 6 | ● | 871 |
| TPDSS | 2.5° | 15 | 4 | 59 | 6 | ● | 871 |
| XPM-TPDSS | 2.5° | 15 | 4 | 59 | 6 | ● | 871 |
| EX-TIN-TPDS | 2.5° | 18 | 2 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 2.5° | 18 | 2 | 62 | 6 | □ | 887-8 |
| TPDS | 2.5° | 18 | 2 | 62 | 6 | ● | 874 |
| TPMS | 2.5° | 18 | 2 | 62 | 6 | ● | 882 |
| XPM-TPDS | 2.5° | 18 | 2 | 62 | 6 | ● | 872 |
| XPM-TPMS | 2.5° | 18 | 2 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 2.5° | 18 | 2.5 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 2.5° | 18 | 2.5 | 62 | 6 | □ | 887-8 |
| TPDS | 2.5° | 18 | 2.5 | 62 | 6 | ● | 875 |
| TPMS | 2.5° | 18 | 2.5 | 62 | 6 | ● | 882 |
| XPM-TPDS | 2.5° | 18 | 2.5 | 62 | 6 | ● | 872 |
| XPM-TPMS | 2.5° | 18 | 2.5 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 2.5° | 18 | 3 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 2.5° | 18 | 3 | 62 | 6 | □ | 887-8 |
| TPDS | 2.5° | 18 | 3 | 62 | 6 | ● | 875 |
| TPMS | 2.5° | 18 | 3 | 62 | 6 | ● | 882 |
| XPM-TPDS | 2.5° | 18 | 3 | 62 | 6 | ● | 872 |
| XPM-TPMS | 2.5° | 18 | 3 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 2.5° | 21 | 4 | 65 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 2.5° | 21 | 4 | 65 | 6 | □ | 887-8 |
| TPDS | 2.5° | 21 | 4 | 65 | 6 | ● | 875 |
| TPMS | 2.5° | 21 | 4 | 65 | 6 | ● | 882 |
| XPM-TPDS | 2.5° | 21 | 4 | 65 | 6 | ● | 872 |
| XPM-TPMS | 2.5° | 21 | 4 | 65 | 6 | ● | 881 |
| EX-TIN-TPDS | 2.5° | 25 | 5 | 69 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 2.5° | 25 | 5 | 69 | 8 | □ | 887-8 |
| TPDS | 2.5° | 25 | 5 | 69 | 8 | ● | 875 |
| TPMS | 2.5° | 25 | 5 | 69 | 8 | ● | 883 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| XPM-TPDS | 2.5° | 25 | 5 | 69 | 8 | ● | 872 |
| XPM-TPMS | 2.5° | 25 | 5 | 69 | 8 | ● | 881 |
| EX-TIN-TPDS | 2.5° | 25 | 6 | 75 | 10 | □ | 887-1 |
| EX-TIN-TPMS | 2.5° | 25 | 6 | 75 | 10 | □ | 887-8 |
| TPDS | 2.5° | 25 | 6 | 75 | 10 | ● | 875 |
| TPMS | 2.5° | 25 | 6 | 75 | 10 | ● | 883 |
| XPM-TPDS | 2.5° | 25 | 6 | 75 | 10 | ● | 872 |
| XPM-TPMS | 2.5° | 25 | 6 | 75 | 10 | ● | 881 |
| TPDR | 2.5° | 30 | 2 | 74 | 6 | □ | 878 |
| TPMR | 2.5° | 30 | 2 | 74 | 6 | □ | 885 |
| EX-TIN-TPDR | 2.5° | 30 | 2.5 | 74 | 6 | □ | 887-3 |
| TPDR | 2.5° | 30 | 2.5 | 74 | 6 | ● | 878 |
| TPMR | 2.5° | 30 | 2.5 | 74 | 6 | □ | 885 |
| XPM-TPDR | 2.5° | 30 | 2.5 | 74 | 6 | ● | 877 |
| EX-TIN-TPDR | 2.5° | 30 | 3 | 74 | 6 | □ | 887-3 |
| TPDR | 2.5° | 30 | 3 | 74 | 6 | ● | 878 |
| TPMR | 2.5° | 30 | 3 | 74 | 6 | □ | 885 |
| XPM-TPDR | 2.5° | 30 | 3 | 74 | 6 | ● | 877 |
| EX-TIN-TPDS | 2.5° | 30 | 8 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 2.5° | 30 | 8 | 87 | 12 | □ | 887-8 |
| TPDS | 2.5° | 30 | 8 | 87 | 12 | ● | 876 |
| TPMS | 2.5° | 30 | 8 | 87 | 12 | ● | 883 |
| XPM-TPDS | 2.5° | 30 | 8 | 87 | 12 | ● | 872 |
| XPM-TPMS | 2.5° | 30 | 8 | 87 | 12 | ● | 881 |
| EX-TIN-TPDS | 2.5° | 30 | 10 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 2.5° | 30 | 10 | 87 | 12 | □ | 887-8 |
| TPDS | 2.5° | 30 | 10 | 87 | 12 | ● | 876 |
| TPMS | 2.5° | 30 | 10 | 87 | 12 | ● | 883 |
| XPM-TPDS | 2.5° | 30 | 10 | 87 | 12 | ● | 872 |
| XPM-TPMS | 2.5° | 30 | 10 | 87 | 12 | ● | 881 |
| TPDS | 2.5° | 30 | 12 | 87 | 16 | □ | 876 |
| TPMS | 2.5° | 30 | 12 | 87 | 16 | □ | 883 |
| EX-TIN-TPDR | 2.5° | 36 | 4 | 80 | 8 | □ | 887-3 |
| TPDR | 2.5° | 36 | 4 | 80 | 8 | ● | 878 |
| TPMR | 2.5° | 36 | 4 | 80 | 8 | □ | 885 |
| XPM-TPDR | 2.5° | 36 | 4 | 80 | 8 | ● | 877 |
| EX-TIN-TPDR | 2.5° | 42 | 5 | 92 | 10 | □ | 887-3 |
| TPDR | 2.5° | 42 | 5 | 92 | 10 | ● | 878 |
| TPMR | 2.5° | 42 | 5 | 92 | 10 | □ | 885 |
| XPM-TPDR | 2.5° | 42 | 5 | 92 | 10 | ● | 877 |
| EX-TIN-TPDR | 2.5° | 42 | 6 | 92 | 10 | □ | 887-3 |
| TPDR | 2.5° | 42 | 6 | 92 | 10 | ● | 878 |
| TPMR | 2.5° | 42 | 6 | 92 | 10 | □ | 885 |
| XPM-TPDR | 2.5° | 42 | 6 | 92 | 10 | ● | 877 |
| TPDN | 2.5° | 50 | 2 | 94 | 8 | □ | 887-4 |
| TPMN | 2.5° | 50 | 2 | 94 | 8 | □ | 887-10 |
| TPDN | 2.5° | 50 | 2.5 | 94 | 8 | □ | 887-4 |
| TPMN | 2.5° | 50 | 2.5 | 94 | 8 | □ | 887-10 |
| TPDN | 2.5° | 50 | 3 | 94 | 8 | □ | 887-4 |
| TPMN | 2.5° | 50 | 3 | 94 | 8 | □ | 887-10 |
| EX-TIN-TPDR | 2.5° | 50 | 8 | 107 | 12 | □ | 887-3 |
| TPDR | 2.5° | 50 | 8 | 107 | 12 | ● | 879 |
| TPMR | 2.5° | 50 | 8 | 107 | 12 | □ | 886 |
| XPM-TPDR | 2.5° | 50 | 8 | 107 | 12 | ● | 877 |
| EX-TIN-TPDR | 2.5° | 50 | 10 | 107 | 12 | □ | 887-3 |
| EX-TIN-TPMR | 2.5° | 50 | 10 | 107 | 12 | □ | 887-9 |
| TPDR | 2.5° | 50 | 10 | 107 | 12 | ● | 879 |
| TPMR | 2.5° | 50 | 10 | 107 | 12 | ● | 886 |
| XPM-TPDR | 2.5° | 50 | 10 | 107 | 12 | ● | 877 |
| XPM-TPMR | 2.5° | 50 | 10 | 107 | 12 | ● | 884 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDL | 2.5° | 60 | 2.5 | 104 | 8 | □ | 887-6 |
| TPML | 2.5° | 60 | 2.5 | 104 | 8 | □ | 887-12 |
| TPDL | 2.5° | 60 | 3 | 110 | 10 | □ | 887-6 |
| TPML | 2.5° | 60 | 3 | 110 | 10 | □ | 887-12 |
| TPDN | 2.5° | 60 | 4 | 110 | 10 | □ | 887-4 |
| TPMN | 2.5° | 60 | 4 | 110 | 10 | □ | 887-10 |
| EX-TIN-TPDR | 2.5° | 60 | 12 | 120 | 16 | □ | 887-3 |
| EX-TIN-TPMR | 2.5° | 60 | 12 | 120 | 16 | □ | 887-9 |
| TPDR | 2.5° | 60 | 12 | 120 | 16 | ● | 879 |
| TPMR | 2.5° | 60 | 12 | 120 | 16 | ● | 886 |
| XPM-TPDR | 2.5° | 60 | 12 | 120 | 16 | ● | 877 |
| XPM-TPMR | 2.5° | 60 | 12 | 120 | 16 | ● | 884 |
| EX-TIN-TPDR | 2.5° | 60 | 16 | 126 | 20 | □ | 887-3 |
| EX-TIN-TPMR | 2.5° | 60 | 16 | 126 | 20 | □ | 887-9 |
| TPDR | 2.5° | 60 | 16 | 126 | 20 | ● | 879 |
| TPMR | 2.5° | 60 | 16 | 126 | 20 | ● | 886 |
| XPM-TPDR | 2.5° | 60 | 16 | 126 | 20 | ● | 877 |
| XPM-TPMR | 2.5° | 60 | 16 | 126 | 20 | ● | 884 |
| TPDL | 2.5° | 71 | 4 | 128 | 12 | □ | 887-6 |
| TPML | 2.5° | 71 | 4 | 128 | 12 | □ | 887-12 |
| TPDN | 2.5° | 71 | 5 | 128 | 12 | □ | 887-4 |
| TPMN | 2.5° | 71 | 5 | 128 | 12 | □ | 887-10 |
| TPDN | 2.5° | 71 | 6 | 128 | 12 | □ | 887-4 |
| TPMN | 2.5° | 71 | 6 | 128 | 12 | □ | 887-10 |
| EX-TIN-TPDR | 2.5° | 71 | 20 | 147 | 25 | □ | 887-3 |
| EX-TIN-TPMR | 2.5° | 71 | 20 | 147 | 25 | □ | 887-9 |
| TPDR | 2.5° | 71 | 20 | 147 | 25 | ● | 880 |
| TPMR | 2.5° | 71 | 20 | 147 | 25 | ● | 887 |
| XPM-TPDR | 2.5° | 71 | 20 | 147 | 25 | ● | 877 |
| XPM-TPMR | 2.5° | 71 | 20 | 147 | 25 | ● | 884 |
| TPDL | 2.5° | 85 | 5 | 142 | 12 | □ | 887-6 |
| TPML | 2.5° | 85 | 5 | 142 | 12 | □ | 887-12 |
| TPDL | 2.5° | 85 | 6 | 142 | 12 | □ | 887-6 |
| TPML | 2.5° | 85 | 6 | 142 | 12 | □ | 887-12 |
| TPDN | 2.5° | 85 | 8 | 145 | 16 | □ | 887-5 |
| TPMN | 2.5° | 85 | 8 | 145 | 16 | □ | 887-10 |
| TPDN | 2.5° | 85 | 10 | 145 | 16 | □ | 887-5 |
| TPMN | 2.5° | 85 | 10 | 145 | 16 | □ | 887-10 |
| TPDL | 2.5° | 100 | 8 | 160 | 16 | □ | 887-6 |
| TPML | 2.5° | 100 | 8 | 160 | 16 | □ | 887-12 |
| TPDL | 2.5° | 100 | 10 | 160 | 16 | □ | 887-6 |
| TPML | 2.5° | 100 | 10 | 160 | 16 | □ | 887-12 |
| TPDN | 2.5° | 100 | 12 | 166 | 20 | □ | 887-5 |
| TPMN | 2.5° | 100 | 12 | 166 | 20 | □ | 887-10 |
| TPDN | 2.5° | 100 | 16 | 176 | 25 | □ | 887-5 |
| TPMN | 2.5° | 100 | 16 | 176 | 25 | □ | 887-11 |
| TPDL | 2.5° | 118 | 12 | 184 | 20 | □ | 887-6 |
| TPML | 2.5° | 118 | 12 | 184 | 20 | □ | 887-12 |
| TPDL | 2.5° | 118 | 16 | 194 | 25 | □ | 887-6 |
| TPML | 2.5° | 118 | 16 | 194 | 25 | □ | 887-12 |
| TPDN | 2.5° | 118 | 20 | 198 | 32 | □ | 887-5 |
| TPMN | 2.5° | 118 | 20 | 198 | 32 | □ | 887-11 |
| TPDL | 2.5° | 140 | 20 | 220 | 32 | □ | 887-7 |
| TPML | 2.5° | 140 | 20 | 220 | 32 | □ | 887-13 |
| TPDS | 2.75° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 2.75° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDS | 2.75° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDS | 2.75° | 18 | 2 | 62 | 6 | □ | 874 |
| TPMS | 2.75° | 18 | 2 | 62 | 6 | □ | 882 |
| TPDS | 2.75° | 18 | 2.5 | 62 | 6 | □ | 875 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPMS | 2.75° | 18 | 2.5 | 62 | 6 | □ | 882 |
| TPDS | 2.75° | 18 | 3 | 62 | 6 | □ | 875 |
| TPMS | 2.75° | 18 | 3 | 62 | 6 | □ | 882 |
| TPDS | 2.75° | 21 | 4 | 65 | 8 | □ | 875 |
| TPMS | 2.75° | 21 | 4 | 65 | 8 | □ | 882 |
| TPDS | 2.75° | 25 | 5 | 69 | 8 | □ | 875 |
| TPMS | 2.75° | 25 | 5 | 69 | 8 | □ | 883 |
| TPDS | 2.75° | 25 | 6 | 75 | 10 | □ | 876 |
| TPMS | 2.75° | 25 | 6 | 75 | 10 | □ | 883 |
| TPDS | 2.75° | 30 | 8 | 87 | 12 | □ | 876 |
| TPMS | 2.75° | 30 | 8 | 87 | 12 | □ | 883 |
| TPDS | 2.75° | 30 | 10 | 87 | 12 | □ | 876 |
| TPMS | 2.75° | 30 | 10 | 87 | 12 | □ | 883 |
| TPDSS | 3° | 4 | 1 | 48 | 6 | ● | 871 |
| XPM-TPDSS | 3° | 4 | 1 | 48 | 6 | ● | 871 |
| TPDS | 3° | 4 | 1 | 50 | 6 | □ | 874 |
| TPDS | 3° | 4 | 1.2 | 50 | 6 | □ | 874 |
| TPDSS | 3° | 5 | 1.5 | 49 | 6 | ● | 871 |
| XPM-TPDSS | 3° | 5 | 1.5 | 49 | 6 | ● | 871 |
| TPDS | 3° | 5 | 1.5 | 50 | 6 | □ | 874 |
| TPDSS | 3° | 9 | 2 | 53 | 6 | ● | 871 |
| XPM-TPDSS | 3° | 9 | 2 | 53 | 6 | ● | 871 |
| TPDSS | 3° | 9 | 2.5 | 53 | 6 | ● | 871 |
| XPM-TPDSS | 3° | 9 | 2.5 | 53 | 6 | ● | 871 |
| TPDSS | 3° | 11 | 3 | 55 | 6 | ● | 871 |
| XPM-TPDSS | 3° | 11 | 3 | 55 | 6 | ● | 871 |
| TPDSS | 3° | 15 | 4 | 59 | 6 | ● | 871 |
| XPM-TPDSS | 3° | 15 | 4 | 59 | 6 | ● | 871 |
| EX-TIN-TPDS | 3° | 18 | 2 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 3° | 18 | 2 | 62 | 6 | □ | 887-8 |
| TPDS | 3° | 18 | 2 | 62 | 6 | ● | 874 |
| TPMS | 3° | 18 | 2 | 62 | 6 | ● | 882 |
| XPM-TPDS | 3° | 18 | 2 | 62 | 6 | ● | 872 |
| XPM-TPMS | 3° | 18 | 2 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 3° | 18 | 2.5 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 3° | 18 | 2.5 | 62 | 6 | □ | 887-8 |
| TPDS | 3° | 18 | 2.5 | 62 | 6 | ● | 875 |
| TPMS | 3° | 18 | 2.5 | 62 | 6 | ● | 882 |
| XPM-TPDS | 3° | 18 | 2.5 | 62 | 6 | ● | 872 |
| XPM-TPMS | 3° | 18 | 2.5 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 3° | 18 | 3 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 3° | 18 | 3 | 62 | 6 | □ | 887-8 |
| TPDS | 3° | 18 | 3 | 62 | 6 | ● | 875 |
| TPMS | 3° | 18 | 3 | 62 | 6 | ● | 882 |
| XPM-TPDS | 3° | 18 | 3 | 62 | 6 | ● | 872 |
| XPM-TPMS | 3° | 18 | 3 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 3° | 21 | 4 | 65 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 3° | 21 | 4 | 65 | 8 | □ | 887-8 |
| TPDS | 3° | 21 | 4 | 65 | 8 | ● | 875 |
| TPMS | 3° | 21 | 4 | 65 | 8 | ● | 882 |
| XPM-TPDS | 3° | 21 | 4 | 65 | 8 | ● | 872 |
| XPM-TPMS | 3° | 21 | 4 | 65 | 8 | ● | 881 |
| EX-TIN-TPDS | 3° | 25 | 5 | 69 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 3° | 25 | 5 | 69 | 8 | □ | 887-8 |
| TPDS | 3° | 25 | 5 | 69 | 8 | ● | 875 |
| TPMS | 3° | 25 | 5 | 69 | 8 | ● | 883 |
| XPM-TPDS | 3° | 25 | 5 | 69 | 8 | ● | 872 |
| XPM-TPMS | 3° | 25 | 5 | 69 | 8 | ● | 881 |
| EX-TIN-TPDS | 3° | 25 | 6 | 75 | 10 | □ | 887-1 |
| EX-TIN-TPMS | 3° | 25 | 6 | 75 | 10 | □ | 887-8 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDS | 3° | 25 | 6 | 75 | 10 | ● | 876 |
| TPMS | 3° | 25 | 6 | 75 | 10 | ● | 883 |
| XPM-TPDS | 3° | 25 | 6 | 75 | 10 | ● | 872 |
| XPM-TPMS | 3° | 25 | 6 | 75 | 10 | ● | 881 |
| TPDR | 3° | 30 | 2 | 74 | 6 | □ | 878 |
| TPMR | 3° | 30 | 2 | 74 | 6 | □ | 885 |
| EX-TIN-TPDR | 3° | 30 | 2.5 | 74 | 6 | □ | 887-3 |
| TPDR | 3° | 30 | 2.5 | 74 | 6 | ● | 878 |
| TPMR | 3° | 30 | 2.5 | 74 | 6 | □ | 885 |
| XPM-TPDR | 3° | 30 | 2.5 | 74 | 6 | ● | 877 |
| EX-TIN-TPDR | 3° | 30 | 3 | 74 | 8 | □ | 887-3 |
| TPDR | 3° | 30 | 3 | 74 | 8 | ● | 878 |
| TPMR | 3° | 30 | 3 | 74 | 8 | □ | 885 |
| XPM-TPDR | 3° | 30 | 3 | 74 | 8 | ● | 877 |
| EX-TIN-TPDS | 3° | 30 | 8 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 3° | 30 | 8 | 87 | 12 | □ | 887-8 |
| TPDS | 3° | 30 | 8 | 87 | 12 | ● | 876 |
| TPMS | 3° | 30 | 8 | 87 | 12 | ● | 883 |
| XPM-TPDS | 3° | 30 | 8 | 87 | 12 | ● | 872 |
| XPM-TPMS | 3° | 30 | 8 | 87 | 12 | ● | 881 |
| EX-TIN-TPDS | 3° | 30 | 10 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 3° | 30 | 10 | 87 | 12 | □ | 887-8 |
| TPDS | 3° | 30 | 10 | 87 | 12 | ● | 876 |
| TPMS | 3° | 30 | 10 | 87 | 12 | ● | 883 |
| XPM-TPDS | 3° | 30 | 10 | 87 | 12 | ● | 872 |
| XPM-TPMS | 3° | 30 | 10 | 87 | 12 | ● | 881 |
| EX-TIN-TPDR | 3° | 36 | 4 | 80 | 8 | □ | 887-3 |
| TPDR | 3° | 36 | 4 | 80 | 8 | ● | 878 |
| TPMR | 3° | 36 | 4 | 80 | 8 | □ | 885 |
| XPM-TPDR | 3° | 36 | 4 | 80 | 8 | ● | 877 |
| EX-TIN-TPDR | 3° | 42 | 5 | 92 | 10 | □ | 887-3 |
| TPDR | 3° | 42 | 5 | 92 | 10 | ● | 878 |
| TPMR | 3° | 42 | 5 | 92 | 10 | □ | 885 |
| XPM-TPDR | 3° | 42 | 5 | 92 | 10 | ● | 877 |
| EX-TIN-TPDR | 3° | 42 | 6 | 99 | 12 | □ | 887-3 |
| TPDR | 3° | 42 | 6 | 99 | 12 | ● | 879 |
| TPMR | 3° | 42 | 6 | 99 | 12 | □ | 886 |
| XPM-TPDR | 3° | 42 | 6 | 99 | 12 | ● | 877 |
| TPDN | 3° | 50 | 2 | 94 | 8 | □ | 887-4 |
| TPMN | 3° | 50 | 2 | 94 | 8 | □ | 887-10 |
| TPDN | 3° | 50 | 2.5 | 94 | 8 | □ | 887-4 |
| TPMN | 3° | 50 | 2.5 | 94 | 8 | □ | 887-10 |
| TPDN | 3° | 50 | 3 | 100 | 10 | □ | 887-4 |
| TPMN | 3° | 50 | 3 | 100 | 10 | □ | 887-10 |
| EX-TIN-TPDR | 3° | 50 | 8 | 107 | 12 | □ | 887-3 |
| TPDR | 3° | 50 | 8 | 107 | 12 | ● | 879 |
| TPMR | 3° | 50 | 8 | 107 | 12 | □ | 886 |
| XPM-TPDR | 3° | 50 | 8 | 107 | 12 | ● | 877 |
| EX-TIN-TPDR | 3° | 50 | 10 | 110 | 16 | □ | 887-3 |
| EX-TIN-TPMR | 3° | 50 | 10 | 110 | 16 | □ | 887-9 |
| TPDR | 3° | 50 | 10 | 110 | 16 | ● | 879 |
| TPMR | 3° | 50 | 10 | 110 | 16 | ● | 886 |
| XPM-TPDR | 3° | 50 | 10 | 110 | 16 | ● | 877 |
| XPM-TPMR | 3° | 50 | 10 | 110 | 16 | ● | 884 |
| TPDL | 3° | 60 | 2.5 | 110 | 10 | □ | 887-6 |
| TPML | 3° | 60 | 2.5 | 110 | 10 | □ | 887-12 |
| TPDL | 3° | 60 | 3 | 110 | 10 | □ | 887-6 |
| TPML | 3° | 60 | 3 | 110 | 10 | □ | 887-12 |
| TPDN | 3° | 60 | 4 | 117 | 12 | □ | 887-4 |
| TPMN | 3° | 60 | 4 | 117 | 12 | □ | 887-10 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
HSS END MILLS / TAPER

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-TIN-TPDR | 3° | 60 | 12 | 120 | 16 | □ | 887-3 |
| EX-TIN-TPMR | 3° | 60 | 12 | 120 | 16 | □ | 887-9 |
| TPDR | 3° | 60 | 12 | 120 | 16 | ● | 879 |
| TPMR | 3° | 60 | 12 | 120 | 16 | ● | 886 |
| XPM-TPDR | 3° | 60 | 12 | 120 | 16 | ● | 877 |
| XPM-TPMR | 3° | 60 | 12 | 120 | 16 | ● | 884 |
| EX-TIN-TPDR | 3° | 60 | 16 | 126 | 20 | □ | 887-3 |
| EX-TIN-TPMR | 3° | 60 | 16 | 126 | 20 | □ | 887-9 |
| TPDR | 3° | 60 | 16 | 126 | 20 | ● | 879 |
| TPMR | 3° | 60 | 16 | 126 | 20 | ● | 886 |
| XPM-TPDR | 3° | 60 | 16 | 126 | 20 | ● | 877 |
| XPM-TPMR | 3° | 60 | 16 | 126 | 20 | ● | 884 |
| TPDL | 3° | 71 | 4 | 128 | 12 | □ | 887-6 |
| TPML | 3° | 71 | 4 | 128 | 12 | □ | 887-12 |
| TPDN | 3° | 71 | 5 | 128 | 12 | □ | 887-4 |
| TPMN | 3° | 71 | 5 | 128 | 12 | □ | 887-10 |
| TPDN | 3° | 71 | 6 | 128 | 12 | □ | 887-4 |
| TPMN | 3° | 71 | 6 | 128 | 12 | □ | 887-10 |
| EX-TIN-TPDR | 3° | 71 | 20 | 147 | 25 | □ | 887-3 |
| EX-TIN-TPMR | 3° | 71 | 20 | 147 | 25 | □ | 887-9 |
| TPDR | 3° | 71 | 20 | 147 | 25 | ● | 880 |
| TPMR | 3° | 71 | 20 | 147 | 25 | ● | 887 |
| XPM-TPDR | 3° | 71 | 20 | 147 | 25 | ● | 877 |
| XPM-TPMR | 3° | 71 | 20 | 147 | 25 | ● | 884 |
| TPDL | 3° | 85 | 5 | 142 | 12 | □ | 887-6 |
| TPML | 3° | 85 | 5 | 142 | 12 | □ | 887-12 |
| TPDL | 3° | 85 | 6 | 142 | 12 | □ | 887-6 |
| TPML | 3° | 85 | 6 | 142 | 12 | □ | 887-12 |
| TPDN | 3° | 85 | 8 | 145 | 16 | □ | 887-5 |
| TPMN | 3° | 85 | 8 | 145 | 16 | □ | 887-10 |
| TPDN | 3° | 85 | 10 | 145 | 16 | □ | 887-5 |
| TPMN | 3° | 85 | 10 | 145 | 16 | □ | 887-10 |
| TPDL | 3° | 100 | 8 | 160 | 16 | □ | 887-6 |
| TPML | 3° | 100 | 8 | 160 | 16 | □ | 887-12 |
| TPDL | 3° | 100 | 10 | 166 | 20 | □ | 887-6 |
| TPML | 3° | 100 | 10 | 166 | 20 | □ | 887-12 |
| TPDN | 3° | 100 | 12 | 166 | 20 | □ | 887-5 |
| TPMN | 3° | 100 | 12 | 166 | 20 | □ | 887-10 |
| TPDN | 3° | 100 | 16 | 176 | 25 | □ | 887-5 |
| TPMN | 3° | 100 | 16 | 176 | 25 | □ | 887-11 |
| TPDL | 3° | 118 | 12 | 194 | 25 | □ | 887-6 |
| TPML | 3° | 118 | 12 | 194 | 25 | □ | 887-12 |
| TPDL | 3° | 118 | 16 | 194 | 25 | □ | 887-6 |
| TPML | 3° | 118 | 16 | 194 | 25 | □ | 887-12 |
| TPDN | 3° | 118 | 20 | 198 | 32 | □ | 887-5 |
| TPMN | 3° | 118 | 20 | 198 | 32 | □ | 887-11 |
| TPDL | 3° | 140 | 20 | 220 | 32 | □ | 887-7 |
| TPML | 3° | 140 | 20 | 220 | 32 | □ | 887-13 |
| TPDS | 3.5° | 7 | 1 | 52 | 6 | □ | 874 |
| TPDS | 3.5° | 7 | 1.2 | 52 | 6 | □ | 874 |
| TPDS | 3.5° | 8 | 1.5 | 52 | 6 | □ | 874 |
| TPDS | 3.5° | 18 | 2 | 62 | 6 | □ | 874 |
| TPDS | 3.5° | 18 | 2.5 | 62 | 6 | □ | 875 |
| TPDS | 3.5° | 18 | 3 | 62 | 6 | □ | 875 |
| TPDS | 3.5° | 21 | 4 | 65 | 8 | □ | 875 |
| TPDS | 3.5° | 25 | 5 | 75 | 10 | □ | 875 |
| TPDS | 3.5° | 25 | 6 | 75 | 10 | □ | 876 |
| TPDS | 3.5° | 30 | 8 | 87 | 12 | □ | 876 |
| TPDS | 3.5° | 30 | 10 | 87 | 12 | □ | 876 |
| TPDS | 4° | 7 | 1 | 52 | 6 | □ | 874 |
| TPDS | 4° | 7 | 1.2 | 52 | 6 | □ | 874 |
| TPDS | 4° | 8 | 1.5 | 52 | 6 | □ | 874 |
| TPDS | 4° | 18 | 2 | 62 | 6 | □ | 874 |
| TPMS | 4° | 18 | 2 | 62 | 6 | □ | 882 |
| EX-TIN-TPDS | 4° | 18 | 2.5 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 4° | 18 | 2.5 | 62 | 6 | □ | 887-8 |
| TPDS | 4° | 18 | 2.5 | 62 | 6 | ● | 875 |
| TPMS | 4° | 18 | 2.5 | 62 | 6 | ● | 882 |
| XPM-TPDS | 4° | 18 | 2.5 | 62 | 6 | ● | 872 |
| XPM-TPMS | 4° | 18 | 2.5 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 4° | 18 | 3 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 4° | 18 | 3 | 62 | 6 | □ | 887-8 |
| TPDS | 4° | 18 | 3 | 62 | 6 | ● | 875 |
| TPMS | 4° | 18 | 3 | 62 | 6 | ● | 882 |
| XPM-TPDS | 4° | 18 | 3 | 62 | 6 | ● | 872 |
| XPM-TPMS | 4° | 18 | 3 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 4° | 21 | 4 | 65 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 4° | 21 | 4 | 65 | 8 | □ | 887-8 |
| TPDS | 4° | 21 | 4 | 65 | 8 | ● | 875 |
| TPMS | 4° | 21 | 4 | 65 | 8 | ● | 882 |
| XPM-TPDS | 4° | 21 | 4 | 65 | 8 | ● | 872 |
| XPM-TPMS | 4° | 21 | 4 | 65 | 8 | ● | 881 |
| EX-TIN-TPDS | 4° | 25 | 5 | 75 | 10 | □ | 887-1 |
| EX-TIN-TPMS | 4° | 25 | 5 | 75 | 10 | □ | 887-8 |
| TPDS | 4° | 25 | 5 | 75 | 10 | ● | 875 |
| TPMS | 4° | 25 | 5 | 75 | 10 | ● | 883 |
| XPM-TPDS | 4° | 25 | 5 | 75 | 10 | ● | 872 |
| XPM-TPMS | 4° | 25 | 5 | 75 | 10 | ● | 881 |
| EX-TIN-TPDS | 4° | 25 | 6 | 75 | 10 | □ | 887-1 |
| EX-TIN-TPMS | 4° | 25 | 6 | 75 | 10 | □ | 887-8 |
| TPDS | 4° | 25 | 6 | 75 | 10 | ● | 876 |
| TPMS | 4° | 25 | 6 | 75 | 10 | ● | 883 |
| XPM-TPDS | 4° | 25 | 6 | 75 | 10 | ● | 872 |
| XPM-TPMS | 4° | 25 | 6 | 75 | 10 | ● | 881 |
| TPDR | 4° | 30 | 2 | 74 | 8 | □ | 878 |
| TPMR | 4° | 30 | 2 | 74 | 8 | □ | 885 |
| TPDR | 4° | 30 | 2.5 | 74 | 8 | □ | 878 |
| TPMR | 4° | 30 | 2.5 | 74 | 8 | □ | 885 |
| TPDR | 4° | 30 | 3 | 74 | 8 | □ | 878 |
| TPMR | 4° | 30 | 3 | 74 | 8 | □ | 885 |
| EX-TIN-TPDS | 4° | 30 | 8 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 4° | 30 | 8 | 87 | 12 | □ | 887-8 |
| TPDS | 4° | 30 | 8 | 87 | 12 | ● | 876 |
| TPMS | 4° | 30 | 8 | 87 | 12 | ● | 883 |
| XPM-TPDS | 4° | 30 | 8 | 87 | 12 | ● | 872 |
| XPM-TPMS | 4° | 30 | 8 | 87 | 12 | ● | 881 |
| EX-TIN-TPDS | 4° | 30 | 10 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 4° | 30 | 10 | 87 | 12 | □ | 887-8 |
| TPDS | 4° | 30 | 10 | 87 | 12 | ● | 876 |
| TPMS | 4° | 30 | 10 | 87 | 12 | ● | 883 |
| XPM-TPDS | 4° | 30 | 10 | 87 | 12 | ● | 872 |
| XPM-TPMS | 4° | 30 | 10 | 87 | 12 | ● | 881 |
| TPDR | 4° | 36 | 4 | 86 | 10 | □ | 878 |
| TPMR | 4° | 36 | 4 | 86 | 10 | □ | 885 |
| TPDR | 4° | 42 | 5 | 99 | 12 | □ | 878 |
| TPMR | 4° | 42 | 5 | 99 | 12 | □ | 885 |
| TPDR | 4° | 42 | 6 | 99 | 12 | □ | 879 |
| TPMR | 4° | 42 | 6 | 99 | 12 | □ | 886 |
| TPDN | 4° | 50 | 2 | 100 | 10 | □ | 887-4 |
| TPMN | 4° | 50 | 2 | 100 | 10 | □ | 887-10 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDN | 4° | 50 | 2.5 | 100 | 10 | □ | 887-4 |
| TPMN | 4° | 50 | 2.5 | 100 | 10 | □ | 887-10 |
| TPDN | 4° | 50 | 3 | 100 | 10 | □ | 887-4 |
| TPMN | 4° | 50 | 3 | 100 | 10 | □ | 887-10 |
| TPDR | 4° | 50 | 8 | 107 | 12 | □ | 879 |
| TPMR | 4° | 50 | 8 | 107 | 12 | □ | 886 |
| TPDR | 4° | 50 | 10 | 110 | 16 | □ | 879 |
| TPMR | 4° | 50 | 10 | 110 | 16 | □ | 886 |
| TPDL | 4° | 60 | 2.5 | 117 | 12 | □ | 887-6 |
| TPML | 4° | 60 | 2.5 | 117 | 12 | □ | 887-12 |
| TPDL | 4° | 60 | 3 | 117 | 12 | □ | 887-6 |
| TPML | 4° | 60 | 3 | 117 | 12 | □ | 887-12 |
| TPDN | 4° | 60 | 4 | 117 | 12 | □ | 887-4 |
| TPMN | 4° | 60 | 4 | 117 | 12 | □ | 887-10 |
| EX-TIN-TPDR | 4° | 60 | 12 | 126 | 20 | □ | 887-3 |
| EX-TIN-TPMR | 4° | 60 | 12 | 126 | 20 | □ | 887-9 |
| TPDR | 4° | 60 | 12 | 126 | 20 | ● | 879 |
| TPMR | 4° | 60 | 12 | 126 | 20 | ● | 886 |
| XPM-TPDR | 4° | 60 | 12 | 126 | 20 | ● | 877 |
| XPM-TPMR | 4° | 60 | 12 | 126 | 20 | ● | 884 |
| EX-TIN-TPDR | 4° | 60 | 16 | 136 | 25 | □ | 887-3 |
| EX-TIN-TPMR | 4° | 60 | 16 | 136 | 25 | □ | 887-9 |
| TPDR | 4° | 60 | 16 | 136 | 25 | ● | 879 |
| TPMR | 4° | 60 | 16 | 136 | 25 | ● | 886 |
| XPM-TPDR | 4° | 60 | 16 | 136 | 25 | ● | 877 |
| XPM-TPMR | 4° | 60 | 16 | 136 | 25 | ● | 884 |
| TPDL | 4° | 71 | 4 | 128 | 12 | □ | 887-6 |
| TPML | 4° | 71 | 4 | 128 | 12 | □ | 887-12 |
| TPDN | 4° | 71 | 5 | 128 | 12 | □ | 887-4 |
| TPMN | 4° | 71 | 5 | 128 | 12 | □ | 887-10 |
| TPDN | 4° | 71 | 6 | 131 | 16 | □ | 887-4 |
| TPMN | 4° | 71 | 6 | 131 | 16 | □ | 887-10 |
| EX-TIN-TPDR | 4° | 71 | 20 | 147 | 25 | □ | 887-3 |
| EX-TIN-TPMR | 4° | 71 | 20 | 147 | 25 | □ | 887-9 |
| TPDR | 4° | 71 | 20 | 147 | 25 | ● | 880 |
| TPMR | 4° | 71 | 20 | 147 | 25 | ● | 887 |
| XPM-TPDR | 4° | 71 | 20 | 147 | 25 | ● | 877 |
| XPM-TPMR | 4° | 71 | 20 | 147 | 25 | ● | 884 |
| TPDL | 4° | 85 | 5 | 145 | 16 | □ | 887-6 |
| TPML | 4° | 85 | 5 | 145 | 16 | □ | 887-12 |
| TPDL | 4° | 85 | 6 | 145 | 16 | □ | 887-6 |
| TPML | 4° | 85 | 6 | 145 | 16 | □ | 887-12 |
| TPDN | 4° | 85 | 8 | 151 | 20 | □ | 887-5 |
| TPMN | 4° | 85 | 8 | 151 | 20 | □ | 887-10 |
| TPDN | 4° | 85 | 10 | 151 | 20 | □ | 887-5 |
| TPMN | 4° | 85 | 10 | 151 | 20 | □ | 887-10 |
| TPDL | 4° | 100 | 8 | 166 | 20 | □ | 887-6 |
| TPML | 4° | 100 | 8 | 166 | 20 | □ | 887-12 |
| TPDL | 4° | 100 | 10 | 176 | 25 | □ | 887-6 |
| TPML | 4° | 100 | 10 | 176 | 25 | □ | 887-12 |
| TPDN | 4° | 100 | 12 | 176 | 25 | □ | 887-5 |
| TPMN | 4° | 100 | 12 | 176 | 25 | □ | 887-10 |
| TPDN | 4° | 100 | 16 | 176 | 25 | □ | 887-5 |
| TPMN | 4° | 100 | 16 | 176 | 25 | □ | 887-11 |
| TPDL | 4° | 118 | 12 | 194 | 25 | □ | 887-6 |
| TPML | 4° | 118 | 12 | 194 | 25 | □ | 887-12 |
| TPDL | 4° | 118 | 16 | 198 | 32 | □ | 887-6 |
| TPML | 4° | 118 | 16 | 198 | 32 | □ | 887-12 |
| TPDN | 4° | 118 | 20 | 198 | 32 | □ | 887-5 |
| TPMN | 4° | 118 | 20 | 198 | 32 | □ | 887-11 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDL | 4° | 140 | 20 | 232 | 42 | □ | 887-7 |
| TPML | 4° | 140 | 20 | 232 | 42 | □ | 887-13 |
| CPM-TPED | 4°46′ | 16 | 12 | 70 | 16 | □ | 887-2 |
| TPDS | 5° | 7 | 1 | 52 | 6 | □ | 874 |
| TPDS | 5° | 7 | 1.2 | 52 | 6 | □ | 874 |
| TPDS | 5° | 8 | 1.5 | 52 | 6 | □ | 874 |
| TPDS | 5° | 18 | 2 | 62 | 6 | □ | 874 |
| TPMS | 5° | 18 | 2 | 62 | 6 | □ | 882 |
| EX-TIN-TPDS | 5° | 18 | 2.5 | 62 | 6 | □ | 887-1 |
| EX-TIN-TPMS | 5° | 18 | 2.5 | 62 | 6 | □ | 887-8 |
| TPDS | 5° | 18 | 2.5 | 62 | 6 | ● | 875 |
| TPMS | 5° | 18 | 2.5 | 62 | 6 | ● | 882 |
| XPM-TPDS | 5° | 18 | 2.5 | 62 | 6 | ● | 872 |
| XPM-TPMS | 5° | 18 | 2.5 | 62 | 6 | ● | 881 |
| EX-TIN-TPDS | 5° | 18 | 3 | 62 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 5° | 18 | 3 | 62 | 8 | □ | 887-8 |
| TPDS | 5° | 18 | 3 | 62 | 8 | ● | 875 |
| TPMS | 5° | 18 | 3 | 62 | 8 | ● | 882 |
| XPM-TPDS | 5° | 18 | 3 | 62 | 8 | ● | 872 |
| XPM-TPMS | 5° | 18 | 3 | 62 | 8 | ● | 881 |
| EX-TIN-TPDS | 5° | 21 | 4 | 65 | 8 | □ | 887-1 |
| EX-TIN-TPMS | 5° | 21 | 4 | 65 | 8 | □ | 887-8 |
| TPDS | 5° | 21 | 4 | 65 | 8 | ● | 875 |
| TPMS | 5° | 21 | 4 | 65 | 8 | ● | 882 |
| XPM-TPDS | 5° | 21 | 4 | 65 | 8 | ● | 872 |
| XPM-TPMS | 5° | 21 | 4 | 65 | 8 | ● | 881 |
| EX-TIN-TPDS | 5° | 25 | 5 | 75 | 10 | □ | 887-1 |
| EX-TIN-TPMS | 5° | 25 | 5 | 75 | 10 | □ | 887-8 |
| TPDS | 5° | 25 | 5 | 75 | 10 | ● | 875 |
| TPMS | 5° | 25 | 5 | 75 | 10 | ● | 883 |
| XPM-TPDS | 5° | 25 | 5 | 75 | 10 | ● | 872 |
| XPM-TPMS | 5° | 25 | 5 | 75 | 10 | ● | 881 |
| EX-TIN-TPDS | 5° | 25 | 6 | 82 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 5° | 25 | 6 | 82 | 12 | □ | 887-8 |
| TPDS | 5° | 25 | 6 | 82 | 12 | ● | 876 |
| TPMS | 5° | 25 | 6 | 82 | 12 | ● | 883 |
| XPM-TPDS | 5° | 25 | 6 | 82 | 12 | ● | 872 |
| XPM-TPMS | 5° | 25 | 6 | 82 | 12 | ● | 881 |
| TPDR | 5° | 30 | 2 | 74 | 8 | □ | 878 |
| TPMR | 5° | 30 | 2 | 74 | 8 | □ | 885 |
| TPDR | 5° | 30 | 2.5 | 74 | 8 | □ | 878 |
| TPMR | 5° | 30 | 2.5 | 74 | 8 | □ | 885 |
| TPDR | 5° | 30 | 3 | 80 | 10 | □ | 878 |
| TPMR | 5° | 30 | 3 | 80 | 10 | □ | 885 |
| EX-TIN-TPDS | 5° | 30 | 8 | 87 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 5° | 30 | 8 | 87 | 12 | □ | 887-8 |
| TPDS | 5° | 30 | 8 | 87 | 12 | ● | 876 |
| TPMS | 5° | 30 | 8 | 87 | 12 | ● | 883 |
| XPM-TPDS | 5° | 30 | 8 | 87 | 12 | ● | 872 |
| XPM-TPMS | 5° | 30 | 8 | 87 | 12 | ● | 881 |
| EX-TIN-TPDS | 5° | 30 | 10 | 90 | 16 | □ | 887-1 |
| EX-TIN-TPMS | 5° | 30 | 10 | 90 | 16 | □ | 887-8 |
| TPDS | 5° | 30 | 10 | 90 | 16 | ● | 876 |
| TPMS | 5° | 30 | 10 | 90 | 16 | ● | 883 |
| XPM-TPDS | 5° | 30 | 10 | 90 | 16 | ● | 872 |
| XPM-TPMS | 5° | 30 | 10 | 90 | 16 | ● | 881 |
| TPDR | 5° | 36 | 4 | 93 | 12 | □ | 878 |
| TPMR | 5° | 36 | 4 | 93 | 12 | □ | 885 |
| TPDR | 5° | 42 | 5 | 99 | 12 | □ | 878 |
| TPMR | 5° | 42 | 5 | 99 | 12 | □ | 885 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDR | 5° | 42 | 6 | 99 | 12 | □ | 879 |
| TPMR | 5° | 42 | 6 | 99 | 12 | □ | 886 |
| TPDN | 5° | 50 | 2 | 107 | 12 | □ | 887-4 |
| TPMN | 5° | 50 | 2 | 107 | 12 | □ | 887-10 |
| TPDN | 5° | 50 | 2.5 | 107 | 12 | □ | 887-4 |
| TPMN | 5° | 50 | 2.5 | 107 | 12 | □ | 887-10 |
| TPDN | 5° | 50 | 3 | 107 | 12 | □ | 887-4 |
| TPMN | 5° | 50 | 3 | 107 | 12 | □ | 887-10 |
| EX-TIN-TPDR | 5° | 50 | 8 | 110 | 16 | □ | 887-3 |
| EX-TIN-TPMR | 5° | 50 | 8 | 110 | 16 | □ | 887-9 |
| TPDR | 5° | 50 | 8 | 110 | 16 | ● | 879 |
| TPMR | 5° | 50 | 8 | 110 | 16 | ● | 886 |
| XPM-TPDR | 5° | 50 | 8 | 110 | 16 | ● | 877 |
| XPM-TPMR | 5° | 50 | 8 | 110 | 16 | ● | 884 |
| EX-TIN-TPDR | 5° | 50 | 10 | 110 | 16 | □ | 887-3 |
| EX-TIN-TPMR | 5° | 50 | 10 | 110 | 16 | □ | 887-9 |
| TPDR | 5° | 50 | 10 | 110 | 16 | ● | 879 |
| TPMR | 5° | 50 | 10 | 110 | 16 | ● | 886 |
| XPM-TPDR | 5° | 50 | 10 | 110 | 16 | ● | 877 |
| XPM-TPMR | 5° | 50 | 10 | 110 | 16 | ● | 884 |
| TPDL | 5° | 60 | 2.5 | 117 | 12 | □ | 887-6 |
| TPML | 5° | 60 | 2.5 | 117 | 12 | □ | 887-12 |
| TPDL | 5° | 60 | 3 | 117 | 12 | □ | 887-6 |
| TPML | 5° | 60 | 3 | 117 | 12 | □ | 887-12 |
| TPDN | 5° | 60 | 4 | 117 | 12 | □ | 887-4 |
| TPMN | 5° | 60 | 4 | 117 | 12 | □ | 887-10 |
| EX-TIN-TPDR | 5° | 60 | 12 | 126 | 20 | □ | 887-3 |
| EX-TIN-TPMR | 5° | 60 | 12 | 126 | 20 | □ | 887-9 |
| TPDR | 5° | 60 | 12 | 126 | 20 | ● | 879 |
| TPMR | 5° | 60 | 12 | 126 | 20 | ● | 886 |
| XPM-TPDR | 5° | 60 | 12 | 126 | 20 | ● | 877 |
| XPM-TPMR | 5° | 60 | 12 | 126 | 20 | ● | 884 |
| EX-TIN-TPDR | 5° | 60 | 16 | 136 | 25 | □ | 887-3 |
| EX-TIN-TPMR | 5° | 60 | 16 | 136 | 25 | □ | 887-9 |
| TPDR | 5° | 60 | 16 | 136 | 25 | ● | 879 |
| TPMR | 5° | 60 | 16 | 136 | 25 | ● | 886 |
| XPM-TPDR | 5° | 60 | 16 | 136 | 25 | ● | 877 |
| XPM-TPMR | 5° | 60 | 16 | 136 | 25 | ● | 884 |
| TPDL | 5° | 71 | 4 | 131 | 16 | □ | 887-6 |
| TPML | 5° | 71 | 4 | 131 | 16 | □ | 887-12 |
| TPDN | 5° | 71 | 5 | 131 | 16 | □ | 887-4 |
| TPMN | 5° | 71 | 5 | 131 | 16 | □ | 887-10 |
| TPDN | 5° | 71 | 6 | 131 | 16 | □ | 887-4 |
| TPMN | 5° | 71 | 6 | 131 | 16 | □ | 887-10 |
| TPDR | 5° | 71 | 20 | 151 | 32 | □ | 880 |
| TPMR | 5° | 71 | 20 | 151 | 32 | □ | 887 |
| TPDL | 5° | 85 | 5 | 151 | 20 | □ | 887-6 |
| TPML | 5° | 85 | 5 | 151 | 20 | □ | 887-12 |
| TPDL | 5° | 85 | 6 | 151 | 20 | □ | 887-6 |
| TPML | 5° | 85 | 6 | 151 | 20 | □ | 887-12 |
| TPDN | 5° | 85 | 8 | 151 | 20 | □ | 887-5 |
| TPMN | 5° | 85 | 8 | 151 | 20 | □ | 887-10 |
| TPDN | 5° | 85 | 10 | 161 | 25 | □ | 887-5 |
| TPMN | 5° | 85 | 10 | 161 | 25 | □ | 887-10 |
| TPDL | 5° | 100 | 8 | 176 | 25 | □ | 887-6 |
| TPML | 5° | 100 | 8 | 176 | 25 | □ | 887-12 |
| TPDL | 5° | 100 | 10 | 176 | 25 | □ | 887-6 |
| TPML | 5° | 100 | 10 | 176 | 25 | □ | 887-12 |
| TPDN | 5° | 100 | 12 | 176 | 25 | □ | 887-5 |
| TPMN | 5° | 100 | 12 | 176 | 25 | □ | 887-10 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDN | 5° | 100 | 16 | 180 | 32 | □ | 887-5 |
| TPMN | 5° | 100 | 16 | 180 | 32 | □ | 887-11 |
| TPDL | 5° | 118 | 12 | 198 | 32 | □ | 887-6 |
| TPML | 5° | 118 | 12 | 198 | 32 | □ | 887-12 |
| TPDL | 5° | 118 | 16 | 198 | 32 | □ | 887-6 |
| TPML | 5° | 118 | 16 | 198 | 32 | □ | 887-12 |
| TPDN | 5° | 118 | 20 | 210 | 42 | □ | 887-5 |
| TPMN | 5° | 118 | 20 | 210 | 42 | □ | 887-11 |
| TPDL | 5° | 140 | 20 | 232 | 42 | □ | 887-7 |
| TPML | 5° | 140 | 20 | 232 | 42 | □ | 887-13 |
| CPM-TPED | 5°12′ | 7.5 | 5 | 60 | 8 | □ | 887-2 |
| CPM-TPED | 5°26′ | 13.5 | 10 | 70 | 16 | □ | 887-2 |
| TPDS | 6° | 8 | 1.5 | 52 | 6 | □ | 874 |
| TPDS | 6° | 24 | 2 | 68 | 8 | □ | 874 |
| TPMS | 6° | 24 | 2 | 68 | 8 | □ | 882 |
| TPDS | 6° | 24 | 2.5 | 68 | 8 | □ | 875 |
| TPMS | 6° | 24 | 2.5 | 68 | 8 | □ | 882 |
| TPDS | 6° | 24 | 3 | 74 | 10 | □ | 875 |
| TPMS | 6° | 24 | 3 | 74 | 10 | □ | 882 |
| TPDS | 6° | 28 | 4 | 78 | 10 | □ | 875 |
| TPMS | 6° | 28 | 4 | 78 | 10 | □ | 882 |
| TPDS | 6° | 34 | 5 | 91 | 12 | □ | 875 |
| TPMS | 6° | 34 | 5 | 91 | 12 | □ | 883 |
| TPDS | 6° | 34 | 6 | 91 | 12 | □ | 876 |
| TPMS | 6° | 34 | 6 | 91 | 12 | □ | 883 |
| TPDS | 6° | 35 | 8 | 95 | 16 | □ | 876 |
| TPDS | 6° | 35 | 10 | 95 | 16 | □ | 876 |
| TPDR | 6° | 40 | 2.5 | 97 | 12 | □ | 878 |
| TPMR | 6° | 40 | 2.5 | 97 | 12 | □ | 885 |
| TPDR | 6° | 40 | 3 | 97 | 12 | □ | 878 |
| TPMR | 6° | 40 | 3 | 97 | 12 | □ | 885 |
| TPDR | 6° | 48 | 4 | 105 | 12 | □ | 878 |
| TPMR | 6° | 48 | 4 | 105 | 12 | □ | 885 |
| TPDR | 6° | 56 | 5 | 116 | 16 | □ | 878 |
| TPMR | 6° | 56 | 5 | 116 | 16 | □ | 885 |
| TPDR | 6° | 56 | 6 | 116 | 16 | □ | 879 |
| TPMR | 6° | 56 | 6 | 116 | 16 | □ | 886 |
| TPDR | 6° | 67 | 8 | 133 | 20 | □ | 879 |
| TPMR | 6° | 67 | 8 | 133 | 20 | □ | 886 |
| TPDR | 6° | 67 | 10 | 143 | 25 | □ | 879 |
| TPMR | 6° | 67 | 10 | 143 | 25 | □ | 886 |
| TPDN | 6° | 80 | 4 | 146 | 20 | □ | 887-4 |
| TPMN | 6° | 80 | 4 | 146 | 20 | □ | 887-10 |
| TPDR | 6° | 80 | 12 | 156 | 25 | □ | 879 |
| TPMR | 6° | 80 | 12 | 156 | 25 | □ | 886 |
| TPDR | 6° | 80 | 16 | 160 | 32 | □ | 879 |
| TPMR | 6° | 80 | 16 | 160 | 32 | □ | 886 |
| TPDL | 6° | 95 | 4 | 171 | 25 | □ | 887-6 |
| TPML | 6° | 95 | 4 | 171 | 25 | □ | 887-12 |
| TPDN | 6° | 95 | 5 | 171 | 25 | □ | 887-4 |
| TPMN | 6° | 95 | 5 | 171 | 25 | □ | 887-10 |
| TPDN | 6° | 95 | 6 | 171 | 25 | □ | 887-4 |
| TPMN | 6° | 95 | 6 | 171 | 25 | □ | 887-10 |
| TPDR | 6° | 95 | 20 | 187 | 42 | □ | 880 |
| TPMR | 6° | 95 | 20 | 187 | 42 | □ | 887 |
| TPDL | 6° | 112 | 5 | 188 | 25 | □ | 887-6 |
| TPML | 6° | 112 | 5 | 188 | 25 | □ | 887-12 |
| TPDL | 6° | 112 | 6 | 188 | 25 | □ | 887-6 |
| TPML | 6° | 112 | 6 | 188 | 25 | □ | 887-12 |
| TPDN | 6° | 112 | 8 | 192 | 32 | □ | 887-5 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

※ = 受注品 Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPMN | 6° | 112 | 8 | 192 | 32 | □ | 887-10 |
| TPDN | 6° | 112 | 10 | 192 | 32 | □ | 887-5 |
| TPMN | 6° | 112 | 10 | 192 | 32 | □ | 887-10 |
| TPDL | 6° | 132 | 8 | 212 | 32 | □ | 887-6 |
| TPML | 6° | 132 | 8 | 212 | 32 | □ | 887-12 |
| TPDL | 6° | 132 | 10 | 224 | 42 | □ | 887-6 |
| TPML | 6° | 132 | 10 | 224 | 42 | □ | 887-12 |
| TPDN | 6° | 132 | 12 | 224 | 42 | □ | 887-5 |
| TPMN | 6° | 132 | 12 | 224 | 42 | □ | 887-10 |
| TPDN | 6° | 132 | 16 | 224 | 42 | □ | 887-5 |
| TPMN | 6° | 132 | 16 | 224 | 42 | □ | 887-11 |
| TPDN | 6° | 136 | 20 | 228 | 42 | □ | 887-5 |
| TPMN | 6° | 136 | 20 | 228 | 42 | □ | 887-11 |
| TPDL | 6° | 160 | 12 | 252 | 42 | □ | 887-6 |
| TPML | 6° | 160 | 12 | 252 | 42 | □ | 887-12 |
| TPDL | 6° | 160 | 16 | 252 | 42 | □ | 887-6 |
| TPML | 6° | 160 | 16 | 252 | 42 | □ | 887-13 |
| TPDL | 6° | 160 | 20 | 252 | 42 | □ | 887-7 |
| TPML | 6° | 160 | 20 | 252 | 42 | □ | 887-13 |
| CPM-TPED | 6°20′ | 6 | 4 | 60 | 8 | □ | 887-2 |
| CPM-TPED | 6°43′ | 11 | 8 | 70 | 12 | □ | 887-2 |
| XPM-TRC | 7° | 4 | 2 | 45 | 4 | ● | 873 |
| XPM-TRC | 7° | 5 | 2.5 | 45 | 4 | ● | 873 |
| XPM-TRC | 7° | 6 | 3 | 50 | 6 | ● | 873 |
| XPM-TRC | 7° | 7 | 3.5 | 50 | 6 | ● | 873 |
| XPM-TRC | 7° | 8 | 4 | 50 | 6 | ● | 873 |
| XPM-TRC | 7° | 9 | 4.5 | 60 | 8 | ● | 873 |
| XPM-TRC | 7° | 10 | 5 | 60 | 8 | ● | 873 |
| XPM-TRC | 7° | 12 | 6 | 70 | 10 | ● | 873 |
| TPDS | 7° | 24 | 2 | 68 | 8 | □ | 874 |
| TPMS | 7° | 24 | 2 | 68 | 8 | □ | 882 |
| EX-TIN-TPDS | 7° | 24 | 2.5 | 74 | 10 | □ | 887-1 |
| EX-TIN-TPMS | 7° | 24 | 2.5 | 74 | 10 | □ | 887-8 |
| TPDS | 7° | 24 | 2.5 | 74 | 10 | ● | 875 |
| TPMS | 7° | 24 | 2.5 | 74 | 10 | ● | 882 |
| XPM-TPDS | 7° | 24 | 2.5 | 74 | 10 | ● | 872 |
| XPM-TPMS | 7° | 24 | 2.5 | 74 | 10 | ● | 881 |
| EX-TIN-TPDS | 7° | 24 | 3 | 74 | 10 | □ | 887-1 |
| EX-TIN-TPMS | 7° | 24 | 3 | 74 | 10 | □ | 887-8 |
| TPDS | 7° | 24 | 3 | 74 | 10 | ● | 875 |
| TPMS | 7° | 24 | 3 | 74 | 10 | ● | 882 |
| XPM-TPDS | 7° | 24 | 3 | 74 | 10 | ● | 872 |
| XPM-TPMS | 7° | 24 | 3 | 74 | 10 | ● | 881 |
| EX-TIN-TPDS | 7° | 28 | 4 | 85 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 7° | 28 | 4 | 85 | 12 | □ | 887-8 |
| TPDS | 7° | 28 | 4 | 85 | 12 | ● | 875 |
| TPMS | 7° | 28 | 4 | 85 | 12 | ● | 882 |
| XPM-TPDS | 7° | 28 | 4 | 85 | 12 | ● | 872 |
| XPM-TPMS | 7° | 28 | 4 | 85 | 12 | ● | 881 |
| EX-TIN-TPDS | 7° | 34 | 5 | 91 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 7° | 34 | 5 | 91 | 12 | □ | 887-8 |
| TPDS | 7° | 34 | 5 | 91 | 12 | ● | 875 |
| TPMS | 7° | 34 | 5 | 91 | 12 | ● | 883 |
| XPM-TPDS | 7° | 34 | 5 | 91 | 12 | ● | 872 |
| XPM-TPMS | 7° | 34 | 5 | 91 | 12 | ● | 881 |
| EX-TIN-TPDS | 7° | 34 | 6 | 91 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 7° | 34 | 6 | 91 | 12 | □ | 887-8 |
| TPDS | 7° | 34 | 6 | 91 | 12 | ● | 876 |
| TPMS | 7° | 34 | 6 | 91 | 12 | ● | 883 |
| XPM-TPDS | 7° | 34 | 6 | 91 | 12 | ● | 872 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| XPM-TPMS | 7° | 34 | 6 | 91 | 12 | ● | 881 |
| TPDS | 7° | 35 | 8 | 95 | 16 | □ | 876 |
| TPDS | 7° | 35 | 10 | 95 | 16 | □ | 876 |
| TPDR | 7° | 40 | 2.5 | 97 | 12 | □ | 878 |
| TPMR | 7° | 40 | 2.5 | 97 | 12 | □ | 885 |
| TPDR | 7° | 40 | 3 | 97 | 12 | □ | 878 |
| TPMR | 7° | 40 | 3 | 97 | 12 | □ | 885 |
| TPDR | 7° | 48 | 4 | 108 | 16 | □ | 878 |
| TPMR | 7° | 48 | 4 | 108 | 16 | □ | 885 |
| TPDR | 7° | 56 | 5 | 116 | 16 | □ | 878 |
| TPMR | 7° | 56 | 5 | 116 | 16 | □ | 885 |
| TPDR | 7° | 56 | 6 | 122 | 20 | □ | 879 |
| TPMR | 7° | 56 | 6 | 122 | 20 | □ | 886 |
| TPDN | 7° | 67 | 2.5 | 127 | 16 | □ | 887-4 |
| TPMN | 7° | 67 | 2.5 | 127 | 16 | □ | 887-10 |
| TPDN | 7° | 67 | 3 | 133 | 20 | □ | 887-4 |
| TPMN | 7° | 67 | 3 | 133 | 20 | □ | 887-10 |
| EX-TIN-TPDR | 7° | 67 | 8 | 143 | 25 | □ | 887-3 |
| EX-TIN-TPMR | 7° | 67 | 8 | 143 | 25 | □ | 887-9 |
| TPDR | 7° | 67 | 8 | 143 | 25 | ● | 879 |
| TPMR | 7° | 67 | 8 | 143 | 25 | ● | 886 |
| XPM-TPDR | 7° | 67 | 8 | 143 | 25 | ● | 877 |
| XPM-TPMR | 7° | 67 | 8 | 143 | 25 | ● | 884 |
| EX-TIN-TPDR | 7° | 67 | 10 | 143 | 25 | □ | 887-3 |
| EX-TIN-TPMR | 7° | 67 | 10 | 143 | 25 | □ | 887-9 |
| TPDR | 7° | 67 | 10 | 143 | 25 | ● | 879 |
| TPMR | 7° | 67 | 10 | 143 | 25 | ● | 886 |
| XPM-TPDR | 7° | 67 | 10 | 143 | 25 | ● | 877 |
| XPM-TPMR | 7° | 67 | 10 | 143 | 25 | ● | 884 |
| TPDN | 7° | 80 | 4 | 156 | 25 | □ | 887-4 |
| TPMN | 7° | 80 | 4 | 156 | 25 | □ | 887-10 |
| EX-TIN-TPDR | 7° | 80 | 12 | 160 | 32 | □ | 887-3 |
| EX-TIN-TPMR | 7° | 80 | 12 | 160 | 32 | □ | 887-9 |
| TPDR | 7° | 80 | 12 | 160 | 32 | ● | 879 |
| TPMR | 7° | 80 | 12 | 160 | 32 | ● | 886 |
| XPM-TPDR | 7° | 80 | 12 | 160 | 32 | ● | 877 |
| XPM-TPMR | 7° | 80 | 12 | 160 | 32 | ● | 884 |
| TPDR | 7° | 80 | 16 | 160 | 32 | □ | 879 |
| TPMR | 7° | 80 | 16 | 160 | 32 | □ | 886 |
| TPDL | 7° | 95 | 4 | 171 | 25 | □ | 887-6 |
| TPML | 7° | 95 | 4 | 171 | 25 | □ | 887-12 |
| TPDN | 7° | 95 | 5 | 171 | 25 | □ | 887-4 |
| TPMN | 7° | 95 | 5 | 171 | 25 | □ | 887-10 |
| TPDN | 7° | 95 | 6 | 171 | 25 | □ | 887-4 |
| TPMN | 7° | 95 | 6 | 171 | 25 | □ | 887-10 |
| TPDR | 7° | 95 | 20 | 187 | 42 | □ | 880 |
| TPMR | 7° | 95 | 20 | 187 | 42 | □ | 887 |
| TPDL | 7° | 112 | 5 | 192 | 32 | □ | 887-6 |
| TPML | 7° | 112 | 5 | 192 | 32 | □ | 887-12 |
| TPDL | 7° | 112 | 6 | 192 | 32 | □ | 887-6 |
| TPML | 7° | 112 | 6 | 192 | 32 | □ | 887-12 |
| TPDN | 7° | 112 | 8 | 192 | 32 | □ | 887-5 |
| TPMN | 7° | 112 | 8 | 192 | 32 | □ | 887-10 |
| TPDN | 7° | 112 | 10 | 204 | 42 | □ | 887-5 |
| TPMN | 7° | 112 | 10 | 204 | 42 | □ | 887-10 |
| TPDL | 7° | 132 | 8 | 224 | 42 | □ | 887-6 |
| TPML | 7° | 132 | 8 | 224 | 42 | □ | 887-12 |
| TPDL | 7° | 132 | 10 | 224 | 42 | □ | 887-6 |
| TPML | 7° | 132 | 10 | 224 | 42 | □ | 887-12 |
| TPDN | 7° | 132 | 12 | 224 | 42 | □ | 887-5 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPMN | 7° | 132 | 12 | 224 | 42 | □ | 887-11 |
| TPDN | 7° | 132 | 16 | 224 | 42 | □ | 887-5 |
| TPMN | 7° | 132 | 16 | 224 | 42 | □ | 887-11 |
| TPDN | 7° | 136 | 20 | 228 | 42 | □ | 887-5 |
| TPMN | 7° | 136 | 20 | 228 | 42 | □ | 887-11 |
| TPDL | 7° | 160 | 12 | 252 | 42 | □ | 887-6 |
| TPML | 7° | 160 | 12 | 252 | 42 | □ | 887-12 |
| TPDL | 7° | 160 | 16 | 252 | 42 | □ | 887-6 |
| TPML | 7° | 160 | 16 | 252 | 42 | □ | 887-13 |
| TPDL | 7° | 163 | 20 | 255 | 42 | □ | 887-7 |
| TPML | 7° | 163 | 20 | 255 | 42 | □ | 887-13 |
| CPM-TPED | 7°08′ | 5.5 | 3 | 60 | 6 | □ | 887-2 |
| TPDS | 8° | 24 | 2 | 68 | 8 | □ | 874 |
| TPMS | 8° | 24 | 2 | 68 | 8 | □ | 882 |
| TPDS | 8° | 24 | 2.5 | 74 | 10 | □ | 875 |
| TPMS | 8° | 24 | 2.5 | 74 | 10 | □ | 882 |
| TPMS | 8° | 24 | 3 | 74 | 10 | □ | 882 |
| TPDS | 8° | 24.9 | 3 | 74 | 10 | □ | 875 |
| TPDS | 8° | 28 | 4 | 85 | 12 | □ | 875 |
| TPMS | 8° | 28 | 4 | 85 | 12 | □ | 882 |
| TPDS | 8° | 34 | 5 | 91 | 12 | □ | 875 |
| TPMS | 8° | 34 | 5 | 91 | 12 | □ | 883 |
| TPDS | 8° | 34 | 6 | 91 | 16 | □ | 876 |
| TPMS | 8° | 34 | 6 | 91 | 16 | □ | 883 |
| TPDS | 8° | 35 | 8 | 95 | 16 | □ | 876 |
| TPMS | 8° | 35 | 8 | 95 | 16 | □ | 883 |
| TPDS | 8° | 35 | 10 | 101 | 20 | □ | 876 |
| TPMS | 8° | 35 | 10 | 101 | 20 | □ | 883 |
| TPDR | 8° | 40 | 3 | 97 | 12 | □ | 878 |
| TPMR | 8° | 40 | 3 | 97 | 12 | □ | 885 |
| TPDR | 8° | 48 | 4 | 108 | 16 | □ | 878 |
| TPMR | 8° | 48 | 4 | 108 | 16 | □ | 885 |
| TPDR | 8° | 56 | 5 | 122 | 20 | □ | 878 |
| TPMR | 8° | 56 | 5 | 122 | 20 | □ | 885 |
| TPDR | 8° | 56 | 6 | 122 | 20 | □ | 879 |
| TPMR | 8° | 56 | 6 | 122 | 20 | □ | 886 |
| TPDR | 8° | 67 | 8 | 143 | 25 | □ | 879 |
| TPMR | 8° | 67 | 8 | 143 | 25 | □ | 886 |
| TPDR | 8° | 67 | 10 | 143 | 25 | □ | 879 |
| TPMR | 8° | 67 | 10 | 143 | 25 | □ | 886 |
| CPM-TPED | 8°08′ | 4.5 | 2.5 | 60 | 6 | □ | 887-2 |
| CPM-TPED | 8°45′ | 8.7 | 6 | 60 | 10 | □ | 887-2 |
| TPDS | 9° | 24 | 3 | 81 | 12 | □ | 875 |
| TPDS | 9° | 28 | 4 | 85 | 12 | □ | 875 |
| TPDS | 9° | 34 | 5 | 94 | 16 | □ | 875 |
| TPDS | 9° | 34 | 6 | 94 | 16 | □ | 876 |
| CPM-TPED | 9°28′ | 4 | 2 | 60 | 6 | □ | 887-2 |
| XPM-TRC | 10° | 4 | 2 | 45 | 4 | ● | 873 |
| XPM-TRC | 10° | 5 | 2.5 | 50 | 6 | ● | 873 |
| XPM-TRC | 10° | 6 | 3 | 50 | 6 | ● | 873 |
| XPM-TRC | 10° | 7 | 3.5 | 50 | 6 | ● | 873 |
| XPM-TRC | 10° | 8 | 4 | 60 | 8 | ● | 873 |
| XPM-TRC | 10° | 9 | 4.5 | 60 | 8 | ● | 873 |
| XPM-TRC | 10° | 10 | 5 | 70 | 10 | ● | 873 |
| XPM-TRC | 10° | 12 | 6 | 75 | 12 | ● | 873 |
| TPDS | 10° | 24 | 2 | 81 | 12 | □ | 874 |
| TPMS | 10° | 24 | 2 | 81 | 12 | □ | 882 |
| EX-TIN-TPDS | 10° | 24 | 2.5 | 81 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 10° | 24 | 2.5 | 81 | 12 | □ | 887-8 |
| TPDS | 10° | 24 | 2.5 | 81 | 12 | ● | 875 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPMS | 10° | 24 | 2.5 | 81 | 12 | ● | 882 |
| XPM-TPDS | 10° | 24 | 2.5 | 81 | 12 | ● | 872 |
| XPM-TPMS | 10° | 24 | 2.5 | 81 | 12 | ● | 881 |
| EX-TIN-TPDS | 10° | 24 | 3 | 81 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 10° | 24 | 3 | 81 | 12 | □ | 887-8 |
| TPDS | 10° | 24 | 3 | 81 | 12 | ● | 875 |
| TPMS | 10° | 24 | 3 | 81 | 12 | ● | 882 |
| XPM-TPDS | 10° | 24 | 3 | 81 | 12 | ● | 872 |
| XPM-TPMS | 10° | 24 | 3 | 81 | 12 | ● | 881 |
| EX-TIN-TPDS | 10° | 28 | 4 | 85 | 12 | □ | 887-1 |
| EX-TIN-TPMS | 10° | 28 | 4 | 85 | 12 | □ | 887-8 |
| TPDS | 10° | 28 | 4 | 85 | 12 | ● | 875 |
| TPMS | 10° | 28 | 4 | 85 | 12 | ● | 882 |
| XPM-TPDS | 10° | 28 | 4 | 85 | 12 | ● | 872 |
| XPM-TPMS | 10° | 28 | 4 | 85 | 12 | ● | 881 |
| EX-TIN-TPDS | 10° | 34 | 5 | 94 | 16 | □ | 887-1 |
| EX-TIN-TPMS | 10° | 34 | 5 | 94 | 16 | □ | 887-8 |
| TPDS | 10° | 34 | 5 | 94 | 16 | ● | 875 |
| TPMS | 10° | 34 | 5 | 94 | 16 | ● | 883 |
| XPM-TPDS | 10° | 34 | 5 | 94 | 16 | ● | 872 |
| XPM-TPMS | 10° | 34 | 5 | 94 | 16 | ● | 881 |
| EX-TIN-TPDS | 10° | 34 | 6 | 94 | 16 | □ | 887-1 |
| EX-TIN-TPMS | 10° | 34 | 6 | 94 | 16 | □ | 887-8 |
| TPDS | 10° | 34 | 6 | 94 | 16 | ● | 876 |
| TPMS | 10° | 34 | 6 | 94 | 16 | ● | 883 |
| XPM-TPDS | 10° | 34 | 6 | 94 | 16 | ● | 872 |
| XPM-TPMS | 10° | 34 | 6 | 94 | 16 | ● | 881 |
| TPDR | 10° | 40 | 2.5 | 100 | 16 | □ | 878 |
| TPMR | 10° | 40 | 2.5 | 100 | 16 | □ | 885 |
| TPDR | 10° | 40 | 3 | 100 | 16 | □ | 878 |
| TPMR | 10° | 40 | 3 | 100 | 16 | □ | 885 |
| TPDS | 10° | 40 | 8 | 106 | 20 | □ | 876 |
| TPDS | 10° | 45 | 10 | 121 | 25 | □ | 876 |
| TPDR | 10° | 48 | 4 | 114 | 20 | □ | 878 |
| TPMR | 10° | 48 | 4 | 114 | 20 | □ | 885 |
| TPDS | 10° | 50 | 12 | 126 | 25 | □ | 876 |
| TPDR | 10° | 56 | 5 | 132 | 25 | □ | 878 |
| TPMR | 10° | 56 | 5 | 132 | 25 | □ | 885 |
| TPDR | 10° | 56 | 6 | 132 | 25 | □ | 879 |
| TPMR | 10° | 56 | 6 | 132 | 25 | □ | 886 |
| EX-TIN-TPDR | 10° | 67 | 8 | 147 | 32 | □ | 887-3 |
| EX-TIN-TPMR | 10° | 67 | 8 | 147 | 32 | □ | 887-9 |
| TPDR | 10° | 67 | 8 | 147 | 32 | ● | 879 |
| TPMR | 10° | 67 | 8 | 147 | 32 | ● | 886 |
| XPM-TPDR | 10° | 67 | 8 | 147 | 32 | ● | 877 |
| XPM-TPMR | 10° | 67 | 8 | 147 | 32 | ● | 884 |
| EX-TIN-TPDR | 10° | 67 | 10 | 147 | 32 | □ | 887-3 |
| EX-TIN-TPMR | 10° | 67 | 10 | 147 | 32 | □ | 887-9 |
| TPDR | 10° | 67 | 10 | 147 | 32 | ● | 879 |
| TPMR | 10° | 67 | 10 | 147 | 32 | ● | 886 |
| XPM-TPDR | 10° | 67 | 10 | 147 | 32 | ● | 877 |
| XPM-TPMR | 10° | 67 | 10 | 147 | 32 | ● | 884 |
| TPDN | 10° | 80 | 4 | 160 | 32 | □ | 887-4 |
| TPMN | 10° | 80 | 4 | 160 | 32 | □ | 887-10 |
| EX-TIN-TPDR | 10° | 80 | 12 | 172 | 42 | □ | 887-3 |
| EX-TIN-TPMR | 10° | 80 | 12 | 172 | 42 | □ | 887-9 |
| TPDR | 10° | 80 | 12 | 172 | 42 | ● | 879 |
| TPMR | 10° | 80 | 12 | 172 | 42 | ● | 886 |
| XPM-TPDR | 10° | 80 | 12 | 172 | 42 | ● | 877 |
| XPM-TPMR | 10° | 80 | 12 | 172 | 42 | ● | 884 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDR | 10° | 80 | 16 | 172 | 42 | □ | 879 |
| TPMR | 10° | 80 | 16 | 172 | 42 | □ | 886 |
| TPDL | 10° | 95 | 4 | 187 | 42 | □ | 887-6 |
| TPML | 10° | 95 | 4 | 187 | 42 | □ | 887-12 |
| TPDN | 10° | 95 | 5 | 187 | 42 | □ | 887-4 |
| TPMN | 10° | 95 | 5 | 187 | 42 | □ | 887-10 |
| TPDN | 10° | 95 | 6 | 187 | 42 | □ | 887-5 |
| TPMN | 10° | 95 | 6 | 187 | 42 | □ | 887-10 |
| TPDR | 10° | 95 | 20 | 187 | 42 | □ | 880 |
| TPMR | 10° | 95 | 20 | 187 | 42 | □ | 887 |
| TPDL | 10° | 112 | 5 | 204 | 42 | □ | 887-6 |
| TPML | 10° | 112 | 5 | 204 | 42 | □ | 887-12 |
| TPDL | 10° | 112 | 6 | 204 | 42 | □ | 887-6 |
| TPML | 10° | 112 | 6 | 204 | 42 | □ | 887-12 |
| TPDN | 10° | 112 | 8 | 204 | 42 | □ | 887-5 |
| TPMN | 10° | 112 | 8 | 204 | 42 | □ | 887-10 |
| TPDN | 10° | 112 | 10 | 204 | 42 | □ | 887-5 |
| TPMN | 10° | 112 | 10 | 204 | 42 | □ | 887-10 |
| TPDL | 10° | 132 | 8 | 224 | 42 | □ | 887-6 |
| TPML | 10° | 132 | 8 | 224 | 42 | □ | 887-12 |
| TPDL | 10° | 132 | 10 | 224 | 42 | □ | 887-6 |
| TPML | 10° | 132 | 10 | 224 | 42 | □ | 887-12 |
| TPDN | 10° | 132 | 12 | 224 | 42 | □ | 887-5 |
| TPMN | 10° | 132 | 12 | 224 | 42 | □ | 887-11 |
| TPDN | 10° | 132 | 16 | 224 | 42 | □ | 887-5 |
| TPMN | 10° | 132 | 16 | 224 | 42 | □ | 887-11 |
| TPDL | 10° | 160 | 12 | 252 | 42 | □ | 887-6 |
| TPML | 10° | 160 | 12 | 252 | 42 | □ | 887-12 |
| TPDL | 10° | 160 | 16 | 252 | 42 | □ | 887-7 |
| TPML | 10° | 160 | 16 | 252 | 42 | □ | 887-13 |
| TPDN | 10° | 160 | 20 | 252 | 42 | □ | 887-5 |
| TPMN | 10° | 160 | 20 | 252 | 42 | □ | 887-11 |
| XPM-TRC | 12° | 4 | 2 | 45 | 4 | ● | 873 |
| XPM-TRC | 12° | 5 | 2.5 | 50 | 6 | ● | 873 |
| XPM-TRC | 12° | 6 | 3 | 50 | 6 | ● | 873 |
| XPM-TRC | 12° | 7 | 3.5 | 60 | 8 | ● | 873 |
| XPM-TRC | 12° | 8 | 4 | 60 | 8 | ● | 873 |
| XPM-TRC | 12° | 9 | 4.5 | 70 | 10 | ● | 873 |
| XPM-TRC | 12° | 10 | 5 | 70 | 10 | ● | 873 |
| XPM-TRC | 12° | 12 | 6 | 75 | 12 | ● | 873 |
| XPM-TRC | 15° | 4 | 2 | 50 | 6 | ● | 873 |
| XPM-TRC | 15° | 5 | 2.5 | 50 | 6 | ● | 873 |
| XPM-TRC | 15° | 6 | 3 | 60 | 8 | ● | 873 |
| XPM-TRC | 15° | 7 | 3.5 | 60 | 8 | ● | 873 |
| XPM-TRC | 15° | 8 | 4 | 70 | 10 | ● | 873 |
| XPM-TRC | 15° | 9 | 4.5 | 70 | 10 | ● | 873 |
| XPM-TRC | 15° | 10 | 5 | 75 | 12 | ● | 873 |
| XPM-TRC | 15° | 12 | 6 | 75 | 12 | ● | 873 |
| TPDS | 15° | 17.7 | 2.5 | 80 | 12 | □ | 875 |
| TPDS | 15° | 18.6 | 2 | 80 | 12 | □ | 875 |
| TPDS | 15° | 25 | 3 | 85 | 16 | □ | 875 |
| TPMS | 15° | 25 | 3 | 85 | 16 | □ | 882 |
| TPDS | 15° | 30 | 4 | 90 | 16 | □ | 875 |
| TPMS | 15° | 30 | 4 | 90 | 16 | □ | 882 |
| TPDS | 15° | 35 | 5 | 110 | 20 | □ | 875 |
| TPMS | 15° | 35 | 5 | 110 | 20 | □ | 883 |
| TPDS | 15° | 40 | 6 | 120 | 25 | □ | 876 |
| TPMS | 15° | 50 | 6 | 130 | 32 | □ | 883 |
| TPDS | 15° | 50 | 8 | 130 | 32 | □ | 876 |
| TPMS | 15° | 50 | 8 | 130 | 32 | □ | 883 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPDS | 15° | 50 | 10 | 130 | 32 | □ | 876 |
| TPMS | 15° | 50 | 10 | 130 | 32 | □ | 883 |
| TPDS | 15° | 50 | 12 | 130 | 32 | □ | 876 |
| TPMS | 15° | 50 | 12 | 130 | 32 | □ | 883 |
| TPDS | 15° | 50 | 16 | 130 | 32 | □ | 876 |
| TPMS | 15° | 50 | 16 | 130 | 32 | □ | 883 |
| TPDS | 15° | 50 | 20 | 130 | 32 | □ | 876 |
| TPMS | 15° | 50 | 20 | 130 | 32 | □ | 883 |
| TPDR | 15° | 56 | 6 | 136 | 32 | □ | 879 |
| TPMR | 15° | 56 | 6 | 136 | 32 | □ | 886 |
| TPDR | 15° | 67 | 6 | 159 | 42 | □ | 879 |
| TPMR | 15° | 67 | 6 | 159 | 42 | □ | 886 |
| TPDR | 15° | 67 | 8 | 159 | 42 | □ | 879 |
| TPMR | 15° | 67 | 8 | 159 | 42 | □ | 886 |
| TPDR | 15° | 67 | 10 | 159 | 42 | □ | 879 |
| TPMR | 15° | 67 | 10 | 159 | 42 | □ | 886 |
| TPDR | 15° | 80 | 12 | 172 | 42 | □ | 879 |
| TPMR | 15° | 80 | 12 | 172 | 42 | □ | 886 |
| TPDR | 15° | 80 | 16 | 172 | 42 | □ | 879 |
| TPMR | 15° | 80 | 16 | 172 | 42 | □ | 886 |
| TPDR | 15° | 95 | 20 | 187 | 42 | □ | 880 |
| TPMR | 15° | 95 | 20 | 187 | 42 | □ | 887 |
| TPDS | 20° | 13 | 2.5 | 80 | 12 | □ | 875 |
| TPDS | 20° | 13.7 | 2 | 80 | 12 | □ | 875 |
| TPDS | 20° | 25 | 3 | 85 | 16 | □ | 875 |
| TPMS | 20° | 25 | 3 | 85 | 16 | □ | 882 |
| TPDS | 20° | 30 | 4 | 90 | 20 | □ | 875 |
| TPMS | 20° | 30 | 4 | 90 | 20 | □ | 882 |
| TPDS | 20° | 35 | 5 | 110 | 25 | □ | 875 |
| TPMS | 20° | 35 | 5 | 110 | 25 | □ | 883 |
| TPDS | 20° | 40 | 6 | 120 | 25 | □ | 876 |
| TPMS | 20° | 40 | 6 | 120 | 32 | □ | 883 |
| TPDS | 20° | 40 | 8 | 120 | 32 | □ | 876 |
| TPMS | 20° | 40 | 8 | 120 | 32 | □ | 883 |
| TPDS | 20° | 40 | 10 | 120 | 32 | □ | 876 |
| TPMS | 20° | 40 | 10 | 120 | 32 | □ | 883 |
| TPDS | 20° | 40 | 12 | 120 | 32 | □ | 876 |
| TPMS | 20° | 40 | 12 | 120 | 32 | □ | 883 |
| TPDS | 20° | 40 | 16 | 120 | 32 | □ | 876 |
| TPMS | 20° | 40 | 16 | 120 | 32 | □ | 883 |
| TPDS | 20° | 40 | 20 | 120 | 32 | □ | 876 |
| TPMS | 20° | 40 | 20 | 120 | 32 | □ | 883 |
| TPDS | 20° | 53 | 8 | 145 | 42 | □ | 876 |
| TPMS | 20° | 53 | 8 | 145 | 42 | □ | 883 |
| TPDS | 20° | 53 | 10 | 145 | 42 | □ | 876 |
| TPMS | 20° | 53 | 10 | 145 | 42 | □ | 883 |
| TPDS | 20° | 63 | 12 | 155 | 42 | □ | 876 |
| TPMS | 20° | 63 | 12 | 155 | 42 | □ | 883 |
| TPDS | 20° | 63 | 16 | 155 | 42 | □ | 876 |
| TPMS | 20° | 63 | 16 | 155 | 42 | □ | 883 |
| TPDS | 20° | 75 | 20 | 167 | 42 | □ | 876 |
| TPMS | 20° | 75 | 20 | 167 | 42 | □ | 884 |
| TPDS | 25° | 60 | 12 | 152 | 42 | □ | 876 |
| TPMS | 25° | 60 | 12 | 152 | 42 | □ | 883 |
| TPDS | 25° | 60 | 16 | 152 | 42 | □ | 876 |
| TPMS | 25° | 60 | 16 | 152 | 42 | □ | 883 |
| TPDS | 25° | 60 | 20 | 152 | 42 | □ | 876 |
| TPMS | 25° | 60 | 20 | 152 | 42 | □ | 884 |
| TPDS | 30° | 20 | 6 | 100 | 25 | □ | 876 |
| TPMS | 30° | 20 | 6 | 100 | 25 | □ | 883 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

## ハイスエンドミル／テーパ
## HSS END MILLS / TAPER

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia. | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| **TPDS** | 30° | 25 | 8 | 105 | 32 | □ | **876** |
| **TPMS** | 30° | 25 | 8 | 105 | 32 | □ | **883** |
| **TPDS** | 30° | 35 | 10 | 127 | 42 | □ | **876** |
| **TPMS** | 30° | 35 | 10 | 127 | 42 | □ | **883** |
| **TPDS** | 30° | 35 | 12 | 127 | 42 | □ | **876** |
| **TPMS** | 30° | 35 | 12 | 127 | 42 | □ | **883** |
| **TPDS** | 30° | 50 | 16 | 142 | 42 | □ | **876** |
| **TPMS** | 30° | 50 | 16 | 142 | 42 | □ | **883** |
| **TPDS** | 30° | 50 | 20 | 142 | 42 | □ | **876** |
| **TPMS** | 30° | 50 | 20 | 142 | 42 | □ | **884** |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

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Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパボール
HSS END MILLS / TAPER-BALL

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBDS | 0.5° | 2 | R0.4 | 45 | 6 | □ | 889 |
| TPBDS | 0.5° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 0.5° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 0.5° | 5 | R0.75 | 50 | 6 | □ | 889 |
| EX-TIN-TPBDS | 0.5° | 10 | R1 | 54 | 6 | □ | 893-1 |
| TPBDS | 0.5° | 10 | R1 | 54 | 6 | ● | 889 |
| XPM-TPBDS | 0.5° | 10 | R1 | 54 | 6 | ● | 888 |
| EX-TIN-TPBDS | 0.5° | 10 | R1.25 | 54 | 6 | □ | 893-1 |
| TPBDS | 0.5° | 10 | R1.25 | 54 | 6 | ● | 889 |
| TPBMS | 0.5° | 10 | R1.25 | 54 | 6 | □ | 893-7 |
| XPM-TPBDS | 0.5° | 10 | R1.25 | 54 | 6 | ● | 888 |
| EX-TIN-TPBDS | 0.5° | 10 | R1.5 | 54 | 6 | □ | 893-1 |
| TPBDS | 0.5° | 10 | R1.5 | 54 | 6 | ● | 889 |
| TPBMS | 0.5° | 10 | R1.5 | 54 | 6 | □ | 893-7 |
| XPM-TPBDS | 0.5° | 10 | R1.5 | 54 | 6 | ● | 888 |
| EX-TIN-TPBDS | 0.5° | 12 | R2 | 56 | 6 | □ | 893-1 |
| TPBDS | 0.5° | 12 | R2 | 56 | 6 | ● | 889 |
| TPBMS | 0.5° | 12 | R2 | 56 | 6 | □ | 893-7 |
| XPM-TPBDS | 0.5° | 12 | R2 | 56 | 6 | ● | 888 |
| EX-TIN-TPBDS | 0.5° | 14 | R2.5 | 58 | 6 | □ | 893-1 |
| TPBDS | 0.5° | 14 | R2.5 | 58 | 6 | ● | 890 |
| TPBMS | 0.5° | 14 | R2.5 | 58 | 6 | □ | 893-7 |
| XPM-TPBDS | 0.5° | 14 | R2.5 | 58 | 6 | ● | 888 |
| EX-TIN-TPBDS | 0.5° | 14 | R3 | 58 | 8 | □ | 893-1 |
| TPBDS | 0.5° | 14 | R3 | 58 | 8 | ● | 890 |
| TPBMS | 0.5° | 14 | R3 | 58 | 8 | □ | 893-7 |
| XPM-TPBDS | 0.5° | 14 | R3 | 58 | 8 | ● | 888 |
| TPBDR | 0.5° | 17 | R1 | 61 | 6 | □ | 892 |
| TPBDR | 0.5° | 17 | R1.25 | 61 | 6 | □ | 892 |
| TPBDR | 0.5° | 17 | R1.5 | 61 | 6 | □ | 892 |
| TPBDS | 0.5° | 17 | R4 | 67 | 10 | □ | 890 |
| TPBDS | 0.5° | 17 | R5 | 74 | 12 | □ | 891 |
| TPBDR | 0.5° | 20 | R2 | 64 | 6 | □ | 892 |
| TPBDR | 0.5° | 24 | R2.5 | 68 | 6 | □ | 892 |
| EX-TIN-TPBDR | 0.5° | 24 | R3 | 68 | 8 | □ | 893-3 |
| TPBDR | 0.5° | 24 | R3 | 68 | 8 | ● | 892 |
| XPM-TPBDR | 0.5° | 24 | R3 | 68 | 8 | ● | 891 |
| TPBDN | 0.5° | 28 | R1 | 72 | 6 | □ | 893-4 |
| TPBDN | 0.5° | 28 | R1.25 | 72 | 6 | □ | 893-4 |
| TPBDN | 0.5° | 28 | R1.5 | 72 | 6 | □ | 893-4 |
| EX-TIN-TPBDR | 0.5° | 28 | R4 | 78 | 10 | □ | 893-3 |
| TPBDR | 0.5° | 28 | R4 | 78 | 10 | ● | 893 |
| XPM-TPBDR | 0.5° | 28 | R4 | 78 | 10 | ● | 891 |
| EX-TIN-TPBDR | 0.5° | 28 | R5 | 85 | 12 | □ | 893-3 |
| TPBDR | 0.5° | 28 | R5 | 85 | 12 | ● | 893 |
| XPM-TPBDR | 0.5° | 28 | R5 | 85 | 12 | ● | 891 |
| TPBDL | 0.5° | 34 | R1.5 | 78 | 6 | □ | 893-6 |
| TPBML | 0.5° | 34 | R1.5 | 78 | 6 | □ | 893-8 |
| TPBDN | 0.5° | 34 | R2 | 78 | 6 | □ | 893-4 |
| EX-TIN-TPBDR | 0.5° | 34 | R6 | 91 | 12 | □ | 893-3 |
| TPBDR | 0.5° | 34 | R6 | 91 | 12 | ● | 893 |
| XPM-TPBDR | 0.5° | 34 | R6 | 91 | 12 | ● | 891 |
| TPBDR | 0.5° | 34 | R8 | 94 | 16 | □ | 893 |
| TPBDL | 0.5° | 40 | R2 | 84 | 6 | □ | 893-6 |
| TPBML | 0.5° | 40 | R2 | 84 | 6 | □ | 893-8 |
| TPBDN | 0.5° | 40 | R2.5 | 84 | 6 | □ | 893-4 |
| TPBDN | 0.5° | 40 | R3 | 84 | 8 | □ | 893-4 |
| TPBDR | 0.5° | 40 | R10 | 106 | 20 | □ | 893 |
| TPBDL | 0.5° | 48 | R2.5 | 92 | 6 | □ | 893-6 |
| TPBML | 0.5° | 48 | R2.5 | 92 | 6 | □ | 893-8 |
| TPBDL | 0.5° | 48 | R3 | 92 | 8 | □ | 893-6 |
| TPBML | 0.5° | 48 | R3 | 92 | 8 | □ | 893-8 |
| TPBDN | 0.5° | 48 | R4 | 98 | 10 | □ | 893-5 |
| TPBDN | 0.5° | 48 | R5 | 105 | 12 | □ | 893-5 |
| TPBDL | 0.5° | 56 | R4 | 106 | 10 | □ | 893-6 |
| TPBML | 0.5° | 56 | R4 | 106 | 10 | □ | 893-9 |
| TPBDL | 0.5° | 56 | R5 | 113 | 12 | □ | 893-6 |
| TPBML | 0.5° | 56 | R5 | 113 | 12 | □ | 893-9 |
| TPBDN | 0.5° | 56 | R6 | 113 | 12 | □ | 893-5 |
| TPBDN | 0.5° | 56 | R8 | 116 | 16 | □ | 893-5 |
| TPBDN | 0.5° | 57 | R10 | 123 | 20 | □ | 893-5 |
| TPBDL | 0.5° | 67 | R6 | 124 | 12 | □ | 893-6 |
| TPBML | 0.5° | 67 | R6 | 124 | 12 | □ | 893-9 |
| TPBDL | 0.5° | 67 | R8 | 127 | 16 | □ | 893-6 |
| TPBML | 0.5° | 67 | R8 | 127 | 16 | □ | 893-9 |
| TPBDL | 0.5° | 80 | R10 | 146 | 20 | □ | 893-6 |
| TPBML | 0.5° | 80 | R10 | 146 | 20 | □ | 893-9 |
| TPBDS | 0.75° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 0.75° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 0.75° | 5 | R0.75 | 50 | 6 | □ | 889 |
| TPBDS | 0.75° | 10 | R1 | 54 | 6 | □ | 889 |
| TPBDS | 0.75° | 10 | R1.25 | 54 | 6 | □ | 889 |
| TPBDS | 0.75° | 10 | R1.5 | 54 | 6 | □ | 889 |
| TPBDS | 0.75° | 12 | R2 | 56 | 6 | □ | 889 |
| TPBDS | 0.75° | 14 | R2.5 | 58 | 6 | □ | 890 |
| TPBDS | 0.75° | 14 | R3 | 58 | 8 | □ | 890 |
| TPBDS | 1° | 2 | R0.4 | 45 | 6 | □ | 889 |
| TPBDS | 1° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 1° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 1° | 5 | R0.75 | 50 | 6 | □ | 889 |
| EX-TIN-TPBDS | 1° | 13 | R1 | 57 | 6 | □ | 893-1 |
| TPBDS | 1° | 13 | R1 | 57 | 6 | ● | 889 |
| TPBMS | 1° | 13 | R1 | 57 | 6 | □ | 893-7 |
| XPM-TPBDS | 1° | 13 | R1 | 57 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1° | 13 | R1.25 | 57 | 6 | □ | 893-1 |
| TPBDS | 1° | 13 | R1.25 | 57 | 6 | ● | 889 |
| TPBMS | 1° | 13 | R1.25 | 57 | 6 | □ | 893-7 |
| XPM-TPBDS | 1° | 13 | R1.25 | 57 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1° | 13 | R1.5 | 57 | 6 | □ | 893-1 |
| TPBDS | 1° | 13 | R1.5 | 57 | 6 | ● | 889 |
| TPBMS | 1° | 13 | R1.5 | 57 | 6 | □ | 893-7 |
| XPM-TPBDS | 1° | 13 | R1.5 | 57 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1° | 16 | R2 | 60 | 6 | □ | 893-1 |
| TPBDS | 1° | 16 | R2 | 60 | 6 | ● | 889 |
| TPBMS | 1° | 16 | R2 | 60 | 6 | □ | 893-7 |
| XPM-TPBDS | 1° | 16 | R2 | 60 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1° | 19 | R2.5 | 63 | 6 | □ | 893-1 |
| TPBDS | 1° | 19 | R2.5 | 63 | 6 | ● | 890 |
| TPBMS | 1° | 19 | R2.5 | 63 | 6 | □ | 893-7 |
| XPM-TPBDS | 1° | 19 | R2.5 | 63 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1° | 19 | R3 | 63 | 8 | □ | 893-1 |
| TPBDS | 1° | 19 | R3 | 63 | 8 | ● | 890 |
| TPBMS | 1° | 19 | R3 | 63 | 8 | □ | 893-7 |
| XPM-TPBDS | 1° | 19 | R3 | 63 | 8 | ● | 888 |
| TPBDR | 1° | 22 | R1 | 66 | 6 | □ | 892 |
| TPBDR | 1° | 22 | R1.25 | 66 | 6 | □ | 892 |
| TPBDR | 1° | 22 | R1.5 | 66 | 6 | □ | 892 |
| TPBDS | 1° | 22 | R4 | 72 | 10 | □ | 890 |
| TPBDS | 1° | 22 | R5 | 79 | 12 | □ | 891 |
| TPBDR | 1° | 26 | R2 | 70 | 6 | □ | 892 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパボール
HSS END MILLS / TAPER-BALL

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBDR | 1° | 32 | R2.5 | 76 | 8 | □ | 892 |
| EX-TIN-TPBDR | 1° | 32 | R3 | 76 | 8 | □ | 893-3 |
| TPBDR | 1° | 32 | R3 | 76 | 8 | ● | 892 |
| XPM-TPBDR | 1° | 32 | R3 | 76 | 8 | ● | 891 |
| TPBDN | 1° | 38 | R1 | 82 | 6 | □ | 893-4 |
| TPBDN | 1° | 38 | R1.25 | 82 | 6 | □ | 893-4 |
| TPBDN | 1° | 38 | R1.5 | 82 | 6 | □ | 893-4 |
| EX-TIN-TPBDR | 1° | 38 | R4 | 88 | 10 | □ | 893-3 |
| TPBDR | 1° | 38 | R4 | 88 | 10 | ● | 893 |
| XPM-TPBDR | 1° | 38 | R4 | 88 | 10 | ● | 891 |
| EX-TIN-TPBDR | 1° | 38 | R5 | 95 | 12 | □ | 893-3 |
| TPBDR | 1° | 38 | R5 | 95 | 12 | ● | 893 |
| XPM-TPBDR | 1° | 38 | R5 | 95 | 12 | ● | 891 |
| TPBDL | 1° | 45 | R1.5 | 89 | 6 | □ | 893-6 |
| TPBML | 1° | 45 | R1.5 | 89 | 6 | □ | 893-8 |
| TPBDN | 1° | 45 | R2 | 89 | 6 | □ | 893-4 |
| EX-TIN-TPBDR | 1° | 45 | R6 | 102 | 12 | □ | 893-3 |
| TPBDR | 1° | 45 | R6 | 102 | 12 | ● | 893 |
| XPM-TPBDR | 1° | 45 | R6 | 102 | 12 | ● | 891 |
| TPBDR | 1° | 45 | R8 | 105 | 16 | □ | 893 |
| TPBDL | 1° | 53 | R2 | 97 | 6 | □ | 893-6 |
| TPBML | 1° | 53 | R2 | 97 | 6 | □ | 893-8 |
| TPBDN | 1° | 53 | R2.5 | 97 | 8 | □ | 893-4 |
| TPBDN | 1° | 53 | R3 | 97 | 8 | □ | 893-4 |
| TPBDR | 1° | 53 | R10 | 119 | 20 | □ | 893 |
| TPBDL | 1° | 63 | R2.5 | 107 | 8 | □ | 893-6 |
| TPBML | 1° | 63 | R2.5 | 107 | 8 | □ | 893-8 |
| TPBDL | 1° | 63 | R3 | 113 | 10 | □ | 893-6 |
| TPBML | 1° | 63 | R3 | 113 | 10 | □ | 893-8 |
| TPBDN | 1° | 63 | R4 | 120 | 12 | □ | 893-5 |
| TPBDN | 1° | 63 | R5 | 120 | 12 | □ | 893-5 |
| TPBDL | 1° | 75 | R4 | 132 | 12 | □ | 893-6 |
| TPBML | 1° | 75 | R4 | 132 | 12 | □ | 893-9 |
| TPBDL | 1° | 75 | R5 | 132 | 12 | □ | 893-6 |
| TPBML | 1° | 75 | R5 | 132 | 12 | □ | 893-9 |
| TPBDN | 1° | 75 | R6 | 132 | 12 | □ | 893-5 |
| TPBDN | 1° | 75 | R8 | 135 | 16 | □ | 893-5 |
| TPBDL | 1° | 90 | R6 | 150 | 16 | □ | 893-6 |
| TPBML | 1° | 90 | R6 | 150 | 16 | □ | 893-9 |
| TPBDL | 1° | 90 | R8 | 156 | 20 | □ | 893-6 |
| TPBML | 1° | 90 | R8 | 156 | 20 | □ | 893-9 |
| TPBDN | 1° | 90 | R10 | 156 | 20 | □ | 893-5 |
| TPBDL | 1° | 106 | R10 | 182 | 25 | □ | 893-6 |
| TPBML | 1° | 106 | R10 | 182 | 25 | □ | 893-9 |
| TPBDS | 1.25° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 1.25° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 1.25° | 5 | R0.75 | 50 | 6 | □ | 889 |
| TPBDS | 1.25° | 13 | R1 | 57 | 6 | □ | 889 |
| TPBDS | 1.25° | 13 | R1.25 | 57 | 6 | □ | 889 |
| TPBDS | 1.25° | 13 | R1.5 | 57 | 6 | □ | 889 |
| TPBDS | 1.25° | 16 | R2 | 60 | 6 | □ | 889 |
| TPBDS | 1.25° | 19 | R2.5 | 63 | 6 | □ | 890 |
| TPBDS | 1.25° | 19 | R3 | 63 | 8 | □ | 890 |
| TPBDS | 1.25° | 22 | R4 | 72 | 10 | □ | 890 |
| TPBDS | 1.25° | 22 | R5 | 79 | 12 | □ | 891 |
| TPBDS | 1.5° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 1.5° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 1.5° | 5 | R0.75 | 50 | 6 | □ | 889 |
| EX-TIN-TPBDS | 1.5° | 13 | R1 | 57 | 6 | □ | 893-1 |
| TPBDS | 1.5° | 13 | R1 | 57 | 6 | ● | 889 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| XPM-TPBDS | 1.5° | 13 | R1 | 57 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1.5° | 13 | R1.25 | 57 | 6 | □ | 893-1 |
| TPBDS | 1.5° | 13 | R1.25 | 57 | 6 | ● | 889 |
| TPBMS | 1.5° | 13 | R1.25 | 57 | 6 | □ | 893-7 |
| XPM-TPBDS | 1.5° | 13 | R1.25 | 57 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1.5° | 13 | R1.5 | 57 | 6 | □ | 893-1 |
| TPBDS | 1.5° | 13 | R1.5 | 57 | 6 | ● | 889 |
| TPBMS | 1.5° | 13 | R1.5 | 57 | 6 | □ | 893-7 |
| XPM-TPBDS | 1.5° | 13 | R1.5 | 57 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1.5° | 16 | R2 | 60 | 6 | □ | 893-1 |
| TPBDS | 1.5° | 16 | R2 | 60 | 6 | ● | 889 |
| TPBMS | 1.5° | 16 | R2 | 60 | 6 | □ | 893-7 |
| XPM-TPBDS | 1.5° | 16 | R2 | 60 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1.5° | 19 | R2.5 | 63 | 6 | □ | 893-1 |
| TPBDS | 1.5° | 19 | R2.5 | 63 | 6 | ● | 890 |
| TPBMS | 1.5° | 19 | R2.5 | 63 | 6 | □ | 893-7 |
| XPM-TPBDS | 1.5° | 19 | R2.5 | 63 | 6 | ● | 888 |
| EX-TIN-TPBDS | 1.5° | 19 | R3 | 63 | 8 | □ | 893-1 |
| TPBDS | 1.5° | 19 | R3 | 63 | 8 | ● | 890 |
| TPBMS | 1.5° | 19 | R3 | 63 | 8 | □ | 893-7 |
| XPM-TPBDS | 1.5° | 19 | R3 | 63 | 8 | ● | 888 |
| TPBDR | 1.5° | 22 | R1 | 66 | 6 | □ | 892 |
| TPBDR | 1.5° | 22 | R1.25 | 66 | 6 | □ | 892 |
| TPBDR | 1.5° | 22 | R1.5 | 66 | 6 | □ | 892 |
| EX-TIN-TPBDS | 1.5° | 22 | R4 | 72 | 10 | □ | 893-1 |
| TPBDS | 1.5° | 22 | R4 | 72 | 10 | ● | 890 |
| TPBMS | 1.5° | 22 | R4 | 72 | 10 | □ | 893-7 |
| XPM-TPBDS | 1.5° | 22 | R4 | 72 | 10 | ● | 888 |
| EX-TIN-TPBDS | 1.5° | 22 | R5 | 79 | 12 | □ | 893-1 |
| TPBDS | 1.5° | 22 | R5 | 79 | 12 | ● | 891 |
| TPBMS | 1.5° | 22 | R5 | 79 | 12 | □ | 893-7 |
| XPM-TPBDS | 1.5° | 22 | R5 | 79 | 12 | ● | 888 |
| TPBDR | 1.5° | 26 | R2 | 70 | 6 | □ | 892 |
| TPBDR | 1.5° | 32 | R2.5 | 76 | 8 | □ | 892 |
| TPBDR | 1.5° | 32 | R3 | 76 | 8 | □ | 892 |
| TPBDN | 1.5° | 38 | R1 | 82 | 6 | □ | 893-4 |
| TPBDN | 1.5° | 38 | R1.25 | 82 | 6 | □ | 893-4 |
| TPBDN | 1.5° | 38 | R1.5 | 82 | 6 | □ | 893-4 |
| EX-TIN-TPBDR | 1.5° | 38 | R4 | 88 | 10 | □ | 893-3 |
| TPBDR | 1.5° | 38 | R4 | 88 | 10 | ● | 893 |
| XPM-TPBDR | 1.5° | 38 | R4 | 88 | 10 | ● | 891 |
| EX-TIN-TPBDR | 1.5° | 38 | R5 | 95 | 12 | □ | 893-3 |
| TPBDR | 1.5° | 38 | R5 | 95 | 12 | ● | 893 |
| XPM-TPBDR | 1.5° | 38 | R5 | 95 | 12 | ● | 891 |
| TPBDL | 1.5° | 45 | R1.5 | 89 | 6 | □ | 893-6 |
| TPBML | 1.5° | 45 | R1.5 | 89 | 6 | □ | 893-8 |
| TPBDN | 1.5° | 45 | R2 | 89 | 8 | □ | 893-4 |
| EX-TIN-TPBDR | 1.5° | 45 | R6 | 102 | 12 | □ | 893-3 |
| TPBDR | 1.5° | 45 | R6 | 102 | 12 | ● | 893 |
| XPM-TPBDR | 1.5° | 45 | R6 | 102 | 12 | ● | 891 |
| EX-TIN-TPBDR | 1.5° | 45 | R8 | 105 | 16 | □ | 893-3 |
| TPBDR | 1.5° | 45 | R8 | 105 | 16 | ● | 893 |
| XPM-TPBDR | 1.5° | 45 | R8 | 105 | 16 | ● | 891 |
| TPBDL | 1.5° | 53 | R2 | 97 | 8 | □ | 893-6 |
| TPBML | 1.5° | 53 | R2 | 97 | 8 | □ | 893-8 |
| TPBDN | 1.5° | 53 | R2.5 | 97 | 8 | □ | 893-4 |
| TPBDN | 1.5° | 53 | R3 | 103 | 10 | □ | 893-4 |
| TPBDR | 1.5° | 53 | R10 | 119 | 20 | □ | 893 |
| TPBDL | 1.5° | 63 | R2.5 | 113 | 10 | □ | 893-6 |
| TPBML | 1.5° | 63 | R2.5 | 113 | 10 | □ | 893-8 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパボール
HSS END MILLS / TAPER-BALL

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBDL | 1.5° | 63 | R3 | 113 | 10 | □ | 893-6 |
| TPBML | 1.5° | 63 | R3 | 113 | 10 | □ | 893-8 |
| TPBDN | 1.5° | 63 | R4 | 120 | 12 | □ | 893-5 |
| TPBDN | 1.5° | 63 | R5 | 120 | 12 | □ | 893-5 |
| TPBDL | 1.5° | 75 | R4 | 132 | 12 | □ | 893-6 |
| TPBML | 1.5° | 75 | R4 | 132 | 12 | □ | 893-9 |
| TPBDL | 1.5° | 75 | R5 | 132 | 12 | □ | 893-6 |
| TPBML | 1.5° | 75 | R5 | 132 | 12 | □ | 893-9 |
| TPBDN | 1.5° | 75 | R6 | 135 | 16 | □ | 893-5 |
| TPBDN | 1.5° | 75 | R8 | 141 | 20 | □ | 893-5 |
| TPBDL | 1.5° | 90 | R6 | 150 | 16 | □ | 893-6 |
| TPBML | 1.5° | 90 | R6 | 150 | 16 | □ | 893-9 |
| TPBDL | 1.5° | 90 | R8 | 156 | 20 | □ | 893-6 |
| TPBML | 1.5° | 90 | R8 | 156 | 20 | □ | 893-9 |
| TPBDN | 1.5° | 90 | R10 | 166 | 25 | □ | 893-5 |
| TPBDL | 1.5° | 106 | R10 | 182 | 25 | □ | 893-6 |
| TPBML | 1.5° | 106 | R10 | 182 | 25 | □ | 893-9 |
| TPBDS | 1.75° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 1.75° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 1.75° | 5 | R0.75 | 50 | 6 | □ | 889 |
| TPBDS | 1.75° | 13 | R1 | 57 | 6 | □ | 889 |
| TPBDS | 1.75° | 13 | R1.25 | 57 | 6 | □ | 889 |
| TPBDS | 1.75° | 13 | R1.5 | 57 | 6 | □ | 889 |
| TPBDS | 1.75° | 16 | R2 | 60 | 6 | □ | 889 |
| TPBDS | 1.75° | 19 | R2.5 | 63 | 6 | □ | 890 |
| TPBDS | 1.75° | 19 | R3 | 63 | 8 | □ | 890 |
| TPBDS | 1.75° | 22 | R4 | 72 | 10 | □ | 890 |
| TPBDS | 1.75° | 22 | R5 | 79 | 12 | □ | 891 |
| TPBDS | 2° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 2° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 2° | 5 | R0.75 | 50 | 6 | □ | 889 |
| EX-TIN-TPBDS | 2° | 18 | R1 | 62 | 6 | □ | 893-1 |
| TPBDS | 2° | 18 | R1 | 62 | 6 | ● | 889 |
| XPM-TPBDS | 2° | 18 | R1 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 2° | 18 | R1.25 | 62 | 6 | □ | 893-1 |
| TPBDS | 2° | 18 | R1.25 | 62 | 6 | ● | 889 |
| TPBMS | 2° | 18 | R1.25 | 62 | 6 | □ | 893-7 |
| XPM-TPBDS | 2° | 18 | R1.25 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 2° | 18 | R1.5 | 62 | 6 | □ | 893-1 |
| TPBDS | 2° | 18 | R1.5 | 62 | 6 | ● | 889 |
| TPBMS | 2° | 18 | R1.5 | 62 | 6 | □ | 893-7 |
| XPM-TPBDS | 2° | 18 | R1.5 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 2° | 21 | R2 | 65 | 6 | □ | 893-1 |
| TPBDS | 2° | 21 | R2 | 65 | 6 | ● | 889 |
| TPBMS | 2° | 21 | R2 | 65 | 6 | □ | 893-7 |
| XPM-TPBDS | 2° | 21 | R2 | 65 | 6 | ● | 888 |
| EX-TIN-TPBDS | 2° | 25 | R2.5 | 69 | 8 | □ | 893-1 |
| TPBDS | 2° | 25 | R2.5 | 69 | 8 | ● | 890 |
| TPBMS | 2° | 25 | R2.5 | 69 | 8 | □ | 893-7 |
| XPM-TPBDS | 2° | 25 | R2.5 | 69 | 8 | ● | 888 |
| EX-TIN-TPBDS | 2° | 25 | R3 | 69 | 8 | □ | 893-1 |
| TPBDS | 2° | 25 | R3 | 69 | 8 | ● | 890 |
| TPBMS | 2° | 25 | R3 | 69 | 8 | □ | 893-7 |
| XPM-TPBDS | 2° | 25 | R3 | 69 | 8 | ● | 888 |
| TPBDR | 2° | 30 | R1 | 74 | 6 | □ | 892 |
| TPBDR | 2° | 30 | R1.25 | 74 | 6 | □ | 892 |
| TPBDR | 2° | 30 | R1.5 | 74 | 6 | □ | 892 |
| EX-TIN-TPBDS | 2° | 30 | R4 | 87 | 12 | □ | 893-1 |
| TPBDS | 2° | 30 | R4 | 87 | 12 | ● | 890 |
| TPBMS | 2° | 30 | R4 | 87 | 12 | □ | 893-7 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| XPM-TPBDS | 2° | 30 | R4 | 87 | 12 | ● | 888 |
| EX-TIN-TPBDS | 2° | 30 | R5 | 87 | 12 | □ | 893-1 |
| TPBDS | 2° | 30 | R5 | 87 | 12 | ● | 891 |
| TPBMS | 2° | 30 | R5 | 87 | 12 | □ | 893-7 |
| XPM-TPBDS | 2° | 30 | R5 | 87 | 12 | ● | 888 |
| TPBD.K | 2° | 35 | R2 | 95 | 8 | □ | 893-2 |
| TPBDR | 2° | 36 | R2 | 80 | 8 | □ | 892 |
| TPBDR | 2° | 42 | R2.5 | 86 | 8 | □ | 892 |
| TPBDR | 2° | 42 | R3 | 92 | 10 | □ | 892 |
| TPBD.K | 2° | 44.4 | R1.5 | 85 | 6 | □ | 893-2 |
| TPBDN | 2° | 50 | R1 | 94 | 6 | □ | 893-4 |
| TPBDN | 2° | 50 | R1.25 | 94 | 6 | □ | 893-4 |
| TPBDN | 2° | 50 | R1.5 | 94 | 8 | □ | 893-4 |
| TPBDR | 2° | 50 | R4 | 107 | 12 | □ | 893 |
| EX-TIN-TPBDR | 2° | 50 | R5 | 107 | 12 | □ | 893-3 |
| TPBDR | 2° | 50 | R5 | 107 | 12 | ● | 893 |
| XPM-TPBDR | 2° | 50 | R5 | 107 | 12 | ● | 891 |
| TPBDL | 2° | 60 | R1.5 | 104 | 8 | □ | 893-6 |
| TPBML | 2° | 60 | R1.5 | 104 | 8 | □ | 893-8 |
| TPBDN | 2° | 60 | R2 | 110 | 10 | □ | 893-4 |
| EX-TIN-TPBDR | 2° | 60 | R6 | 120 | 16 | □ | 893-3 |
| TPBDR | 2° | 60 | R6 | 120 | 16 | ● | 893 |
| XPM-TPBDR | 2° | 60 | R6 | 120 | 16 | ● | 891 |
| EX-TIN-TPBDR | 2° | 60 | R8 | 126 | 20 | □ | 893-3 |
| TPBDR | 2° | 60 | R8 | 126 | 20 | ● | 893 |
| XPM-TPBDR | 2° | 60 | R8 | 126 | 20 | ● | 891 |
| TPBD.K | 2° | 60.2 | R3 | 110 | 10 | □ | 893-2 |
| TPBD.K | 2° | 63 | R5 | 130 | 16 | □ | 893-2 |
| TPBD.K | 2° | 65.1 | R8 | 140 | 20 | □ | 893-2 |
| TPBDL | 2° | 71 | R2 | 121 | 10 | □ | 893-6 |
| TPBML | 2° | 71 | R2 | 121 | 10 | □ | 893-8 |
| TPBDN | 2° | 71 | R2.5 | 121 | 10 | □ | 893-4 |
| TPBDN | 2° | 71 | R3 | 128 | 12 | □ | 893-4 |
| EX-TIN-TPBDR | 2° | 71 | R10 | 147 | 25 | □ | 893-3 |
| TPBDR | 2° | 71 | R10 | 147 | 25 | ● | 893 |
| XPM-TPBDR | 2° | 71 | R10 | 147 | 25 | ● | 891 |
| TPBDL | 2° | 85 | R2.5 | 142 | 12 | □ | 893-6 |
| TPBML | 2° | 85 | R2.5 | 142 | 12 | □ | 893-8 |
| TPBDL | 2° | 85 | R3 | 142 | 12 | □ | 893-6 |
| TPBML | 2° | 85 | R3 | 142 | 12 | □ | 893-8 |
| TPBDN | 2° | 85 | R4 | 142 | 12 | □ | 893-5 |
| TPBDN | 2° | 85 | R5 | 145 | 16 | □ | 893-5 |
| TPBDL | 2° | 100 | R4 | 157 | 12 | □ | 893-6 |
| TPBML | 2° | 100 | R4 | 157 | 12 | □ | 893-9 |
| TPBDL | 2° | 100 | R5 | 160 | 16 | □ | 893-6 |
| TPBML | 2° | 100 | R5 | 160 | 16 | □ | 893-9 |
| TPBDN | 2° | 100 | R6 | 160 | 16 | □ | 893-5 |
| TPBDN | 2° | 100 | R8 | 166 | 20 | □ | 893-5 |
| TPBDL | 2° | 118 | R6 | 184 | 20 | □ | 893-6 |
| TPBML | 2° | 118 | R6 | 184 | 20 | □ | 893-9 |
| TPBDL | 2° | 118 | R8 | 194 | 25 | □ | 893-6 |
| TPBML | 2° | 118 | R8 | 194 | 25 | □ | 893-9 |
| TPBDN | 2° | 118 | R10 | 194 | 25 | □ | 893-5 |
| TPBDL | 2° | 140 | R10 | 216 | 25 | □ | 893-6 |
| TPBML | 2° | 140 | R10 | 216 | 25 | □ | 893-9 |
| TPBDS | 2.25° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 2.25° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 2.25° | 5 | R0.75 | 50 | 6 | □ | 889 |
| TPBDS | 2.25° | 18 | R1 | 62 | 6 | □ | 889 |
| TPBDS | 2.25° | 18 | R1.25 | 62 | 6 | □ | 889 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパボール
## HSS END MILLS / TAPER-BALL

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

□＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBDS | 2.25° | 18 | R1.5 | 62 | 6 | □ | 889 |
| TPBDS | 2.25° | 21 | R2 | 65 | 6 | □ | 889 |
| TPBDS | 2.25° | 25 | R2.5 | 69 | 8 | □ | 890 |
| TPBDS | 2.25° | 25 | R3 | 75 | 10 | □ | 890 |
| TPBDS | 2.25° | 30 | R4 | 87 | 12 | □ | 890 |
| TPBDS | 2.25° | 30 | R5 | 87 | 12 | □ | 891 |
| TPBDS | 2.5° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 2.5° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 2.5° | 5 | R0.75 | 50 | 6 | □ | 889 |
| EX-TIN-TPBDS | 2.5° | 18 | R1 | 62 | 6 | □ | 893-1 |
| TPBDS | 2.5° | 18 | R1 | 62 | 6 | ● | 889 |
| XPM-TPBDS | 2.5° | 18 | R1 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 2.5° | 18 | R1.25 | 62 | 6 | □ | 893-1 |
| TPBDS | 2.5° | 18 | R1.25 | 62 | 6 | ● | 889 |
| TPBMS | 2.5° | 18 | R1.25 | 62 | 6 | □ | 893-7 |
| XPM-TPBDS | 2.5° | 18 | R1.25 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 2.5° | 18 | R1.5 | 62 | 6 | □ | 893-1 |
| TPBDS | 2.5° | 18 | R1.5 | 62 | 6 | ● | 889 |
| TPBMS | 2.5° | 18 | R1.5 | 62 | 6 | □ | 893-7 |
| XPM-TPBDS | 2.5° | 18 | R1.5 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 2.5° | 21 | R2 | 65 | 6 | □ | 893-1 |
| TPBDS | 2.5° | 21 | R2 | 65 | 6 | ● | 890 |
| TPBMS | 2.5° | 21 | R2 | 65 | 6 | □ | 893-7 |
| XPM-TPBDS | 2.5° | 21 | R2 | 65 | 6 | ● | 888 |
| EX-TIN-TPBDS | 2.5° | 25 | R2.5 | 69 | 8 | □ | 893-1 |
| TPBDS | 2.5° | 25 | R2.5 | 69 | 8 | ● | 890 |
| TPBMS | 2.5° | 25 | R2.5 | 69 | 8 | □ | 893-7 |
| XPM-TPBDS | 2.5° | 25 | R2.5 | 69 | 8 | ● | 888 |
| EX-TIN-TPBDS | 2.5° | 25 | R3 | 75 | 10 | □ | 893-1 |
| TPBDS | 2.5° | 25 | R3 | 75 | 10 | ● | 890 |
| TPBMS | 2.5° | 25 | R3 | 75 | 10 | □ | 893-7 |
| XPM-TPBDS | 2.5° | 25 | R3 | 75 | 10 | ● | 888 |
| TPBDR | 2.5° | 30 | R1 | 74 | 6 | □ | 892 |
| TPBDR | 2.5° | 30 | R1.25 | 74 | 6 | □ | 892 |
| TPBDR | 2.5° | 30 | R1.5 | 74 | 6 | □ | 892 |
| EX-TIN-TPBDS | 2.5° | 30 | R4 | 87 | 12 | □ | 893-1 |
| TPBDS | 2.5° | 30 | R4 | 87 | 12 | ● | 890 |
| TPBMS | 2.5° | 30 | R4 | 87 | 12 | □ | 893-7 |
| XPM-TPBDS | 2.5° | 30 | R4 | 87 | 12 | ● | 888 |
| EX-TIN-TPBDS | 2.5° | 30 | R5 | 87 | 12 | □ | 893-1 |
| TPBDS | 2.5° | 30 | R5 | 87 | 12 | ● | 891 |
| TPBMS | 2.5° | 30 | R5 | 87 | 12 | □ | 893-7 |
| XPM-TPBDS | 2.5° | 30 | R5 | 87 | 12 | ● | 888 |
| TPBDS | 2.5° | 30 | R6 | 87 | 16 | □ | 891 |
| TPBMS | 2.5° | 30 | R6 | 87 | 16 | □ | 893-7 |
| TPBDR | 2.5° | 36 | R2 | 80 | 8 | □ | 892 |
| TPBDR | 2.5° | 42 | R2.5 | 92 | 10 | □ | 892 |
| TPBDR | 2.5° | 42 | R3 | 92 | 10 | □ | 892 |
| TPBDN | 2.5° | 50 | R1 | 94 | 8 | □ | 893-4 |
| TPBDN | 2.5° | 50 | R1.25 | 94 | 8 | □ | 893-4 |
| TPBDN | 2.5° | 50 | R1.5 | 94 | 8 | □ | 893-4 |
| TPBDR | 2.5° | 50 | R4 | 107 | 12 | □ | 893 |
| EX-TIN-TPBDR | 2.5° | 50 | R5 | 107 | 12 | □ | 893-3 |
| TPBDR | 2.5° | 50 | R5 | 107 | 12 | ● | 893 |
| XPM-TPBDR | 2.5° | 50 | R5 | 107 | 12 | ● | 891 |
| TPBDL | 2.5° | 60 | R1.5 | 110 | 10 | □ | 893-6 |
| TPBML | 2.5° | 60 | R1.5 | 110 | 10 | □ | 893-8 |
| TPBDN | 2.5° | 60 | R2 | 110 | 10 | □ | 893-4 |
| EX-TIN-TPBDR | 2.5° | 60 | R6 | 120 | 16 | □ | 893-3 |
| TPBDR | 2.5° | 60 | R6 | 120 | 16 | ● | 893 |
| XPM-TPBDR | 2.5° | 60 | R6 | 120 | 16 | ● | 891 |
| EX-TIN-TPBDR | 2.5° | 60 | R8 | 126 | 20 | □ | 893-3 |
| TPBDR | 2.5° | 60 | R8 | 126 | 20 | ● | 893 |
| XPM-TPBDR | 2.5° | 60 | R8 | 126 | 20 | ● | 891 |
| TPBDL | 2.5° | 71 | R2 | 128 | 12 | □ | 893-6 |
| TPBML | 2.5° | 71 | R2 | 128 | 12 | □ | 893-8 |
| TPBDN | 2.5° | 71 | R2.5 | 128 | 12 | □ | 893-4 |
| TPBDN | 2.5° | 71 | R3 | 128 | 12 | □ | 893-4 |
| EX-TIN-TPBDR | 2.5° | 71 | R10 | 147 | 25 | □ | 893-3 |
| TPBDR | 2.5° | 71 | R10 | 147 | 25 | ● | 893 |
| XPM-TPBDR | 2.5° | 71 | R10 | 147 | 25 | ● | 891 |
| TPBDL | 2.5° | 85 | R2.5 | 142 | 12 | □ | 893-6 |
| TPBML | 2.5° | 85 | R2.5 | 142 | 12 | □ | 893-8 |
| TPBDL | 2.5° | 85 | R3 | 142 | 12 | □ | 893-6 |
| TPBML | 2.5° | 85 | R3 | 142 | 12 | □ | 893-8 |
| TPBDN | 2.5° | 85 | R4 | 145 | 16 | □ | 893-5 |
| TPBDN | 2.5° | 85 | R5 | 145 | 16 | □ | 893-5 |
| TPBDL | 2.5° | 100 | R4 | 160 | 16 | □ | 893-6 |
| TPBML | 2.5° | 100 | R4 | 160 | 16 | □ | 893-9 |
| TPBDL | 2.5° | 100 | R5 | 160 | 16 | □ | 893-6 |
| TPBML | 2.5° | 100 | R5 | 160 | 16 | □ | 893-9 |
| TPBDN | 2.5° | 100 | R6 | 166 | 20 | □ | 893-5 |
| TPBDN | 2.5° | 100 | R8 | 176 | 25 | □ | 893-5 |
| TPBDL | 2.5° | 118 | R6 | 184 | 20 | □ | 893-6 |
| TPBML | 2.5° | 118 | R6 | 184 | 20 | □ | 893-9 |
| TPBDL | 2.5° | 118 | R8 | 194 | 25 | □ | 893-6 |
| TPBML | 2.5° | 118 | R8 | 194 | 25 | □ | 893-9 |
| TPBDN | 2.5° | 118 | R10 | 198 | 32 | □ | 893-5 |
| TPBDL | 2.5° | 140 | R10 | 220 | 32 | □ | 893-6 |
| TPBML | 2.5° | 140 | R10 | 220 | 32 | □ | 893-9 |
| TPBDS | 2.75° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 2.75° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 2.75° | 5 | R0.75 | 50 | 6 | □ | 889 |
| TPBDS | 2.75° | 18 | R1 | 62 | 6 | □ | 889 |
| TPBDS | 2.75° | 18 | R1.25 | 62 | 6 | □ | 889 |
| TPBDS | 2.75° | 18 | R1.5 | 62 | 6 | □ | 889 |
| TPBDS | 2.75° | 21 | R2 | 65 | 8 | □ | 890 |
| TPBDS | 2.75° | 25 | R2.5 | 69 | 8 | □ | 890 |
| TPBDS | 2.75° | 25 | R3 | 75 | 10 | □ | 890 |
| TPBDS | 2.75° | 30 | R4 | 87 | 12 | □ | 890 |
| TPBDS | 2.75° | 30 | R5 | 87 | 12 | □ | 891 |
| TPBDS | 3° | 4 | R0.5 | 50 | 6 | □ | 889 |
| TPBDS | 3° | 4 | R0.6 | 50 | 6 | □ | 889 |
| TPBDS | 3° | 5 | R0.75 | 50 | 6 | □ | 889 |
| EX-TIN-TPBDS | 3° | 18 | R1 | 62 | 6 | □ | 893-1 |
| TPBDS | 3° | 18 | R1 | 62 | 6 | ● | 889 |
| XPM-TPBDS | 3° | 18 | R1 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 3° | 18 | R1.25 | 62 | 6 | □ | 893-1 |
| TPBDS | 3° | 18 | R1.25 | 62 | 6 | ● | 889 |
| TPBMS | 3° | 18 | R1.25 | 62 | 6 | □ | 893-7 |
| XPM-TPBDS | 3° | 18 | R1.25 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 3° | 18 | R1.5 | 62 | 6 | □ | 893-1 |
| TPBDS | 3° | 18 | R1.5 | 62 | 6 | ● | 889 |
| TPBMS | 3° | 18 | R1.5 | 62 | 6 | □ | 893-7 |
| XPM-TPBDS | 3° | 18 | R1.5 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 3° | 21 | R2 | 65 | 8 | □ | 893-1 |
| TPBDS | 3° | 21 | R2 | 65 | 8 | ● | 890 |
| TPBMS | 3° | 21 | R2 | 65 | 8 | □ | 893-7 |
| XPM-TPBDS | 3° | 21 | R2 | 65 | 8 | ● | 888 |
| EX-TIN-TPBDS | 3° | 25 | R2.5 | 69 | 8 | □ | 893-1 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパボール
## HSS END MILLS / TAPER-BALL

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBDS | 3° | 25 | R2.5 | 69 | 8 | ● | 890 |
| TPBMS | 3° | 25 | R2.5 | 69 | 8 | □ | 893-7 |
| XPM-TPBDS | 3° | 25 | R2.5 | 69 | 8 | ● | 888 |
| EX-TIN-TPBDS | 3° | 25 | R3 | 75 | 10 | □ | 893-1 |
| TPBDS | 3° | 25 | R3 | 75 | 10 | ● | 890 |
| TPBMS | 3° | 25 | R3 | 75 | 10 | □ | 893-7 |
| XPM-TPBDS | 3° | 25 | R3 | 75 | 10 | ● | 888 |
| TPBDR | 3° | 30 | R1 | 74 | 6 | □ | 892 |
| TPBDR | 3° | 30 | R1.25 | 74 | 6 | □ | 892 |
| TPBDR | 3° | 30 | R1.5 | 74 | 8 | □ | 892 |
| TPBD.K | 3° | 30 | R1.5 | 85 | 6 | □ | 893-2 |
| EX-TIN-TPBDS | 3° | 30 | R4 | 87 | 12 | □ | 893-1 |
| TPBDS | 3° | 30 | R4 | 87 | 12 | ● | 890 |
| TPBMS | 3° | 30 | R4 | 87 | 12 | □ | 893-7 |
| XPM-TPBDS | 3° | 30 | R4 | 87 | 12 | ● | 888 |
| EX-TIN-TPBDS | 3° | 30 | R5 | 87 | 12 | □ | 893-1 |
| TPBDS | 3° | 30 | R5 | 87 | 12 | ● | 891 |
| TPBMS | 3° | 30 | R5 | 87 | 12 | □ | 893-7 |
| XPM-TPBDS | 3° | 30 | R5 | 87 | 12 | ● | 888 |
| TPBD.K | 3° | 35 | R2 | 95 | 8 | □ | 893-2 |
| TPBDR | 3° | 36 | R2 | 80 | 8 | □ | 892 |
| TPBD.K | 3° | 41 | R3 | 110 | 10 | □ | 893-2 |
| TPBDR | 3° | 42 | R2.5 | 92 | 10 | □ | 892 |
| TPBDR | 3° | 42 | R3 | 99 | 12 | □ | 892 |
| TPBD.K | 3° | 46 | R8 | 140 | 20 | □ | 893-2 |
| TPBDN | 3° | 50 | R1 | 94 | 8 | □ | 893-4 |
| TPBDN | 3° | 50 | R1.25 | 94 | 8 | □ | 893-4 |
| TPBDN | 3° | 50 | R1.5 | 100 | 10 | □ | 893-4 |
| TPBDR | 3° | 50 | R4 | 107 | 12 | □ | 893 |
| EX-TIN-TPBDR | 3° | 50 | R5 | 110 | 16 | □ | 893-3 |
| TPBDR | 3° | 50 | R5 | 110 | 16 | ● | 893 |
| XPM-TPBDR | 3° | 50 | R5 | 110 | 16 | ● | 891 |
| TPBDL | 3° | 60 | R1.25 | 110 | 10 | □ | 893-6 |
| TPBDL | 3° | 60 | R1.5 | 110 | 10 | □ | 893-6 |
| TPBML | 3° | 60 | R1.5 | 110 | 10 | □ | 893-8 |
| TPBDN | 3° | 60 | R2 | 117 | 12 | □ | 893-4 |
| EX-TIN-TPBDR | 3° | 60 | R6 | 120 | 16 | □ | 893-3 |
| TPBDR | 3° | 60 | R6 | 120 | 16 | ● | 893 |
| XPM-TPBDR | 3° | 60 | R6 | 120 | 16 | ● | 891 |
| EX-TIN-TPBDR | 3° | 60 | R8 | 126 | 20 | □ | 893-3 |
| TPBDR | 3° | 60 | R8 | 126 | 20 | ● | 893 |
| XPM-TPBDR | 3° | 60 | R8 | 126 | 20 | ● | 891 |
| TPBD.K | 3° | 62.1 | R5 | 130 | 16 | □ | 893-2 |
| TPBDL | 3° | 71 | R2 | 128 | 12 | □ | 893-6 |
| TPBML | 3° | 71 | R2 | 128 | 12 | □ | 893-8 |
| TPBDN | 3° | 71 | R2.5 | 128 | 12 | □ | 893-4 |
| TPBDN | 3° | 71 | R3 | 128 | 12 | □ | 893-4 |
| EX-TIN-TPBDR | 3° | 71 | R10 | 147 | 25 | □ | 893-3 |
| TPBDR | 3° | 71 | R10 | 147 | 25 | ● | 893 |
| XPM-TPBDR | 3° | 71 | R10 | 147 | 25 | ● | 891 |
| TPBDL | 3° | 85 | R2.5 | 142 | 12 | □ | 893-6 |
| TPBML | 3° | 85 | R2.5 | 142 | 12 | □ | 893-8 |
| TPBDL | 3° | 85 | R3 | 142 | 12 | □ | 893-6 |
| TPBML | 3° | 85 | R3 | 142 | 12 | □ | 893-8 |
| TPBDN | 3° | 85 | R4 | 145 | 16 | □ | 893-5 |
| TPBDN | 3° | 85 | R5 | 145 | 16 | □ | 893-5 |
| TPBDL | 3° | 100 | R4 | 160 | 16 | □ | 893-6 |
| TPBML | 3° | 100 | R4 | 160 | 16 | □ | 893-9 |
| TPBDL | 3° | 100 | R5 | 166 | 20 | □ | 893-6 |
| TPBML | 3° | 100 | R5 | 166 | 20 | □ | 893-9 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBDN | 3° | 100 | R6 | 166 | 20 | □ | 893-5 |
| TPBDN | 3° | 100 | R8 | 176 | 25 | □ | 893-5 |
| TPBDL | 3° | 118 | R6 | 194 | 25 | □ | 893-6 |
| TPBML | 3° | 118 | R6 | 194 | 25 | □ | 893-9 |
| TPBDL | 3° | 118 | R8 | 194 | 25 | □ | 893-6 |
| TPBML | 3° | 118 | R8 | 194 | 25 | □ | 893-9 |
| TPBDN | 3° | 118 | R10 | 198 | 32 | □ | 893-5 |
| TPBDL | 3° | 140 | R10 | 220 | 32 | □ | 893-6 |
| TPBML | 3° | 140 | R10 | 220 | 32 | □ | 893-9 |
| TPBDS | 4° | 7 | R0.5 | 52 | 6 | □ | 889 |
| TPBDS | 4° | 7 | R0.6 | 52 | 6 | □ | 889 |
| TPBDS | 4° | 8 | R0.75 | 52 | 6 | □ | 889 |
| TPBDS | 4° | 18 | R1 | 62 | 6 | □ | 889 |
| EX-TIN-TPBDS | 4° | 18 | R1.25 | 62 | 6 | □ | 893-1 |
| TPBDS | 4° | 18 | R1.25 | 62 | 6 | ● | 889 |
| XPM-TPBDS | 4° | 18 | R1.25 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 4° | 18 | R1.5 | 62 | 6 | □ | 893-1 |
| TPBDS | 4° | 18 | R1.5 | 62 | 6 | ● | 889 |
| TPBMS | 4° | 18 | R1.5 | 62 | 6 | □ | 893-7 |
| XPM-TPBDS | 4° | 18 | R1.5 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 4° | 21 | R2 | 65 | 8 | □ | 893-1 |
| TPBDS | 4° | 21 | R2 | 65 | 8 | ● | 890 |
| TPBMS | 4° | 21 | R2 | 65 | 8 | □ | 893-7 |
| XPM-TPBDS | 4° | 21 | R2 | 65 | 8 | ● | 888 |
| EX-TIN-TPBDS | 4° | 25 | R2.5 | 75 | 10 | □ | 893-1 |
| TPBDS | 4° | 25 | R2.5 | 75 | 10 | ● | 890 |
| TPBMS | 4° | 25 | R2.5 | 75 | 10 | □ | 893-7 |
| XPM-TPBDS | 4° | 25 | R2.5 | 75 | 10 | ● | 888 |
| EX-TIN-TPBDS | 4° | 25 | R3 | 75 | 10 | □ | 893-1 |
| TPBDS | 4° | 25 | R3 | 75 | 10 | ● | 890 |
| TPBMS | 4° | 25 | R3 | 75 | 10 | □ | 893-7 |
| XPM-TPBDS | 4° | 25 | R3 | 75 | 10 | ● | 888 |
| TPBDR | 4° | 30 | R1 | 74 | 8 | □ | 892 |
| TPBDR | 4° | 30 | R1.25 | 74 | 8 | □ | 892 |
| TPBDR | 4° | 30 | R1.5 | 74 | 8 | □ | 892 |
| EX-TIN-TPBDS | 4° | 30 | R4 | 87 | 12 | □ | 893-1 |
| TPBDS | 4° | 30 | R4 | 87 | 12 | ● | 890 |
| TPBMS | 4° | 30 | R4 | 87 | 12 | □ | 893-7 |
| XPM-TPBDS | 4° | 30 | R4 | 87 | 12 | ● | 888 |
| EX-TIN-TPBDS | 4° | 30 | R5 | 87 | 12 | □ | 893-1 |
| TPBDS | 4° | 30 | R5 | 87 | 12 | ● | 891 |
| TPBMS | 4° | 30 | R5 | 87 | 12 | □ | 893-7 |
| XPM-TPBDS | 4° | 30 | R5 | 87 | 12 | ● | 888 |
| TPBDR | 4° | 36 | R2 | 86 | 10 | □ | 892 |
| TPBD.E | 4° | 38 | R1 | 80 | 8 | □ | 893-2 |
| TPBDR | 4° | 42 | R2.5 | 99 | 12 | □ | 892 |
| TPBDR | 4° | 42 | R3 | 99 | 12 | □ | 892 |
| TPBD.E | 4° | 45 | R1.5 | 90 | 10 | □ | 893-2 |
| TPBD.E | 4° | 45 | R2 | 100 | 12 | □ | 893-2 |
| TPBDN | 4° | 50 | R1.25 | 100 | 10 | □ | 893-4 |
| TPBDN | 4° | 50 | R1.5 | 100 | 10 | □ | 893-4 |
| TPBDR | 4° | 50 | R4 | 107 | 12 | □ | 893 |
| TPBDR | 4° | 50 | R5 | 110 | 16 | □ | 893 |
| TPBD.E | 4° | 52.4 | R2.5 | 110 | 12 | □ | 893-2 |
| TPBDL | 4° | 60 | R1.25 | 117 | 12 | □ | 893-6 |
| TPBDL | 4° | 60 | R1.5 | 117 | 12 | □ | 893-6 |
| TPBML | 4° | 60 | R1.5 | 117 | 12 | □ | 893-8 |
| TPBDN | 4° | 60 | R2 | 117 | 12 | □ | 893-4 |
| TPBD.E | 4° | 60 | R3 | 120 | 16 | □ | 893-2 |
| EX-TIN-TPBDR | 4° | 60 | R6 | 126 | 20 | □ | 893-3 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパボール
HSS END MILLS / TAPER-BALL

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBDR | 4° | 60 | R6 | 126 | 20 | ● | 893 |
| XPM-TPBDR | 4° | 60 | R6 | 126 | 20 | ● | 891 |
| EX-TIN-TPBDR | 4° | 60 | R8 | 136 | 25 | □ | 893-3 |
| TPBDR | 4° | 60 | R8 | 136 | 25 | ● | 893 |
| XPM-TPBDR | 4° | 60 | R8 | 136 | 25 | ● | 891 |
| TPBD.E | 4° | 61 | R4 | 130 | 16 | □ | 893-2 |
| TPBD.E | 4° | 63 | R5 | 140 | 20 | □ | 893-2 |
| TPBDL | 4° | 71 | R2 | 128 | 12 | □ | 893-6 |
| TPBML | 4° | 71 | R2 | 128 | 12 | □ | 893-8 |
| TPBDN | 4° | 71 | R2.5 | 128 | 12 | □ | 893-4 |
| TPBDN | 4° | 71 | R3 | 131 | 16 | □ | 893-4 |
| EX-TIN-TPBDR | 4° | 71 | R10 | 147 | 25 | □ | 893-3 |
| TPBDR | 4° | 71 | R10 | 147 | 25 | ● | 893 |
| XPM-TPBDR | 4° | 71 | R10 | 147 | 25 | ● | 891 |
| TPBDL | 4° | 85 | R2.5 | 145 | 16 | □ | 893-6 |
| TPBML | 4° | 85 | R2.5 | 145 | 16 | □ | 893-8 |
| TPBDL | 4° | 85 | R3 | 145 | 16 | □ | 893-6 |
| TPBML | 4° | 85 | R3 | 145 | 16 | □ | 893-8 |
| TPBDN | 4° | 85 | R4 | 151 | 20 | □ | 893-5 |
| TPBDN | 4° | 85 | R5 | 151 | 20 | □ | 893-5 |
| TPBDL | 4° | 100 | R4 | 166 | 20 | □ | 893-6 |
| TPBML | 4° | 100 | R4 | 166 | 20 | □ | 893-9 |
| TPBDL | 4° | 100 | R5 | 176 | 25 | □ | 893-6 |
| TPBML | 4° | 100 | R5 | 176 | 25 | □ | 893-9 |
| TPBDN | 4° | 100 | R6 | 176 | 25 | □ | 893-5 |
| TPBDN | 4° | 100 | R8 | 176 | 25 | □ | 893-5 |
| TPBDL | 4° | 118 | R6 | 194 | 25 | □ | 893-6 |
| TPBML | 4° | 118 | R6 | 194 | 25 | □ | 893-9 |
| TPBDL | 4° | 118 | R8 | 198 | 32 | □ | 893-6 |
| TPBML | 4° | 118 | R8 | 198 | 32 | □ | 893-9 |
| TPBDN | 4° | 118 | R10 | 198 | 32 | □ | 893-5 |
| TPBDL | 4° | 140 | R10 | 232 | 42 | □ | 893-6 |
| TPBML | 4° | 140 | R10 | 232 | 42 | □ | 893-9 |
| TPBDS | 5° | 7 | R0.5 | 52 | 6 | □ | 889 |
| TPBDS | 5° | 7 | R0.6 | 52 | 6 | □ | 889 |
| TPBDS | 5° | 8 | R0.75 | 52 | 6 | □ | 889 |
| TPBDS | 5° | 18 | R1 | 62 | 6 | □ | 889 |
| EX-TIN-TPBDS | 5° | 18 | R1.25 | 62 | 6 | □ | 893-1 |
| TPBDS | 5° | 18 | R1.25 | 62 | 6 | ● | 889 |
| XPM-TPBDS | 5° | 18 | R1.25 | 62 | 6 | ● | 888 |
| EX-TIN-TPBDS | 5° | 18 | R1.5 | 62 | 8 | □ | 893-1 |
| TPBDS | 5° | 18 | R1.5 | 62 | 8 | ● | 889 |
| TPBMS | 5° | 18 | R1.5 | 62 | 8 | □ | 893-7 |
| XPM-TPBDS | 5° | 18 | R1.5 | 62 | 8 | ● | 888 |
| EX-TIN-TPBDS | 5° | 21 | R2 | 65 | 8 | □ | 893-1 |
| TPBDS | 5° | 21 | R2 | 65 | 8 | ● | 890 |
| TPBMS | 5° | 21 | R2 | 65 | 8 | □ | 893-7 |
| XPM-TPBDS | 5° | 21 | R2 | 65 | 8 | ● | 888 |
| EX-TIN-TPBDS | 5° | 25 | R2.5 | 75 | 10 | □ | 893-1 |
| TPBDS | 5° | 25 | R2.5 | 75 | 10 | ● | 890 |
| TPBMS | 5° | 25 | R2.5 | 75 | 10 | □ | 893-7 |
| XPM-TPBDS | 5° | 25 | R2.5 | 75 | 10 | ● | 888 |
| EX-TIN-TPBDS | 5° | 25 | R3 | 82 | 12 | □ | 893-1 |
| TPBDS | 5° | 25 | R3 | 82 | 12 | ● | 890 |
| TPBMS | 5° | 25 | R3 | 82 | 12 | □ | 893-7 |
| XPM-TPBDS | 5° | 25 | R3 | 82 | 12 | ● | 888 |
| TPBDR | 5° | 30 | R1 | 74 | 8 | □ | 892 |
| TPBDR | 5° | 30 | R1.25 | 74 | 8 | □ | 892 |
| TPBDR | 5° | 30 | R1.5 | 80 | 10 | □ | 892 |
| TPBD.K | 5° | 30 | R1.5 | 90 | 8 | □ | 893-2 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| EX-TIN-TPBDS | 5° | 30 | R4 | 87 | 12 | □ | 893-1 |
| TPBDS | 5° | 30 | R4 | 87 | 12 | ● | 890 |
| TPBMS | 5° | 30 | R4 | 87 | 12 | □ | 893-7 |
| XPM-TPBDS | 5° | 30 | R4 | 87 | 12 | ● | 888 |
| EX-TIN-TPBDS | 5° | 30 | R5 | 90 | 16 | □ | 893-1 |
| TPBDS | 5° | 30 | R5 | 90 | 16 | ● | 891 |
| TPBMS | 5° | 30 | R5 | 90 | 16 | □ | 893-7 |
| XPM-TPBDS | 5° | 30 | R5 | 90 | 16 | ● | 888 |
| TPBD.K | 5° | 35 | R2 | 100 | 10 | □ | 893-2 |
| TPBD.E | 5° | 35.2 | R1 | 80 | 8 | □ | 893-2 |
| TPBDR | 5° | 36 | R2 | 93 | 12 | □ | 892 |
| TPBD.K | 5° | 37.1 | R3 | 115 | 12 | □ | 893-2 |
| TPBD.E | 5° | 41.5 | R1.5 | 90 | 10 | □ | 893-2 |
| TPBDR | 5° | 42 | R2.5 | 99 | 12 | □ | 892 |
| TPBDR | 5° | 42 | R3 | 99 | 12 | □ | 892 |
| TPBD.E | 5° | 42.3 | R2.5 | 110 | 12 | □ | 893-2 |
| TPBD.E | 5° | 47.6 | R2 | 100 | 12 | □ | 893-2 |
| TPBD.E | 5° | 49.6 | R4 | 130 | 16 | □ | 893-2 |
| TPBDN | 5° | 50 | R1.25 | 107 | 12 | □ | 893-4 |
| TPBDN | 5° | 50 | R1.5 | 107 | 12 | □ | 893-4 |
| EX-TIN-TPBDR | 5° | 50 | R4 | 110 | 16 | □ | 893-3 |
| TPBDR | 5° | 50 | R4 | 110 | 16 | ● | 893 |
| XPM-TPBDR | 5° | 50 | R4 | 110 | 16 | ● | 891 |
| EX-TIN-TPBDR | 5° | 50 | R5 | 110 | 16 | □ | 893-3 |
| TPBDR | 5° | 50 | R5 | 110 | 16 | ● | 893 |
| XPM-TPBDR | 5° | 50 | R5 | 110 | 16 | ● | 891 |
| TPBD.K | 5° | 59.1 | R8 | 150 | 25 | □ | 893-2 |
| TPBDL | 5° | 60 | R1.25 | 117 | 12 | □ | 893-6 |
| TPBDL | 5° | 60 | R1.5 | 117 | 12 | □ | 893-6 |
| TPBML | 5° | 60 | R1.5 | 117 | 12 | □ | 893-8 |
| TPBDN | 5° | 60 | R2 | 117 | 12 | □ | 893-4 |
| TPBD.E | 5° | 60 | R3 | 120 | 16 | □ | 893-2 |
| EX-TIN-TPBDR | 5° | 60 | R6 | 126 | 20 | □ | 893-3 |
| TPBDR | 5° | 60 | R6 | 126 | 20 | ● | 893 |
| XPM-TPBDR | 5° | 60 | R6 | 126 | 20 | ● | 891 |
| EX-TIN-TPBDR | 5° | 60 | R8 | 136 | 25 | □ | 893-3 |
| TPBDR | 5° | 60 | R8 | 136 | 25 | ● | 893 |
| XPM-TPBDR | 5° | 60 | R8 | 136 | 25 | ● | 891 |
| TPBD.K | 5° | 62 | R5 | 140 | 20 | □ | 893-2 |
| TPBDL | 5° | 71 | R2 | 131 | 16 | □ | 893-6 |
| TPBML | 5° | 71 | R2 | 131 | 16 | □ | 893-8 |
| TPBDN | 5° | 71 | R2.5 | 131 | 16 | □ | 893-4 |
| TPBDN | 5° | 71 | R3 | 131 | 16 | □ | 893-4 |
| TPBDR | 5° | 71 | R10 | 151 | 32 | □ | 893 |
| TPBDL | 5° | 85 | R2.5 | 151 | 20 | □ | 893-6 |
| TPBML | 5° | 85 | R2.5 | 151 | 20 | □ | 893-8 |
| TPBDL | 5° | 85 | R3 | 151 | 20 | □ | 893-6 |
| TPBML | 5° | 85 | R3 | 151 | 20 | □ | 893-8 |
| TPBDN | 5° | 85 | R4 | 151 | 20 | □ | 893-5 |
| TPBDN | 5° | 85 | R5 | 161 | 25 | □ | 893-5 |
| TPBDL | 5° | 100 | R4 | 176 | 25 | □ | 893-6 |
| TPBML | 5° | 100 | R4 | 176 | 25 | □ | 893-9 |
| TPBDL | 5° | 100 | R5 | 176 | 25 | □ | 893-6 |
| TPBML | 5° | 100 | R5 | 176 | 25 | □ | 893-9 |
| TPBDN | 5° | 100 | R6 | 176 | 25 | □ | 893-5 |
| TPBDN | 5° | 100 | R8 | 180 | 32 | □ | 893-5 |
| TPBDL | 5° | 118 | R6 | 198 | 32 | □ | 893-6 |
| TPBML | 5° | 118 | R6 | 198 | 32 | □ | 893-9 |
| TPBDL | 5° | 118 | R8 | 198 | 32 | □ | 893-6 |
| TPBML | 5° | 118 | R8 | 198 | 32 | □ | 893-9 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパボール
HSS END MILLS / TAPER-BALL

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBDN | 5° | 118 | R10 | 210 | 42 | □ | 893-5 |
| TPBDL | 5° | 140 | R10 | 232 | 42 | □ | 893-6 |
| TPBML | 5° | 140 | R10 | 232 | 42 | □ | 893-9 |
| TPBDS | 6° | 8 | R0.75 | 52 | 6 | □ | 889 |
| TPBDS | 6° | 24 | R1 | 68 | 8 | □ | 889 |
| TPBDS | 6° | 24 | R1.25 | 68 | 8 | □ | 889 |
| TPBDS | 6° | 24 | R1.5 | 74 | 10 | □ | 889 |
| TPBMS | 6° | 24 | R1.5 | 74 | 10 | □ | 893-7 |
| TPBDS | 6° | 28 | R2 | 78 | 10 | □ | 890 |
| TPBMS | 6° | 28 | R2 | 78 | 10 | □ | 893-7 |
| TPBDS | 6° | 34 | R2.5 | 91 | 12 | □ | 890 |
| TPBMS | 6° | 34 | R2.5 | 91 | 12 | □ | 893-7 |
| TPBDS | 6° | 34 | R3 | 91 | 12 | □ | 890 |
| TPBMS | 6° | 34 | R3 | 91 | 12 | □ | 893-7 |
| TPBDR | 6° | 40 | R1.25 | 97 | 12 | □ | 892 |
| TPBDR | 6° | 40 | R1.5 | 97 | 12 | □ | 892 |
| TPBDR | 6° | 48 | R2 | 105 | 12 | □ | 892 |
| TPBDR | 6° | 56 | R2.5 | 116 | 16 | □ | 892 |
| TPBDR | 6° | 56 | R3 | 116 | 16 | □ | 892 |
| TPBDR | 6° | 67 | R4 | 133 | 20 | □ | 893 |
| TPBDR | 6° | 67 | R5 | 143 | 25 | □ | 893 |
| TPBDN | 6° | 80 | R2 | 146 | 20 | □ | 893-4 |
| TPBDR | 6° | 80 | R6 | 156 | 25 | □ | 893 |
| TPBDR | 6° | 80 | R8 | 160 | 32 | □ | 893 |
| TPBDL | 6° | 95 | R2 | 171 | 25 | □ | 893-6 |
| TPBML | 6° | 95 | R2 | 171 | 25 | □ | 893-8 |
| TPBDN | 6° | 95 | R2.5 | 171 | 25 | □ | 893-4 |
| TPBDN | 6° | 95 | R3 | 171 | 25 | □ | 893-4 |
| TPBDR | 6° | 95 | R10 | 187 | 42 | □ | 893 |
| TPBDL | 6° | 112 | R2.5 | 188 | 25 | □ | 893-6 |
| TPBML | 6° | 112 | R2.5 | 188 | 25 | □ | 893-8 |
| TPBDL | 6° | 112 | R3 | 188 | 25 | □ | 893-6 |
| TPBML | 6° | 112 | R3 | 188 | 25 | □ | 893-9 |
| TPBDN | 6° | 112 | R4 | 192 | 32 | □ | 893-5 |
| TPBDN | 6° | 112 | R5 | 192 | 32 | □ | 893-5 |
| TPBDL | 6° | 132 | R4 | 212 | 32 | □ | 893-6 |
| TPBML | 6° | 132 | R4 | 212 | 32 | □ | 893-9 |
| TPBDL | 6° | 132 | R5 | 224 | 42 | □ | 893-6 |
| TPBML | 6° | 132 | R5 | 224 | 42 | □ | 893-9 |
| TPBDN | 6° | 132 | R6 | 224 | 42 | □ | 893-5 |
| TPBDN | 6° | 132 | R8 | 224 | 42 | □ | 893-5 |
| TPBDN | 6° | 136 | R10 | 228 | 42 | □ | 893-5 |
| TPBDL | 6° | 160 | R6 | 252 | 42 | □ | 893-6 |
| TPBML | 6° | 160 | R6 | 252 | 42 | □ | 893-9 |
| TPBDL | 6° | 160 | R8 | 252 | 42 | □ | 893-6 |
| TPBML | 6° | 160 | R8 | 252 | 42 | □ | 893-9 |
| TPBDL | 6° | 160 | R10 | 252 | 42 | □ | 893-6 |
| TPBML | 6° | 160 | R10 | 252 | 42 | □ | 893-9 |
| TPBDS | 7° | 24 | R1 | 68 | 8 | □ | 889 |
| EX-TIN-TPBDS | 7° | 24 | R1.25 | 74 | 10 | □ | 893-1 |
| TPBDS | 7° | 24 | R1.25 | 74 | 10 | ● | 889 |
| XPM-TPBDS | 7° | 24 | R1.25 | 74 | 10 | ● | 888 |
| EX-TIN-TPBDS | 7° | 24 | R1.5 | 74 | 10 | □ | 893-1 |
| TPBDS | 7° | 24 | R1.5 | 74 | 10 | ● | 889 |
| TPBMS | 7° | 24 | R1.5 | 74 | 10 | □ | 893-7 |
| XPM-TPBDS | 7° | 24 | R1.5 | 74 | 10 | ● | 888 |
| TPBD.E | 7° | 25.3 | R1 | 80 | 8 | □ | 893-2 |
| EX-TIN-TPBDS | 7° | 28 | R2 | 85 | 12 | □ | 893-1 |
| TPBDS | 7° | 28 | R2 | 85 | 12 | ● | 890 |
| TPBMS | 7° | 28 | R2 | 85 | 12 | □ | 893-7 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| XPM-TPBDS | 7° | 28 | R2 | 85 | 12 | ● | 888 |
| TPBD.E | 7° | 30 | R1.5 | 90 | 10 | □ | 893-2 |
| TPBD.K | 7° | 30 | R1.5 | 95 | 10 | □ | 893-2 |
| EX-TIN-TPBDS | 7° | 34 | R2.5 | 91 | 12 | □ | 893-1 |
| TPBDS | 7° | 34 | R2.5 | 91 | 12 | ● | 890 |
| TPBMS | 7° | 34 | R2.5 | 91 | 12 | □ | 893-7 |
| XPM-TPBDS | 7° | 34 | R2.5 | 91 | 12 | ● | 888 |
| EX-TIN-TPBDS | 7° | 34 | R3 | 91 | 12 | □ | 893-1 |
| TPBDS | 7° | 34 | R3 | 91 | 12 | ● | 890 |
| TPBMS | 7° | 34 | R3 | 91 | 12 | □ | 893-7 |
| XPM-TPBDS | 7° | 34 | R3 | 91 | 12 | ● | 888 |
| TPBD.E | 7° | 34.4 | R2 | 100 | 12 | □ | 893-2 |
| TPBD.K | 7° | 34.5 | R2 | 105 | 12 | □ | 893-2 |
| TPBDR | 7° | 40 | R1.25 | 97 | 12 | □ | 892 |
| TPBDR | 7° | 40 | R1.5 | 97 | 12 | □ | 892 |
| TPBD.K | 7° | 43.5 | R3 | 120 | 16 | □ | 893-2 |
| TPBD.K | 7° | 44.1 | R8 | 150 | 25 | □ | 893-2 |
| TPBD.E | 7° | 45.4 | R5 | 140 | 20 | □ | 893-2 |
| TPBD.E | 7° | 47.1 | R2.5 | 110 | 16 | □ | 893-2 |
| TPBDR | 7° | 48 | R2 | 108 | 16 | □ | 892 |
| TPBD.E | 7° | 52.6 | R4 | 130 | 20 | □ | 893-2 |
| TPBDR | 7° | 56 | R2.5 | 116 | 16 | □ | 892 |
| TPBDR | 7° | 56 | R3 | 122 | 20 | □ | 892 |
| TPBD.K | 7° | 65.8 | R5 | 150 | 25 | □ | 893-2 |
| TPBDN | 7° | 67 | R1.25 | 127 | 16 | □ | 893-4 |
| TPBDN | 7° | 67 | R1.5 | 133 | 20 | □ | 893-4 |
| EX-TIN-TPBDR | 7° | 67 | R4 | 143 | 25 | □ | 893-3 |
| TPBDR | 7° | 67 | R4 | 143 | 25 | ● | 893 |
| XPM-TPBDR | 7° | 67 | R4 | 143 | 25 | ● | 891 |
| EX-TIN-TPBDR | 7° | 67 | R5 | 143 | 25 | □ | 893-3 |
| TPBDR | 7° | 67 | R5 | 143 | 25 | ● | 893 |
| XPM-TPBDR | 7° | 67 | R5 | 143 | 25 | ● | 891 |
| TPBDN | 7° | 80 | R2 | 156 | 25 | □ | 893-4 |
| EX-TIN-TPBDR | 7° | 80 | R6 | 160 | 32 | □ | 893-3 |
| TPBDR | 7° | 80 | R6 | 160 | 32 | ● | 893 |
| XPM-TPBDR | 7° | 80 | R6 | 160 | 32 | ● | 891 |
| TPBDR | 7° | 80 | R8 | 160 | 32 | □ | 893 |
| TPBDL | 7° | 95 | R2 | 171 | 25 | □ | 893-6 |
| TPBML | 7° | 95 | R2 | 171 | 25 | □ | 893-8 |
| TPBDN | 7° | 95 | R2.5 | 171 | 25 | □ | 893-4 |
| TPBDN | 7° | 95 | R3 | 171 | 25 | □ | 893-4 |
| TPBDR | 7° | 95 | R10 | 187 | 42 | □ | 893 |
| TPBDL | 7° | 112 | R2.5 | 192 | 32 | □ | 893-6 |
| TPBML | 7° | 112 | R2.5 | 192 | 32 | □ | 893-8 |
| TPBDL | 7° | 112 | R3 | 192 | 32 | □ | 893-6 |
| TPBML | 7° | 112 | R3 | 192 | 32 | □ | 893-9 |
| TPBDN | 7° | 112 | R4 | 192 | 32 | □ | 893-5 |
| TPBDN | 7° | 112 | R5 | 204 | 42 | □ | 893-5 |
| TPBDL | 7° | 132 | R4 | 224 | 42 | □ | 893-6 |
| TPBML | 7° | 132 | R4 | 224 | 42 | □ | 893-9 |
| TPBDL | 7° | 132 | R5 | 224 | 42 | □ | 893-6 |
| TPBML | 7° | 132 | R5 | 224 | 42 | □ | 893-9 |
| TPBDN | 7° | 132 | R6 | 224 | 42 | □ | 893-5 |
| TPBDN | 7° | 132 | R8 | 224 | 42 | □ | 893-5 |
| TPBDN | 7° | 136 | R10 | 228 | 42 | □ | 893-5 |
| TPBDL | 7° | 160 | R6 | 252 | 42 | □ | 893-6 |
| TPBML | 7° | 160 | R6 | 252 | 42 | □ | 893-9 |
| TPBDL | 7° | 160 | R8 | 252 | 42 | □ | 893-6 |
| TPBML | 7° | 160 | R8 | 252 | 42 | □ | 893-9 |
| TPBDL | 7° | 163 | R10 | 255 | 42 | □ | 893-6 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパボール
HSS END MILLS / TAPER-BALL

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBML | 7° | 163 | R10 | 255 | 42 | □ | 893-9 |
| TPBDS | 10° | 24 | R1 | 81 | 12 | □ | 889 |
| EX-TIN-TPBDS | 10° | 24 | R1.25 | 81 | 12 | □ | 893-1 |
| TPBDS | 10° | 24 | R1.25 | 81 | 12 | ● | 889 |
| XPM-TPBDS | 10° | 24 | R1.25 | 81 | 12 | ● | 888 |
| EX-TIN-TPBDS | 10° | 24 | R1.5 | 81 | 12 | □ | 893-1 |
| TPBDS | 10° | 24 | R1.5 | 81 | 12 | ● | 889 |
| TPBMS | 10° | 24 | R1.5 | 81 | 12 | □ | 893-7 |
| XPM-TPBDS | 10° | 24 | R1.5 | 81 | 12 | ● | 888 |
| TPBD.K | 10° | 26.8 | R1.5 | 100 | 12 | □ | 893-2 |
| EX-TIN-TPBDS | 10° | 28 | R2 | 85 | 12 | □ | 893-1 |
| TPBDS | 10° | 28 | R2 | 85 | 12 | ● | 890 |
| TPBMS | 10° | 28 | R2 | 85 | 12 | □ | 893-7 |
| XPM-TPBDS | 10° | 28 | R2 | 85 | 12 | ● | 888 |
| EX-TIN-TPBDS | 10° | 34 | R2.5 | 94 | 16 | □ | 893-1 |
| TPBDS | 10° | 34 | R2.5 | 94 | 16 | ● | 890 |
| TPBMS | 10° | 34 | R2.5 | 94 | 16 | □ | 893-7 |
| XPM-TPBDS | 10° | 34 | R2.5 | 94 | 16 | ● | 888 |
| EX-TIN-TPBDS | 10° | 34 | R3 | 94 | 16 | □ | 893-1 |
| TPBDS | 10° | 34 | R3 | 94 | 16 | ● | 890 |
| TPBMS | 10° | 34 | R3 | 94 | 16 | □ | 893-7 |
| XPM-TPBDS | 10° | 34 | R3 | 94 | 16 | ● | 888 |
| TPBD.K | 10° | 35 | R2 | 110 | 16 | □ | 893-2 |
| TPBDR | 10° | 40 | R1.25 | 100 | 16 | □ | 892 |
| TPBDR | 10° | 40 | R1.5 | 100 | 16 | □ | 892 |
| TPBD.K | 10° | 42.5 | R3 | 125 | 20 | □ | 893-2 |
| TPBD.K | 10° | 47.1 | R5 | 150 | 25 | □ | 893-2 |
| TPBDR | 10° | 48 | R2 | 114 | 20 | □ | 892 |
| TPBD.K | 10° | 52.7 | R8 | 155 | 32 | □ | 893-2 |
| TPBDR | 10° | 56 | R2.5 | 132 | 25 | □ | 892 |
| TPBDR | 10° | 56 | R3 | 132 | 25 | □ | 892 |
| EX-TIN-TPBDR | 10° | 67 | R4 | 147 | 32 | □ | 893-3 |
| TPBDR | 10° | 67 | R4 | 147 | 32 | ● | 893 |
| XPM-TPBDR | 10° | 67 | R4 | 147 | 32 | ● | 891 |
| EX-TIN-TPBDR | 10° | 67 | R5 | 147 | 32 | □ | 893-3 |
| TPBDR | 10° | 67 | R5 | 147 | 32 | ● | 893 |
| XPM-TPBDR | 10° | 67 | R5 | 147 | 32 | ● | 891 |
| TPBDN | 10° | 80 | R2 | 160 | 32 | □ | 893-4 |
| EX-TIN-TPBDR | 10° | 80 | R6 | 172 | 42 | □ | 893-3 |
| TPBDR | 10° | 80 | R6 | 172 | 42 | ● | 893 |
| XPM-TPBDR | 10° | 80 | R6 | 172 | 42 | ● | 891 |
| TPBDR | 10° | 80 | R8 | 172 | 42 | □ | 893 |
| TPBDL | 10° | 95 | R2 | 187 | 42 | □ | 893-6 |
| TPBML | 10° | 95 | R2 | 187 | 42 | □ | 893-8 |
| TPBDN | 10° | 95 | R2.5 | 187 | 42 | □ | 893-4 |
| TPBDN | 10° | 95 | R3 | 187 | 42 | □ | 893-5 |
| TPBDR | 10° | 95 | R10 | 187 | 42 | □ | 893 |
| TPBDL | 10° | 112 | R2.5 | 204 | 42 | □ | 893-6 |
| TPBML | 10° | 112 | R2.5 | 204 | 42 | □ | 893-8 |
| TPBDL | 10° | 112 | R3 | 204 | 42 | □ | 893-6 |
| TPBML | 10° | 112 | R3 | 204 | 42 | □ | 893-9 |
| TPBDN | 10° | 112 | R4 | 204 | 42 | □ | 893-5 |
| TPBDN | 10° | 112 | R5 | 204 | 42 | □ | 893-5 |
| TPBDL | 10° | 132 | R4 | 224 | 42 | □ | 893-6 |
| TPBML | 10° | 132 | R4 | 224 | 42 | □ | 893-9 |
| TPBDL | 10° | 132 | R5 | 224 | 42 | □ | 893-6 |
| TPBML | 10° | 132 | R5 | 224 | 42 | □ | 893-9 |
| TPBDN | 10° | 132 | R6 | 224 | 42 | □ | 893-5 |
| TPBDN | 10° | 132 | R8 | 224 | 42 | □ | 893-5 |
| TPBDL | 10° | 160 | R6 | 252 | 42 | □ | 893-6 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | ボール半径 RE | 全長 LF | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|
| TPBML | 10° | 160 | R6 | 252 | 42 | □ | 893-9 |
| TPBDL | 10° | 160 | R8 | 252 | 42 | □ | 893-6 |
| TPBML | 10° | 160 | R8 | 252 | 42 | □ | 893-9 |
| TPBDN | 10° | 160 | R10 | 252 | 42 | □ | 893-5 |
| TPBMS | 15° | 50 | R3 | 130 | 32 | □ | 893-7 |
| TPBDS | 15° | 50 | R4 | 130 | 32 | □ | 891 |
| TPBMS | 15° | 50 | R4 | 130 | 32 | □ | 893-7 |
| TPBDS | 15° | 50 | R5 | 130 | 32 | □ | 891 |
| TPBMS | 15° | 50 | R5 | 130 | 32 | □ | 893-7 |
| TPBDS | 15° | 50 | R6 | 130 | 32 | □ | 891 |
| TPBMS | 15° | 50 | R6 | 130 | 32 | □ | 893-7 |
| TPBDS | 15° | 50 | R8 | 130 | 32 | □ | 891 |
| TPBMS | 15° | 50 | R8 | 130 | 32 | □ | 893-7 |
| TPBDS | 15° | 50 | R10 | 130 | 32 | □ | 891 |
| TPBMS | 15° | 50 | R10 | 130 | 32 | □ | 893-7 |
| TPBDR | 15° | 56 | R3 | 136 | 32 | □ | 893 |
| TPBMR | 15° | 56 | R3 | 136 | 32 | □ | 893-8 |
| TPBDR | 15° | 67 | R3 | 159 | 42 | □ | 893 |
| TPBMR | 15° | 67 | R3 | 159 | 42 | □ | 893-8 |
| TPBDR | 15° | 67 | R4 | 159 | 42 | □ | 893 |
| TPBMR | 15° | 67 | R4 | 159 | 42 | □ | 893-8 |
| TPBDR | 15° | 67 | R5 | 159 | 42 | □ | 893 |
| TPBMR | 15° | 67 | R5 | 159 | 42 | □ | 893-8 |
| TPBDR | 15° | 80 | R6 | 172 | 42 | □ | 893 |
| TPBMR | 15° | 80 | R6 | 172 | 42 | □ | 893-8 |
| TPBDR | 15° | 80 | R8 | 172 | 42 | □ | 893 |
| TPBMR | 15° | 80 | R8 | 172 | 42 | □ | 893-8 |
| TPBDR | 15° | 95 | R10 | 187 | 42 | □ | 893 |
| TPBMR | 15° | 95 | R10 | 187 | 42 | □ | 893-8 |
| TPBDS | 20° | 40 | R4 | 120 | 32 | □ | 891 |
| TPBMS | 20° | 40 | R4 | 120 | 32 | □ | 893-7 |
| TPBDS | 20° | 40 | R5 | 120 | 32 | □ | 891 |
| TPBMS | 20° | 40 | R5 | 120 | 32 | □ | 893-7 |
| TPBDS | 20° | 40 | R6 | 120 | 32 | □ | 891 |
| TPBMS | 20° | 40 | R6 | 120 | 32 | □ | 893-7 |
| TPBDS | 20° | 40 | R8 | 120 | 32 | □ | 891 |
| TPBMS | 20° | 40 | R8 | 120 | 32 | □ | 893-7 |
| TPBDS | 20° | 40 | R10 | 120 | 32 | □ | 891 |
| TPBMS | 20° | 40 | R10 | 120 | 32 | □ | 893-7 |
| TPBDS | 20° | 53 | R4 | 145 | 42 | □ | 891 |
| TPBMS | 20° | 53 | R4 | 145 | 42 | □ | 893-7 |
| TPBDS | 20° | 53 | R5 | 145 | 42 | □ | 891 |
| TPBMS | 20° | 53 | R5 | 145 | 42 | □ | 893-7 |
| TPBDS | 20° | 63 | R6 | 155 | 42 | □ | 891 |
| TPBMS | 20° | 63 | R6 | 155 | 42 | □ | 893-7 |
| TPBDS | 20° | 63 | R8 | 155 | 42 | □ | 891 |
| TPBMS | 20° | 63 | R8 | 155 | 42 | □ | 893-7 |
| TPBDS | 20° | 75 | R10 | 167 | 42 | □ | 891 |
| TPBMS | 20° | 75 | R10 | 167 | 42 | □ | 893-7 |
| TPBDS | 25° | 60 | R6 | 152 | 42 | □ | 891 |
| TPBMS | 25° | 60 | R6 | 152 | 42 | □ | 893-7 |
| TPBDS | 25° | 60 | R8 | 152 | 42 | □ | 891 |
| TPBMS | 25° | 60 | R8 | 152 | 42 | □ | 893-7 |
| TPBDS | 25° | 60 | R10 | 152 | 42 | □ | 891 |
| TPBMS | 25° | 60 | R10 | 152 | 42 | □ | 893-7 |
| TPBDS | 30° | 50 | R8 | 142 | 42 | □ | 891 |
| TPBMS | 30° | 50 | R8 | 142 | 42 | □ | 893-7 |
| TPBDS | 30° | 50 | R10 | 142 | 42 | □ | 891 |
| TPBMS | 30° | 50 | R10 | 142 | 42 | □ | 893-7 |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
※ = 受注品 Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパコーナR
## HSS END MILLS / TAPER CORNER RADIUS

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia | 全長 LF | コーナ半径 RE | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|---|
| CR-TPDS | 1° | 13 | 3 | 57 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 13 | 3 | 57 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 1° | 13 | 3 | 57 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 13 | 3 | 57 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 1° | 16 | 4 | 60 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 16 | 4 | 60 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 1° | 16 | 4 | 60 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 16 | 4 | 60 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 1° | 19 | 5 | 63 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 19 | 5 | 63 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 1° | 19 | 5 | 63 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 19 | 5 | 63 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 1° | 19 | 5 | 63 | R1.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 19 | 5 | 63 | R1.5 | 6 | □ | 893-10 |
| CR-TPDS | 1° | 19 | 6 | 63 | R0.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 19 | 6 | 63 | R0.5 | 8 | □ | 893-10 |
| CR-TPDS | 1° | 19 | 6 | 63 | R1 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 19 | 6 | 63 | R1 | 8 | □ | 893-10 |
| CR-TPDS | 1° | 19 | 6 | 63 | R1.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 19 | 6 | 63 | R1.5 | 8 | □ | 893-10 |
| CR-TPDS | 1° | 19 | 6 | 63 | R2 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 19 | 6 | 63 | R2 | 8 | □ | 893-10 |
| CR-TPDR | 1° | 22 | 3 | 66 | R0.5 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 22 | 3 | 66 | R0.5 | 6 | □ | 893-14 |
| CR-TPDR | 1° | 22 | 3 | 66 | R1 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 22 | 3 | 66 | R1 | 6 | □ | 893-14 |
| CR-TPDS | 1° | 22 | 8 | 72 | R0.5 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 8 | 72 | R0.5 | 10 | □ | 893-10 |
| CR-TPDS | 1° | 22 | 8 | 72 | R1 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 8 | 72 | R1 | 10 | □ | 893-10 |
| CR-TPDS | 1° | 22 | 8 | 72 | R1.5 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 8 | 72 | R1.5 | 10 | □ | 893-10 |
| CR-TPDS | 1° | 22 | 8 | 72 | R2 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 8 | 72 | R2 | 10 | □ | 893-10 |
| CR-TPDS | 1° | 22 | 10 | 79 | R0.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 10 | 79 | R0.5 | 12 | □ | 893-10 |
| CR-TPDS | 1° | 22 | 10 | 79 | R1 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 10 | 79 | R1 | 12 | □ | 893-10 |
| CR-TPDS | 1° | 22 | 10 | 79 | R1.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 10 | 79 | R1.5 | 12 | □ | 893-10 |
| CR-TPDS | 1° | 22 | 10 | 79 | R2 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 10 | 79 | R2 | 12 | □ | 893-11 |
| CR-TPDS | 1° | 22 | 10 | 79 | R2.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 10 | 79 | R2.5 | 12 | □ | 893-11 |
| CR-TPDS | 1° | 22 | 10 | 79 | R3 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1° | 22 | 10 | 79 | R3 | 12 | □ | 893-11 |
| CR-TPDR | 1° | 26 | 4 | 70 | R0.5 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 26 | 4 | 70 | R0.5 | 6 | □ | 893-14 |
| CR-TPDR | 1° | 26 | 4 | 70 | R1 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 26 | 4 | 70 | R1 | 6 | □ | 893-14 |
| CR-TPDR | 1° | 32 | 5 | 76 | R0.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 32 | 5 | 76 | R0.5 | 8 | □ | 893-14 |
| CR-TPDR | 1° | 32 | 5 | 76 | R1 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 32 | 5 | 76 | R1 | 8 | □ | 893-14 |
| CR-TPDR | 1° | 32 | 5 | 76 | R1.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 32 | 5 | 76 | R1.5 | 8 | □ | 893-14 |
| CR-TPDR | 1° | 32 | 6 | 76 | R0.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 32 | 6 | 76 | R0.5 | 8 | □ | 893-14 |
| CR-TPDR | 1° | 32 | 6 | 76 | R1 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 32 | 6 | 76 | R1 | 8 | □ | 893-14 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia | 全長 LF | コーナ半径 RE | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|---|
| CR-TPDR | 1° | 32 | 6 | 76 | R1.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 32 | 6 | 76 | R1.5 | 8 | □ | 893-14 |
| CR-TPDR | 1° | 38 | 8 | 88 | R0.5 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 38 | 8 | 88 | R0.5 | 10 | □ | 893-14 |
| CR-TPDR | 1° | 38 | 8 | 88 | R1 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 38 | 8 | 88 | R1 | 10 | □ | 893-14 |
| CR-TPDR | 1° | 38 | 8 | 88 | R1.5 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 38 | 8 | 88 | R1.5 | 10 | □ | 893-14 |
| CR-TPDR | 1° | 38 | 8 | 88 | R2 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 38 | 8 | 88 | R2 | 10 | □ | 893-14 |
| CR-TPDR | 1° | 38 | 10 | 95 | R0.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 38 | 10 | 95 | R0.5 | 12 | □ | 893-14 |
| CR-TPDR | 1° | 38 | 10 | 95 | R1 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 38 | 10 | 95 | R1 | 12 | □ | 893-14 |
| CR-TPDR | 1° | 38 | 10 | 95 | R1.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 38 | 10 | 95 | R1.5 | 12 | □ | 893-14 |
| CR-TPDR | 1° | 38 | 10 | 95 | R2 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 38 | 10 | 95 | R2 | 12 | □ | 893-14 |
| CR-TPDR | 1° | 45 | 12 | 102 | R1 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 45 | 12 | 102 | R1 | 12 | □ | 893-15 |
| CR-TPDR | 1° | 45 | 12 | 102 | R1.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 45 | 12 | 102 | R1.5 | 12 | □ | 893-15 |
| CR-TPDR | 1° | 45 | 12 | 102 | R2 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 45 | 12 | 102 | R2 | 12 | □ | 893-15 |
| CR-TPDR | 1° | 45 | 12 | 102 | R3 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 45 | 12 | 102 | R3 | 12 | □ | 893-15 |
| CR-TPDR | 1° | 45 | 16 | 105 | R1 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 45 | 16 | 105 | R1 | 16 | □ | 893-15 |
| CR-TPDR | 1° | 45 | 16 | 105 | R1.5 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 45 | 16 | 105 | R1.5 | 16 | □ | 893-15 |
| CR-TPDR | 1° | 45 | 16 | 105 | R2 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 45 | 16 | 105 | R2 | 16 | □ | 893-15 |
| CR-TPDR | 1° | 45 | 16 | 105 | R3 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 1° | 45 | 16 | 105 | R3 | 16 | □ | 893-15 |
| CR-TPDS | 1.5° | 13 | 3 | 57 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 13 | 3 | 57 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 1.5° | 13 | 3 | 57 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 13 | 3 | 57 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 1.5° | 16 | 4 | 60 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 16 | 4 | 60 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 1.5° | 16 | 4 | 60 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 16 | 4 | 60 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 1.5° | 19 | 5 | 63 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 19 | 5 | 63 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 1.5° | 19 | 5 | 63 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 19 | 5 | 63 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 1.5° | 19 | 5 | 63 | R1.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 19 | 5 | 63 | R1.5 | 6 | □ | 893-10 |
| CR-TPDS | 1.5° | 19 | 6 | 63 | R0.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 19 | 6 | 63 | R0.5 | 8 | □ | 893-10 |
| CR-TPDS | 1.5° | 19 | 6 | 63 | R1 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 19 | 6 | 63 | R1 | 8 | □ | 893-10 |
| CR-TPDS | 1.5° | 19 | 6 | 63 | R1.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 19 | 6 | 63 | R1.5 | 8 | □ | 893-10 |
| CR-TPDS | 1.5° | 19 | 6 | 63 | R2 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 19 | 6 | 63 | R2 | 8 | □ | 893-10 |
| CR-TPDR | 1.5° | 22 | 3 | 66 | R0.5 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 22 | 3 | 66 | R0.5 | 6 | □ | 893-14 |
| CR-TPDR | 1.5° | 22 | 3 | 66 | R1 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 22 | 3 | 66 | R1 | 6 | □ | 893-14 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパコーナR
## HSS END MILLS / TAPER CORNER RADIUS

◎CADデータ(DXF・STEP)ダウンロードサービス公開中
【製品検索サイト】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia | 全長 LF | コーナ半径 RE | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|---|
| CR-TPDS | 1.5° | 22 | 8 | 72 | R0.5 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 8 | 72 | R0.5 | 10 | □ | 893-10 |
| CR-TPDS | 1.5° | 22 | 8 | 72 | R1 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 8 | 72 | R1 | 10 | □ | 893-10 |
| CR-TPDS | 1.5° | 22 | 8 | 72 | R1.5 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 8 | 72 | R1.5 | 10 | □ | 893-10 |
| CR-TPDS | 1.5° | 22 | 8 | 72 | R2 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 8 | 72 | R2 | 10 | □ | 893-10 |
| CR-TPDS | 1.5° | 22 | 10 | 79 | R0.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 10 | 79 | R0.5 | 12 | □ | 893-10 |
| CR-TPDS | 1.5° | 22 | 10 | 79 | R1 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 10 | 79 | R1 | 12 | □ | 893-10 |
| CR-TPDS | 1.5° | 22 | 10 | 79 | R1.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 10 | 79 | R1.5 | 12 | □ | 893-10 |
| CR-TPDS | 1.5° | 22 | 10 | 79 | R2 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 10 | 79 | R2 | 12 | □ | 893-11 |
| CR-TPDS | 1.5° | 22 | 10 | 79 | R2.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 10 | 79 | R2.5 | 12 | □ | 893-11 |
| CR-TPDS | 1.5° | 22 | 10 | 79 | R3 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 1.5° | 22 | 10 | 79 | R3 | 12 | □ | 893-11 |
| CR-TPDR | 1.5° | 26 | 4 | 70 | R0.5 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 26 | 4 | 70 | R0.5 | 6 | □ | 893-14 |
| CR-TPDR | 1.5° | 26 | 4 | 70 | R1 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 26 | 4 | 70 | R1 | 6 | □ | 893-14 |
| CR-TPDR | 1.5° | 32 | 5 | 76 | R0.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 32 | 5 | 76 | R0.5 | 8 | □ | 893-14 |
| CR-TPDR | 1.5° | 32 | 5 | 76 | R1 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 32 | 5 | 76 | R1 | 8 | □ | 893-14 |
| CR-TPDR | 1.5° | 32 | 5 | 76 | R1.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 32 | 5 | 76 | R1.5 | 8 | □ | 893-14 |
| CR-TPDR | 1.5° | 32 | 6 | 76 | R0.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 32 | 6 | 76 | R0.5 | 8 | □ | 893-14 |
| CR-TPDR | 1.5° | 32 | 6 | 76 | R1 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 32 | 6 | 76 | R1 | 8 | □ | 893-14 |
| CR-TPDR | 1.5° | 32 | 6 | 76 | R1.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 32 | 6 | 76 | R1.5 | 8 | □ | 893-14 |
| CR-TPDR | 1.5° | 38 | 8 | 88 | R0.5 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 38 | 8 | 88 | R0.5 | 10 | □ | 893-14 |
| CR-TPDR | 1.5° | 38 | 8 | 88 | R1 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 38 | 8 | 88 | R1 | 10 | □ | 893-14 |
| CR-TPDR | 1.5° | 38 | 8 | 88 | R1.5 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 38 | 8 | 88 | R1.5 | 10 | □ | 893-14 |
| CR-TPDR | 1.5° | 38 | 8 | 88 | R2 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 38 | 8 | 88 | R2 | 10 | □ | 893-14 |
| CR-TPDR | 1.5° | 38 | 10 | 95 | R0.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 38 | 10 | 95 | R0.5 | 12 | □ | 893-14 |
| CR-TPDR | 1.5° | 38 | 10 | 95 | R1 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 38 | 10 | 95 | R1 | 12 | □ | 893-14 |
| CR-TPDR | 1.5° | 38 | 10 | 95 | R1.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 38 | 10 | 95 | R1.5 | 12 | □ | 893-14 |
| CR-TPDR | 1.5° | 38 | 10 | 95 | R2 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 38 | 10 | 95 | R2 | 12 | □ | 893-14 |
| CR-TPDR | 1.5° | 45 | 12 | 102 | R1 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 45 | 12 | 102 | R1 | 12 | □ | 893-15 |
| CR-TPDR | 1.5° | 45 | 12 | 102 | R1.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 45 | 12 | 102 | R1.5 | 12 | □ | 893-15 |
| CR-TPDR | 1.5° | 45 | 12 | 102 | R2 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 45 | 12 | 102 | R2 | 12 | □ | 893-15 |
| CR-TPDR | 1.5° | 45 | 12 | 102 | R3 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 45 | 12 | 102 | R3 | 12 | □ | 893-15 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia | 全長 LF | コーナ半径 RE | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|---|
| CR-TPDR | 1.5° | 45 | 16 | 105 | R1 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 45 | 16 | 105 | R1 | 16 | □ | 893-15 |
| CR-TPDR | 1.5° | 45 | 16 | 105 | R1.5 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 45 | 16 | 105 | R1.5 | 16 | □ | 893-15 |
| CR-TPDR | 1.5° | 45 | 16 | 105 | R2 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 45 | 16 | 105 | R2 | 16 | □ | 893-15 |
| CR-TPDR | 1.5° | 45 | 16 | 105 | R3 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 1.5° | 45 | 16 | 105 | R3 | 16 | □ | 893-15 |
| CR-TPDS | 2° | 18 | 3 | 62 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 18 | 3 | 62 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 2° | 18 | 3 | 62 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 18 | 3 | 62 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 2° | 21 | 4 | 65 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 21 | 4 | 65 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 2° | 21 | 4 | 65 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 21 | 4 | 65 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 2° | 25 | 5 | 69 | R0.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 25 | 5 | 69 | R0.5 | 8 | □ | 893-10 |
| CR-TPDS | 2° | 25 | 5 | 69 | R1 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 25 | 5 | 69 | R1 | 8 | □ | 893-10 |
| CR-TPDS | 2° | 25 | 5 | 69 | R1.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 25 | 5 | 69 | R1.5 | 8 | □ | 893-10 |
| CR-TPDS | 2° | 25 | 6 | 69 | R0.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 25 | 6 | 69 | R0.5 | 8 | □ | 893-10 |
| CR-TPDS | 2° | 25 | 6 | 69 | R1 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 25 | 6 | 69 | R1 | 8 | □ | 893-10 |
| CR-TPDS | 2° | 25 | 6 | 69 | R1.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 25 | 6 | 69 | R1.5 | 8 | □ | 893-10 |
| CR-TPDS | 2° | 25 | 6 | 69 | R2 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 25 | 6 | 69 | R2 | 8 | □ | 893-10 |
| CR-TPDR | 2° | 30 | 3 | 74 | R0.5 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 30 | 3 | 74 | R0.5 | 6 | □ | 893-14 |
| CR-TPDR | 2° | 30 | 3 | 74 | R1 | 6 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 30 | 3 | 74 | R1 | 6 | □ | 893-14 |
| CR-TPDS | 2° | 30 | 8 | 87 | R0.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 30 | 8 | 87 | R0.5 | 12 | □ | 893-10 |
| CR-TPDS | 2° | 30 | 8 | 87 | R1 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 30 | 8 | 87 | R1 | 12 | □ | 893-10 |
| CR-TPDS | 2° | 30 | 8 | 87 | R1.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 30 | 8 | 87 | R1.5 | 12 | □ | 893-10 |
| CR-TPDS | 2° | 30 | 8 | 87 | R2 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 2° | 30 | 8 | 87 | R2 | 12 | □ | 893-10 |
| CR-TPDS | 2° | 30 | 10 | 87 | R0.5 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 2° | 30 | 10 | 87 | R0.5 | 12 | □ | 893-10 |
| CR-TPDS | 2° | 30 | 10 | 87 | R1 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 2° | 30 | 10 | 87 | R1 | 12 | □ | 893-10 |
| CR-TPDS | 2° | 30 | 10 | 87 | R1.5 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 2° | 30 | 10 | 87 | R1.5 | 12 | □ | 893-10 |
| CR-TPDS | 2° | 30 | 10 | 87 | R2 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 2° | 30 | 10 | 87 | R2 | 12 | □ | 893-11 |
| CR-TPDS | 2° | 30 | 10 | 87 | R2.5 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 2° | 30 | 10 | 87 | R2.5 | 12 | □ | 893-11 |
| CR-TPDS | 2° | 30 | 10 | 87 | R3 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 2° | 30 | 10 | 87 | R3 | 12 | □ | 893-11 |
| CR-TPDR | 2° | 36 | 4 | 80 | R0.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 36 | 4 | 80 | R0.5 | 8 | □ | 893-14 |
| CR-TPDR | 2° | 36 | 4 | 80 | R1 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 36 | 4 | 80 | R1 | 8 | □ | 893-14 |
| CR-TPDR | 2° | 42 | 5 | 86 | R0.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 42 | 5 | 86 | R0.5 | 8 | □ | 893-14 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

# ハイスエンドミル／テーパコーナR
## HSS END MILLS / TAPER CORNER RADIUS

◎OSGアプリならスマホ・タブレットから工具選定可能
【アプリ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品）　Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia | 全長 LF | コーナ半径 RE | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|---|
| CR-TPDR | 2° | 42 | 5 | 86 | R1 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 42 | 5 | 86 | R1 | 8 | □ | 893-14 |
| CR-TPDR | 2° | 42 | 5 | 86 | R1.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 42 | 5 | 86 | R1.5 | 8 | □ | 893-14 |
| CR-TPDR | 2° | 42 | 6 | 92 | R0.5 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 42 | 6 | 92 | R0.5 | 10 | □ | 893-14 |
| CR-TPDR | 2° | 42 | 6 | 92 | R1 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 42 | 6 | 92 | R1 | 10 | □ | 893-14 |
| CR-TPDR | 2° | 42 | 6 | 92 | R1.5 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 42 | 6 | 92 | R1.5 | 10 | □ | 893-14 |
| CR-TPDR | 2° | 50 | 8 | 107 | R0.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 50 | 8 | 107 | R0.5 | 12 | □ | 893-14 |
| CR-TPDR | 2° | 50 | 8 | 107 | R1 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 50 | 8 | 107 | R1 | 12 | □ | 893-14 |
| CR-TPDR | 2° | 50 | 8 | 107 | R1.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 50 | 8 | 107 | R1.5 | 12 | □ | 893-14 |
| CR-TPDR | 2° | 50 | 8 | 107 | R2 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 50 | 8 | 107 | R2 | 12 | □ | 893-14 |
| CR-TPDR | 2° | 50 | 10 | 107 | R0.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 50 | 10 | 107 | R0.5 | 12 | □ | 893-14 |
| CR-TPDR | 2° | 50 | 10 | 107 | R1 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 50 | 10 | 107 | R1 | 12 | □ | 893-14 |
| CR-TPDR | 2° | 50 | 10 | 107 | R1.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 50 | 10 | 107 | R1.5 | 12 | □ | 893-14 |
| CR-TPDR | 2° | 50 | 10 | 107 | R2 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 50 | 10 | 107 | R2 | 12 | □ | 893-14 |
| CR-TPDR | 2° | 60 | 12 | 120 | R1 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 60 | 12 | 120 | R1 | 16 | □ | 893-15 |
| CR-TPDR | 2° | 60 | 12 | 120 | R1.5 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 60 | 12 | 120 | R1.5 | 16 | □ | 893-15 |
| CR-TPDR | 2° | 60 | 12 | 120 | R2 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 60 | 12 | 120 | R2 | 16 | □ | 893-15 |
| CR-TPDR | 2° | 60 | 12 | 120 | R3 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 2° | 60 | 12 | 120 | R3 | 16 | □ | 893-15 |
| CR-TPDR | 2° | 60 | 16 | 126 | R1 | 20 | □ | 893-17 |
| XPM-CR-TPDR | 2° | 60 | 16 | 126 | R1 | 20 | □ | 893-15 |
| CR-TPDR | 2° | 60 | 16 | 126 | R1.5 | 20 | □ | 893-17 |
| XPM-CR-TPDR | 2° | 60 | 16 | 126 | R1.5 | 20 | □ | 893-15 |
| CR-TPDR | 2° | 60 | 16 | 126 | R2 | 20 | □ | 893-17 |
| XPM-CR-TPDR | 2° | 60 | 16 | 126 | R2 | 20 | □ | 893-15 |
| CR-TPDR | 2° | 60 | 16 | 126 | R3 | 20 | □ | 893-17 |
| XPM-CR-TPDR | 2° | 60 | 16 | 126 | R3 | 20 | □ | 893-15 |
| CR-TPDS | 3° | 18 | 3 | 62 | R0.5 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 18 | 3 | 62 | R0.5 | 6 | □ | 893-10 |
| CR-TPDS | 3° | 18 | 3 | 62 | R1 | 6 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 18 | 3 | 62 | R1 | 6 | □ | 893-10 |
| CR-TPDS | 3° | 21 | 4 | 65 | R0.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 21 | 4 | 65 | R0.5 | 8 | □ | 893-10 |
| CR-TPDS | 3° | 21 | 4 | 65 | R1 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 21 | 4 | 65 | R1 | 8 | □ | 893-10 |
| CR-TPDS | 3° | 25 | 5 | 69 | R0.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 25 | 5 | 69 | R0.5 | 8 | □ | 893-10 |
| CR-TPDS | 3° | 25 | 5 | 69 | R1 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 25 | 5 | 69 | R1 | 8 | □ | 893-10 |
| CR-TPDS | 3° | 25 | 5 | 69 | R1.5 | 8 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 25 | 5 | 69 | R1.5 | 8 | □ | 893-10 |
| CR-TPDS | 3° | 25 | 6 | 75 | R0.5 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 25 | 6 | 75 | R0.5 | 10 | □ | 893-10 |
| CR-TPDS | 3° | 25 | 6 | 75 | R1 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 25 | 6 | 75 | R1 | 10 | □ | 893-10 |

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia | 全長 LF | コーナ半径 RE | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|---|
| CR-TPDS | 3° | 25 | 6 | 75 | R1.5 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 25 | 6 | 75 | R1.5 | 10 | □ | 893-10 |
| CR-TPDS | 3° | 25 | 6 | 75 | R2 | 10 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 25 | 6 | 75 | R2 | 10 | □ | 893-10 |
| CR-TPDR | 3° | 30 | 3 | 74 | R0.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 30 | 3 | 74 | R0.5 | 8 | □ | 893-14 |
| CR-TPDR | 3° | 30 | 3 | 74 | R1 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 30 | 3 | 74 | R1 | 8 | □ | 893-14 |
| CR-TPDS | 3° | 30 | 8 | 87 | R0.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 30 | 8 | 87 | R0.5 | 12 | □ | 893-10 |
| CR-TPDS | 3° | 30 | 8 | 87 | R1 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 30 | 8 | 87 | R1 | 12 | □ | 893-10 |
| CR-TPDS | 3° | 30 | 8 | 87 | R1.5 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 30 | 8 | 87 | R1.5 | 12 | □ | 893-10 |
| CR-TPDS | 3° | 30 | 8 | 87 | R2 | 12 | □ | 893-12 |
| XPM-CR-TPDS | 3° | 30 | 8 | 87 | R2 | 12 | □ | 893-10 |
| CR-TPDS | 3° | 30 | 10 | 87 | R0.5 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 3° | 30 | 10 | 87 | R0.5 | 12 | □ | 893-10 |
| CR-TPDS | 3° | 30 | 10 | 87 | R1 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 3° | 30 | 10 | 87 | R1 | 12 | □ | 893-10 |
| CR-TPDS | 3° | 30 | 10 | 87 | R1.5 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 3° | 30 | 10 | 87 | R1.5 | 12 | □ | 893-10 |
| CR-TPDS | 3° | 30 | 10 | 87 | R2 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 3° | 30 | 10 | 87 | R2 | 12 | □ | 893-11 |
| CR-TPDS | 3° | 30 | 10 | 87 | R2.5 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 3° | 30 | 10 | 87 | R2.5 | 12 | □ | 893-11 |
| CR-TPDS | 3° | 30 | 10 | 87 | R3 | 12 | □ | 893-13 |
| XPM-CR-TPDS | 3° | 30 | 10 | 87 | R3 | 12 | □ | 893-11 |
| CR-TPDR | 3° | 36 | 4 | 80 | R0.5 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 36 | 4 | 80 | R0.5 | 8 | □ | 893-14 |
| CR-TPDR | 3° | 36 | 4 | 80 | R1 | 8 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 36 | 4 | 80 | R1 | 8 | □ | 893-14 |
| CR-TPDR | 3° | 42 | 5 | 92 | R0.5 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 42 | 5 | 92 | R0.5 | 10 | □ | 893-14 |
| CR-TPDR | 3° | 42 | 5 | 92 | R1 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 42 | 5 | 92 | R1 | 10 | □ | 893-14 |
| CR-TPDR | 3° | 42 | 5 | 92 | R1.5 | 10 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 42 | 5 | 92 | R1.5 | 10 | □ | 893-14 |
| CR-TPDR | 3° | 42 | 6 | 99 | R0.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 42 | 6 | 99 | R0.5 | 12 | □ | 893-14 |
| CR-TPDR | 3° | 42 | 6 | 99 | R1 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 42 | 6 | 99 | R1 | 12 | □ | 893-14 |
| CR-TPDR | 3° | 42 | 6 | 99 | R1.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 42 | 6 | 99 | R1.5 | 12 | □ | 893-14 |
| CR-TPDR | 3° | 50 | 8 | 107 | R0.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 50 | 8 | 107 | R0.5 | 12 | □ | 893-14 |
| CR-TPDR | 3° | 50 | 8 | 107 | R1 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 50 | 8 | 107 | R1 | 12 | □ | 893-14 |
| CR-TPDR | 3° | 50 | 8 | 107 | R1.5 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 50 | 8 | 107 | R1.5 | 12 | □ | 893-14 |
| CR-TPDR | 3° | 50 | 8 | 107 | R2 | 12 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 50 | 8 | 107 | R2 | 12 | □ | 893-14 |
| CR-TPDR | 3° | 50 | 10 | 110 | R0.5 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 50 | 10 | 110 | R0.5 | 16 | □ | 893-14 |
| CR-TPDR | 3° | 50 | 10 | 110 | R1 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 50 | 10 | 110 | R1 | 16 | □ | 893-14 |
| CR-TPDR | 3° | 50 | 10 | 110 | R1.5 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 50 | 10 | 110 | R1.5 | 16 | □ | 893-14 |
| CR-TPDR | 3° | 50 | 10 | 110 | R2 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 50 | 10 | 110 | R2 | 16 | □ | 893-14 |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ = 受注品
Special order products.

## 刃径別刃長 LENGTH OF CUT BY MILL DIAMETER

# ハイスエンドミル／テーパコーナR
## HSS END MILLS / TAPER CORNER RADIUS

◎デジタルカタログで最新情報を公開中
【デジタルカタログ】はこちらから

＝WEBカタログのみ掲載（特定代理店在庫品） Listed on web catalog only(specific distributor stock)

| 製品記号 Abbreviation | 刃部テーパ半角 θc | 刃長 APMX | 先端径 Point Dia | 全長 LF | コーナ半径 RE | シャンク径 DCON | 在庫 Stock | ページ Page |
|---|---|---|---|---|---|---|---|---|
| CR-TPDR | 3° | 60 | 12 | 120 | R1 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 60 | 12 | 120 | R1 | 16 | □ | 893-15 |
| CR-TPDR | 3° | 60 | 12 | 120 | R1.5 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 60 | 12 | 120 | R1.5 | 16 | □ | 893-15 |
| CR-TPDR | 3° | 60 | 12 | 120 | R2 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 60 | 12 | 120 | R2 | 16 | □ | 893-15 |
| CR-TPDR | 3° | 60 | 12 | 120 | R3 | 16 | □ | 893-16 |
| XPM-CR-TPDR | 3° | 60 | 12 | 120 | R3 | 16 | □ | 893-15 |
| CR-TPDR | 3° | 60 | 16 | 126 | R1 | 20 | □ | 893-17 |
| XPM-CR-TPDR | 3° | 60 | 16 | 126 | R1 | 20 | □ | 893-15 |
| CR-TPDR | 3° | 60 | 16 | 126 | R1.5 | 20 | □ | 893-17 |
| XPM-CR-TPDR | 3° | 60 | 16 | 126 | R1.5 | 20 | □ | 893-15 |
| CR-TPDR | 3° | 60 | 16 | 126 | R2 | 20 | □ | 893-17 |
| XPM-CR-TPDR | 3° | 60 | 16 | 126 | R2 | 20 | □ | 893-15 |
| CR-TPDR | 3° | 60 | 16 | 126 | R3 | 20 | □ | 893-17 |
| XPM-CR-TPDR | 3° | 60 | 16 | 126 | R3 | 20 | □ | 893-15 |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

※ ＝ 受注品
Special order products.



# 超硬エンドミル
# CARBIDE END MILLS

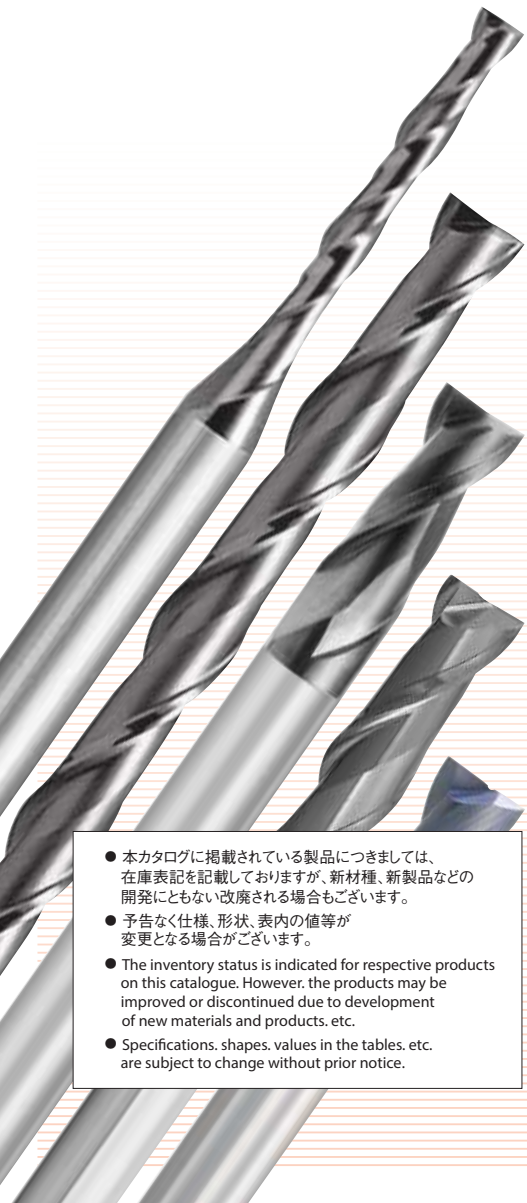
## 在庫記号について Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item


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選定表 SELECTION CHART P.257～
切削条件基準表目次 INDEX OF CUTTING CONDITIONS P.483～
切削条件基準表 CUTTING CONDITIONS P.495～

超硬スクエア CARBIDE SQUARE P.259～
超硬ロングネックスクエア CARBIDE LONG NECK SQUARE P.312～
超硬ボール CARBIDE BALL NOSE P.322～
超硬ロングネックボール CARBIDE BALL NOSE WITH LONG NECK P.341～
超硬ペンシルネックボール CARBIDE PENCIL NECK BALL NOSE P.360～
超硬コーナR CARBIDE CORNER RADIUS P.370～
超硬ラフィング CARBIDE ROUGHING P.437～
超硬テーパ CARBIDE TAPER P.439～
超硬テーパボール CARBIDE TAPER BALL NOSE P.444～
超硬テーパコーナR※ CARBIDE TAPER CORNER RADIUS P.445-7～
超硬座ぐり CARBIDE COUNTERBORING P.446～
超硬 面取り CARBIDE CHAMFERING P.459～
CFRP用ルーター ROUTER FOR CFRP P.472～


※＝超硬テーパコーナRはWEBカタログのみ掲載



- 本カタログに掲載されている製品につきましては、在庫表記を記載しておりますが、新材種、新製品などの開発にともない改廃される場合もございます。
- 予告なく仕様、形状、表内の値等が変更となる場合がございます。
- The inventory status is indicated for respective products on this catalogue. However. the products may be improved or discontinued due to development of new materials and products. etc.
- Specifications. shapes. values in the tables. etc. are subject to change without prior notice.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 259 |   | **WXL-1.5D-DE** | WXLコート2枚刃超硬スクエア エンドミル1.5D刃長 WXL Coated 2-flute Carbide End Mill (1.5D Type) | **WXL** | 0.1 ∫ 12 |
| 260 |  | **WXL-2D-DE** | WXLコート2枚刃超硬スクエア エンドミル2D刃長 WXL Coated 2-flute Carbide End Mill (2D Type) | **WXL** | 0.1 ∫ 30 |
| 263 |  | **WXL-3D-DE** | WXLコート2枚刃超硬スクエア エンドミル3D刃長 WXL Coated 2-flute Carbide End Mill (3D Type) | **WXL** | 0.1 ∫ 20 |
| 264 |  | **WXL-4D-DE** | WXLコート2枚刃超硬スクエア エンドミル4D刃長 WXL Coated 2-flute Carbide End Mill (4D Type) | **WXL** | 0.2 ∫ 12 |
| 311-1 WEB |  | **FX-MG-EDS** | FXコート2枚刃超硬スクエア エンドミルショート形 FX Coated 2-flute Carbide End Mill Short Length | **FX** | 0.2 ∫ 30 |
| 311-4 WEB |  | **FX-MG-EDS OH1** | FXコート2枚刃超硬スクエア エンドミルショート形（OH1） FX Coated 2-flute Carbide End Mill Short Length(Cutting diameter plus tolerance) | **FX** | 3 ∫ 12 |
| 265 |  | **WX-G-EDSS** | WXコート2枚刃超硬スクエア エンドミルスタブ形 WX Coated 2-flute Carbide End Mill Stub Length | **WX** | 1 ∫ 12 |
| 311-4 WEB |  | **FX-MG-EDSS** | FXコート2枚刃超硬スクエア エンドミルスタブ形 FX Coated 2-flute Carbide End Mill Stub Length | **FX** | 3 ∫ 16 |
| 311-5 WEB |  | **FX-EDS-6** | FXコート2枚刃超硬スクエア エンドミルショート形（φ6シャンク） FX Coated 2-flute Carbide End Mill Short Length (φ6 Shank) | **FX** | 0.2 ∫ 2.5 |
| 311-6 WEB |  | **FX-EDSS-6** | FXコート2枚刃超硬スクエア エンドミルスタブ形（φ6シャンク） FX Coated 2-flute Carbide End Mill Stub Length (φ6 Shank) | **FX** | 0.2 ∫ 6 |
| 311-7 WEB |  | **FX-NC-EDSS** | NC旋盤用FXコート2枚刃超硬スクエア エンドミルスタブ形 FX Coated 2-flute Carbide End Mill Stub Length for Lathes | **FX** | 3 ∫ 12 |
| 311-7 WEB |  | **FX-MR-EDS** | FXコート2枚刃超硬スクエア エンドミルショート形左刃左ねじれ FX Coated 2-flute Carbide End Mill Short Length (LH Cut and LH Helix) | **FX** | 1 ∫ 12 |
| 266 |  | **MG-EDS-3** | 2枚刃超硬スクエア エンドミルショート形（ミニチュア） 2-flute Miniature Carbide End Mill (φ3 Shank) | | 0.1 ∫ 3 |
| 267 |  | **MG-EDS** | 2枚刃超硬スクエアエンドミルショート形 2-flute Carbide End Mill Short Length | | 1 ∫ 25 |
| 268 |  外径の許容差 OH1 Tolerance for Milling Diameter | **MG-EDS** | 2枚刃超硬スクエアエンドミルショート形 2-flute Carbide End Mill Short Length | | 1 ∫ 12 |
| 269 |  | **MG-EKD** | キー溝用2枚刃超硬スクエア エンドミル（OH1,OL1） 2-flute Carbide End Mill for Keyway (OH1,OL1) | | 3 ∫ 12 |
| 311-10 WEB |  | **TIN-MG-EDS-3** | TiNコート2枚刃超硬スクエア エンドミルショート形（ミニチュア） TiN Coated 2-flute Miniature Carbide End Mill Short Length (φ3 Shank) | **TiN** | 0.25 ∫ 2.95 |
| 311-11 WEB |  | **GX-EDS** | GXコート2枚刃超硬スクエア エンドミルショート形 GX Coated 2-flute Carbide End Mill Short Length | **GX** | 0.5 ∫ 12 |
| 269 |  | **MBOS** | 1枚刃CBNスクエアエンドミルショート形 Single-flute CBN Brazed End Mill Short Length | | 6 ∫ 12 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

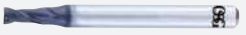
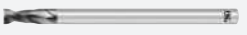
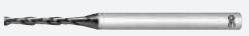
| 被削材質 Work Material | | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
| ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ○ | | ○ | | | | | ○ | ○ | ○ | | | | | | ○ |
| ○ | | ○ | | | | | ○ | ○ | ○ | | | | | | ○ |
| ○ | | ○ | | | | | ○ | ○ | ○ | | | | | | ○ |
| ○ | | ○ | | | | | ○ | ○ | ○ | | | | | | ○ |
| ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | | | ○ |
| ○ | | ○ | | | | | | | | | | | | | ○ |
| | | | ○ | ○ | ○ | | ○ | | | | | | | | ○ |

◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 270 |  | MDOS | 1枚刃PCDスクエアエンドミルショート形<br>Single-flute PCD End Mill Short Length | | 6 ～ 12 |
| 311-11 WEB |  | CAP-EDS | 鋼・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルショート形<br>2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | | 1 ～ 20 |
| 270 |  | CA-RG-EDS | 銅・アルミ合金用2枚刃超硬スクエアエンドミルショート形<br>2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys | | 1 ～ 20 |
| 311-12 WEB |  | CRN-EDS-3 | 鋼・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形(ミニチュア)<br>CrN Coated 2-flute Miniature Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (φ3 Shank) | CrN | 0.5 ～ 3 |
| 311-12 WEB |  | CRN-EDS | 鋼・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形<br>CrN Coated 2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | CrN | 1 ～ 20 |
| 311-13 WEB |  | CRN-HS-EDS | 鋼・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形(HSK対応)<br>CrN Coated 2-flute Carbide End Mill with HS Shank Short Length for Copper, Aluminum Alloys and Plastics | CrN | 1 ～ 12 |
| 311-8 WEB |  | DIA-2D-DE | DIAコート2枚刃超硬スクエアエンドミル2D刃長<br>Diamond Coated 2-flute Carbide End Mill (2D Type) | DIA | 0.5 ～ 3 |
| 272 |  | DIA-EDS | DIAコート2枚刃超硬スクエアエンドミルショート形<br>Diamond Coated 2-flute Carbide End Mill Short Length | DIA | 0.5 ～ 12 |
| 272 |  | DLC-EDS | DLCコート2枚刃超硬スクエアエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length | DLC | 0.5 ～ 12 |
| 311-8 WEB |  | DLC-MR-EDS | DLCコート2枚刃超硬スクエアエンドミルショート形左刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill (LH Cut and LH Helix) | DLC | 1 ～ 12 |
| 311-13 WEB |  | IT-EDS-6 | コバール用FXコート2枚刃超硬スクエアエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill Short Length for Kovar (φ6 Shank) | FX | 0.5 ～ 2.5 |
| 311-14 WEB |  | IT-EDS | コバール用FXコート2枚刃超硬スクエアエンドミルショート形<br>FX Coated 2-flute Carbide End Mill Short Length for Kovar | FX | 3 ～ 10 |
| 311-14 WEB |  | CAP-EDS-SF | 鋼・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルショート形(焼きばめ対応)<br>2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics(Shrink Fit Type) | | 0.2 ～ 3 |
| 311-15 WEB |  | CAP-LN-EDS-SF | 鋼・アルミ合金・プラスチック用2枚刃超硬ロングネックスクエアエンドミルショート形(焼きばめ対応)<br>2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (Shrink Fit Type) | | 0.2 ～ 0.6 |
| 311-15 WEB |  | FX-MG-EDN | FXコート2枚刃超硬スクエアエンドミルミディアム形<br>FX Coated 2-flute Carbide End Mill Medium Length | FX | 1 ～ 25 |
| 273 |  | MG-EDN | 2枚刃超硬スクエアエンドミルミディアム形<br>2-flute Carbide End Mill Medium Length | | 3 ～ 12 |
| 273 |  | MG-STDN | 成形用2枚刃超硬エンドミル直刃ミディアム形<br>2-flute Carbide Straight Fluted End Mill Medium Length for Reforming | | 1 ～ 12 |
| 311-16 WEB |  | CRN-EDN | 鋼・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルミディアム形<br>CrN Coated 2-flute Carbide End Mill Medium Length for Copper, Aluminum Alloys and Plastics | CrN | 1 ～ 12 |
| 311-17 WEB |  | FX-ED-DL-6 | FXコート2枚刃超硬スクエアエンドミルDL形（φ6シャンク）<br>FX Coated 2-flute Carbide End Mill (φ6 Shank DL Type) | FX | 0.3 ～ 3 |
| 286 |  | SEP-EL | スーパーエンプラ用DLCコート超硬エンドミル<br>DLC Coated Carbide End Mill for Super Engineering Plastic | DLC-IGUSS | 0.5 ～ 6 |
| 274 |  | FX-MG-EDL | FXコート2枚刃超硬スクエアエンドミルロング形<br>FX Coated 2-flute Carbide End Mill Long Length | FX | 6.5 ～ 30 |
| 311-19 WEB |  | FX-MG-EDL-3 | FXコート2枚刃超硬スクエアエンドミルロング形(ミニチュア)<br>FX Coated 2-flute Miniature Carbide End Mill Long Length (φ3 Shank) | FX | 0.2 ～ 3 |
| 311-19 WEB |  | FX-MG-EDLL-3 | FXコート2枚刃超硬スクエアエンドミルエキストラロング形(ミニチュア)<br>FX Coated 2-flute Miniature Carbide End Mill Extra Long Length (φ3 Shank) | FX | 0.2 ～ 3 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

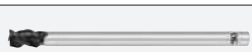
| 被削材質 Work Material | | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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◎=Best
○=Good

※1:高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 275 |  | FX-MG-EXDL | FXコート2枚刃超硬スクエアエンドミルエキストラロング形<br>FX Coated 2-flute Carbide End Mill Extra Long Length | FX | 3 ～ 30 |
| 311-20 WEB |  | MG-EDL-3 | 2枚刃超硬スクエアエンドミルロング形（ミニチュア）<br>2-flute Miniature Carbide End Mill Long Length (φ3 Shank) | | 0.2 ～ 3 |
| 311-20 WEB |  | MG-EDL-4 | 2枚刃超硬スクエアエンドミルロング形（φ4シャンク）<br>2-flute Carbide End Mill Long Length (φ4 Shank) | | 2.1 ～ 2.9 |
| 276 |  | MG-EDL | 2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length | | 2.5 ～ 25 |
| 311-21 WEB |  | MG-EDLL-3 | 2枚刃超硬スクエアエンドミルエキストラロング形（ミニチュア）<br>2-flute Miniature Carbide End Mill Extra Long Length (φ3 Shank) | | 0.2 ～ 3 |
| 276 |  | MG-EXDL | 2枚刃超硬スクエアエンドミルエキストラロング形<br>2-flute Carbide End Mill Extra Long Length | | 3 ～ 20 |
| 311-21 WEB |  | CAP-EDL | 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics | | 3 ～ 20 |
| 277 |  | CA-RG-EDL | 銅・アルミ合金用2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length for Copper and Aluminum Alloys | | 3 ～ 12 |
| 311-22 WEB |  | CRN-EDL-4 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルロング形（φ4シャンク）<br>CrN Coated 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics (φ4 Shank) | CrN | 1 ～ 3 |
| 311-23 WEB |  | CRN-EDL | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルロング形<br>CrN Coated 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics | CrN | 1 ～ 20 |
| 311-23 WEB |  | CRN-EDLL | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルエキストラロング形<br>CrN Coated 2-flute Carbide End Mill Extra Long Length for Copper, Aluminum Alloys and Plastics | CrN | 3 ～ 12 |
| 311-24 WEB |  | GF-EDR | グラファイト用2枚刃超硬スクエアエンドミルレギュラ形<br>2-flute Carbide End Mill Regular Length for Graphite | | 2 ～ 12 |
| 311-24 WEB |  | GF-LS-EDR | グラファイト用2枚刃超硬スクエアエンドミルロングシャンクレギュラ形<br>2-flute Carbide End Mill Regular Length with Long Shank for Graphite | | 2 ～ 12 |
| 311-25 WEB |  | GF-EDL | グラファイト用2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length for Graphite | | 2 ～ 12 |
| 278 |  | AE-TS-N | 非鉄用DLCコート3枚刃超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials | DLC | 1 ～ 25 |
| 280 |  | AE-VTS-N | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプショート形<br>DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials | DLC-IGUSS | 1 ～ 12 |
| 282 |  | CA-ETS | 銅・アルミ合金用3枚刃超硬スクエアエンドミルショート形<br>3-flute Carbide End Mill Short Length for Copper and Aluminum Alloys | | 3 ～ 20 |
| 311-25 WEB |  | DIA-LS-ETS | DIAコート3枚刃超硬スクエアエンドミルロングシャンクショート形<br>Diamond Coated 3-flute Carbide End Mill Short Length with Long Shank | DIA | 6 ～ 22 |
| 311-26 WEB |  | DIA-ETS | DIAコート3枚刃超硬スクエアエンドミルショート形<br>Diamond Coated 3-flute Carbide End Mill Short Length | DIA | 3 ～ 20 |
| 283 |  | DLC-ETS | DLCコート3枚刃超硬スクエアエンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length | DLC | 3 ～ 20 |
| 284 |  | AE-TL-N | 非鉄用DLCコート3枚刃超硬エンドミルロング形<br>DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials | DLC | 3 ～ 25 |
| 287 |  | WXL-EMS | WXLコート4枚刃超硬スクエアエンドミルショート形<br>WXL Coated 4-flute Carbide End Mill Short Length | WXL | 1 ～ 30 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

| 被削材質 Work Material | | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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◎=Best
○=Good

※1:高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 311-26 WEB |  | **FX-MG-EMS** | FXコート4枚刃超硬スクエアエンドミルショート形<br>FX Coated 4-flute Carbide End Mill Short Length | **FX** | 2〜30 |
| 311-27 WEB | | **FX-MG-EMS OH1** | FXコート4枚刃超硬スクエアエンドミルショート形 (OH1)<br>FX Coated 4-flute Carbide End Mill Short Length(Cutting diameter plus tolerance) | **FX** | 3〜12 |
| 288 | | **WX-G-EMSS** | WXコート4枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 4-flute Carbide End Mill Stub Length | **WX** | 3〜12 |
| 311-27 WEB | | **FX-MG-EMSS** | FXコート4枚刃超硬スクエアエンドミルスタブ形<br>FX Coated 4-flute Carbide End Mill Stub Length | **FX** | 3〜16 |
| 288 | | **AE-VMFE** | DUARISEコート超硬防振型エンドミル立ち壁対応型<br>DUARISE Coated Anti-Vibration Carbide End Mill for Deep Side Milling | **DUARISE** | 6〜22 |
| 311-28 WEB | | **FX-MR-EMS** | FXコート4枚刃超硬スクエアエンドミルショート形左刃左ねじれ<br>FX Coated 4-flute Carbide End Mill Short Length (LH Cut and LH Helix) | **FX** | 2〜12 |
| 311-28 WEB | | **FX-NC-EMSS** | NC旋盤用FXコート4枚刃超硬スクエアエンドミルスタブ形<br>FX Coated 4-flute Carbide End Mill Stub Length for Lathes | **FX** | 3〜12 |
| 289 | | **AE-MSS-H** | 高硬度鋼用DUROREYコート多刃超硬エンドミルスタブ形<br>DUROREY Coated Multi-flute Carbide End Mill Stub Length for High-hardness Steels | **DUROREY** | 3〜12 |
| 290 | | **AE-MS-H** | 高硬度鋼用DUROREYコート多刃超硬エンドミルショート形<br>DUROREY Coated Multi-flute Carbide End Mill Short Length for High-hardness Steels | **DUROREY** | 1〜20 |
| 291 | | **WXS-EMS** | WXSコート多刃超硬スクエアエンドミルショート形<br>WXS Coated Multi-flute Carbide End Mill Short Length | **WXS** | 18〜30 |
| 291 | | **NEO-EMS** | FXコート6枚刃超硬スクエアエンドミルショート形不等リード<br>FX Coated 6-flute Variable Lead Carbide End Mill Short Length | **FX** | 6〜25 |
| 311-29 WEB | | **FXS-EMS** | WXSコート多刃超硬スクエアエンドミル ショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length (Highly Rigid Type) | **WXS** | 1〜30 |
| 311-30 WEB | | **FXS-LS-EMS** | WXSコート多刃超硬スクエアエンドミル ロングシャンクショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length with Long Shank (Highly Rigid Type) | **WXS** | 3〜30 |
| 311-30 WEB | | **FXS-LS-EMS-S** | WXSコート多刃超硬スクエアエンドミル ロングスリムシャンクショート形<br>WXS Coated Multi-flute Carbide End Mill Short Length with Long Slim Shank | **WXS** | 6〜25 |
| 311-31 WEB | | **DUR-SMF** | DUROREYコート超多刃超硬エンドミルショート形<br>DUROREY Coated Super Multi-flute Carbide End Mill Short Length | **DUROREY** | 6〜20 |
| 311-31 WEB | | **DLC-MR-EMS** | DLCコート多刃超硬スクエアエンドミル ショート形左刃左ねじれ<br>DLC Coated Multi-flute Carbide End Mill Short Length (LH Cut and LH Helix) | **DLC** | 2〜12 |
| 311-33 WEB | | **GX-EMS** | GXコート4枚刃超硬スクエアエンドミルショート形<br>GX Coated 4-flute Carbide End Mill Short Length | **GX** | 2〜12 |
| 311-33 WEB | | **NC-EMSS** | NC旋盤用4枚刃超硬スクエアエンドミルスタブ形<br>4-flute Carbide End Mill Stub Length for Lathes | | 3〜12 |
| 292 | | **MG-EMS** | 4枚刃超硬スクエアエンドミルショート形<br>4-flute Carbide End Mill Short Length | | 2〜25 |
| 293 | | **DG-EMS** | グラファイト用DGコート4枚刃超硬 スクエアエンドミルショート形<br>DG Coated 4-flute Carbide End Mill Short Length for Graphite | **DG** | 4〜12 |
| 311-35 WEB | | **CRN-EMS** | 銅・アルミ合金・プラスチック用CrNコート 4枚刃超硬スクエアエンドミルショート形<br>CrN Coated 4-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | **CrN** | 2〜20 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

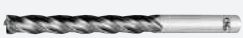
| 被削材質 Work Material | | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
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| ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | | | ○ |
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# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS


| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 311-35 WEB |   | **IT-EMS-6** | コバール用FXコート4枚刃超硬スクエアエンドミルショート形(φ6シャンク)<br>FX Coated 4-flute Carbide End Mill Short Length for Kovar (φ6 Shank) | **FX** | 1 ～ 2.5 |
| 311-36 WEB |  | **IT-EMS** | コバール用FXコート4枚刃超硬スクエアエンドミルショート形<br>FX Coated 4-flute Carbide End Mill Short Length for Kovar | **FX** | 3 ～ 10 |
| 294 |  | **FX-MG-EML** | FXコート4枚刃超硬スクエアエンドミルロング形<br>FX Coated 4-flute Carbide End Mill Long Length | **FX** | 2.5 ～ 30 |
| 294 |  | **FX-MG-EXML** | FXコート4枚刃超硬スクエアエンドミルエキストラロング形<br>FX Coated 4-flute Carbide End Mill Extra Long Length | **FX** | 3 ～ 30 |
| 311-36 WEB |  | **FXS-EML** | WXSコート多刃超硬スクエアエンドミルロング形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Long Length (Highly Rigid Type) | **WXS** | 6 ～ 25 |
| 295 |  | **MG-EML** | 4枚刃超硬スクエアエンドミルロング形<br>4-flute Carbide End Mill Long Length | | 2.5 ～ 25 |
| 295 |  | **MG-EXML** | 4枚刃超硬スクエアエンドミルエキストラロング形<br>4-flute Carbide End Mill Extra Long Length | | 3 ～ 20 |
| 311-37 WEB |  | **CRN-EML** | 銅・アルミ合金・プラスチック用CrNコート4枚刃超硬スクエアエンドミルロング形<br>CrN Coated 4-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics | **CrN** | 3 ～ 20 |
| 311-37 WEB |  | **GF-EMR** | グラファイト用4枚刃超硬スクエアエンドミルレギュラ形<br>4-flute Carbide End Mill Regular Length for Graphite | | 2 ～ 12 |
| 311-38 WEB |  | **GF-LS-EMR** | グラファイト用4枚刃超硬スクエアエンドミルロングシャンクレギュラ形<br>4-flute Carbide End Mill Regular Length with Long Shank for Graphite | | 2 ～ 12 |
| 311-38 WEB |  | **GF-EML** | グラファイト用4枚刃超硬スクエアエンドミルロング形<br>4-flute Carbide End Mill Long Length for Graphite | | 2 ～ 12 |
| 296 |  | **AE-VMSS** | DUARISEコート超硬防振型エンドミルスタブ形<br>DUARISE Coated Anti-Vibration Carbide End Mill Stub Length | **DUARISE** | 1 ～ 12 |
| 299 |  | **WX-PHSS** | WXコート4枚刃超硬スクエアエンドミルスタブ形強力重切削型<br>WX Coated 4-flute Carbide End Mill Stub Length (Heavy-duty Operation Type) | **WX** | 2.1 ～ 20 |
| 300 |  | **AE-VMS** | DUARISEコート超硬防振型エンドミルショート形<br>DUARISE Coated Anti-Vibration Carbide End Mill Short Length | **DUARISE** | 3 ～ 25 |
| 303 |  | **NEO-PHS** | FXコート4枚刃超硬スクエアエンドミルショート形強力重切削型不等リード<br>FX Coated 4-flute Variable Lead Carbide End Mill Short Length (Heavy-duty Operation Type) | **FX** | 3 ～ 25 |
| 303 |  | **UP-PHS** | FXコート4枚刃超硬スクエアエンドミルショート形多機能防振型<br>FX Coated Multi-purpose 4-flute Carbide End Mill Short Length (Vibration-resistant Type) | **FX** | 3 ～ 12 |
| 304 |  | **WX-PHN** | WXコート4枚刃超硬スクエアエンドミルミディアム形<br>WX Coated 4-flute Carbide End Mill Medium Length | **WX** | 3 ～ 5 |
| 305 |  | **AE-VML** | DUARISEコート超硬防振型エンドミルロング形<br>DUARISE Coated Anti-Vibration Carbide End Mill Long Length | **DUARISE** | 6 ～ 20 |
| 306 |  | **WX-PHL** | WXコート4枚刃超硬スクエアエンドミルロング形<br>WX Coated 4-flute Carbide End Mill Long Length | **WX** | 3 ～ 5 |
| 306 |  | **AE-VML** | DUARISEコート超硬防振型エンドミルロング形<br>DUARISE Coated Anti-Vibration Carbide End Mill Long Length | **DUARISE** | 6 ～ 20 |
| 307 |  | **AE-ML-H** | 高硬度鋼用DUROREYコート多刃超硬エンドミルロング形<br>DUROREY Coated Multi-flute Carbide End Mill Long Length for High-hardness Steels | **DUROREY** | 3 ～ 20 |

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| 被削材質 Work Material | | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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| ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | | | ○ |

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# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 309 | | AE-VTSS | DUARISEコート超硬防振型エンドミル自動旋盤対応型<br>DUARISE Coated Anti-Vibration Carbide Stub End Mill Compatible with Sliding Head Lathes | DUARISE | 3〜12 |
| 308 | | WX-SHTSS | スロッティング用WXコート3枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 3-flute Carbide End Mill Stub Length for Slotting | WX | 3〜12 |
| 309 | | FX-MG-EHL | FXコート超硬スクエアエンドミルハイヘリックスロング形<br>FX Coated High Helix Carbide End Mill Long Length | FX | 6〜12 |
| 311-39 WEB | | MG-EHS | 超硬スクエアエンドミルハイヘリックスショート形<br>High Helix Carbide End Mill Short Length | | 6〜25 |
| 311-40 WEB | | SXL-MG-EHS | SXLコート超硬スクエアエンドミルハイヘリックスショート形<br>SXL Coated High Helix Carbide End Mill Short Length | SXL | 3〜25 |
| 311-41 WEB | | SXL-MG-EHL | SXLコート超硬スクエアエンドミルハイヘリックスロング形<br>SXL Coated High Helix Carbide End Mill Long Length | SXL | 6〜12 |
| 310 | | CA-MFE | 銅・アルミ合金用3枚刃超硬エンドミル立ち壁対応型<br>3-flute Carbide End Mill for Deep Side Milling in Copper and Aluminum Alloys | | 8〜22 |
| 311 | | AE-VTFE-N | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプ立ち壁対応型<br>DLC Coated 3-flute High Performance Carbide End Mill for Deep Side Milling in Non-ferrous Materials | DLC-IGUSS | 6〜22 |
| 311-42 WEB | | DIA-EHDS | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスショート形<br>Diamond Coated 2-flute High Helix Carbide End Mill Short Length | DIA | 3〜20 |
| 311-44 WEB | | DIA-EHDS-3 | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスショート形(ミニチュア)<br>Diamond Coated 2-flute High Helix Miniature Carbide End Mill Short Length (φ3 Shank) | DIA | 1〜3 |
| 311-44 WEB | | DIA-LS-EHDS | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスロングシャンクショート形<br>Diamond Coated 2-flute High Helix Carbide End Mill Short Length with Long Shank | DIA | 3〜20 |
| 311-45 WEB | | DIA-EHDL | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスロング形<br>Diamond Coated 2-flute High Helix Carbide End Mill Long Length | DIA | 3〜20 |
| 311-46 WEB | | DIA-EHDL-3 | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスロング形(ミニチュア)<br>Diamond Coated 2-flute High Helix Miniature Carbide End Mill Long Length (φ3 Shank) | DIA | 1〜3 |
| 311-47 WEB | | DIA-LS-EHDL | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスロングシャンクショート形<br>Diamond Coated 2-flute High Helix Carbide End Mill Short Length with Long Shank | DIA | 3〜20 |
| 311-47 WEB | | DIA-EOE | DIAコート1枚刃超硬スクエアエンドミルロング形<br>Diamond Coated Single-flute Carbide End Mill Long Length | DIA | 3〜12 |
| 311-48 WEB | | DLC-E1-3D | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type) | DLC | 2〜12 |
| 311-48 WEB | | DLC-E1-3D-L | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix) | DLC | 2〜12 |
| 311-49 WEB | | DLC-E1-5D | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type) | DLC | 2〜12 |
| 311-49 WEB | | DLC-E1-5D-L | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix) | DLC | 2〜12 |
| 311-50 WEB | | DLC-E2-3D | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type) | DLC | 2〜12 |
| 311-50 WEB | | DLC-E2-3D-L | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix) | DLC | 2〜12 |
| 311-51 WEB | | DLC-E2-5D | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type) | DLC | 2〜12 |
| 311-51 WEB | | DLC-E2-5D-L | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix) | DLC | 2〜12 |

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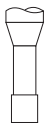
| 被削材質 Work Material | | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
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◎=Best
○=Good

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※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **ロングネックスクエア** Long Neck Square | | | | | |
| 312 |  | WXL-LN-EDS | WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）<br>WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing | WXL | 0.1〜12 |
| 321-1 WEB | | WX-LN-EDS | WXコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）<br>WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing | WX | 0.1〜6 |
| 321-6 WEB | | FX-LN-EDS-6 | FXコート2枚刃超硬ロングネックスクエアエンドミルショート形（φ6シャンク）<br>FX Coated 2-flute Long Neck Carbide End Mill Short Length (φ6 Shank) | FX | 0.5〜2.5 |
| 321-7 WEB | | LN-MG-EDS | 2枚刃超硬ロングネックスクエアエンドミルショート形<br>2-flute Long Neck Carbide End Mill Short Length | | 0.5〜3 |
| 321-8 WEB | | CAP-LN-EDS | 銅･アルミ合金･プラスチック用2枚刃超硬ロングネックスクエアエンドミルショート形<br>2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | | 0.5〜6 |
| 321-9 WEB | | CRN-LN-EDS | 銅･アルミ合金･プラスチック用CrNコート2枚刃超硬ロングネックスクエアエンドミルショート形<br>CrN Coated 2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | CrN | 0.5〜12 |
| 321-10 WEB | | DIA-LN-EDS | DIAコート2枚刃超硬ロングネックスクエアエンドミルショート形<br>Diamond Coated 2-flute Long Neck Carbide End Mill Short Length | DIA | 0.5〜5 |
| 317 | | DLC-LN-EDS | DLCコート2枚刃超硬ロングネックスクエアエンドミルショート形<br>DLC Coated 2-flute Long Neck Carbide End Mill Short Length | DLC | 0.5〜6 |
| 318 | | AE-VMSS | DUARISEコート超硬防振型エンドミルスタブ形<br>DUARISE Coated Anti-Vibration Carbide End Mill Stub Length | DUARISE | 6〜12 |
| 319 | | WXL-LN-EMS | WXLコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）<br>WXL Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing | WXL | 1〜10 |
| 321-11 WEB | | WX-LN-EMS | WXコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）<br>WX Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing | WX | 1〜10 |
| 321-13 WEB | | FX-LN-EMS-6 | FXコート4枚刃超硬ロングネックスクエアエンドミルショート形（φ6シャンク）<br>FX Coated 4-flute Long Neck Carbide End Mill Short Length (φ6 Shank) | FX | 1〜6 |
| 321 | | DG-LN-EMS | グラファイト用DGコート4枚刃超硬ロングネックスクエアエンドミルショート形<br>DG Coated 4-flute Long Neck Carbide End Mill Short Length for Graphite | DG | 1〜6 |
| 321-14 WEB | | DIA-LN-EMS | DIAコート4枚刃超硬ロングネックスクエアエンドミルショート形<br>Diamond Coated 4-flute Long Neck Carbide End Mill Short Length | DIA | 1〜2 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

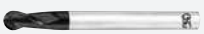
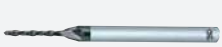
| 被削材質 Work Material | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ○ | | | | | | ○ | ○ | ○ | ○ | | | | | | ○ |
| | | | | | | | | ◎ | ◎ | | | | ○ | | ○ |
| | | | | | | | | ◎ | ○ | | | | ◎ | | ○ |
| | | | | | | | | ○ | ◎ | ◎ | | | ◎ | | ○ |
| | | | | | | | | ○ | ※1 ◎ | | | | ◎ | | ○ |
| ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | | | ○ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| | | | | | | | | | ○ | ◎ | | | | | ○ |
| | | | | | | | | ○ | ◎ | ○ | | | ○ | | ○ |

◎=Best
○=Good

※1:高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **ボール Ball End** | | | | | |
| 322 |  | **WXL-EBD** | WXLコート2枚刃超硬ボールエンドミル<br>WXL Coated 2-flute Carbide Ball End Mill | **WXL** | R0.05 〜 R10 |
| 323 |  | **WXL-HS-EBD** | WXLコート2枚刃超硬ボールエンドミル（HSK対応）<br>WXL Coated 2-flute Carbide Ball End Mill with HS Shank | **WXL** | R0.1 〜 R6 |
| 324 |  | **AE-BD-H** | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ボールエンドミル<br>DUROREY Coated 2-flute High-precision Finishing Carbide Ball End Mill for High-hardness Steels | **DUROREY** | R0.5 〜 R6 |
| 325 |  | **WXS-EBD** | WXSコート2枚刃超硬ボールエンドミル<br>WXS Coated 2-flute Carbide Ball End Mill | **WXS** | R6 〜 R12.5 |
| 340-2 WEB |  | **SXLE-EBD** | SXLコート超硬エキストラボールエンドミル<br>SXL Coated Carbide Ball End Mill (Super High Precision) | **SXL** | R3 〜 R6 |
| 340-3 WEB |  | **FX-MG-EBD** | FXコート2枚刃超硬ボールエンドミル<br>FX Coated 2-flute Carbide Ball End Mill | **FX** | R0.2 〜 R15 |
| 340-5 WEB |  | **FX-EBD-6** | FXコート2枚刃超硬ボールエンドミル高精度タイプ（φ6シャンク）<br>FX Coated 2-flute Carbide Ball End Mill High-precision Type (φ6 Shank) | **FX** | R0.1 〜 R3 |
| 340-6 WEB |  | **FX-EBDSS-6** | FXコート2枚刃超硬ボールエンドミルスタブ形（φ6シャンク）<br>FX Coated 2-flute Carbide Ball End Mill Stub Length (φ6 Shank) | **FX** | R0.1 〜 R3 |
| 340-7 WEB |  | **FX-EBD-DL-6** | FXコート2枚刃超硬ボールエンドミルDL形（φ6シャンク）<br>FX Coated 2-flute Carbide Ball End Mill (φ6 Shank DL Type) | **FX** | R0.15 〜 R3 |
| 340-8 WEB |  | **FX-MG-EBD-3** | FXコート2枚刃超硬ボールエンドミル（ミニチュア）<br>FX Coated 2-flute Miniature Carbide Ball End Mill (φ3 Shank) | **FX** | R0.2 〜 R1.5 |
| 340-9 WEB |  | **FX-MG-EBDL-3** | FXコート2枚刃超硬ボールエンドミルロング形（ミニチュア）<br>FX Coated 2-flute Miniature Carbide Ball End Mill Long Length (φ3 Shank) | **FX** | R0.2 〜 R1 |
| 340-10 WEB |  | **FX-MG-EBDLL-3** | FXコート2枚刃超硬ボールエンドミルエキストラロング形（ミニチュア）<br>FX Coated 2-flute Miniature Carbide Ball End Mill Extra Long Length (φ3 Shank) | **FX** | R0.2 〜 R1 |
| 340-10 WEB |  | **FX-HS-EBDS** | 重切削用FXコート2枚刃超硬ボールエンドミル強力型（HSK対応）<br>FX Coated 2-flute Carbide Ball End Mill with HS Shank (Heavy-duty Operation Type) | **FX** | R0.5 〜 R6 |
| 340-11 WEB |  | **FX-H-EBD** | 仕上げ用FXコート2枚刃超硬ボールエンドミル（HSK対応）<br>FX Coated 2-flute Carbide Ball End Mill with HS Shank | **FX** | R0.5 〜 R6 |
| 326 |  | **FX-SS-EBD** | FXコート2枚刃超硬ボールエンドミルスリムシャンク<br>FX Coated 2-flute Carbide Ball End Mill with Slim Shank | **FX** | R3 〜 R6 |
| 340-11 WEB |  | **FX-HO-MG-EBD** | FXコート2枚刃油穴付き超硬ボールエンドミル<br>FX Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply | **FX** | R3 〜 R10 |
| 327 |  | **FX-LS-MG-EBD** | FXコート2枚刃超硬ボールエンドミルロングシャンク<br>FX Coated 2-flute Carbide Ball End Mill with Long Shank | **FX** | R0.5 〜 R15 |
| 340-12 WEB |  | **FX-LS-MG-EBDL** | FXコート2枚刃超硬ボールエンドミルロングシャンクロング形<br>FX Coated 2-flute Carbide Ball End Mill Long Length with Long Shank | **FX** | R3 〜 R12.5 |
| 340-13 WEB |  | **FXS-HO-EBDS** | WXSコート2枚刃油穴付き超硬ボールエンドミル高剛性タイプ<br>WXS Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply (Highly Rigid Type) | **WXS** | R3 〜 R10 |
| 340-14 WEB |  | **V-LS-MG-EBD** | Vコート2枚刃超硬ボールエンドミルロングシャンク<br>V Coated 2-flute Carbide Ball End Mill with Long Shank | **V** | R0.5 〜 R20 |
| 340-15 WEB |  | **TIN-MG-EBD** | TiNコート2枚刃超硬ボールエンドミル<br>TiN Coated 2-flute Carbide Ball End Mill | **TiN** | R0.5 〜 R12.5 |
| 340-17 WEB |  | **GX-EBD** | GXコート2枚刃超硬ボールエンドミル<br>GX Coated 2-flute Carbide Ball End Mill | **GX** | R0.2 〜 R6 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

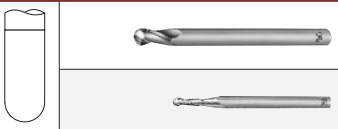
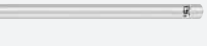
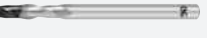
| 被削材質 Work Material | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | コバルトの含有 Cobalt |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
| ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
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| ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
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◎=Best
○=Good

※1:Super=For efficient cutting of high hardened materials. Also for cutting conventional work materials at extremely high speeds.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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|---|---|---|---|---|---|
| **ボール Ball End** | | | | | |
| 328 |  | **MG-EBD** | 2枚刃超硬ボールエンドミル<br>2-flute Carbide Ball End Mill | | R0.4 ～ R12.5 |
| 340-18 WEB |  | **MG-EBD-3** | 2枚刃超硬ボールエンドミル（ミニチュア）<br>2-flute Miniature Carbide Ball End Mill (φ3 Shank) | | R0.05 ～ R1.5 |
| 340-18 WEB |  | **MG-EBD-4** | 2枚刃超硬ボールエンドミル（φ4シャンク）<br>2-flute Carbide Ball End Mill (φ4 Shank) | | R0.4 ～ R2 |
| 340-19 WEB |  | **MG-EBDL-3** | 2枚刃超硬ボールエンドミルロング形(ミニチュア)<br>2-flute Miniature Carbide Ball End Mill Long Length (φ3 Shank) | | R0.2 ～ R1 |
| 340-19 WEB |  | **MG-EBDLL-3** | 2枚刃超硬ボールエンドミルエキストラロング形（ミニチュア）<br>2-flute Miniature Carbide Ball End Mill Extra Long Length (φ3 Shank) | | R0.2 ～ R1 |
| 340-20 WEB |  | **MG-EBD-DL** | 2枚刃超硬ボールエンドミルDL形<br>2-flute Carbide Ball End Mill (DL Type) | | R0.15 ～ R1 |
| 330 |  | **CBN-SXB** | 2枚刃小径CBNボールエンドミル<br>2-flute Small Size CBN Ball End Mill | | R0.2 ～ R1.5 |
| 331 |  | **CBN-EBD** | 2枚刃CBNボールエンドミル<br>2-flute CBN Ball End Mill | | R3 ～ R6 |
| 331 |  | **CAP-EBD** | 銅･アルミ合金･プラスチック用2枚刃超硬ボールエンドミル<br>2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | | R0.5 ～ R10 |
| 340-21 WEB |  | **CA-RG-EBD** | 銅･アルミ合金用2枚刃超硬ボールエンドミル<br>2-flute Carbide Ball End Mill for Copper and Aluminum Alloys | | R0.5 ～ R10 |
| 340-21 WEB |  | **CRN-EBD** | 銅･アルミ合金･プラスチック用CrNコート2枚刃超硬ボールエンドミル<br>CrN Coated 2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | **CrN** | R0.1 ～ R6 |
| 340-22 WEB |  | **CRN-EBD-3** | 銅･アルミ合金･プラスチック用CrNコート2枚刃超硬ボールエンドミル（ミニチュア）<br>CrN Coated 2-flute Miniature Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ3 Shank) | **CrN** | R0.1 ～ R1.5 |
| 340-22 WEB |  | **CRN-HS-EBD** | 銅･アルミ合金･プラスチック用CrNコート2枚刃超硬ボールエンドミル（HSK対応）<br>CrN Coated 2-flute Carbide Ball End Mill with HS Shank for Copper, Aluminum Alloys and Plastics | **CrN** | R0.5 ～ R6 |
| 340-23 WEB |  | **CRN-LS-EBD** | 銅･アルミ合金･プラスチック用CrNコート2枚刃超硬ボールエンドミルロングシャンク<br>CrN Coated 2-flute Carbide Ball End Mill with Long Shank for Copper, Aluminum Alloys and Plastics | **CrN** | R3 ～ R6 |
| 332 |  | **DLC-EBD** | DLCコート2枚刃超硬ボールエンドミル<br>DLC Coated 2-flute Carbide Ball End Mill | **DLC** | R0.5 ～ R10 |
| 333 |  | **DG-EBD** | グラファイト用DGコート2枚刃超硬ボールエンドミル<br>DG Coated 2-flute Carbide Ball End Mill for Graphite | **DG** | R2 ～ R6 |
| 333 |  | **DIA-EBD** | DIAコート2枚刃超硬ボールエンドミル<br>Diamond Coated 2-flute Carbide Ball End Mill | **DIA** | R0.5 ～ R6 |
| 340-24 WEB |  | **GF-EBDR** | グラファイト用2枚刃超硬ボールエンドミルレギュラ形<br>2-flute Carbide Ball End Mill Regular Length for Graphite | | R1 ～ R6 |
| 340-24 WEB |  | **GF-EBDL** | グラファイト用2枚刃超硬ボールエンドミルロング形<br>2-flute Carbide Ball End Mill Long Length for Graphite | | R1 ～ R6 |
| 340-25 WEB |  | **GF-LS-EBDR** | グラファイト用2枚刃超硬ボールエンドミルロングシャンクレギュラ形<br>2-flute Carbide Ball End Mill Regular Length with Long Shank for Graphite | | R1 ～ R6 |
| 340-25 WEB |  | **DIA-GF-EBDR** | グラファイト用DIAコート2枚刃超硬ボールエンドミル<br>Diamond Coated 2-flute Carbide Ball End Mill for Graphite | **DIA** | R1 ～ R6 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

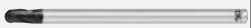
| 被削材質 Work Material | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | コバルトの含有 Cobalt |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
| ○ | | ○ | | | | | ○ | ○ | ○ | | | | | | ○ |
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| | | | | | | | | | | ◎ | | | | | ○ |

◎=Best
○=Good

※1:高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **ボール Ball End** | | | | | |
| 340-26 WEB |   | **D-GF-LS-EBDR** | グラファイト用DIAコート2枚刃超硬ボールエンドミルロングシャンク<br>Diamond Coated 2-flute Carbide Ball End Mill with Long Shank for Graphite | **DIA** | R1 ～ R6 |
| 334 |  | **AM-EBT** | アディティブ・マニュファクチャリング用DUROREYコート3枚刃超硬ボールエンドミル<br>DUROREY Coated 3-flute Carbide Ball End Mill for Additive Manufacturing | **DUROREY** | R1 ～ R10 |
| 335 |  | **PHX-DBT** | FXコート3枚刃超硬ボールエンドミル<br>FX Coated 3-flute Carbide Ball End Mill | **FX** | R0.5 ～ R10 |
| 336 |  | **FXS-EBT** | WXSコート3枚刃超硬ボールエンドミル高能率タイプ<br>WXS Coated 3-flute Carbide Ball End Mill (Highly Efficient Type) | **WXS** | R1 ～ R10 |
| 336 |  | **FXS-LS-EBT** | WXSコート3枚刃超硬ボールエンドミルロングシャンク高能率タイプ<br>WXS Coated 3-flute Carbide Ball End Mill with Long Shank (Highly Efficient Type) | **WXS** | R3 ～ R10 |
| 337 |  | **AE-BM-H** | 高硬度鋼用DUROREYコート4枚刃超硬ボールエンドミル高能率型<br>DUROREY Coated 4-flute High-efficiency Carbide Ball End Mill for High-hardness Steels | **DUROREY** | R1 ～ R6 |
| 338 |  | **DG-EBM** | グラファイト用DGコート4枚刃超硬ボールエンドミル<br>DG Coated 4-flute Carbide Ball End Mill for Graphite | **DG** | R2 ～ R5 |
| 340-27 WEB |  | **FX-MG-EBM** | FXコート4枚刃超硬ボールエンドミル<br>FX Coated 4-flute Carbide Ball End Mill | **FX** | R1.5 ～ R12.5 |
| 339 |  | **GX-EBD-SF** | GXコート2枚刃超硬ボールエンドミル（焼きばめ対応）<br>GX Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) | **GX** | R5 ～ R10 |
| 339 |  | **GX-EQD-SF** | GXコート2枚刃超硬エンドミル球形(焼きばめ対応)<br>GX Coated 2-flute Carbide End Mill Sphere Type (Shrink Fit Type) | **GX** | R8 ～ R10 |
| 340 |  | **DIA-EBD-SF** | DIAコート2枚刃超硬ボールエンドミル（焼きばめ対応）<br>Diamond Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) | **DIA** | R5 ～ R6 |
| 340-1 WEB |  | **DLC-EBD-SF** | DLCコート2枚刃超硬ボールエンドミル（焼きばめ対応）<br>DLC Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) | **DLC** | R5 ～ R6 |
| 340-28 WEB |  | **CAP-LN-EBD-SF** | 銅･アルミ合金･プラスチック用2枚刃超硬ロングネックボールエンドミル(焼きばめ対応)<br>2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (Shrink Fit Type) | | R0.1 ～ R0.3 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

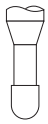
| 被削材質 Work Material | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | コバルトの含有 Cobalt |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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| | | | | | | | | ◎ | ◎ | | | | ○ | | ○ |

◎=Best
○=Good

※1:高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

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| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **ロングネックボール Long Neck ball End** | | | | | |
| 341 |  | WXL-LN-EBD | WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）<br>WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing | WXL | R0.05 ～ R3 |
| 359-1 WEB | | WXL-LN-EBD-3 | WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形、ミニチュア）<br>WXL Coated 2-flute Long Neck Miniature Carbide Ball End Mill for Rib Processing (φ3 Shank) | WXL | R0.2 ～ R1.25 |
| 348 | | AE-LNBD-H | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ロングネックボールエンドミル<br>DUROREY Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for High-hardness Steels | DUROREY | R0.05 ～ R3 |
| 359-2 WEB | | WX-LN-EBD | WXコート2枚刃超硬ロングネックボールエンドミル（深リブ形）<br>WX Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing | WX | R0.1 ～ R3 |
| 354 | | PHX-LN-DBT | WXSコート3枚刃超硬ロングネックボールエンドミル<br>WXS Coated 3-flute Long Neck Carbide Ball End Mill | WXS | R0.3 ～ R3 |
| 359-5 WEB | | FX-LN-EBD-6 | FXコート2枚刃超硬ロングネックボールエンドミル高精度タイプ(φ6シャンク)<br>FX Coated 2-flute Long Neck Carbide Ball End Mill High-precision Type (φ6 Shank) | FX | R0.25 ～ R3 |
| 359-6 WEB | | FX-LN-MG-EBD | FXコート2枚刃超硬ロングネックボールエンドミル<br>FX Coated 2-flute Long Neck Carbide Ball End Mill | FX | R0.5 ～ R10 |
| 359-7 WEB | | TIN-MG-LN-EBD | TiNコート2枚刃超硬ロングネックボールエンドミル<br>TiN Coated 2-flute Long Neck Carbide Ball End Mill | TiN | R1 ～ R6 |
| 359-8 WEB | | MG-LN-EBD | 2枚刃超硬ロングネックボールエンドミル<br>2-flute Long Neck Carbide Ball End Mill | | R0.5 ～ R10 |
| 359-9 WEB | | CAP-LN-EBD | 銅･アルミ合金･プラスチック用2枚刃超硬ロングネックボールエンドミル<br>2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | | R0.3 ～ R6 |
| 359-10 WEB | | CRN-LN-EBD | 銅･アルミ合金･プラスチック用CrNコート2枚刃超硬ロングネックボールエンドミル<br>CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | CrN | R0.5 ～ R2.5 |
| 359-10 WEB | | CRN-LN-EBD-4 | 銅･アルミ合金･プラスチック用CrNコート2枚刃超硬ロングネックボールエンドミル(φ4シャンク)<br>CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ4 Shank) | CrN | R0.1 ～ R1 |
| 359-11 WEB | | DLC-EQD | DLCコート2枚刃超硬エンドミル球形<br>DLC Coated 2-flute Carbide End Mill Sphere Type | DLC | R1 ～ R6 |
| 355 | | DG-LN-EBD | グラファイト用DGコート2枚刃超硬ロングネックボールエンドミル<br>DG Coated 2-flute Long Neck Carbide Ball End Mill for Graphite | DG | R0.2 ～ R2 |
| 355 | | DIA-LN-EBD | DIAコート2枚刃超硬ロングネックボールエンドミル<br>Diamond Coated 2-flute Long Neck Carbide Ball End Mill | DIA | R0.5 ～ R2.5 |
| 356 | | DG-LN-EBM | グラファイト用DGコート4枚刃超硬ロングネックボールエンドミル<br>DG Coated 4-flute Long Neck Carbide Ball End Mill for Graphite | DG | R1 ～ R1.5 |
| 356 | | DLC-LN-EBD | DLCコート2枚刃超硬ロングネックボールエンドミル<br>DLC Coated 2-flute Long Neck Carbide Ball End Mill | DLC | R0.5 ～ R2 |
| 357 | | AE-LNBD-N | 銅電極・高精度仕上げ用DLCコート2枚刃超硬ロングネックボールエンドミル<br>DLC Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for Copper Electrodes | DLC-IGUSS | R0.05 ～ R3 |
| 359 | | CBN-LN-SXB | 2枚刃小径CBNロングネックボールエンドミル<br>2-flute Long Neck Small Size CBN Ball End Mill | | R0.2 ～ R1.5 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

| | 被削材質 Work Material | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS


| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **ペンシルネックボール Pencil Neck Ball End** | | | | | |
| 360 |   | WXL-PC-EBD | WXLコート2枚刃超硬ペンシルネックボールエンドミル<br>WXL Coated 2-flute Pencil Neck Carbide Ball End Mill | WXL | R0.1 〜 R6 |
| 369-1 WEB |  | FX-PCS-EBD-6 | FXコート2枚刃超硬ペンシルショートネックボールエンドミル高精度タイプ(φ6シャンク)<br>FX Coated 2-flute Pencil Short Neck Carbide Ball End Mill High-precision Type (φ6 Shank) | FX | R0.1 〜 R2 |
| 369-4 WEB |  | FX-PC-MG-EBD | FXコート2枚刃超硬ペンシルネックボールエンドミル<br>FX Coated 2-flute Pencil Neck Carbide Ball End Mill | FX | R0.3 〜 R6 |
| 369-5 WEB |  | FX-PCL-EBD | FXコート2枚刃超硬ペンシルロングネックボールエンドミル<br>FX Coated 2-flute Pencil Long Neck Carbide Ball End Mill | FX | R2 〜 R6 |
| 364 |  | FXS-EQD | FXコート2枚刃超硬エンドミル球形<br>FX Coated 2-flute Carbide End Mill Sphere Type | FX | R0.5 〜 R6 |
| 365 |  | PHX-PC-DBT | WXSコート3枚刃超硬ペンシルネックボールエンドミル<br>WXS Coated 3-flute Pencil Neck Carbide Ball End Mill | WXS | R0.5 〜 R6 |
| 369 |  | FXS-PC-EBT | WXSコート3枚刃超硬ペンシルネックボールエンドミル高能率タイプ<br>WXS Coated 3-flute Pencil Neck Carbide Ball End Mill Highly Efficient Type | WXS | R1 〜 R6 |
| 369-6 WEB |  | DIA-PC-EBD | DIAコート2枚刃超硬ペンシルネックボールエンドミル<br>Diamond Coated 2-flute Pencil Neck Carbide Ball End Mill | DIA | R0.5 〜 R3 |
| **コーナR Corner Radius** | | | | | |
| 370 |   | AE-VMS | DUARISEコート超硬防振型エンドミルショート形<br>DUARISE Coated Anti-Vibration Carbide End Mill Short Length | DUARISE | 3 〜 25 |
| 371 |  | AE-VML | DUARISEコート超硬防振型エンドミルロング形<br>DUARISE Coated Anti-Vibration Carbide End Mill Long Length | DUARISE | 6 〜 12 |
| 372 |  | UVX-TI-4FL | チタン合金用FXコート4枚刃超硬エンドミル不等リード<br>FX Coated 4-flute Carbide End Mill Variable Lead for Titanium Alloy | FX | 12 〜 25 |
| 372 |  | UVX-TI-4FL | チタン合金用FXコート4枚刃超硬エンドミル不等リード<br>FX Coated 4-flute Carbide End Mill Variable Lead for Titanium Alloy | FX | 12 〜 25 |
| 373 |  | UVX-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミル不等リード<br>FX Coated 5-flute Carbide End Mill Variable Lead for Titanium Alloy | FX | 12 〜 25 |
| 373 |  | UVX-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミル不等リード<br>FX Coated 5-flute Carbide End Mill Variable Lead for Titanium Alloy | FX | 12 〜 25 |
| 374 |  | UVXL-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミルロング形不等リード<br>FX Coated 5-flute Carbide End Mill Long Length Variable Lead for Titanium Alloy | FX | 12 〜 25 |
| 374 |  | UVXL-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミルロング形不等リード<br>FX Coated 5-flute Carbide End Mill Long Length Variable Lead for Titanium Alloy | FX | 12 〜 25 |
| 375 |  | HFC-TI | チタン合金用高送り超硬ラジアスエンドミル<br>High Feed Carbide End Mill with Corner Radius for Titanium Alloy | | 16 〜 25 |
| 376 |  | DLC-AIR-EDS | アルミ合金用DLCコート2枚刃超硬ラジアスエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill with Corner Radius Short Length for Aluminum Alloys | DLC | 12 〜 25 |
| 376 |  | AERO-ETS | アルミ合金用DLCコート3枚刃超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length for Aluminum Alloys | DLC | 12 〜 25 |
| 377 |  | AERO-O-ETS | アルミ合金用DLCコート3枚刃油穴付き超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length with Internal Coolant Supply for Aluminum Alloys | DLC | 20 〜 25 |
| 377 |  | AERO-ETL | アルミ合金用DLCコート3枚刃超硬エンドミルロング形<br>DLC Coated 3-flute Carbide End Mill Long Length for Aluminum Alloys | DLC | 12 〜 20 |
| 378 |  | AERO-EXTL | アルミ合金用DLCコート3枚刃超硬エンドミルエキストラロング形<br>DLC Coated 3-flute Carbide End Mill Extra Long Length for Aluminum Alloys | DLC | 20 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

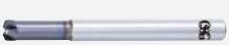
| | 被削材質 Work Material | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
| | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | | | ○ |
| | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | | | | | | | | ○ |
| | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ○ | ○ | | | ○ |
| | ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | | | ○ |
| | ◎ | | ◎ | ◎ | ○ | ○ | | | | | | | | | | ○ |
| | | | | | | | | | ○ | ◎ | ◎ | | | ◎ | | ○ |
| | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
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| | | | | | | | | | | ※1 ◎ | | | | | | ○ |

◎=Best
○=Good

※1:高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **コーナR** Corner Radius | | | | | |
| 379 |  | FX-CR-MG-EDS | FXコート2枚刃超硬ラジアスエンドミルショート形<br>FX Coated 2-flute Carbide End Mill Short Length with Corner Radius | FX | 1 ～ 20 |
| 436-1 WEB |  | FX-CR-EDS-6 | FXコート2枚刃超硬ラジアスエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill Short Length with Corner Radius (φ6 Shank) | FX | 0.5 ～ 2.5 |
| 380 |  | FX-CR-MG-EDL | FXコート2枚刃超硬ラジアスエンドミルロング形<br>FX Coated 2-flute Carbide End Mill Long Length with Corner Radius | FX | 2 ～ 25 |
| 436-2 WEB |  | TIN-MG-CR-EDS | TiNコート2枚刃超硬ラジアスエンドミルショート形<br>TiN Coated 2-flute Carbide End Mill Short Length with Corner Radius | TiN | 2 ～ 25 |
| 436-3 WEB |  | MG-CR-EDS | 2枚刃超硬ラジアスエンドミルショート形<br>2-flute Carbide End Mill Short Length with Corner Radius | | 2 ～ 20 |
| 381 |  | CBN-CR-EDS | 2枚刃CBNラジアスエンドミルショート形<br>2-flute CBN End Mill Short Length with Corner Radius | | 3 ～ 6 |
| 436-4 WEB |  | DIA-CR-EDS | DIAコート2枚刃超硬ラジアスエンドミルショート形<br>Diamond Coated 2-flute Carbide End Mill Short Length with Corner Radius | DIA | 2 ～ 20 |
| 381 |  | CBN-SXR | 2枚刃小径CBNラジアスエンドミル<br>2-flute Small Size CBN End Mill with Corner Radius | | 0.5 ～ 3 |
| 436-5 WEB |  | FX-CR-MG-EMS | FXコート4枚刃超硬ラジアスエンドミルショート形<br>FX Coated 4-flute Carbide End Mill Short Length with Corner Radius | FX | 4 ～ 20 |
| 382 |  | NEO-CR-EMS | FXコート6枚刃超硬ラジアスエンドミルショート形不等リード<br>FX Coated 6-flute Variable Lead Carbide End Mill Short Length with Corner Radius | FX | 6 ～ 25 |
| 405 |  | AE-MS-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルショート形<br>DUROREY Coated Multi-flute Carbide End Mill Short Length for High-hardness Steels | DUROREY | 3 ～ 12 |
| 436-6 WEB |  | FXS-CR-EMS | WXSコート多刃超硬ラジアスエンドミルショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length with Corner Radius (Highly Rigid Type) | WXS | 6 ～ 25 |
| 436-6 WEB |  | MG-CR-EMS | 4枚刃超硬ラジアスエンドミルショート形<br>4-flute Carbide End Mill Short Length with Corner Radius | | 4 ～ 20 |
| 382 |  | FX-CR-MG-EML | FXコート4枚刃超硬ラジアスエンドミルロング形<br>FX Coated 4-flute Carbide End Mill Long Length with Corner Radius | FX | 10 ～ 20 |
| 383 |  | AE-CRE-H | 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高能率型<br>DUROREY Coated Multi-flute High Efficiency Carbide End Mill with Corner Radius for High-hardness Steels | DUROREY | 1 ～ 13 |
| 384 |  | AE-HFE-H | 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高送り型<br>DUROREY Coated Multi-flute High Feed Carbide End Mill with Corner Radius for High-hardness Steels | DUROREY | 1 ～ 12 |
| 436-7 WEB |  | FXS-CR-EML | WXSコート多刃超硬ラジアスエンドミルロング形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Long Length with Corner Radius (Highly Rigid Type) | WXS | 3 ～ 25 |
| 385 |  | AM-CRE | アディティブ・マニュファクチャリング用DUROREYコート多刃超硬ラジアスエンドミル<br>DUROREY Coated Multi-flute Carbide End Mill with Corner Radius for Additive Manufacturing | DUROREY | 6 ～ 20 |
| 386 |  | AM-HFC | アディティブ・マニュファクチャリング用DUROREYコート6枚刃高送り超硬ラジアスエンドミル<br>DUROREY Coated 6-flute High Feed Carbide End Mill with Corner Radius for Additive Manufacturing | DUROREY | 4 ～ 12 |
| 387 |  | WX-CRE | WXコート超硬ラジアスエンドミル<br>WX Coated Carbide End Mill with Corner Radius | WX | 2 ～ 13 |
| 387 |  | PHX-DFR | WXSコート3枚刃超硬ラジアスエンドミル<br>WXS Coated 3-flute Carbide End Mill with Corner Radius | WXS | 6 ～ 20 |
| 388 |  | PHX-CRT | FXコート3枚刃超硬ラジアスエンドミル<br>FX Coated 3-flute Carbide End Mill with Corner Radius | FX | 1 ～ 20 |

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| 被削材質 Work Material | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | | | ○ |
| ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | | | ○ |
| ○ | | ◎ | ◎ | ◎ | ◎ | | ○ | | | | | | | | ○ |
| | | | | | | | | ○ | ◎ | ◎ | | | | | ○ |
| ○ | | ◎ | ◎ | ◎ | ◎ | | | | | | | | | | ○ |
| ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ◎ | ◎ | | | ○ |
| ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | | | ○ |
| ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | | | ○ |
| ◎ | | ◎ | ○ | | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ◎ | ◎ | ◎ | | ◎ | | | | | | | | ○ |
| ◎ | | ◎ | ◎ | ◎ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| ○ | | ◎ | ◎ | ○ | ○ | ◎ | ○ | | | | ◎ | ◎ | | | ○ |
| ○ | | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | | | ◎ | ◎ | | | ○ |
| ◎ | | ◎ | ◎ | ◎ | ○ | | ◎ | | | | | | | | ○ |
| ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | | | ○ |
| ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | | | ○ |

◎=Best
○=Good

※1:Super=For efficient cutting of high hardened materials. Also for cutting conventional work materials at extremely high speeds.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

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| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **コーナR** Corner Radius | | | | | |
| 389 |   | NEO-CR-PHS | FXコート4枚刃超硬ラジアスエンドミルショート形強力重切削型不等リード<br>FX Coated 4-flute Variable Lead Carbide End Mill Short Length with Corner Radius (Heavy-duty Operation Type) | FX | 3 ～ 25 |
| 390 |  | FX-CR-MG-EHS | FXコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>FX Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | FX | 6 ～ 25 |
| 436-7 WEB |  | SXL-CR-MG-EHS | SXLコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>SXL Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | SXL | 6 ～ 25 |
| 391 |  | FXS-PKE | FXコート4枚刃超硬ラジアスエンドミル多機能強力型<br>FX Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | FX | 3 ～ 20 |
| 392 |  | FXS-HS-PKE | FXコート4枚刃超硬ラジアスエンドミル多機能強力型(HSK対応)<br>FX Coated 4-flute Carbide End Mill with Corner Radius HS Shank High Speed Pocket Operation Type | FX | 6 ～ 20 |
| 436-12 WEB |  | SXL-PKE | SXLコート4枚刃超硬ラジアスエンドミル多機能強力型<br>SXL Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | SXL | 3 ～ 20 |
| 436-8 WEB |  | FXS-PKER | FXコート4枚刃超硬ラジアスエンドミルレギュラ形多機能強力型<br>FX Coated 4-flute Carbide End Mill Regular Length with Corner Radius High Speed Pocket Operation Type | FX | 3 ～ 20 |
| 393 |  | AE-VMFE | DUARISEコート超硬防振型エンドミル立ち壁対応型<br>DUARISE Coated Anti-Vibration Carbide End Mill for Deep Side Milling | DUARISE | 6 ～ 22 |
| 394 |  | CA-CR-ETS | 銅･アルミ合金用3枚刃超硬ラジアスエンドミルショート形<br>3-flute Carbide End Mill Short Length with Corner Radius for Copper and Aluminum Alloys | | 3 ～ 20 |
| 395 |  | AE-TS-N | 非鉄用DLCコート3枚刃超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials | DLC | 3 ～ 12 |
| 396 |  | AE-VTS-N | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプショート形<br>DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials | DLC-IGUSS | 3 ～ 12 |
| 397 |  | AE-VTFE-N | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプ立ち壁対応型<br>DLC Coated 3-flute High Performance Carbide End Mill for Deep Side Milling in Non-ferrous Materials | DLC-IGUSS | 6 ～ 22 |
| 402 |  | CA-PKE | 銅･アルミ合金用3枚刃超硬ラジアスエンドミル多機能強力型<br>3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type for Copper and Aluminum Alloys | | 3 ～ 20 |
| 402 |  | DIA-LS-CRED | DIAコート2枚刃超硬ラジアスエンドミルロングシャンク<br>Diamond Coated 2-flute Carbide End Mill with Corner Radius, Long Shank | DIA | 5 ～ 11 |
| 403 |  | DLC-PKE | DLCコート3枚刃超硬ラジアスエンドミル多機能強力型<br>DLC Coated 3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | DLC | 3 ～ 20 |
| 403 |  | FX-MCF | 底面仕上げ用FXコート4枚刃サーメットラジアスエンドミル<br>FX Coated 4-flute Cermet End Mill with Corner Radius for Bottom Finishing | FX | 6 ～ 20 |
| 436-9 WEB |  | FX-CS-EDS | FXコート2枚刃超硬エンドミルコーナC面付きショート形<br>FX Coated 2-flute Carbide End Mill Short Length with Corner Chamfering | FX | 1 ～ 12 |
| 436-10 WEB |  | MG-CS-EDS | 2枚刃超硬エンドミルコーナC面付きショート形<br>2-flute Carbide End Mill Short Length with Corner Chamfering | | 1 ～ 20 |
| 404 |  | GX-CR-EDS-SF | GXコート2枚刃超硬ラジアスエンドミルショート形(焼きばめ対応)<br>GX Coated 2-flute Carbide End Mill Short Length with Corner Radius (Shrink Fit Type) | GX | 10 ～ 20 |
| 404 |  | CA-MFE-SF | 銅･アルミ合金用3枚刃超硬ラジアスエンドミル立ち壁対応型(焼きばめ対応)<br>3-flute Carbide End Mill with Corner Radius for Deep Side Milling in Copper and Aluminum Alloys (Shrink Fit Type) | | 18 ～ 22 |
| 436-12 WEB |  | DLC-MFE-SF | DLCコート3枚刃超硬ラジアスエンドミル立ち壁対応型(焼きばめ対応)<br>DLC Coated 3-Flute Carbide End Mill with Corner Radius for Deep Side Milling (Shrink Fit Type) | DLC | 18 ～ 22 |
| 435 |  | CM-RMS | セラミックラジアスエンドミル外周刃タイプ<br>Ceramic End Mill with Corner Radius Outer Cutting Edge Type | | 6 ～ 12 |
| 436 |  | CM-CRE | セラミックエンドミル底刃タイプ<br>Ceramic End Mill with Corner Radius Bottom Cutting Edge Type | | 16 ～ 25 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

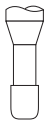
| 被削材質 Work Material | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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◎=Best
○=Good

※1:高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **ロングネック・ペンシルネック** Long Neck・Pencil Neck | | | | | |
| 398 |  | AE-CPR-N | 鋼電極・高能率仕上げ用DLCコート超硬ロングネッククラジアスエンドミル<br>DLC Coated High-efficiency Finishing Long Neck Carbide End Mill with Corner Radius for Copper Electrodes | DLC-IGUSS | 0.2〜6 |
| 406 | | AE-CPR2-H | 高硬度鋼用DUROREYコート2枚刃超硬ロングネッククラジアスエンドミル<br>DUROREY Coated 2-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels | DUROREY | 0.2〜3 |
| 411 |  | AE-CPR4-H | 高硬度鋼用DUROREYコート4枚刃超硬ロングネッククラジアスエンドミル<br>DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels | DUROREY | 0.2〜4 |
| 419 | | WXS-CPR | WXSコート超硬ラジアスエンドミル高精度タイプ<br>WXS Coated High-precision Carbide End Mill with Corner Radius | WXS | 0.2〜6 |
| 427 | | PHX-PC-DFR | WXSコート3枚刃超硬ペンシルネッククラジアスエンドミル<br>WXS Coated 3-flute Pencil Neck Carbide End Mill with Corner Radius | WXS | 2〜12 |
| 430 | | PHX-LN-CRE | WXSコート4枚刃小径超硬ロングネッククラジアスエンドミル<br>WXS Coated 4-flute Long Neck Small Size Carbide End Mill with Corner Radius | WXS | 0.8〜3 |
| 431 | | PHX-LN-DFR | WXSコート3枚刃超硬ロングネッククラジアスエンドミル<br>WXS Coated 3-flute Long Neck Carbide End Mill with Corner Radius | WXS | 2〜16 |
| 433 | | CBN-LN-SXR | 2枚刃小径CBNロングネッククラジアスエンドミル<br>2-flute Long Neck Small Size CBN End Mill with Corner Radius | | 0.5〜3 |
| 436-11 WEB | | FX-LN-CR-EDS-6 | FXコート2枚刃超硬ロングネッククラジアスエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Long Neck Carbide End Mill with Corner Radius (φ6 Shank) | FX | 1〜2.5 |
| 434 | | DG-CPR | グラファイト用DGコート超硬ロングネッククラジアスエンドミル<br>DG Coated Long Neck Carbide End Mills with Corner Radius for Graphite | | 0.5〜12 |
| **荒・中仕上げ用** Roughing・Finishing | | | | | |
| 437 |  | WX-RESF | WXコートファインピッチ超硬ラフィングエンドミルショート形<br>WX Coated Carbide Roughing End Mill Fine Pitch Short Length | WX | 7〜25<br>7H〜20H |
| 438-1 WEB | | SXL-RESF | SXLコートファインピッチ超硬ラフィングエンドミルショート形<br>SXL Coated Carbide Roughing End Mill Fine Pitch Short Length | SXL | 5〜25<br>5H〜20H |
| 438 | | SI-WC-RESF | WXLコートファインピッチ超硬ラフィングエンドミルショート形サイレントタイプ<br>WXL Coated Carbide Roughing End Mill Fine Pitch Short Length and Silent Type | WXL | 5〜20<br>5H〜20H |
| 438-2 WEB | | WX-LS-RESF | WXコートファインピッチ超硬ラフィングエンドミルロングシャンク<br>WX Coated Carbide Roughing End Mill Fine Pitch with Long Shank | WX | 8〜25 |
| 438-3 WEB | | WXL-MG-NC-RESF | NC旋盤用WXLコートファインピッチ超硬ラフィングエンドミル<br>WXL Coated Carbide Roughing End Mill for Lathes | WXL | 3〜20 |
| 438-3 WEB | | WXL-REBM | WXLコート超硬ラフィングボールエンドミル<br>WXL Coated Carbide Roughing Ball End Mill | WXL | R3〜R10 |
| **テーパ** Taper | | | | | |
| 439 |  | FX-MG-TPDS | FXコート2枚刃超硬テーパエンドミルショート形<br>FX Coated 2-flute Carbide Taper End Mill Short Length | FX | 0.2〜12 |
| 443-1 WEB | | MG-TPDS | 2枚刃超硬テーパエンドミルショート形<br>2-flute Carbide Taper End Mill Short Length | | 1〜12 |
| 443-2 WEB | | MG-TPMS | 4枚刃超硬テーパエンドミルショート形<br>4-flute Carbide Taper End Mill Short Length | | 2〜12 |
| 443-3 WEB | | FX-MG-TRC | 台形ランナ用FXコート2枚刃超硬テーパエンドミル<br>FX Coated 2-flute Carbide Taper End Mill for Trapezoidal Runner | FX | 2〜6 |
| 443 | | MG-TRC | 台形ランナ用2枚刃超硬テーパエンドミル<br>2-flute Carbide Taper End Mill for Trapezoidal Runner | | 2〜6 |
| 443-4 WEB | | FXS-RB-TPE | FXコート多刃超硬テーパエンドミル（深リブ形）<br>FX Coated Multi-flute Carbide Taper End Mill for Rib Processing | FX | 0.4〜3 |
| 443-9 WEB | | RB-MG-TPE | 2枚刃超硬テーパエンドミル（深リブ形）<br>2-flute Carbide Taper End Mill for Rib Processing | | 0.5〜2 |
| 443-12 WEB | | DLC-RB-TPE | 非鉄用DLCコート2枚刃超硬テーパエンドミル(深リブ形)<br>DLC Coated 2-flute Carbide Taper End Mill for Non-ferrous Materials and Rib Processing | DLC | 0.5〜2 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

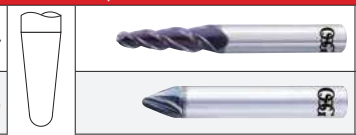
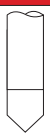
| 被削材質 Work Material | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | コバルトの含有 Cobalt |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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| ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | | | ○ |
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◎=Best
○=Good

※1:高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※1:Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content(over 13%)castings,Die-casting.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **テーパボール** Taper Ball End | | | | | |
| 444 |  | IB-TPBT | インペラ・タービンブレード用コーティング3枚刃超硬テーパボールエンドミル<br>Coated 3-flute Carbide Taper Ball End Mill for Impellers and Turbine Blades | WXL FX DUROREY | R0.5 ～ R3 |
| 445 |  | VU-TBR | 仕上げ用WXLコート超硬エンドミルテーパバレル型<br>WXL Coated Taper Barrel Type End Mill for Finishing | WXL | R0.5 ～ R3 |
| 445-1 WEB |  | FXS-RB-TPB | FXコート多刃超硬テーパボールエンドミル（深リブ形）<br>FX Coated Multi-flute Taper Ball End Mill for Rib Processing | FX | R0.3 ～ R1.25 |
| 445-4 WEB |  | TIN-MG-TPBDS | TiNコート2枚刃超硬テーパボールエンドミルショート形<br>TiN Coated 2-flute Carbide Taper Ball End Mill Short Length | TiN | R1 ～ R6 |
| 445-5 WEB |  | TIN-MG-TPBDR | TiNコート2枚刃超硬テーパボールエンドミルレギュラ形<br>TiN Coated 2-flute Carbide Taper Ball End Mill Regular Length | TiN | R1 ～ R6 |
| 445-6 WEB |  | MG-TPBDS | 2枚刃超硬テーパボールエンドミルショート形<br>2-flute Carbide Taper Ball End Mill Short Length | | R0.5 ～ R6 |
| **テーパコーナR** Taper Corner Radius | | | | | |
| 445-7 WEB |  | FXS-RB-TPCR | FXコート多刃超硬テーパラジアスエンドミル（深リブ形）<br>FX Coated Multi-flute Carbide Taper End Mill with Corner Radius for Rib Processing | FX | 1 ～ 2.5 |
| **座ぐり** Counterboring | | | | | |
| 446 |  | FX-ZDS | 座ぐり用FXコート2枚刃超硬エンドミルショート形<br>FX Coated 2-flute Carbide End Mill Short Length for Counterboring | FX | 0.5 ～ 20 |
| 450 |  | FX-LS-ZDS | 座ぐり用FXコート2枚刃超硬エンドミルロングシャンクショート形<br>FX Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring | FX | 3 ～ 20 |
| 452 |  | FX-ZDN | 座ぐり用FXコート2枚刃超硬エンドミルミディアム形<br>FX Coated 2-flute Carbide End Mill Medium Length for Counterboring | FX | 3 ～ 20 |
| 454 |  | DIA-ZDS | 座ぐり用DIAコート2枚刃超硬エンドミルショート形<br>Diamond Coated 2-flute Carbide End Mill Short Length for Counterboring | DIA | 0.5 ～ 12 |
| 455 |  | CA-ZDS | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルショート形<br>2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys for Counterboring | | 0.5 ～ 20 |
| 457 |  | CA-LS-ZDS | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルロングシャンクショート形<br>2-flute Carbide End Mill Short Length with Long Shank for Copper and Aluminum Alloys for Counterboring | | 3 ～ 20 |
| 458-1 WEB |  | DLC-ZDS | 座ぐり用DLCコート2枚刃超硬エンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length for Counterboring | DLC | 0.45 ～ 20 |
| 458-3 WEB |  | DLC-LS-ZDS | 座ぐり用DLCコート2枚刃超硬エンドミルロングシャンクショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring | DLC | 3 ～ 20 |
| 458-5 WEB |  | DLC-CR-ZDS | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring | DLC | 2 ～ 20 |
| 458-6 WEB |  | DLC-CR-LS-ZDS | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルロングシャンクショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius and Long Shank for Counterboring | DLC | 3 ～ 20 |
| 458-7 WEB |  | SXL-CR-ZDS | 座ぐり用SXLコート2枚刃超硬ラジアスエンドミルショート形<br>SXL Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring | SXL | 2 ～ 20 |
| **面取り** Chamfering | | | | | |
| 459 |  | W-HSCT-P | 面取り用WXLコート3枚刃超硬エンドミルポジタイプ<br>WXL Coated 3-flute Carbide End Mill for Chamfering (Positive) | WXL | 1 ～ 2 |
| 459 |  | WLS-HSCT-P | 面取り用WXLコート3枚刃超硬エンドミルロングシャンクポジタイプ<br>WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Positive) | WXL | 1 ～ 2 |
| 460 |  | W-HSCT-N | 面取り用WXLコート3枚刃超硬エンドミルネガタイプ<br>WXL Coated 3-flute Carbide End Mill for Chamfering (Negative) | WXL | 1 ～ 2 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

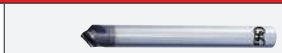
| | 被削材質 Work Material | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～35HRC | ～350HB | | | | | | | | |
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| | ◎ | | ◎ | ○ | ○ | ○ | ◎ | ○ | | | ○ | | | | ○ |
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| | ○ | | | | | ◎ | | | ◎ | | ◎ | ◎ | | | ○ |
| | ○ | | | | | ◎ | | | ◎ | | ◎ | ◎ | | | ○ |
| | ◎ | | ○ | | | ○ | ○ | | ○ | | ○ | ○ | | | ○ |

◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **面取り Chamfering** | | | | | |
| 460 |  | WLS-HSCT-N | 面取り用WXLコート3枚刃超硬エンドミルロングシャンクネガタイプ<br>WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Negative) | WXL | 1 ～ 2 |
| 461 |  | HSCT-P | 面取り用3枚刃超硬エンドミルポジタイプ<br>3-flute Carbide End Mill for Chamfering (Positive) | | 1 ～ 2 |
| 461 |  | HSCT-N | 面取り用3枚刃超硬エンドミルネガタイプ<br>3-flute Carbide End Mill for Chamfering (Negative) | | 1 ～ 2 |
| 462 |  | LS-HSCT-P | 面取り用3枚刃超硬エンドミルロングシャンクポジタイプ<br>3-flute Carbide End Mill with Long Shank for Chamfering (Positive) | | 1 ～ 2 |
| 462 |  | LS-HSCT-N | 面取り用3枚刃超硬エンドミルロングシャンクネガタイプ<br>3-flute Carbide End Mill with Long Shank for Chamfering (Negative) | | 1 ～ 2 |
| 463 |  | HY-HSCM-P | 面取り用WXLコート多刃超硬エンドミルポジタイプ<br>WXL Coated Multi-flute Carbide End Mill for Chamfering (Positive) | WXL | 2 ～ 3 |
| 464 |  | FX-SCC | 面取り用FXコート2枚刃超硬エンドミル<br>FX Coated 2-flute Carbide End Mill for Chamfering | FX | 0.8 ～ 1 |
| 464 |  | FX-LS-SCC | 面取り用FXコート2枚刃超硬エンドミルロングシャンク<br>FX Coated 2-flute Carbide End Mill with Long Shank for Chamfering | FX | 0.8 ～ 1 |
| 465 |  | DIA-VCM | 面取り用DIAコート2枚刃超硬エンドミルVカット<br>Diamond Coated 2-flute Carbide End Mill V Cut Type | DIA | 1 ～ 12 |
| 465 |  | FX-MG-VCM | 面取り用FXコート2枚刃超硬エンドミルVカット<br>FX Coated 2-flute Carbide End Mill V Cut Type | FX | 1 ～ 20 |
| 465-1 WEB |  | DLC-VCMP | 面取り用DLCコート2枚刃超硬エンドミルVカット<br>DLC Coated 2-flute Carbide End Mill V Cut Type | DLC | 3 ～ 20 |
| 465-2 WEB |  | WXL-MG-VCMR | 面取り用WXLコート2枚刃超硬エンドミルVカット<br>WXL Coated 2-flute Carbide End Mill V Cut Type | WXL | 3 ～ 12 |
| 465-4 WEB |  | DUR-MG-VCM | 面取り用DUROREYコート2枚刃超硬エンドミルVカット<br>DUROREY Coated 2-flute Carbide End Mill V Cut Type | DUROREY | 1 ～ 16 |
| 465-5 WEB |  | DUR-ECR | DUROREYコート2枚刃超硬コーナラウンディング<br>DUROREY Coated 2-flute Carbide End Mill with Corner Rounding | DUROREY | 0.5 ～ 1.5 |
| 465-5 WEB |  | SXL-ECR | SXLコート2枚刃超硬コーナラウンディング<br>SXL Coated 2-flute Carbide End Mill with Corner Rounding | SXL | 0.5 ～ 0.8 |
| 465-6 WEB |  | DIA-ECR | DIAコート2枚刃超硬コーナラウンディング<br>Diamond Coated 2-flute Carbide End Mill with Corner Rounding | DIA | 0.5 ～ 1.5 |
| 466 |  | FX-ECR | FXコート2枚刃超硬コーナラウンディング<br>FX Coated 2-flute Carbide End Mill with Corner Rounding | FX | 0.5 ～ 1.5 |
| 466 |  | CA-SCC | 銅・アルミ合金面取り用2枚刃超硬エンドミル<br>2-flute Carbide End Mill for Chamfering Copper and Aluminum Alloys | | 0.8 ～ 1 |
| 467 |  | CA-LS-SCC | 銅・アルミ合金面取り用2枚刃超硬エンドミルロングシャンク<br>2-flute Carbide End Mill with Long Shank for Chamfering Copper and Aluminum Alloys | | 0.8 ～ 1 |
| 468 |  | FX-MG-CS×60 | FXコート3枚刃カウンターシンク<br>FX Coated 3-flute Countersink | FX | 6.3 ～ 25 |
| 469 |  | FX-MG-CS×90 | FXコート3枚刃カウンターシンク<br>FX Coated 3-flute Countersink | FX | 6.3 ～ 25 |
| 470 |  | HY-QCC | 面取り用WXLコート超硬Qボールエンドミル<br>WXL Coated Carbide Q Ball End Mill for Chamfering | WXL | R1.4 ～ R3.9 |
| 471 |  | HY-BCC | 裏面取り用WXLコート超硬エンドミル<br>WXL Coated Carbide End Mill for Back Chamfering | WXL | 3.9 ～ 7.9 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

| 被削材質 Work Material | | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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| ○ | | | | | | ◎ | | | ◎ | | ◎ | ◎ | | | ○ |
| ◎ | | ○ | | | | ○ | | | ○ | | ○ | ○ | | | ○ |
| ○ | | | | | | ◎ | | | ◎ | | ◎ | ◎ | | | ○ |
| ◎ | | ○ | | | | ○ | | | ○ | | ○ | ○ | | | ○ |
| ○ | | | | | | ◎ | | | ◎ | | ◎ | ◎ | | | ○ |
| ◎ | | ○ | | | | | | | | | | | | | ○ |
| ◎ | | ○ | | | | | | | | | | | | | ○ |
| | | | | | | | | ◎ | ◎ | | | | ○ | ○ | ○ |
| | | ◎ | ○ | ○ | | | ○ | ◎ | ○ | ○ | | ○ | ○ | | ○ |
| | | | | | | | | ◎ | ◎ | | | | | | ○ |
| ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | | | | | ○ |
| ○ | | ◎ | ◎ | ◎ | ◎ | | ◎ | | | | | | | | ○ |
| ○ | | ○ | ◎ | ◎ | ◎ | ○ | ○ | | | | ○ | ○ | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
| | | | | | | | | | ◎ | ◎ | | | | | ○ |
| ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | | | ○ |
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| ◎ | | ○ | | | | | ○ | ◎ | ○ | ○ | | ○ | ○ | | ○ |
| ◎ | | ○ | | | | | ○ | ◎ | ○ | ○ | | ○ | ○ | | ○ |
| ◎ | | ○ | | | | ○ | ○ | | ○ | | ○ | ○ | | | ○ |
| ◎ | | ○ | | | | ○ | ○ | | ○ | | ○ | ○ | | | ○ |

◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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# 形状別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

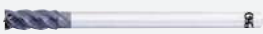
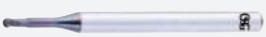
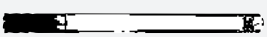
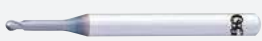
| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **CFRP用ルーターシリーズ** Router for CFRP Series | | | | | |
| 472 |  | DIA-BNC | DIAコート超硬ルーターファインクロスニック<br>Diamond Coated Fine Nicked Carbide Router | DIA | 3.175 ～ 12.7 |
| 472 |  | DIA-HBC4 | DIAコート4枚刃超硬ヘリングボーンカッタ<br>Diamond Coated Carbide Router for CFRP Herringbone Type | DIA | 3.175 ～ 12.7 |
| 473 |  | DIA-HBC60 | DIAコート超硬ヘリングボーンカッタ60°<br>Diamond Coated Carbide Router Herringbone Type (60°) | DIA | 6 ～ 10 |
| 473 |  | DIA-CNC | DIAコート超硬ルーター高能率コースクロスニック<br>Diamond Coated Coarse Nicked Carbide Router | DIA | 3.175 ～ 12.7 |
| 474 |  | DIA-DCR | DIAコート超硬綾目ルーター底刃有り<br>Diamond Coated Diamond Cut Carbide Router with End Mill Cut | DIA | 3.175 ～ 12.7 |
| 474 |  | DIA-DCR-N | DIAコート超硬綾目ルーター底刃無し<br>Diamond Coated Diamond Cut Carbide Router with No End Cut | DIA | 3.175 ～ 12.7 |
| 475 |  | DIA-DCE | DIAコート超硬綾目ルーター底刃有り<br>Diamond Coated Diamond Cut Carbide Router with End Mill Cut | DIA | 2 ～ 12 |
| 475 |  | DIA-DCE-N | DIAコート超硬綾目ルーター底刃無し<br>Diamond Coated Diamond Cut Carbide Router with No End Cut | DIA | 2 ～ 12 |
| 476 |  | DIA-DCE-D | DIAコート超硬綾目ルーター底刃ドリル仕様<br>Diamond Coated Diamond Cut Carbide Router with Drill Point | DIA | 2 ～ 12 |
| 476 |  | DIA-REC | 荒用DIAコート超硬ルーターラフィングタイプ<br>Diamond Coated Carbide Router for Roughing | DIA | 3.175 ～ 12.7 |
| 477 |  | DIA-MRC | DIAコート超硬ルーター底刃コーナR付<br>Diamond Coated Carbide Router with Corner Radius | DIA | 3.175 ～ 12.7 |
| 478 |  | DIA-COE | DIAコート1枚刃超硬ルーター弱ねじれ<br>Diamond Coated Single-flute Low Helix Carbide Router | DIA | 2 ～ 12 |
| 478 |  | DIA-MFC | 仕上げ用DIAコート多刃超硬ルーター<br>Diamond Coated Multi-flute Carbide Router for Finishing | DIA | 3.175 ～ 12.7 |
| 479 |  | DIA-TRE | 薄板トリミング用DIAコート超硬綾目ルーター底刃無し<br>Diamond Coated Diamond Cut Carbide Router with No End Cut for Trimming Laminates | DIA | 1.5 ～ 3 |
| 479 |  | DIA-TRE-D | 薄板トリミング用DIAコート超硬綾目ルーター底刃ドリル仕様<br>Diamond Coated Diamond Cut Carbide Router with Drill Point for Trimming Laminates | DIA | 1.5 ～ 3 |
| 480 |  | DCE | 超硬綾目ルーター（メートル）<br>Diamond Cut Carbide Router | | 6 ～ 12 |
| 480 |  | DCR | 超硬綾目ルーター（インチ）<br>Diamond Cut Carbide Router | | 3.175 ～ 9.525 |
| 481 |  | HBC60 | 超硬ヘリングボーンカッタ60°<br>Carbide Router Herringbone Type (60°) | | 6 ～ 12 |
| 481 |  | ED-EM | 電着ダイヤモンドルーター<br>Electroplated Diamond Router for CFRP | DIA | 3.175 ～ 12.7 |
| 482 |  | ED-EB | 電着ダイヤモンドボールエンドミル<br>Electroplated Diamond Ball End | DIA | R0.5 ～ R5 |

# INDEX OF CARBIDE END MILLS 形状別 超硬エンドミル 目次

| 被削材質 Work Material | | | | | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP | |
| プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | |
| ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
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※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# シリーズ別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

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|---|---|---|---|---|---|---|
| **Aエンドミルシリーズ A End Mill Series** | | | | | | |
| 296・318 |  | AE-VMSS | DUARISEコート超硬防振型エンドミルスタブ形 DUARISE Coated Anti-Vibration Carbide End Mill Stub Length | DUARISE | 1〜12 | ○ |
| 300・370 |  | AE-VMS | DUARISEコート超硬防振型エンドミルショート形 DUARISE Coated Anti-Vibration Carbide End Mill Short Length | DUARISE | 3〜25 | ○ |
| 305・371 |  | AE-VML | DUARISEコート超硬防振型エンドミルロング形 DUARISE Coated Anti-Vibration Carbide End Mill Long Length | DUARISE | 6〜20 | ○ |
| 305 |  | AE-VML | DUARISEコート超硬防振型エンドミルロング形 DUARISE Coated Anti-Vibration Carbide End Mill Long Length | DUARISE | 6〜20 | ○ |
| 288・393 |  | AE-VMFE | DUARISEコート超硬防振型エンドミル立ち壁対応型 DUARISE Coated Anti-Vibration Carbide End Mill for Deep Side Milling | DUARISE | 6〜22 | ○ |
| 309 |  | AE-VTSS | DUARISEコート超硬防振型エンドミル自動旋盤対応型 DUARISE Coated Anti-Vibration Carbide Stub End Mill Compatible with Sliding Head Lathes | DUARISE | 3〜12 | ○ |
| 278・395 |  | AE-TS-N | 非鉄用DLCコート3枚刃超硬エンドミルショート形 DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials | DLC | 1〜25 | ○ |
| 280・396 |  | AE-VTS-N | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプショート形 DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials | DLC-IGUSS | 1〜12 | ○ |
| 284 |  | AE-TL-N | 非鉄用DLCコート3枚刃超硬エンドミルロング形 DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials | DLC | 3〜25 | ○ |
| 311・397 |  | AE-VTFE-N | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプ立ち壁対応型 DLC Coated 3-flute High Performance Carbide End Mill for Deep Side Milling in Non-ferrous Materials | DLC-IGUSS | 6〜22 | ○ |
| 357 |  | AE-LNBD-N | 銅電極・高精度仕上げ用DLCコート2枚刃超硬ロングネックボールエンドミル DLC Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for Copper Electrodes | DLC-IGUSS | R0.05〜R3 | ○ |
| 398 |  | AE-CPR-N | 銅電極・高能率仕上げ用DLCコート超硬ロングネックラジアスエンドミル DLC Coated High-efficiency Finishing Long Neck Carbide End Mill with Corner Radius for Copper Electrodes | DLC-IGUSS | 0.2〜6 | ○ |
| 289 |  | AE-MSS-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルスタブ形 DUROREY Coated Multi-flute Carbide End Mill Stub Length for High-hardness Steels | DUROREY | 3〜12 | ○ |
| 290・405 |  | AE-MS-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルショート形 DUROREY Coated Multi-flute Carbide End Mill Short Length for High-hardness Steels | DUROREY | 1〜20 | ○ |
| 307 |  | AE-ML-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルロング形 DUROREY Coated Multi-flute Carbide End Mill Long Length for High-hardness Steels | DUROREY | 3〜20 | ○ |
| 383 |  | AE-CRE-H | 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高能率型 DUROREY Coated Multi-flute High Efficiency Carbide End Mill with Corner Radius for High-hardness Steels | DUROREY | 1〜13 | ○ |
| 384 |  | AE-HFE-H | 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高送り型 DUROREY Coated Multi-flute High Feed Carbide End Mill with Corner Radius for High-hardness Steels | DUROREY | 1〜12 | ○ |
| 324 |  | AE-BD-H | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ボールエンドミル DUROREY Coated 2-flute High-precision Finishing Carbide Ball End Mill for High-hardness Steels | DUROREY | R0.5〜R6 | ○ |
| 348 |  | AE-LNBD-H | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ロングネックボールエンドミル DUROREY Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for High-hardness Steels | DUROREY | R0.05〜R3 | ○ |
| 337 |  | AE-BM-H | 高硬度鋼用DUROREYコート4枚刃超硬ボールエンドミル高能率型 DUROREY Coated 4-flute High-efficiency Carbide Ball End Mill for High-hardness Steels | DUROREY | R1〜R6 | ○ |
| 406 |  | AE-CPR2-H | 高硬度鋼用DUROREYコート2枚刃超硬ロングネックラジアスエンドミル DUROREY Coated 2-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels | DUROREY | 3〜12 | ○ |
| 411 |  | AE-CPR4-H | 高硬度鋼用DUROREYコート4枚刃超硬ロングネックラジアスエンドミル DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels | DUROREY | 0.2〜6 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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|---|---|---|---|---|---|---|
| **フェニックスエンドミルシリーズ** Phoenix End Mill Series | | | 金型加工での高切込み高送りによる高能率加工を実現するシリーズです。深彫り加工での高能率加工を実現するペンシルネックシリーズも揃えています。 | | | |
| 354 |  | PHX-LN-DBT | WXSコート3枚刃超硬ロングネックボールエンドミル<br>WXS Coated 3-flute Long Neck Carbide Ball End Mill | WXS | R0.3〜R3 | ○ |
| 430 |  | PHX-LN-CRE | WXSコート4枚刃小径超硬ロングネックラジアスエンドミル<br>WXS Coated 4-flute Long Neck Small Size Carbide End Mill with Corner Radius | WXS | 0.8〜3 | ○ |
| 387 |  | PHX-DFR | WXSコート3枚刃超硬ラジアスエンドミル<br>WXS Coated 3-flute Carbide End Mill with Corner Radius | WXS | 6〜20 | ○ |
| 427 |  | PHX-PC-DFR | WXSコート3枚刃超硬ペンシルネックラジアスエンドミル<br>WXS Coated 3-flute Pencil Neck Carbide End Mill with Corner Radius | WXS | 2〜12 | ○ |
| 431 |  | PHX-LN-DFR | WXSコート3枚刃超硬ロングネックラジアスエンドミル<br>WXS Coated 3-flute Long Neck Carbide End Mill with Corner Radius | WXS | 2〜16 | ○ |
| 388 |  | PHX-CRT | FXコート3枚刃超硬ラジアスエンドミル<br>FX Coated 3-flute Carbide End Mill with Corner Radius | FX | 1〜20 | ○ |
| 335 |  | PHX-DBT | FXコート3枚刃超硬ボールエンドミル<br>FX Coated 3-flute Carbide Ball End Mill | FX | R0.5〜R10 | ○ |
| 365 |  | PHX-PC-DBT | WXSコート3枚刃超硬ペンシルネックボールエンドミル<br>WXS Coated 3-flute Pencil Neck Carbide Ball End Mill | WXS | R0.5〜R6 | ○ |
| **WX21超硬エンドミルシリーズ** Ultra WX Coated Micro Grain Carbide Series | | | 各種金型、部品加工における高精度精密化、高速化など時代の最先端ニーズに応えるコーティング超硬シリーズです。幅広い品種、サイズを展開しており一般鋼をはじめ合金鋼、焼入れ鋼、さらには銅合金など広範囲な被削材や用途に応じて最適工具をお選びいただけます。 | | | |
| 259 |  | WXL-1.5D-DE | WXLコート2枚刃超硬スクエアエンドミル1.5D刃長<br>WXL Coated 2-flute Carbide End Mill (1.5D Type) | WXL | 0.1〜12 | ○ |
| 260 |  | WXL-2D-DE | WXLコート2枚刃超硬スクエアエンドミル2D刃長<br>WXL Coated 2-flute Carbide End Mill (2D Type) | WXL | 0.1〜30 | ○ |
| 263 |  | WXL-3D-DE | WXLコート2枚刃超硬スクエアエンドミル3D刃長<br>WXL Coated 2-flute Carbide End Mill (3D Type) | WXL | 0.1〜20 | ○ |
| 264 |  | WXL-4D-DE | WXLコート2枚刃超硬スクエアエンドミル4D刃長<br>WXL Coated 2-flute Carbide End Mill (4D Type) | WXL | 0.2〜12 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

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| **WX21超硬エンドミルシリーズ** Ultra WX Coated Micro Grain Carbide Series | | | 各種金型、部品加工における高精度精密化、高速化など時代の最先端ニーズに応えるコーティング超硬シリーズです。幅広い品種、サイズを展開しており一般鋼をはじめ合金鋼、焼入れ鋼、さらには銅合金など広範囲な被削材や用途に応じて最適工具をお選びいただけます。 | | | |
| 287 |  | WXL-EMS | WXLコート4枚刃超硬スクエアエンドミルショート形<br>WXL Coated 4-flute Carbide End Mill Short Length | WXL | 1〜30 | ○ |
| 312 |  | WXL-LN-EDS | WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形(深リブ形)<br>WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing | WXL | 0.1〜12 | ○ |
| 319 |  | WXL-LN-EMS | WXLコート4枚刃超硬ロングネックスクエアエンドミルショート形(深リブ形)<br>WXL Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing | WXL | 1〜10 | ○ |
| 322 |  | WXL-EBD | WXLコート2枚刃超硬ボールエンドミル<br>WXL Coated 2-flute Carbide Ball End Mill | WXL | R0.05〜R10 | ○ |
| 323 |  | WXL-HS-EBD | WXLコート2枚刃超硬ボールエンドミル(HSK対応)<br>WXL Coated 2-flute Carbide Ball End Mill with HS Shank | WXL | R0.1〜R6 | ○ |
| 341 |  | WXL-LN-EBD | WXLコート2枚刃超硬ロングネックボールエンドミル(深リブ形)<br>WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing | WXL | R0.05〜R3 | ○ |
| 359-1 WEB |  | WXL-LN-EBD-3 | WXLコート2枚刃超硬ロングネックボールエンドミル(深リブ形、ミニチュア)<br>WXL Coated 2-flute Long Neck Miniature Carbide Ball End Mill for Rib Processing (φ3 Shank) | WXL | R0.2〜R1.25 | ○ |
| 360 |  | WXL-PC-EBD | WXLコート2枚刃超硬ペンシルネックボールエンドミル<br>WXL Coated 2-flute Pencil Neck Carbide Ball End Mill | WXL | R0.1〜R6 | ○ |
| 291 |  | WXS-EMS | WXSコート多刃超硬スクエアエンドミルショート形<br>WXS Coated Multi-flute Carbide End Mill Short Length | WXS | 18〜30 | ○ |
| 311-31 WEB |  | DUR-SMF | DUROREYコート超多刃超硬エンドミルショート形<br>DUROREY Coated Super Multi-flute Carbide End Mill Short Length | DUROREY | 6〜20 | ○ |
| 325 |  | WXS-EBD | WXSコート2枚刃超硬ボールエンドミル<br>WXS Coated 2-flute Carbide Ball End Mill | WXS | R6〜R12.5 | ○ |
| 419 |  | WXS-CPR | WXSコート超硬ラジアスエンドミル高精度タイプ<br>WXS Coated High-precision Carbide End Mill with Corner Radius | WXS | 0.2〜4 | ○ |
| 465-5 WEB |  | DUR-ECR | DUROREYコート2枚刃超硬コーナラウンディング<br>DUROREY Coated 2-flute Carbide End Mill with Corner Rounding | DUROREY | 0.5〜1.5 | ○ |
| 265 |  | WX-G-EDSS | WXコート2枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 2-flute Carbide End Mill Stub Length | WX | 1〜12 | ○ |
| 288 |  | WX-G-EMSS | WXコート4枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 4-flute Carbide End Mill Stub Length | WX | 3〜12 | ○ |
| 321-1 WEB |  | WX-LN-EDS | WXコート2枚刃超硬ロングネックスクエアエンドミルショート形(深リブ形)<br>WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing | WX | 0.1〜6 | ○ |
| 321-11 WEB |  | WX-LN-EMS | WXコート4枚刃超硬ロングネックスクエアエンドミルショート形(深リブ形)<br>WX Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing | WX | 1〜10 | ○ |
| 359-2 WEB |  | WX-LN-EBD | WXコート2枚刃超硬ロングネックボールエンドミル(深リブ形)<br>WX Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing | WX | R0.1〜R3 | ○ |

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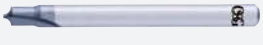
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| **WX21超硬エンドミルシリーズ** Ultra WX Coated Micro Grain Carbide Series | | | 各種金型、部品加工における高精度精密化、高速化など時代の最先端ニーズに応えるコーティング超硬シリーズです。幅広い品種、サイズを展開しており一般鋼をはじめ合金鋼、焼入れ鋼、さらには銅合金など広範囲な被削材や用途に応じて最適工具をお選びいただけます。 | | | | |
| 299 |  | WX-PHSS | WXコート4枚刃超硬スクエアエンドミルスタブ形強力重切削型<br>WX Coated 4-flute Carbide End Mill Stub Length (Heavy-duty Operation Type) | WX | 2.1〜20 | | ○ |
| 304 |  | WX-PHN | WXコート4枚刃超硬スクエアエンドミルミディアム形<br>WX Coated 4-flute Carbide End Mill Medium Length | WX | 3〜5 | | ○ |
| 306 |  | WX-PHL | WXコート4枚刃超硬スクエアエンドミルロング形<br>WX Coated 4-flute Carbide End Mill Long Length | WX | 3〜5 | | ○ |
| 308 |  | WX-SHTSS | スロッティング用WXコート3枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 3-flute Carbide End Mill Stub Length for Slotting | WX | 3〜12 | | ○ |
| 387 |  | WX-CRE | WXコート超硬ラジアスエンドミル<br>WX Coated Carbide End Mill with Corner Radius | WX | 2〜13 | | ○ |
| 437 |  | WX-RESF | WXコートファインピッチ超硬ラフィングエンドミルショート形<br>WX Coated Carbide Roughing End Mill Fine Pitch Short Length | WX | 7〜25 | 7H〜20H | ○ |
| 438 |  | SI-WC-RESF | WXLコートファインピッチ超硬ラフィングエンドミルショート形サイレントタイプ<br>WXL Coated Carbide Roughing End Mill Fine Pitch Short Length and Silent Type | WXL | 5〜20 | 5H〜20H | ○ |
| 438-2 WEB |  | WX-LS-RESF | WXコートファインピッチ超硬ラフィングエンドミルロングシャンク<br>WX Coated Carbide Roughing End Mill Fine Pitch with Long Shank | WX | 8〜25 | | ○ |
| 438-3 WEB |  | WXL-MG-NC-RESF | NC旋盤用WXLコートファインピッチ超硬ラフィングエンドミル<br>WXL Coated Carbide Roughing End Mill for Lathes | WXL | 3〜20 | | ○ |
| 438-3 WEB |  | WXL-REBM | WXLコート超硬ラフィングボールエンドミル<br>WXL Coated Carbide Roughing Ball End Mill | WXL | R3〜R10 | | ○ |
| 465-2 WEB |  | WXL-MG-VCMR | 面取り用WXLコート2枚刃超硬エンドミルVカット<br>WXL Coated 2-flute Carbide End Mill V Cut Type | WXL | 3〜12 | | ○ |
| 465-4 WEB |  | DUR-MG-VCM | 面取り用DUROREYコート2枚刃超硬エンドミルVカット<br>DUROREY Coated 2-flute Carbide End Mill V Cut Type | DUROREY | 1〜16 | | ○ |

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| **SXLコーティングシリーズ** SXL Coated Series | 潤滑性、耐摩耗性、高温耐酸化性に優れ、複合多層構造がサーマルクラックを抑制するSXLコーティングが施したエンドミルシリーズです。一般鋼をはじめ合金鋼、焼入れ鋼など広範囲な被削材に対応します。 | | | | | |
| 311-40 WEB |  | SXL-MG-EHS | SXLコート超硬スクエアエンドミルハイヘリックスショート形 SXL Coated High Helix Carbide End Mill Short Length | SXL | 3〜25 | ○ |
| 311-41 WEB |  | SXL-MG-EHL | SXLコート超硬スクエアエンドミルハイヘリックスロング形 SXL Coated High Helix Carbide End Mill Long Length | SXL | 6〜12 | ○ |
| 436-7 WEB |  | SXL-CR-MG-EHS | SXLコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形 SXL Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | SXL | 6〜25 | ○ |
| 340-2 WEB |  | SXLE-EBD | SXLコート超硬エキストラボールエンドミル SXL Coated Carbide Ball End Mill (Super High Precision) | SXL | R3〜R6 | ○ |
| 436-12 WEB |  | SXL-PKE | SXLコート4枚刃超硬ラジアスエンドミル多機能強力型 SXL Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | SXL | 3〜20 | ○ |
| 458-7 WEB |  | SXL-CR-ZDS | 座ぐり用SXLコート2枚刃超硬ラジアスエンドミルショート形 SXL Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring | SXL | 2〜20 | ○ |
| 465-5 WEB |  | SXL-ECR | SXLコート2枚刃超硬コーナラウンディング SXL Coated 2-flute Carbide End Mill with Corner Rounding | SXL | 0.5〜0.8 | ○ |
| 438-1 WEB |  | SXL-RESF | SXLコートファインピッチ超硬ラフィングエンドミルショート形 SXL Coated Carbide Roughing End Mill Fine Pitch Short Length | SXL | 5〜25 / 5H〜20H | ○ |
| **NEOシリーズ** Neo Series | ビビリ振動を抑制させる不等リードと、難削材・重切削にも負けない最適溝形状により、安定した高能率加工を実現します。 | | | | | |
| 291 |  | NEO-EMS | FXコート6枚刃超硬スクエアエンドミルショート形不等リード FX Coated 6-flute Variable Lead Carbide End Mill Short Length | FX | 6〜25 | ○ |
| 303 |  | NEO-PHS | FXコート4枚刃超硬スクエアエンドミルショート形強力重切削型不等リード FX Coated 4-flute Variable Lead Carbide End Mill Short Length (Heavy-duty Operation Type) | FX | 3〜25 | ○ |
| 382 |  | NEO-CR-EMS | FXコート6枚刃超硬ラジアスエンドミルショート形不等リード FX Coated 6-flute Variable Lead Carbide End Mill Short Length with Corner Radius | FX | 6〜25 | ○ |
| 389 |  | NEO-CR-PHS | FXコート4枚刃超硬ラジアスエンドミルショート形強力重切削型不等リード FX Coated 4-flute Variable Lead Carbide End Mill Short Length with Corner Radius (Heavy-duty Operation Type) | FX | 3〜25 | ○ |
| **超硬ウルトラFXシリーズ** Ultra FX Coated Micro Grain Carbide Series | 豊富な品揃えで荒加工から仕上げ加工はもちろん、テーパエンドミルや面取り工具さらには穴加工専用工具も揃えており、一般鋼から耐熱合金まで幅広い被削材はもちろん様々な加工形状にも対応するコーティング超硬シリーズです。 | | | | | |
| 311-4 WEB |  | FX-MG-EDSS | FXコート2枚刃超硬スクエアエンドミルスタブ形 FX Coated 2-flute Carbide End Mill Stub Length | FX | 3〜16 | ○ |
| 311-7 WEB |  | FX-NC-EDSS | NC旋盤用FXコート2枚刃超硬スクエアエンドミルスタブ形 FX Coated 2-flute Carbide End Mill Stub Length for Lathes | FX | 3〜12 | ○ |
| 311-1 WEB |  | FX-MG-EDS | FXコート2枚刃超硬スクエアエンドミルショート形 FX Coated 2-flute Carbide End Mill Short Length | FX | 0.2〜30 | ○ |
| 311-4 WEB |  | FX-MG-EDS OH1 | FXコート2枚刃超硬スクエアエンドミルショート形(OH1) FX Coated 2-flute Carbide End Mill Short Length(Cutting diameter plus tolerance) | FX | 3〜12 | ○ |
| 450 |  | FX-LS-ZDS | 座ぐり用FXコート2枚刃超硬エンドミルロングシャンクショート形 FX Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring | FX | 3〜20 | ○ |
| 311-15 WEB |  | FX-MG-EDN | FXコート2枚刃超硬スクエアエンドミルミディアム形 FX Coated 2-flute Carbide End Mill Medium Length | FX | 1〜25 | ○ |

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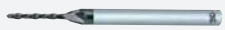
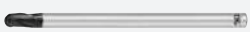
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| **超硬ウルトラFXシリーズ** Ultra FX Coated Micro Grain Carbide Series | | | 豊富な品揃えで荒加工から仕上げ加工はもちろん、テーパエンドミルや面取り工具さらには穴加工専用工具も揃えており、一般鋼から耐熱合金まで幅広い被削材はもちろん様々な加工形状にも対応するコーティング超硬シリーズです。 | | | |
| 274 |  | FX-MG-EDL | FXコート2枚刃超硬スクエアエンドミルロング形<br>FX Coated 2-flute Carbide End Mill Long Length | FX | 6.5～30 | ○ |
| 311-19 WEB |  | FX-MG-EDL-3 | FXコート2枚刃超硬スクエアエンドミルロング形(ミニチュア)<br>FX Coated 2-flute Miniature Carbide End Mill Long Length (φ3 Shank) | FX | 0.2～3 | ○ |
| 311-19 WEB |  | FX-MG-EDLL-3 | FXコート2枚刃超硬スクエアエンドミルエキストラロング形 (ミニチュア)<br>FX Coated 2-flute Miniature Carbide End Mill Extra Long Length (φ3 Shank) | FX | 0.2～3 | ○ |
| 275 |  | FX-MG-EXDL | FXコート2枚刃超硬スクエアエンドミルエキストラロング形<br>FX Coated 2-flute Carbide End Mill Extra Long Length | FX | 3～30 | ○ |
| 311-27 WEB |  | FX-MG-EMSS | FXコート4枚刃超硬スクエアエンドミルスタブ形<br>FX Coated 4-flute Carbide End Mill Stub Length | FX | 3～16 | ○ |
| 311-28 WEB |  | FX-NC-EMSS | NC旋盤用FXコート4枚刃超硬スクエアエンドミルスタブ形<br>FX Coated 4-flute Carbide End Mill Stub Length for Lathes | FX | 3～12 | ○ |
| 311-26 WEB |  | FX-MG-EMS | FXコート4枚刃超硬スクエアエンドミルショート形<br>FX Coated 4-flute Carbide End Mill Short Length | FX | 2～30 | ○ |
| 311-27 WEB |  | FX-MG-EMS OH1 | FXコート4枚刃超硬スクエアエンドミルショート形(OH1)<br>FX Coated 4-flute Carbide End Mill Short Length(Cutting diameter plus tolerance) | FX | 3～12 | ○ |
| 294 |  | FX-MG-EML | FXコート4枚刃超硬スクエアエンドミルロング形<br>FX Coated 4-flute Carbide End Mill Long Length | FX | 2.5～30 | ○ |
| 294 |  | FX-MG-EXML | FXコート4枚刃超硬スクエアエンドミルエキストラロング形<br>FX Coated 4-flute Carbide End Mill Extra Long Length | FX | 3～30 | ○ |
| 309 |  | FX-MG-EHL | FXコート超硬スクエアエンドミルハイヘリックスロング形<br>FX Coated High Helix Carbide End Mill Long Length | FX | 6～12 | ○ |
| 303 |  | UP-PHS | FXコート4枚刃超硬スクエアエンドミルショート形多機能防振型<br>FX Coated Multi-purpose 4-flute Carbide End Mill Short Length (Vibration-resistant Type) | FX | 3～12 | ○ |
| 391 |  | FXS-PKE | FXコート4枚刃超硬ラジアスエンドミル多機能強力型<br>FX Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | FX | 3～20 | ○ |
| 392 |  | FXS-HS-PKE | FXコート4枚刃超硬ラジアスエンドミル多機能強力型(HSK対応)<br>FX Coated 4-flute Carbide End Mill with Corner Radius HS Shank High Speed Pocket Operation Type | FX | 6～20 | ○ |
| 436-8 WEB |  | FXS-PKER | FXコート4枚刃超硬ラジアスエンドミルレギュラ形多機能強力型<br>FX Coated 4-flute Carbide End Mill Regular Length with Corner Radius High Speed Pocket Operation Type | FX | 3～20 | ○ |
| 311-29 WEB |  | FXS-EMS | WXSコート多刃超硬スクエアエンドミルショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length (Highly Rigid Type) | WXS | 1～30 | ○ |
| 311-29 WEB |  | FXS-EMSS | WXSコート多刃超硬スクエアエンドミルスタブ形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Stub Length (Highly Rigid Type) | WXS | 1～12 | ○ |
| 311-30 WEB |  | FXS-LS-EMS | WXSコート多刃超硬スクエアエンドミルロングシャンクショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length with Long Shank (Highly Rigid Type) | WXS | 3～30 | ○ |
| 311-30 WEB |  | FXS-LS-EMS-S | WXSコート多刃超硬スクエアエンドミルロングスリムシャンクショート形<br>WXS Coated Multi-flute Carbide End Mill Short Length with Long Slim Shank | WXS | 6～25 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

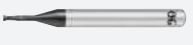
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# シリーズ別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

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|---|---|---|---|---|---|---|
| **超硬ウルトラFXシリーズ** Ultra FX Coated Micro Grain Carbide Series | | | 豊富な品揃えで荒加工から仕上げ加工はもちろん、テーパエンドミルや面取り工具さらには穴加工専用工具も揃えており、一般鋼から耐熱合金まで幅広い被削材はもちろん様々な加工形状にも対応するコーティング超硬シリーズです。 | | | |
| 311-36 WEB |  | FXS-EML | WXSコート多刃超硬スクエアエンドミルロング形高剛性タイプ WXS Coated Multi-flute Carbide End Mill Long Length (Highly Rigid Type) | WXS | 6〜25 | ○ |
| 340-3 WEB |  | FX-MG-EBD | FXコート2枚刃超硬ボールエンドミル FX Coated 2-flute Carbide Ball End Mill | FX | R0.2〜R15 | ○ |
| 340-8 WEB |  | FX-MG-EBD-3 | FXコート2枚刃超硬ボールエンドミル(ミニチュア) FX Coated 2-flute Miniature Carbide Ball End Mill (φ3 Shank) | FX | R0.2〜R1.5 | ○ |
| 326 |  | FX-SS-EBD | FXコート2枚刃超硬ボールエンドミルスリムシャンク FX Coated 2-flute Carbide Ball End Mill with Slim Shank | FX | R3〜R6 | ○ |
| 340-11 WEB |  | FX-H-EBD | 仕上げ用FXコート2枚刃超硬ボールエンドミル(HSK対応) FX Coated 2-flute Carbide Ball End Mill with HS Shank | FX | R0.5〜R6 | ○ |
| 369-4 WEB |  | FX-PC-MG-EBD | FXコート2枚刃超硬ペンシルネックボールエンドミル FX Coated 2-flute Pencil Neck Carbide Ball End Mill | FX | R0.3〜R6 | ○ |
| 369-5 WEB |  | FX-PCL-EBD | FXコート2枚刃超硬ペンシルロングネックボールエンドミル FX Coated 2-flute Pencil Long Neck Carbide Ball End Mill | FX | R2〜R6 | ○ |
| 327 |  | FX-LS-MG-EBD | FXコート2枚刃超硬ボールエンドミルロングシャンク FX Coated 2-flute Carbide Ball End Mill with Long Shank | FX | R0.5〜R15 | ○ |
| 359-6 WEB |  | FX-LN-MG-EBD | FXコート2枚刃超硬ロングネックボールエンドミル FX Coated 2-flute Long Neck Carbide Ball End Mill | FX | R0.5〜R10 | ○ |
| 340-12 WEB |  | FX-LS-MG-EBDL | FXコート2枚刃超硬ボールエンドミルロングシャンクロング形 FX Coated 2-flute Carbide Ball End Mill Long Length with Long Shank | FX | R3〜R12.5 | ○ |
| 340-9 WEB |  | FX-MG-EBDL-3 | FXコート2枚刃超硬ボールエンドミルロング形 (ミニチュア) FX Coated 2-flute Miniature Carbide Ball End Mill Long Length (φ3 Shank) | FX | R0.2〜R1 | ○ |
| 340-10 WEB |  | FX-MG-EBDLL-3 | FXコート2枚刃超硬ボールエンドミルエキストラロング形(ミニチュア) FX Coated 2-flute Miniature Carbide Ball End Mill Extra Long Length (φ3 Shank) | FX | R0.2〜R1 | ○ |
| 340-11 WEB |  | FX-HO-MG-EBD | FXコート2枚刃油穴付き超硬ボールエンドミル FX Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply | FX | R3〜R10 | ○ |
| 364 |  | FXS-EQD | FXコート2枚刃超硬エンドミル球形 FX Coated 2-flute Carbide End Mill Sphere Type | FX | R0.5〜R6 | ○ |
| 340-13 WEB |  | FXS-HO-EBDS | WXSコート2枚刃油穴付き超硬ボールエンドミル高剛性タイプ WXS Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply (Highly Rigid Type) | WXS | R3〜R10 | ○ |
| 340-10 WEB |  | FX-HS-EBDS | 重切削用FXコート2枚刃超硬ボールエンドミル強力型(HSK対応) FX Coated 2-flute Carbide Ball End Mill with HS Shank (Heavy-duty Operation Type) | FX | R0.5〜R6 | ○ |
| 336 |  | FXS-EBT | WXSコート3枚刃超硬ボールエンドミル高能率タイプ WXS Coated 3-flute Carbide Ball End Mill (Highly Efficient Type) | WXS | R1〜R10 | ○ |
| 336 |  | FXS-LS-EBT | WXSコート3枚刃超硬ボールエンドミルロングシャンク高能率タイプ WXS Coated 3-flute Carbide Ball End Mill with Long Shank (Highly Efficient Type) | WXS | R3〜R10 | ○ |
| 369 |  | FXS-PC-EBT | WXSコート3枚刃超硬ペンシルネックボールエンドミル高能率タイプ WXS Coated 3-flute Pencil Neck Carbide Ball End Mill Highly Efficient Type | WXS | R1〜R6 | ○ |
| 340-27 WEB |  | FX-MG-EBM | FXコート4枚刃超硬ボールエンドミル FX Coated 4-flute Carbide Ball End Mill | FX | R1.5〜R12.5 | ○ |
| 379 |  | FX-CR-MG-EDS | FXコート2枚刃超硬ラジアスエンドミルショート形 FX Coated 2-flute Carbide End Mill Short Length with Corner Radius | FX | 1〜20 | ○ |

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|---|---|---|---|---|---|---|
| **超硬ウルトラFXシリーズ** Ultra FX Coated Micro Grain Carbide Series | | | 豊富な品揃えで荒加工から仕上げ加工はもちろん、テーパエンドミルや面取り工具さらには穴加工専用工具も揃えており、一般鋼から耐熱合金まで幅広い被削材はもちろん様々な加工形状にも対応するコーティング超硬シリーズです。 | | | |
| 380 |  | FX-CR-MG-EDL | FXコート2枚刃超硬ラジアスエンドミルロング形<br>FX Coated 2-flute Carbide End Mill Long Length with Corner Radius | FX | 2〜25 | ○ |
| 436-5 WEB |  | FX-CR-MG-EMS | FXコート4枚刃超硬ラジアスエンドミルショート形<br>FX Coated 4-flute Carbide End Mill Short Length with Corner Radius | FX | 4〜20 | ○ |
| 382 |  | FX-CR-MG-EML | FXコート4枚刃超硬ラジアスエンドミルロング形<br>FX Coated 4-flute Carbide End Mill Long Length with Corner Radius | FX | 10〜20 | ○ |
| 390 |  | FX-CR-MG-EHS | FXコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>FX Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | FX | 6〜25 | ○ |
| 436-6 WEB |  | FXS-CR-EMS | WXSコート多刃超硬ラジアスエンドミルショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length with Corner Radius (Highly Rigid Type) | WXS | 6〜25 | ○ |
| 436-7 WEB |  | FXS-CR-EML | WXSコート多刃超硬ラジアスエンドミルロング形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Long Length with Corner Radius (Highly Rigid Type) | WXS | 3〜25 | ○ |
| 439 |  | FX-MG-TPDS | FXコート2枚刃超硬テーパエンドミルショート形<br>FX Coated 2-flute Carbide Taper End Mill Short Length | FX | 0.2〜12 | ○ |
| 311-5 WEB |  | FX-EDS-6 | FXコート2枚刃超硬スクエアエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill Short Length (φ6 Shank) | FX | 0.2〜2.5 | ○ |
| 311-6 WEB |  | FX-EDSS-6 | FXコート2枚刃超硬スクエアエンドミルスタブ形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill Stub Length (φ6 Shank) | FX | 0.2〜6 | ○ |
| 311-17 WEB |  | FX-ED-DL-6 | FXコート2枚刃超硬スクエアエンドミルDL形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill (φ6 Shank DL Type) | FX | 0.3〜3 | ○ |
| 321-6 WEB |  | FX-LN-EDS-6 | FXコート2枚刃超硬ロングネックスクエアエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Long Neck Carbide End Mill Short Length (φ6 Shank) | FX | 0.5〜2.5 | ○ |
| 436-1 WEB |  | FX-CR-EDS-6 | FXコート2枚刃超硬ラジアスエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill Short Length with Corner Radius (φ6 Shank) | FX | 0.5〜2.5 | ○ |
| 436-11 WEB |  | FX-LN-CR-EDS-6 | FXコート2枚刃超硬ロングネックラジアスエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Long Neck Carbide End Mill with Corner Radius (φ6 Shank) | FX | 1〜2.5 | ○ |
| 321-13 WEB |  | FX-LN-EMS-6 | FXコート4枚刃超硬ロングネックスクエアエンドミルショート形(φ6シャンク)<br>FX Coated 4-flute Long Neck Carbide End Mill Short Length (φ6 Shank) | FX | 1〜6 | ○ |
| 340-6 WEB |  | FX-EBDSS-6 | FXコート2枚刃超硬ボールエンドミルスタブ形(φ6シャンク)<br>FX Coated 2-flute Carbide Ball End Mill Stub Length (φ6 Shank) | FX | R0.1〜R3 | ○ |
| 340-5 WEB |  | FX-EBD-6 | FXコート2枚刃超硬ボールエンドミル高精度タイプ(φ6シャンク)<br>FX Coated 2-flute Carbide Ball End Mill High-precision Type (φ6 Shank) | FX | R0.1〜R3 | ○ |
| 340-7 WEB |  | FX-EBD-DL-6 | FXコート2枚刃超硬ボールエンドミルDL形(φ6シャンク)<br>FX Coated 2-flute Carbide Ball End Mill (φ6 Shank DL Type) | FX | R0.15〜R3 | ○ |
| 359-5 WEB |  | FX-LN-EBD-6 | FXコート2枚刃超硬ロングネックボールエンドミル高精度タイプ(φ6シャンク)<br>FX Coated 2-flute Long Neck Carbide Ball End Mill High-precision Type (φ6 Shank) | FX | R0.25〜R3 | ○ |
| 369-1 WEB |  | FX-PCS-EBD-6 | FXコート2枚刃超硬ペンシルショートネックボールエンドミル高精度タイプ(φ6シャンク)<br>FX Coated 2-flute Pencil Short Neck Carbide Ball End Mill High-precision Type (φ6 Shank) | FX | R0.1〜R2 | ○ |
| 443-4 WEB |  | FXS-RB-TPE | FXコート多刃超硬テーパエンドミル（深リブ形）<br>FX Coated Multi-flute Carbide Taper End Mill for Rib Processing | FX | 0.4〜3 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

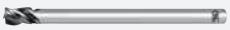
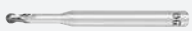
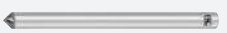
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|---|---|---|---|---|---|---|
| **超硬ウルトラFXシリーズ** Ultra FX Coated Micro Grain Carbide Series | | | 豊富な品揃えで荒加工から仕上げ加工はもちろん、テーパエンドミルや面取り工具さらには穴加工専用工具も揃えており、一般鋼から耐熱合金まで幅広い被削材はもちろん様々な加工形状にも対応するコーティング超硬シリーズです。 | | | |
| 445-1 WEB |  | FXS-RB-TPB | FXコート多刃超硬テーパボールエンドミル(深リブ形)<br>FX Coated Multi-flute Taper Ball End Mill for Rib Processing | FX | R0.3 ~ R1.25 | ○ |
| 445-7 WEB |  | FXS-RB-TPCR | FXコート多刃超硬テーパラジアスエンドミル(深リブ形)<br>FX Coated Multi-flute Carbide Taper End Mill with Corner Radius for Rib Processing | FX | 1 ~ 2.5 | ○ |
| 403 |  | FX-MCF | 底面仕上げ用FXコート4枚刃サーメットラジアスエンドミル<br>FX Coated 4-flute Cermet End Mill with Corner Radius for Bottom Finishing | FX | 6 ~ 12 | ○ |
| 464 |  | FX-SCC | 面取り用FXコート2枚刃超硬エンドミル<br>FX Coated 2-flute Carbide End Mill for Chamfering | FX | 0.8 ~ 1 | ○ |
| 464 |  | FX-LS-SCC | 面取り用FXコート2枚刃超硬エンドミルロングシャンク<br>FX Coated 2-flute Carbide End Mill with Long Shank for Chamfering | FX | 0.8 ~ 1 | ○ |
| 465 |  | FX-MG-VCM | 面取り用FXコート2枚刃超硬エンドミルVカット<br>FX Coated 2-flute Carbide End Mill V Cut Type | FX | 1 ~ 20 | ○ |
| 443-3 WEB |  | FX-MG-TRC | 台形ランナ用FXコート2枚刃超硬テーパエンドミル<br>FX Coated 2-flute Carbide Taper End Mill for Trapezoidal Runner | FX | 2 ~ 6 | ○ |
| 466 |  | FX-ECR | FXコート2枚刃超硬コーナラウンディング<br>FX Coated 2-flute Carbide End Mill with Corner Rounding | FX | 0.5 ~ 1.5 | ○ |
| 446 |  | FX-ZDS | 座ぐり用FXコート2枚刃超硬エンドミルショート形<br>FX Coated 2-flute Carbide End Mill Short Length for Counterboring | FX | 0.5 ~ 20 | ○ |
| 452 |  | FX-ZDN | 座ぐり用FXコート2枚刃超硬エンドミルミディアム形<br>FX Coated 2-flute Carbide End Mill Medium Length for Counterboring | FX | 3 ~ 20 | ○ |
| 449 |  | FX-HO-ZDN | 座ぐり用FXコート2枚刃油穴付き超硬エンドミルミディアム形<br>FX Coated 2-flute Carbide End Mill Medium Length with Internal Coolant Supply for Counterboring | FX | 3 ~ 12 | ○ |
| 311-7 WEB |  | FX-MR-EDS | FXコート2枚刃超硬スクエアエンドミルショート形左刃左ねじれ<br>FX Coated 2-flute Carbide End Mill Short Length (LH Cut and LH Helix) | FX | 1 ~ 12 | ○ |
| 311-28 WEB |  | FX-MR-EMS | FXコート4枚刃超硬スクエアエンドミルショート形左刃左ねじれ<br>FX Coated 4-flute Carbide End Mill Short Length (LH Cut and LH Helix) | FX | 2 ~ 12 | ○ |
| 436-9 WEB |  | FX-CS-EDS | FXコート2枚刃超硬エンドミルコーナC面付きショート形<br>FX Coated 2-flute Carbide End Mill Short Length with Corner Chamfering | FX | 1 ~ 12 | ○ |
| 468 |  | FX-MG-CS×60 | FXコート3枚刃カウンターシンク<br>FX Coated 3-flute Countersink | FX | 6.3 ~ 25 | ○ |
| 469 |  | FX-MG-CS×90 | FXコート3枚刃カウンターシンク<br>FX Coated 3-flute Countersink | FX | 6.3 ~ 25 | ○ |
| 372 |  | UVX-TI-4FL | チタン合金用FXコート4枚刃超硬エンドミル不等リード<br>FX Coated 4-flute Carbide End Mill Variable Lead for Titanium Alloy | FX | 12 ~ 25 | ○ |
| 372 |  | UVX-TI-4FL | チタン合金用FXコート4枚刃超硬エンドミル不等リード<br>FX Coated 4-flute Carbide End Mill Variable Lead for Titanium Alloy | FX | 12 ~ 25 | ○ |
| 373 |  | UVX-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミル不等リード<br>FX Coated 5-flute Carbide End Mill Variable Lead for Titanium Alloy | FX | 12 ~ 25 | ○ |
| 373 |  | UVX-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミル不等リード<br>FX Coated 5-flute Carbide End Mill Variable Lead for Titanium Alloy | FX | 12 ~ 25 | ○ |
| 374 |  | UVXL-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミルロング形不等リード<br>FX Coated 5-flute Carbide End Mill Long Length Variable Lead for Titanium Alloy | FX | 12 ~ 25 | ○ |
| 374 |  | UVXL-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミルロング形不等リード<br>FX Coated 5-flute Carbide End Mill Long Length Variable Lead for Titanium Alloy | FX | 12 ~ 25 | ○ |

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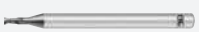
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|---|---|---|---|---|---|---|
| **非鉄合金用シリーズ** For Non-ferrous Metals Series | | 素晴らしい切れ味で、アルミ合金、銅合金など非鉄合金ならびにプラスチック加工などに対応するシリーズです。シリーズ中のCRNコーティング品は銅、銅合金加工において光沢のある良好な仕上面と工具寿命の延長を実現します。 | | | | |
| 270 |  | CA-RG-EDS | 銅・アルミ合金用2枚刃超硬スクエアエンドミルショート形<br>2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys | | 1〜20 | ○ |
| 277 |  | CA-RG-EDL | 銅・アルミ合金用2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length for Copper and Aluminum Alloys | | 3〜12 | ○ |
| 340-21 WEB |  | CA-RG-EBD | 銅・アルミ合金用2枚刃超硬ボールエンドミル<br>2-flute Carbide Ball End Mill for Copper and Aluminum Alloys | | R0.5〜R10 | ○ |
| 282 |  | CA-ETS | 銅・アルミ合金用3枚刃超硬スクエアエンドミルショート形<br>3-flute Carbide End Mill Short Length for Copper and Aluminum Alloys | | 3〜20 | ○ |
| 394 |  | CA-CR-ETS | 銅・アルミ合金用3枚刃超硬ラジアスエンドミルショート形<br>3-flute Carbide End Mill Short Length with Corner Radius for Copper and Aluminum Alloys | | 3〜20 | ○ |
| 402 |  | CA-PKE | 銅・アルミ合金用3枚刃超硬ラジアスエンドミル多機能強力型<br>3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type for Copper and Aluminum Alloys | | 3〜20 | ○ |
| 310 |  | CA-MFE | 銅・アルミ合金用3枚刃超硬エンドミル立ち壁対応型<br>3-flute Carbide End Mill for Deep Side Milling in Copper and Aluminum Alloys | | 8〜22 | ○ |
| 455 |  | CA-ZDS | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルショート形<br>2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys for Counterboring | | 0.5〜20 | ○ |
| 311-11 WEB |  | CAP-EDS | 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルショート形<br>2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | | 1〜20 | ○ |
| 321-8 WEB |  | CAP-LN-EDS | 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックスクエアエンドミルショート形<br>2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | | 0.5〜6 | ○ |
| 311-21 WEB |  | CAP-EDL | 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics | | 3〜20 | ○ |
| 331 |  | CAP-EBD | 銅・アルミ合金・プラスチック用2枚刃超硬ボールエンドミル<br>2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | | R0.5〜R10 | ○ |
| 359-9 WEB |  | CAP-LN-EBD | 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックボールエンドミル<br>2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | | R0.3〜R6 | ○ |
| 311-14 WEB |  | CAP-EDS-SF | 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルショート形(焼きばめ対応)<br>2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics(Shrink Fit Type) | | 0.2〜3 | ○ |
| 311-15 WEB |  | CAP-LN-EDS-SF | 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックスクエアエンドミルショート形(焼きばめ対応)<br>2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (Shrink Fit Type) | | 0.2〜0.6 | ○ |
| 340-28 WEB |  | CAP-LN-EBD-SF | 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックボールエンドミル(焼きばめ対応)<br>2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (Shrink Fit Type) | | R0.1〜R0.3 | ○ |
| 466 |  | CA-SCC | 銅・アルミ合金面取り用2枚刃超硬エンドミル<br>2-flute Carbide End Mill for Chamfering Copper and Aluminum Alloys | | 0.8〜1 | ○ |
| 457 |  | CA-LS-ZDS | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルロングシャンクショート形<br>2-flute Carbide End Mill Short Length with Long Shank for Copper and Aluminum Alloys for Counterboring | | 3〜20 | ○ |
| 467 |  | CA-LS-SCC | 銅・アルミ合金面取り用2枚刃超硬エンドミルロングシャンク<br>2-flute Carbide End Mill with Long Shank for Chamfering Copper and Aluminum Alloys | | 0.8〜1 | ○ |
| 311-12 WEB |  | CRN-EDS | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形<br>CrN Coated 2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | CrN | 1〜20 | ○ |
| 311-12 WEB |  | CRN-EDS-3 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形(ミニチュア)<br>CrN Coated 2-flute Miniature Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (φ3 Shank) | CrN | 0.5〜3 | ○ |
| 321-9 WEB |  | CRN-LN-EDS | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックスクエアエンドミルショート形<br>CrN Coated 2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | CrN | 0.5〜12 | ○ |
| 311-13 WEB |  | CRN-HS-EDS | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形(HSK対応)<br>CrN Coated 2-flute Carbide End Mill with HS Shank Short Length for Copper, Aluminum Alloys and Plastics | CrN | 1〜12 | ○ |
| 311-16 WEB |  | CRN-EDN | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルミディアム形<br>CrN Coated 2-flute Carbide End Mill Medium Length for Copper, Aluminum Alloys and Plastics | CrN | 1〜12 | ○ |
| 311-23 WEB |  | CRN-EDL | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルロング形<br>CrN Coated 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics | CrN | 1〜20 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

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| **非鉄合金用シリーズ For Non-ferrous Metals Series** | | | 素晴らしい切れ味で、アルミ合金、銅合金など非鉄合金ならびにプラスチック加工などに対応するシリーズです。シリーズ中のCRNコーティング品は銅、銅合金加工において光沢のある良好な仕上面と工具寿命の延長を実現します。 | | | |
| 311-22 WEB |  | CRN-EDL-4 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルロング形(φ4シャンク)<br>CrN Coated 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics (φ4 Shank) | CrN | 1〜3 | ○ |
| 311-23 WEB |  | CRN-EDLL | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルエキストラロング形<br>CrN Coated 2-flute Carbide End Mill Extra Long Length for Copper, Aluminum Alloys and Plastics | CrN | 3〜12 | ○ |
| 311-35 WEB |  | CRN-EMS | 銅・アルミ合金・プラスチック用CrNコート4枚刃超硬スクエアエンドミルショート形<br>CrN Coated 4-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | CrN | 2〜20 | ○ |
| 311-37 WEB |  | CRN-EML | 銅・アルミ合金・プラスチック用CrNコート4枚刃超硬スクエアエンドミルロング形<br>CrN Coated 4-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics | CrN | 3〜20 | ○ |
| 340-21 WEB |  | CRN-EBD | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル<br>CrN Coated 2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | CrN | R0.1〜R6 | ○ |
| 340-22 WEB |  | CRN-EBD-3 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル(ミニチュア)<br>CrN Coated 2-flute Miniature Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ3 Shank) | CrN | R0.1〜R1.5 | ○ |
| 359-10 WEB |  | CRN-LN-EBD | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックボールエンドミル<br>CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | CrN | R0.5〜R2.5 | ○ |
| 359-10 WEB |  | CRN-LN-EBD-4 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックボールエンドミル(φ4シャンク)<br>CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ4 Shank) | CrN | R0.1〜R1 | ○ |
| 340-23 WEB |  | CRN-LS-EBD | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミルロングシャンク<br>CrN Coated 2-flute Carbide Ball End Mill with Long Shank for Copper, Aluminum Alloys and Plastics | CrN | R3〜R6 | ○ |
| 340-22 WEB |  | CRN-HS-EBD | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル(HSK対応)<br>CrN Coated 2-flute Carbide Ball End Mill with HS Shank for Copper, Aluminum Alloys and Plastics | CrN | R0.5〜R6 | ○ |
| 311-13 WEB |  | IT-EDS-6 | コバール用FXコート2枚刃超硬スクエアエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill Short Length for Kovar (φ6 Shank) | FX | 0.5〜2.5 | ○ |
| 311-14 WEB |  | IT-EDS | コバール用FXコート2枚刃超硬スクエアエンドミルショート形<br>FX Coated 2-flute Carbide End Mill Short Length for Kovar | FX | 3〜10 | ○ |
| 311-35 WEB |  | IT-EMS-6 | コバール用FXコート4枚刃超硬スクエアエンドミルショート形(φ6シャンク)<br>FX Coated 4-flute Carbide End Mill Short Length for Kovar (φ6 Shank) | FX | 1〜2.5 | ○ |
| 311-36 WEB |  | IT-EMS | コバール用FXコート4枚刃超硬スクエアエンドミルショート形<br>FX Coated 4-flute Carbide End Mill Short Length for Kovar | FX | 3〜10 | ○ |
| 375 |  | HFC-TI | チタン合金用高送り超硬ラジアスエンドミル<br>High Feed Carbide End Mill with Corner Radius for Titanium Alloy | | 16〜25 | ○ |
| **DLCコーティングシリーズ DLC Coated Series** | | | 独自の超平滑DLCコーティングを施したエンドミルシリーズです。溶着が問題となる圧延アルミ合金などで威力を発揮します。 | | | |
| 272 |  | DLC-EDS | DLCコート2枚刃超硬スクエアエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length | DLC | 0.5〜12 | ○ |
| 311-8 WEB |  | DLC-MR-EDS | DLCコート2枚刃超硬スクエアエンドミルショート形左刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill (LH Cut and LH Helix) | DLC | 1〜12 | ○ |
| 317 |  | DLC-LN-EDS | DLCコート2枚刃超硬ロングネックスクエアエンドミルショート形<br>DLC Coated 2-flute Long Neck Carbide End Mill Short Length | DLC | 0.5〜6 | ○ |
| 286 |  | SEP-EL | スーパーエンプラ用DLCコート超硬エンドミル<br>DLC Coated Carbide End Mill for Super Engineering Plastic | DLC-IGUSS | 0.5〜6 | ○ |
| 283 |  | DLC-ETS | DLCコート3枚刃超硬スクエアエンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length | DLC | 3〜20 | ○ |
| 311-31 WEB |  | DLC-MR-EMS | DLCコート多刃超硬スクエアエンドミルショート形左刃左ねじれ<br>DLC Coated Multi-flute Carbide End Mill Short Length (LH Cut and LH Helix) | DLC | 2〜12 | ○ |
| 311-48 WEB |  | DLC-E1-3D | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type) | DLC | 2〜12 | ○ |
| 311-48 WEB |  | DLC-E1-3D-L | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix) | DLC | 2〜12 | ○ |
| 311-49 WEB |  | DLC-E1-5D | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type) | DLC | 2〜12 | ○ |



コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

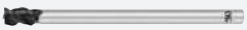
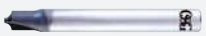
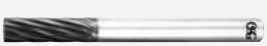
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| **DLCコーティングシリーズ** DLC Coated Series | | | 独自の超平滑DLCコーティングを施したエンドミルシリーズです。溶着が問題となる圧延アルミ合金などで威力を発揮します。 | | | |
| 311-49 WEB |  | DLC-E1-5D-L | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix) | DLC | 2〜12 | ○ |
| 311-50 WEB |  | DLC-E2-3D | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type) | DLC | 2〜12 | ○ |
| 311-50 WEB |  | DLC-E2-3D-L | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix) | DLC | 2〜12 | ○ |
| 311-51 WEB |  | DLC-E2-5D | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type) | DLC | 2〜12 | ○ |
| 311-51 WEB |  | DLC-E2-5D-L | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix) | DLC | 2〜12 | ○ |
| 332 |  | DLC-EBD | DLCコート2枚刃超硬ボールエンドミル<br>DLC Coated 2-flute Carbide Ball End Mill | DLC | R0.5〜R10 | ○ |
| 356 |  | DLC-LN-EBD | DLCコート2枚刃超硬ロングネックボールエンドミル<br>DLC Coated 2-flute Long Neck Carbide Ball End Mill | DLC | R0.5〜R2 | ○ |
| 359-11 WEB |  | DLC-EQD | DLCコート2枚刃超硬エンドミル球形<br>DLC Coated 2-flute Carbide End Mill Sphere Type | DLC | R1〜R6 | ○ |
| 403 |  | DLC-PKE | DLCコート3枚刃超硬ラジアスエンドミル多機能強力型<br>DLC Coated 3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | DLC | 3〜20 | ○ |
| 443-12 WEB |  | DLC-RB-TPE | 非鉄用DLCコート2枚刃超硬テーパエンドミル(深リブ形)<br>DLC Coated 2-flute Carbide Taper End Mill for Non-ferrous Materials and Rib Processing | DLC | 0.5〜2 | ○ |
| 376 |  | DLC-AIR-EDS | アルミ合金用DLCコート2枚刃超硬ラジアスエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill with Corner Radius Short Length for Aluminum Alloys | DLC | 12〜25 | ○ |
| 376 |  | AERO-ETS | アルミ合金用DLCコート3枚刃超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length for Aluminum Alloys | DLC | 12〜25 | ○ |
| 377 |  | AERO-O-ETS | アルミ合金用DLCコート3枚刃油穴付き超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length with Internal Coolant Supply for Aluminum Alloys | DLC | 20〜25 | ○ |
| 377 |  | AERO-ETL | アルミ合金用DLCコート3枚刃超硬エンドミルロング形<br>DLC Coated 3-flute Carbide End Mill Long Length for Aluminum Alloys | DLC | 12〜20 | ○ |
| 378 |  | AERO-EXTL | アルミ合金用DLCコート3枚刃超硬エンドミルエキストラロング形<br>DLC Coated 3-flute Carbide End Mill Extra Long Length for Aluminum Alloys | DLC | 20 | ○ |
| 458-1 WEB |  | DLC-ZDS | 座ぐり用DLCコート2枚刃超硬エンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length for Counterboring | DLC | 0.45〜20 | ○ |
| 458-3 WEB |  | DLC-LS-ZDS | 座ぐり用DLCコート2枚刃超硬エンドミルロングシャンクショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring | DLC | 3〜20 | ○ |
| 458-5 WEB |  | DLC-CR-ZDS | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring | DLC | 2〜20 | ○ |
| 458-6 WEB |  | DLC-CR-LS-ZDS | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルロングシャンクショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius and Long Shank for Counterboring | DLC | 3〜20 | ○ |
| 465-1 WEB |  | DLC-VCMP | 面取り用DLCコート2枚刃超硬エンドミルVカット<br>DLC Coated 2-flute Carbide End Mill V Cut Type | DLC | 3〜20 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

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|---|---|---|---|---|---|---|
| **超微結晶ダイヤモンドコーティングシリーズ Diamond Coated Carbide Series** ダイヤモンドコーティングが、高シリコンアルミ合金、アルミダイカストをはじめグラファイト加工での飛躍的な工具寿命延長を実現します。平滑な超微結晶構造コーティング膜のため、光沢のある良好な仕上面を得ることができます。 | | | | | | |
| 311-8 WEB |  | DIA-2D-DE | DIAコート2枚刃超硬スクエアエンドミル2D刃長<br>Diamond Coated 2-flute Carbide End Mill (2D Type) | DIA | 0.5〜3 | ○ |
| 272 |  | DIA-EDS | DIAコート2枚刃超硬スクエアエンドミルショート形<br>Diamond Coated 2-flute Carbide End Mill Short Length | DIA | 0.5〜12 | ○ |
| 321-10 WEB |  | DIA-LN-EDS | DIAコート2枚刃超硬ロングネックスクエアエンドミルショート形<br>Diamond Coated 2-flute Long Neck Carbide End Mill Short Length | DIA | 0.5〜5 | ○ |
| 436-4 WEB |  | DIA-CR-EDS | DIAコート2枚刃超硬ラジアスエンドミルショート形<br>Diamond Coated 2-flute Carbide End Mill Short Length with Corner Radius | DIA | 2〜20 | ○ |
| 311-44 WEB |  | DIA-EHDS-3 | DIAコート2枚刃超硬スクエアエンドミル/ハイヘリックスショート形(ミニチュア)<br>Diamond Coated 2-flute High Helix Miniature Carbide End Mill Short Length (φ3 Shank) | DIA | 1〜3 | ○ |
| 311-44 WEB |  | DIA-LS-EHDS | DIAコート2枚刃超硬スクエアエンドミル/ハイヘリックスロングシャンクショート形<br>Diamond Coated 2-flute High Helix Carbide End Mill Short Length with Long Shank | DIA | 3〜20 | ○ |
| 311-42 WEB |  | DIA-EHDS | DIAコート2枚刃超硬スクエアエンドミル/ハイヘリックスショート形<br>Diamond Coated 2-flute High Helix Carbide End Mill Short Length | DIA | 3〜20 | ○ |
| 311-46 WEB |  | DIA-EHDL-3 | DIAコート2枚刃超硬スクエアエンドミル/ハイヘリックスロング形(ミニチュア)<br>Diamond Coated 2-flute High Helix Miniature Carbide End Mill Long Length (φ3 Shank) | DIA | 1〜3 | ○ |
| 311-47 WEB |  | DIA-LS-EHDL | DIAコート2枚刃超硬スクエアエンドミル/ハイヘリックスロングシャンクショート形<br>Diamond Coated 2-flute High Helix Carbide End Mill Short Length with Long Shank | DIA | 3〜20 | ○ |
| 311-45 WEB |  | DIA-EHDL | DIAコート2枚刃超硬スクエアエンドミル/ハイヘリックスロング形<br>Diamond Coated 2-flute High Helix Carbide End Mill Long Length | DIA | 3〜20 | ○ |
| 311-26 WEB |  | DIA-ETS | DIAコート3枚刃超硬スクエアエンドミルショート形<br>Diamond Coated 3-flute Carbide End Mill Short Length | DIA | 3〜20 | ○ |
| 311-25 WEB |  | DIA-LS-ETS | DIAコート3枚刃超硬スクエアエンドミルロングシャンクショート形<br>Diamond Coated 3-flute Carbide End Mill Short Length with Long Shank | DIA | 6〜22 | ○ |
| 321-14 WEB |  | DIA-LN-EMS | DIAコート4枚刃超硬ロングネックスクエアエンドミルショート形<br>Diamond Coated 4-flute Long Neck Carbide End Mill Short Length | DIA | 1〜2 | ○ |
| 311-47 WEB |  | DIA-EOE | DIAコート1枚刃超硬スクエアエンドミルロング形<br>Diamond Coated Single-flute Carbide End Mill Long Length | DIA | 3〜12 | ○ |
| 333 |  | DIA-EBD | DIAコート2枚刃超硬ボールエンドミル<br>Diamond Coated 2-flute Carbide Ball End Mill | DIA | R0.5〜R6 | ○ |
| 355 |  | DIA-LN-EBD | DIAコート2枚刃超硬ロングネックボールエンドミル<br>Diamond Coated 2-flute Long Neck Carbide Ball End Mill | DIA | R0.5〜R2.5 | ○ |
| 369-6 WEB |  | DIA-PC-EBD | DIAコート2枚刃超硬ペンシルネックボールエンドミル<br>Diamond Coated 2-flute Pencil Neck Carbide Ball End Mill | DIA | R0.5〜R3 | ○ |
| 340-26 WEB |  | DIA-EBT | DIAコート3枚刃超硬ボールエンドミル<br>Diamond Coated 3-flute Carbide Ball End Mill | DIA | R0.5〜R2 | ○ |
| 340-27 WEB |  | DIA-EBM | DIAコート4枚刃超硬ボールエンドミル<br>Diamond Coated 4-flute Carbide End Mill | DIA | R3〜R5 | ○ |
| 465-6 WEB |  | DIA-ECR | DIAコート2枚刃超硬コーナラウンディング<br>Diamond Coated 2-flute Carbide End Mill with Corner Rounding | DIA | 0.5〜1.5 | ○ |
| 454 |  | DIA-ZDS | 座ぐり用DIAコート2枚刃超硬エンドミルショート形<br>Diamond Coated 2-flute Carbide End Mill Short Length for Counterboring | DIA | 0.5〜12 | ○ |
| 465 |  | DIA-VCM | 面取り用DIAコート2枚刃超硬エンドミルVカット<br>Diamond Coated 2-flute Carbide End Mill V Cut Type | DIA | 1〜12 | ○ |
| 475 |  | DIA-DCE | DIAコート超硬綾目ルーター底刃有り<br>Diamond CoatedDiamond Cut Carbide Router with End Mill Cut | DIA | 2〜12 | ○ |
| 478 |  | DIA-MFC | 仕上げ用DIAコート多刃超硬ルーター<br>Diamond Coated Multi-flute Carbide Router for Finishing | DIA | 3.175〜12.7 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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| **グラファイト用ダイヤモンドコーティングシリーズ** Diamond Coated Carbide Series for Graphite | | | グラファイト加工専用のダイヤモンドコーティングエンドミルシリーズです。 | | | |
| 293 |  | DG-EMS | グラファイト用DGコート4枚刃超硬スクエアエンドミルショート形<br>DG Coated 4-flute Carbide End Mill Short Length for Graphite | DG | 4〜12 | ○ |
| 321 |  | DG-LN-EMS | グラファイト用DGコート4枚刃超硬ロングネックスクエアエンドミルショート形<br>DG Coated 4-flute Long Neck Carbide End Mill Short Length for Graphite | DG | 1〜6 | ○ |
| 333 |  | DG-EBD | グラファイト用DGコート2枚刃超硬ボールエンドミル<br>DG Coated 2-flute Carbide Ball End Mill for Graphite | DG | R2〜R6 | ○ |
| 338 |  | DG-EBM | グラファイト用DGコート4枚刃超硬ボールエンドミル<br>DG Coated 4-flute Carbide Ball End Mill for Graphite | DG | R2〜R5 | ○ |
| 355 |  | DG-LN-EBD | グラファイト用DGコート2枚刃超硬ロングネックボールエンドミル<br>DG Coated 2-flute Long Neck Carbide Ball End Mill for Graphite | DG | R0.2〜R2 | ○ |
| 356 |  | DG-LN-EBM | グラファイト用DGコート4枚刃超硬ロングネックボールエンドミル<br>DG Coated 4-flute Long Neck Carbide Ball End Mill for Graphite | DG | R1〜R1.5 | ○ |
| 434 |  | DG-CPR | グラファイト用DGコート超硬ロングネックラジアスエンドミル<br>DG Coated Long Neck Carbide End Mills with Corner Radius for Graphite | | 0.5〜12 | ○ |
| **グラファイト用シリーズ** Regular Grain Carbide Series for Graphite | | | グラファイト加工専用のエンドミルシリーズです。シリーズ中のダイヤモンドコーティング品はグラファイト加工でのアブレシブ摩耗を抑御し工具寿命の飛躍的な延長を実現します。 | | | |
| 340-25 WEB |  | DIA-GF-EBDR | グラファイト用DIAコート2枚刃超硬ボールエンドミル<br>Diamond Coated 2-flute Carbide Ball End Mill for Graphite | DIA | R1〜R6 | ○ |
| 340-26 WEB |  | D-GF-LS-EBDR | グラファイト用DIAコート2枚刃超硬ボールエンドミルロングシャンク<br>Diamond Coated 2-flute Carbide Ball End Mill with Long Shank for Graphite | DIA | R1〜R6 | ○ |
| 402 |  | DIA-LS-CRED | DIAコート2枚刃超硬ラジアスエンドミルロングシャンク<br>Diamond Coated 2-flute Carbide End Mill with Corner Radius, Long Shank | DIA | 5〜11 | ○ |
| 311-24 WEB |  | GF-EDR | グラファイト用2枚刃超硬スクエアエンドミルレギュラ形<br>2-flute Carbide End Mill Regular Length for Graphite | | 2〜12 | ○ |
| 311-24 WEB |  | GF-LS-EDR | グラファイト用2枚刃超硬スクエアエンドミルロングシャンクレギュラ形<br>2-flute Carbide End Mill Regular Length with Long Shank for Graphite | | 2〜12 | ○ |
| 311-25 WEB |  | GF-EDL | グラファイト用2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length for Graphite | | 2〜12 | ○ |
| 311-37 WEB |  | GF-EMR | グラファイト用4枚刃超硬スクエアエンドミルレギュラ形<br>4-flute Carbide End Mill Regular Length for Graphite | | 2〜12 | ○ |
| 311-38 WEB |  | GF-LS-EMR | グラファイト用4枚刃超硬スクエアエンドミルロングシャンクレギュラ形<br>4-flute Carbide End Mill Regular Length with Long Shank for Graphite | | 2〜12 | ○ |
| 311-38 WEB |  | GF-EML | グラファイト用4枚刃超硬スクエアエンドミルロング形<br>4-flute Carbide End Mill Long Length for Graphite | | 2〜12 | ○ |
| 340-24 WEB |  | GF-EBDR | グラファイト用2枚刃超硬ボールエンドミルレギュラ形<br>2-flute Carbide Ball End Mill Regular Length for Graphite | | R1〜R6 | ○ |
| 340-25 WEB |  | GF-LS-EBDR | グラファイト用2枚刃超硬ボールエンドミルロングシャンクレギュラ形<br>2-flute Carbide Ball End Mill Regular Length with Long Shank for Graphite | | R1〜R6 | ○ |
| 340-24 WEB |  | GF-EBDL | グラファイト用2枚刃超硬ボールエンドミルロング形<br>2-flute Carbide Ball End Mill Long Length for Graphite | | R1〜R6 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

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| **超硬MGシリーズ Uncoated Micro Grain Carbide Series** | | | | | | |
| 267 |  | MG-EDS | 2枚刃超硬スクエアエンドミルショート形<br>2-flute Carbide End Mill Short Length | | 1〜25 | ○ |
| 268 |  <br>外径の許容差 OH1 Tolerance for Milling Diameter | MG-EDS | 2枚刃超硬スクエアエンドミルショート形<br>2-flute Carbide End Mill Short Length | | 1〜12 | ○ |
| 436-10 WEB |  | MG-CS-EDS | 2枚刃超硬エンドミルコーナC面付きショート形<br>2-flute Carbide End Mill Short Length with Corner Chamfering | | 1〜20 | ○ |
| 436-3 WEB |  | MG-CR-EDS | 2枚刃超硬ラジアスエンドミルショート形<br>2-flute Carbide End Mill Short Length with Corner Radius | | 2〜20 | ○ |
| 321-7 WEB |  | LN-MG-EDS | 2枚刃超硬ロングネックスクエアエンドミルショート形<br>2-flute Long Neck Carbide End Mill Short Length | | 0.5〜3 | ○ |
| 266 |  | MG-EDS-3 | 2枚刃超硬スクエアエンドミルショート形（ミニチュア）<br>2-flute Miniature Carbide End Mill (φ3 Shank) | | 0.1〜3 | ○ |
| 273 |  | MG-EDN | 2枚刃超硬スクエアエンドミルミディアム形<br>2-flute Carbide End Mill Medium Length | | 3〜12 | ○ |
| 276 |  | MG-EDL | 2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length | | 2.5〜25 | ○ |
| 311-20 WEB |  | MG-EDL-3 | 2枚刃超硬スクエアエンドミルロング形(ミニチュア)<br>2-flute Miniature Carbide End Mill Long Length (φ3 Shank) | | 0.2〜3 | ○ |
| 311-20 WEB |  | MG-EDL-4 | 2枚刃超硬スクエアエンドミルロング形(φ4シャンク)<br>2-flute Carbide End Mill Long Length (φ4 Shank) | | 2.1〜2.9 | ○ |
| 311-21 WEB |  | MG-EDLL-3 | 2枚刃超硬スクエアエンドミルエキストラロング形(ミニチュア)<br>2-flute Miniature Carbide End Mill Extra Long Length (φ3 Shank) | | 0.2〜3 | ○ |
| 276 |  | MG-EXDL | 2枚刃超硬スクエアエンドミルエキストラロング形<br>2-flute Carbide End Mill Extra Long Length | | 3〜20 | ○ |
| 328 |  | MG-EBD | 2枚刃超硬ボールエンドミル<br>2-flute Carbide Ball End Mill | | R0.4〜R12.5 | ○ |
| 340-18 WEB |  | MG-EBD-3 | 2枚刃超硬ボールエンドミル（ミニチュア）<br>2-flute Miniature Carbide Ball End Mill (φ3 Shank) | | R0.05〜R1.5 | ○ |
| 340-18 WEB |  | MG-EBD-4 | 2枚刃超硬ボールエンドミル（φ4シャンク）<br>2-flute Carbide Ball End Mill (φ4 Shank) | | R0.4〜R2 | ○ |
| 340-20 WEB |  | MG-EBD-DL | 2枚刃超硬ボールエンドミルDL形<br>2-flute Carbide Ball End Mill (DL Type) | | R0.15〜R1 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

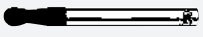
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| **超硬MGシリーズ** Uncoated Micro Grain Carbide Series | | | | | | |
| 359-8 WEB |  | **MG-LN-EBD** | 2枚刃超硬ロングネックボールエンドミル<br>2-flute Long Neck Carbide Ball End Mill | | R0.5〜R10 | ○ |
| 340-19 WEB |  | **MG-EBDL-3** | 2枚刃超硬ボールエンドミルロング形(ミニチュア)<br>2-flute Miniature Carbide Ball End Mill Long Length (φ3 Shank) | | R0.2〜R1 | ○ |
| 340-19 WEB |  | **MG-EBDLL-3** | 2枚刃超硬ボールエンドミルエキストラロング形(ミニチュア)<br>2-flute Miniature Carbide Ball End Mill Extra Long Length (φ3 Shank) | | R0.2〜R1 | ○ |
| 292 |  | **MG-EMS** | 4枚刃超硬スクエアエンドミルショート形<br>4-flute Carbide End Mill Short Length | | 2〜25 | ○ |
| 436-6 WEB |  | **MG-CR-EMS** | 4枚刃超硬ラジアスエンドミルショート形<br>4-flute Carbide End Mill Short Length with Corner Radius | | 4〜20 | ○ |
| 311-33 WEB |  | **NC-EMSS** | NC旋盤用4枚刃超硬スクエアエンドミルスタブ形<br>4-flute Carbide End Mill Stub Length for Lathes | | 3〜12 | ○ |
| 295 |  | **MG-EML** | 4枚刃超硬スクエアエンドミルロング形<br>4-flute Carbide End Mill Long Length | | 2.5〜25 | ○ |
| 295 |  | **MG-EXML** | 4枚刃超硬スクエアエンドミルエキストラロング形<br>4-flute Carbide End Mill Extra Long Length | | 3〜20 | ○ |
| 443-1 WEB |  | **MG-TPDS** | 2枚刃超硬テーパエンドミルショート形<br>2-flute Carbide Taper End Mill Short Length | | 1〜12 | ○ |
| 443-2 WEB |  | **MG-TPMS** | 4枚刃超硬テーパエンドミルショート形<br>4-flute Carbide Taper End Mill Short Length | | 2〜12 | ○ |
| 445-6 WEB |  | **MG-TPBDS** | 2枚刃超硬テーパボールエンドミルショート形<br>2-flute Carbide Taper Ball End Mill Short Length | | R0.5〜R6 | ○ |
| 443-9 WEB |  | **RB-MG-TPE** | 2枚刃超硬テーパエンドミル（深リブ形）<br>2-flute Carbide Taper End Mill for Rib Processing | | 0.5〜2 | ○ |
| 269 |  | **MG-EKD** | キー溝用2枚刃超硬スクエアエンドミル(OH1,OL1)<br>2-flute Carbide End Mill for Keyway (OH1,OL1) | | 3〜12 | ○ |
| 311-39 WEB |  | **MG-EHS** | 超硬スクエアエンドミルハイヘリックスショート形<br>High Helix Carbide End Mill Short Length | | 6〜25 | ○ |
| 443 |  | **MG-TRC** | 台形ランナ用2枚刃超硬テーパエンドミル<br>2-flute Carbide Taper End Mill for Trapezoidal Runner | | 2〜6 | ○ |
| 273 |  | **MG-STDN** | 成形用2枚刃超硬エンドミル直刃ミディアム形<br>2-flute Carbide Straight Fluted End Mill Medium Length for Reforming | | 1〜12 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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| **超硬ウルトラVコーティングシリーズ** Ultra V Coated Micro Grain Carbide Series | | | | | | |
| 311-9 WEB |  | V-MG-EDS | Vコート2枚刃超硬スクエアエンドミルショート形 V Coated 2-flute Carbide End Mill Short Length | V | 1 ~ 25 | ○ |
| 340-14 WEB |  | V-LS-MG-EBD | Vコート2枚刃超硬ボールエンドミルロングシャンク V Coated 2-flute Carbide Ball End Mill with Long Shank | V | R0.5 ~ R20 | ○ |
| **超硬TiNコーティングシリーズ** TiN Coated Micro Grain Carbide Series | | | | | | |
| 311-10 WEB |  | SH-MG-EDS | 高硬度鋼用TiNコート2枚刃超硬スクエアエンドミルショート形 TiN Coated 2-flute Carbide End Mill Short Length for High-hardness Steels | TiN | 2 ~ 12 | ○ |
| 311-10 WEB |  | TIN-MG-EDS-3 | TiNコート2枚刃超硬スクエアエンドミルショート形(ミニチュア) TiN Coated 2-flute Miniature Carbide End Mill Short Length (φ3 Shank) | TiN | 0.25 ~ 2.95 | ○ |
| 436-2 WEB |  | TIN-MG-CR-EDS | TiNコート2枚刃超硬ラジアスエンドミルショート形 TiN Coated 2-flute Carbide End Mill Short Length with Corner Radius | TiN | 2 ~ 25 | ○ |
| 340-15 WEB |  | TIN-MG-EBD | TiNコート2枚刃超硬ボールエンドミル TiN Coated 2-flute Carbide Ball End Mill | TiN | R0.5 ~ R12.5 | ○ |
| 359-7 WEB |  | TIN-MG-LN-EBD | TiNコート2枚刃超硬ロングネックボールエンドミル TiN Coated 2-flute Long Neck Carbide Ball End Mill | TiN | R1 ~ R6 | ○ |
| 445-4 WEB |  | TIN-MG-TPBDS | TiNコート2枚刃超硬テーパボールエンドミルショート形 TiN Coated 2-flute Carbide Taper Ball End Mill Short Length | TiN | R1 ~ R6 | ○ |
| 445-5 WEB |  | TIN-MG-TPBDR | TiNコート2枚刃超硬テーパボールエンドミルレギュラ形 TiN Coated 2-flute Carbide Taper Ball End Mill Regular Length | TiN | R1 ~ R6 | ○ |
| **GX2000超硬エンドミルシリーズ** GX2000 Micro Grain Carbide Series | | | | | | |
| 311-11 WEB |  | GX-EDS | GXコート2枚刃超硬スクエアエンドミルショート形 GX Coated 2-flute Carbide End Mill Short Length | GX | 0.5 ~ 12 | ○ |
| 311-33 WEB |  | GX-EMS | GXコート4枚刃超硬スクエアエンドミルショート形 GX Coated 4-flute Carbide End Mill Short Length | GX | 2 ~ 12 | ○ |
| 340-17 WEB |  | GX-EBD | GXコート2枚刃超硬ボールエンドミル GX Coated 2-flute Carbide Ball End Mill | GX | R0.2 ~ R6 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

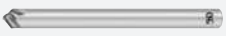
# INDEX OF CARBIDE END MILLS シリーズ別 超硬エンドミル 目次

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|---|---|---|---|---|---|---|
| **CBNエンドミルシリーズ** CBN Endmill Series | 超高圧焼結体CBNを刃先に採用したエンドミルシリーズです。その優れた耐熱性、耐摩耗性が炭素鋼、合金鋼、焼入れ鋼などの超高速加工を可能とし、工具摩耗を抑御するため高精度な加工の長時間断続を実現します。 | | | | | |
| 330 |  | **CBN-SXB** | 2枚刃小径CBNボールエンドミル<br>2-flute Small Size CBN Ball End Mill | | R0.2～R1.5 | ○ |
| 359 |  | **CBN-LN-SXB** | 2枚刃小径CBNロングネックボールエンドミル<br>2-flute Long Neck Small Size CBN Ball End Mill | | R0.2～R1.5 | ○ |
| 331 |  | **CBN-EBD** | 2枚刃CBNボールエンドミル<br>2-flute CBN Ball End Mill | | R3～R6 | ○ |
| 381 |  | **CBN-CR-EDS** | 2枚刃CBNラジアスエンドミルショート形<br>2-flute CBN End Mill Short Length with Corner Radius | | 3～6 | ○ |
| 381 |  | **CBN-SXR** | 2枚刃小径CBNラジアスエンドミル<br>2-flute Small Size CBN End Mill with Corner Radius | | 0.5～3 | ○ |
| 433 |  | **CBN-LN-SXR** | 2枚刃小径CBNロングネックラジアスエンドミル<br>2-flute Long Neck Small Size CBN End Mill with Corner Radius | | 0.5～3 | ○ |
| **ミラボロンシリーズ** Mira Boron CBN Brazed Series | | | | | | |
| 269 |  | **MBOS** | 1枚刃CBNスクエアエンドミルショート形<br>Single-flute CBN Brazed End Mill Short Length | | 6～12 | ○ |
| **ミラダイヤシリーズ** Mira Dia Sintered Diamond Series | | | | | | |
| 270 |  | **MDOS** | 1枚刃PCDスクエアエンドミルショート形<br>Single-flute PCD End Mill Short Length | | 6～12 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# シリーズ別 超硬エンドミル 目次 INDEX OF CARBIDE END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|
| **GX3000シリーズ GX3000 Series** | | | | | | |
| 339 |  | GX-EBD-SF | GXコート2枚刃超硬ボールエンドミル(焼きばめ対応)<br>GX Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) | GX | R5〜R10 | ○ |
| 339 |  | GX-EQD-SF | GXコート2枚刃超硬エンドミル球形(焼きばめ対応)<br>GX Coated 2-flute Carbide End Mill Sphere Type (Shrink Fit Type) | GX | R8〜R10 | ○ |
| 340 |  | DIA-EBD-SF | DIAコート2枚刃超硬ボールエンドミル（焼きばめ対応）<br>Diamond Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) | DIA | R5〜R6 | ○ |
| 340-1 WEB |  | DLC-EBD-SF | DLCコート2枚刃超硬ボールエンドミル（焼きばめ対応）<br>DLC Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) | DLC | R5〜R6 | ○ |
| 404 |  | GX-CR-EDS-SF | GXコート2枚刃超硬ラジアスエンドミルショート形(焼きばめ対応)<br>GX Coated 2-flute Carbide End Mill Short Length with Corner Radius (Shrink Fit Type) | GX | 10〜20 | ○ |
| 404 |  | CA-MFE-SF | 銅·アルミ合金用3枚刃超硬ラジアスエンドミル立ち壁対応型(焼きばめ対応)<br>3-flute Carbide End Mill with Corner Radius for Deep Side Milling in Copper and Aluminum Alloys (Shrink Fit Type) | | 18〜22 | ○ |
| 436-12 WEB |  | DLC-MFE-SF | DLCコート3枚刃超硬ラジアスエンドミル立ち壁対応型(焼きばめ対応)<br>DLC Coated 3-Flute Carbide End Mill with Corner Radius for Deep Side Milling (Shrink Fit Type) | DLC | 18〜22 | ○ |
| **ハイプロ面取カッタシリーズ HY-PRO Chamtering Catter Series** | | | | | | |
| 461 |  | HSCT-P | 面取り用3枚刃超硬エンドミルポジタイプ<br>3-flute Carbide End Mill for Chamfering (Positive) | | 1〜2 | ○ |
| 461 |  | HSCT-N | 面取り用3枚刃超硬エンドミルネガタイプ<br>3-flute Carbide End Mill for Chamfering (Negative) | | 1〜2 | ○ |
| 462 |  | LS-HSCT-P | 面取り用3枚刃超硬エンドミルロングシャンクポジタイプ<br>3-flute Carbide End Mill with Long Shank for Chamfering (Positive) | | 1〜2 | ○ |
| 462 |  | LS-HSCT-N | 面取り用3枚刃超硬エンドミルロングシャンクネガタイプ<br>3-flute Carbide End Mill with Long Shank for Chamfering (Negative) | | 1〜2 | ○ |
| 459 |  | W-HSCT-P | 面取り用WXLコート3枚刃超硬エンドミルポジタイプ<br>WXL Coated 3-flute Carbide End Mill for Chamfering (Positive) | WXL | 1〜2 | ○ |
| 460 |  | W-HSCT-N | 面取り用WXLコート3枚刃超硬エンドミルネガタイプ<br>WXL Coated 3-flute Carbide End Mill for Chamfering (Negative) | WXL | 1〜2 | ○ |
| 459 |  | WLS-HSCT-P | 面取り用WXLコート3枚刃超硬エンドミルロングシャンクポジタイプ<br>WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Positive) | WXL | 1〜2 | ○ |
| 460 |  | WLS-HSCT-N | 面取り用WXLコート3枚刃超硬エンドミルロングシャンクネガタイプ<br>WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Negative) | WXL | 1〜2 | ○ |
| 463 |  | HY-HSCM-P | 面取り用WXLコート多刃超硬エンドミルポジタイプ<br>WXL Coated Multi-flute Carbide End Mill for Chamfering (Positive) | WXL | 2〜3 | ○ |
| 470 |  | HY-QCC | 面取り用WXLコート超硬Qボールエンドミル<br>WXL Coated Carbide Q Ball End Mill for Chamfering | WXL | R1.4〜R3.9 | ○ |
| 471 |  | HY-BCC | 裏面取り用WXLコート超硬エンドミル<br>WXL Coated Carbide End Mill for Back Chamfering | WXL | 3.9〜7.9 | ○ |
| **CFRP用ルーターシリーズ Router for CFRP Series** | | | | | | |
| 481 |  | HBC60 | 超硬ヘリングボーンカッタ60°<br>Carbide Router Herringbone Type (60°) | | 6〜12 | ○ |
| 473 |  | DIA-HBC60 | DIAコート超硬ヘリングボーンカッタ60°<br>Diamond Coated Carbide Router Herringbone Type (60°) | DIA | 6〜10 | |
| 473 |  | DIA-CNC | DIAコート超硬ルーター高能率コースクロスニック<br>Diamond Coated Coarse Nicked Carbide Router | DIA | 3.175〜12.7 | |
| 472 |  | DIA-HBC4 | DIAコート4枚刃超硬ヘリングボーンカッタ<br>Diamond Coated Carbide Router for CFRP Herringbone Type | DIA | 3.175〜12.7 | |
| 476 |  | DIA-REC | 荒用DIAコート超硬ルーターラフィングタイプ<br>Diamond Coated Carbide Router for Roughing | DIA | 3.175〜12.7 | |
| 477 |  | DIA-MRC | DIAコート超硬ルーター底刃コーナR付<br>Diamond Coated Carbide Router with Corner Radius | DIA | 3.175〜12.7 | ○ |



コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

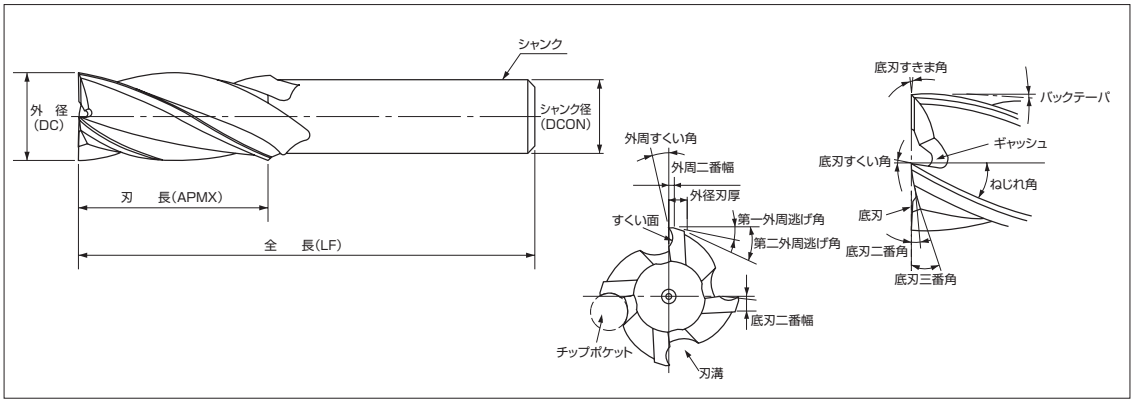
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|---|---|---|---|---|---|---|
| **CFRP用ルーターシリーズ** Router for CFRP Series | | | | | | |
| 478 |  | DIA-COE | DIAコート1枚刃超硬ルーター弱ねじれ Diamond Coated Single-flute Low Helix Carbide Router | DIA | 2〜12 | ○ |
| 472 |  | DIA-BNC | DIAコート超硬ルーターファインクロスニック Diamond Coated Fine Nicked Carbide Router | DIA | 3.175〜12.7 | ○ |
| 474 |  | DIA-DCR | DIAコート超硬綾目ルーター底刃有り Diamond Coated Diamond Cut Carbide Router with End Mill Cut | DIA | 3.175〜12.7 | ○ |
| 474 |  | DIA-DCR-N | DIAコート超硬綾目ルーター底刃無し Diamond Coated Diamond Cut Carbide Router with No End Cut | DIA | 3.175〜12.7 | ○ |
| 481 |  | ED-EM | 電着ダイヤモンドルーター Electroplated Diamond Router for CFRP | DIA | 3.175〜12.7 | ○ |
| 482 |  | ED-EB | 電着ダイヤモンドボールエンドミル Electroplated Diamond Ball End | DIA | R0.5〜R5 | ○ |
| 480 |  | DCE | 超硬綾目ルーター（メートル） Diamond Cut Carbide Router | | 6〜12 | ○ |
| 480 |  | DCR | 超硬綾目ルーター（インチ） Diamond Cut Carbide Router | | 3.175〜9.525 | ○ |
| 475 |  | DIA-DCE | DIAコート超硬綾目ルーター底刃有り Diamond Coated Diamond Cut Carbide Router with End Mill Cut | DIA | 2〜12 | ○ |
| 475 |  | DIA-DCE-N | DIAコート超硬綾目ルーター底刃無し Diamond Coated Diamond Cut Carbide Router with No End Cut | DIA | 2〜12 | ○ |
| 476 |  | DIA-DCE-D | DIAコート超硬綾目ルーター底刃ドリル仕様 Diamond Coated Diamond Cut Carbide Router with Drill Point | DIA | 2〜12 | ○ |
| 478 |  | DIA-MFC | 仕上げ用DIAコート多刃超硬ルーター Diamond Coated Multi-flute Carbide Router for Finishing | DIA | 3.175〜12.7 | ○ |
| 479 |  | DIA-TRE | 薄板トリミング用DIAコート超硬綾目ルーター底刃無し Diamond Coated Diamond Cut Carbide Router with No End Cut for Trimming Laminates | DIA | 1.5〜3 | ○ |
| 479 |  | DIA-TRE-D | 薄板トリミング用DIAコート超硬綾目ルーター底刃ドリル仕様 Diamond Coated Diamond Cut Carbide Router with Drill Point for Trimming Laminates | DIA | 1.5〜3 | ○ |
| **セラミックエンドミルシリーズ** Ceramic End Mill Series | | | | | | |
| 435 |  | CM-RMS | セラミックラジアスエンドミル外周刃タイプ Ceramic End Mill with Corner Radius Outer Cutting Edge Type | | 6〜12 | ○ |
| 436 |  | CM-CRE | セラミックエンドミル底刃タイプ Ceramic End Mill with Corner Radius Bottom Cutting Edge Type | | 6〜25 | ○ |
| **アディティブ・マニュファクチャリング用エンドミルシリーズ** Additive Manufacturing End Mill Series | | | | | | |
| 334 |  | AM-EBT | アディティブ・マニュファクチャリング用DUROREYコート3枚刃超硬ボールエンドミル DUROREY Coated 3-flute Carbide Ball End Mill for Additive Manufacturing | DUROREY | R1〜R10 | ○ |
| 385 |  | AM-CRE | アディティブ・マニュファクチャリング用DUROREYコート多刃超硬ラジアスエンドミル DUROREY Coated Multi-flute Carbide End Mill with Corner Radius for Additive Manufacturing | DUROREY | 6〜20 | ○ |
| 386 |  | AM-HFC | アディティブ・マニュファクチャリング用DUROREYコート6枚刃高送り超硬ラジアスエンドミル DUROREY Coated 6-flute High Feed Carbide End Mill with Corner Radius for Additive Manufacturing | DUROREY | 4〜12 | ○ |
| **インペラ・タービンブレード加工用エンドミルシリーズ** End Mill Series for Machining Impellers and Turbine Blades | | | | | | |
| 444 |  | IB-TPBT | インペラ・タービンブレード用コーティング3枚刃超硬テーパボールエンドミル Coated 3-flute Carbide Taper Ball End Mill for Impellers and Turbine Blades | WXL FX DUROREY | R0.5〜R3 | ○ |
| **仕上げ用異形工具シリーズ** Variant Shape Tool for Finishing | | | | | | |
| 445 |  | VU-TBR | 仕上げ用WXLコート超硬エンドミルテーパバレル型 WXL Coated Taper Barrel Type End Mill for Finishing | WXL | R0.5〜R3 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

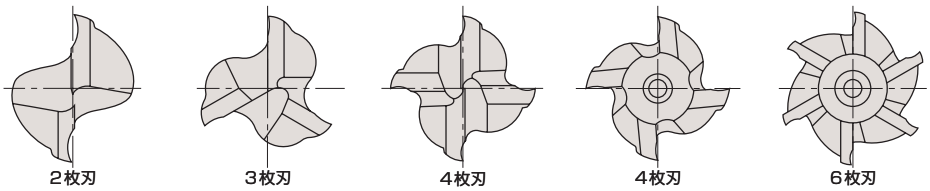
# 超硬エンドミルをお選びになる前に

## ■各部の名称



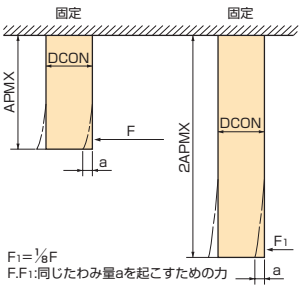

## ■刃数(ZEFP)

エンドミルの性能を左右する大きな要因のひとつに、刃数があります。一般に、刃数の少ないものはチップポケットが大きく、切りくずの排出はよいのですが、その反面、工具断面積は小さく、剛性は低下しますので、切削中にたわみを生じやすくなります。逆に、刃数が多くなると工具断面積は大きくなり剛性は大きくなりますが、チップポケットは小さくなり切りくず収容能力は低下し、切りくずづまりの状態を生じやすくなります。



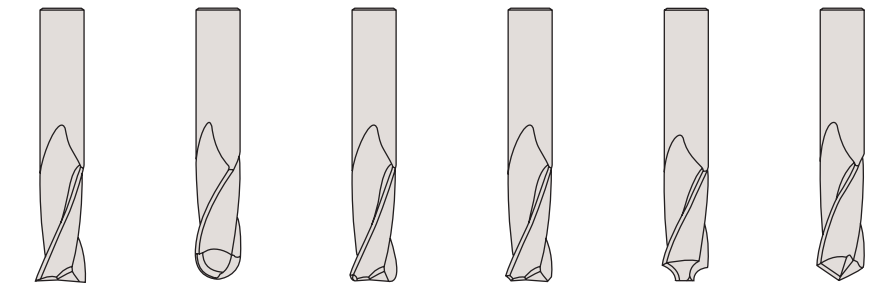

## ■刃長(APMX)

刃長は短いほど工具剛性が増し、切削性能もよくなります。エンドミルの剛性は刃長（突出し長さ）の3乗に反比例します。したがって、刃長（突出し長さ）が2倍になると工具剛性は1/8になります。エンドミルは横送りによって使用する工具ですから、このことは大変重要となります。必要以上に長い刃長のエンドミルを使用することは大きなデメリットとなります。OSGでは刃長のバリエーションも豊富に取り揃えておりますので、加工の内容に見合った最適な刃長をお選び下さい。

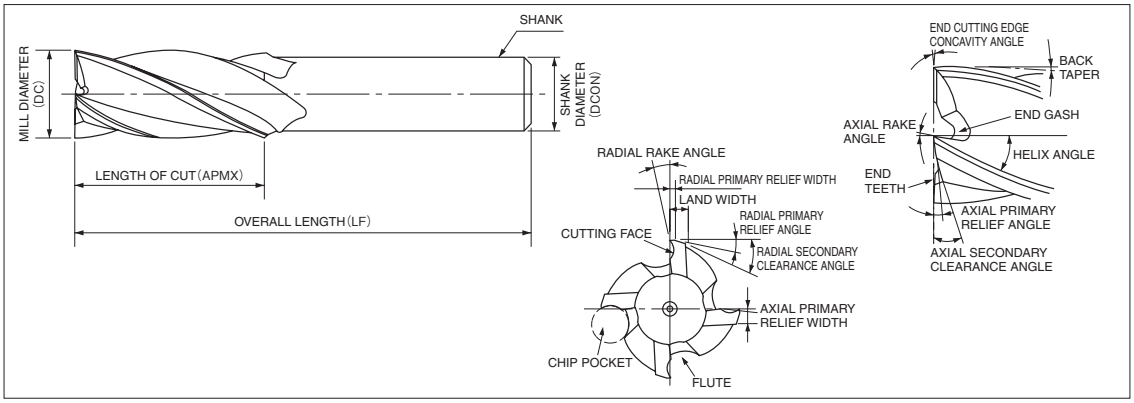



## ■底刃の形状

エンドミル底刃形状には、代表的なものにスクエアエンド、ボールエンド、ラジアスエンドがあり、OSGでは各種在庫を取り揃えております。この他にもコーナ面取り、コーナラウンディング、ドリルノーズなど、用途に合わせて対応しております。

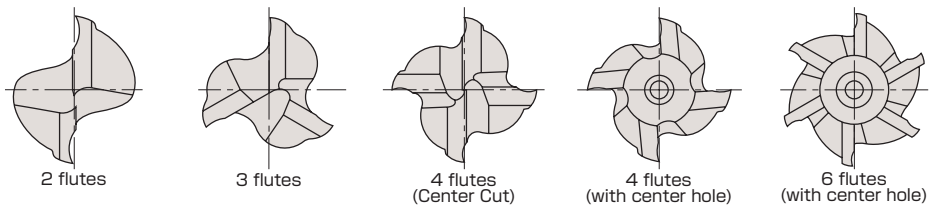


## ■TERMINOLOGY



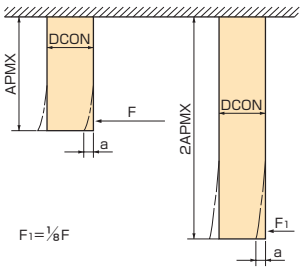

## ■NUMBER OF FLUTES(ZEFP)

The number of flutes should be determined by the work material, dimensions of the work piece and milling conditions. In general, an end mill with a small number of flutes and large chip room is used for roughing, and an end mill with a large number of flutes is used for finishing.



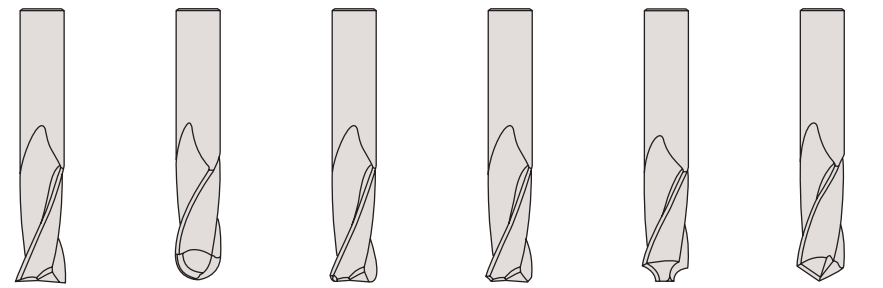

## ■LENGTH OF CUT(APMX)

The shorter the end mill, the smaller the deflection and the stronger the rigidity. Because rigidity varies in proportion to length of cut by a factor to the power of 3 (for example, when the length of cut doubles, the rigidity decreases to 1/8), it is necessary to keep the length of cut as short as possible.




## ■END PROFILE

Stocked end profiles are typically square end, ball end and radius end. Corner radius, corner chamfer, corner rounding and drill nose end profiles can be supplied via special order.



# WXLコート2枚刃超硬スクエアエンドミル 1.5D刃長

**WXL Coated 2-flute Carbide End Mill (1.5D Type)**

## WXL-1.5D-DE

切削条件 Cutting Conditions | P582



硬質潤滑被膜WXLコーティングを施した2枚刃エンドミルです。鋼はもちろん銅合金の切削にも効果を発揮します。湿式、乾式どちらの加工にもお勧めできる1.5D刃長タイプです。

2 flute end mill with WXL coating with high hardness and better lubrication. Can be used on steels as well as Cupper Alloys. Recommended with lubrications or dry milling.

CARBIDE | WXL | 0〜-0.02 | SHRINK FIT | 30°

CAD

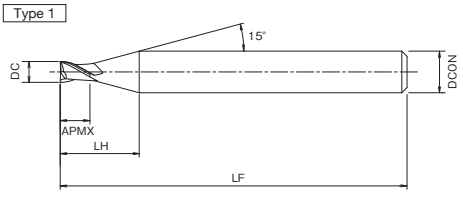
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3181801 | **0.1** | 45 | 0.15 | 7 | 4 | 1 | B | ● | 14 | 6,910 |
| 3181802 | **0.2** | | 0.3 | | | | | ● | 14 | 4,340 |
| 3181803 | **0.3** | | 0.45 | | | | | ● | 14 | 3,740 |
| 3181804 | **0.4** | | 0.6 | 6.9 | | | | ● | 14 | 4,170 |
| 3181805 | **0.5** | | 0.75 | | | | A | ● | 14 | 2,090 |
| 3181806 | **0.6** | | 0.9 | | | | B | ● | 14 | 3,200 |
| 3181807 | **0.7** | | 1.1 | | | | | ● | 14 | 3,500 |
| 3181808 | **0.8** | | 1.2 | | | | | ● | 14 | 2,090 |
| 3181809 | **0.9** | | 1.4 | 6.8 | | | | ● | 14 | 3,480 |
| 3181810 | **1** | | 1.5 | 6.9 | | | A | ● | 14 | 1,870 |
| 3181811 | **1.1** | | 1.7 | | | | B | ● | 14 | 3,820 |
| 3181812 | **1.2** | | 1.8 | 6.8 | | | A | ● | 14 | 2,090 |
| 3181813 | **1.3** | | 2 | | | | B | ● | 14 | 3,820 |
| 3181814 | **1.4** | | 2.1 | | | | | ● | 14 | 3,820 |
| 3181815 | **1.5** | | 2.3 | | | | A | ● | 14 | 1,870 |
| 3181816 | **1.6** | | 2.4 | 6.7 | | | B | ● | 14 | 3,820 |
| 3181817 | **1.7** | | 2.6 | 7.1 | | | | ● | 14 | 3,820 |
| 3181818 | **1.8** | | 2.7 | 7 | | | A | ● | 14 | 2,090 |
| 3181819 | **1.9** | | 2.9 | | | | B | ● | 14 | 3,820 |
| 3181820 | **2** | | 3 | | | | A | ● | 14 | 1,870 |
| 3181821 | **2.1** | | 3.2 | 7.1 | | | B | ● | 14 | 3,820 |
| 3181822 | **2.2** | | 3.3 | 7 | | | | ● | 14 | 3,820 |
| 3181823 | **2.3** | | 3.5 | 7.1 | | | | ● | 14 | 3,820 |
| 3181824 | **2.4** | | 3.6 | | | | | ● | 14 | 3,820 |
| 3181825 | **2.5** | | 3.8 | 7 | | | A | ● | 9 | 1,870 |
| 3181826 | **2.6** | | 3.9 | 7.4 | | | B | ● | 9 | 4,820 |
| 3181827 | **2.7** | | 4.1 | | | | | ● | 9 | 4,820 |
| 3181828 | **2.8** | | 4.2 | 7.3 | | | | ● | 9 | 4,820 |
| 3181829 | **2.9** | | 4.4 | 7.4 | | | | ● | 9 | 4,820 |
| 3181830 | **3** | | 4.5 | 11.1 | 6 | | A | ● | 17 | 2,400 |
| 3181831 | **3.1** | | 4.7 | | | | B | ● | 17 | 5,130 |
| 3181832 | **3.2** | | 4.8 | | | | | ● | 17 | 5,130 |

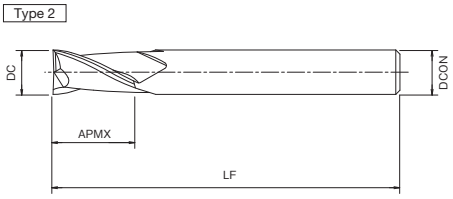
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3181833 | **3.3** | 45 | 5 | 11.1 | 6 | 1 | B | ● | 17 | 5,130 |
| 3181834 | **3.4** | | 5.1 | 11 | | | | ● | 17 | 5,130 |
| 3181835 | **3.5** | | 5.3 | | | | A | ● | 17 | 4,220 |
| 3181836 | **3.6** | | 5.4 | 10.9 | | | B | ● | 17 | 5,130 |
| 3181837 | **3.7** | | 5.6 | | | | | ● | 17 | 5,130 |
| 3181838 | **3.8** | | 5.7 | 10.8 | | | | ● | 17 | 5,130 |
| 3181839 | **3.9** | | 5.9 | | | | | ● | 17 | 5,130 |
| 3181840 | **4** | | 6 | | | | A | ● | 17 | 2,650 |
| 3181841 | **4.1** | 50 | 6.2 | 11.1 | | | B | ● | 19 | 5,130 |
| 3181842 | **4.2** | | 6.3 | 11 | | | | ● | 19 | 5,130 |
| 3181843 | **4.3** | | 6.5 | | | | | ● | 19 | 5,130 |
| 3181844 | **4.4** | | 6.6 | 10.9 | | | | ● | 19 | 5,130 |
| 3181845 | **4.5** | | 6.8 | | | | A | ● | 19 | 4,890 |
| 3181846 | **4.6** | | 6.9 | 10.8 | | | B | ● | 19 | 5,830 |
| 3181847 | **4.7** | | 7.1 | 10.9 | | | | ● | 19 | 5,830 |
| 3181848 | **4.8** | | 7.2 | 10.8 | | | | ● | 20 | 5,830 |
| 3181849 | **4.9** | | 7.4 | | | | | ● | 20 | 5,830 |
| 3181850 | **5** | | 7.5 | 10.6 | | | A | ● | 20 | 2,840 |
| 3181851 | **5.1** | | 7.7 | 10.7 | | | B | ● | 20 | 5,830 |
| 3181852 | **5.2** | | 7.8 | 10.6 | | | | ● | 20 | 5,830 |
| 3181853 | **5.3** | | 8 | | | | | ● | 20 | 5,830 |
| 3181854 | **5.4** | | 8.1 | 10.5 | | | | ● | 20 | 5,830 |
| 3181855 | **5.5** | | 8.3 | | | | A | ● | 20 | 4,890 |
| 3181856 | **5.6** | | 8.4 | | | | B | ● | 20 | 6,020 |
| 3181857 | **5.7** | | 8.6 | | | | | ● | 20 | 6,020 |
| 3181858 | **5.8** | | 8.7 | 10.4 | | | | ● | 20 | 6,020 |
| 3181859 | **5.9** | | 8.9 | | | | | ● | 20 | 6,020 |
| 3181860 | **6** | | 9 | — | | 2 | A | ● | 20 | 3,080 |
| 3181880 | **8** | 60 | 12 | | 8 | | | ● | 42 | 7,120 |
| 3181900 | **10** | 70 | 15 | | 10 | | | ● | 75 | 9,300 |
| 3181920 | **12** | 75 | 18 | | 12 | | | ● | 113 | 12,700 |

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WXL-1.5D-DE** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

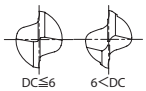
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬スクエアエンドミル 2D刃長

**WXL Coated 2-flute Carbide End Mill (2D Type)**

## WXL-2D-DE

切削条件 Cutting Conditions | P583






硬質潤滑被膜WXLコーティングを施した2枚刃エンドミルです。鋼はもちろん銅合金の切削にも効果を発揮します。湿式、乾式どちらの加工にもお勧めできる2D刃長タイプです。

2 flute end mill with WXL coating with high hardness and better lubrication. Can be used on steels as well as Cupper Alloys. Recommended with lubrications or dry milling.

CARBIDE | WXL | SHRINK FIT | 30°

DC≦12 0~-0.02
12<DC 0~-0.03

CAD

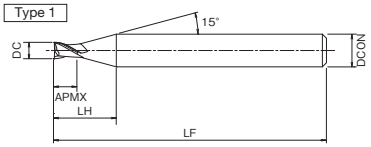
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182001 | **0.1** | 45 | 0.2 | 7 | 4 | 1 | B | ● | 13 | 7,120 |
| 3182002 | **0.2** | | 0.4 | 7.1 | | | | ● | 13 | 4,280 |
| 3182003 | **0.3** | | 0.6 | | | | | ● | 13 | 3,740 |
| 3182004 | **0.4** | | 0.8 | | | | | ● | 13 | 4,170 |
| 3182005 | **0.5** | | 1 | | | | A | ● | 13 | 2,090 |
| 3182006 | **0.6** | | 1.2 | 7.2 | | | B | ● | 13 | 3,180 |
| 3182007 | **0.7** | | 1.4 | 7.3 | | | | ● | 13 | 3,530 |
| 3182008 | **0.8** | | 1.6 | | | | | ● | 13 | 2,090 |
| 3182009 | **0.9** | | 1.8 | | | | | ● | 13 | 3,530 |
| 3182010 | **1** | | 2 | 7.4 | | | A | ● | 13 | 1,870 |
| 3182011 | **1.1** | | 2.2 | | | | B | ● | 13 | 3,950 |
| 3182012 | **1.2** | | 2.4 | | | | A | ● | 13 | 2,090 |
| 3182013 | **1.3** | | 2.6 | | | | B | ● | 13 | 3,950 |
| 3182014 | **1.4** | | 2.8 | 7.5 | | | | ● | 13 | 3,950 |
| 3182015 | **1.5** | | 3 | | | | A | ● | 13 | 1,870 |
| 3182016 | **1.6** | | 3.2 | 7.6 | | | B | ● | 13 | 3,950 |
| 3182017 | **1.7** | | 3.4 | 8 | | | | ● | 13 | 3,950 |
| 3182018 | **1.8** | | 3.6 | | | | A | ● | 13 | 2,090 |
| 3182019 | **1.9** | | 3.8 | | | | B | ● | 13 | 4,060 |
| 3182020 | **2** | | 4 | 8.1 | | | A | ● | 13 | 1,870 |
| 3182021 | **2.1** | | 4.2 | | | | B | ● | 13 | 3,950 |
| 3182022 | **2.2** | | 4.4 | | | | | ● | 13 | 3,950 |
| 3182023 | **2.3** | | 4.6 | 8.2 | | | | ● | 13 | 3,950 |
| 3182024 | **2.4** | | 4.8 | | | | | ● | 13 | 3,950 |
| 3182025 | **2.5** | | 5 | | | | A | ● | 13 | 1,870 |
| 3182026 | **2.6** | | 5.2 | 8.7 | | | B | ● | 9 | 5,030 |
| 3182027 | **2.7** | | 5.4 | | | | | ● | 9 | 5,030 |
| 3182028 | **2.8** | | 5.6 | | | | | ● | 9 | 5,030 |
| 3182029 | **2.9** | | 5.8 | 8.8 | | | | ● | 9 | 5,030 |
| 3182030 | **3** | | 6 | 12.6 | 6 | | A | ● | 17 | 2,400 |
| 3182031 | **3.1** | | 6.2 | 12.8 | | | B | ● | 17 | 5,250 |
| 3182032 | **3.2** | | 6.4 | 12.9 | | | | ● | 17 | 5,250 |
| 3182033 | **3.3** | | 6.6 | | | | | ● | 17 | 5,250 |
| 3182034 | **3.4** | | 6.8 | | | | | ● | 17 | 5,250 |
| 3182035 | **3.5** | | 7 | | | | A | ● | 17 | 4,280 |
| 3182036 | **3.6** | | 7.2 | | | | B | ● | 17 | 5,250 |
| 3182037 | **3.7** | | 7.4 | | | | | ● | 17 | 5,250 |

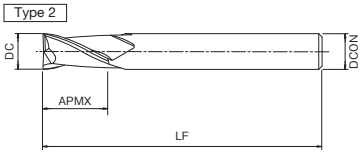
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182038 | **3.8** | 45 | 7.6 | 12.9 | 6 | 1 | B | ● | 17 | 5,250 |
| 3182039 | **3.9** | | 7.8 | | | | | ● | 17 | 5,250 |
| 3182040 | **4** | | 8 | 13 | | | A | ● | 17 | 2,650 |
| 3182041 | **4.1** | 50 | 8.2 | 13.1 | | | B | ● | 19 | 5,250 |
| 3182042 | **4.2** | | 8.4 | | | | | ● | 19 | 5,250 |
| 3182043 | **4.3** | | 8.6 | | | | | ● | 19 | 5,250 |
| 3182044 | **4.4** | | 8.8 | | | | | ● | 19 | 5,250 |
| 3182045 | **4.5** | | 9 | | | | A | ● | 19 | 4,920 |
| 3182046 | **4.6** | | 9.2 | | | | B | ● | 19 | 6,040 |
| 3182047 | **4.7** | | 9.4 | 13.2 | | | | ● | 19 | 6,040 |
| 3182048 | **4.8** | | 9.6 | | | | | ● | 19 | 6,040 |
| 3182049 | **4.9** | | 9.8 | | | | | ● | 19 | 6,040 |
| 3182050 | **5** | | 10 | 13.1 | | | A | ● | 19 | 2,840 |
| 3182051 | **5.1** | | 10.2 | 13.2 | | | B | ● | 19 | 6,040 |
| 3182052 | **5.2** | | 10.4 | | | | | ● | 19 | 6,040 |
| 3182053 | **5.3** | | 10.6 | | | | | ● | 19 | 6,040 |
| 3182054 | **5.4** | | 10.8 | | | | | ● | 19 | 6,040 |
| 3182055 | **5.5** | | 11 | | | | A | ● | 19 | 5,160 |
| 3182056 | **5.6** | | 11.2 | 13.3 | | | B | ● | 19 | 6,250 |
| 3182057 | **5.7** | | 11.4 | | | | | ● | 20 | 6,250 |
| 3182058 | **5.8** | | 11.6 | | | | | ● | 20 | 6,250 |
| 3182059 | **5.9** | | 11.8 | | | | | ● | 20 | 6,250 |
| 3182060 | **6** | | 12 | – | | 2 | A | ● | 20 | 3,080 |
| 3182061 | **6.1** | 60 | 12.2 | 18.1 | 8 | 1 | D | ● | 38 | 10,300 |
| 3182062 | **6.2** | | 12.4 | | | | | ● | 39 | 10,300 |
| 3182063 | **6.3** | | 12.6 | | | | | ● | 39 | 10,300 |
| 3182064 | **6.4** | | 12.8 | | | | | ● | 39 | 10,300 |
| 3182065 | **6.5** | | 13 | 17 | | | B | ● | 39 | 9,250 |
| 3182066 | **6.6** | | 13.2 | 18.1 | | | D | ● | 39 | 10,300 |
| 3182067 | **6.7** | | 13.4 | 18.2 | | | | ● | 39 | 10,300 |
| 3182068 | **6.8** | | 13.6 | | | | | ● | 39 | 10,300 |
| 3182069 | **6.9** | | 13.8 | | | | | ● | 39 | 10,300 |
| 3182070 | **7** | | 14 | 17.1 | | | A | ● | 39 | 8,670 |
| 3182071 | **7.1** | | 14.2 | 18.2 | | | D | ● | 40 | 10,300 |
| 3182072 | **7.2** | | 14.4 | | | | | ● | 40 | 10,300 |

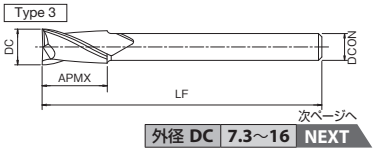
Type 1




Type 2




Type 3




次ページへ
外径 DC 7.3~16 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WXL-2D-DE** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

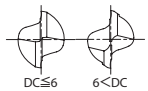
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬スクエアエンドミル 2D刃長

**WXL Coated 2-flute Carbide End Mill (2D Type)**

## WXL-2D-DE

切削条件 Cutting Conditions | P583






硬質潤滑被膜WXLコーティングを施した2枚刃エンドミルです。鋼はもちろん銅合金の切削にも効果を発揮します。湿式、乾式どちらの加工にもお勧めできる2D刃長タイプです。

2 flute end mill with WXL coating with high hardness and better lubrication. Can be used on steels as well as Cupper Alloys. Recommended with lubrications or dry milling.




CAD

前ページより FROM 外径 DC 0.1～7.2

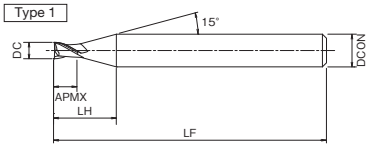
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182073 | **7.3** | 60 | 14.6 | 18.2 | 8 | 1 | D | ● | 40 | 10,300 |
| 3182074 | **7.4** | | 14.8 | | | | | ● | 40 | 10,300 |
| 3182075 | **7.5** | | 15 | 17.2 | | | B | ● | 40 | 10,400 |
| 3182076 | **7.6** | | 15.2 | 18.3 | | | D | ● | 40 | 11,600 |
| 3182077 | **7.7** | | 15.4 | | | | | ● | 40 | 11,600 |
| 3182078 | **7.8** | | 15.6 | | | | | ● | 41 | 11,600 |
| 3182079 | **7.9** | | 15.8 | | | | | ● | 41 | 11,600 |
| 3182080 | **8** | | 16 | — | | 2 | A | ● | 41 | 6,290 |
| 3182081 | **8.1** | 70 | 16.2 | 22.1 | 10 | 1 | D | ● | 68 | 13,900 |
| 3182082 | **8.2** | | 16.4 | | | | | ● | 69 | 13,900 |
| 3182083 | **8.3** | | 16.6 | | | | | ● | 69 | 13,900 |
| 3182084 | **8.4** | | 16.8 | | | | | ● | 69 | 13,900 |
| 3182085 | **8.5** | | 17 | 21 | | | B | ● | 69 | 12,500 |
| 3182086 | **8.6** | | 17.2 | 22.1 | | | D | ● | 69 | 13,900 |
| 3182087 | **8.7** | | 17.4 | | | | | ● | 70 | 13,900 |
| 3182088 | **8.8** | | 17.6 | 22.2 | | | | ● | 70 | 13,900 |
| 3182089 | **8.9** | | 17.8 | | | | | ● | 70 | 13,900 |
| 3182090 | **9** | | 18 | 21.1 | | | A | ● | 70 | 12,100 |
| 3182091 | **9.1** | | 18.2 | 22.2 | | | D | ● | 70 | 13,900 |
| 3182092 | **9.2** | | 18.4 | | | | | ● | 71 | 13,900 |
| 3182093 | **9.3** | | 18.6 | | | | | ● | 71 | 13,900 |
| 3182094 | **9.4** | | 18.8 | | | | | ● | 71 | 13,900 |
| 3182095 | **9.5** | | 19 | 21.2 | | | B | ● | 71 | 12,900 |
| 3182096 | **9.6** | | 19.2 | 22.3 | | | D | ● | 72 | 14,300 |
| 3182097 | **9.7** | | 19.4 | | | | | ● | 72 | 14,300 |
| 3182098 | **9.8** | | 19.6 | | | | | ● | 72 | 14,300 |
| 3182099 | **9.9** | | 19.8 | | | | | ● | 73 | 14,300 |
| 3182100 | **10** | | 20 | — | | 2 | A | ● | 73 | 7,550 |
| 3182101 | **10.1** | 75 | 20.2 | 26.1 | 12 | 1 | D | ● | 104 | 18,800 |
| 3182102 | **10.2** | | 20.4 | | | | | ● | 104 | 18,800 |
| 3182103 | **10.3** | | 20.6 | | | | | ● | 105 | 18,800 |
| 3182104 | **10.4** | | 20.8 | | | | | ● | 105 | 18,800 |
| 3182105 | **10.5** | | 21 | | | | | ● | 105 | 18,800 |
| 3182106 | **10.6** | | 21.2 | | | | | ● | 105 | 18,800 |
| 3182107 | **10.7** | | 21.4 | | | | | ● | 105 | 18,800 |
| 3182108 | **10.8** | | 21.6 | 26.2 | | | | ● | 105 | 18,800 |
| 3182109 | **10.9** | | 21.8 | | | | | ● | 106 | 18,800 |

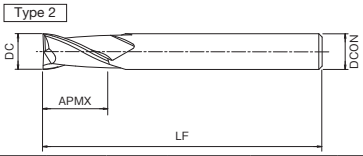
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182110 | **11** | 75 | 22 | 25.1 | 12 | 1 | A | ● | 106 | 17,100 |
| 3182111 | **11.1** | | 22.2 | 26.2 | | | D | ● | 106 | 19,300 |
| 3182112 | **11.2** | | 22.4 | | | | | ● | 106 | 19,300 |
| 3182113 | **11.3** | | 22.6 | | | | | ● | 107 | 19,300 |
| 3182114 | **11.4** | | 22.8 | | | | | ● | 107 | 19,300 |
| 3182115 | **11.5** | | 23 | 26.3 | | | | ● | 108 | 19,300 |
| 3182116 | **11.6** | | 23.2 | | | | | ● | 108 | 19,300 |
| 3182117 | **11.7** | | 23.4 | | | | | ● | 109 | 19,300 |
| 3182118 | **11.8** | | 23.6 | | | | | ● | 109 | 19,300 |
| 3182119 | **11.9** | | 23.8 | | | | | ● | 109 | 19,300 |
| 3182120 | **12** | | 24 | — | | 2 | A | ● | 109 | 11,200 |
| 3182121 | **12.1** | 85 | 24.2 | | | 3 | D | ● | 127 | 27,200 |
| 3182122 | **12.2** | | 24.4 | | | | | ● | 128 | 27,200 |
| 3182123 | **12.3** | | 24.6 | | | | | ● | 128 | 27,200 |
| 3182124 | **12.4** | | 24.8 | | | | | ● | 129 | 27,200 |
| 3182125 | **12.5** | | 25 | | | | | ● | 130 | 27,200 |
| 3182126 | **12.6** | | 25.2 | | | | | ● | 130 | 27,200 |
| 3182127 | **12.7** | | 25.4 | | | | | ● | 131 | 27,200 |
| 3182128 | **12.8** | | 25.6 | | | | | ● | 131 | 27,200 |
| 3182129 | **12.9** | | 25.8 | | | | | ● | 131 | 27,200 |
| 3182130 | **13** | | 26 | | | | | ● | 132 | 23,600 |
| 3182131 | **13.1** | | 26.2 | | | | | ● | 140 | 35,000 |
| 3182132 | **13.2** | | 26.4 | | | | | ● | 140 | 35,000 |
| 3182133 | **13.3** | | 26.6 | | | | | ● | 141 | 35,000 |
| 3182134 | **13.4** | | 26.8 | | | | | ● | 141 | 35,000 |
| 3182135 | **13.5** | | 27 | | | | | ● | 142 | 35,000 |
| 3182136 | **13.6** | | 27.2 | | | | | ● | 143 | 35,000 |
| 3182137 | **13.7** | | 27.4 | | | | | ● | 143 | 35,000 |
| 3182138 | **13.8** | | 27.6 | | | | | ● | 144 | 35,000 |
| 3182139 | **13.9** | | 27.8 | | | | | ● | 145 | 35,000 |
| 3182140 | **14** | | 28 | | | | | ● | 145 | 30,200 |
| 3182145 | **14.5** | 90 | 29 | 35.1 | 16 | 1 | | ● | 222 | 38,600 |
| 3182150 | **15** | | 30 | 35.4 | | | | ● | 225 | 33,200 |
| 3182155 | **15.5** | | 31 | 35.5 | | | | ● | 227 | 39,000 |
| 3182160 | **16** | | 32 | — | | 2 | B | ● | 232 | 33,200 |

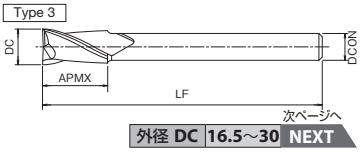
Type 1




Type 2




Type 3




次ページへ 外径 DC 16.5～30 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | プリハードン鋼 Prehardened Steel | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | | ～35HRC | ～350HB | | | | | | |
| **WXL-2D-DE** | ◎ | | ◎ | ○ | | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

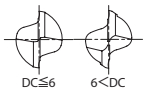
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬スクエアエンドミル 2D刃長

**WXL Coated 2-flute Carbide End Mill (2D Type)**

## WXL-2D-DE

切削条件 Cutting Conditions | P583






硬質潤滑被膜WXLコーティングを施した2枚刃エンドミルです。鋼はもちろん銅合金の切削にも効果を発揮します。湿式、乾式どちらの加工にもお勧めできる2D刃長タイプです。

2 flute end mill with WXL coating with high hardness and better lubrication. Can be used on steels as well as Cupper Alloys. Recommended with lubrications or dry milling.

CAD

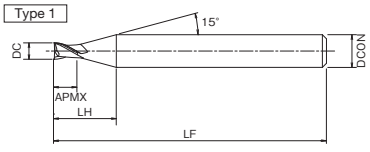
CARBIDE | WXL | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 30°

前ページより FROM 外径 DC 7.3~16

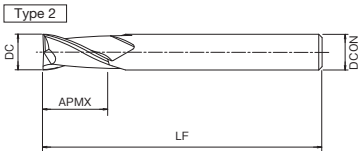
(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182165 | **16.5** | 90 | 33 | – | 16 | 3 | D | ● | 236 | 60,200 |
| 3182170 | **17** | | 34 | | | | | ● | 240 | 49,200 |
| 3182175 | **17.5** | | 35 | | | | | ● | 244 | 60,200 |
| 3182180 | **18** | | 36 | | | | B | ● | 249 | 52,400 |
| 3182185 | **18.5** | 100 | 37 | 43.3 | 20 | 1 | D | ● | 375 | 65,500 |
| 3182190 | **19** | | 38 | 43.4 | | | | ● | 379 | 57,000 |
| 3182195 | **19.5** | | 39 | 43.5 | | | | ● | 384 | 65,500 |
| 3182200 | **20** | | 40 | – | | 2 | B | ● | 391 | 56,800 |
| 3182210 | **21** | 105 | 42 | | | 3 | D | ● | 425 | 73,200 |
| 3182220 | **22** | | 44 | | | | | ● | 437 | 79,200 |
| 3182230 | **23** | 120 | 46 | 53.3 | 25 | 1 | | ● | 681 | 85,600 |
| 3182240 | **24** | | 48 | 53.4 | | | | ● | 692 | 92,300 |
| 3182250 | **25** | 125 | 50 | – | | 2 | | ● | 749 | 84,600 |
| 3182300 | **30** | 140 | 60 | 67.3 | 32 | 1 | | ● | 1,292 | 125,000 |

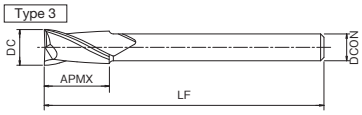
Type 1




Type 2




Type 3




デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~40HRC | | ~45HRC | ~55HRC | ~60HRC | ~65HRC | ~35HRC | ~350HB | | | | | | |
| WXL-2D-DE | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

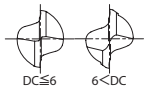
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# WXLコート2枚刃超硬スクエアエンドミル 3D刃長

**WXL Coated 2-flute Carbide End Mill (3D Type)**

## WXL-3D-DE

切削条件 Cutting Conditions | P584






硬質潤滑被膜WXLコーティングを施した2枚刃エンドミルです。鋼はもちろん銅合金の切削にも効果を発揮します。湿式、乾式どちらの加工にもお勧めできる3D刃長タイプです。

2 flute end mill with WXL coating with high hardness and better lubrication. Can be used on steels as well as Cupper Alloys. Recommended with lubrications or dry milling.

CARBIDE | WXL | DC≦12 (DC≦12 0~-0.02, 12<DC 0~-0.03) | SHRINK FIT | 35°

CAD

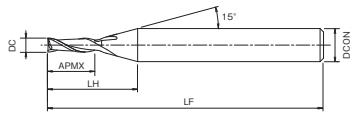
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182401 | **0.1** | 45 | 0.3 | 7.1 | 4 | 1 | B | ● | 13 | 7,120 |
| 3182402 | **0.2** | | 0.6 | 7.3 | | | | ● | 13 | 4,280 |
| 3182403 | **0.3** | | 0.9 | 7.4 | | | | ● | 13 | 3,740 |
| 3182404 | **0.4** | | 1.2 | 7.5 | | | | ● | 13 | 4,170 |
| 3182405 | **0.5** | | 1.5 | 7.6 | | | A | ● | 13 | 2,090 |
| 3182406 | **0.6** | | 1.8 | 7.8 | | | B | ● | 13 | 3,180 |
| 3182407 | **0.7** | | 2.1 | 8 | | | | ● | 13 | 3,530 |
| 3182408 | **0.8** | | 2.4 | 8.1 | | | | ● | 13 | 2,090 |
| 3182409 | **0.9** | | 2.7 | 8.2 | | | | ● | 13 | 3,530 |
| 3182410 | **1** | | 3 | 8.4 | | | A | ● | 13 | 1,870 |
| 3182411 | **1.1** | | 3.3 | 8.7 | | | B | ● | 13 | 3,950 |
| 3182412 | **1.2** | | 3.6 | | | | A | ● | 13 | 2,090 |
| 3182413 | **1.3** | | 3.9 | 8.9 | | | B | ● | 13 | 3,950 |
| 3182414 | **1.4** | | 4.2 | 9.1 | | | | ● | 13 | 3,950 |
| 3182415 | **1.5** | | 4.5 | | | | A | ● | 13 | 1,870 |
| 3182416 | **1.6** | | 4.8 | 9.3 | | | B | ● | 13 | 3,950 |
| 3182417 | **1.7** | | 5.1 | 9.8 | | | | ● | 13 | 3,950 |
| 3182418 | **1.8** | | 5.4 | | | | A | ● | 13 | 2,090 |
| 3182419 | **1.9** | | 5.7 | 10 | | | B | ● | 13 | 3,950 |
| 3182420 | **2** | | 6 | 10.2 | | | A | ● | 13 | 1,870 |
| 3182421 | **2.1** | | 6.3 | 10.5 | | | B | ● | 13 | 3,950 |
| 3182422 | **2.2** | | 6.6 | 10.7 | | | | ● | 13 | 3,950 |
| 3182423 | **2.3** | | 6.9 | 10.8 | | | | ● | 13 | 3,950 |
| 3182424 | **2.4** | | 7.2 | 10.9 | | | | ● | 13 | 3,950 |
| 3182425 | **2.5** | | 7.5 | 11 | | | A | ● | 13 | 1,870 |
| 3182426 | **2.6** | | 7.8 | 11.5 | | | B | ● | 9 | 5,030 |
| 3182427 | **2.7** | | 8.1 | 11.6 | | | | ● | 9 | 5,030 |
| 3182428 | **2.8** | | 8.4 | 11.7 | | | | ● | 9 | 5,030 |
| 3182429 | **2.9** | | 8.7 | 11.9 | | | | ● | 9 | 5,030 |
| 3182430 | **3** | | 9 | 15.9 | 6 | | A | ● | 16 | 2,400 |
| 3182431 | **3.1** | | 9.3 | 16 | | | B | ● | 16 | 5,250 |
| 3182432 | **3.2** | | 9.6 | 16.2 | | | | ● | 16 | 5,250 |
| 3182433 | **3.3** | | 9.9 | 16.3 | | | | ● | 16 | 5,250 |
| 3182434 | **3.4** | | 10.2 | 16.4 | | | | ● | 16 | 5,250 |
| 3182435 | **3.5** | | 10.5 | 16.5 | | | A | ● | 16 | 4,380 |
| 3182436 | **3.6** | | 10.8 | 16.6 | | | B | ● | 16 | 5,250 |
| 3182437 | **3.7** | | 11.1 | 16.7 | | | | ● | 16 | 5,250 |

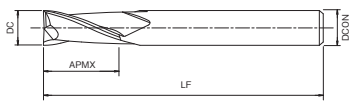
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182438 | **3.8** | 45 | 11.4 | 16.8 | 6 | 1 | B | ● | 16 | 5,250 |
| 3182439 | **3.9** | | 11.7 | 16.9 | | | | ● | 16 | 5,250 |
| 3182440 | **4** | 50 | 12 | 17 | | | A | ● | 18 | 2,650 |
| 3182441 | **4.1** | | 12.3 | 17.2 | | | B | ● | 18 | 5,250 |
| 3182442 | **4.2** | | 12.6 | 17.3 | | | | ● | 18 | 5,250 |
| 3182443 | **4.3** | | 12.9 | 17.4 | | | | ● | 18 | 5,250 |
| 3182444 | **4.4** | | 13.2 | 17.5 | | | | ● | 18 | 5,250 |
| 3182445 | **4.5** | | 13.5 | 17.6 | | | A | ● | 18 | 5,030 |
| 3182446 | **4.6** | 55 | 13.8 | 17.7 | | | B | ● | 19 | 6,040 |
| 3182447 | **4.7** | | 14.1 | 17.9 | | | | ● | 20 | 6,040 |
| 3182448 | **4.8** | | 14.4 | 18 | | | | ● | 20 | 6,040 |
| 3182449 | **4.9** | | 14.7 | 18.1 | | | | ● | 20 | 6,040 |
| 3182450 | **5** | | 15 | | | | A | ● | 20 | 2,840 |
| 3182451 | **5.1** | | 15.3 | 18.3 | | | B | ● | 20 | 6,040 |
| 3182452 | **5.2** | | 15.6 | 18.4 | | | | ● | 20 | 6,040 |
| 3182453 | **5.3** | | 15.9 | 18.5 | | | | ● | 20 | 6,040 |
| 3182454 | **5.4** | | 16.2 | 18.6 | | | | ● | 20 | 6,040 |
| 3182455 | **5.5** | 60 | 16.5 | 18.7 | | | A | ● | 23 | 5,030 |
| 3182456 | **5.6** | | 16.8 | 18.9 | | | B | ● | 23 | 6,250 |
| 3182457 | **5.7** | | 17.1 | 19 | | | | ● | 23 | 6,250 |
| 3182458 | **5.8** | | 17.4 | 19.1 | | | | ● | 23 | 6,250 |
| 3182459 | **5.9** | | 17.7 | 19.2 | | | | ● | 24 | 6,250 |
| 3182460 | **6** | | 18 | — | | 2 | A | ● | 24 | 3,080 |
| 3182465 | **6.5** | 65 | 19.5 | 23.5 | 8 | 1 | B | ● | 40 | 9,250 |
| 3182470 | **7** | | 21 | 24.1 | | | A | ● | 41 | 8,670 |
| 3182475 | **7.5** | 70 | 22.5 | 24.7 | | | B | ● | 45 | 10,400 |
| 3182480 | **8** | | 24 | — | | 2 | A | ● | 47 | 6,290 |
| 3182485 | **8.5** | 75 | 25.5 | 29.5 | 10 | 1 | B | ● | 65 | 12,500 |
| 3182490 | **9** | | 27 | 30.1 | | | A | ● | 73 | 12,500 |
| 3182495 | **9.5** | | 28.5 | 30.7 | | | B | ● | 73 | 12,900 |
| 3182500 | **10** | 80 | 30 | — | | 2 | A | ● | 81 | 7,550 |
| 3182510 | **11** | | 33 | 36.3 | 12 | 1 | | ● | 108 | 17,100 |
| 3182520 | **12** | 90 | 36 | — | | 2 | | ● | 130 | 11,200 |
| 3182560 | **16** | 110 | 48 | | 16 | | | ● | 276 | 33,200 |
| 3182580 | **18** | 130 | 54 | | | 3 | B | ● | 364 | 52,400 |
| 3182600 | **20** | | 60 | | 20 | 2 | | ● | 505 | 56,800 |

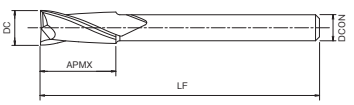
Type 1




Type 2




Type 3




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WXL-3D-DE** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

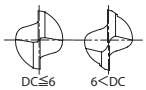
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬スクエアエンドミル 4D刃長

**WXL Coated 2-flute Carbide End Mill (4D Type)**

## WXL-4D-DE

切削条件 Cutting Conditions | P585






硬質潤滑被膜WXLコーティングを施した2枚刃エンドミルです。鋼はもちろん銅合金の切削にも効果を発揮します。湿式、乾式どちらの加工にもお勧めできる4D刃長タイプです。

2 flute end mill with WXL coating with high hardness and better lubrication. Can be used on steels as well as Cupper Alloys. Recommended with lubrications or dry milling.

CARBIDE | WXL | 0〜-0.02 | SHRINK FIT | 40°

CAD

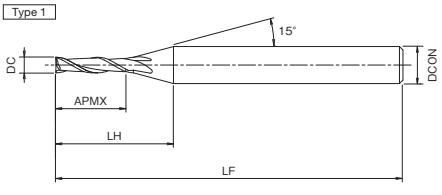
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182602 | **0.2** | 45 | 0.8 | 7.5 | 4 | 1 | B | ● | 13 | 6,840 |
| 3182603 | **0.3** | | 1.2 | 7.7 | | | | ● | 13 | 5,610 |
| 3182604 | **0.4** | | 1.6 | 7.9 | | | | ● | 13 | 5,610 |
| 3182605 | **0.5** | | 2 | 8.1 | | | A | ● | 13 | 3,530 |
| 3182606 | **0.6** | | 2.4 | 8.4 | | | B | ● | 13 | 3,180 |
| 3182607 | **0.7** | | 2.8 | 8.7 | | | | ● | 13 | 3,530 |
| 3182608 | **0.8** | | 3.2 | 8.9 | | | | ● | 13 | 3,530 |
| 3182609 | **0.9** | | 3.6 | 9.1 | | | | ● | 13 | 3,530 |
| 3182610 | **1** | | 4 | 9.6 | | | A | ● | 13 | 3,180 |
| 3182611 | **1.1** | | 4.4 | 9.8 | | | B | ● | 13 | 4,700 |
| 3182612 | **1.2** | | 4.8 | 10 | | | A | ● | 13 | 3,850 |
| 3182613 | **1.3** | | 5.2 | 10.2 | | | B | ● | 13 | 4,820 |
| 3182614 | **1.4** | | 5.6 | 10.5 | | | | ● | 13 | 4,820 |
| 3182615 | **1.5** | | 6 | 10.7 | | | A | ● | 13 | 3,180 |
| 3182616 | **1.6** | | 6.4 | 11.1 | | | B | ● | 13 | 4,820 |
| 3182617 | **1.7** | | 6.8 | 11.7 | | | | ● | 13 | 4,820 |
| 3182618 | **1.8** | | 7.2 | 11.9 | | | A | ● | 13 | 3,850 |
| 3182619 | **1.9** | | 7.6 | 12.1 | | | B | ● | 13 | 4,820 |
| 3182620 | **2** | | 8 | 12.4 | | | A | ● | 13 | 3,180 |
| 3182621 | **2.1** | | 8.4 | 12.6 | | | B | ● | 13 | 4,820 |
| 3182622 | **2.2** | | 8.8 | 12.9 | | | | ● | 13 | 4,820 |
| 3182623 | **2.3** | | 9.2 | 13.1 | | | | ● | 13 | 4,820 |
| 3182624 | **2.4** | | 9.6 | 13.3 | | | | ● | 13 | 4,820 |
| 3182625 | **2.5** | | 10 | 13.5 | | | A | ● | 13 | 3,180 |
| 3182626 | **2.6** | 50 | 10.4 | 14.2 | | | B | ● | 9 | 5,480 |
| 3182627 | **2.7** | | 10.8 | 14.4 | | | | ● | 9 | 5,480 |
| 3182628 | **2.8** | | 11.2 | 14.6 | | | | ● | 9 | 5,480 |
| 3182629 | **2.9** | | 11.6 | 14.9 | | | | ● | 9 | 5,480 |
| 3182630 | **3** | | 12 | 18.9 | 6 | | A | ● | 17 | 3,950 |
| 3182631 | **3.1** | | 12.4 | 19.1 | | | B | ● | 17 | 5,800 |
| 3182632 | **3.2** | | 12.8 | 19.4 | | | | ● | 17 | 5,800 |

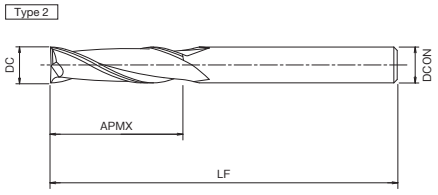
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3182633 | **3.3** | 50 | 13.2 | 19.6 | 6 | 1 | B | ● | 17 | 5,800 |
| 3182634 | **3.4** | | 13.6 | 19.8 | | | | ● | 17 | 5,800 |
| 3182635 | **3.5** | | 14 | 20 | | | A | ● | 17 | 5,160 |
| 3182636 | **3.6** | | 14.4 | 20.2 | | | B | ● | 17 | 5,800 |
| 3182637 | **3.7** | | 14.8 | 20.4 | | | | ● | 17 | 5,800 |
| 3182638 | **3.8** | | 15.2 | 20.6 | | | | ● | 17 | 5,800 |
| 3182639 | **3.9** | | 15.6 | 20.8 | | | | ● | 17 | 5,800 |
| 3182640 | **4** | 55 | 16 | 21.1 | | | A | ● | 18 | 4,280 |
| 3182641 | **4.1** | | 16.4 | 21.3 | | | B | ● | 18 | 5,800 |
| 3182642 | **4.2** | | 16.8 | 21.5 | | | | ● | 18 | 5,800 |
| 3182643 | **4.3** | | 17.2 | 21.7 | | | | ● | 18 | 5,800 |
| 3182644 | **4.4** | | 17.6 | 21.9 | | | | ● | 19 | 5,800 |
| 3182645 | **4.5** | | 18 | 22.1 | | | A | ● | 19 | 5,930 |
| 3182646 | **4.6** | | 18.4 | 22.3 | | | B | ● | 19 | 6,550 |
| 3182647 | **4.7** | | 18.8 | 22.6 | | | | ● | 19 | 6,550 |
| 3182648 | **4.8** | | 19.2 | 22.8 | | | | ● | 19 | 6,550 |
| 3182649 | **4.9** | | 19.6 | 23 | | | | ● | 19 | 6,550 |
| 3182650 | **5** | 60 | 20 | 23.1 | | | A | ● | 22 | 4,820 |
| 3182651 | **5.1** | | 20.4 | 23.4 | | | B | ● | 22 | 6,550 |
| 3182652 | **5.2** | | 20.8 | 23.6 | | | | ● | 22 | 6,550 |
| 3182653 | **5.3** | | 21.2 | 23.8 | | | | ● | 22 | 6,550 |
| 3182654 | **5.4** | | 21.6 | 24 | | | | ● | 22 | 6,550 |
| 3182655 | **5.5** | 65 | 22 | 24.2 | | | A | ● | 24 | 5,930 |
| 3182656 | **5.6** | | 22.4 | 24.5 | | | B | ● | 24 | 6,900 |
| 3182657 | **5.7** | | 22.8 | 24.7 | | | | ● | 25 | 6,900 |
| 3182658 | **5.8** | | 23.2 | 24.9 | | | | ● | 25 | 6,900 |
| 3182659 | **5.9** | | 23.6 | 25.1 | | | | ● | 25 | 6,900 |
| 3182660 | **6** | | 24 | — | | 2 | A | ● | 25 | 4,920 |
| 3182680 | **8** | 80 | 32 | — | 8 | | | ● | 54 | 10,600 |
| 3182700 | **10** | 90 | 40 | — | 10 | | | ● | 92 | 11,600 |
| 3182720 | **12** | 100 | 48 | — | 12 | | | ● | 140 | 19,700 |

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼<br>Prehardened Steel<br>焼き入れ鋼<br>Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WXL-4D-DE** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXコート2枚刃超硬スクエアエンドミルスタブ形
**WX Coated 2-flute Carbide End Mill Stub Length**

## WX-G-EDSS

切削条件 Cutting Conditions | P627



底刃コーナ部を強化した強力型2枚刃エンドミルです。剛性の高い短刃長のため重切削を可能としました。量産加工でのリードタイム削減を実現します。

High-helix two flute end mills with corner radius on end teeth. Heavy machining is possible thanks to the rigidity of the short flute length. Can reduce the lead times of mass production machining.

CARBIDE | WX | 0〜-0.02 | SHRINK FIT | 35°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3019010 | **1** | 40 | 1.5 | 4 | A | ▲ | 13 | 3,210 |
| 3019012 | **1.2** | | 1.8 | | D | ▲ | 13 | 3,210 |
| 3019015 | **1.5** | | 2.3 | | A | ▲ | 13 | 3,210 |
| 3019018 | **1.8** | | 2.7 | | D | ▲ | 13 | 3,210 |
| 3019020 | **2** | | 3 | | A | ▲ | 13 | 3,210 |
| 3019025 | **2.5** | | 3.7 | | | ▲ | 13 | 3,210 |
| 3019028 | **2.8** | | 4.2 | | D | ▲ | 13 | 6,420 |
| 3019030 | **3** | 50 | 4.5 | 6 | A | ▲ | 19 | 4,020 |
| 3019035 | **3.5** | | 5.3 | | | ▲ | 19 | 6,420 |
| 3019040 | **4** | | 6 | | | ▲ | 19 | 4,200 |
| 3019045 | **4.5** | | 6.8 | | | ▲ | 19 | 7,300 |
| 3019050 | **5** | | 7.5 | | | ▲ | 19 | 4,550 |
| 3019055 | **5.5** | | 8.3 | | | ▲ | 20 | 7,590 |
| 3019060 | **6** | | 9 | | | ▲ | 20 | 4,700 |
| 3019070 | **7** | 60 | 11 | 8 | D | △ | 41 | 9,150 |
| 3019080 | **8** | | 12 | | A | ▲ | 42 | 6,950 |
| 3019090 | **9** | 70 | 14 | 10 | D | △ | 73 | 12,400 |
| 3019100 | **10** | | 15 | | A | ▲ | 75 | 8,560 |
| 3019120 | **12** | 75 | 18 | 12 | | ▲ | 113 | 11,600 |

▲＝この製品は、WXL-1.5D-DE(P.259)、AE-VTSS(P.309)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by WXL-1.5D-DE(p.259) ,AE-VTSS(p.309)

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WX-G-EDSS** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃超硬スクエアエンドミルショート形（ミニチュア）

**2-flute Miniature Carbide End Mill (φ3 Shank)**

## MG-EDS-3

切削条件 Cutting Conditions | P669



ヤング率の大きな高じん性超硬合金を採用しています。
Made with tough carbide metal.

CARBIDE　0〜-0.02　1.95≦D≦3　SHRINK FIT　30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 84601 | **0.1** | 40 | 0.2 | 3 | B | △ | 9 | 17,900 |
| 84631 | **0.15** | | 0.3 | | | △ | 9 | 16,700 |
| 84602 | **0.2** | | 0.6 | | A | △ | 9 | 12,000 |
| 84632 | **0.25** | | 0.8 | | D | △ | 9 | 11,500 |
| 84603 | **0.3** | | | | A | △ | 9 | 9,800 |
| 84633 | **0.35** | | 1.1 | | D | △ | 9 | 10,400 |
| 84604 | **0.4** | | 1.2 | | A | △ | 9 | 9,800 |
| 84634 | **0.45** | | 1.3 | | D | △ | 9 | 7,910 |
| 84605 | **0.5** | | 1.5 | | A | △ | 9 | 9,200 |
| 84635 | **0.55** | | 1.7 | | D | △ | 9 | 7,910 |
| 84606 | **0.6** | | | | A | △ | 9 | 9,200 |
| 84636 | **0.65** | | 1.9 | | D | △ | 9 | 8,990 |
| 84607 | **0.7** | | 2.2 | | A | △ | 9 | 8,620 |
| 84637 | **0.75** | | | | D | △ | 9 | 8,990 |
| 84608 | **0.8** | | 2.4 | | A | △ | 9 | 8,620 |
| 84638 | **0.85** | | | | D | △ | 9 | 8,690 |
| 84609 | **0.9** | | 2.6 | | A | △ | 9 | 8,230 |
| 84639 | **0.95** | | | | D | △ | 9 | 7,890 |
| 84610 | **1** | | 3 | | A | △ | 9 | 7,410 |
| 84640 | **1.05** | | | | | △ | 9 | 7,890 |
| 84611 | **1.1** | | 3.4 | | | △ | 9 | 7,410 |
| 84641 | **1.15** | | | | D | △ | 9 | 7,890 |
| 84612 | **1.2** | | 3.8 | | A | △ | 9 | 7,410 |
| 84642 | **1.25** | | | | | △ | 9 | 7,890 |
| 84613 | **1.3** | | | | | △ | 9 | 7,410 |
| 84643 | **1.35** | | 4.2 | | D | △ | 9 | 7,380 |
| 84614 | **1.4** | | | | A | △ | 9 | 6,980 |
| 84644 | **1.45** | | | | D | △ | 9 | 7,380 |
| 84615 | **1.5** | | | | A | △ | 9 | 6,980 |
| 84645 | **1.55** | | 4.8 | | D | △ | 9 | 7,380 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 84616 | **1.6** | 40 | 4.8 | 3 | A | △ | 9 | 6,980 |
| 84646 | **1.65** | | | | D | △ | 9 | 7,380 |
| 84617 | **1.7** | | | | A | △ | 9 | 6,980 |
| 84647 | **1.75** | | 5.3 | | D | △ | 9 | 7,380 |
| 84618 | **1.8** | | | | A | △ | 9 | 6,980 |
| 84648 | **1.85** | | | | D | △ | 9 | 7,380 |
| 84619 | **1.9** | | | | A | △ | 9 | 6,980 |
| 84649 | **1.95** | | 6 | | D | △ | 9 | 6,900 |
| 84620 | **2** | | | | A | △ | 9 | 6,550 |
| 84650 | **2.05** | | | | D | △ | 9 | 6,900 |
| 84621 | **2.1** | | | | B | △ | 9 | 6,550 |
| 84651 | **2.15** | | 6.7 | | D | △ | 9 | 6,900 |
| 84622 | **2.2** | | | | B | △ | 9 | 6,550 |
| 84652 | **2.25** | | | | D | △ | 9 | 6,900 |
| 84623 | **2.3** | | | | B | △ | 9 | 6,550 |
| 84653 | **2.35** | | | | D | △ | 9 | 6,900 |
| 84624 | **2.4** | | 8 | | B | △ | 9 | 6,550 |
| 84654 | **2.45** | | | | D | △ | 9 | 6,900 |
| 84625 | **2.5** | | | | A | △ | 9 | 6,550 |
| 84655 | **2.55** | | | | D | △ | 9 | 6,900 |
| 84626 | **2.6** | | | | B | △ | 9 | 6,550 |
| 84656 | **2.65** | | | | D | △ | 9 | 6,900 |
| 84627 | **2.7** | | | | B | △ | 9 | 6,550 |
| 84657 | **2.75** | | | | D | △ | 9 | 6,900 |
| 84628 | **2.8** | | | | B | △ | 9 | 6,550 |
| 84658 | **2.85** | | | | D | △ | 9 | 6,900 |
| 84629 | **2.9** | | | | B | △ | 9 | 6,550 |
| 84659 | **2.95** | | | | D | △ | 9 | 6,900 |
| 84630 | **3** | | | | A | △ | 9 | 6,550 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、
水・油・ヘドロをスピード吸入・スピード吐出
※詳細は▶P.1176 を参照下さい。
See p.1176 for details



**形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6**

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| MG-EDS-3 | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃超硬スクエアエンドミルショート形
**2-flute Carbide End Mill Short Length**

## MG-EDS

切削条件 Cutting Conditions | P668



CARBIDE | 0〜-0.03 | 2≦DC≦12 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 84002 | **1** | 40 | 2.5 | 4 | A | ▲ | 12 | 6,310 |
| 89711 | **1.1** | | | | B | ▲ | 12 | 7,090 |
| 89712 | **1.2** | | 4 | | | ▲ | 12 | 7,090 |
| 89713 | **1.3** | | | | | ▲ | 12 | 7,090 |
| 89714 | **1.4** | | | | | ▲ | 12 | 7,090 |
| 84003 | **1.5** | | | | A | ▲ | 12 | 6,310 |
| 89715 | **1.6** | | 5 | | B | ▲ | 12 | 7,090 |
| 89716 | **1.7** | | | | | ▲ | 12 | 7,090 |
| 89717 | **1.8** | | | | | ▲ | 12 | 7,090 |
| 89718 | **1.9** | | | | | ▲ | 12 | 7,090 |
| 84004 | **2** | | 6 | | A | ▲ | 12 | 6,310 |
| 89719 | **2.1** | | | | B | ▲ | 12 | 7,810 |
| 89720 | **2.2** | | | | | ▲ | 12 | 7,810 |
| 89721 | **2.3** | | | | | ▲ | 12 | 7,810 |
| 89722 | **2.4** | | 8 | | | ▲ | 12 | 7,810 |
| 84005 | **2.5** | | | | A | ▲ | 12 | 6,310 |
| 89723 | **2.6** | | | | B | ▲ | 12 | 7,810 |
| 89724 | **2.7** | | | | | ▲ | 12 | 7,810 |
| 89725 | **2.8** | | | | | ▲ | 12 | 7,810 |
| 89726 | **2.9** | | | | | ▲ | 12 | 7,810 |
| 84006 | **3** | 45 | 10 | 6 | A | ▲ | 15 | 7,820 |
| 89727 | **3.1** | | | | B | ▲ | 15 | 8,230 |
| 89728 | **3.2** | | | | | ▲ | 15 | 8,230 |
| 89729 | **3.3** | | | | | ▲ | 15 | 8,230 |
| 89730 | **3.4** | | | | | ▲ | 15 | 8,230 |
| 84007 | **3.5** | | | | A | ▲ | 15 | 8,230 |
| 89731 | **3.6** | | | | B | ▲ | 15 | 8,230 |
| 89732 | **3.7** | | | | | ▲ | 15 | 8,230 |
| 89733 | **3.8** | | 11 | | | ▲ | 15 | 8,230 |
| 89734 | **3.9** | | | | | ▲ | 15 | 8,230 |
| 84008 | **4** | | | | A | ▲ | 16 | 8,230 |
| 89735 | **4.1** | | | | B | ▲ | 16 | 9,050 |
| 89736 | **4.2** | | | | | ▲ | 16 | 9,050 |
| 89737 | **4.3** | | | | | ▲ | 16 | 9,050 |
| 89738 | **4.4** | | | | | ▲ | 16 | 9,050 |
| 84009 | **4.5** | | | | A | ▲ | 16 | 9,050 |
| 89739 | **4.6** | | | | B | ▲ | 16 | 9,050 |
| 89740 | **4.7** | | | | | ▲ | 16 | 9,050 |
| 89741 | **4.8** | 50 | 13 | | | ▲ | 18 | 9,050 |
| 89742 | **4.9** | | | | | ▲ | 18 | 9,050 |
| 84010 | **5** | | | | A | ▲ | 18 | 9,050 |
| 89743 | **5.1** | | | | B | ▲ | 18 | 9,850 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89744 | **5.2** | 50 | 13 | 6 | B | ▲ | 18 | 9,850 |
| 89745 | **5.3** | | | | | ▲ | 18 | 9,850 |
| 89746 | **5.4** | | | | | ▲ | 19 | 9,850 |
| 84011 | **5.5** | | | | | ▲ | 19 | 9,850 |
| 89747 | **5.6** | | | | | ▲ | 19 | 9,850 |
| 89748 | **5.7** | | | | | ▲ | 19 | 9,850 |
| 89749 | **5.8** | | | | | ▲ | 19 | 9,850 |
| 89750 | **5.9** | | | | | ▲ | 20 | 9,850 |
| 84012 | **6** | | | | A | ▲ | 20 | 9,440 |
| 89751 | **6.1** | 60 | 16 | 8 | B | ▲ | 37 | 11,700 |
| 89752 | **6.2** | | | | | ▲ | 37 | 11,700 |
| 89753 | **6.3** | | | | | ▲ | 38 | 11,700 |
| 89754 | **6.4** | | | | | ▲ | 38 | 11,700 |
| 84013 | **6.5** | | | | | ▲ | 38 | 11,700 |
| 89755 | **6.6** | | | | | ▲ | 38 | 11,700 |
| 89756 | **6.7** | | | | | ▲ | 38 | 11,700 |
| 89757 | **6.8** | | | | | ▲ | 38 | 11,700 |
| 89758 | **6.9** | | | | | ▲ | 38 | 11,700 |
| 84014 | **7** | | | | A | ▲ | 39 | 11,700 |
| 89759 | **7.1** | | | | B | ▲ | 39 | 12,900 |
| 89760 | **7.2** | | | | | ▲ | 39 | 12,900 |
| 89761 | **7.3** | | | | | ▲ | 40 | 12,900 |
| 89762 | **7.4** | | | | | ▲ | 40 | 12,900 |
| 84015 | **7.5** | | | | | ▲ | 40 | 12,900 |
| 89763 | **7.6** | | 19 | | | ▲ | 40 | 12,900 |
| 89764 | **7.7** | | | | | ▲ | 40 | 12,900 |
| 89765 | **7.8** | | | | | ▲ | 40 | 12,900 |
| 89766 | **7.9** | | | | | ▲ | 40 | 12,900 |
| 84016 | **8** | | | | A | ▲ | 40 | 12,900 |
| 89767 | **8.1** | 70 | | 10 | B | ▲ | 67 | 15,700 |
| 89768 | **8.2** | | | | | ▲ | 68 | 15,700 |
| 89769 | **8.3** | | | | | ▲ | 68 | 15,700 |
| 89770 | **8.4** | | | | | ▲ | 68 | 15,700 |
| 84017 | **8.5** | | | | | ▲ | 68 | 15,700 |
| 89771 | **8.6** | | | | | ▲ | 68 | 15,700 |
| 89772 | **8.7** | | | | | ▲ | 68 | 15,700 |
| 89773 | **8.8** | | | | | ▲ | 69 | 15,700 |
| 89774 | **8.9** | | | | | ▲ | 70 | 15,700 |
| 84018 | **9** | | | | A | ▲ | 70 | 15,700 |
| 89775 | **9.1** | | | | B | ▲ | 71 | 17,700 |
| 89776 | **9.2** | | | | | ▲ | 71 | 17,700 |
| 89777 | **9.3** | | | | | ▲ | 71 | 17,700 |

▲＝この製品は、WXL-2D-DE(P.260)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by WXL-2D-DE(p.260)

次ページへ
外径 DC 9.4〜25 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EDS** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃超硬スクエアエンドミルショート形
**2-flute Carbide End Mill Short Length**

# MG-EDS

切削条件 Cutting Conditions | P668



CARBIDE | 0〜-0.03 | 2≦DC≦12 | SHRINK FIT | 30°

CAD

前ページより FROM 外径 DC 1〜9.3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89778 | **9.4** | 70 | 19 | 10 | B | ▲ | 71 | 17,700 |
| 84019 | **9.5** | | | | | ▲ | 72 | 17,700 |
| 89779 | **9.6** | | 22 | | | ▲ | 72 | 17,700 |
| 89780 | **9.7** | | | | | ▲ | 72 | 17,700 |
| 89781 | **9.8** | | | | | ▲ | 72 | 17,700 |
| 89782 | **9.9** | | | | | ▲ | 72 | 17,700 |
| 84020 | **10** | | | | A | ▲ | 72 | 16,000 |
| 89783 | **10.1** | 75 | | 12 | B | ▲ | 104 | 21,100 |
| 89784 | **10.2** | | | | | ▲ | 104 | 21,100 |
| 89785 | **10.3** | | | | | ▲ | 104 | 21,100 |
| 89786 | **10.4** | | | | | ▲ | 104 | 21,100 |
| 84051 | **10.5** | | | | | ▲ | 105 | 21,100 |
| 89787 | **10.6** | | | | | ▲ | 105 | 21,100 |
| 89788 | **10.7** | | | | | ▲ | 105 | 21,100 |
| 89789 | **10.8** | | | | | ▲ | 105 | 21,100 |
| 89790 | **10.9** | | | | | ▲ | 105 | 21,100 |
| 84021 | **11** | | | | | ▲ | 106 | 21,100 |
| 89791 | **11.1** | | | | | ▲ | 106 | 22,200 |
| 89792 | **11.2** | | | | | ▲ | 106 | 22,200 |
| 89793 | **11.3** | | | | | ▲ | 107 | 22,200 |
| 89794 | **11.4** | | | | | ▲ | 108 | 22,200 |
| 84052 | **11.5** | | | | | ▲ | 108 | 22,200 |
| 89795 | **11.6** | | | | | ▲ | 109 | 22,200 |
| 89796 | **11.7** | | | | | ▲ | 109 | 22,200 |
| 89797 | **11.8** | | | | | ▲ | 109 | 22,200 |
| 89798 | **11.9** | | 26 | | | ▲ | 109 | 22,200 |
| 84022 | **12** | | | | A | ▲ | 109 | 22,200 |
| 84023 | **13** | 85 | | | — | □ | — | — |
| 84024 | **14** | | | | | □ | — | — |
| 84025 | **15** | 90 | | 16 | | □ | — | — |
| 84026 | **16** | 100 | 32 | | | □ | — | — |
| 84027 | **17** | | | | | □ | — | — |
| 84028 | **18** | | | | | □ | — | — |
| 84029 | **19** | | | 20 | — | □ | — | — |
| 84030 | **20** | 105 | 38 | | | □ | — | — |
| 84031 | **21** | | | | | □ | — | — |
| 84032 | **22** | | | | | □ | — | — |
| 84033 | **23** | 120 | 45 | 25 | | □ | — | — |
| 84034 | **24** | | | | | □ | — | — |
| 84035 | **25** | | | | | □ | — | — |

▲＝この製品は、WXL-2D-DE(P.260)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by WXL-2D-DE(p.260)

## 2枚刃超硬スクエアエンドミルショート形
**2-flute Carbide End Mill Short Length**

# MG-EDS

切削条件 Cutting Conditions | P668



### 外径の許容差 OH1
Tolerance for Milling Diameter

CARBIDE | 0〜+0.02 | 2≦DC≦12 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 70902 | **1** | 40 | 2.5 | 4 | D | △ | 12 | 7,840 |
| 70903 | **1.5** | | 4 | | | △ | 12 | 7,840 |
| 70904 | **2** | | 6 | | | △ | 12 | 7,840 |
| 70905 | **2.5** | | 8 | | | △ | 12 | 8,620 |
| 70906 | **3** | 45 | | 6 | | △ | 16 | 8,620 |
| 70907 | **3.5** | | 10 | | | △ | 16 | 9,090 |
| 70908 | **4** | | 11 | | | △ | 16 | 9,090 |
| 70909 | **4.5** | | | | | △ | 16 | 10,100 |
| 70910 | **5** | 50 | 13 | | | △ | 19 | 10,100 |
| 70911 | **5.5** | | | | | △ | 19 | 11,100 |
| 70912 | **6** | | | | | △ | 19 | 11,100 |
| 70913 | **6.5** | 60 | 16 | 8 | | △ | 39 | 13,200 |
| 70914 | **7** | | | | | △ | 39 | 13,200 |
| 70915 | **7.5** | | | | | △ | 40 | 14,600 |
| 70916 | **8** | | | | | △ | 40 | 14,600 |
| 70917 | **8.5** | 70 | 19 | 10 | | △ | 70 | 17,900 |
| 70918 | **9** | | | | | △ | 70 | 17,900 |
| 70919 | **9.5** | | | | | △ | 71 | 20,300 |
| 70920 | **10** | | 22 | | | △ | 71 | 20,300 |
| 70921 | **11** | 75 | | 12 | | △ | 105 | 21,900 |
| 70922 | **12** | | 26 | | | △ | 107 | 24,600 |

▲=These products have been stopped producing and replaced by WXL-2D-DE(p.260)

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EDS** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| **MG-EDS OH1** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## キー溝用2枚刃超硬スクエアエンドミル(OH1,OL1)
**2-flute Carbide End Mill for Keyway (OH1,OL1)**

## MG-EKD
切削条件 Cutting Conditions | P673



CARBIDE | SHRINK FIT | 30°

OH1 0～+0.02
OL1 0～ -0.02

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. OH1 | ツール No. EDP No. OL1 | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock OH1 | | 在庫 Stock OL1 | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 84206 | 84256 | **3** | 45 | 5 | 6 | B | △ | B | △ | 17 | 9,500 |
| 84208 | 84258 | **4** | | 7 | | | △ | | △ | 17 | 10,100 |
| 84210 | 84260 | **5** | 50 | 8 | | | △ | | △ | 19 | 11,200 |
| 84212 | 84262 | **6** | | | | | △ | | △ | 20 | 12,100 |
| 84214 | 84264 | **7** | 60 | 10 | 8 | | △ | | ▲ | 41 | 14,500 |
| 84216 | 84266 | **8** | | 11 | | | △ | | △ | 42 | 16,100 |
| 84218 | 84268 | **9** | 70 | | 10 | | △ | | ▲ | 75 | 19,700 |
| 84220 | 84270 | **10** | | 13 | | | △ | | △ | 76 | 22,400 |
| 84221 | 84271 | **11** | 75 | | 12 | | △ | | ▲ | 114 | 24,000 |
| 84222 | 84272 | **12** | | 16 | | | △ | | △ | 114 | 27,000 |

▲＝この製品は、WXL-1.5D-DE(P.259)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by WXL-1.5D-DE(p.259)

## 1枚刃CBNスクエアエンドミルショート形
**Single-flute CBN Brazed End Mill Short Length**

## MBOS
切削条件 Cutting Conditions | P699



CBNチップのロー付けタイプエンドミルです。焼き入れ鋼の加工に威力を発揮します。
Employs a brazed CBN edge. Suitable for operations on quenched steels.

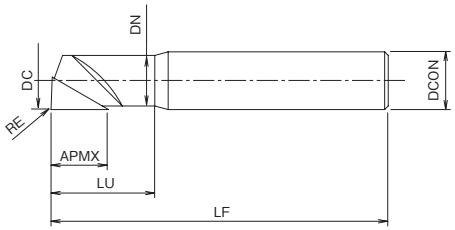
CBN | SHRINK FIT | 0°

0～-0.05

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | R面取 RE | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8525060 | **6** | 50 | 3 | 6 | 12 | 5.7 | R0.6 | C | ● | 20 | 35,900 |
| 8525080 | **8** | 60 | 4 | 8 | 16 | 7.7 | | | ● | 43 | 41,100 |
| 8525100 | **10** | 70 | 5 | 10 | 20 | 9.6 | | | ● | 75 | 47,000 |
| 8525120 | **12** | 75 | 6 | 12 | 24 | 11.6 | | | ● | 115 | 50,800 |




OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EKD** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| **MBOS** | | | | ○ | ○ | ○ | | ○ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

## 1枚刃PCDスクエアエンドミルショート形
**Single-flute PCD End Mill Short Length**

# MDOS

切削条件 Cutting Conditions | P699



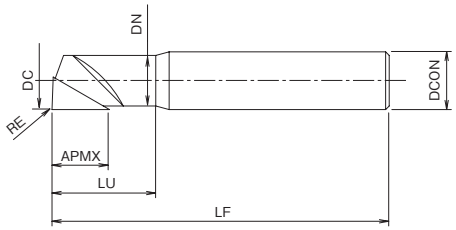
ダイヤモンド焼結体チップのロー付タイプエンドミルです。非鉄合金、グラファイトの加工に威力を発揮します。
Employs a brazed sintered diamond edge. Suitable for nonferrous metals and graphite.

CAD

PCD | 0〜-0.03 | SHRINK FIT | 0°

（単位:mm）(Unit:mm)

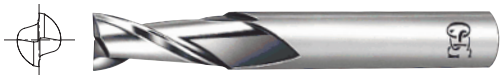
| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | R面取 RE | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8526060 | **6** | 50 | 7 | 6 | 12 | 5.5 | R0.4 | C | ● | 20 | 62,900 |
| 8526080 | **8** | 60 | 9 | 8 | 16 | 7.5 | | | ● | 41 | 78,200 |
| 8526100 | **10** | 70 | 11 | 10 | 20 | 9.4 | | | ● | 73 | 83,900 |
| 8526120 | **12** | 75 | 13 | 12 | 24 | 11.4 | | | ● | 110 | 92,500 |




## 銅・アルミ合金用2枚刃超硬スクエアエンドミル ショート形
**2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys**

# CA-RG-EDS

切削条件 Cutting Conditions | P674



銅、アルミ合金用です。切れ味が良くびびり振動を防ぐ特殊刃形により良好な仕上げ面が得られます。
For copper and aluminum alloy. Reduces chattering and provides an excellent machined surface.

CAD

CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8502010 | **1** | 40 | 2.5 | 4 | A | ▲ | 13 | 7,840 |
| | **1.1** | | | | — | □ | — | — |
| | **1.2** | | 4 | | | □ | — | — |
| | **1.3** | | | | | □ | — | — |
| | **1.4** | | | | | □ | — | — |
| 8502015 | **1.5** | | | | A | ▲ | 13 | 7,840 |
| | **1.6** | | 5 | | — | □ | — | — |
| | **1.7** | | | | | □ | — | — |
| | **1.8** | | | | | □ | — | — |
| | **1.9** | | | | | □ | — | — |
| 8502020 | **2** | | 6 | | A | ▲ | 13 | 7,840 |
| | **2.1** | | | | — | □ | — | — |
| | **2.2** | | | | | □ | — | — |
| | **2.3** | | | | | □ | — | — |
| | **2.4** | | 8 | | | □ | — | — |
| 8502025 | **2.5** | | | | A | ▲ | 13 | 8,620 |
| | **2.6** | | | | — | □ | — | — |
| | **2.7** | | | | | □ | — | — |
| | **2.8** | | | | | □ | — | — |
| | **2.9** | | | | | □ | — | — |
| 8502030 | **3** | 45 | 10 | 6 | A | ▲ | 16 | 8,620 |
| | **3.1** | | | | — | □ | — | — |
| | **3.2** | | | | | □ | — | — |
| | **3.3** | | | | | □ | — | — |
| | **3.4** | | | | | □ | — | — |
| 8502035 | **3.5** | | | | B | △ | 16 | 9,090 |
| | **3.6** | | | | — | □ | — | — |
| | **3.7** | | | | | □ | — | — |
| | **3.8** | | 11 | | | □ | — | — |

▲＝この製品は、AE-TS-N(P.278)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AE-TS-N(p.278)

形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

次ページへ 外径 DC 3.9〜20 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MDOS** | | | | | | | | | | ◎ | ○ | | | |
| **CA-RG-EDS** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

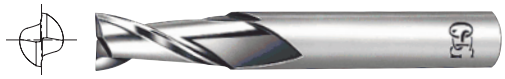
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅・アルミ合金用2枚刃超硬スクエアエンドミル ショート形

**2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys**

## CA-RG-EDS

切削条件 Cutting Conditions | P674



銅、アルミ合金用です。切れ味が良くびびり振動を防ぐ特殊刃形により良好な仕上げ面が得られます。

For copper and aluminum alloy. Reduces chattering and provides an excellent machined surface.

CAD

CARBIDE | SHRINK FIT | 30°

0〜-0.03

前ページより FROM 外径 DC 1〜3.8

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3.9 | 45 | 11 | 6 | — | □ | — | — |
| 8502040 | 4 | | | | A | ▲ | 16 | 9,090 |
| | 4.1 | | | | — | □ | — | — |
| | 4.2 | | | | | □ | — | — |
| | 4.3 | | | | | □ | — | — |
| | 4.4 | | | | | □ | — | — |
| 8502045 | 4.5 | | | | B | △ | 16 | 10,100 |
| | 4.6 | | | | — | □ | — | — |
| | 4.7 | | | | | □ | — | — |
| | 4.8 | 50 | 13 | | | □ | — | — |
| | 4.9 | | | | | □ | — | — |
| 8502050 | 5 | | | | A | ▲ | 18 | 10,100 |
| | 5.1 | | | | — | □ | — | — |
| | 5.2 | | | | | □ | — | — |
| | 5.3 | | | | | □ | — | — |
| | 5.4 | | | | | □ | — | — |
| 8502055 | 5.5 | | | | B | △ | 19 | 11,100 |
| | 5.6 | | | | — | □ | — | — |
| | 5.7 | | | | | □ | — | — |
| | 5.8 | | | | | □ | — | — |
| | 5.9 | | | | | □ | — | — |
| 8502060 | 6 | | | | A | ▲ | 20 | 11,100 |
| | 6.1 | 60 | 16 | 8 | — | □ | — | — |
| | 6.2 | | | | | □ | — | — |
| | 6.3 | | | | | □ | — | — |
| | 6.4 | | | | | □ | — | — |
| 8502065 | 6.5 | | | | B | △ | 38 | 13,200 |
| | 6.6 | | | | — | □ | — | — |
| | 6.7 | | | | | □ | — | — |
| | 6.8 | | | | | □ | — | — |
| | 6.9 | | | | | □ | — | — |
| 8502070 | 7 | | | | B | △ | 39 | 13,200 |
| | 7.1 | | | | — | □ | — | — |
| | 7.2 | | | | | □ | — | — |
| | 7.3 | | | | | □ | — | — |
| | 7.4 | | | | | □ | — | — |
| 8502075 | 7.5 | | | | B | △ | 40 | 14,600 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.6 | 60 | 19 | 8 | — | □ | — | — |
| | 7.7 | | | | | □ | — | — |
| | 7.8 | | | | | □ | — | — |
| | 7.9 | | | | | □ | — | — |
| 8502080 | 8 | | | | A | ▲ | 45 | 14,600 |
| | 8.1 | 70 | | 10 | — | □ | — | — |
| | 8.2 | | | | | □ | — | — |
| | 8.3 | | | | | □ | — | — |
| | 8.4 | | | | | □ | — | — |
| 8502085 | 8.5 | | | | B | △ | 69 | 17,900 |
| | 8.6 | | | | — | □ | — | — |
| | 8.7 | | | | | □ | — | — |
| | 8.8 | | | | | □ | — | — |
| | 8.9 | | | | | □ | — | — |
| 8502090 | 9 | | | | B | △ | 70 | 17,900 |
| | 9.1 | | | | — | □ | — | — |
| | 9.2 | | | | | □ | — | — |
| | 9.3 | | | | | □ | — | — |
| | 9.4 | | | | | □ | — | — |
| 8502095 | 9.5 | | | | B | △ | 72 | 20,300 |
| | 9.6 | | 22 | | — | □ | — | — |
| | 9.7 | | | | | □ | — | — |
| | 9.8 | | | | | □ | — | — |
| | 9.9 | | | | | □ | — | — |
| 8502100 | 10 | | | | A | ▲ | 75 | 20,300 |
| 8502105 | 10.5 | 75 | | 12 | B | △ | 106 | 21,100 |
| 8502110 | 11 | | | | | △ | 107 | 21,900 |
| 8502115 | 11.5 | | | | | △ | 107 | 23,100 |
| 8502120 | 12 | | | | A | ▲ | 108 | 24,600 |
| 8502130 | 13 | 85 | 26 | | D | △ | 131 | 28,100 |
| 8502140 | 14 | | | | | △ | 144 | 40,100 |
| 8502150 | 15 | 90 | | | | △ | 231 | 41,700 |
| 8502160 | 16 | 100 | 32 | 16 | A | ▲ | 260 | 43,400 |
| 8502170 | 17 | | | | D | △ | 269 | 63,700 |
| 8502180 | 18 | | | | | △ | 276 | 63,700 |
| 8502190 | 19 | | | 20 | | △ | 392 | 73,900 |
| 8502200 | 20 | 105 | 38 | | A | ▲ | 420 | 73,900 |

▲＝この製品は、AE-TS-N(P.278)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-TS-N(p.278)

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CA-RG-EDS | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## DIAコート2枚刃超硬スクエアエンドミルショート形
**Diamond Coated 2-flute Carbide End Mill Short Length**

# DIA-EDS

切削条件 Cutting Conditions | P691



OSGが新開発した超微結晶ダイヤモンドコーティングを施したエンドミルです。高シリコンアルミ合金やグラファイト加工で抜群の工具寿命を実現します。

OSG's patented Ultra Fine Grain Diamond coating. Shows long tool life on High Silicon contents alloys, and Graphite machining.

CARBIDE | DIA | 0〜-0.02 | SHRINK FIT | 35°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8504601 | **0.5** | 40 | 1 | 4 | D | ● | 13 | 23,100 |
| 8504602 | **1** | | 2.5 | | | ● | 13 | 21,900 |
| | **1.2** | | 4 | | – | □ | – | – |
| | **1.4** | | | | | □ | – | – |
| 8504603 | **1.5** | | | | D | ● | 12 | 21,900 |
| | **1.6** | | 5 | | – | □ | – | – |
| | **1.8** | | | | | □ | – | – |
| 8504604 | **2** | | 6 | | D | ● | 12 | 21,900 |
| | **2.5** | | 8 | | – | □ | – | – |
| 8504606 | **3** | 45 | | 6 | D | ● | 16 | 32,000 |
| | **3.5** | | 10 | | – | □ | – | – |
| 8504608 | **4** | | 11 | | D | ● | 18 | 32,400 |
| | **4.5** | | | | – | □ | – | – |
| 8504610 | **5** | 50 | 13 | | D | ● | 19 | 34,000 |
| | **5.5** | | | | – | □ | – | – |
| 8504612 | **6** | | | | D | ● | 25 | 34,000 |
| | **7** | 60 | 16 | 8 | – | □ | – | – |
| 8504616 | **8** | | 19 | | D | ● | 42 | 42,500 |
| | **9** | 70 | | 10 | – | □ | – | – |
| 8504620 | **10** | | 22 | | D | ● | 74 | 58,300 |
| | **11** | 75 | | 12 | – | □ | – | – |
| 8504622 | **12** | | 26 | | D | ● | 110 | 65,900 |

## DLCコート2枚刃超硬スクエアエンドミルショート形
**DLC Coated 2-flute Carbide End Mill Short Length**

# DLC-EDS

切削条件 Cutting Conditions | P687



独自の超平滑DLCコーティングを施したエンドミルです。溶着が問題となる圧延アルミ合金などで威力を発揮します。

End mill with unique DLC coating with ultra lubrication. Works on extruded Aluminum eliminating weldings.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 35°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8528005 | **0.5** | 40 | 1 | 4 | D | ● | 12 | 10,700 |
| 8528006 | **0.6** | | 1.2 | | | ● | 12 | 10,700 |
| 8528008 | **0.8** | | 1.6 | | | ● | 12 | 10,700 |
| 8528010 | **1** | | 2 | | | ● | 12 | 8,210 |
| 8528012 | **1.2** | | 2.4 | | | ● | 12 | 10,700 |
| 8528014 | **1.4** | | 2.8 | | | ● | 12 | 10,700 |
| 8528015 | **1.5** | | 3 | | | ● | 12 | 8,210 |
| 8528016 | **1.6** | | 3.2 | | | ● | 12 | 10,700 |
| 8528018 | **1.8** | | 3.6 | | | ● | 12 | 10,700 |
| 8528020 | **2** | | 4 | | | ● | 12 | 8,130 |
| 8528025 | **2.5** | | 5 | | D | ● | 12 | 8,130 |
| 8528030 | **3** | | 6 | | | ● | 12 | 8,130 |
| 8528038 | **4** | 45 | 8 | 6 | | ● | 17 | 9,500 |
| 8528040 | **5** | 50 | 10 | | | ● | 19 | 10,300 |
| 8528042 | **6** | | 12 | | | ● | 20 | 10,700 |
| 8528044 | **7** | 60 | 14 | 8 | | ● | 40 | 12,800 |
| 8528046 | **8** | | 16 | | | ● | 41 | 13,900 |
| 8528048 | **9** | 70 | 18 | 10 | | ● | 72 | 17,600 |
| 8528050 | **10** | | 20 | | | ● | 72 | 17,200 |
| 8528051 | **11** | 75 | 22 | 12 | | ● | 106 | 22,500 |
| 8528052 | **12** | | 24 | | | ● | 110 | 23,500 |


OSGのPSシリーズ

**商品シリーズ** Parts & Supply series

標準サイズ在庫完備!タングが無し!タングレスインサートあります

※詳細は▶P.1167を参照下さい。 See p.1167 for details



**製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6**


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DIA-EDS** | | | | | | | | | ○ | ※◎ | ◎ | | | ◎ |
| **DLC-EDS** | | | | | | | | | ○ | ※◎ | | | | ◎ |

※高Si（13%以上）鋳物、超硬合金には、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。

※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃超硬スクエアエンドミルミディアム形
**2-flute Carbide End Mill Medium Length**

## MG-EDN
切削条件 Cutting Conditions | P668



CARBIDE | SHRINK FIT | 30° | 0〜-0.03 | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8510030 | **3** | 50 | 10 | 6 | A | ▲ | 17 | 9,050 |
| 8510035 | **3.5** | | 12 | | B | ▲ | 17 | 9,570 |
| 8510040 | **4** | | 14 | | A | ▲ | 17 | 9,570 |
| 8510045 | **4.5** | | | | B | ▲ | 18 | 11,300 |
| 8510050 | **5** | 60 | 17 | | A | ▲ | 22 | 11,300 |
| 8510055 | **5.5** | | | | B | ▲ | 23 | 12,200 |
| 8510060 | **6** | | | | A | ▲ | 24 | 12,200 |
| 8510065 | **6.5** | 70 | 20 | 8 | B | ▲ | 43 | 14,600 |
| 8510070 | **7** | | | | | ▲ | 45 | 14,600 |
| 8510075 | **7.5** | | | | | ▲ | 46 | 16,100 |
| 8510080 | **8** | | 24 | | A | ▲ | 46 | 16,100 |
| 8510085 | **8.5** | 80 | | 10 | B | ▲ | 77 | 19,800 |
| 8510090 | **9** | | | | | ▲ | 78 | 19,800 |
| 8510095 | **9.5** | | | | | ▲ | 80 | 21,900 |
| 8510100 | **10** | | 28 | | A | ▲ | 81 | 21,900 |
| 8510105 | **10.5** | 90 | | 12 | B | △ | 125 | 25,600 |
| 8510110 | **11** | | | | | ▲ | 127 | 25,600 |
| 8510115 | **11.5** | | | | | △ | 129 | 27,800 |
| 8510120 | **12** | | 34 | | | ▲ | 128 | 27,800 |

▲＝この製品は、WXL-3D-DE(P.263)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by WXL-3D-DE(p.263)

## 成形用2枚刃超硬エンドミル直刃ミディアム形
**2-flute Carbide Straight Fluted End Mill Medium Length for Reforming**

## MG-STDN
切削条件 Cutting Conditions | P674



必要な形状に成形してお使いいただけるエンドミルです。高じん性超硬合金を採用しています。
Free-forming (operator modifies shape) end mill. Tool body made with tough carbide metal.

CARBIDE | SHRINK FIT | 0° | 0〜-0.03 | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8502502 | **1** | 45 | 3.5 | 4 | B | △ | 13 | 10,100 |
| 8502503 | **1.5** | | 5 | | | △ | 13 | 10,100 |
| 8502504 | **2** | 50 | 7 | | | △ | 13 | 10,100 |
| 8502505 | **2.5** | | 8 | | | △ | 13 | 10,100 |
| 8502506 | **3** | | 10 | 6 | | △ | 17 | 11,700 |
| 8502508 | **4** | 60 | 12 | | | △ | 23 | 11,700 |
| 8502510 | **5** | | 15 | | | △ | 23 | 11,700 |
| 8502512 | **6** | | | | | △ | 24 | 11,700 |
| 8502514 | **7** | | 20 | 8 | | △ | 38 | 18,700 |
| 8502516 | **8** | | | | | △ | 40 | 18,700 |
| 8502518 | **9** | 70 | 25 | 10 | | △ | 68 | 26,500 |
| 8502520 | **10** | | | | | △ | 72 | 27,300 |
| 8502522 | **11** | 80 | 30 | 12 | | △ | 112 | 32,900 |
| 8502524 | **12** | | | | | △ | 118 | 32,900 |

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EDN** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| **MG-STDN** | ○ | | | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols
● = 標準在庫品 Standard stock item
○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品(在庫をご確認下さい。) Discontinued item

# FXコート2枚刃超硬スクエアエンドミルロング形
**FX Coated 2-flute Carbide End Mill Long Length**

## FX-MG-EDL

切削条件 Cutting Conditions | P644



耐熱性に優れるFXコーティングを施した汎用タイプ2枚刃エンドミルロング刃タイプです。
2-fluted end mill for general applications. Employs long edges and FX coating.

CARBIDE | FX | 0〜-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8522065 | **6.5** | 70 | 24 | 8 | B | △ | 42 | 18,700 |
| 8522070 | **7** | | | | A | △ | 43 | 18,700 |
| 8522075 | **7.5** | | | | | △ | 45 | 20,400 |
| 8522085 | **8.5** | 80 | 28 | 10 | | △ | 75 | 25,600 |
| 8522090 | **9** | | | | | △ | 77 | 25,600 |
| 8522095 | **9.5** | | | | | △ | 79 | 27,500 |
| 8522105 | **10.5** | 90 | 34 | 12 | B | △ | 122 | 30,200 |
| 8522110 | **11** | | | | | △ | 124 | 32,700 |
| 8522115 | **11.5** | | | | | △ | 125 | 33,600 |
| 8522130 | **13** | 100 | 40 | | | △ | 151 | 46,300 |
| 8522140 | **14** | | | | | △ | 155 | 51,800 |
| 8522150 | **15** | 105 | | 16 | | △ | 256 | 63,100 |
| 8522160 | **16** | 115 | 48 | | A | △ | 293 | 69,100 |
| 8522170 | **17** | | | | B | △ | 308 | 96,300 |
| 8522180 | **18** | | | | | △ | 320 | 91,500 |
| 8522190 | **19** | | | 20 | | △ | 429 | 106,000 |
| 8522200 | **20** | 125 | 56 | | A | △ | 485 | 99,500 |
| 8522210 | **21** | | | | B | △ | 503 | 122,000 |
| 8522220 | **22** | | | | | △ | 527 | 122,000 |
| 8522230 | **23** | 140 | 67 | 25 | | △ | 758 | 144,000 |
| 8522240 | **24** | | | | | △ | 786 | 144,000 |
| 8522250 | **25** | | | | | △ | 811 | 145,000 |
| 8522260 | **26** | | | | | △ | 880 | 149,000 |
| 8522270 | **27** | 145 | | | | △ | 945 | 192,000 |
| 8522280 | **28** | | | | | △ | 968 | 195,000 |
| 8522290 | **29** | | | 32 | | △ | 1,294 | 197,000 |
| 8522300 | **30** | | | | | △ | 1,315 | 198,000 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-MG-EDL** | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート2枚刃超硬スクエアエンドミル エキストラロング形

**FX Coated 2-flute Carbide End Mill Extra Long Length**

## FX-MG-EXDL

切削条件 Cutting Conditions | P644



耐熱性に優れるFXコーティングを施した汎用タイプ2枚刃エンドミル超ロング刃タイプです。

2-fluted end mill for general applications. Made with extra long edges and FX coating.

CARBIDE | FX | 0〜-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8542830 | 3 | 60 | 20 | 6 | C | △ | 19 | 13,200 |
| | 3 | 70 | 30 | | – | □ | – | – |
| | 3 | 80 | 40 | | | □ | – | – |
| | 4 | 70 | 30 | | | □ | – | – |
| 8542840 | 4 | | 32 | | C | △ | 21 | 17,400 |
| | 4 | 80 | 40 | | – | □ | – | – |
| 8542850 | 5 | | | | C | △ | 26 | 15,800 |
| | 5 | 90 | 50 | | – | □ | – | – |
| 8542860 | 6 | 80 | 40 | | C | △ | 30 | 17,300 |
| | 6 | 90 | 50 | | – | □ | – | – |
| | 6 | 100 | 60 | | | □ | – | – |
| | 8 | 95 | 50 | 10 | | □ | – | – |
| | 8 | 105 | 60 | | | □ | – | – |
| 8542880 | 8 | 110 | 63 | 8 | C | △ | 70 | 31,300 |
| | 8 | 125 | 80 | 10 | – | □ | – | – |
| | 9 | 95 | 50 | | | □ | – | – |
| | 9 | 105 | 60 | | | □ | – | – |
| | 9 | 125 | 80 | | | □ | – | – |
| | 10 | 105 | 60 | | | □ | – | – |
| 8542900 | 10 | 125 | 75 | | C | △ | 123 | 31,800 |
| | 10 | | 80 | | – | □ | – | – |
| | 10 | 145 | 100 | | | □ | – | – |
| | 11 | 130 | 75 | 12 | | □ | – | – |
| | 12 | | 80 | | | □ | – | – |
| 8542920 | 12 | 150 | 90 | | C | △ | 206 | 41,100 |
| | 12 | | 100 | | – | □ | – | – |
| | 12 | 170 | 120 | | | □ | – | – |
| 8542930 | 13 | 160 | 95 | 16 | C | △ | 323 | 76,000 |
| | 14 | 140 | 80 | | – | □ | – | – |
| 8542940 | 14 | 160 | 95 | | C | △ | 344 | 79,200 |
| | 14 | | 100 | | – | □ | – | – |
| | 14 | 180 | 120 | | | □ | – | – |
| | 15 | 140 | 80 | | | □ | – | – |
| 8542950 | 15 | 160 | 95 | | C | △ | 370 | 88,200 |
| | 15 | | 100 | | – | □ | – | – |
| | 15 | 180 | 120 | | | □ | – | – |
| | 15 | 210 | 150 | | | □ | – | – |
| 8542960 | 16 | 160 | 95 | | C | △ | 380 | 90,500 |
| | 16 | | 100 | | – | □ | – | – |
| | 16 | 210 | 150 | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8542970 | 17 | 180 | 95 | 20 | C | △ | 597 | 129,000 |
| | 18 | 165 | 100 | | – | □ | – | – |
| 8542980 | 18 | 180 | 95 | | C | △ | 637 | 129,000 |
| | 18 | 215 | 150 | | – | □ | – | – |
| 8542990 | 19 | 180 | 100 | | C | △ | 664 | 132,000 |
| | 20 | 165 | | | – | □ | – | – |
| 8543000 | 20 | 180 | | | C | △ | 695 | 132,000 |
| | 20 | 185 | 120 | | – | □ | – | – |
| | 20 | 215 | 150 | | | □ | – | – |
| 8543020 | 22 | 200 | 106 | 25 | C | △ | 1,073 | 182,000 |
| 8543040 | 24 | | | | | △ | 1,134 | 190,000 |
| 8543050 | 25 | | | | | △ | 1,234 | 190,000 |
| 8543100 | 30 | 225 | 112 | 32 | | △ | 2,051 | 294,000 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-MG-EXDL | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | ○ | | |
| FX-MG-EXDL 7D＜APMX | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃超硬スクエアエンドミルロング形
**2-flute Carbide End Mill Long Length**

# MG-EDL

切削条件 Cutting Conditions | P669



CARBIDE | 0〜-0.03 | DC<13 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2.5** | 45 | 12 | 4 | — | □ | — | — |
| 84106 | **3** | 50 | 14 | 6 | A | ▲ | 16 | 9,310 |
| 84107 | **3.5** | | | | B | ▲ | 16 | 9,850 |
| 84108 | **4** | | 17 | | A | ▲ | 16 | 9,850 |
| 84109 | **4.5** | | | | B | ▲ | 17 | 12,100 |
| 84110 | **5** | 60 | 20 | | A | ▲ | 21 | 12,100 |
| 84111 | **5.5** | | | | B | ▲ | 22 | 13,200 |
| 84112 | **6** | | | | A | ▲ | 24 | 13,200 |
| 84113 | **6.5** | 70 | 24 | 8 | B | △ | 42 | 15,400 |
| 84114 | **7** | | | | | △ | 43 | 15,400 |
| 84115 | **7.5** | | | | | △ | 44 | 17,100 |
| 84116 | **8** | | 28 | | A | ▲ | 74 | 17,100 |
| 84117 | **8.5** | 80 | | 10 | B | △ | 74 | 21,900 |
| 84118 | **9** | | | | | △ | 76 | 21,900 |
| 84119 | **9.5** | | | | | △ | 77 | 23,500 |
| 84120 | **10** | | | | A | ▲ | 77 | 23,500 |
| 84141 | **10.5** | 90 | 34 | 12 | B | △ | 120 | 25,600 |
| 84121 | **11** | | | | | △ | 124 | 27,800 |
| 84142 | **11.5** | | | | | △ | 127 | 28,800 |
| 84122 | **12** | | | | A | ▲ | 126 | 29,500 |
| 84123 | **13** | 100 | 40 | | — | □ | — | — |
| 84124 | **14** | | | | | □ | — | — |
| 84125 | **15** | 105 | | 16 | | □ | — | — |
| 84126 | **16** | 115 | 48 | | | □ | — | — |
| 84127 | **17** | | | | | □ | — | — |
| 84128 | **18** | | | | | □ | — | — |
| 84129 | **19** | | | 20 | | □ | — | — |
| 84130 | **20** | 125 | 56 | | | □ | — | — |
| 84131 | **21** | | | | | □ | — | — |
| 84132 | **22** | | | | | □ | — | — |
| 84133 | **23** | 140 | 67 | 25 | | □ | — | — |
| 84134 | **24** | | | | | □ | — | — |
| 84135 | **25** | | | | | □ | — | — |

▲＝この製品は、WXL-4D-DE(P.264)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by WXL-4D-DE(p.264)

## 2枚刃超硬スクエアエンドミルエキストラロング形
**2-flute Carbide End Mill Extra Long Length**

# MG-EXDL

切削条件 Cutting Conditions | P670



CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8539306 | **3** | 60 | 20 | 6 | D | △ | 18 | 11,300 |
| | **3** | 70 | 30 | | — | □ | — | — |
| | **3** | 80 | 40 | | | □ | — | — |
| | **4** | 70 | 30 | | | □ | — | — |
| 8539308 | **4** | | 32 | | D | △ | 21 | 13,100 |
| | **4** | 80 | 40 | | — | □ | — | — |
| 8539310 | **5** | | | | D | △ | 26 | 15,700 |
| | **5** | 90 | 50 | | — | □ | — | — |
| 8539312 | **6** | 80 | 40 | | D | △ | 29 | 16,500 |
| | **6** | 90 | 50 | | — | □ | — | — |
| | **6** | 100 | 60 | | | □ | — | — |
| | **8** | 95 | 50 | 10 | | □ | — | — |
| | **8** | 105 | 60 | | | □ | — | — |
| 8539316 | **8** | 110 | 63 | 8 | D | △ | 69 | 25,400 |
| | **8** | 125 | 80 | 10 | — | □ | — | — |
| | **9** | 95 | 50 | | | □ | — | — |
| | **9** | 105 | 60 | | | □ | — | — |
| | **9** | 125 | 80 | | | □ | — | — |
| | **10** | 105 | 60 | | | □ | — | — |
| 8539320 | **10** | 125 | 75 | | D | △ | 118 | 32,900 |
| | **10** | | 80 | | — | □ | — | — |
| | **10** | 145 | 100 | | | □ | — | — |
| | **12** | 130 | 80 | 12 | | □ | — | — |
| 8539324 | **12** | 150 | 90 | | D | △ | 203 | 46,300 |
| | **12** | | 100 | | — | □ | — | — |
| | **12** | 170 | 120 | | | □ | — | — |
| | **14** | 140 | 80 | 16 | | □ | — | — |
| | **14** | 160 | 100 | | | □ | — | — |
| | **14** | 180 | 120 | | | □ | — | — |
| | **15** | 140 | 80 | | | □ | — | — |
| | **15** | 160 | 100 | | | □ | — | — |
| | **15** | 180 | 120 | | | □ | — | — |
| | **15** | 210 | 150 | | | □ | — | — |
| | **16** | 160 | 100 | | | □ | — | — |
| | **16** | 210 | 150 | | | □ | — | — |
| | **18** | 165 | 100 | 20 | | □ | — | — |
| | **18** | 215 | 150 | | | □ | — | — |
| | **20** | 165 | 100 | | | □ | — | — |
| | **20** | 185 | 120 | | | □ | — | — |
| | **20** | 215 | 150 | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EDL** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| **MG-EXDL** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅・アルミ合金用2枚刃超硬スクエアエンドミル ロング形

**2-flute Carbide End Mill Long Length for Copper and Aluminum Alloys**

## CA-RG-EDL

切削条件 Cutting Conditions | P676



銅、アルミ合金用です。切れ味が良くびびり振動を防ぐ特殊刃形により良好な仕上げ面が得られます。

For copper and aluminum alloy. Reduces chattering and provides an excellent machined surface.

CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8502630 | **3** | 50 | 12 | 6 | A | ▲ | 17 | 9,310 |
| 8502635 | **3.5** | | 14 | | B | △ | 17 | 9,850 |
| 8502640 | **4** | | 17 | | A | ▲ | 17 | 9,850 |
| 8502645 | **4.5** | | | | B | △ | 17 | 12,100 |
| 8502650 | **5** | 60 | 20 | | A | ▲ | 22 | 12,100 |
| 8502655 | **5.5** | | | | B | △ | 23 | 13,200 |
| 8502660 | **6** | | | | A | ▲ | 24 | 13,200 |
| 8502665 | **6.5** | 70 | 24 | 8 | B | △ | 42 | 15,400 |
| 8502670 | **7** | | | | | △ | 44 | 15,400 |
| 8502675 | **7.5** | | | | | △ | 44 | 17,100 |
| 8502680 | **8** | | 28 | | A | ▲ | 45 | 17,100 |
| 8502685 | **8.5** | 80 | | 10 | B | △ | 74 | 21,900 |
| 8502690 | **9** | | | | | △ | 76 | 21,900 |
| 8502695 | **9.5** | | | | | △ | 78 | 23,500 |
| 8502700 | **10** | | 34 | | A | ▲ | 77 | 23,500 |
| 8502705 | **10.5** | 90 | | 12 | B | △ | 121 | 25,400 |
| 8502710 | **11** | | | | | △ | 123 | 27,800 |
| 8502715 | **11.5** | | | | | △ | 126 | 28,400 |
| 8502720 | **12** | | 40 | | A | ▲ | 126 | 29,500 |

▲＝この製品は、AE-TL-N(P.284)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-TL-N(p.284)

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1167 を参照下さい。
See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **CA-RG-EDL** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品 (在庫をご確認下さい。) Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル ショート形

**DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials**

The A Brand

## AE-TS-N

切削条件 Cutting Conditions | P504



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 41°

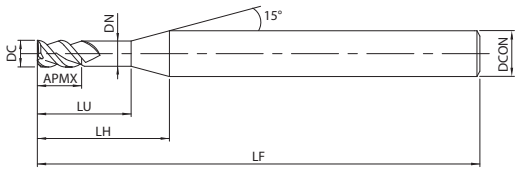
CAD

（単位:mm）(Unit:mm)

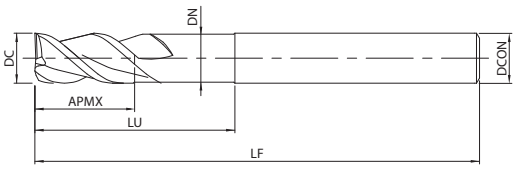
| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557235 | 1 × 3 | 45 | 1.5 | 8.6 | 4 | 0.95 | 1 | A | ● | 11 | 2,840 |
| 8557236 | 1.5 × 4.5 | 45 | 2.3 | 9.3 | 4 | 1.45 | 1 | | ● | 11 | 2,840 |
| 8557237 | 2 × 6 | 45 | 3 | 10.1 | 4 | 1.9 | 1 | | ● | 11 | 2,620 |
| 8557238 | 2.5 × 7.5 | 45 | 3.8 | 10.6 | 4 | 2.4 | 1 | | ● | 11 | 2,620 |
| 8557330 | 3 × 9 | 55 | 4.5 | 14.8 | 6 | 2.85 | 1 | | ● | 21 | 2,360 |
| 8557331 | 4 × 12 | 55 | 6 | 15.9 | 6 | 3.8 | 1 | | ● | 22 | 2,720 |
| 8557332 | 5 × 15 | 55 | 7.5 | 16.8 | 6 | 4.8 | 1 | | ● | 22 | 2,720 |
| 8557333 | 6 × 18 | 60 | 9 | — | 6 | 5.8 | 2 | | ● | 24 | 3,180 |
| 8557334 | 8 × 24 | 70 | 12 | — | 8 | 7.7 | 2 | | ● | 48 | 5,800 |
| 8557335 | 10 × 30 | 75 | 15 | — | 10 | 9.7 | 2 | | ● | 78 | 7,750 |
| 8557336 | 12 × 36 | 80 | 18 | — | 12 | 11.7 | 2 | | ● | 119 | 9,840 |
| 8557337 | 16 × 48 | 110 | 24 | — | 16 | 15.7 | 2 | | ● | 286 | 25,600 |
| 8557338 | 20 × 60 | 120 | 30 | — | 20 | 19.7 | 2 | | ● | 480 | 36,400 |
| 8557339 | 25 × 75 | 140 | 37.5 | — | 25 | 24.7 | 2 | | ● | 858 | 61,300 |

スタンダードタイプロング形(AE-TL-N)はP.284をご覧下さい。
See page 284 for AE-TL-N.
高機能タイプショート形(AE-VTS-N)はP.280をご覧下さい。
See page 280 for AE-VTS-N.
高機能タイプ立ち壁対応型(AE-VTFE-N)はP.311をご覧下さい。
See page 311 for AE-VTFE-N.

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-TS-N | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル ショート形

**DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials**

A The A Brand

## AE-TS-N

切削条件 Cutting Conditions | P504



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 41°

CAD

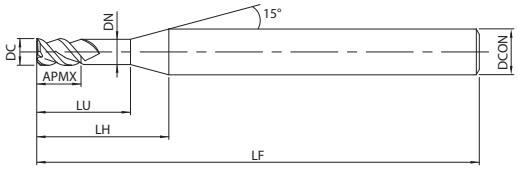
### ピンカドタイプ(-SP) Sharp Corner Edge Type

(単位:mm) (Unit:mm)

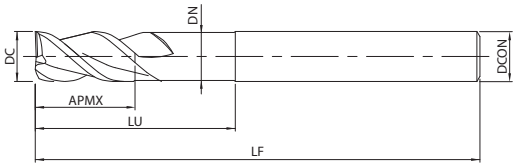
| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557239 | 1 × 3 -SP | 45 | 1.5 | 8.6 | 4 | 0.95 | 1 | | ● | 10 | 2,840 |
| 8557240 | 1.5 × 4.5 -SP | 45 | 2.3 | 9.3 | 4 | 1.45 | 1 | | ● | 10 | 2,840 |
| 8557241 | 2 × 6 -SP | 45 | 3 | 10.1 | 4 | 1.9 | 1 | | ● | 10 | 2,620 |
| 8557242 | 2.5 × 7.5 -SP | 45 | 3.8 | 10.6 | 4 | 2.4 | 1 | | ● | 10 | 2,620 |
| 8557430 | 3 × 9 -SP | 55 | 4.5 | 14.8 | 6 | 2.85 | 1 | | ● | 20 | 2,360 |
| 8557431 | 4 × 12 -SP | 55 | 6 | 15.9 | 6 | 3.8 | 1 | A | ● | 22 | 2,720 |
| 8557432 | 5 × 15 -SP | 55 | 7.5 | 16.8 | 6 | 4.8 | 1 | | ● | 22 | 2,720 |
| 8557433 | 6 × 18 -SP | 60 | 9 | — | 6 | 5.8 | 2 | | ● | 24 | 3,180 |
| 8557434 | 8 × 24 -SP | 70 | 12 | — | 8 | 7.7 | 2 | | ● | 48 | 5,800 |
| 8557435 | 10 × 30 -SP | 75 | 15 | — | 10 | 9.7 | 2 | | ● | 78 | 7,750 |
| 8557436 | 12 × 36 -SP | 80 | 18 | — | 12 | 11.7 | 2 | | ● | 119 | 9,840 |

スタンダードタイプロング形(AE-TL-N)はP.284をご覧下さい。
See page 284 for AE-TL-N.
高機能タイプショート形(AE-VTS-N)はP.280をご覧下さい。
See page 280 for AE-VTS-N.
高機能タイプ立ち壁対応型(AE-VTFE-N)はP.311をご覧下さい。
See page 311 for AE-VTFE-N.

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-TS-N | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル 高機能タイプショート形

**DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials**

The A Brand

## AE-VTS-N

切削条件 Cutting Conditions | P512



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC-IGUSS | 0〜-0.02 | SHRINK FIT | 40~43°

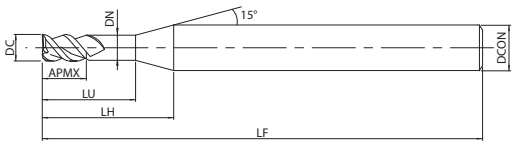
CAD

(単位:mm) (Unit:mm)

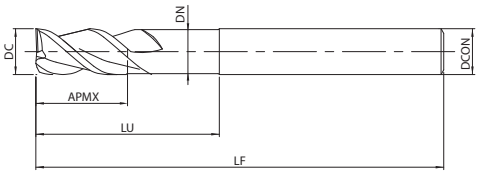
| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557243 | 1 × 3 | 45 | 1.5 | 8.6 | 4 | 0.95 | 1 | A | ● | 10 | 6,500 |
| 8557244 | 1.5 × 4.5 | 45 | 2.3 | 9.3 | 4 | 1.45 | 1 | | ● | 10 | 6,500 |
| 8557245 | 2 × 6 | 45 | 3 | 10.1 | 4 | 1.95 | 1 | | ● | 10 | 5,410 |
| 8557246 | 2.5 × 7.5 | 45 | 3.8 | 10.6 | 4 | 2.4 | 1 | | ● | 12 | 5,410 |
| 8557360 | 3 × 9 | 55 | 4.5 | 14.8 | 6 | 2.85 | 1 | | ● | 21 | 5,640 |
| 8557361 | 4 × 12 | 55 | 6 | 15.9 | 6 | 3.8 | 1 | | ● | 26 | 5,890 |
| 8557362 | 5 × 15 | 55 | 7.5 | 16.8 | 6 | 4.8 | 1 | | ● | 22 | 6,500 |
| 8557363 | 6 × 18 | 60 | 9 | – | 6 | 5.8 | 2 | | ● | 20 | 6,790 |
| 8557364 | 8 × 24 | 70 | 12 | – | 8 | 7.7 | 2 | | ● | 48 | 9,150 |
| 8557365 | 10 × 30 | 75 | 15 | – | 10 | 9.7 | 2 | | ● | 78 | 11,500 |
| 8557366 | 12 × 36 | 80 | 18 | – | 12 | 11.7 | 2 | | ● | 118 | 16,000 |

スタンダードタイプショート形(AE-TS-N)はP.278をご覧ください。
See page 278 for AE-TS-N.
スタンダードタイプロング形(AE-TL-N)はP.284をご覧下さい。
See page 284 for AE-TL-N.
高機能タイプ立ち壁対応型(AE-VTFE-N)はP.311をご覧下さい。
See page 311 for AE-VTFE-N.

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | | ～35HRC | ～350HB | | | | | | |
| **AE-VTS-N** | | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル 高機能タイプショート形

**DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials**

A The A Brand

## AE-VTS-N

切削条件 Cutting Conditions | P512



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CAD

CARBIDE | DLC-IGUSS | 0〜-0.02 | SHRINK FIT | 40~43°

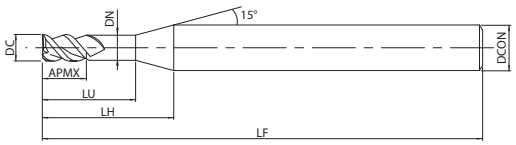
### ピンカドタイプ(-SP) Sharp Corner Edge Type

(単位:mm) (Unit:mm)

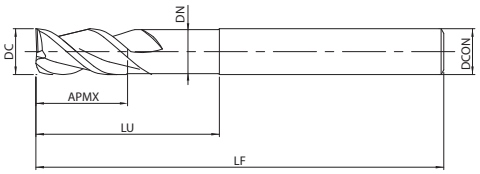
| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557247 | 1 × 3 -SP | 45 | 1.5 | 8.6 | 4 | 0.95 | 1 | A | ● | 12 | 6,500 |
| 8557248 | 1.5 × 4.5 -SP | 45 | 2.3 | 9.3 | 4 | 1.45 | 1 | | ● | 10 | 6,500 |
| 8557249 | 2 × 6 -SP | 45 | 3 | 10.1 | 4 | 1.95 | 1 | | ● | 10 | 5,410 |
| 8557250 | 2.5 × 7.5 -SP | 45 | 3.8 | 10.6 | 4 | 2.4 | 1 | | ● | 12 | 5,410 |
| 8557460 | 3 × 9 -SP | 55 | 4.5 | 14.8 | 6 | 2.85 | 1 | | ● | 20 | 5,640 |
| 8557461 | 4 × 12 -SP | 55 | 6 | 15.9 | 6 | 3.8 | 1 | | ● | 20 | 5,890 |
| 8557462 | 5 × 15 -SP | 55 | 7.5 | 16.8 | 6 | 4.8 | 1 | | ● | 22 | 6,500 |
| 8557463 | 6 × 18 -SP | 60 | 9 | — | 6 | 5.8 | 2 | | ● | 26 | 6,790 |
| 8557464 | 8 × 24 -SP | 70 | 12 | — | 8 | 7.7 | 2 | | ● | 48 | 9,150 |
| 8557465 | 10 × 30 -SP | 75 | 15 | — | 10 | 9.7 | 2 | | ● | 80 | 11,500 |
| 8557466 | 12 × 36 -SP | 80 | 18 | — | 12 | 11.7 | 2 | | ● | 118 | 16,000 |

スタンダードタイプショート形(AE-TS-N)はP.278をご覧下さい。
See page 278 for AE-TS-N.
スタンダードタイプロング形(AE-TL-N)はP.284をご覧下さい。
See page 284 for AE-TL-N.
高機能タイプ立ち壁対応型(AE-VTFE-N)はP.311をご覧下さい。
See page 311 for AE-VTFE-N.

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | | | ～35HRC | ～350HB | | | | | | |
| AE-VTS-N | | | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# 銅・アルミ合金用3枚刃超硬スクエアエンドミル ショート形
**3-flute Carbide End Mill Short Length for Copper and Aluminum Alloys**

## CA-ETS

切削条件 Cutting Conditions | P675



シャープな切れ味と切りくず排出を考えた広いチップポケットにより、溝、側面の高能率加工を実現します。
High effeciency operation for slotting and side milling can be realized thanks to a sharp cutting edge and wide chip pocket room.

CARBIDE

0～-0.02

SHRINK FIT

約40° ABOUT 40°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8502806 | 3 | 50 | 8 | 6 | B | ▲ | 19 | 7,070 |
| | 3.1 | | 10 | | – | □ | – | – |
| | 3.2 | | | | | □ | – | – |
| | 3.3 | | | | | □ | – | – |
| | 3.4 | | | | | □ | – | – |
| 8502807 | 3.5 | | 8 | | D | △ | 19 | 7,390 |
| | 3.6 | | 10 | | – | □ | – | – |
| | 3.7 | | | | | □ | – | – |
| | 3.8 | | 11 | | | □ | – | – |
| | 3.9 | | | | | □ | – | – |
| 8502808 | 4 | | | | B | ▲ | 19 | 7,390 |
| | 4.1 | | | | – | □ | – | – |
| | 4.2 | | | | | □ | – | – |
| | 4.3 | | | | | □ | – | – |
| | 4.4 | | | | | □ | – | – |
| 8502809 | 4.5 | | | | D | △ | 19 | 8,160 |
| | 4.6 | | | | – | □ | – | – |
| | 4.7 | | | | | □ | – | – |
| | 4.8 | | 13 | | | □ | – | – |
| | 4.9 | | | | | □ | – | – |
| 8502810 | 5 | | | | B | ▲ | 19 | 8,160 |
| | 5.1 | | | | – | □ | – | – |
| | 5.2 | | | | | □ | – | – |
| | 5.3 | | | | | □ | – | – |
| | 5.4 | | | | | □ | – | – |
| 8502811 | 5.5 | | | | D | △ | 19 | 8,510 |
| | 5.6 | | | | – | □ | – | – |
| | 5.7 | | | | | □ | – | – |
| | 5.8 | | | | | □ | – | – |
| | 5.9 | | | | | □ | – | – |
| 8502812 | 6 | | | | B | ▲ | 19 | 8,510 |
| | 6.1 | 60 | 16 | 8 | – | □ | – | – |
| | 6.2 | | | | | □ | – | – |
| | 6.3 | | | | | □ | – | – |
| | 6.4 | | | | | □ | – | – |
| 8502813 | 6.5 | | | | D | △ | 38 | 10,500 |
| | 6.6 | | | | – | □ | – | – |
| | 6.7 | | | | | □ | – | – |
| | 6.8 | | | | | □ | – | – |
| | 6.9 | | | | | □ | – | – |
| 8502814 | 7 | | | | D | △ | 39 | 10,500 |
| | 7.1 | | | | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.2 | 60 | 16 | 8 | – | □ | – | – |
| | 7.3 | | | | | □ | – | – |
| | 7.4 | | | | | □ | – | – |
| 8502815 | 7.5 | | | | D | △ | 40 | 10,500 |
| | 7.6 | | 19 | | – | □ | – | – |
| | 7.7 | | | | | □ | – | – |
| | 7.8 | | | | | □ | – | – |
| | 7.9 | | | | | □ | – | – |
| 8502816 | 8 | | | | B | ▲ | 40 | 11,600 |
| | 8.1 | 70 | | 10 | – | □ | – | – |
| | 8.2 | | | | | □ | – | – |
| | 8.3 | | | | | □ | – | – |
| | 8.4 | | | | | □ | – | – |
| 8502817 | 8.5 | | | | D | △ | 69 | 14,100 |
| | 8.6 | | | | – | □ | – | – |
| | 8.7 | | | | | □ | – | – |
| | 8.8 | | | | | □ | – | – |
| | 8.9 | | | | | □ | – | – |
| 8502818 | 9 | | | | D | △ | 70 | 14,100 |
| | 9.1 | | | | – | □ | – | – |
| | 9.2 | | | | | □ | – | – |
| | 9.3 | | | | | □ | – | – |
| | 9.4 | | | | | □ | – | – |
| 8502819 | 9.5 | | | | D | △ | 71 | 14,100 |
| | 9.6 | | 22 | | – | □ | – | – |
| | 9.7 | | | | | □ | – | – |
| | 9.8 | | | | | □ | – | – |
| | 9.9 | | | | | □ | – | – |
| 8502820 | 10 | | | | B | ▲ | 71 | 14,400 |
| 8502850 | 10.5 | 75 | | 12 | D | △ | 106 | 19,000 |
| 8502821 | 11 | | | | | △ | 106 | 19,000 |
| 8502851 | 11.5 | | | | | △ | 108 | 19,000 |
| 8502822 | 12 | | | | B | ▲ | 108 | 19,800 |
| 8502823 | 13 | 85 | 26 | | D | △ | 138 | 24,000 |
| 8502824 | 14 | | | | | △ | 139 | 34,000 |
| 8502825 | 15 | 90 | | 16 | | △ | 231 | 35,400 |
| 8502826 | 16 | 100 | 32 | | B | ▲ | 257 | 37,200 |
| 8502827 | 17 | | | | D | △ | 261 | 54,500 |
| 8502828 | 18 | | | | | △ | 265 | 54,500 |
| 8502829 | 19 | | | 20 | | △ | 387 | 63,100 |
| 8502830 | 20 | 105 | 38 | | B | ▲ | 404 | 63,100 |

▲＝この製品は、AE-TS-N(P.278)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AE-TS-N(p.278)

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CA-ETS | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DLCコート3枚刃超硬スクエアエンドミルショート形
**DLC Coated 3-flute Carbide End Mill Short Length**

## DLC-ETS

切削条件 Cutting Conditions | P688



独自の超平滑DLCコーティングが溶着を防止します。航空機アルミ部品などでの高速高能率加工を実現します。
Unique DLC costing with ultra lubrication eliminates weldings. For High speed high efficiency machining on Aerospace Aluminum parts.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約40° ABOUT 40°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8528306 | **3** | 50 | 8 | 6 | D | ▲ | 18 | 9,840 |
| 8528308 | **4** | | 11 | | | ▲ | 18 | 10,200 |
| 8528310 | **5** | | 13 | | | ▲ | 18 | 11,100 |
| 8528312 | **6** | | | | | ▲ | 18 | 11,400 |
| 8528316 | **8** | 60 | 19 | 8 | | ▲ | 40 | 14,800 |
| 8528320 | **10** | 70 | 22 | 10 | | ▲ | 71 | 17,600 |
| 8528322 | **12** | 75 | 26 | 12 | | ▲ | 106 | 23,600 |
| 8528326 | **16** | 100 | 32 | 16 | | ▲ | 255 | 43,900 |
| 8528330 | **20** | 105 | 38 | 20 | | ▲ | 405 | 72,700 |

▲＝この製品は、AE-TS-N(P.278)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AE-TS-N(p.278)

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1167 を参照下さい。 See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DLC-ETS** | | | | | | | | | ○ | ※◎ | | | | ○ |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル ロング形

**DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials**

The A Brand

## AE-TL-N

切削条件 Cutting Conditions | P508



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 41°

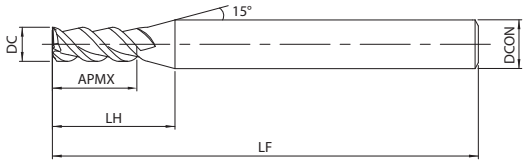
CAD

（単位:mm）(Unit:mm)

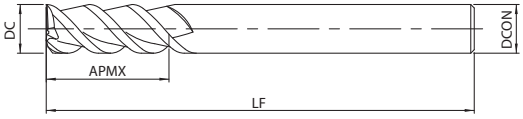
| ツール No. EDP No. | 外径×刃長 DC×APMX | 全長 LF | LH | シャンク径 DCON | L/D | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8557340 | 3 × 9 | 55 | 16.6 | 6 | 3 | 1 | A | ● | 21 | 2,360 |
| 8557350 | 3 × 15 | 55 | 22.6 | | 5 | | | ● | 18 | 3,540 |
| 8557341 | 4 × 12 | 55 | 17.7 | | 3 | | | ● | 20 | 2,720 |
| 8557351 | 4 × 20 | 60 | 25.7 | | 5 | | | ● | 19 | 4,060 |
| 8557342 | 5 × 15 | 55 | 18.9 | | 3 | | | ● | 21 | 2,720 |
| 8557352 | 5 × 25 | 65 | 28.9 | | 5 | | | ● | 23 | 4,060 |
| 8557343 | 6 × 18 | 60 | — | | 3 | 2 | | ● | 23 | 3,180 |
| 8557353 | 6 × 30 | 75 | — | | 5 | | | ● | 26 | 4,730 |
| 8557344 | 8 × 24 | 70 | — | 8 | 3 | | | ● | 44 | 5,800 |
| 8557354 | 8 × 40 | 90 | — | | 5 | | | ● | 54 | 8,670 |
| 8557345 | 10 × 30 | 75 | — | 10 | 3 | | | ● | 70 | 7,750 |
| 8557355 | 10 × 50 | 100 | — | | 5 | | | ● | 89 | 11,700 |
| 8557346 | 12 × 36 | 80 | — | 12 | 3 | | | ● | 106 | 9,840 |
| 8557356 | 12 × 60 | 110 | — | | 5 | | | ● | 130 | 14,800 |
| 8557347 | 16 × 48 | 120 | — | 16 | 3 | | | ● | 286 | 25,600 |
| 8557357 | 16 × 80 | 150 | — | | 5 | | | ● | 324 | 38,500 |
| 8557348 | 20 × 60 | 135 | — | 20 | 3 | | | ● | 480 | 36,400 |
| 8557358 | 20 × 100 | 175 | — | | 5 | | | ● | 566 | 55,000 |
| 8557349 | 25 × 75 | 155 | — | 25 | 3 | | | ● | 848 | 61,300 |
| 8557359 | 25 × 125 | 205 | — | | 5 | | | ● | 1,028 | 92,100 |

スタンダードタイプショート形(AE-TS-N)はP.278をご覧下さい。
See page 278 for AE-TS-N.
高機能タイプショート形(AE-VTS-N)はP.280をご覧下さい。
See page 280 for AE-VTS-N.
高機能タイプ立ち壁対応型(AE-VTFE-N)はP.311をご覧下さい。
See page 311 for AE-VTFE-N.

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-TL-N | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル ロング形

**DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials**

A The A Brand

## AE-TL-N

切削条件 Cutting Conditions | P508



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 41° | CAD

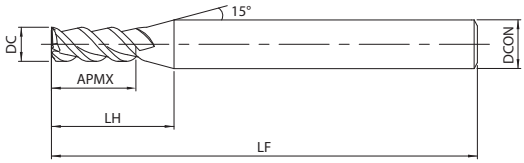
### ピンカドタイプ(-SP) Sharp Corner Edge Type

（単位:mm）(Unit:mm)

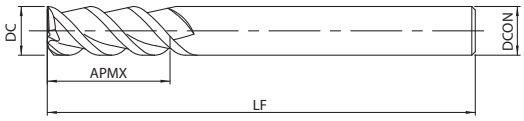
| ツール No. EDP No. | 外径×刃長 DC×APMX | 全長 LF | LH | シャンク径 DCON | L/D | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8557440 | 3 × 9 -SP | 55 | 16.6 | 6 | 3 | 1 | A | ● | 20 | 2,360 |
| 8557450 | 3 × 15 -SP | 55 | 22.6 | | 5 | | | ● | 20 | 3,540 |
| 8557441 | 4 × 12 -SP | 55 | 17.7 | | 3 | | | ● | 20 | 2,720 |
| 8557451 | 4 × 20 -SP | 60 | 25.7 | | 5 | | | ● | 20 | 4,060 |
| 8557442 | 5 × 15 -SP | 55 | 18.9 | | 3 | | | ● | 22 | 2,720 |
| 8557452 | 5 × 25 -SP | 65 | 28.9 | | 5 | | | ● | 22 | 4,060 |
| 8557443 | 6 × 18 -SP | 60 | — | | 3 | 2 | | ● | 24 | 3,180 |
| 8557453 | 6 × 30 -SP | 75 | — | | 5 | | | ● | 28 | 4,730 |
| 8557444 | 8 × 24 -SP | 70 | — | 8 | 3 | | | ● | 44 | 5,800 |
| 8557454 | 8 × 40 -SP | 90 | — | | 5 | | | ● | 54 | 8,670 |
| 8557445 | 10 × 30 -SP | 75 | — | 10 | 3 | | | ● | 70 | 7,750 |
| 8557455 | 10 × 50 -SP | 100 | — | | 5 | | | ● | 89 | 11,700 |
| 8557446 | 12 × 36 -SP | 80 | — | 12 | 3 | | | ● | 102 | 9,840 |
| 8557456 | 12 × 60 -SP | 110 | — | | 5 | | | ● | 130 | 14,800 |

スタンダードタイプショート形(AE-TS-N)はP.278をご覧下さい。
See page 278 for AE-TS-N.
高機能タイプショート形(AE-VTS-N)はP.280をご覧下さい。
See page 280 for AE-VTS-N.
高機能タイプ立ち壁対応型(AE-VTFE-N)はP.311をご覧下さい。
See page 311 for AE-VTFE-N.

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-TL-N | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

NEW

# スーパーエンプラ用DLCコート超硬エンドミル
**DLC Coated Carbide End Mill for Super Engineering Plastic**

## SEP-EL

切削条件 Cutting Conditions | **P683**



DC=0.5　1<DC

コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE　DLC-IGUSS　SHRINK FIT　25°

DC<6　0～-0.015
6=DC　-0.005～-0.02

### 3D刃長 3 × D cutting length

（単位:mm）(Unit:mm)

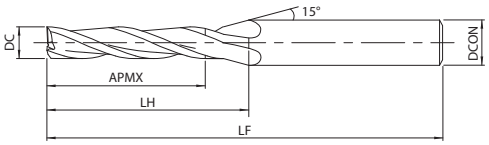
| ツール No. EDP No. | 外径×刃長 DC×APMX | 全長 LF | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8470005 | **0.5** × **1.5** | 45 | 8.7 | 4 | 2 | 1 | B | ● | – | 3,480 |
| 8470010 | **1** × **3** | | 9.4 | | 3 | | | ● | – | 3,400 |
| 8470020 | **2** × **6** | | 11.2 | | | | | ● | – | 3,400 |
| 8470030 | **3** × **9** | 55 | 16.9 | 6 | | | | ● | – | 3,530 |
| 8470040 | **4** × **12** | | 18.1 | | | | | ● | – | 4,060 |
| 8470060 | **6** × **18** | 60 | – | | | 2 | | ● | – | 4,760 |

### 5D刃長 5 × D cutting length

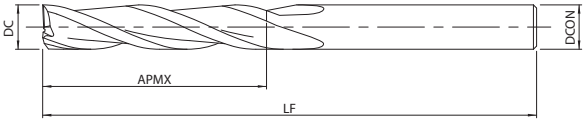
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃長 DC×APMX | 全長 LF | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8471005 | **0.5** × **2.5** | 45 | 9.7 | 4 | 2 | 1 | B | ● | – | 5,340 |
| 8471010 | **1** × **5** | | 11.4 | | 3 | | | ● | – | 5,160 |
| 8471020 | **2** × **10** | 50 | 15.2 | | | | | ● | – | 5,160 |
| 8471030 | **3** × **15** | 55 | 22.9 | 6 | | | | ● | – | 5,290 |
| 8471040 | **4** × **20** | 60 | 26.1 | | | | | ● | – | 6,070 |
| 8471060 | **6** × **30** | 75 | – | | | 2 | | ● | – | 7,110 |

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **SEP-EL** | | | | | | | | | ○ | ○ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート4枚刃超硬スクエアエンドミルショート形
**WXL Coated 4-flute Carbide End Mill Short Length**

## WXL-EMS

切削条件 Cutting Conditions | P586



硬質潤滑被膜WXLコーティングを施すことで、一般鋼、焼入れ鋼や銅合金など幅広い切削にも効果を発揮します。湿式、乾式どちらの加工にもお勧めします。

WXL coating with high hardness and high lubrication. Works on wide range of materials, regular steels, hardened steels, Copper alloys. Recommended with lubrications or dry milling.

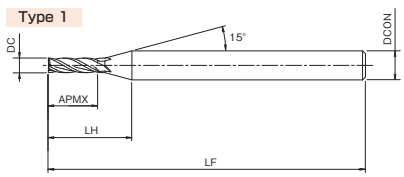
CARBIDE | WXL | DC≦12 (DC≦12 0~-0.02, 12<DC 0~-0.03) | SHRINK FIT | 30°

CAD

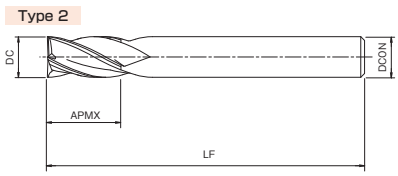
| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3130510 | **1** | 40 | 2.5 | 9 | 4 | 1 | D | ● | 12 | 3,290 |
| 3130515 | **1.5** | | 4 | 9.6 | | | | ● | 12 | 3,290 |
| 3130520 | **2** | | 6 | 11.2 | | | A | ● | 12 | 2,730 |
| 3130525 | **2.5** | | 8 | 12.5 | | | | ● | 12 | 2,730 |
| 3130530 | **3** | 45 | | 16 | 6 | | | ● | 16 | 2,840 |
| 3130535 | **3.5** | | 10 | 17 | | | D | ● | 16 | 5,250 |
| 3130540 | **4** | | 11 | 17.1 | | | A | ● | 16 | 3,290 |
| 3130545 | **4.5** | | | 16.1 | | | D | ● | 17 | 6,130 |
| 3130550 | **5** | 50 | 13 | 17.3 | | | A | ● | 20 | 3,290 |
| 3130555 | **5.5** | | | 16.3 | | | D | ● | 20 | 7,320 |
| 3130560 | **6** | | | — | | 2 | A | ● | 20 | 3,850 |
| 3130565 | **6.5** | 60 | 16 | 21.1 | 8 | 1 | D | ● | 39 | 11,400 |
| 3130570 | **7** | | | 20.3 | | | A | ● | 40 | 10,400 |
| 3130575 | **7.5** | | | 19.3 | | | D | ● | 41 | 11,900 |
| 3130580 | **8** | | 19 | — | | 2 | A | ● | 40 | 7,070 |
| 3130585 | **8.5** | 70 | | 24.1 | 10 | 1 | D | ● | 70 | 14,800 |
| 3130590 | **9** | | | 23.3 | | | A | ● | 71 | 13,500 |
| 3130595 | **9.5** | | | 22.3 | | | D | ● | 73 | 17,300 |
| 3130600 | **10** | | 22 | — | | 2 | A | ● | 73 | 9,440 |

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3130605 | **10.5** | 75 | 22 | 27.1 | 12 | 1 | D | ● | 107 | 21,400 |
| 3130610 | **11** | | | 26.2 | | | | ● | 109 | 19,700 |
| 3130615 | **11.5** | | | 25.3 | | | | ● | 111 | 22,500 |
| 3130620 | **12** | | 26 | — | | 2 | A | ● | 111 | 11,900 |
| 3130625 | **12.5** | 85 | | | | 3 | | ● | 131 | 29,700 |
| 3130630 | **13** | | | | | | | ● | 131 | 25,700 |
| 3130640 | **14** | | | | | | | ● | 147 | 30,200 |
| 3130650 | **15** | 90 | | 31.2 | 16 | 1 | | ● | 275 | 55,400 |
| 3130660 | **16** | 100 | 32 | — | | 2 | | ● | 282 | 43,400 |
| 3130670 | **17** | | | | | 3 | | ● | 272 | 53,400 |
| 3130680 | **18** | | | | | | | ● | 282 | 58,300 |
| 3130690 | **19** | 105 | | 37.4 | 20 | 1 | D | ● | 395 | 61,800 |
| 3130700 | **20** | | 38 | — | | 2 | | ● | 420 | 63,700 |
| 3130710 | **21** | | | | | 3 | | ● | 430 | 59,100 |
| 3130720 | **22** | | | | | | | ● | 442 | 65,900 |
| 3130730 | **23** | 120 | 45 | 52.3 | 25 | 1 | | ● | 697 | 73,300 |
| 3130740 | **24** | | | 50.4 | | | | ● | 716 | 80,200 |
| 3130750 | **25** | | | — | | 2 | | ● | 738 | 95,000 |
| 3130800 | **30** | 125 | | 52.3 | 32 | 1 | | ● | 1,213 | 141,000 |

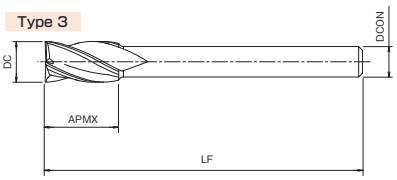
Type 1




Type 2




Type 3




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WXL-EMS** | ◎ | | ◎ | | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## WXコート4枚刃超硬スクエアエンドミルスタブ形
**WX Coated 4-flute Carbide End Mill Stub Length**

## WX-G-EMSS
切削条件 Cutting Conditions | P628



底刃コーナ部を強化した強力型４枚刃エンドミルです。剛性の高い短刃長のため高速高送りを可能としました。量産加工でのリードタイム削減を実現します。

High-helix four flute end mills with corner radius on end teeth. Heavy machining is possible thanks to the rigidity of the short flute length. Can reduce the lead times of mass production machining.

CARBIDE | WX | 0〜-0.02 | SHRINK FIT | 35° | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3019330 | **3** | 50 | 4.5 | 6 | A | ▲ | 19 | 4,630 |
| 3019340 | **4** | | 6 | | | ▲ | 20 | 4,810 |
| 3019350 | **5** | | 7.5 | | | ▲ | 20 | 5,110 |
| 3019360 | **6** | | 9 | | | ▲ | 21 | 5,520 |
| 3019380 | **8** | 60 | 12 | 8 | | ▲ | 43 | 7,840 |
| 3019400 | **10** | 70 | 15 | 10 | | ▲ | 76 | 11,000 |
| 3019420 | **12** | 75 | 18 | 12 | | ▲ | 117 | 13,100 |

▲＝この製品は、AE-VMSS(P.296)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-VMSS(p.296)

## DUARISEコート超硬防振型エンドミル 立ち壁対応型
**DUARISE Coated Anti-Vibration Carbide End Mill for Deep Side Milling**

A The A Brand

## AE-VMFE
切削条件 Cutting Conditions | P502



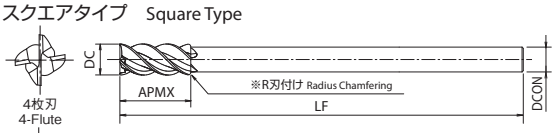
CARBIDE | DUARISE | R ± 0.03 | DC≦12 0〜-0.02, 14≦DC 0〜-0.03 | SHRINK FIT | 40〜44° | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8549916 | **6** | 100 | 15 | 4 | 4 | A | ● | 24 | 7,390 |
| 8549945 | **6 × R0.5** | | | | | | ● | 26 | 8,890 |
| 8549918 | **8** | 110 | 20 | 6 | | | ● | 52 | 11,500 |
| 8549955 | **8 × R0.5** | | | | | | ● | 48 | 13,700 |
| 8549920 | **10** | 130 | 25 | 8 | | | ● | 104 | 15,200 |
| 8549965 | **10 × R0.5** | | | | | | ● | 104 | 18,200 |
| 8549966 | **10 × R1** | | | | | D | ○ | 102 | 18,200 |
| 8549922 | **12** | 150 | 30 | 10 | | A | ● | 178 | 20,900 |
| 8549975 | **12 × R0.5** | | | | | | ● | 180 | 25,100 |
| 8549976 | **12 × R1** | | | | | D | ○ | 182 | 25,100 |
| 8549924 | **14** | 160 | 35 | 12 | 5 | A | ● | 278 | 28,100 |
| 8549985 | **14 × R0.5** | | | | | | ● | 282 | 33,600 |
| 8549986 | **14 × R1** | | | | | D | ○ | 280 | 33,600 |
| 8549928 | **18** | 180 | 45 | 16 | | A | ● | 530 | 47,300 |
| 8549995 | **18 × R0.5** | | | | | D | ○ | 534 | 56,800 |
| 8549996 | **18 × R1** | | | | | A | ● | 532 | 56,800 |
| 8549932 | **22** | 200 | 55 | 20 | | | ● | 906 | 75,400 |
| 8550005 | **22 × R0.5** | | | | | D | ○ | 908 | 90,400 |
| 8550006 | **22 × R1** | | | | | A | ● | 906 | 90,400 |

スタブ形(AE-VMSS)はP.296をご覧下さい。See page 296 for AE-VMSS.
ショート形(AE-VMS)はP.301をご覧下さい。See page 301 for AE-VMS.
ロング形(AE-VML)はP.305をご覧下さい。See page 305 for AE-VML.

スクエアタイプ　Square Type



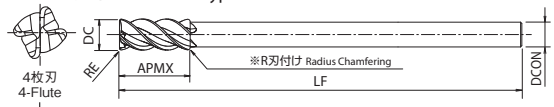

4枚刃 4-Flute

5枚刃 5-Flute

※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

The radius chamfering is not a full radius since it is for preventing streaks during step milling.

ラジアスタイプ　Radius Type




4枚刃 4-Flute

5枚刃 5-Flute

※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

The radius chamfering is not a full radius since it is for preventing streaks during step milling.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WX-G-EMSS** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |
| **AE-VMFE** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
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□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 高硬度鋼用DUROREYコート多刃超硬エンドミルスタブ形

**DUROREY Coated Multi-flute Carbide End Mill Stub Length for High-hardness Steels**

A The A Brand

## AE-MSS-H

切削条件 Cutting Conditions | P523



4刃 4-flute

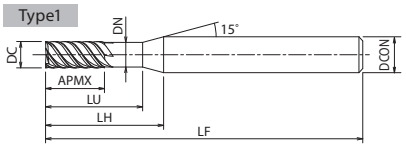
6刃 6-flute

CAD

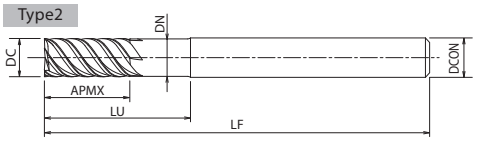
CARBIDE | DURAREY | SHRINK FIT | 43°

0～-0.02

Type1




Type2

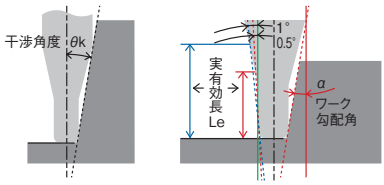



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8549830 | **3× 9** | 45 | 4.5 | 14.8 | 6 | 2.85 | 5.78° | 9.46 | 9.87 | 10.23 | 10.62 | 11.48 | 4 | 1 | A | ● | 18 | 6,040 |
| 8549831 | **4×12** | 50 | 6 | 16 | | 3.85 | 3.59° | 12.6 | 13.09 | 13.56 | 14.07 | 15.21 | | | | ● | 20 | 6,520 |
| 8549832 | **5×15** | 60 | 7.5 | 17.1 | | 4.85 | 1.68° | 15.72 | 16.3 | 16.88 | – | – | | | | ● | 26 | 6,910 |
| 8549833 | **6×18** | 80 | 9 | – | | 5.85 | – | – | – | – | – | – | 6 | 2 | | ● | 34 | 8,240 |
| 8549834 | **8×24** | 90 | 12 | – | 8 | 7.85 | – | – | – | – | – | – | | | | ● | 71 | 10,200 |
| 8549835 | **10×30** | 100 | 15 | – | 10 | 9.85 | – | – | – | – | – | – | | | | ● | 118 | 13,700 |
| 8549836 | **12×36** | 110 | 18 | – | 12 | 11.8 | – | – | – | – | – | – | | | | ● | 184 | 17,500 |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AE-MSS-H** | ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 高硬度鋼用DUROREYコート多刃超硬エンドミルショート形

**DUROREY Coated Multi-flute Carbide End Mill Short Length for High-hardness Steels**

A The A Brand

## AE-MS-H

切削条件 Cutting Conditions | P524



CARBIDE | DURODREY | SHRINK FIT | 43°

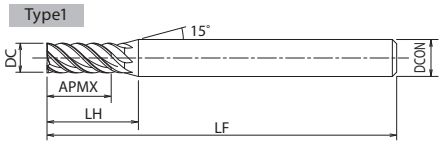
0～-0.02

CAD

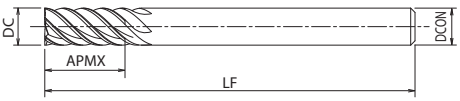
4刃 4-flute

6刃 6-flute

Type1




Type2




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8549710 | **1** | 60 | 2.5 | 12.7 | 6 | 4 | 1 | A | ● | 24 | 5,190 |
| 8549715 | **1.5** | | 3.8 | 13 | | | | | ● | 24 | 5,190 |
| 8549720 | **2** | | 5 | 13.9 | | | | | ● | 24 | 5,190 |
| 8549725 | **2.5** | | 6.3 | 14.5 | | | | | ● | 27 | 5,620 |
| 8549730 | **3** | | 7.5 | 15.4 | | | | | ● | 24 | 6,040 |
| 8549740 | **4** | | 10 | 16.1 | | | | | ● | 26 | 6,520 |
| 8549750 | **5** | | 12.5 | 16.7 | | | | | ● | 24 | 6,910 |
| 8549760 | **6** | | 15 | — | | 6 | 2 | | ● | 28 | 7,520 |
| 8549780 | **8** | 70 | 20 | — | 8 | | | | ● | 52 | 9,230 |
| 8549810 | **10** | 80 | 25 | — | 10 | | | | ● | 92 | 12,600 |
| 8549812 | **12** | 90 | 30 | — | 12 | | | | ● | 146 | 15,900 |
| 8549816 | **16** | 105 | 40 | — | 16 | | | | ● | 290 | 49,800 |
| 8549820 | **20** | 120 | 50 | — | 20 | | | | ● | 518 | 79,700 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **AE-MS-H** | ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## WXSコート多刃超硬スクエアエンドミルショート形
**WXS Coated Multi-flute Carbide End Mill Short Length**

## WXS-EMS

切削条件 Cutting Conditions | P623



超耐熱、超硬質のWXスーパーコートを施した高剛性型エンドミルです。一般鋼の高速加工はもちろん焼入れ鋼の高速高精度加工を可能とします。

Highly rigid end mills that utilize the ultra wear-resistant, ultra hard WX Super Coating. Great high speed machining performance in general steels, and high-speed, high-precision machining of hardened steels is also possible.

CARBIDE | WXS | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3041180 | **18** | 110 | 32 | — | 16 | 6 | 3 | D | △ | 455 | 81,400 |
| 3041250 | **25** | 125 | 45 | | 25 | 8 | 2 | | △ | 861 | 179,000 |
| 3041300 | **30** | 140 | | 50.8 | 32 | | 1 | | △ | 1,524 | 229,000 |

## FXコート6枚刃超硬スクエアエンドミルショート形 不等リード
**FX Coated 6-flute Variable Lead Carbide End Mill Short Length**

## NEO-EMS

切削条件 Cutting Conditions | P639



進化形“不等リード”の効果によりびびりを抑えて、驚異の高能率加工を実現します。

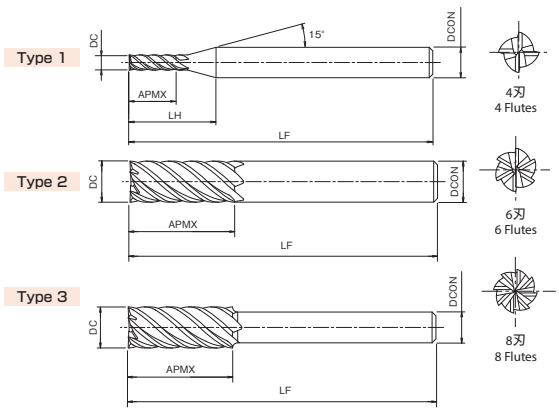
Introducing the highly evolved "variable-lead" shape. Suppresses chattering, allowing for outstanding milling performance.

CAD

CARBIDE | FX | DC≦16 0~-0.02, 16<DC 0~-0.03 | SHRINK FIT | 37°~39°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8519360 | **6** | 50 | 12 | 6 | B | ● | 21 | 13,400 |
| 8519380 | **8** | 60 | 16 | 8 | | ● | 43 | 16,500 |
| 8519400 | **10** | 70 | 20 | 10 | | ● | 77 | 22,400 |
| 8519420 | **12** | 75 | 24 | 12 | | ● | 117 | 27,800 |
| 8519460 | **16** | 100 | 32 | 16 | | ● | 436 | 54,600 |
| 8519500 | **20** | 105 | 40 | 20 | | ● | 438 | 79,400 |
| 8519550 | **25** | 120 | 50 | 25 | | ● | 760 | 154,000 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WXS-EMS** | ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |
| **NEO-EMS** | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃超硬スクエアエンドミルショート形
**4-flute Carbide End Mill Short Length**

## MG-EMS

切削条件 Cutting Conditions | P670



CARBIDE | 0〜-0.03 | DC≦9.5 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 84404 | **2** | 40 | 6 | 4 | A | ▲ | 12 | 8,830 |
| | **2.1** | | | | — | □ | — | — |
| | **2.2** | | | | | □ | — | — |
| | **2.3** | | | | | □ | — | — |
| | **2.4** | | 8 | | | □ | — | — |
| 84405 | **2.5** | | | | A | ▲ | 12 | 9,740 |
| | **2.6** | | | | — | □ | — | — |
| | **2.7** | | | | | □ | — | — |
| | **2.8** | | | | | □ | — | — |
| | **2.9** | | | | | □ | — | — |
| 84406 | **3** | 45 | | 6 | A | ▲ | 16 | 9,740 |
| | **3.1** | | 10 | | — | □ | — | — |
| | **3.2** | | | | | □ | — | — |
| | **3.3** | | | | | □ | — | — |
| | **3.4** | | | | | □ | — | — |
| 84407 | **3.5** | | | | B | ▲ | 16 | 10,200 |
| | **3.6** | | | | — | □ | — | — |
| | **3.7** | | | | | □ | — | — |
| | **3.8** | | 11 | | | □ | — | — |
| | **3.9** | | | | | □ | — | — |
| 84408 | **4** | | | | A | ▲ | 16 | 10,200 |
| | **4.1** | | | | — | □ | — | — |
| | **4.2** | | | | | □ | — | — |
| | **4.3** | | | | | □ | — | — |
| | **4.4** | | | | | □ | — | — |
| 84409 | **4.5** | | | | B | ▲ | 17 | 11,400 |
| | **4.6** | | | | — | □ | — | — |
| | **4.7** | | | | | □ | — | — |
| | **4.8** | 50 | 13 | | | □ | — | — |
| | **4.9** | | | | | □ | — | — |
| 84410 | **5** | | | | A | ▲ | 19 | 11,400 |
| | **5.1** | | | | — | □ | — | — |
| | **5.2** | | | | — | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **5.3** | 50 | 13 | 6 | — | □ | — | — |
| | **5.4** | | | | | □ | — | — |
| 84411 | **5.5** | | | | B | ▲ | 19 | 12,400 |
| | **5.6** | | | | — | □ | — | — |
| | **5.7** | | | | | □ | — | — |
| | **5.8** | | | | | □ | — | — |
| | **5.9** | | | | | □ | — | — |
| 84412 | **6** | | | | A | ▲ | 20 | 12,400 |
| 84413 | **6.5** | 60 | 16 | 8 | B | ▲ | 39 | 14,700 |
| 84414 | **7** | | | | A | ▲ | 40 | 14,700 |
| 84415 | **7.5** | | | | B | ▲ | 41 | 16,200 |
| 84416 | **8** | | | | A | ▲ | 41 | 16,200 |
| 84417 | **8.5** | 70 | 19 | 10 | B | ▲ | 71 | 19,800 |
| 84418 | **9** | | | | A | ▲ | 71 | 19,800 |
| 84419 | **9.5** | | | | B | ▲ | 72 | 22,500 |
| 84420 | **10** | | | | A | ▲ | 73 | 22,500 |
| 84451 | **10.5** | 75 | 22 | 12 | B | ▲ | 107 | 23,100 |
| 84421 | **11** | | | | | ▲ | 109 | 24,000 |
| 84452 | **11.5** | | | | | ▲ | 111 | 25,400 |
| 84422 | **12** | | | | A | ▲ | 115 | 27,000 |
| 84423 | **13** | 85 | 26 | | — | □ | — | — |
| 84424 | **14** | | | | | □ | — | — |
| 84425 | **15** | 90 | | 16 | | □ | — | — |
| 84426 | **16** | 100 | 32 | | | □ | — | — |
| 84427 | **17** | | | | | □ | — | — |
| 84428 | **18** | | | | | □ | — | — |
| 84429 | **19** | | | 20 | — | □ | — | — |
| 84430 | **20** | 105 | 38 | | | □ | — | — |
| 84431 | **21** | | | | | □ | — | — |
| 84432 | **22** | | | | | □ | — | — |
| 84433 | **23** | 120 | 45 | 25 | | □ | — | — |
| 84434 | **24** | | | | | □ | — | — |
| 84435 | **25** | | | | | □ | — | — |

▲＝この製品は、WXL-EMS(P.287)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by WXL-EMS(p.287)

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EMS** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

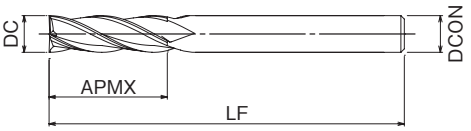
# グラファイト用DGコート4枚刃超硬スクエアエンドミルショート形

**DG Coated 4-flute Carbide End Mill Short Length for Graphite**

## DG-EMS

切削条件 Cutting Conditions | P695






グラファイト専用のダイヤモンドコーティングを施したエンドミルです。
Diamond Coated end mills for graphite.

CARBIDE | DG | SHRINK FIT | 30°

0～-0.027

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 刃長 APMX | シャンク径 DCON | 全長 LF | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8553208 | **4** | 8 | 4 | 80 | B | ● | 17 | 31,800 |
| 8553212 | **6** | 12 | 6 | | | ● | 35 | 33,600 |
| 8553216 | **8** | 16 | 8 | 100 | | ● | 75 | 47,000 |
| 8553220 | **10** | 20 | 10 | | | ● | 114 | 62,500 |
| 8553222 | **12** | 24 | 12 | 120 | | ● | 194 | 68,500 |

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商品シリーズ Parts & Supply series
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※詳細は▶P.1178 を参照下さい。
See p.1178 for details



CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DG-EMS | | | | | | | | | | ○ | ◎ | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## FXコート4枚刃超硬スクエアエンドミルロング形
**FX Coated 4-flute Carbide End Mill Long Length**

## FX-MG-EML

切削条件 Cutting Conditions | P645



耐熱性に優れるFXコーティングを施した汎用タイプ4枚刃エンドミルロング刃タイプです。
4-fluted end mill for general applications. Employs long edges and FX coating.

CARBIDE | FX | 0〜-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2.5** | 45 | 12 | 4 | — | □ | — | — |
| 8523030 | **3** | 50 | 14 | 6 | A | △ | 17 | 13,300 |
| 8523035 | **3.5** | | | | B | △ | 17 | 13,700 |
| 8523040 | **4** | | 17 | | A | △ | 17 | 13,700 |
| 8523045 | **4.5** | | | | B | △ | 18 | 16,600 |
| 8523050 | **5** | 60 | 20 | | A | △ | 22 | 16,600 |
| 8523055 | **5.5** | | | | B | △ | 23 | 17,900 |
| 8523065 | **6.5** | 70 | 24 | 8 | | △ | 43 | 20,400 |
| 8523070 | **7** | | | | A | △ | 44 | 20,400 |
| 8523075 | **7.5** | | | | B | △ | 44 | 22,500 |
| 8523085 | **8.5** | 80 | 28 | 10 | | △ | 79 | 28,100 |
| 8523090 | **9** | | | | | △ | 79 | 28,100 |
| 8523095 | **9.5** | | | | | △ | 80 | 29,900 |
| 8523105 | **10.5** | 90 | 34 | 12 | | △ | 123 | 33,100 |
| 8523110 | **11** | | | | | △ | 125 | 35,600 |
| 8523115 | **11.5** | | | | | △ | 130 | 36,400 |
| 8523130 | **13** | 100 | 40 | | A | △ | 152 | 50,300 |
| 8523140 | **14** | | | | | △ | 166 | 56,400 |
| 8523150 | **15** | 105 | | 16 | | △ | 260 | 69,000 |
| 8523170 | **17** | 115 | 48 | | B | △ | 307 | 106,000 |
| 8523180 | **18** | | | | A | △ | 321 | 99,500 |
| 8523190 | **19** | | | 20 | B | △ | 432 | 116,000 |
| 8523210 | **21** | 125 | 56 | | | △ | 500 | 135,000 |
| 8523220 | **22** | | | | | △ | 519 | 134,000 |
| 8523230 | **23** | 140 | 67 | 25 | | △ | 768 | 158,000 |
| 8523240 | **24** | | | | | △ | 789 | 156,000 |
| 8523250 | **25** | | | | | △ | 813 | 158,000 |
| 8523260 | **26** | | | | | △ | 860 | 164,000 |
| 8523270 | **27** | 145 | | | | △ | 937 | 211,000 |
| 8523280 | **28** | | | | | △ | 944 | 214,000 |
| 8523290 | **29** | | | 32 | | △ | 1,309 | 217,000 |
| 8523300 | **30** | | | | | △ | 1,337 | 219,000 |

## FXコート4枚刃超硬スクエアエンドミル エキストラロング形
**FX Coated 4-flute Carbide End Mill Extra Long Length**

## FX-MG-EXML

切削条件 Cutting Conditions | P645



耐熱性に優れるFXコーティングを施した汎用タイプ4枚刃エンドミル超ロング刃タイプです。
4-fluted end mill for general applications. Made with extra long edges and FX coating.

CARBIDE | FX | 0〜-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8543330 | **3** | 60 | 20 | 6 | C | △ | 19 | 15,600 |
| 8543340 | **4** | 70 | 32 | | | △ | 21 | 17,500 |
| 8543350 | **5** | 80 | 40 | | | △ | 27 | 20,300 |
| 8543360 | **6** | | | | | △ | 30 | 21,300 |
| 8543380 | **8** | 110 | 63 | 8 | | △ | 71 | 32,000 |
| 8543400 | **10** | 125 | 75 | 10 | | △ | 123 | 40,200 |
| 8543420 | **12** | 150 | 90 | 12 | | △ | 209 | 58,000 |
| 8543430 | **13** | 160 | 95 | 16 | | △ | 331 | 82,100 |
| 8543440 | **14** | | | | | △ | 344 | 86,100 |
| 8543450 | **15** | | | | | △ | 378 | 103,000 |
| 8543460 | **16** | | | | | △ | 378 | 105,000 |
| 8543470 | **17** | 180 | 20 | | | △ | 620 | 140,000 |
| 8543480 | **18** | | | | | △ | 654 | 140,000 |
| 8543490 | **19** | | 100 | | | △ | 665 | 150,000 |
| 8543500 | **20** | | | | | △ | 695 | 150,000 |
| 8543520 | **22** | 200 | 106 | 25 | | △ | 1,103 | 197,000 |
| 8543540 | **24** | | | | | △ | 1,175 | 208,000 |
| 8543550 | **25** | | | | | △ | 1,234 | 208,000 |
| 8543600 | **30** | 225 | 112 | 32 | | △ | 2,180 | 320,000 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-MG-EML** | ◎ | | ◎ | ○ | | | ○ | ◎ | ○ | ○ | | ○ | ○ | |
| **FX-MG-EXML** | ◎ | | ◎ | | | | ○ | ◎ | ○ | ○ | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 4枚刃超硬スクエアエンドミルロング形
**4-flute Carbide End Mill Long Length**

## MG-EML
切削条件 Cutting Conditions | P671



CARBIDE | 0〜-0.03 | DC≦9.5 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2.5** | 45 | 12 | 4 | — | □ | — | — |
| 84506 | **3** | 50 | | 6 | A | △ | 17 | 10,600 |
| 84507 | **3.5** | | 14 | | B | △ | 17 | 11,100 |
| 84508 | **4** | | 17 | | A | △ | 17 | 11,100 |
| 84509 | **4.5** | | | | B | △ | 17 | 13,700 |
| 84510 | **5** | 60 | 20 | | A | △ | 23 | 13,700 |
| 84511 | **5.5** | | | | B | △ | 23 | 15,000 |
| 84512 | **6** | | | | A | ▲ | 24 | 15,000 |
| 84513 | **6.5** | 70 | 24 | 8 | B | △ | 42 | 17,200 |
| 84514 | **7** | | | | | △ | 44 | 17,200 |
| 84515 | **7.5** | | | | | △ | 46 | 19,000 |
| 84516 | **8** | | 28 | | A | ▲ | 46 | 19,000 |
| 84517 | **8.5** | 80 | | 10 | B | △ | 76 | 24,600 |
| 84518 | **9** | | | | | △ | 78 | 24,600 |
| 84519 | **9.5** | | | | | △ | 80 | 25,600 |
| 84520 | **10** | | 34 | | A | ▲ | 123 | 25,600 |
| 84541 | **10.5** | 90 | | 12 | B | △ | 124 | 28,100 |
| 84521 | **11** | | | | | △ | 127 | 30,800 |
| 84542 | **11.5** | | | | | △ | 129 | 31,800 |
| 84522 | **12** | | 40 | | A | ▲ | 129 | 32,100 |
| 84523 | **13** | 100 | | | — | □ | — | — |
| 84524 | **14** | | | | | □ | — | — |
| 84525 | **15** | 105 | | 16 | | □ | — | — |
| 84526 | **16** | 115 | 48 | | | □ | — | — |
| 84527 | **17** | | | | | □ | — | — |
| 84528 | **18** | | | | | □ | — | — |
| 84529 | **19** | | | 20 | | □ | — | — |
| 84530 | **20** | 125 | 56 | | | □ | — | — |
| 84531 | **21** | | | | | □ | — | — |
| 84532 | **22** | | | | | □ | — | — |
| 84533 | **23** | 140 | 67 | 25 | | □ | — | — |
| 84534 | **24** | | | | | □ | — | — |
| 84535 | **25** | | | | | □ | — | — |

▲＝この製品は、AE-VML(P.305)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-VML(p.305)

## 4枚刃超硬スクエアエンドミルエキストラロング形
**4-flute Carbide End Mill Extra Long Length**

## MG-EXML
切削条件 Cutting Conditions | P671



CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8539356 | **3** | 60 | 20 | 6 | D | △ | 19 | 12,500 |
| | **3** | 70 | 30 | | — | □ | — | — |
| | **3** | 80 | 40 | | | | — | — |
| | **4** | 70 | 30 | | | | — | — |
| 8539358 | **4** | | 32 | | D | △ | 21 | 14,400 |
| | **4** | 80 | 40 | | — | □ | — | — |
| 8539360 | **5** | | | | D | △ | 27 | 17,300 |
| | **5** | 90 | 50 | | — | □ | — | — |
| 8539362 | **6** | 80 | 40 | | D | △ | 30 | 18,100 |
| | **6** | 90 | 50 | | — | □ | — | — |
| | **6** | 100 | 60 | | | | — | — |
| | **8** | 95 | 50 | 10 | | | — | — |
| | **8** | 105 | 60 | | | | — | — |
| 8539366 | **8** | 110 | 63 | 8 | D | △ | 72 | 28,100 |
| | **8** | 125 | 80 | 10 | — | □ | — | — |
| | **9** | 95 | 50 | | | | — | — |
| | **9** | 105 | 60 | | | | — | — |
| | **9** | 125 | 80 | | | | — | — |
| | **10** | 105 | 60 | | | | — | — |
| 8539370 | **10** | 125 | 75 | | D | △ | 126 | 36,100 |
| | **10** | | 80 | | — | □ | — | — |
| | **10** | 145 | 100 | | | | — | — |
| | **12** | 130 | 80 | 12 | | | — | — |
| 8539374 | **12** | 150 | 90 | | D | △ | 212 | 50,800 |
| | **12** | | 100 | | | □ | — | — |
| | **12** | 170 | 120 | | | | — | — |
| | **14** | 140 | 80 | 16 | | | — | — |
| | **14** | 160 | 100 | | | | — | — |
| | **14** | 180 | 120 | | | | — | — |
| | **15** | 140 | 80 | | | | — | — |
| | **15** | 160 | 100 | | | | — | — |
| | **15** | 180 | 120 | | | | — | — |
| | **15** | 210 | 150 | | | | — | — |
| | **16** | 160 | 100 | | | | — | — |
| | **16** | 210 | 150 | | | | — | — |
| | **18** | 165 | 100 | 20 | | | — | — |
| | **18** | 215 | 150 | | | | — | — |
| | **20** | 165 | 100 | | | | — | — |
| | **20** | 185 | 120 | | | | — | — |
| | **20** | 215 | 150 | | | | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EML** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| **MG-EXML** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DUARISEコート超硬防振型エンドミル スタブ形

**DUARISE Coated Anti-Vibration Carbide End Mill Stub Length**

The A Brand

## AE-VMSS

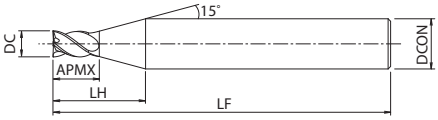
切削条件 Cutting Conditions | P495



CARBIDE | DUARISE | 0〜-0.02 | SHRINK FIT | 37°-40°

CAD

Type 1




Type 2




### スクエア タイプ Square Type

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8556410 | **1** | 40 | 1.5 | 7.9 | 4 | 1 | B | ● | 9 | 3,610 |
| 8556411 | **1.1** | | 1.7 | 8 | | | | ● | 9 | 4,150 |
| 8556412 | **1.2** | | 1.8 | 7.9 | | | | ● | 9 | 4,150 |
| 8556413 | **1.3** | | 2 | 7.9 | | | | ● | 9 | 4,150 |
| 8556414 | **1.4** | | 2.1 | 8 | | | | ● | 9 | 4,150 |
| 8556415 | **1.5** | | 2.3 | 7.8 | | | | ● | 9 | 3,610 |
| 8556416 | **1.6** | | 2.4 | 7.9 | | | | ● | 9 | 4,150 |
| 8556417 | **1.7** | | 2.6 | 7.7 | | | | ● | 9 | 4,150 |
| 8556418 | **1.8** | | 2.7 | 7.6 | | | | ● | 9 | 4,150 |
| 8556419 | **1.9** | | 2.9 | 7.7 | | | | ● | 9 | 4,150 |
| 8556420 | **2** | | 3 | 8.2 | | | | ● | 9 | 3,000 |
| 8556421 | **2.1** | | 3.2 | 8.2 | | | | ● | 9 | 4,150 |
| 8556422 | **2.2** | | 3.3 | 8.1 | | | | ● | 9 | 4,150 |
| 8556423 | **2.3** | | 3.5 | 8.1 | | | | ● | 9 | 4,150 |
| 8556424 | **2.4** | | 3.6 | 8 | | | | ● | 9 | 4,150 |
| 8556425 | **2.5** | | 3.8 | 8 | | | | ● | 9 | 3,000 |
| 8556426 | **2.6** | | 3.9 | 8.5 | | | | ● | 9 | 5,400 |
| 8556427 | **2.7** | | 4.1 | 8.5 | | | | ● | 9 | 5,400 |
| 8556428 | **2.8** | | 4.2 | 8.4 | | | | ● | 9 | 5,400 |
| 8556429 | **2.9** | | 4.4 | 8.4 | | | | ● | 10 | 5,400 |
| 8556430 | **3** | 45 | 4.5 | 12.2 | 6 | | | ● | 18 | 3,130 |
| 8556431 | **3.1** | | 4.7 | 12.2 | | | | ● | 18 | 5,400 |
| 8556432 | **3.2** | | 4.8 | 12.2 | | | | ● | 18 | 5,400 |
| 8556433 | **3.3** | | 5 | 12.2 | | | | ● | 18 | 5,400 |
| 8556434 | **3.4** | | 5.1 | 12.1 | | | | ● | 18 | 5,400 |
| 8556435 | **3.5** | | 5.3 | 12.1 | | | | ● | 18 | 4,680 |
| 8556436 | **3.6** | | 5.4 | 12 | | | | ● | 18 | 5,400 |
| 8556437 | **3.7** | | 5.6 | 12 | | | | ● | 18 | 5,400 |
| 8556438 | **3.8** | | 5.7 | 11.9 | | | | ● | 19 | 5,400 |
| 8556439 | **3.9** | | 5.9 | 11.9 | | | | ● | 19 | 5,400 |
| 8556440 | **4** | | 6 | 11.9 | | | | ● | 19 | 3,610 |
| 8556441 | **4.1** | | 6.2 | 12.1 | | | | ● | 19 | 6,230 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8556442 | **4.2** | 45 | 6.3 | 12 | 6 | 1 | B | ● | 19 | 6,230 |
| 8556443 | **4.3** | | 6.5 | 12 | | | | ● | 19 | 6,230 |
| 8556444 | **4.4** | | 6.6 | 11.9 | | | | ● | 19 | 6,230 |
| 8556445 | **4.5** | | 6.8 | 11.9 | | | | ● | 19 | 5,410 |
| 8556446 | **4.6** | | 6.9 | 11.8 | | | | ● | 19 | 6,230 |
| 8556447 | **4.7** | | 7.1 | 11.9 | | | | ● | 19 | 6,230 |
| 8556448 | **4.8** | | 7.2 | 11.8 | | | | ● | 19 | 6,230 |
| 8556449 | **4.9** | | 7.4 | 11.8 | | | | ● | 19 | 6,230 |
| 8556450 | **5** | | 7.5 | 11.7 | | | | ● | 19 | 3,610 |
| 8556451 | **5.1** | | 7.7 | 11.7 | | | | ● | 19 | 6,230 |
| 8556452 | **5.2** | | 7.8 | 11.6 | | | | ● | 19 | 6,230 |
| 8556453 | **5.3** | | 8 | 11.6 | | | | ● | 19 | 6,230 |
| 8556454 | **5.4** | | 8.1 | 11.5 | | | | ● | 19 | 6,230 |
| 8556455 | **5.5** | | 8.3 | 11.6 | | | | ● | 19 | 5,410 |
| 8556456 | **5.6** | | 8.4 | 11.5 | | | | ● | 19 | 6,230 |
| 8556457 | **5.7** | | 8.6 | 11.5 | | | | ● | 19 | 6,230 |
| 8556458 | **5.8** | | 8.7 | 11.4 | | | | ● | 20 | 6,230 |
| 8556459 | **5.9** | | 8.9 | 11.4 | | | | ● | 19 | 6,230 |
| 8556460 | **6** | | 9 | — | | 2 | | ● | 19 | 4,200 |
| 8556465 | **6.5** | 60 | 9.8 | 14.9 | 8 | 1 | | ● | 41 | 6,290 |
| 8556470 | **7** | | 10.5 | 14.7 | | | | ● | 41 | 6,290 |
| 8556475 | **7.5** | | 11.3 | 14.6 | | | | ● | 42 | 9,440 |
| 8556480 | **8** | | 12 | — | | 2 | | ● | 42 | 7,750 |
| 8556485 | **8.5** | 70 | 12.8 | 17.9 | 10 | 1 | | ● | 72 | 11,700 |
| 8556490 | **9** | | 13.5 | 17.7 | | | | ● | 73 | 11,000 |
| 8556495 | **9.5** | | 14.3 | 17.6 | | | | ● | 74 | 16,500 |
| 8556500 | **10** | | 15 | — | | 2 | | ● | 75 | 10,400 |
| 8556505 | **10.5** | 75 | 15.8 | 20.9 | 12 | 1 | | ● | 110 | 16,600 |
| 8556510 | **11** | | 16.5 | 20.7 | | | | ● | 113 | 14,400 |
| 8556515 | **11.5** | | 17.3 | 20.6 | | | | ● | 115 | 16,600 |
| 8556520 | **12** | | 18 | — | | 2 | | ● | 117 | 13,100 |


立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
ショート形(AE-VMS)はP.301をご覧下さい。
See page 301 for AE-VMS
ロング形(AE-VML)はP.305をご覧下さい。
See page 305 for AE-VML
自動旋盤対応型（AE-VTSS）はP.309をご覧下さい。
See page 309 for AE-VTSS


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **AE-VMSS** | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DUARISEコート超硬防振型エンドミル スタブ形

**DUARISE Coated Anti-Vibration Carbide End Mill Stub Length**

A The A Brand

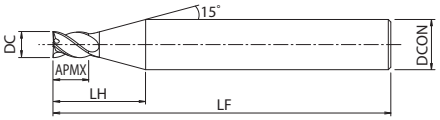
## AE-VMSS

切削条件 Cutting Conditions | P495



Type 1






Type 2




CARBIDE | DUARISE | 0〜-0.02 | RA | SHRINK FIT | 37°·40°

CAD

### ライトアングル タイプ Right Angle Type

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8556550 | 1 -RA | 40 | 1.5 | 7.9 | 4 | 1 | A | ● | 14 | 3,820 |
| 8556555 | 1.5 -RA | | 2.3 | 7.8 | | | | ● | 12 | 3,820 |
| 8556560 | 2 -RA | | 3 | 8.2 | | | | ● | 12 | 3,160 |
| 8556565 | 2.5 -RA | | 3.8 | 8 | | | | ● | 12 | 3,160 |
| 8556570 | 3 -RA | 45 | 4.5 | 12.2 | 6 | | | ● | 22 | 3,290 |
| 8556575 | 3.5 -RA | | 5.3 | 12.1 | | | | ● | 22 | 4,920 |
| 8556580 | 4 -RA | | 6 | 11.9 | | | | ● | 20 | 3,820 |
| 8556585 | 4.5 -RA | | 6.8 | 11.9 | | | | ● | 18 | 5,680 |
| 8556590 | 5 -RA | | 7.5 | 11.7 | | | | ● | 20 | 3,820 |
| 8556595 | 5.5 -RA | | 8.3 | 11.6 | | | | ● | 23 | 5,680 |
| 8556600 | 6 -RA | | 9 | – | | 2 | | ● | 20 | 4,430 |

立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
ショート形(AE-VMS)はP.301をご覧下さい。
See page 301 for AE-VMS
ロング形(AE-VML)はP.305をご覧下さい。
See page 305 for AE-VML
自動旋盤対応型（AE-VTSS）はP.309をご覧下さい。
See page 309 for AE-VTSS

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-VMSS | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# DUARISEコート超硬防振型エンドミル スタブ形

**DUARISE Coated Anti-Vibration Carbide End Mill Stub Length**

The A Brand

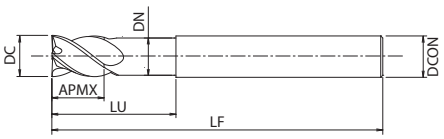
## AE-VMSS

切削条件 Cutting Conditions | P496



Type 3






CAD

CARBIDE | DUARISE | 0〜-0.02 | SHRINK FIT | 37°-40°

### ロングネックタイプ Long Neck Type

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8556618 | **6×18** | 60 | 9 | 6 | 5.8 | 3 | B | ● | 25 | 5,700 |
| 8556630 | **6×30** | 70 | | | | | | ● | 29 | 6,070 |
| 8556724 | **8×24** | | 12 | 8 | 7.7 | | | ● | 49 | 10,300 |
| 8556740 | **8×40** | 80 | | | | | | ● | 57 | 10,900 |
| 8556830 | **10×30** | | 15 | 10 | 9.7 | | | ● | 85 | 12,800 |
| 8556850 | **10×50** | 100 | | | | | | ● | 109 | 13,400 |
| 8556936 | **12×36** | 90 | 18 | 12 | 11.7 | | | ● | 137 | 16,000 |
| 8556960 | **12×60** | 110 | | | | | | ● | 169 | 16,700 |


立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
ショート形(AE-VMS)はP.301をご覧下さい。
See page 301 for AE-VMS
ロング形(AE-VML)はP.305をご覧下さい。
See page 305 for AE-VML


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **AE-VMSS** | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXコート4枚刃超硬スクエアエンドミル スタブ形強力重切削型

**WX Coated 4-flute Carbide End Mill Stub Length (Heavy-duty Operation Type)**

## WX-PHSS

切削条件 Cutting Conditions | P630



切りくずの排出性と刃先剛性を高い次元で両立した強ねじれエンドミル短刃長タイプです。剛性の高い短刃長のため大きな切込みでの高送り加工を可能とします。

High-helix, short-flute end mills that combine good chip evacuation and highly rigid cutting edges. The highly rigid short flute length makes large depth of cut, high-feed machining possible.

CARBIDE | WX | 0〜-0.02 | SHRINK FIT | 45°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3016521 | 2.1 | 60 | 3.2 | 6 | D | ▲ | 30 | 10,700 |
| 3016522 | 2.2 | | 3.3 | | | ▲ | 30 | 10,700 |
| 3016526 | 2.6 | | 3.9 | | | ▲ | 24 | 10,700 |
| 3016527 | 2.7 | | 4.1 | | | ▲ | 24 | 10,700 |
| 3016531 | 3.1 | | 4.7 | | | ▲ | 25 | 11,300 |
| 3016536 | 3.6 | | 5.4 | | | ▲ | 25 | 11,300 |
| 3016537 | 3.7 | | 5.6 | | | ▲ | 25 | 11,300 |
| 3016538 | 3.8 | | 5.7 | | | ▲ | 25 | 11,300 |
| 3016544 | 4.4 | | 6.6 | | | ▲ | 25 | 12,000 |
| 3016546 | 4.6 | | 6.9 | | | ▲ | 25 | 12,000 |
| 3016549 | 4.9 | | 7.4 | | | ▲ | 25 | 12,000 |
| 3016551 | 5.1 | | 7.7 | | | ▲ | 25 | 13,100 |
| 3016552 | 5.2 | | 7.8 | | | ▲ | 25 | 13,100 |
| 3016553 | 5.3 | | 8 | | | ▲ | 25 | 13,100 |
| 3016554 | 5.4 | | 8.1 | | | ▲ | 25 | 13,100 |
| 3016557 | 5.7 | | 8.6 | | | ▲ | 26 | 13,100 |
| 3016559 | 5.9 | | 8.9 | | | ▲ | 26 | 13,100 |
| 3016561 | 6.1 | 80 | 9.2 | 8 | | △ | 58 | 17,200 |
| 3016562 | 6.2 | | 9.3 | | | △ | 58 | 17,200 |
| 3016563 | 6.3 | | 9.5 | | | △ | 58 | 17,200 |
| 3016564 | 6.4 | | 9.6 | | | △ | 58 | 17,200 |
| 3016565 | 6.5 | | 9.8 | | | ▲ | 58 | 15,000 |
| 3016566 | 6.6 | | 9.9 | | | △ | 58 | 17,200 |
| 3016567 | 6.7 | | 10.1 | | | △ | 58 | 17,200 |
| 3016568 | 6.8 | | 10.2 | | | △ | 58 | 17,200 |
| 3016569 | 6.9 | | 10.4 | | | △ | 58 | 17,200 |
| 3016571 | 7.1 | | 10.7 | | | △ | 58 | 19,200 |
| 3016572 | 7.2 | | 10.8 | | | △ | 58 | 19,200 |
| 3016573 | 7.3 | | 11 | | | △ | 58 | 19,200 |
| 3016574 | 7.4 | | 11.1 | | | △ | 58 | 19,200 |
| 3016576 | 7.6 | | 11.4 | | | △ | 59 | 19,200 |
| 3016577 | 7.7 | | 11.6 | | | △ | 59 | 19,200 |
| 3016578 | 7.8 | | 11.7 | | | △ | 59 | 19,200 |
| 3016579 | 7.9 | | 11.9 | | | △ | 59 | 19,200 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3016581 | 8.1 | 80 | 12.2 | 10 | D | △ | 84 | 22,200 |
| 3016582 | 8.2 | | 12.3 | | | △ | 84 | 22,200 |
| 3016583 | 8.3 | | 12.5 | | | △ | 84 | 22,200 |
| 3016584 | 8.4 | | 12.6 | | | △ | 85 | 22,200 |
| 3016586 | 8.6 | | 12.9 | | | △ | 85 | 22,200 |
| 3016587 | 8.7 | | 13.1 | | | △ | 85 | 22,200 |
| 3016588 | 8.8 | | 13.2 | | | △ | 85 | 22,200 |
| 3016589 | 8.9 | | 13.4 | | | △ | 85 | 22,200 |
| 3016590 | 9 | | 13.5 | | | ▲ | 86 | 19,200 |
| 3016591 | 9.1 | | 13.7 | | | △ | 86 | 25,200 |
| 3016592 | 9.2 | | 13.8 | | | △ | 86 | 25,200 |
| 3016593 | 9.3 | | 14 | | | △ | 86 | 25,200 |
| 3016594 | 9.4 | | 14.1 | | | △ | 86 | 25,200 |
| 3016596 | 9.6 | | 14.4 | | | △ | 87 | 25,200 |
| 3016597 | 9.7 | | 14.6 | | | △ | 87 | 25,200 |
| 3016598 | 9.8 | | 14.7 | | | △ | 88 | 25,200 |
| 3016599 | 9.9 | | 14.9 | | | △ | 88 | 25,200 |
| 3016605 | 10.5 | 100 | 15.8 | 12 | | ▲ | 154 | 29,400 |
| 3016610 | 11 | | 16.5 | | | ▲ | 155 | 25,200 |
| 3016625 | 12.5 | | 18.8 | | | △ | 159 | 30,000 |
| 3016630 | 13 | | 19.5 | | | △ | 161 | 25,700 |
| 3016635 | 13.5 | | 20.3 | | | △ | 170 | 31,300 |
| 3016640 | 14 | | 21 | | | △ | 173 | 27,300 |
| 3016645 | 14.5 | 115 | 21.8 | 16 | | △ | 315 | 48,600 |
| 3016650 | 15 | | 22.5 | | | △ | 317 | 42,200 |
| 3016655 | 15.5 | | 23.3 | | | △ | 320 | 55,400 |
| 3016660 | 16 | | 24 | | | ▲ | 323 | 50,300 |
| 3016670 | 17 | | 25.5 | | | △ | 326 | 55,400 |
| 3016680 | 18 | | 27 | | | △ | 330 | 55,400 |
| 3016690 | 19 | 125 | 28.5 | 20 | | △ | 522 | 77,000 |
| 3016700 | 20 | | 30 | | | ▲ | 525 | 73,800 |

▲＝この製品は、AE-VMSS(P.296)、AE-VMS(P.301)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-VMSS(p.296),AE-VMS(p.301)

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WX-PHSS | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

NEW

# DUARISEコート超硬防振型エンドミル ショート形

**DUARISE Coated Anti-Vibration Carbide End Mill Short Length**

The A Brand

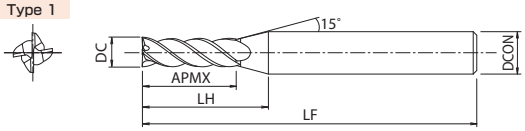
## AE-VMS

切削条件 Cutting Conditions | P497

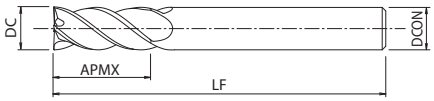
**Gtag** | 低炭素型製品 Low Carbon Products



Type 1




Type 2




CARBIDE | DUARISE | 0〜-0.02 | SHRINK FIT | 37°-40°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8464030 | **3 - G** | 60 | 8 | 15.9 | 6 | 1 | D | ● | 23 | 4,070 |
| 8464040 | **4 - G** | | 11 | 17.1 | | | | ● | 23 | 4,680 |
| 8464050 | **5 - G** | | 13 | 17.2 | | | | ● | 23 | 4,680 |
| 8464060 | **6 - G** | | 13 | — | | 2 | | ● | 24 | 5,450 |
| 8464080 | **8 - G** | 70 | 19 | — | 8 | | | ● | 47 | 10,100 |
| 8464100 | **10 - G** | 80 | 22 | — | 10 | | | ● | 83 | 13,500 |
| 8464120 | **12 - G** | 90 | 26 | — | 12 | | | ● | 133 | 17,000 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜55HRC | 〜60HRC | 〜65HRC | 〜35HRC | 〜350HB | | | | | | |
| **AE-VMS** | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DUARISEコート超硬防振型エンドミル ショート形

**DUARISE Coated Anti-Vibration Carbide End Mill Short Length**

The A Brand

## AE-VMS

切削条件 Cutting Conditions | P497

Type 1



Type 2



CARBIDE | DUARISE | R ± 0.02 | DC≦12 0~-0.02, 16≦DC 0~-0.03 | SHRINK FIT | 37°·40°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8555830 | **3** | 60 | 8 | 15.9 | 6 | 1 | ● | 23 | 3,130 |
| 8556050 | **3×R0.2** | | | | | | ● | 23 | 3,750 |
| 8556060 | **3×R0.5** | | | | | | ● | 23 | 3,750 |
| 8555840 | **4** | | 11 | 17.1 | | | ● | 23 | 3,610 |
| 8556070 | **4×R0.2** | | | | | | ● | 23 | 4,340 |
| 8556080 | **4×R0.5** | | | | | | ● | 23 | 4,340 |
| 8556090 | **4×R1** | | | | | | ● | 23 | 4,340 |
| 8555850 | **5** | | 13 | 17.2 | | | ● | 23 | 3,610 |
| 8556100 | **5×R0.2** | | | | | | ● | 24 | 4,340 |
| 8556110 | **5×R0.5** | | | | | | ● | 24 | 4,340 |
| 8556120 | **5×R1** | | | | | | ● | 24 | 4,340 |
| 8555860 | **6** | | | – | | 2 | ● | 24 | 4,200 |
| 8556130 | **6×R0.3** | | | | | | ● | 25 | 5,080 |
| 8556140 | **6×R0.5** | | | | | | ● | 25 | 5,080 |
| 8556150 | **6×R1** | | | | | | A ● | 25 | 5,080 |
| 8555880 | **8** | 70 | 19 | – | 8 | | ● | 47 | 7,750 |
| 8556160 | **8×R0.3** | | | | | | ● | 47 | 9,280 |
| 8556170 | **8×R0.5** | | | | | | ● | 47 | 9,280 |
| 8556180 | **8×R1** | | | | | | ● | 47 | 9,280 |
| 8556190 | **8×R1.5** | | | | | | ● | 47 | 9,280 |
| 8556200 | **8×R2** | | | | | | ● | 47 | 9,280 |
| 8555900 | **10** | 80 | 22 | – | 10 | | ● | 83 | 10,400 |
| 8556210 | **10×R0.3** | | | | | | ● | 82 | 12,600 |
| 8556220 | **10×R0.5** | | | | | | ● | 83 | 12,600 |
| 8556230 | **10×R1** | | | | | | ● | 82 | 12,600 |
| 8556240 | **10×R1.5** | | | | | | ● | 82 | 12,600 |
| 8556250 | **10×R2** | | | | | | ● | 82 | 12,600 |
| 8556260 | **10×R3** | | | | | | ● | 82 | 12,600 |
| 8555920 | **12** | 90 | 26 | – | 12 | | ● | 133 | 13,100 |

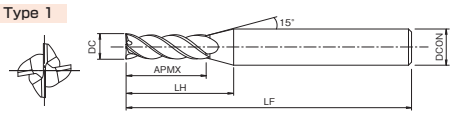
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8556270 | **12×R0.5** | 90 | 26 | – | 12 | 2 | A ● | 132 | 15,700 |
| 8556280 | **12×R1** | | | | | | ● | 133 | 15,700 |
| 8556290 | **12×R1.5** | | | | | | ● | 134 | 15,700 |
| 8556300 | **12×R2** | | | | | | ● | 134 | 15,700 |
| 8556310 | **12×R3** | | | | | | ● | 134 | 15,700 |
| 8555960 | **16** | 100 | 32 | – | 16 | | ● | 256 | 33,800 |
| 8557300 | **16×R0.5** | | | | | | ● | 254 | 40,400 |
| 8557301 | **16×R1** | | | | | | ● | 253 | 40,400 |
| 8557302 | **16×R2** | | | | | | ● | 253 | 40,400 |
| 8557303 | **16×R2.5** | | | | | | ● | 253 | 40,400 |
| 8557304 | **16×R3** | | | | | | ● | 253 | 40,400 |
| 8557305 | **16×R4** | | | | | | ● | 253 | 40,400 |
| 8556000 | **20** | 110 | 40 | – | 20 | | ● | 425 | 48,700 |
| 8557310 | **20×R0.5** | | | | | | ● | 421 | 58,400 |
| 8557311 | **20×R1** | | | | | | ● | 421 | 58,400 |
| 8557312 | **20×R2** | | | | | | ● | 421 | 58,400 |
| 8557313 | **20×R2.5** | | | | | | ● | 421 | 58,400 |
| 8557314 | **20×R3** | | | | | | ● | 419 | 58,400 |
| 8557315 | **20×R4** | | | | | | ● | 421 | 58,400 |
| 8557316 | **20×R5** | | | | | | ● | 419 | 58,400 |
| 8556010 | **25** | 120 | 50 | – | 25 | | ● | 692 | 82,100 |
| 8557321 | **25×R1** | | | | | | ● | 690 | 94,600 |
| 8557322 | **25×R2** | | | | | | ● | 688 | 94,600 |
| 8557324 | **25×R3** | | | | | | ● | 689 | 94,600 |
| 8557325 | **25×R4** | | | | | | ● | 690 | 94,600 |
| 8557326 | **25×R5** | | | | | | ● | 689 | 94,600 |

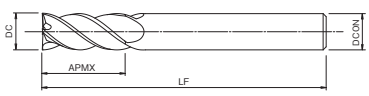
立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
スタブ形(AE-VMSS)はP.296をご覧下さい。
See page 296 for AE-VMSS
ロング形(AE-VML)はP.305をご覧下さい。
See page 305 for AE-VML

### スクエアタイプ Square Type

Type 1

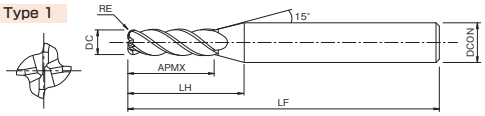



Type 2

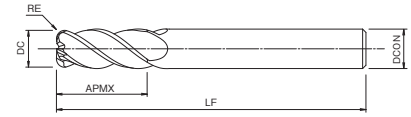



### ラジアスタイプ Radius Type

Type 1




Type 2




| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-VMS スクエアタイプ | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |
| AE-VMS ラジアスタイプ | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DUARISEコート超硬防振型エンドミル ショート形

**DUARISE Coated Anti-Vibration Carbide End Mill Short Length**

A The A Brand

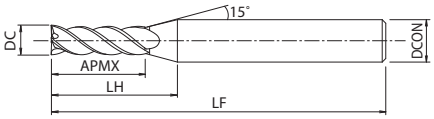
## AE-VMS

切削条件 Cutting Conditions | P497

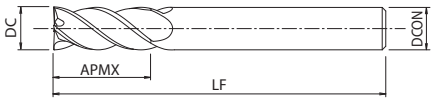




Type 1




Type 2




CAD

CARBIDE | DUARISE | 0〜-0.02 | RA | SHRINK FIT | 37°·40°

### ライトアングル タイプ Right Angle Type

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8555730 | **3-RA** | 60 | 8 | 15.9 | 6 | 1 | A | ● | 24 | 3,290 |
| 8555740 | **4-RA** | | 11 | 17.1 | | | | ● | 20 | 3,820 |
| 8555750 | **5-RA** | | 13 | 17.2 | | | | ● | 22 | 3,820 |
| 8555760 | **6-RA** | | 13 | — | | 2 | | ● | 24 | 4,430 |


立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
スタブ形(AE-VMSS)はP.296をご覧下さい。
See page 296 for AE-VMSS
ロング形(AE-VML)はP.305をご覧下さい。
See page 305 for AE-VML


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜55HRC | 〜60HRC | 〜65HRC | 〜35HRC | 〜350HB | | | | | | |
| **AE-VMS** | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

## FXコート4枚刃超硬スクエアエンドミル ショート形強力重切削型不等リード

**FX Coated 4-flute Variable Lead Carbide End Mill Short Length (Heavy-duty Operation Type)**

# NEO-PHS

切削条件 Cutting Conditions | P640



進化形“不等リード”の効果によりびびりを抑えて、驚異の高能率加工を実現します。

Introducing the highly evolved "variable-lead" shape. Suppresses chattering, allowing for outstanding milling performance.

CARBIDE | FX | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 36°·39°

CAD

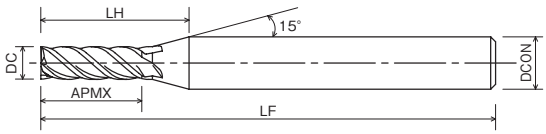
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | 有効長 LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8529230 | **3** | 50 | 6 | 12.8 | 6 | 1 | B | ▲ | 19 | 9,070 |
| 8529240 | **4** | | 8 | 13 | | | | ▲ | 19 | 9,530 |
| 8529250 | **5** | | 10 | 13.2 | | | | ▲ | 19 | 10,200 |
| 8529260 | **6** | | 12 | – | | 2 | | ▲ | 20 | 11,200 |
| 8529280 | **8** | 60 | 16 | – | 8 | | | ▲ | 40 | 13,700 |
| 8529300 | **10** | 70 | 20 | – | 10 | | | ▲ | 72 | 18,700 |
| 8529320 | **12** | 75 | 24 | – | 12 | | | ▲ | 110 | 23,100 |
| 8529360 | **16** | 100 | 32 | – | 16 | | | ▲ | 260 | 49,800 |
| 8529400 | **20** | 105 | 40 | – | 20 | | | ▲ | 404 | 72,200 |
| 8529450 | **25** | 120 | 50 | – | 25 | | | ▲ | 703 | 140,000 |

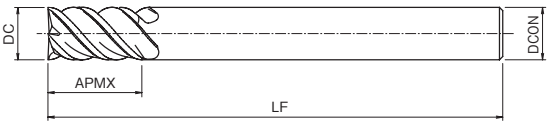
▲＝この製品は、AE-VMS(P.301)へ切り替え生産させていただいております。(在庫をご確認下さい。)

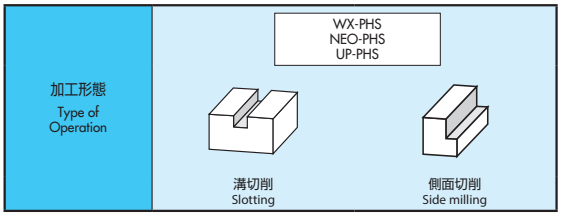
▲=These products have been stopped producing and replaced by AE-VMS(p.301)

Type 1




Type 2




## FXコート4枚刃超硬スクエアエンドミル ショート形多機能防振型

**FX Coated Multi-purpose 4-flute Carbide End Mill Short Length (Vibration-resistant Type)**

# UP-PHS

切削条件 Cutting Conditions | P629



びびり振動を抑制させ、溝加工＆側面加工を高能率に行なう多機能型エンドミルです。

Multipurpose end mill suppresses chattering and mills grooves and sides efficiently.

CARBIDE | FX | 0~-0.02 | SHRINK FIT | 38°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8529030 | **3** | 60 | 8 | 6 | A | ● | 23 | 9,780 |
| 8529040 | **4** | | 11 | | | ● | 23 | 10,300 |
| 8529050 | **5** | | 13 | | | ● | 23 | 11,100 |
| 8529060 | **6** | | | | | ● | 24 | 12,000 |
| 8529080 | **8** | 80 | 19 | 8 | | ● | 56 | 14,700 |
| 8529100 | **10** | | 22 | 10 | | ● | 83 | 19,700 |
| 8529120 | **12** | 100 | 26 | 12 | | ● | 150 | 24,900 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **NEO-PHS** | ◎ | | ◎ | ○ | | | ◎ | ◎ | | | | ◎ | ◎ | |
| **UP-PHS** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ◎ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## WXコート4枚刃超硬スクエアエンドミルミディアム形
**WX Coated 4-flute Carbide End Mill Medium Length**

# WX-PHN

切削条件 Cutting Conditions | P632



切りくずの排出性と刃先剛性を高い次元で両立した強ねじれエンドミルのミディアム刃長型です。幅広い被削材に適応します。

High-helix, medium-flute length end mills that combine good chip evacuation and highly rigid cutting edges. Can handle a wide variety of work materials.

CARBIDE | WX | 0〜-0.02 | SHRINK FIT | 45°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3015630 | 3 | 60 | 10 | 6 | D | ● | 23 | 11,100 |
| 3015640 | 4 | | 14 | | | ● | 23 | 12,000 |
| 3015650 | 5 | | 17 | | | ● | 23 | 13,200 |


OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1177を参照下さい。 See p.1177 for details
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ





製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WX-PHN | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DUARISEコート超硬防振型エンドミル ロング形

**DUARISE Coated Anti-Vibration Carbide End Mill Long Length**

A The A Brand

## AE-VML

切削条件 Cutting Conditions | P499



CARBIDE | DUARISE | R ± 0.03 | DC≦12 0~-0.02, 16≦DC 0~-0.03 | SHRINK FIT | 42°・44°

CAD

（単位:mm）(Unit:mm)

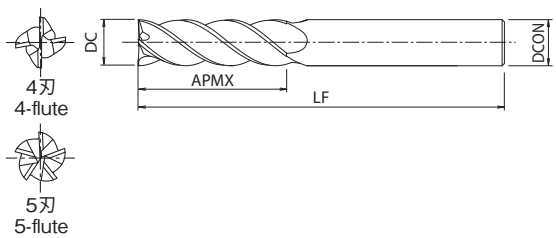
| ツール No. EDP No. | 外径×刃長×コーナ半径 DC × APMX × RE | 全長 LF | シャンク径 DCON | 刃数 ZEFP | L/D | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8556320 | 6×19 | 70 | 6 | 4 | 3 | ● | 30 | 4,490 |
| 8556336 | 6×19×R0.3 | | | | | ● | 30 | 6,590 |
| 8556337 | 6×19×R0.5 | | | | | ● | 30 | 6,590 |
| 8556338 | 6×19×R1 | | | | | ● | 30 | 6,590 |
| 8556328 | 6×24 | | | | 4 | ● | 29 | 7,120 |
| 8556355 | 6×24×R0.3 | | | | | ● | 29 | 7,280 |
| 8556356 | 6×24×R0.5 | | | | | ● | 29 | 7,280 |
| 8556357 | 6×24×R1 | | | | | ● | 29 | 7,280 |
| 8556322 | 8×25 | 80 | 8 | | 3 | ● | 58 | 8,140 |
| 8556339 | 8×25×R0.3 | | | | | ● | 58 | 9,780 |
| 8556340 | 8×25×R0.5 | | | | | ● | 58 | 9,780 |
| 8556341 | 8×25×R1 | | | | | ● | 58 | 9,780 |
| 8556342 | 8×25×R1.5 | | | | | ● | 58 | 9,780 |
| 8556343 | 8×25×R2 | | | | | ● | 58 | 9,780 |
| 8556330 | 8×32 | 90 | | | 4 | ● | 64 | 13,100 |
| 8556358 | 8×32×R0.3 | | | | | ● | 64 | 15,800 |
| 8556359 | 8×32×R0.5 | | | | | ● | 64 | 15,800 |
| 8556360 | 8×32×R1 | | | | | ● | 64 | 15,800 |
| 8556361 | 8×32×R1.5 | | | | | ● | 64 | 15,800 |
| 8556362 | 8×32×R2 | | | | | ● | 64 | 15,800 |
| 8556324 | 10×31 | | 10 | | 3 | ● | 99 | 11,800 |
| 8556344 | 10×31×R0.3 | | | | | ● | 99 | 14,200 |
| 8556345 | 10×31×R0.5 | | | | | ● | 99 | 14,200 |
| 8556346 | 10×31×R1 | | | | | ● | 98 | 14,200 |
| 8556347 | 10×31×R1.5 | | | | | ● | 99 | 14,200 |

（単位:mm）(Unit:mm)

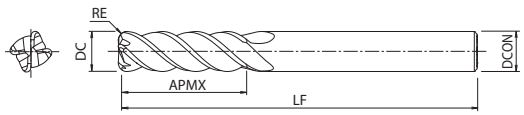
| ツール No. EDP No. | 外径×刃長×コーナ半径 DC × APMX × RE | 全長 LF | シャンク径 DCON | 刃数 ZEFP | L/D | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8556348 | 10×31×R2 | 90 | 10 | 4 | 3 | ● | 99 | 14,200 |
| 8556349 | 10×31×R3 | | | | | ● | 99 | 14,200 |
| 8556332 | 10×40 | 100 | | | 4 | ● | 108 | 17,800 |
| 8556363 | 10×40×R0.3 | | | | | ● | 108 | 21,400 |
| 8556364 | 10×40×R0.5 | | | | | ● | 107 | 21,400 |
| 8556365 | 10×40×R1 | | | | | ● | 108 | 21,400 |
| 8556366 | 10×40×R1.5 | | | | | ● | 108 | 21,400 |
| 8556367 | 10×40×R2 | | | | | ● | 108 | 21,400 |
| 8556368 | 10×40×R3 | | | | | ● | 107 | 21,400 |
| 8556326 | 12×38 | 90 | 12 | | 3 | ● | 152 | 15,700 |
| 8556350 | 12×38×R0.5 | | | | | ● | 151 | 18,800 |
| 8556351 | 12×38×R1 | | | | | ● | 151 | 18,800 |
| 8556352 | 12×38×R1.5 | | | | | ● | 151 | 18,800 |
| 8556353 | 12×38×R2 | | | | | ● | 151 | 18,800 |
| 8556354 | 12×38×R3 | | | | | ● | 151 | 18,800 |
| 8556334 | 12×48 | 110 | | | 4 | ● | 164 | 23,500 |
| 8556369 | 12×48×R0.5 | | | | | ● | 164 | 27,900 |
| 8556370 | 12×48×R1 | | | | | ● | 164 | 27,900 |
| 8556371 | 12×48×R1.5 | | | | | ● | 164 | 27,900 |
| 8556372 | 12×48×R2 | | | | | ● | 164 | 27,900 |
| 8556373 | 12×48×R3 | | | | | ● | 163 | 27,900 |
| 8556374 | 16×50 | 125 | 16 | 5 | 3 | ● | 340 | 40,200 |
| 8556378 | 16×64 | 140 | | | 4 | ● | 371 | 60,400 |
| 8556376 | 20×62 | 135 | 20 | | 3 | ● | 552 | 57,800 |
| 8556380 | 20×80 | 155 | | | 4 | ● | 620 | 86,700 |

立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
スタブ形(AE-VMSS)はP.296をご覧下さい。
See page 296 for AE-VMSS
ショート形(AE-VMS)はP.301をご覧下さい。
See page 301 for AE-VMS

### スクエアタイプ Square Type




### ラジアスタイプ Radius Type




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-VML | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## WXコート4枚刃超硬スクエアエンドミルロング形
**WX Coated 4-flute Carbide End Mill Long Length**

## WX-PHL

切削条件 Cutting Conditions | P632



切りくずの排出性と刃先剛性を高い次元で両立した強ねじれエンドミルのロング刃長型です。
High-helix, long-flute length end mills that combine good chip evacuation and highly rigid cutting edges.

CARBIDE | WX | SHRINK FIT | 45°

0〜-0.03

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3015830 | **3** | 60 | 12 | 6 | D | ● | 21 | 11,600 |
| 3015840 | **4** | | 17 | | | ● | 22 | 13,300 |
| 3015850 | **5** | | 20 | | | ● | 22 | 14,600 |

## DUARISEコート超硬防振型エンドミルロング形
**DUARISE Coated Anti-Vibration Carbide End Mill Long Length**

A The A Brand

## AE-VML

切削条件 Cutting Conditions | P499



CARBIDE | DUARISE | SHRINK FIT | 42°・44°

DC≦12 0〜-0.02
16≦DC 0〜-0.03

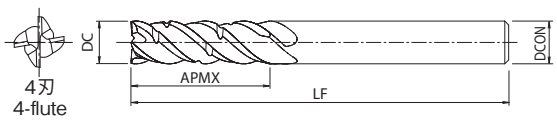
CAD

チップブレーカタイプ(-N) With chipbreaker

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×刃長 DC×APMX | 全長 LF | シャンク径 DCON | 刃数 ZEFP | L/D | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8556321 | **6×19 - N** | 70 | 6 | 4 | 3 | A | ● | 30 | 6,570 |
| 8556329 | **6×24 - N** | | | | 4 | | ● | 29 | 9,090 |
| 8556323 | **8×25 - N** | 80 | 8 | | 3 | | ● | 58 | 10,300 |
| 8556331 | **8×32 - N** | 90 | | | 4 | | ● | 64 | 15,100 |
| 8556325 | **10×31 - N** | | 10 | | 3 | | ● | 98 | 14,200 |
| 8556333 | **10×40 - N** | 100 | | | 4 | | ● | 106 | 20,100 |
| 8556327 | **12×38 - N** | | 12 | | 3 | | ● | 152 | 18,800 |
| 8556335 | **12×48 - N** | 110 | | | 4 | | ● | 164 | 26,700 |
| 8556375 | **16×50 - N** | 125 | 16 | 5 | 3 | | ● | 338 | 48,200 |
| 8556379 | **16×64 - N** | 140 | | | 4 | | ● | 372 | 72,200 |
| 8556377 | **20×62 - N** | 135 | 20 | | 3 | | ● | 550 | 69,300 |
| 8556381 | **20×80 - N** | 155 | | | 4 | | ● | 616 | 105,000 |

立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
スタブ形（AE-VMSS）はP.296をご覧下さい。
See page 296 for AE-VMSS
ショート形（AE-VMS）はP.301をご覧下さい。
See page 301 for AE-VMS




4刃
4-flute



5刃
5-flute

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WX-PHL** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |
| **AE-VML** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 高硬度鋼用DUROREYコート多刃 超硬エンドミルロング形

**DUROREY Coated Multi-flute Carbide End Mill Long Length for High-hardness Steels**

A The A Brand

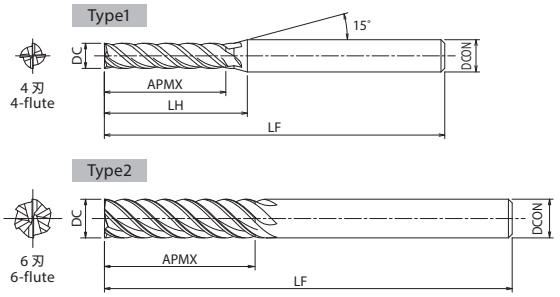
## AE-ML-H

切削条件 Cutting Conditions | P525



CARBIDE | DURUREY | 0〜-0.02 | SHRINK FIT | 43°

CAD




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃長 DC × APMX | 全長 LF | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8550010 | **3 × 12** | 60 | 19.9 | 6 | 4 | 1 | A | ● | 22 | 7,220 |
| 8550011 | **4 × 16** | | 22.1 | | | | | ● | 22 | 7,820 |
| 8550012 | **5 × 20** | 70 | 24.2 | | | | | ● | 30 | 8,130 |
| 8550013 | **6 × 24** | | – | | 6 | 2 | | ● | 30 | 8,550 |
| 8550014 | **8 × 32** | 80 | – | 8 | | | | ● | 60 | 11,600 |
| 8550015 | **10 × 40** | 100 | – | 10 | | | | ● | 116 | 15,800 |
| 8550016 | **12 × 48** | 110 | – | 12 | | | | ● | 178 | 19,700 |
| 8550017 | **16 × 64** | 130 | – | 16 | | | | ● | 359 | 62,100 |
| 8550018 | **20 × 80** | 150 | – | 20 | | | | ● | 640 | 105,000 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AE-ML-H** | ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# スロッティング用WXコート3枚刃 超硬スクエアエンドミルスタブ形
**WX Coated 3-flute Carbide End Mill Stub Length for Slotting**

## WX-SHTSS

切削条件 Cutting Conditions | P635



1本で前加工無しの突込み加工後、連続して溝加工を可能としたエンドミルです。マガジンの工具本数を削減できます。
End mills that can perform plunging and slotting with a single tool. Will reduce the number of tools in your tool magazine.

CAD

CARBIDE | WX | SHRINK FIT | 45°

0〜-0.02

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3017030 | **3** | 50 | 4.5 | 6 | D | ● | 19 | 8,550 |
| 3017035 | **3.5** | | 5.3 | | | ● | 19 | 8,910 |
| 3017040 | **4** | | 6 | | | ● | 20 | 8,910 |
| 3017045 | **4.5** | | 6.8 | | | ● | 20 | 9,530 |
| 3017050 | **5** | | 7.5 | | | ● | 20 | 9,530 |
| 3017055 | **5.5** | | 8.3 | | | ● | 20 | 9,890 |
| 3017060 | **6** | | 9 | | | ● | 21 | 9,890 |
| 3017065 | **6.5** | 60 | 9.8 | 8 | | ● | 41 | 11,700 |
| 3017070 | **7** | | 10.5 | | | ● | 41 | 11,700 |
| 3017075 | **7.5** | | 11.3 | | | ● | 42 | 13,000 |
| 3017080 | **8** | | 12 | | | ● | 42 | 13,000 |
| 3017085 | **8.5** | 70 | 12.8 | 10 | | ● | 72 | 14,100 |
| 3017090 | **9** | | 13.5 | | | ● | 73 | 14,100 |
| 3017095 | **9.5** | | 14.3 | | | ● | 74 | 15,000 |
| 3017100 | **10** | | 15 | | | ● | 75 | 15,000 |
| 3017110 | **11** | 75 | 16.5 | 12 | | ● | 110 | 22,200 |
| 3017120 | **12** | | 18 | | | ● | 113 | 22,200 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜55HRC | 〜60HRC | 〜65HRC | 〜35HRC | 〜350HB | | | | | | |
| **WX-SHTSS** | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

## FXコート超硬スクエアエンドミルハイヘリックスロング形
**FX Coated High Helix Carbide End Mill Long Length**

## FX-MG-EHL
切削条件 Cutting Conditions | P650



切れ味のよい強いねじれを採用したロング刃タイプです。びびり振動を防止する不等分割刃を採用しております。
Long edge end mill with high rake flute for sharp edges.
Edge with unequal length form prevents vibration and chattering.

CARBIDE | FX | 0〜-0.03 | SHRINK FIT | 50°

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC × ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8408406 | **6 × 3F** | 60 | 20 | 6 | D | ▲ | 24 | 19,000 |
| 8408408 | **8 × 3F** | 70 | 28 | 8 | | ▲ | 47 | 24,000 |
| 8408410 | **10 × 3F** | 80 | 34 | 10 | | ▲ | 80 | 32,100 |
| 8408412 | **12 × 3F** | 90 | 40 | 12 | | ▲ | 132 | 40,200 |

▲＝この製品は、AE-VML(P.305)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AE-VML(p.305)

## DUARISEコート超硬防振型エンドミル 自動旋盤対応型
**DUARISE Coated Anti-Vibration Carbide Stub End Mill Compatible with Sliding Head Lathes**

A The A Brand

## AE-VTSS
切削条件 Cutting Conditions | P503



CARBIDE | DUARISE | 0〜-0.02 | SHRINK FIT | 40°〜43°

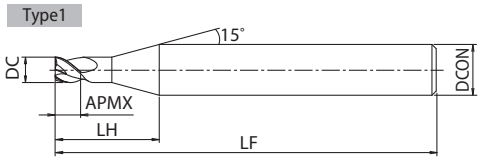
CAD

(単位:mm) (Unit:mm)

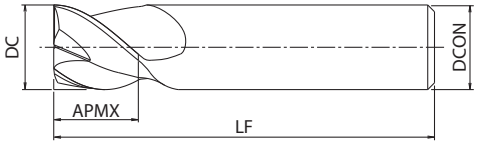
| ツール No. EDP No. | 外径×刃長×シャンク径 DC × APMX × DCON | 全長 LF | LH | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8557251 | **3× 4.5×6** | 45 | 12.2 | 1 | A | ● | 19 | 2,780 |
| 8557252 | **4× 6 ×6** | 45 | 11.9 | | | ● | 19 | 3,130 |
| 8557253 | **5× 6 ×6** | 45 | 11.7 | | | ● | 20 | 3,240 |
| 8557254 | **6× 6 ×6** | 45 | — | 2 | | ● | 20 | 3,290 |
| 8557255 | **8× 8 ×8** | 45 | — | | | ● | 30 | 6,210 |
| 8557256 | **10×10 ×10** | 45 | — | | | ● | 46 | 7,970 |
| 8557257 | **12×12 ×10** | 50 | — | 3 | | ● | 55 | 11,400 |

スタブ形（AE-VMSS）はP.296をご覧下さい。
See page 296 for AE-VMSS

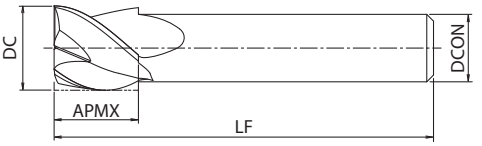
Type1

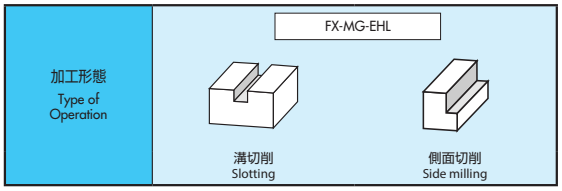



Type2




Type3




デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-MG-EHL** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ◎ | ◎ | |
| **AE-VTSS** | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols
● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅・アルミ合金用3枚刃超硬エンドミル立ち壁対応型
**3-flute Carbide End Mill for Deep Side Milling in Copper and Aluminum Alloys**

## CA-MFE

切削条件 Cutting Conditions | P678



立ち壁の高精度、高能率加工から、ヘリカル加工、コンタリング加工、ランピング加工と多彩なカッタパスに対応。柄細ロングシャンク仕様で突出し量の調整が自由です。

Wide range operation is possible, such as high cavity wall milling, helical milling, countering, and ramping. Thanks to long shank type, overhang length can be adjusted.

CARBIDE | SHRINK FIT | 約40° ABOUT 40°

0～-0.02

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8532080 | **8** | 110 | 12 | 6 | B | ▲ | 50 | 15,900 |
| 8532083 | **8 × R0.5** | | | | | ▲ | 50 | 18,700 |
| 8532085 | **8 × R1** | | | | | △ | 50 | 18,700 |
| 8532100 | **10** | 130 | 15 | 8 | | ▲ | 101 | 21,100 |
| 8532103 | **10 × R0.5** | | | | | ▲ | 101 | 23,800 |
| 8532105 | **10 × R1** | | | | | ▲ | 101 | 23,800 |
| 8532107 | **10 × R2** | | | | | △ | 101 | 23,800 |
| 8532109 | **10 × R3** | | | | | △ | 101 | 23,800 |
| 8532120 | **12** | 150 | 18 | 10 | | ▲ | 178 | 27,300 |
| 8532123 | **12 × R0.5** | | | | | ▲ | 178 | 30,500 |
| 8532125 | **12 × R1** | | | | | ▲ | 178 | 30,500 |
| 8532126 | **12 × R1.5** | | | | | △ | 178 | 30,500 |
| 8532127 | **12 × R2** | | | | | △ | 178 | 30,500 |
| 8532129 | **12 × R3** | | | | | △ | 178 | 30,500 |
| 8532140 | **14** | 160 | 21 | 12 | | ▲ | 273 | 41,200 |
| 8532145 | **14 × R1** | | | | | ▲ | 273 | 43,800 |
| 8532146 | **14 × R1.5** | | | | | △ | 273 | 43,800 |
| 8532147 | **14 × R2** | | | | | △ | 273 | 43,800 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8532149 | **14 × R3** | 160 | 21 | 12 | B | △ | 273 | 43,800 |
| 8532160 | **16** | 170 | 24 | 14 | | △ | 384 | 54,500 |
| 8532165 | **16 × R1** | | | | | △ | 384 | 57,000 |
| 8532169 | **16 × R3** | | | | | △ | 384 | 57,000 |
| 8532180 | **18** | 180 | 27 | 16 | | ▲ | 526 | 72,200 |
| 8532185 | **18 × R1** | | | | | ▲ | 526 | 74,800 |
| 8532186 | **18 × R1.5** | | | | | △ | 526 | 74,800 |
| 8532187 | **18 × R2** | | | | | △ | 526 | 74,800 |
| 8532189 | **18 × R3** | | | | | △ | 526 | 74,800 |
| 8532200 | **20** | 190 | 30 | 18 | | △ | 697 | 81,600 |
| 8532205 | **20 × R1** | | | | | △ | 697 | 84,000 |
| 8532209 | **20 × R3** | | | | | △ | 697 | 84,000 |
| 8532220 | **22** | 200 | 33 | 20 | | ▲ | 892 | 86,100 |
| 8532225 | **22 × R1** | | | | | ▲ | 892 | 88,200 |
| 8532226 | **22 × R1.5** | | | | | △ | 892 | 88,200 |
| 8532227 | **22 × R2** | | | | | △ | 892 | 88,200 |
| 8532229 | **22 × R3** | | | | | △ | 892 | 88,200 |

▲＝この製品は、AE-VTFE-N(P.311)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-VTFE-N(p.311)

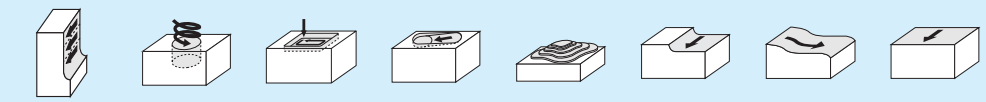



※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

Since radius chamfering is also provided on the end faces of the shank side, no line is marked on the boundary section during step milling. This is partial radius.

加工形態 Type of Operation

CA-MFE



立ち壁の加工 Deep Side Milling | ヘリカル加工 Helical Milling | コンタリング加工 Contour Milling | ランピング加工 Ramping | 等高線加工 Contour line operation | R削り加工 Radius Shoulder Milling | 倣い削り加工 Copying | 平削り加工 Planing

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **CA-MFE** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル 高機能タイプ立ち壁対応型

**DLC Coated 3-flute High Performance Carbide End Mill for Deep Side Milling in Non-ferrous Materials**

A The A Brand

## AE-VTFE-N

切削条件 Cutting Conditions | P516



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

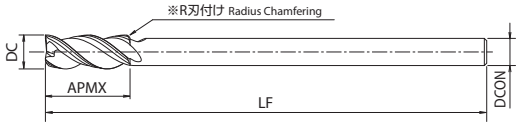
CARBIDE | DLC-IGUSS | 0~-0.02 | SHRINK FIT | 40~43°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8550126 | **6** | 100 | 15 | 4 | | ● | 22 | 13,500 |
| 8550128 | **8** | 110 | 20 | 6 | | ● | 44 | 15,200 |
| 8550130 | **10** | 130 | 25 | 8 | | ● | 96 | 18,800 |
| 8550132 | **12** | 150 | 30 | 10 | A | ● | 166 | 23,100 |
| 8550134 | **14** | 160 | 35 | 12 | | ● | 244 | 27,800 |
| 8550138 | **18** | 180 | 45 | 16 | | ● | 470 | 41,200 |
| 8550142 | **22** | 200 | 55 | 20 | | ● | 820 | 55,200 |

スタンダードタイプショート形(AE-TS-N)はP.278をご覧下さい。
See page 278 for AE-TS-N.
スタンダードタイプロング形(AE-TL-N)はP.284をご覧下さい。
See page 284 for AE-TL-N.
高機能タイプショート形(AE-VTS-N)はP.280をご覧下さい。
See page 280 for AE-VTS-N.




※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。
The radius chamfering is not a full radius since it is for preventing streaks during step milling.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AE-VTFE-N** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬スクエアエンドミルショート形
**FX Coated 2-flute Carbide End Mill Short Length**

## FX-MG-EDS

切削条件 Cutting Conditions | P643



耐熱性に優れるFXコーティングを施した汎用タイプ2枚刃エンドミルです。幅広い加工に対応できます。
2-fluted end mill for general applications. Employs FX coating.

CARBIDE | FX | DC≦12 0～-0.02, 12<DC 0～-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8519002 | 0.2 | 40 | 0.4 | 3 | □ | — | — |
| 8519003 | 0.3 | | 0.6 | | □ | — | — |
| 8519004 | 0.4 | | 0.8 | | □ | — | — |
| 8519005 | 0.5 | | 1 | | □ | — | — |
| 8519006 | 0.6 | | 1.2 | | □ | — | — |
| 8519007 | 0.7 | | 1.4 | | □ | — | — |
| 8519008 | 0.8 | | 1.6 | | □ | — | — |
| 8519009 | 0.9 | | 2 | | □ | — | — |
| 8519010 | 1 | | 2.5 | 4 | □ | — | — |
| 8519011 | 1.1 | | | | □ | — | — |
| 8519012 | 1.2 | | 4 | | □ | — | — |
| 8519013 | 1.3 | | | | □ | — | — |
| 8519014 | 1.4 | | | | □ | — | — |
| 8519015 | 1.5 | | | | □ | — | — |
| 8519016 | 1.6 | | 5 | | □ | — | — |
| 8519017 | 1.7 | | | | □ | — | — |
| 8519018 | 1.8 | | | | □ | — | — |
| 8519019 | 1.9 | | | | □ | — | — |
| 8519020 | 2 | | 6 | | □ | — | — |
| 8519021 | 2.1 | | | | □ | — | — |
| 8519022 | 2.2 | | | | □ | — | — |
| 8519023 | 2.3 | | | | □ | — | — |
| 8519024 | 2.4 | | 8 | | □ | — | — |
| 8519025 | 2.5 | | | | □ | — | — |
| 8519026 | 2.6 | | | | □ | — | — |
| 8519027 | 2.7 | | | | □ | — | — |
| 8519028 | 2.8 | | | | □ | — | — |
| 8519029 | 2.9 | | | | □ | — | — |
| 8519030 | 3 | 45 | 10 | 6 | □ | — | — |
| 8519031 | 3.1 | | | | □ | — | — |
| 8519032 | 3.2 | | | | □ | — | — |
| 8519033 | 3.3 | | | | □ | — | — |
| 8519034 | 3.4 | | | | □ | — | — |
| 8519035 | 3.5 | | | | □ | — | — |
| 8519036 | 3.6 | | | | □ | — | — |
| 8519037 | 3.7 | | | | □ | — | — |
| 8519038 | 3.8 | | 11 | | □ | — | — |
| 8519039 | 3.9 | | | | □ | — | — |
| 8519040 | 4 | | | | □ | — | — |
| 8519041 | 4.1 | | | | □ | — | — |
| 8519042 | 4.2 | | | | □ | — | — |
| 8519043 | 4.3 | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8519044 | 4.4 | 45 | 11 | 6 | □ | — | — |
| 8519045 | 4.5 | | | | □ | — | — |
| 8519046 | 4.6 | | | | □ | — | — |
| 8519047 | 4.7 | | | | □ | — | — |
| 8519048 | 4.8 | 50 | 13 | | □ | — | — |
| 8519049 | 4.9 | | | | □ | — | — |
| 8519050 | 5 | | | | □ | — | — |
| 8519051 | 5.1 | | | | □ | — | — |
| 8519052 | 5.2 | | | | □ | — | — |
| 8519053 | 5.3 | | | | □ | — | — |
| 8519054 | 5.4 | | | | □ | — | — |
| 8519055 | 5.5 | | | | □ | — | — |
| 8519056 | 5.6 | | | | □ | — | — |
| 8519057 | 5.7 | | | | □ | — | — |
| 8519058 | 5.8 | | | | □ | — | — |
| 8519059 | 5.9 | | | | □ | — | — |
| 8519060 | 6 | | | | □ | — | — |
| 8519061 | 6.1 | 60 | 16 | 8 | □ | — | — |
| 8519062 | 6.2 | | | | □ | — | — |
| 8519063 | 6.3 | | | | □ | — | — |
| 8519064 | 6.4 | | | | □ | — | — |
| 8519065 | 6.5 | | | | □ | — | — |
| 8519066 | 6.6 | | | | □ | — | — |
| 8519067 | 6.7 | | | | □ | — | — |
| 8519068 | 6.8 | | | | □ | — | — |
| 8519069 | 6.9 | | | | □ | — | — |
| 8519070 | 7 | | | | □ | — | — |
| 8519071 | 7.1 | | | | □ | — | — |
| 8519072 | 7.2 | | | | □ | — | — |
| 8519073 | 7.3 | | | | □ | — | — |
| 8519074 | 7.4 | | | | □ | — | — |
| 8519075 | 7.5 | | | | □ | — | — |
| 8519076 | 7.6 | | 19 | | □ | — | — |
| 8519077 | 7.7 | | | | □ | — | — |
| 8519078 | 7.8 | | | | □ | — | — |
| 8519079 | 7.9 | | | | □ | — | — |
| 8519080 | 8 | | | | □ | — | — |
| 8519081 | 8.1 | 70 | | 10 | □ | — | — |
| 8519082 | 8.2 | | | | □ | — | — |
| 8519083 | 8.3 | | | | □ | — | — |
| 8519084 | 8.4 | | | | □ | — | — |
| 8519085 | 8.5 | | | | □ | — | — |

次ページへ
外径 DC 8.6～16.9 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | | 工具鋼 Tool Steel | | 焼き入れ鋼 Hardened Steel | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | | ～35HRC | ～350HB | | | | | | |
| FX-MG-EDS | ◎ | | ◎ | ○ | ○ | | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬スクエアエンドミルショート形
**FX Coated 2-flute Carbide End Mill Short Length**

## FX-MG-EDS

切削条件 Cutting Conditions | P643



耐熱性に優れるFXコーティングを施した汎用タイプ2枚刃エンドミルです。幅広い加工に対応できます。
2-fluted end mill for general applications. Employs FX coating.

CARBIDE | FX | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 30°

前ページより FROM 外径 DC 0.2~8.5

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8519086 | 8.6 | 70 | 19 | 10 | – | □ | – | – |
| 8519087 | 8.7 | | | | | □ | – | – |
| 8519088 | 8.8 | | | | | □ | – | – |
| 8519089 | 8.9 | | | | | □ | – | – |
| 8519090 | 9 | | | | | □ | – | – |
| 8519091 | 9.1 | | | | | □ | – | – |
| 8519092 | 9.2 | | | | | □ | – | – |
| 8519093 | 9.3 | | | | | □ | – | – |
| 8519094 | 9.4 | | | | | □ | – | – |
| 8519095 | 9.5 | | | | | □ | – | – |
| 8519096 | 9.6 | | 22 | | | □ | – | – |
| 8519097 | 9.7 | | | | | □ | – | – |
| 8519098 | 9.8 | | | | | □ | – | – |
| 8519099 | 9.9 | | | | | □ | – | – |
| 8519100 | 10 | | | | | □ | – | – |
| 8519101 | 10.1 | 75 | | 12 | | □ | – | – |
| 8519102 | 10.2 | | | | | □ | – | – |
| 8519103 | 10.3 | | | | | □ | – | – |
| 8519104 | 10.4 | | | | | □ | – | – |
| 8519105 | 10.5 | | | | | □ | – | – |
| 8519106 | 10.6 | | | | | □ | – | – |
| 8519107 | 10.7 | | | | | □ | – | – |
| 8519108 | 10.8 | | | | | □ | – | – |
| 8519109 | 10.9 | | | | | □ | – | – |
| 8519110 | 11 | | | | | □ | – | – |
| 8519111 | 11.1 | | | | | □ | – | – |
| 8519112 | 11.2 | | | | | □ | – | – |
| 8519113 | 11.3 | | | | | □ | – | – |
| 8519114 | 11.4 | | | | | □ | – | – |
| 8519115 | 11.5 | | | | | □ | – | – |
| 8519116 | 11.6 | | | | | □ | – | – |
| 8519117 | 11.7 | | | | | □ | – | – |
| 8519118 | 11.8 | | | | | □ | – | – |
| 8519119 | 11.9 | | 26 | | | □ | – | – |
| 8519120 | 12 | | | | | □ | – | – |
| 8519121 | 12.1 | 85 | | | | □ | – | – |
| 8519122 | 12.2 | | | | | □ | – | – |
| 8519123 | 12.3 | | | | | □ | – | – |
| 8519124 | 12.4 | | | | | □ | – | – |
| 8519125 | 12.5 | | | | | □ | – | – |
| 8519126 | 12.6 | | | | | □ | – | – |
| 8519127 | 12.7 | | | | | □ | – | – |

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8519128 | 12.8 | 85 | 26 | 12 | – | □ | – | – |
| 8519129 | 12.9 | | | | | □ | – | – |
| 8519130 | 13 | | | | | □ | – | – |
| 8519131 | 13.1 | | | | | □ | – | – |
| 8519132 | 13.2 | | | | | □ | – | – |
| 8519133 | 13.3 | | | | | □ | – | – |
| 8519134 | 13.4 | | | | | □ | – | – |
| 8519135 | 13.5 | | | | | □ | – | – |
| 8519136 | 13.6 | | | | | □ | – | – |
| 8519137 | 13.7 | | | | | □ | – | – |
| 8519138 | 13.8 | | | | | □ | – | – |
| 8519139 | 13.9 | | | | | □ | – | – |
| 8519140 | 14 | | | | | □ | – | – |
| 8519141 | 14.1 | 90 | | 16 | | □ | – | – |
| 8519142 | 14.2 | | | | | □ | – | – |
| 8519143 | 14.3 | | | | | □ | – | – |
| 8519144 | 14.4 | | | | | □ | – | – |
| 8519145 | 14.5 | | | | | □ | – | – |
| 8519146 | 14.6 | | | | | □ | – | – |
| 8519147 | 14.7 | | | | | □ | – | – |
| 8519148 | 14.8 | | | | | □ | – | – |
| 8519149 | 14.9 | | | | | □ | – | – |
| 8519150 | 15 | | | | | □ | – | – |
| 8519151 | 15.1 | 100 | 32 | | | □ | – | – |
| 8519152 | 15.2 | | | | | □ | – | – |
| 8519153 | 15.3 | | | | | □ | – | – |
| 8519154 | 15.4 | | | | | □ | – | – |
| 8519155 | 15.5 | | | | | □ | – | – |
| 8519156 | 15.6 | | | | | □ | – | – |
| 8519157 | 15.7 | | | | | □ | – | – |
| 8519158 | 15.8 | | | | | □ | – | – |
| 8519159 | 15.9 | | | | | □ | – | – |
| 8519160 | 16 | | | | | □ | – | – |
| 8519161 | 16.1 | | | | | □ | – | – |
| 8519162 | 16.2 | | | | | □ | – | – |
| 8519163 | 16.3 | | | | | □ | – | – |
| 8519164 | 16.4 | | | | | □ | – | – |
| 8519165 | 16.5 | | | | | □ | – | – |
| 8519166 | 16.6 | | | | | □ | – | – |
| 8519167 | 16.7 | | | | | □ | – | – |
| 8519168 | 16.8 | | | | | □ | – | – |
| 8519169 | 16.9 | | | | | □ | – | – |

次ページへ 外径 DC 17~30 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ~40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ~45HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ~55HRC | ~60HRC | ~65HRC | ステンレス鋼 Stainless Steel ~35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ~350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-MG-EDS | ◎ | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# FXコート2枚刃超硬スクエアエンドミルショート形
**FX Coated 2-flute Carbide End Mill Short Length**

## FX-MG-EDS

切削条件 Cutting Conditions | P643



耐熱性に優れるFXコーティングを施した汎用タイプ2枚刃エンドミルです。幅広い加工に対応できます。
2-fluted end mill for general applications. Employs FX coating.

CARBIDE | FX | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 30°

前ページより FROM 外径 DC 8.6~16.9

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8519170 | 17 | 100 | 32 | 16 | – | □ | – | – |
| 8519171 | 17.1 | | | | | □ | – | – |
| 8519172 | 17.2 | | | | | □ | – | – |
| 8519173 | 17.3 | | | | | □ | – | – |
| 8519174 | 17.4 | | | | | □ | – | – |
| 8519175 | 17.5 | | | | | □ | – | – |
| 8519176 | 17.6 | | | | | □ | – | – |
| 8519177 | 17.7 | | | | | □ | – | – |
| 8519178 | 17.8 | | | | | □ | – | – |
| 8519179 | 17.9 | | | | | □ | – | – |
| 8519180 | 18 | | | | | □ | – | – |
| 8519181 | 18.1 | | | 20 | | □ | – | – |
| 8519182 | 18.2 | | | | | □ | – | – |
| 8519183 | 18.3 | | | | | □ | – | – |
| 8519184 | 18.4 | | | | | □ | – | – |
| 8519185 | 18.5 | | | | | □ | – | – |
| 8519186 | 18.6 | | | | | □ | – | – |
| 8519187 | 18.7 | | | | | □ | – | – |
| 8519188 | 18.8 | | | | | □ | – | – |
| 8519189 | 18.9 | | | | | □ | – | – |
| 8519190 | 19 | | | | – | □ | – | – |
| 8519191 | 19.1 | 105 | 38 | | | □ | – | – |
| 8519192 | 19.2 | | | | | □ | – | – |
| 8519193 | 19.3 | | | | | □ | – | – |
| 8519194 | 19.4 | | | | | □ | – | – |
| 8519195 | 19.5 | | | | | □ | – | – |
| 8519196 | 19.6 | | | | | □ | – | – |
| 8519197 | 19.7 | | | | | □ | – | – |
| 8519198 | 19.8 | | | | | □ | – | – |
| 8519199 | 19.9 | | | | | □ | – | – |
| 8519200 | 20 | | | | | □ | – | – |
| 8519210 | 21 | | | | | □ | – | – |
| 8519220 | 22 | | | | | □ | – | – |
| 8519230 | 23 | 120 | 45 | 25 | | □ | – | – |
| 8519240 | 24 | | | | | □ | – | – |
| 8519250 | 25 | | | | | □ | – | – |
| 8519260 | 26 | | | | | □ | – | – |
| 8519270 | 27 | 125 | | | | □ | – | – |
| 8519280 | 28 | | | | | □ | – | – |
| 8519290 | 29 | | | 32 | | □ | – | – |
| 8519300 | 30 | | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ~40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ~45HRC | ~55HRC | ~60HRC | ~65HRC | ステンレス鋼 Stainless Steel ~35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ~350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-MG-EDS | ◎ | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

## FXコート2枚刃超硬スクエアエンドミルショート形（OH1）

**FX Coated 2-flute Carbide End Mill Short Length (Cutting diameter plus tolerance)**

## FX-MG-EDS OH1



刃径許容差を0～+0.020とプラス目に設定したエンドミルです。

End mill with O/D plus side tolerance 0～+0.020.

CARBIDE | FX | 0～+0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 45 | 8 | 6 | — | □ | — | — |
| | **4** | | 11 | | | □ | — | — |
| | **5** | 50 | 13 | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **8** | 60 | 19 | 8 | | □ | — | — |
| | **10** | 70 | 22 | 10 | | □ | — | — |
| | **12** | 75 | 26 | 12 | | □ | — | — |

## FXコート2枚刃超硬スクエアエンドミルスタブ形

**FX Coated 2-flute Carbide End Mill Stub Length**

## FX-MG-EDSS

切削条件 Cutting Conditions | P643



刃長は刃径の1.5倍という超ショート刃のため高速型マシニングセンタでの高速加工に最適です。

Suitable for high speed machining centers. Made with extra short cutting length (1.5 X mill dia.).

CARBIDE | FX | DC≦12 0～-0.02, 12<DC 0～-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8407630 | **3** | 50 | 4.5 | 6 | — | □ | — | — |
| 8407635 | **3.5** | | 5.2 | | | □ | — | — |
| 8407640 | **4** | | 6 | | | □ | — | — |
| 8407645 | **4.5** | | 6.8 | | | □ | — | — |
| 8407650 | **5** | | 7.5 | | | □ | — | — |
| 8407655 | **5.5** | | 8.2 | | | □ | — | — |
| 8407660 | **6** | | 9 | | | □ | — | — |
| 8407680 | **8** | 60 | 12 | 8 | | □ | — | — |
| 8407700 | **10** | 70 | 15 | 10 | | □ | — | — |
| 8407720 | **12** | 75 | 18 | 12 | | □ | — | — |
| 8407740 | **14** | 85 | 21 | | | □ | — | — |
| 8407750 | **15** | 90 | 23 | 16 | | □ | — | — |
| 8407760 | **16** | 100 | 24 | | | □ | — | — |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
部品のアルミ化や樹脂化が可能になり軽量化を実現
※詳細は▶P.1171 を参照下さい。 See p.1171 for details



デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-MG-EDS OH1** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |
| **FX-MG-EDSS** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬スクエアエンドミルショート形（φ6シャンク）

**FX Coated 2-flute Carbide End Mill Short Length (φ6 Shank)**

## FX-EDS-6

切削条件 Cutting Conditions | P667-8

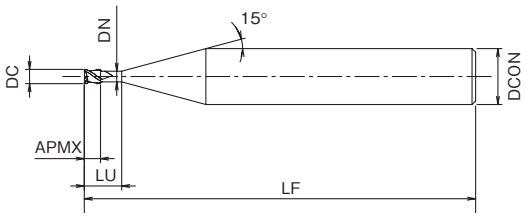


高速高精度型マシニングセンタの性能を十分に引き出す高速加工用エンドミルです。
This high speed end mill to maximizes the performance of high speed and high precision machining centers.

CARBIDE | FX | 0〜-0.015 | ø2≦DC | SHRINK FIT | 30°

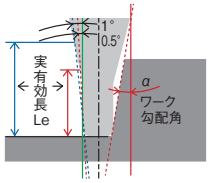
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長（Le） 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8544102 | **0.2** | 50 | 0.3 | 6 | – | – | – | – | – | – | – | □ | – | – |
| 8544103 | **0.3** | | 0.4 | | | | | | | | | □ | – | – |
| 8544104 | **0.4** | | 0.6 | | | | | | | | | □ | – | – |
| 8544105 | **0.5 × 1.5** | | 0.7 | | 0.45 | 1.55 | 1.6 | 1.66 | 1.72 | 1.79 | 1.86 | □ | – | – |
| 8544106 | **0.6 × 1.8** | | 0.9 | | 0.55 | 1.86 | 1.92 | 1.99 | 2.07 | 2.15 | 2.23 | □ | – | – |
| 8544108 | **0.8 × 2.4** | | 1.2 | | 0.75 | 2.48 | 2.56 | 2.66 | 2.76 | 2.86 | 2.98 | □ | – | – |
| 8544110 | **1 × 2.5** | | 1.5 | | 0.95 | 2.58 | 2.67 | 2.77 | 2.87 | 2.98 | 3.1 | □ | – | – |
| 8544112 | **1.2 × 3** | | 1.8 | | 1.15 | 3.1 | 3.2 | 3.32 | 3.45 | 3.58 | 3.72 | □ | – | – |
| 8544114 | **1.4 × 3.5** | | 2.1 | | 1.35 | 3.61 | 3.74 | 3.87 | 4.02 | 4.18 | 4.35 | □ | – | – |
| 8544115 | **1.5 × 3.8** | | 2.3 | | 1.45 | 3.92 | 4.06 | 4.21 | 4.36 | 4.54 | 4.72 | □ | – | – |
| 8544116 | **1.6 × 4** | | 2.4 | | 1.55 | 4.13 | 4.27 | 4.43 | 4.59 | 4.77 | 4.97 | □ | – | – |
| 8544118 | **1.8 × 4.5** | | 2.7 | | 1.75 | 4.65 | 4.81 | 4.98 | 5.17 | 5.37 | 5.59 | □ | – | – |
| 8544120 | **2 × 5** | | 3 | | 1.95 | 5.16 | 5.34 | 5.54 | 5.74 | 5.97 | 6.21 | □ | – | – |
| 8544125 | **2.5 × 5** | | 3.7 | | 2.4 | | | | | | | □ | – | – |




**■ワーク勾配角αに対する実有効長（Le）**

Effective Neck length (Le) depending on Inclined Angle (α) of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FX-EDS-6** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬スクエアエンドミルスタブ形（φ6シャンク）

**FX Coated 2-flute Carbide End Mill Stub Length (φ6 Shank)**

## FX-EDSS-6



CARBIDE | FX | 0〜-0.015 | ø2≦DC | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.2** | 50 | 0.2 | 6 | – | □ | – | – |
| | **0.3** | | 0.4 | | | □ | – | – |
| | **0.4** | | 0.5 | | | □ | – | – |
| | **0.5** | | 0.6 | | | □ | – | – |
| | **0.6** | | 0.7 | | | □ | – | – |
| | **0.8** | | 1 | | | □ | – | – |
| | **1** | | 1.2 | | | □ | – | – |
| | **1.2** | | 1.4 | | | □ | – | – |
| | **1.4** | | 1.7 | | | □ | – | – |
| | **1.5** | | 1.8 | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1.6** | 50 | 1.9 | 6 | – | □ | – | – |
| | **1.8** | | 2.2 | | | □ | – | – |
| | **2** | | 2.4 | | | □ | – | – |
| | **2.5** | | 3 | | | □ | – | – |
| | **3** | | 3.6 | | | □ | – | – |
| | **3.5** | | 4.2 | | | □ | – | – |
| | **4** | | 4.8 | | | □ | – | – |
| | **5** | | 6 | | | □ | – | – |
| | **6** | | 7.2 | | | □ | – | – |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1167 を参照下さい。
See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



**最新の加工動画を公開中** ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-EDSS-6** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
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## NC旋盤用FXコート2枚刃超硬スクエアエンドミル スタブ形
**FX Coated 2-flute Carbide End Mill Stub Length for Lathes**

# FX-NC-EDSS



旋盤、自動盤、複合加工機で使い勝手の良い短全長、短刃長のエンドミルです。
Shorter OAL and shorter flute length suited for lathe, automatic lathe, multitask machining center, etc.

CARBIDE | FX | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 35 | 6 | 3 | — | □ | — | — |
| | 4 | | | 4 | | □ | — | — |
| | 5 | | | 6 | | □ | — | — |
| | 6 | | | | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 8 | | | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 10 | | | | | □ | — | — |
| | 12 | | | | | □ | — | — |

## FXコート2枚刃超硬スクエアエンドミル ショート形左刃左ねじれ
**FX Coated 2-flute Carbide End Mill Short Length (LH Cut and LH Helix)**

# FX-MR-EDS



左刃左ねじれのエンドミルです。
Left hand cut and left handed spiral fluted end mill.

CARBIDE | FX | 0~-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 | 40 | 2.5 | 4 | — | □ | — | — |
| | 2 | | 6 | | | □ | — | — |
| | 3 | 45 | 8 | 6 | | □ | — | — |
| | 4 | | 11 | | | □ | — | — |
| | 5 | 50 | 13 | | | □ | — | — |
| | 6 | | | | | □ | — | — |
| | 7 | 60 | 16 | 8 | | □ | — | — |
| | 8 | | 19 | | | □ | — | — |
| | 9 | 70 | | 10 | | □ | — | — |
| | 10 | | 22 | | | □ | — | — |
| | 11 | 75 | | 12 | | □ | — | — |
| | 12 | | 26 | | | □ | — | — |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能
※詳細は▶P.1170を参照下さい。 See p.1170 for details





製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-NC-EDSS | ◎ | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |
| FX-MR-EDS | ◎ | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## DLCコート2枚刃超硬スクエアエンドミル ショート形左刃左ねじれ
**DLC Coated 2-flute Carbide End Mill (LH Cut and LH Helix)**

## DLC-MR-EDS
切削条件 Cutting Conditions | P687-1



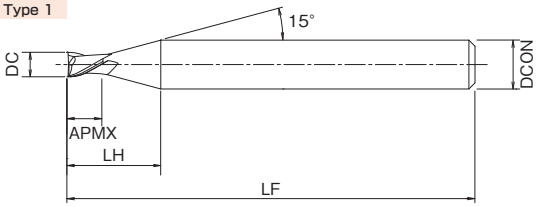
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 35°

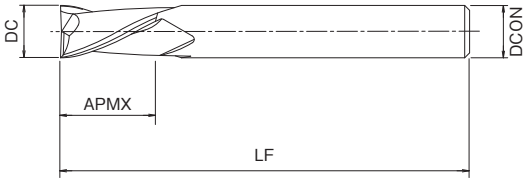
(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | 40 | 2.5 | 9.3 | 4 | 1 | – | □ | – | – |
| | **2** | | 6 | 11 | | | | □ | – | – |
| | **3** | 45 | 8 | 15.5 | 6 | | | □ | – | – |
| | **4** | | 11 | 16.6 | | | | □ | – | – |
| | **5** | 50 | 13 | 16.8 | | | | □ | – | – |
| | **6** | | | – | | 2 | | □ | – | – |
| | **7** | 60 | 16 | 19.8 | 8 | 1 | | □ | – | – |
| | **8** | | 19 | – | | 2 | | □ | – | – |
| | **9** | 70 | | 22.8 | 10 | 1 | | □ | – | – |
| | **10** | | 22 | – | | 2 | | □ | – | – |
| | **11** | 75 | | 25.8 | 12 | 1 | | □ | – | – |
| | **12** | | 26 | – | | 2 | | □ | – | – |

Type 1




Type 2




## DIAコート2枚刃超硬スクエアエンドミル 2D刃長
**Diamond Coated 2-flute Carbide End Mill (2D Type)**

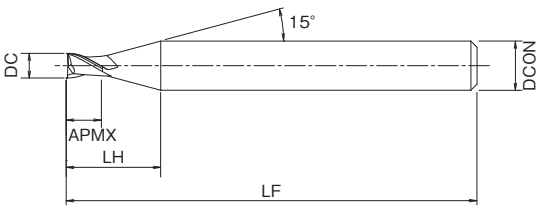
## DIA-2D-DE
切削条件 Cutting Conditions | P691



CARBIDE | DIA | ±0.02 | SHRINK FIT | 35°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **0.5** | 40 | 1 | 8.1 | 4 | – | □ | – | – |
| | **0.6** | | 1.2 | | | | □ | – | – |
| | **0.7** | | 1.4 | | | | □ | – | – |
| | **0.8** | | 1.6 | | | | □ | – | – |
| | **0.9** | | 1.8 | | | | □ | – | – |
| | **1** | | 2 | 8.4 | | | □ | – | – |
| | **1.1** | | 2.2 | 8.6 | | | □ | – | – |
| | **1.2** | | 2.4 | | | | □ | – | – |
| | **1.3** | | 2.6 | | | | □ | – | – |
| | **1.4** | | 2.8 | | | | □ | – | – |
| | **1.5** | | 3 | | | | □ | – | – |
| | **1.6** | | 3.2 | 8.7 | | | □ | – | – |
| | **1.7** | | 3.4 | 9.1 | | | □ | – | – |
| | **1.8** | | 3.6 | 9.2 | | | □ | – | – |
| | **1.9** | | 3.8 | | | | □ | – | – |
| | **2** | | 4 | 9.8 | | | □ | – | – |
| | **2.1** | | 4.2 | | | | □ | – | – |
| | **2.2** | | 4.4 | | | | □ | – | – |
| | **2.3** | | 4.6 | | | | □ | – | – |
| | **2.4** | | 4.8 | | | | □ | – | – |
| | **2.5** | | 5 | | | | □ | – | – |
| | **2.6** | | 5.2 | 10.4 | | | □ | – | – |
| | **2.7** | | 5.4 | | | | □ | – | – |
| | **2.8** | | 5.6 | | | | □ | – | – |
| | **2.9** | | 5.8 | | | | □ | – | – |
| | **3** | | 6 | 10.6 | | | □ | – | – |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DLC-MR-EDS** | | | | | | | | | ○ | ◎ | | | | ◎ |
| **DIA-2D-DE** | | | | | | | | | ○ | ※◎ | ◎ | | | ◎ |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# Vコート2枚刃超硬スクエアエンドミルショート形
**V Coated 2-flute Carbide End Mill Short Length**

## V-MG-EDS



CARBIDE | V | 0〜-0.03 | 2≦DC<13 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 40 | 2.5 | 4 | – | □ | – | – |
| | **1.5** | | 4 | | | □ | – | – |
| | **2** | | 6 | | | □ | – | – |
| | **2.5** | | 8 | | | □ | – | – |
| | **3** | 45 | | 6 | | □ | – | – |
| | **3.5** | | 10 | | | □ | – | – |
| | **4** | | 11 | | | □ | – | – |
| | **4.5** | | | | | □ | – | – |
| | **5** | 50 | 13 | | | □ | – | – |
| | **5.5** | | | | | □ | – | – |
| | **6** | | | | | □ | – | – |
| | **6.5** | 60 | 16 | 8 | | □ | – | – |
| | **7** | | | | | □ | – | – |
| | **7.5** | | | | | □ | – | – |
| | **8** | | 19 | | | □ | – | – |
| | **8.5** | 70 | | 10 | | □ | – | – |
| | **9** | | | | | □ | – | – |
| | **9.5** | | | | | □ | – | – |
| | **10** | | 22 | | | □ | – | – |
| | **11** | 75 | | 12 | | □ | – | – |
| | **12** | | 26 | | | □ | – | – |
| | **13** | 85 | | | | □ | – | – |
| | **14** | | | | | □ | – | – |
| | **15** | 90 | | 16 | | □ | – | – |
| | **16** | 100 | 32 | | | □ | – | – |
| | **18** | | | | | □ | – | – |
| | **20** | 105 | 38 | 20 | | □ | – | – |
| | **25** | 120 | 45 | 25 | | □ | – | – |

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 高硬度鋼用TiNコート2枚刃超硬スクエアエンドミル ショート形
**TiN Coated 2-flute Carbide End Mill Short Length for High-hardness Steels**

# SH-MG-EDS



CARBIDE | TiN | 0〜-0.03 | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **2** | 40 | 4 | 4 | 0.15 | — | □ | — | — |
| | **3** | 45 | 5 | 6 | | | □ | — | — |
| | **4** | | 8 | | | | □ | — | — |
| | **5** | 50 | 10 | | | | □ | — | — |
| | **6** | | | | | | □ | — | — |
| | **7** | 60 | 12 | 8 | 0.2 | | □ | — | — |
| | **8** | | 16 | | | | □ | — | — |
| | **9** | 70 | | 10 | | | □ | — | — |
| | **10** | | 20 | | | | □ | — | — |
| | **11** | 75 | | 12 | | | □ | — | — |
| | **12** | | 25 | | | | □ | — | — |

## TiNコート2枚刃超硬スクエアエンドミル ショート形（ミニチュア）
**TiN Coated 2-flute Miniature Carbide End Mill Short Length (φ3 Shank)**

# TIN-MG-EDS-3



CARBIDE | TiN | 0〜-0.02 | DC≦1.85 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.25** | 40 | 0.6 | 3 | — | □ | — | — |
| | **0.35** | | 1 | | | □ | — | — |
| | **0.45** | | 1.3 | | | □ | — | — |
| | **0.55** | | 1.6 | | | □ | — | — |
| | **0.65** | | 2 | | | □ | — | — |
| | **0.75** | | 2.3 | | | □ | — | — |
| | **0.85** | | 2.5 | | | □ | — | — |
| | **0.95** | | 2.8 | | | □ | — | — |
| | **1.05** | | 3.2 | | | □ | — | — |
| | **1.15** | | 3.6 | | | □ | — | — |
| | **1.25** | | | | | □ | — | — |
| | **1.35** | | 4 | | | □ | — | — |
| | **1.45** | | | | | □ | — | — |
| | **1.55** | | 4.5 | | | □ | — | — |
| | **1.65** | | | | | □ | — | — |
| | **1.75** | | 5 | | | □ | — | — |
| | **1.85** | | | | | □ | — | — |
| | **1.95** | | 5.8 | | | □ | — | — |
| | **2.05** | | 6 | | | □ | — | — |
| | **2.15** | | 6.4 | | | □ | — | — |
| | **2.25** | | 6.7 | | | □ | — | — |
| | **2.35** | | 7 | | | □ | — | — |
| | **2.45** | | 8 | | | □ | — | — |
| | **2.55** | | | | | □ | — | — |
| | **2.65** | | | | | □ | — | — |
| | **2.75** | | | | | □ | — | — |
| | **2.85** | | | | | □ | — | — |
| | **2.95** | | | | | □ | — | — |

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **TIN-MG-EDS-3** | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## GXコート2枚刃超硬スクエアエンドミルショート形
**GX Coated 2-flute Carbide End Mill Short Length**

# GX-EDS



ハイグレード超微粒子超硬合金＋GXコーティング。
High grade micro grain carbide and GX coating.

CARBIDE | GX | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.5** | 40 | 1 | 3 | – | □ | – | – |
| | **1** | | 2.5 | 4 | | □ | – | – |
| | **1.2** | | 4 | | | □ | – | – |
| | **1.5** | | | | | □ | – | – |
| | **1.8** | | 5 | | | □ | – | – |
| | **2** | | 6 | | | □ | – | – |
| | **2.5** | | 8 | | | □ | – | – |
| | **3** | 45 | | 6 | | □ | – | – |
| | **4** | | 11 | | | □ | – | – |
| | **5** | 50 | 13 | | | □ | – | – |
| | **6** | | | | | □ | – | – |
| | **8** | 60 | 19 | 8 | | □ | – | – |
| | **10** | 70 | 22 | 10 | | □ | – | – |
| | **12** | 75 | 26 | 12 | | □ | – | – |

## 銅・アルミ合金・プラスチック用 2枚刃超硬スクエアエンドミルショート形
**2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics**

# CAP-EDS



切れ味の良い刃形が銅、アルミ、樹脂加工でのばりの発生を防止し良好な仕上げ面を実現します。
The sharp edge gives better surface and minimize burrs on Carbon fiber materials. Copper, Aluminum.

CARBIDE | 0〜-0.03 | SHRINK FIT | 35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 60 | 2.5 | 6 | – | □ | – | – |
| | **1.5** | | 4 | | | □ | – | – |
| | **2** | | 6 | | | □ | – | – |
| | **2.5** | 70 | 8 | | | □ | – | – |
| | **3** | | | | | □ | – | – |
| | **3.5** | | 10 | | | □ | – | – |
| | **4** | 80 | 11 | | | □ | – | – |
| | **4.5** | | | | | □ | – | – |
| | **5** | 90 | 13 | | | □ | – | – |
| | **5.5** | | | | | □ | – | – |
| | **6** | | | | | □ | – | – |
| | **6.5** | 100 | 16 | | | □ | – | – |
| | **7** | | | | | □ | – | – |
| | **7.5** | | | | | □ | – | – |
| | **8** | 110 | 19 | 8 | | □ | – | – |
| | **8.5** | | | | | □ | – | – |
| | **9** | | | | | □ | – | – |
| | **9.5** | | | | | □ | – | – |
| | **10** | 125 | 22 | 10 | | □ | – | – |
| | **11** | | | | | □ | – | – |
| | **12** | 140 | 26 | 12 | | □ | – | – |
| | **13** | | | | | □ | – | – |
| | **14** | | | | | □ | – | – |
| | **15** | | | | | □ | – | – |
| | **16** | 160 | 32 | 16 | | □ | – | – |
| | **17** | | | | | □ | – | – |
| | **18** | | | | | □ | – | – |
| | **19** | | | | | □ | – | – |
| | **20** | 180 | 38 | 20 | | □ | – | – |

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **GX-EDS** | ○ | | ○ | | | | | | | | | | | |
| **CAP-EDS** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 銅・アルミ合金・プラスチック用CrNコート2枚刃 超硬スクエアエンドミルショート形（ミニチュア）

**CrN Coated 2-flute Miniature Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (φ3 Shank)**

# CRN-EDS-3

切削条件 Cutting Conditions | P682-5



潤滑性に優れたCrNコーティングが銅合金、アルミ合金、プラスチック加工で威力を発揮します。銅電極や銅合金IT部品の微細加工にも最適です。

CrN coating with better lubrication works better on Copper Alloys, Aluminum Alloys, and Plastics. Best for Copper electrodes, Copper Alloys parts for IT industry.

CARBIDE | CrN | 0〜-0.015 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8531005 | **0.5** | 40 | 1.5 | 3 | — | □ | — | — |
| 8531006 | **0.6** | | 1.7 | | | □ | — | — |
| 8531007 | **0.7** | | 2.2 | | | □ | — | — |
| 8531008 | **0.8** | | 2.4 | | | □ | — | — |
| 8531009 | **0.9** | | 2.6 | | | □ | — | — |
| 8531010 | **1** | | 3 | | | □ | — | — |
| 8531011 | **1.1** | | 3.4 | | | □ | — | — |
| 8531012 | **1.2** | | 3.8 | | | □ | — | — |
| 8531013 | **1.3** | | | | | □ | — | — |
| 8531014 | **1.4** | | 4.2 | | | □ | — | — |
| 8531015 | **1.5** | | | | | □ | — | — |
| 8531016 | **1.6** | | 4.8 | | | □ | — | — |
| 8531017 | **1.7** | | | | | □ | — | — |
| 8531018 | **1.8** | | 5.3 | | | □ | — | — |
| 8531019 | **1.9** | | | | | □ | — | — |
| 8531020 | **2** | | 6 | | | □ | — | — |
| 8531021 | **2.1** | | | | | □ | — | — |
| 8531022 | **2.2** | | 6.7 | | | □ | — | — |
| 8531023 | **2.3** | | | | | □ | — | — |
| 8531024 | **2.4** | | 8 | | | □ | — | — |
| 8531025 | **2.5** | | | | | □ | — | — |
| 8531026 | **2.6** | | | | | □ | — | — |
| 8531027 | **2.7** | | | | | □ | — | — |
| 8531028 | **2.8** | | | | | □ | — | — |
| 8531029 | **2.9** | | | | | □ | — | — |
| 8531030 | **3** | | | | | □ | — | — |

## 銅・アルミ合金・プラスチック用CrNコート2枚刃 超硬スクエアエンドミルショート形

**CrN Coated 2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics**

# CRN-EDS



潤滑性、耐溶着性に優れたCrNコーティングが銅合金、アルミ合金、プラスチック加工で威力を発揮します。

CrN coating with better lubrication works better on Copper Alloys, Aluminum Alloys, and Plastics.

CARBIDE | CrN | 0〜-0.02 | SHRINK FIT | 35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 60 | 2.5 | 6 | — | □ | — | — |
| | **1.5** | | 4 | | | □ | — | — |
| | **2** | | 6 | | | □ | — | — |
| | **2.5** | 70 | 8 | | | □ | — | — |
| | **3** | | | | | □ | — | — |
| | **3.5** | | 10 | | | □ | — | — |
| | **4** | 80 | 11 | | | □ | — | — |
| | **4.5** | | | | | □ | — | — |
| | **5** | 90 | 13 | | | □ | — | — |
| | **5.5** | | | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **6.5** | 100 | 16 | | | □ | — | — |
| | **7** | | | | | □ | — | — |
| | **7.5** | | | | | □ | — | — |
| | **8** | 110 | 19 | 8 | | □ | — | — |
| | **8.5** | | | | | □ | — | — |
| | **9** | | | | | □ | — | — |
| | **9.5** | | | | | □ | — | — |
| | **10** | 125 | 22 | 10 | | □ | — | — |
| | **11** | | | | | □ | — | — |
| | **12** | 140 | 26 | 12 | | □ | — | — |
| | **13** | | | | | □ | — | — |
| | **14** | | | | | □ | — | — |
| | **15** | | | | | □ | — | — |
| | **16** | 160 | 32 | 16 | | □ | — | — |
| | **17** | | | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **19** | | | | | □ | — | — |
| | **20** | 180 | 38 | 20 | | □ | — | — |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1170 を参照下さい。 See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能



形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **CRN-EDS-3** | | | | | | | | | ◎ | ○ | | | | ◎ |
| **CRN-EDS** | | | | | | | | | ◎ | ○ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形（HSK対応）

**CrN Coated 2-flute Carbide End Mill with HS Shank Short Length for Copper, Aluminum Alloys and Plastics**

# CRN-HS-EDS

切削条件 Cutting Conditions | P682-3



２面拘束HSKホルダにおいて工具突き出し量を最小限に設定できるようになっています。銅電極の高速量産加工に最適です。

Designed to minimize the overhang length with HSK holders. Best for high speed Copper electrode machining.

CARBIDE | CrN | 0〜-0.015 | SHRINK FIT | 35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | 首径 DN | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8534010 | 1 × 2.5 | 50 | 1.5 | 0.95 | 6 | — | □ | — | — |
| 8534015 | 1.5 × 3.8 | | 2.3 | 1.45 | | | □ | — | — |
| 8534020 | 2 × 5 | | 3 | 1.95 | | | □ | — | — |
| 8534030 | 3 × 7.5 | | 4.5 | 2.85 | | | □ | — | — |
| 8534040 | 4 × 10 | | 6 | 3.85 | | | □ | — | — |
| 8534050 | 5 × 12.5 | | 7.5 | 4.85 | | | □ | — | — |
| 8534060 | 6 × 15 | | 9 | 5.7 | | | □ | — | — |
| 8534080 | 8 × 20 | 60 | 12 | 7.6 | 8 | | □ | — | — |
| 8534100 | 10 × 25 | 70 | 15 | 9.5 | 10 | | □ | — | — |
| 8534120 | 12 × 30 | 80 | 18 | 11.4 | 12 | | □ | — | — |

## コバール用FXコート2枚刃超硬スクエアエンドミルショート形（φ6シャンク）

**FX Coated 2-flute Carbide End Mill Short Length for Kovar (φ6 Shank)**

# IT-EDS-6



CARBIDE | FX | 0〜-0.015 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 0.5 × 1.5 | 50 | 0.7 | 6 | 0.45 | — | □ | — | — |
| | 0.6 × 1.8 | | 0.9 | | 0.55 | | □ | — | — |
| | 0.7 × 2.1 | | 1 | | 0.65 | | □ | — | — |
| | 0.8 × 2.4 | | 1.2 | | 0.75 | | □ | — | — |
| | 0.9 × 2.4 | | 1.4 | | 0.85 | | □ | — | — |
| | 1 × 2.5 | | 1.5 | | 0.95 | | □ | — | — |
| | 1.1 × 2.8 | | 1.7 | | 1.05 | | □ | — | — |
| | 1.2 × 3 | | 1.8 | | 1.15 | | □ | — | — |
| | 1.3 × 3.5 | | 2 | | 1.25 | | □ | — | — |
| | 1.4 × 3.6 | | 2.1 | | 1.35 | | □ | — | — |
| | 1.5 × 3.8 | | 2.3 | | 1.45 | | □ | — | — |
| | 2 × 5 | | 3 | | 1.95 | | □ | — | — |
| | 2.5 × 5 | | 3.7 | | 2.4 | | □ | — | — |


OSGのPSシリーズ

**商品シリーズ** Parts & Supply series

標準サイズ在庫完備!タングが無し!タングレスインサートあります

※詳細は▶P.1167 を参照下さい。 See p.1167 for details



**OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6**


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CRN-HS-EDS | | | | | | | | | ◎ | ○ | | | | ◎ |
| IT-EDS-6 | ◎ | | ○ | | | | ○ | | ○ | ○ | | | | |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。

※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## コバール用FXコート2枚刃超硬スクエアエンドミル ショート形
**FX Coated 2-flute Carbide End Mill Short Length for Kovar**

# IT-EDS



CARBIDE | FX | 0〜-0.015 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 50 | 4.5 | 6 | — | □ | — | — |
| | **4** | | 6 | | | □ | — | — |
| | **5** | | 7.5 | | | □ | — | — |
| | **6** | | 9 | | | □ | — | — |
| | **8** | 60 | 12 | 8 | | □ | — | — |
| | **10** | 70 | 15 | 10 | | □ | — | — |

## 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルショート形（焼きばめ対応）
**2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (Shrink Fit Type)**

# CAP-EDS-SF



アルミ合金、プラスチック加工用オリジナルシリーズの精密微細加工対応用追加展開。最新の高速加工機、シュリンクホルダ対応を配慮し、シャンクは高精度仕様φ4に統一。切れ味の良い切れ刃がバリの発生を防止。

Additional to the original series of precision ultra micro machining for Aluminum Alloys and Plastic applications. All 4mm diameter precision tolerance shank suited for advanced high speed machines with shrink holders. Sharp cutting edges to prevent burrs.

CARBIDE | 0〜-0.03 | SHRINK FIT | 35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.2** | 40 | 0.4 | 4 | — | □ | — | — |
| | **0.3** | | 0.6 | | | □ | — | — |
| | **0.4** | | 0.8 | | | □ | — | — |
| | **0.5** | | 1 | | | □ | — | — |
| | **0.6** | | 1.2 | | | □ | — | — |
| | **0.7** | | 1.4 | | | □ | — | — |
| | **0.8** | | 1.6 | | | □ | — | — |
| | **0.9** | | 2 | | | □ | — | — |
| | **1** | | 2.5 | | | □ | — | — |
| | **1.1** | | | | | □ | — | — |
| | **1.2** | | 4 | | | □ | — | — |
| | **1.3** | | | | | □ | — | — |
| | **1.4** | | | | | □ | — | — |
| | **1.5** | | | | | □ | — | — |
| | **1.6** | | 5 | | | □ | — | — |
| | **1.7** | | | | | □ | — | — |
| | **1.8** | | | | | □ | — | — |
| | **1.9** | | | | | □ | — | — |
| | **2** | | 6 | | | □ | — | — |
| | **2.1** | | | | | □ | — | — |
| | **2.2** | | | | | □ | — | — |
| | **2.3** | | | | | □ | — | — |
| | **2.4** | | 8 | | | □ | — | — |
| | **2.5** | | | | | □ | — | — |
| | **2.6** | | | | | □ | — | — |
| | **2.7** | | | | | □ | — | — |
| | **2.8** | | | | | □ | — | — |
| | **2.9** | | | | | □ | — | — |
| | **3** | | | | | □ | — | — |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
標準サイズ在庫完備!タングが無し!タングレスインサートあります

※詳細は▶P.1167 を参照下さい。
See p.1167 for details

**製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6**

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **IT-EDS** | ◎ | | ○ | | | | ○ | | ○ | ○ | | | | |
| **CAP-EDS-SF** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックスクエアエンドミルショート形（焼きばめ対応）

**2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (Shrink Fit Type)**

# CAP-LN-EDS-SF



アルミ合金、プラスチック加工用オリジナルシリーズの精密微細加工対応用追加展開。最新の高速加工機、シュリンクホルダ対応を配慮し、シャンクは高精度仕様φ4に統一。切れ味の良い切れ刃がバリの発生を防止。

Additional to the original series of precision ultra micro machining for Aluminum Alloys and Plastic applications. All 4mm diameter precision tolerance shank suited for advanced high speed machines with shrink holders. Sharp cutting edges to prevent burrs.

CARBIDE | 0〜-0.015 | SHRINK FIT | 35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.2 × 0.5 | 45 | 0.3 | 4 | — | □ | — | — |
| | 0.2 × 1 | | | | | □ | — | — |
| | 0.2 × 1.5 | | | | | □ | — | — |
| | 0.2 × 2 | | | | | □ | — | — |
| | 0.3 × 1 | | 0.45 | | | □ | — | — |
| | 0.3 × 1.5 | | | | | □ | — | — |
| | 0.3 × 2 | | | | | □ | — | — |
| | 0.3 × 2.5 | | | | | □ | — | — |
| | 0.3 × 3 | | | | | □ | — | — |
| | 0.4 × 1.5 | | 0.6 | | | □ | — | — |
| | 0.4 × 2 | | | | | □ | — | — |
| | 0.4 × 3 | | | | | □ | — | — |
| | 0.4 × 4 | | | | | □ | — | — |
| | 0.5 × 1.5 | | 0.7 | | | □ | — | — |
| | 0.5 × 2 | | | | | □ | — | — |
| | 0.5 × 3 | | | | | □ | — | — |
| | 0.5 × 4 | | | | | □ | — | — |
| | 0.5 × 5 | | | | | □ | — | — |
| | 0.6 × 2 | | 0.9 | | | □ | — | — |
| | 0.6 × 3 | | | | | □ | — | — |
| | 0.6 × 4 | | | | | □ | — | — |
| | 0.6 × 5 | | | | | □ | — | — |
| | 0.6 × 6 | | | | | □ | — | — |

## FXコート2枚刃超硬スクエアエンドミルミディアム形

**FX Coated 2-flute Carbide End Mill Medium Length**

# FX-MG-EDN



CARBIDE | FX | DC≦12 0〜-0.02, 12<DC 0〜-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 | 45 | 4 | 4 | — | □ | — | — |
| | 1.5 | | 5 | | | □ | — | — |
| | 2 | | 8 | | | □ | — | — |
| | 2.5 | | 10 | | | □ | — | — |
| | 3 | 50 | | 6 | | □ | — | — |
| | 3.5 | | 12 | | | □ | — | — |
| | 4 | | 14 | | | □ | — | — |
| | 4.5 | | | | | □ | — | — |
| | 5 | 60 | 17 | | | □ | — | — |
| | 5.5 | | | | | □ | — | — |
| | 6 | | | | | □ | — | — |
| | 6.5 | 70 | 20 | 8 | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 8 | 80 | 24 | | | □ | — | — |
| | 8.5 | | | | | □ | — | — |
| | 9 | | | 10 | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 10 | | 28 | | | □ | — | — |
| | 10.5 | 90 | | 12 | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 12 | | 34 | | | □ | — | — |
| | 13 | | | | | □ | — | — |
| | 14 | | | | | □ | — | — |
| | 15 | 100 | | 16 | | □ | — | — |
| | 16 | 110 | 40 | | | □ | — | — |
| | 17 | | | | | □ | — | — |
| | 18 | | | | | □ | — | — |
| | 19 | | | 20 | | □ | — | — |
| | 20 | 115 | 48 | | | □ | — | — |
| | 21 | | | | | □ | — | — |
| | 22 | | | | | □ | — | — |
| | 23 | 130 | 56 | 25 | | □ | — | — |
| | 24 | | | | | □ | — | — |
| | 25 | | | | | □ | — | — |

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CAP-LN-EDS-SF | | | | | | | | | ◎ | ◎ | | | | ○ |
| FX-MG-EDN | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅・アルミ合金・プラスチック用CrNコート2枚刃 超硬スクエアエンドミルミディアム形

**CrN Coated 2-flute Carbide End Mill Medium Length for Copper, Aluminum Alloys and Plastics**

## CRN-EDN



潤滑性、耐溶着性に優れたCrNコーティングが銅合金、アルミ合金、プラスチック加工で威力を発揮します。

CrN coating with better lubrication works better on Copper Alloys, Aluminum Alloys, and Plastics.

CARBIDE | CrN | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 | 60 | 3 | 6 | – | □ | – | – |
| | 1.5 | | 5 | | | □ | – | – |
| | 2 | | 8 | | | □ | – | – |
| | 2.5 | 70 | 10 | | | □ | – | – |
| | 3 | | | | | □ | – | – |
| | 3.5 | | 12 | | | □ | – | – |
| | 4 | 80 | 14 | | | □ | – | – |
| | 4.5 | | | | | □ | – | – |
| | 5 | 90 | 17 | | | □ | – | – |
| | 5.5 | | | | | □ | – | – |
| | 6 | | | | | □ | – | – |
| | 6.5 | 100 | 20 | | | □ | – | – |
| | 7 | | | | | □ | – | – |
| | 7.5 | | | | | □ | – | – |
| | 8 | 110 | 24 | 8 | | □ | – | – |
| | 8.5 | | | | | □ | – | – |
| | 9 | | | | | □ | – | – |
| | 9.5 | | | | | □ | – | – |
| | 10 | 125 | 28 | 10 | | □ | – | – |
| | 11 | | | | | □ | – | – |
| | 12 | 140 | 34 | 12 | | □ | – | – |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1167 を参照下さい。 See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CRN-EDN | | | | | | | | | ◎ | ○ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬スクエアエンドミルDL形（φ6シャンク）
**FX Coated 2-flute Carbide End Mill (φ6 Shank DL Type)**

## FX-ED-DL-6



CARBIDE | FX | 0〜-0.02 | ø2≦DC | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.3** | 50 | 0.6 | 6 | — | □ | — | — |
| | **0.3** | | 0.9 | | | □ | — | — |
| | **0.3** | | 1.2 | | | □ | — | — |
| | **0.3** | | 1.8 | | | □ | — | — |
| | **0.4** | | 0.8 | | | □ | — | — |
| | **0.4** | | 1.2 | | | □ | — | — |
| | **0.4** | | 1.6 | | | □ | — | — |
| | **0.4** | | 2.4 | | | □ | — | — |
| | **0.5** | | 1 | | | □ | — | — |
| | **0.5** | | 1.5 | | | □ | — | — |
| | **0.5** | | 2 | | | □ | — | — |
| | **0.5** | | 3 | | | □ | — | — |
| | **0.5** | | 4 | | | □ | — | — |
| | **0.6** | | 1.2 | | | □ | — | — |
| | **0.6** | | 2.4 | | | □ | — | — |
| | **0.6** | | 3.6 | | | □ | — | — |
| | **0.6** | | 4.8 | | | □ | — | — |
| | **0.7** | | 1.4 | | | □ | — | — |
| | **0.7** | | 2.8 | | | □ | — | — |
| | **0.7** | | 4.2 | | | □ | — | — |
| | **0.7** | | 5.6 | | | □ | — | — |
| | **0.8** | | 1.6 | | | □ | — | — |
| | **0.8** | | 3.2 | | | □ | — | — |
| | **0.8** | | 4.8 | | | □ | — | — |
| | **0.8** | | 6.4 | | | □ | — | — |
| | **0.9** | | 1.8 | | | □ | — | — |
| | **0.9** | | 3.6 | | | □ | — | — |
| | **0.9** | | 5.4 | | | □ | — | — |
| | **0.9** | | 7.2 | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 50 | 2 | 6 | — | □ | — | — |
| | **1** | | 3 | | | □ | — | — |
| | **1** | | 4 | | | □ | — | — |
| | **1** | | 6 | | | □ | — | — |
| | **1** | | 8 | | | □ | — | — |
| | **1.1** | | 2.2 | | | □ | — | — |
| | **1.1** | | 4.4 | | | □ | — | — |
| | **1.1** | | 6.6 | | | □ | — | — |
| | **1.1** | | 8.8 | | | □ | — | — |
| | **1.2** | | 2.4 | | | □ | — | — |
| | **1.2** | | 4.8 | | | □ | — | — |
| | **1.2** | | 7.2 | | | □ | — | — |
| | **1.2** | | 9.6 | | | □ | — | — |
| | **1.3** | | 2.6 | | | □ | — | — |
| | **1.3** | | 5.2 | | | □ | — | — |
| | **1.3** | | 7.8 | | | □ | — | — |
| | **1.3** | | 10.4 | | | □ | — | — |
| | **1.4** | | 2.8 | | | □ | — | — |
| | **1.4** | | 5.6 | | | □ | — | — |
| | **1.4** | | 8.4 | | | □ | — | — |
| | **1.4** | | 11.2 | | | □ | — | — |
| | **1.5** | | 3 | | | □ | — | — |
| | **1.5** | | 4.5 | | | □ | — | — |
| | **1.5** | | 6 | | | □ | — | — |
| | **1.5** | | 8 | | | □ | — | — |
| | **1.5** | | 10 | | | □ | — | — |
| | **1.5** | | 12 | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能

※詳細は▶P.1170 を参照下さい。
See p.1170 for details



次ページへ
外径 DC 1.6〜3 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-ED-DL-6 | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# FXコート2枚刃超硬スクエアエンドミルDL形（φ6シャンク）

**FX Coated 2-flute Carbide End Mill (φ6 Shank DL Type)**

## FX-ED-DL-6



CARBIDE | FX | 0〜-0.02 | ø2≦DC | SHRINK FIT | 30°

前ページより FROM 外径 DC 0.3〜1.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1.6** | 50 | 3.2 | 6 | — | □ | — | — |
| | **1.6** | | 6.4 | | | □ | — | — |
| | **1.6** | | 9.6 | | | □ | — | — |
| | **1.6** | | 12.8 | | | □ | — | — |
| | **1.7** | | 3.4 | | | □ | — | — |
| | **1.7** | | 6.8 | | | □ | — | — |
| | **1.7** | | 10.2 | | | □ | — | — |
| | **1.7** | | 13.6 | | | □ | — | — |
| | **1.8** | | 3.6 | | | □ | — | — |
| | **1.8** | | 7.2 | | | □ | — | — |
| | **1.8** | | 10.8 | | | □ | — | — |
| | **1.8** | | 14.4 | | | □ | — | — |
| | **1.9** | | 3.8 | | | □ | — | — |
| | **1.9** | | 7 | | | □ | — | — |
| | **1.9** | | 9.5 | | | □ | — | — |
| | **1.9** | | 15.2 | | | □ | — | — |
| | **2** | | 4 | | | □ | — | — |
| | **2** | | 6 | | | □ | — | — |
| | **2** | | 8 | | | □ | — | — |
| | **2** | | 12 | | | □ | — | — |
| | **2** | | 16 | | | □ | — | — |
| | **2.1** | | 6.3 | | | □ | — | — |
| | **2.1** | | 10.5 | | | □ | — | — |
| | **2.1** | | 16.8 | | | □ | — | — |
| | **2.2** | | 6.6 | | | □ | — | — |
| | **2.2** | | 11 | | | □ | — | — |
| | **2.2** | | 17.6 | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2.3** | 50 | 6.9 | 6 | — | □ | — | — |
| | **2.3** | | 11.5 | | | □ | — | — |
| | **2.3** | | 18.4 | | | □ | — | — |
| | **2.4** | | 7.2 | | | □ | — | — |
| | **2.4** | | 12 | | | □ | — | — |
| | **2.4** | | 19.2 | | | □ | — | — |
| | **2.5** | | 7.5 | | | □ | — | — |
| | **2.5** | | 10 | | | □ | — | — |
| | **2.5** | 60 | 15 | | | □ | — | — |
| | **2.5** | | 20 | | | □ | — | — |
| | **2.6** | 50 | 7.8 | | | □ | — | — |
| | **2.6** | | 13 | | | □ | — | — |
| | **2.6** | 60 | 20.8 | | | □ | — | — |
| | **2.7** | 50 | 8.1 | | | □ | — | — |
| | **2.7** | | 13.5 | | | □ | — | — |
| | **2.7** | 60 | 21.6 | | | □ | — | — |
| | **2.8** | 50 | 8.4 | | | □ | — | — |
| | **2.8** | | 14 | | | □ | — | — |
| | **2.8** | 60 | 22.4 | | | □ | — | — |
| | **2.9** | 50 | 8.7 | | | □ | — | — |
| | **2.9** | | 14.5 | | | □ | — | — |
| | **2.9** | 60 | 23.2 | | | □ | — | — |
| | **3** | 50 | 9 | | | □ | — | — |
| | **3** | | 12 | | | □ | — | — |
| | **3** | | 15 | | | □ | — | — |
| | **3** | 60 | 18 | | | □ | — | — |
| | **3** | 70 | 24 | | | □ | — | — |
| | **3** | | 30 | | | □ | — | — |
| | **3** | 80 | 40 | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

OSGのPSシリーズ
PS 商品シリーズ Parts & Supply series
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、水・油・ヘドロをスピード吸入・スピード吐出
※詳細は▶P.1176 を参照下さい。 See p.1176 for details



| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-ED-DL-6** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## FXコート2枚刃超硬スクエアエンドミル ロング形（ミニチュア）
**FX Coated 2-flute Miniature Carbide End Mill Long Length (φ3 Shank)**

# FX-MG-EDL-3



CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 0.2 | 40 | 1 | 3 | — □ | — | — |
| | 0.3 | | 1.4 | | □ | — | — |
| | 0.4 | | 2 | | □ | — | — |
| | 0.5 | | 2.5 | | □ | — | — |
| | 0.6 | | 2.8 | | □ | — | — |
| | 0.7 | | 3.6 | | □ | — | — |
| | 0.8 | | 4 | | □ | — | — |
| | 0.9 | | 4.5 | | □ | — | — |
| | 1 | | 5 | | □ | — | — |
| | 1.1 | | 5.6 | | □ | — | — |
| | 1.2 | | 6.2 | | □ | — | — |
| | 1.3 | | | | □ | — | — |
| | 1.4 | | 7 | | □ | — | — |
| | 1.5 | | | | □ | — | — |
| | 1.6 | | 8 | | □ | — | — |
| | 1.7 | | | | □ | — | — |
| | 1.8 | | 9 | | □ | — | — |
| | 1.9 | | | | □ | — | — |
| | 2 | | 10 | | □ | — | — |
| | 2.1 | | 11 | | □ | — | — |
| | 2.2 | | | | □ | — | — |
| | 2.3 | | 12 | | □ | — | — |
| | 2.4 | | | | □ | — | — |
| | 2.5 | | 13 | | □ | — | — |
| | 2.6 | | | | □ | — | — |
| | 2.7 | | 14 | | □ | — | — |
| | 2.8 | | | | □ | — | — |
| | 2.9 | | 15 | | □ | — | — |
| | 3 | | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

## FXコート2枚刃超硬スクエアエンドミル エキストラロング形（ミニチュア）
**FX Coated 2-flute Miniature Carbide End Mill Extra Long Length (φ3 Shank)**

# FX-MG-EDLL-3



CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 0.2 | 40 | 1.5 | 3 | — □ | — | — |
| | 0.3 | | 2.1 | | □ | — | — |
| | 0.4 | | 3 | | □ | — | — |
| | 0.5 | | 3.8 | | □ | — | — |
| | 0.6 | | 4.2 | | □ | — | — |
| | 0.7 | | 5.3 | | □ | — | — |
| | 0.8 | | 6 | | □ | — | — |
| | 0.9 | | 6.8 | | □ | — | — |
| | 1 | | 7.5 | | □ | — | — |
| | 1.1 | | 8.4 | | □ | — | — |
| | 1.2 | | 9.4 | | □ | — | — |
| | 1.3 | | | | □ | — | — |
| | 1.4 | | 10.5 | | □ | — | — |
| | 1.5 | | | | □ | — | — |
| | 1.6 | | 12 | | □ | — | — |
| | 1.7 | | | | □ | — | — |
| | 1.8 | | 13.5 | | □ | — | — |
| | 1.9 | | | | □ | — | — |
| | 2 | | 15 | | □ | — | — |
| | 2.1 | 45 | 16 | | □ | — | — |
| | 2.2 | | 17 | | □ | — | — |
| | 2.3 | | | | □ | — | — |
| | 2.4 | | 18 | | □ | — | — |
| | 2.5 | | 19 | | □ | — | — |
| | 2.6 | 50 | 20 | | □ | — | — |
| | 2.7 | | | | □ | — | — |
| | 2.8 | | 21 | | □ | — | — |
| | 2.9 | | 22 | | □ | — | — |
| | 3 | | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-MG-EDL-3 | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | ○ | ○ | |
| FX-MG-EDLL-3 | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃超硬スクエアエンドミルロング形（ミニチュア）
**2-flute Miniature Carbide End Mill Long Length (φ3 Shank)**

# MG-EDL-3



CARBIDE | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.2** | 40 | 1 | 3 | — | □ | — | — |
| | **0.3** | | 1.4 | | | □ | — | — |
| | **0.4** | | 2 | | | □ | — | — |
| | **0.5** | | 2.5 | | | □ | — | — |
| | **0.6** | | 2.8 | | | □ | — | — |
| | **0.7** | | 3.6 | | | □ | — | — |
| | **0.8** | | 4 | | | □ | — | — |
| | **0.9** | | 4.5 | | | □ | — | — |
| | **1** | | 5 | | | □ | — | — |
| | **1.1** | | 5.6 | | | □ | — | — |
| | **1.2** | | 6.2 | | | □ | — | — |
| | **1.3** | | | | | □ | — | — |
| | **1.4** | | 7 | | | □ | — | — |
| | **1.5** | | | | | □ | — | — |
| | **1.6** | | 8 | | | □ | — | — |
| | **1.7** | | | | | □ | — | — |
| | **1.8** | | 9 | | | □ | — | — |
| | **1.9** | | | | | □ | — | — |
| | **2** | | 10 | | | □ | — | — |
| | **2.1** | | 11 | | | □ | — | — |
| | **2.2** | | | | | □ | — | — |
| | **2.3** | | 12 | | | □ | — | — |
| | **2.4** | | | | | □ | — | — |
| | **2.5** | | 13 | | | □ | — | — |
| | **2.6** | | | | | □ | — | — |
| | **2.7** | | 14 | | | □ | — | — |
| | **2.8** | | | | | □ | — | — |
| | **2.9** | | 15 | | | □ | — | — |
| | **3** | | | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

## 2枚刃超硬スクエアエンドミルロング形（φ4シャンク）
**2-flute Carbide End Mill Long Length (φ4 Shank)**

# MG-EDL-4



CARBIDE | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2.1** | 45 | 12 | 4 | — | □ | — | — |
| | **2.2** | | 13 | | | □ | — | — |
| | **2.3** | | | | | □ | — | — |
| | **2.4** | | 14 | | | □ | — | — |
| | **2.5** | 50 | 15 | | | □ | — | — |
| | **2.6** | | 17 | | | □ | — | — |
| | **2.7** | | | | | □ | — | — |
| | **2.8** | | | | | □ | — | — |
| | **2.9** | | | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

最新の加工動画を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EDL-3** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| **MG-EDL-4** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃超硬スクエアエンドミルエキストラロング形（ミニチュア）
**2-flute Miniature Carbide End Mill Extra Long Length (φ3 Shank)**

# MG-EDLL-3



CARBIDE　SHRINK FIT　30°

0～-0.02

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.2** | 40 | 1.5 | 3 | — | □ | — | — |
| | **0.3** | | 2.1 | | | □ | — | — |
| | **0.4** | | 3 | | | □ | — | — |
| | **0.5** | | 3.8 | | | □ | — | — |
| | **0.6** | | 4.2 | | | □ | — | — |
| | **0.7** | | 5.3 | | | □ | — | — |
| | **0.8** | | 6 | | | □ | — | — |
| | **0.9** | | 6.8 | | | □ | — | — |
| | **1** | | 7.5 | | | □ | — | — |
| | **1.1** | | 8.4 | | | □ | — | — |
| | **1.2** | | 9.4 | | | □ | — | — |
| | **1.3** | | | | | □ | — | — |
| | **1.4** | | 10.5 | | | □ | — | — |
| | **1.5** | | | | | □ | — | — |
| | **1.6** | | 12 | | | □ | — | — |
| | **1.7** | | | | | □ | — | — |
| | **1.8** | | 13.5 | | | □ | — | — |
| | **1.9** | | | | | □ | — | — |
| | **2** | | 15 | | | □ | — | — |
| | **2.1** | 45 | 16 | | | □ | — | — |
| | **2.2** | | 17 | | | □ | — | — |
| | **2.3** | | | | | □ | — | — |
| | **2.4** | | 18 | | | □ | — | — |
| | **2.5** | | 19 | | | □ | — | — |
| | **2.6** | 50 | 20 | | | □ | — | — |
| | **2.7** | | | | | □ | — | — |
| | **2.8** | | 21 | | | □ | — | — |
| | **2.9** | | 22 | | | □ | — | — |
| | **3** | | | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

## 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルロング形
**2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics**

# CAP-EDL



シャープな切れ味の刃形仕様が銅、アルミ、樹脂加工でのばりの発生を防止します。
Sharp cutting edges eliminate burrs on Copper, Aluminum, Plastics.

CARBIDE　SHRINK FIT　35°

0～-0.03

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 70 | 12 | 6 | — | □ | — | — |
| | **3.5** | | 14 | | | □ | — | — |
| | **4** | 80 | 17 | | | □ | — | — |
| | **4.5** | | | | | □ | — | — |
| | **5** | 90 | 20 | | | □ | — | — |
| | **5.5** | | | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **6.5** | 100 | 24 | | | □ | — | — |
| | **7** | | | | | □ | — | — |
| | **7.5** | | | | | □ | — | — |
| | **8** | 110 | 28 | 8 | | □ | — | — |
| | **8.5** | | | | | □ | — | — |
| | **9** | | | | | □ | — | — |
| | **9.5** | | | | | □ | — | — |
| | **10** | 125 | 34 | 10 | | □ | — | — |
| | **11** | | | | | □ | — | — |
| | **12** | 140 | 40 | 12 | | □ | — | — |
| | **13** | | | | | □ | — | — |
| | **14** | | | | | □ | — | — |
| | **15** | | | | | □ | — | — |
| | **16** | 160 | 48 | 16 | | □ | — | — |
| | **17** | | | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **19** | | | | | □ | — | — |
| | **20** | 180 | 56 | 20 | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EDLL-3** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| **CAP-EDL** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルロング形（φ4シャンク）

**CrN Coated 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics (φ4 Shank)**

# CRN-EDL-4



潤滑性に優れたCrNコーティングが銅合金、アルミ合金、プラスチック加工で威力を発揮します。銅電極加工では光沢のある美しい仕上げ面を実現します。

CrN coating with better lubrication works better on Copper Alloys, Aluminum Alloys, and Plastics. Gives shiny surface finish on Copper Electrode machining.

CARBIDE | CrN | SHRINK FIT | 35°

0〜-0.02

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃長 DC × APMX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8539910 | 1 × 4 | 45 | 4 | 4 | — | □ | — | — |
| 8539960 | 1 × 5 | | 5 | | | □ | — | — |
| 8539911 | 1.1 × 4.4 | | 4.4 | | | □ | — | — |
| 8539961 | 1.1 × 5.5 | | 5.5 | | | □ | — | — |
| 8539912 | 1.2 × 4.8 | | 4.8 | | | □ | — | — |
| 8539962 | 1.2 × 6 | | 6 | | | □ | — | — |
| 8539913 | 1.3 × 5.2 | | 5.2 | | | □ | — | — |
| 8539963 | 1.3 × 6.5 | | 6.5 | | | □ | — | — |
| 8539914 | 1.4 × 5.6 | | 5.6 | | | □ | — | — |
| 8539964 | 1.4 × 7 | | 7 | | | □ | — | — |
| 8539915 | 1.5 × 6 | | 6 | | | □ | — | — |
| 8539965 | 1.5 × 7.5 | | 7.5 | | | □ | — | — |
| 8539916 | 1.6 × 6.4 | | 6.4 | | | □ | — | — |
| 8539966 | 1.6 × 8 | | 8 | | | □ | — | — |
| 8539917 | 1.7 × 6.8 | | 6.8 | | | □ | — | — |
| 8539967 | 1.7 × 8.5 | | 8.5 | | | □ | — | — |
| 8539918 | 1.8 × 7.2 | | 7.2 | | | □ | — | — |
| 8539968 | 1.8 × 9 | | 9 | | | □ | — | — |
| 8539919 | 1.9 × 7.6 | | 7.6 | | | □ | — | — |
| 8539969 | 1.9 × 9.5 | | 9.5 | | | □ | — | — |
| 8539920 | 2 × 8 | | 8 | | | □ | — | — |
| 8539970 | 2 × 10 | | 10 | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃長 DC × APMX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8539921 | 2.1 × 8.4 | 45 | 8.4 | 4 | — | □ | — | — |
| 8539971 | 2.1 × 10.5 | | 10.5 | | | □ | — | — |
| 8539922 | 2.2 × 8.8 | | 8.8 | | | □ | — | — |
| 8539972 | 2.2 × 11 | | 11 | | | □ | — | — |
| 8539923 | 2.3 × 9.2 | | 9.2 | | | □ | — | — |
| 8539973 | 2.3 × 11.5 | | 11.5 | | | □ | — | — |
| 8539924 | 2.4 × 9.6 | | 9.6 | | | □ | — | — |
| 8539974 | 2.4 × 12 | | 12 | | | □ | — | — |
| 8539925 | 2.5 × 10 | 50 | 10 | | | □ | — | — |
| 8539975 | 2.5 × 12.5 | | 12.5 | | | □ | — | — |
| 8539926 | 2.6 × 10.4 | | 10.4 | | | □ | — | — |
| 8539976 | 2.6 × 13 | | 13 | | | □ | — | — |
| 8539927 | 2.7 × 10.8 | | 10.8 | | | □ | — | — |
| 8539977 | 2.7 × 13.5 | | 13.5 | | | □ | — | — |
| 8539928 | 2.8 × 11.2 | | 11.2 | | | □ | — | — |
| 8539978 | 2.8 × 14 | | 14 | | | □ | — | — |
| 8539929 | 2.9 × 11.6 | | 11.6 | | | □ | — | — |
| 8539979 | 2.9 × 14.5 | | 14.5 | | | □ | — | — |
| 8539930 | 3 × 12 | | 12 | | | □ | — | — |
| 8539980 | 3 × 15 | | 15 | | | □ | — | — |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1170 を参照下さい。
See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CRN-EDL-4 | | | | | | | | | ◎ | ○ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 銅・アルミ合金・プラスチック用CrNコート2枚刃 超硬スクエアエンドミルロング形

**CrN Coated 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics**

# CRN-EDL



潤滑性、耐溶着性に優れたCrNコーティングが銅合金、アルミ合金、プラスチック加工で威力を発揮します。

CrN coating with better lubrication works better on Copper Alloys, Aluminum Alloys, and Plastics.

CARBIDE | CrN | 0〜-0.02 | SHRINK FIT | 35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 60 | 4 | 6 | – | □ | – | – |
| | **1.5** | | 6 | | | □ | – | – |
| | **2** | | 9 | | | □ | – | – |
| | **2.5** | 70 | 12 | | | □ | – | – |
| | **3** | | | | | □ | – | – |
| | **3.5** | | 14 | | | □ | – | – |
| | **4** | 80 | 17 | | | □ | – | – |
| | **4.5** | | | | | □ | – | – |
| | **5** | 90 | 20 | | | □ | – | – |
| | **5.5** | | | | | □ | – | – |
| | **6** | | | | | □ | – | – |
| | **6.5** | 100 | 24 | | | □ | – | – |
| | **7** | | | | | □ | – | – |
| | **7.5** | | | | | □ | – | – |
| | **8** | 110 | 28 | 8 | | □ | – | – |
| | **8.5** | | | | | □ | – | – |
| | **9** | | | | | □ | – | – |
| | **9.5** | | | | | □ | – | – |
| | **10** | 125 | 34 | 10 | | □ | – | – |
| | **11** | | | | | □ | – | – |
| | **12** | 140 | 40 | 12 | | □ | – | – |
| | **13** | | | | | □ | – | – |
| | **14** | | | | | □ | – | – |
| | **15** | | | | | □ | – | – |
| | **16** | 160 | 48 | 16 | | □ | – | – |
| | **17** | | | | | □ | – | – |
| | **18** | | | | | □ | – | – |
| | **19** | | | | | □ | – | – |
| | **20** | 180 | 56 | 20 | | □ | – | – |

## 銅・アルミ合金・プラスチック用CrNコート2枚刃 超硬スクエアエンドミルエキストラロング形

**CrN Coated 2-flute Carbide End Mill Extra Long Length for Copper, Aluminum Alloys and Plastics**

# CRN-EDLL



CARBIDE | CrN | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 70 | 15 | 6 | – | □ | – | – |
| | **4** | 80 | 20 | | | □ | – | – |
| | **5** | 90 | 25 | | | □ | – | – |
| | **6** | | 30 | | | □ | – | – |
| | **8** | 110 | 40 | 8 | | □ | – | – |
| | **10** | 125 | 50 | 10 | | □ | – | – |
| | **12** | 140 | 60 | 12 | | □ | – | – |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1167 を参照下さい。 See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります





製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **CRN-EDL** | | | | | | | | | ◎ | ○ | | | | ◎ |
| **CRN-EDLL** | | | | | | | | | ◎ | ○ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## グラファイト用2枚刃超硬スクエアエンドミル レギュラ形
**2-flute Carbide End Mill Regular Length for Graphite**

**GF-EDR** 切削条件 Cutting Conditions | **P694-1**



耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。
Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8537004 | **2** | 75 | 10 | 4 | 20 | 1.9 | – | □ | – | – |
| 8537006 | **3** | | 15 | | 30 | 2.9 | | □ | – | – |
| 8537008 | **4** | | 20 | | 40 | 3.9 | | □ | – | – |
| 8537010 | **5** | 100 | 25 | 6 | 50 | 4.8 | | □ | – | – |
| 8537012 | **6** | | 30 | | 60 | 5.8 | | □ | – | – |
| 8537014 | **7** | 110 | 35 | | – | – | | □ | – | – |
| 8537016 | **8** | | 40 | 8 | 70 | 7.8 | | □ | – | – |
| 8537018 | **9** | 120 | 45 | | – | – | | □ | – | – |
| 8537020 | **10** | | 50 | 10 | 80 | 9.7 | | □ | – | – |
| 8537022 | **11** | 130 | 55 | | – | – | | □ | – | – |
| 8537024 | **12** | | 65 | 12 | 85 | 11.7 | | □ | – | – |

## グラファイト用2枚刃超硬スクエアエンドミル ロングシャンクレギュラ形
**2-flute Carbide End Mill Regular Length with Long Shank for Graphite**

**GF-LS-EDR** 切削条件 Cutting Conditions | **P694-2**

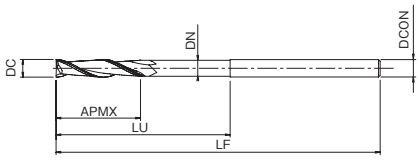


耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。
Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8526902 | **2** | 100 | 10 | 4 | 25 | 1.9 | – | □ | – | – |
| 8526903 | **3** | | 15 | | 40 | 2.9 | | □ | – | – |
| 8526904 | **4** | | 20 | | 60 | 3.9 | | □ | – | – |
| 8526905 | **5** | 140 | 25 | 6 | 70 | 4.8 | | □ | – | – |
| 8526906 | **6** | | 30 | | 80 | 5.8 | | □ | – | – |
| 8526907 | **7** | 160 | 35 | | – | – | | □ | – | – |
| 8526908 | **8** | | 40 | 8 | 100 | 7.8 | | □ | – | – |
| 8526909 | **9** | 180 | 45 | | – | – | | □ | – | – |
| 8526910 | **10** | | 50 | 10 | 120 | 9.7 | | □ | – | – |
| 8526911 | **11** | 200 | 55 | | – | – | | □ | – | – |
| 8526912 | **12** | | 65 | 12 | 130 | 11.7 | | □ | – | – |




OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1177 を参照下さい。
See p.1177 for details
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ



**デジタルカタログは付箋やしおりの追加など機能が充実** ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **GF-EDR** | | | | | | | | | | | ◎ | | | |
| **GF-LS-EDR** | | | | | | | | | | | ◎ | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

## グラファイト用2枚刃超硬スクエアエンドミル ロング形
**2-flute Carbide End Mill Long Length for Graphite**

# GF-EDL

切削条件 Cutting Conditions | P694-1



耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。
Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8455802 | **2** | 100 | 20 | 6 | 25 | 1.9 | — | □ | — | — |
| 8455803 | **3** | | 30 | | 40 | 2.9 | | □ | — | — |
| 8455804 | **4** | 120 | 60 | | 70 | 3.9 | | □ | — | — |
| 8455805 | **5** | 140 | 70 | | 80 | 4.8 | | □ | — | — |
| 8455806 | **6** | | 80 | | — | — | | □ | — | — |
| 8455807 | **7** | 160 | 90 | | | | | □ | — | — |
| 8455808 | **8** | | 100 | 8 | | | | □ | — | — |
| 8455809 | **9** | 180 | 110 | | | | | □ | — | — |
| 8455810 | **10** | | 120 | 10 | | | | □ | — | — |
| 8455811 | **11** | 200 | 130 | | | | | □ | — | — |
| 8455812 | **12** | | | 12 | | | | □ | — | — |

## DIAコート3枚刃超硬スクエアエンドミル ロングシャンクショート形
**Diamond Coated 3-flute Carbide End Mill Short Length with Long Shank**

# DIA-LS-ETS



CARBIDE | DIA | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **6** | 80 | 9 | 4 | — | □ | — | — |
| | **8** | 100 | 12 | 6 | | □ | — | — |
| | **10** | 130 | 15 | 8 | | □ | — | — |
| | **12** | 150 | 18 | 10 | | □ | — | — |
| | **14** | 160 | 21 | 12 | | □ | — | — |
| | **18** | 180 | 27 | 16 | | □ | — | — |
| | **22** | 200 | 33 | 20 | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **GF-EDL** | | | | | | | | | | | ◎ | | | |
| **DIA-LS-ETS** | | | | | | | | | | ◎ | ○ | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## DIAコート3枚刃超硬スクエアエンドミルショート形
**Diamond Coated 3-flute Carbide End Mill Short Length**

# DIA-ETS



CARBIDE | DIA | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 50 | 5 | 6 | — | □ | — | — |
| | **4** | | 6 | | | □ | — | — |
| | **5** | | 8 | | | □ | — | — |
| | **6** | 55 | 9 | | | □ | — | — |
| | **8** | 65 | 12 | 8 | | □ | — | — |
| | **10** | 75 | 15 | 10 | | □ | — | — |
| | **12** | 80 | 18 | 12 | | □ | — | — |
| | **16** | 95 | 24 | 16 | | □ | — | — |
| | **20** | 115 | 30 | 20 | | □ | — | — |

## FXコート4枚刃超硬スクエアエンドミルショート形
**FX Coated 4-flute Carbide End Mill Short Length**

# FX-MG-EMS

切削条件 Cutting Conditions | P667-1



**耐熱性に優れるFXコーティングを施した汎用タイプ4枚刃エンドミルです。高速・高送り加工に対応できます。**

4-fluted end mill for general applications. Employs FX coating and is applicable for high speed and high feed operations.

CARBIDE | FX | DC≦12 0～-0.02, 12<DC 0～-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8520020 | **2** | 40 | 6 | 4 | — | □ | — | — |
| 8520025 | **2.5** | | 8 | | | □ | — | — |
| 8520030 | **3** | 45 | | 6 | | □ | — | — |
| 8520035 | **3.5** | | 10 | | | □ | — | — |
| 8520040 | **4** | | 11 | | | □ | — | — |
| 8520045 | **4.5** | | | | | □ | — | — |
| 8520050 | **5** | 50 | 13 | | | □ | — | — |
| 8520055 | **5.5** | | | | | □ | — | — |
| 8520060 | **6** | | | | | □ | — | — |
| 8520065 | **6.5** | 60 | 16 | 8 | | □ | — | — |
| 8520070 | **7** | | | | | □ | — | — |
| 8520075 | **7.5** | | | | | □ | — | — |
| 8520080 | **8** | | 19 | | | □ | — | — |
| 8520085 | **8.5** | 70 | | 10 | | □ | — | — |
| 8520090 | **9** | | | | | □ | — | — |
| 8520095 | **9.5** | | | | | □ | — | — |
| 8520100 | **10** | | 22 | | | □ | — | — |
| 8520105 | **10.5** | 75 | | 12 | | □ | — | — |
| 8520110 | **11** | | | | | □ | — | — |
| 8520115 | **11.5** | | | | | □ | — | — |
| 8520120 | **12** | | 26 | | | □ | — | — |
| 8520125 | **12.5** | 85 | | | | □ | — | — |
| 8520130 | **13** | | | | | □ | — | — |
| 8520140 | **14** | | | | | □ | — | — |
| 8520150 | **15** | 90 | | 16 | | □ | — | — |
| 8520160 | **16** | 100 | 32 | | | □ | — | — |
| 8520170 | **17** | | | | | □ | — | — |
| 8520180 | **18** | | | | | □ | — | — |
| 8520190 | **19** | | | 20 | | □ | — | — |
| 8520200 | **20** | 105 | 38 | | | □ | — | — |
| 8520210 | **21** | | | | | □ | — | — |
| 8520220 | **22** | | | | | □ | — | — |
| 8520230 | **23** | 120 | 45 | 25 | | □ | — | — |
| 8520240 | **24** | | | | | □ | — | — |
| 8520250 | **25** | | | | | □ | — | — |
| 8520260 | **26** | | | | | □ | — | — |
| 8520270 | **27** | 125 | | | | □ | — | — |
| 8520280 | **28** | | | | | □ | — | — |
| 8520290 | **29** | | | 32 | | □ | — | — |
| 8520300 | **30** | | | | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DIA-ETS** | | | | | | | | | | ◎ | ○ | | | ◎ |
| **FX-MG-EMS** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。

※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## FXコート4枚刃超硬スクエアエンドミルショート形（OH1）
**FX Coated 4-flute Carbide End Mill Short Length (Cutting diameter plus tolerance)**

# FX-MG-EMS OH1



刃径許容差を0～+0.020とプラス目に設定したエンドミルです。
End mill with O/D plus side tolerance 0～+0.020.

CARBIDE | FX | 0～+0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 45 | 8 | 6 | – | □ | – | – |
| | **4** | | 11 | | | □ | – | – |
| | **5** | 50 | 13 | | | □ | – | – |
| | **6** | | | | | □ | – | – |
| | **8** | 60 | 19 | 8 | | □ | – | – |
| | **10** | 70 | 22 | 10 | | □ | – | – |
| | **12** | 75 | 26 | 12 | | □ | – | – |

## FXコート4枚刃超硬スクエアエンドミルスタブ形
**FX Coated 4-flute Carbide End Mill Stub Length**

# FX-MG-EMSS

切削条件 Cutting Conditions | P667-1



刃長は刃径の1.5倍という超ショート刃のため高速型マシニングセンタでの高速加工に最適です。
Suitable for high speed machining centers. Made with extra short cutting length (1.5 X mill dia.).

CARBIDE | FX | DC≦12 0～-0.02, 12<DC 0～-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8408030 | **3** | 50 | 4.5 | 6 | – | □ | – | – |
| 8408035 | **3.5** | | 5.2 | | | □ | – | – |
| 8408040 | **4** | | 6 | | | □ | – | – |
| 8408045 | **4.5** | | 6.8 | | | □ | – | – |
| 8408050 | **5** | | 7.5 | | | □ | – | – |
| 8408055 | **5.5** | | 8.2 | | | □ | – | – |
| 8408060 | **6** | | 9 | | | □ | – | – |
| 8408080 | **8** | 60 | 12 | 8 | | □ | – | – |
| 8408100 | **10** | 70 | 15 | 10 | | □ | – | – |
| 8408120 | **12** | 75 | 18 | 12 | | □ | – | – |
| 8408140 | **14** | 85 | 21 | | | □ | – | – |
| 8408150 | **15** | 90 | 23 | 16 | | □ | – | – |
| 8408160 | **16** | 100 | 24 | | | □ | – | – |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-MG-EMS OH1** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |
| **FX-MG-EMSS** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## FXコート4枚刃超硬スクエアエンドミル ショート形左刃左ねじれ
**FX Coated 4-flute Carbide End Mill Short Length (LH Cut and LH Helix)**

# FX-MR-EMS



左刃左ねじれのエンドミルです。
Left hand cut and left handed spiral fluted end mill.

CARBIDE | FX | 0〜-0.03 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2** | 40 | 6 | 4 | | □ | — | — |
| | **3** | 45 | 8 | 6 | | □ | — | — |
| | **4** | | 11 | | | □ | — | — |
| | **5** | 50 | 13 | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **7** | 60 | 16 | 8 | — | □ | — | — |
| | **8** | | 19 | | | □ | — | — |
| | **9** | 70 | | 10 | | □ | — | — |
| | **10** | | 22 | | | □ | — | — |
| | **11** | 75 | | 12 | | □ | — | — |
| | **12** | | 26 | | | □ | — | — |

## NC旋盤用FXコート4枚刃超硬スクエアエンドミル スタブ形
**FX Coated 4-flute Carbide End Mill Stub Length for Lathes**

# FX-NC-EMSS



旋盤、自動盤、複合加工機で使い勝手の良い短全長、短刃長のエンドミルです。
Shorter OAL and shorter flute length suited for lathe, automatic lathe, multitask machining center, etc.

CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 35 | 6 | 3 | — | □ | — | — |
| | **3** | | | 4 | | □ | — | — |
| | **4** | | | | | □ | — | — |
| | **5** | | | 6 | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **7** | | | | | □ | — | — |
| | **8** | | | | | □ | — | — |
| | **9** | | | | | □ | — | — |
| | **10** | | | | | □ | — | — |
| | **12** | | | | | □ | — | — |

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-MR-EMS** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | | | | ○ | ○ | |
| **FX-NC-EMSS** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## WXSコート多刃超硬スクエアエンドミル ショート形高剛性タイプ

**WXS Coated Multi-flute Carbide End Mill Short Length (Highly Rigid Type)**

**FXS-EMS** 切削条件 Cutting Conditions | P667-12



工具剛性の極めて高い高速加工用エンドミルです。焼き入れ鋼の高速加工も可能としました。

Rigid body long shank end mill. Applicable for both general and quenched steels.

CARBIDE | WXS | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8517510 | 1 | 60 | 3.5 | 6 | 4 | □ | — | — |
| | 1.1 | | 4 | | | □ | — | — |
| | 1.2 | | | | | □ | — | — |
| | 1.3 | | 5 | | | □ | — | — |
| | 1.4 | | | | | □ | — | — |
| 8517515 | 1.5 | | | | | □ | — | — |
| | 1.6 | | 7 | | | □ | — | — |
| | 1.7 | | | | | □ | — | — |
| | 1.8 | | | | | □ | — | — |
| | 1.9 | | | | | □ | — | — |
| 8517520 | 2 | | | | | □ | — | — |
| 8517525 | 2.5 | | 8 | | | □ | — | — |
| 8517530 | 3 | | 10 | | | □ | — | — |
| 8517535 | 3.5 | | 12 | | | □ | — | — |
| 8517540 | 4 | | | | | □ | — | — |
| 8517545 | 4.5 | | 15 | | | □ | — | — |
| 8517550 | 5 | | | | | □ | — | — |
| 8517555 | 5.5 | | | | | □ | — | — |
| 8517560 | 6 | | | | 6 | □ | — | — |
| 8517580 | 8 | 70 | 20 | 8 | | □ | — | — |
| 8517600 | 10 | 80 | 25 | 10 | | □ | — | — |
| 8517620 | 12 | 90 | 30 | 12 | | □ | — | — |
| 8517640 | 14 | 100 | 35 | 16 | | □ | — | — |
| 8517650 | 15 | 105 | 40 | | | □ | — | — |
| 8517660 | 16 | | | | | □ | — | — |
| 8517680 | 18 | 110 | | 20 | | □ | — | — |
| 8517700 | 20 | | 45 | | | □ | — | — |
| 8517750 | 25 | 125 | 50 | 25 | 8 | □ | — | — |
| 8517800 | 30 | 140 | 55 | 32 | | □ | — | — |

## WXSコート多刃超硬スクエアエンドミル スタブ形高剛性タイプ

**WXS Coated Multi-flute Carbide End Mill Stub Length (Highly Rigid Type)**

**FXS-EMSS** 切削条件 Cutting Conditions | P667-12



工具剛性を極限にまで高めた高速加工用エンドミルです。焼き入れ鋼の高速加工も可能としました。

Rigid end mill for high speed operations. High speed operation is also possible when working with quenched steels.

CARBIDE | WXS | 0~-0.02 | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 | 60 | 2 | 6 | 4 | □ | — | — |
| | 1.5 | | 3 | | | □ | — | — |
| | 2 | | 4 | | | □ | — | — |
| | 2.5 | | 5 | | | □ | — | — |
| | 3 | | 6 | | | □ | — | — |
| | 3.5 | | 7 | | | □ | — | — |
| | 4 | | 8 | | | □ | — | — |
| | 4.5 | | 9 | | | □ | — | — |
| | 5 | | 10 | | | □ | — | — |
| | 5.5 | | 11 | | | □ | — | — |
| | 6 | | 12 | | 6 | □ | — | — |
| | 8 | 70 | 16 | 8 | | □ | — | — |
| | 10 | 80 | 20 | 10 | | □ | — | — |
| | 12 | 90 | 24 | 12 | | □ | — | — |


OSGのPSシリーズ

**商品シリーズ** Parts & Supply series

圧縮空気を利用した産業用バキュームクリーナー

※詳細は▶P.1175 を参照下さい。 See p.1175 for details



デジタルカタログで最新情報を公開中 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~40HRC | | ~45HRC | ~55HRC | ~60HRC | ~65HRC | ~35HRC | ~350HB | | | | | | |
| FXS-EMS | ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## WXSコート多刃超硬スクエアエンドミル ロングシャンクショート形高剛性タイプ

**WXS Coated Multi-flute Carbide End Mill Short Length with Long Shank (Highly Rigid Type)**

# FXS-LS-EMS

切削条件 Cutting Conditions | P667-12



工具剛性の極めて高いロングシャンクエンドミルです。一般材から焼き入れ鋼まで幅広い加工が可能です。
Rigid body long shank end mill. Applicable for both general and quenched steels.

CARBIDE | WXS | FIT | 45°

DC≦12 0~-0.02
12<DC 0~-0.03

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8538530 | **3** | 80 | 10 | 6 | 4 | – | □ | – | – |
| 8538540 | **4** | | 12 | | | | □ | – | – |
| 8538550 | **5** | | 15 | | | | □ | – | – |
| 8538560 | **6** | 90 | | | 6 | | □ | – | – |
| 8538580 | **8** | 100 | 20 | 8 | | | □ | – | – |
| 8538600 | **10** | | 25 | 10 | | | □ | – | – |
| 8538620 | **12** | 110 | 30 | 12 | | | □ | – | – |
| 8538660 | **16** | 140 | 40 | 16 | | | □ | – | – |
| 8538680 | **18** | 160 | | | | | □ | – | – |
| 8538700 | **20** | | 45 | 20 | | | □ | – | – |
| 8538720 | **22** | 180 | | | | | □ | – | – |
| 8538750 | **25** | | 50 | 25 | 8 | | □ | – | – |
| 8538780 | **28** | 200 | 55 | | | | □ | – | – |
| 8538800 | **30** | | | 32 | | | □ | – | – |
| 8538900 | **30 × 25** | | | 25 | | | □ | – | – |

## WXSコート多刃超硬スクエアエンドミル ロングスリムシャンクショート形

**WXS Coated Multi-flute Carbide End Mill Short Length with Long Slim Shank**

# FXS-LS-EMS-S



CARBIDE | WXS | FIT | 45°

DC≦12 0~-0.02
12<DC 0~-0.03

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **6** | 90 | 15 | 4 | 6 | – | □ | – | – |
| | **8** | 100 | 20 | 6 | | | □ | – | – |
| | **10** | | 25 | 8 | | | □ | – | – |
| | **12** | 110 | 30 | 10 | | | □ | – | – |
| | **16** | 140 | 40 | 12 | | | □ | – | – |
| | **20** | 160 | 45 | 16 | | | □ | – | – |
| | **25** | 180 | 50 | 20 | 8 | | □ | – | – |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175 を参照下さい。
See p.1175 for details



形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ~40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ~45HRC | ~55HRC | ~60HRC | ~65HRC | ステンレス鋼 Stainless Steel ~35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ~350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FXS-LS-EMS** | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |
| **FXS-LS-EMS-S** | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

## DUROREYコート超多刃超硬エンドミルショート形
**DUROREY Coated Super Multi-flute Carbide End Mill Short Length**

**DUR-SMF** 切削条件 Cutting Conditions | P667–14



CARBIDE | DUROREY | SHRINK FIT | 40°

DC≦12 0～-0.02
12<DC 0～-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **6** | 60 | 13 | 6 | 7 | 0.2 | – | □ | – | – |
| | **8** | 70 | 19 | 8 | 9 | | | □ | – | – |
| | **10** | 80 | 22 | 10 | 11 | | | □ | – | – |
| | **12** | 90 | 26 | 12 | 13 | 0.3 | | □ | – | – |
| | **16** | 100 | 32 | 16 | 17 | | | □ | – | – |
| | **20** | 110 | 38 | 20 | 21 | 0.4 | | □ | – | – |

## DLCコート多刃超硬スクエアエンドミル ショート形左刃左ねじれ
**DLC Coated Multi-flute Carbide End Mill Short Length (LH Cut and LH Helix)**

**DLC-MR-EMS** 切削条件 Cutting Conditions | P687-1



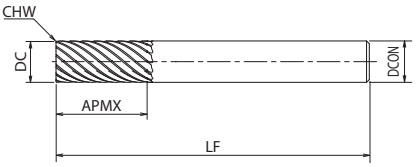
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | SHRINK FIT | 30°

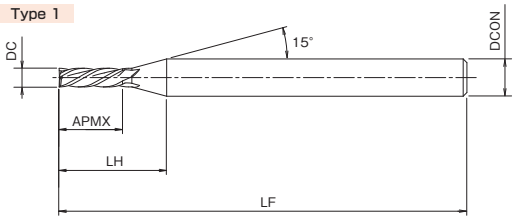
0～-0.02

（単位:mm）(Unit:mm)

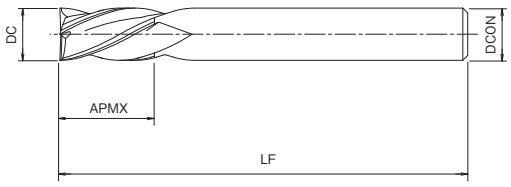
| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 40 | 6 | 11 | 4 | 1 | – | □ | – | – |
| | **3** | 45 | 8 | 15.5 | 6 | | | □ | – | – |
| | **4** | | 11 | 16.6 | | | | □ | – | – |
| | **5** | 50 | 13 | 16.8 | | | | □ | – | – |
| | **6** | | | – | | 2 | | □ | – | – |
| | **7** | 60 | 16 | 19.8 | 8 | 1 | | □ | – | – |
| | **8** | | 19 | – | | 2 | | □ | – | – |
| | **9** | 70 | | 22.8 | 10 | 1 | | □ | – | – |
| | **10** | | 22 | – | | 2 | | □ | – | – |
| | **11** | 75 | | 25.8 | 12 | 1 | | □ | – | – |
| | **12** | | 26 | – | | 2 | | □ | – | – |




Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DUR-SMF** | ◎ | | ◎ | ◎ | ○ | ○ | ○ | ◎ | | | | ◎ | ◎ | |
| **DLC-MR-EMS** | | | | | | | | | ○ | ◎ | | | | ◎ |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



## GXコート4枚刃超硬スクエアエンドミルショート形
GX Coated 4-flute Carbide End Mill Short Length

# GX-EMS



CARBIDE | GX | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2** | 40 | 6 | 4 | | □ | — | — |
| | **2.5** | | 8 | | | □ | — | — |
| | **3** | 45 | | 6 | | □ | — | — |
| | **4** | | 11 | | | □ | — | — |
| | **5** | 50 | 13 | | — | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **8** | 60 | 19 | 8 | | □ | — | — |
| | **10** | 70 | 22 | 10 | | □ | — | — |
| | **12** | 75 | 26 | 12 | | □ | — | — |

## NC旋盤用4枚刃超硬スクエアエンドミルスタブ形
4-flute Carbide End Mill Stub Length for Lathes

# NC-EMSS



CARBIDE | SHRINK FIT | 30° | 0〜-0.03

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 35 | 6 | 4 | — | □ | — | — |
| | **4** | | | | | □ | — | — |
| | **5** | | | 6 | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **8** | | | | | □ | — | — |
| | **10** | | | | | □ | — | — |
| | **12** | | | | | □ | — | — |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、
水・油・ヘドロをスピード吸入・スピード吐出
※詳細は▶P.1176を参照下さい。
See p.1176 for details





OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **GX-EMS** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |
| **NC-EMSS** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃超硬スクエアエンドミルショート形（OH1）
**4-flute Carbide End Mill Short Length (OH1)**

## MG-EMS OH1



CARBIDE | 0〜+0.02 | DC≦9.5 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2** | 40 | 6 | 4 | | □ | — | — |
| | **2.5** | | 8 | | | □ | — | — |
| | **3** | 45 | | 6 | | □ | — | — |
| | **3.5** | | 10 | | | □ | — | — |
| | **4** | | 11 | | | □ | — | — |
| | **4.5** | | | | | □ | — | — |
| | **5** | 50 | 13 | | | □ | — | — |
| | **5.5** | | | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **6.5** | 60 | 16 | 8 | — | □ | — | — |
| | **7** | | | | | □ | — | — |
| | **7.5** | | | | | □ | — | — |
| | **8** | | 19 | | | □ | — | — |
| | **8.5** | 70 | | 10 | | □ | — | — |
| | **9** | | | | | □ | — | — |
| | **9.5** | | | | | □ | — | — |
| | **10** | | 22 | | | □ | — | — |
| | **11** | 75 | | 12 | | □ | — | — |
| | **12** | | 26 | | | □ | — | — |

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 銅・アルミ合金・プラスチック用CrNコート4枚刃超硬スクエアエンドミルショート形

**CrN Coated 4-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics**

# CRN-EMS

切削条件 Cutting Conditions | P682-5



CrNコーティングと切れ味の良い刃形により、銅・銅合金の精密仕上げ加工が可能です。

CrN coating and a tooth design that delivers high cutting force allow this mill to perform finishing process on copper and copper alloys and give excellent surface finish.

CARBIDE | CrN | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2** | 60 | 6 | 6 | — | □ | — | — |
| 8530330 | **3** | 70 | 8 | | | □ | — | — |
| 8530340 | **4** | 80 | 11 | | | □ | — | — |
| 8530350 | **5** | 90 | 13 | | | □ | — | — |
| 8530360 | **6** | | | | | □ | — | — |
| 8530380 | **8** | 110 | 19 | 8 | | □ | — | — |
| 8530400 | **10** | 125 | 22 | 10 | | □ | — | — |
| 8530420 | **12** | 140 | 26 | 12 | | □ | — | — |
| | **14** | | | | | □ | — | — |
| | **15** | | | | | □ | — | — |
| | **16** | 160 | 32 | 16 | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **20** | 180 | 38 | 20 | | □ | — | — |

## コバール用FXコート4枚刃超硬スクエアエンドミルショート形（φ6シャンク）

**FX Coated 4-flute Carbide End Mill Short Length for Kovar (φ6 Shank)**

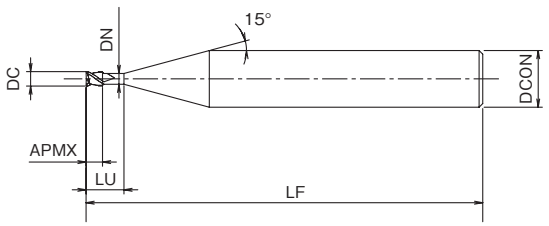
# IT-EMS-6



CARBIDE | FX | 0〜-0.015 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **1 × 2.5** | 50 | 1.5 | 6 | 0.95 | — | □ | — | — |
| | **1.5 × 3.8** | | 2.3 | | 1.45 | | □ | — | — |
| | **2 × 5** | | 3 | | 1.95 | | □ | — | — |
| | **2.5 × 5** | | 3.7 | | 2.4 | | □ | — | — |




デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **CRN-EMS** | | | ◎ | | | | | | ◎ | ○ | | | | ◎ |
| **IT-EMS-6** | ◎ | | ◎ | ○ | ○ | | ○ | | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## コバール用FXコート4枚刃超硬スクエアエンドミル ショート形
**FX Coated 4-flute Carbide End Mill Short Length for Kovar**

# IT-EMS



CARBIDE | FX | 0〜-0.015 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 50 | 4.5 | 6 | — | □ | — | — |
| | **4** | | 6 | | | □ | — | — |
| | **5** | | 7.5 | | | □ | — | — |
| | **6** | | 9 | | | □ | — | — |
| | **8** | 60 | 12 | 8 | | □ | — | — |
| | **10** | 70 | 15 | 10 | | □ | — | — |

## WXSコート多刃超硬スクエアエンドミル ロング形高剛性タイプ
**WXS Coated Multi-flute Carbide End Mill Long Length (Highly Rigid Type)**

# FXS-EML

切削条件 Cutting Conditions | P667-13



工具剛性を極限にまで高めたロング刃エンドミルです。一般材から焼き入れ鋼まで幅広い加工が可能です。
Made with especially designed rigid long edges. Applicable for both general and quenched steels.

CARBIDE | WXS | 0〜-0.03 | SHRINK FIT | 45°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8518560 | **6** | 70 | 25 | 6 | 6 | — | □ | — | — |
| 8518580 | **8** | 80 | 35 | 8 | | | □ | — | — |
| 8518600 | **10** | 100 | 45 | 10 | | | □ | — | — |
| 8518620 | **12** | 110 | 55 | 12 | | | □ | — | — |
| 8518660 | **16** | 125 | 65 | 16 | | | □ | — | — |
| 8518700 | **20** | 140 | 75 | 20 | | | □ | — | — |
| 8518750 | **25** | 165 | 90 | 25 | 8 | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **IT-EMS** | ◎ | | ◎ | ○ | ○ | | ○ | | ○ | ○ | | | | |
| **FXS-EML** | ◎ | | ◎ | ◎ | ◎ | | ○ | ◎ | | | | ○ | ○ | |

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- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## 銅・アルミ合金・プラスチック用CrNコート4枚刃超硬スクエアエンドミルロング形

**CrN Coated 4-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics**

# CRN-EML



潤滑性、耐溶着性に優れたCrNコーティングが銅合金、アルミ合金、プラスチック加工で威力を発揮します。

CrN coating with better lubrication works better on Copper Alloys, Aluminum Alloys, and Plastics.

CARBIDE | CrN | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 70 | 12 | 6 | | □ | — | — |
| | **4** | 80 | 17 | | | □ | — | — |
| | **5** | 90 | 20 | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **8** | 110 | 28 | 8 | | □ | — | — |
| | **10** | 125 | 34 | 10 | | □ | — | — |
| | **12** | 140 | 40 | 12 | — | □ | — | — |
| | **14** | | | | | □ | — | — |
| | **15** | | | | | □ | — | — |
| | **16** | 160 | 48 | 16 | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **20** | 180 | 56 | 20 | | □ | — | — |

## グラファイト用4枚刃超硬スクエアエンドミルレギュラ形

**4-flute Carbide End Mill Regular Length for Graphite**

# GF-EMR

切削条件 Cutting Conditions | **P694-1**



耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。

Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8537054 | **2** | 75 | 10 | 4 | 20 | 1.9 | — | □ | — | — |
| 8537056 | **3** | | 15 | | 30 | 2.9 | | □ | — | — |
| 8537058 | **4** | | 20 | | 40 | 3.9 | | □ | — | — |
| 8537060 | **5** | 100 | 25 | 6 | 50 | 4.8 | | □ | — | — |
| 8537062 | **6** | | 30 | | 60 | 5.8 | — | □ | — | — |
| 8537066 | **8** | 110 | 40 | 8 | 70 | 7.8 | | □ | — | — |
| 8537070 | **10** | 120 | 50 | 10 | 80 | 9.7 | | □ | — | — |
| 8537074 | **12** | 130 | 65 | 12 | 85 | 11.7 | | □ | — | — |


OSGのPSシリーズ

**商品シリーズ** Parts & Supply series

エアーブロー・吸引・搬送・冷却・水切りで1台5役

※詳細は▶P.1179 を参照下さい。
See p.1179 for details



OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **CRN-EML** | | | | | | | | | ◎ | ○ | | | | ◎ |
| **GF-EMR** | | | | | | | | | | | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## グラファイト用4枚刃超硬スクエアエンドミルロング形
**4-flute Carbide End Mill Long Length for Graphite**

## GF-EML

切削条件 Cutting Conditions | P694-2



耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。
Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8455852 | **2** | 100 | 20 | 6 | 25 | 1.9 | — | □ | — | — |
| 8455853 | **3** | | 30 | | 40 | 2.9 | | □ | — | — |
| 8455854 | **4** | 120 | 60 | | 70 | 3.9 | | □ | — | — |
| 8455855 | **5** | 140 | 70 | | 80 | 4.8 | | □ | — | — |
| 8455856 | **6** | | 80 | | — | — | | □ | — | — |
| 8455857 | **7** | 160 | 90 | | | | | □ | — | — |
| 8455858 | **8** | | 100 | 8 | | | | □ | — | — |
| 8455859 | **9** | 180 | 110 | | | | | □ | — | — |
| 8455860 | **10** | | 120 | 10 | | | | □ | — | — |
| 8455861 | **11** | 200 | 130 | | | | | □ | — | — |
| 8455862 | **12** | | | 12 | | | | □ | — | — |

## グラファイト用4枚刃超硬スクエアエンドミル ロングシャンクレギュラ形
**4-flute Carbide End Mill Regular Length with Long Shank for Graphite**

## GF-LS-EMR

切削条件 Cutting Conditions | P694-2

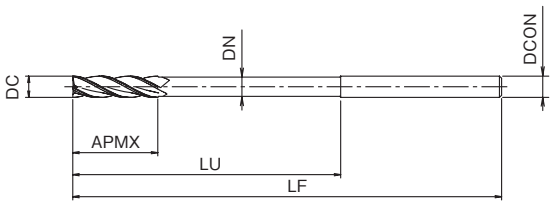


耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。
Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | 0〜-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8526922 | **2** | 100 | 10 | 4 | 25 | 1.9 | — | □ | — | — |
| 8526923 | **3** | | 15 | | 40 | 2.9 | | □ | — | — |
| 8526924 | **4** | | 20 | | 60 | 3.9 | | □ | — | — |
| 8526925 | **5** | 140 | 25 | 6 | 70 | 4.8 | | □ | — | — |
| 8526926 | **6** | | 30 | | 80 | 5.8 | | □ | — | — |
| 8526927 | **7** | 160 | 35 | | — | — | | □ | — | — |
| 8526928 | **8** | | 40 | 8 | 100 | 7.8 | | □ | — | — |
| 8526929 | **9** | 180 | 45 | | — | — | | □ | — | — |
| 8526930 | **10** | | 50 | 10 | 120 | 9.7 | | □ | — | — |
| 8526931 | **11** | 200 | 55 | | — | — | | □ | — | — |
| 8526932 | **12** | | 65 | 12 | 130 | 11.7 | | □ | — | — |




形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **GF-EML** | | | | | | | | | | | ◎ | | | |
| **GF-LS-EMR** | | | | | | | | | | | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 超硬スクエアエンドミルハイヘリックスショート形
**High Helix Carbide End Mill Short Length**

## MG-EHS

切削条件 Cutting Conditions | P673-2



CARBIDE | SHRINK FIT | 50°

0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 84962 | **6** | 50 | 13 | 6 | 3 | – | □ | – | – |
| 84964 | **7** | 60 | 16 | 8 | | | □ | – | – |
| 84966 | **8** | | 19 | | | | □ | – | – |
| 84968 | **9** | 70 | | 10 | | | □ | – | – |
| 84970 | **10** | | 22 | | | | □ | – | – |
| 84971 | **11** | 75 | | 12 | | | □ | – | – |
| 84972 | **12** | | 26 | | | | □ | – | – |
| 84973 | **13** | 90 | | 16 | | | □ | – | – |
| 84974 | **14** | | | | | | □ | – | – |
| 84975 | **15** | | | | | | □ | – | – |
| 84976 | **16** | 100 | 32 | 20 | | | □ | – | – |
| 84978 | **18** | | | | | | □ | – | – |
| 84980 | **20** | 105 | 38 | | | | □ | – | – |
| 84985 | **25** | 120 | 45 | 25 | 4 | | □ | – | – |

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-EHS** | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# SXLコート超硬スクエアエンドミルハイヘリックスショート形
**SXL Coated High Helix Carbide End Mill Short Length**

## SXL-MG-EHS

切削条件 Cutting Conditions | P646



CARBIDE | SXL | SHRINK FIT | 50°

DC≦12 0〜-0.02
12<DC 0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC × ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × 3F | 50 | 8 | 6 | – | □ | – | – |
| | 3 × 4F | | | | | □ | – | – |
| | 4 × 3F | | 11 | | | □ | – | – |
| | 4 × 4F | | | | | □ | – | – |
| | 5 × 3F | | 13 | | | □ | – | – |
| | 5 × 4F | | | | | □ | – | – |
| | 6 × 3F | | | | | □ | – | – |
| | 6 × 4F | | | | | □ | – | – |
| | 7 × 3F | 60 | 16 | 8 | | □ | – | – |
| | 8 × 3F | | 19 | | | □ | – | – |
| | 8 × 4F | | | | | □ | – | – |
| | 9 × 3F | 70 | | 10 | | □ | – | – |
| | 10 × 3F | | 22 | | | □ | – | – |
| | 10 × 4F | | | | | □ | – | – |
| | 11 × 3F | 75 | | 12 | | □ | – | – |
| | 12 × 3F | | 26 | | | □ | – | – |
| | 12 × 4F | | | | | □ | – | – |
| | 13 × 3F | 90 | | 16 | | □ | – | – |
| | 14 × 3F | | | | | □ | – | – |
| | 14 × 4F | | | | | □ | – | – |
| | 15 × 3F | | | | | □ | – | – |
| | 15 × 4F | | | | | □ | – | – |
| | 16 × 3F | 100 | 32 | | | □ | – | – |
| | 16 × 4F | | | | | □ | – | – |
| | 18 × 3F | | | 20 | | □ | – | – |
| | 18 × 4F | | | | | □ | – | – |
| | 20 × 3F | 105 | 38 | | | □ | – | – |
| | 20 × 4F | | | | | □ | – | – |
| | 25 × 3F | 120 | 45 | 25 | | □ | – | – |
| | 25 × 4F | | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| SXL-MG-EHS | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# SXLコート超硬スクエアエンドミルハイヘリックスロング形
**SXL Coated High Helix Carbide End Mill Long Length**

## SXL-MG-EHL

切削条件 Cutting Conditions | P650



CARBIDE | SXL | 0〜-0.03 | SHRINK FIT | 50°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃数 DC × ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **6 × 3F** | 60 | 20 | 6 | – | □ | – | – |
| | **8 × 3F** | 70 | 28 | 8 | | □ | – | – |
| | **10 × 3F** | 80 | 34 | 10 | | □ | – | – |
| | **12 × 3F** | 90 | 40 | 12 | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **SXL-MG-EHL** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DIAコート2枚刃超硬スクエアエンドミル ハイヘリックスショート形

**Diamond Coated 2-flute High Helix Carbide End Mill Short Length**

## DIA-EHDS



CARBIDE | DIA | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 50 | 11 | 6 | – | □ | – | – |
| | 3.1 | | | | | □ | – | – |
| | 3.2 | | | | | □ | – | – |
| | 3.3 | | | | | □ | – | – |
| | 3.4 | | | | | □ | – | – |
| | 3.5 | | 12 | | | □ | – | – |
| | 3.6 | | | | | □ | – | – |
| | 3.7 | | | | | □ | – | – |
| | 3.8 | | | | | □ | – | – |
| | 3.9 | | | | | □ | – | – |
| | 4 | | 14 | | | □ | – | – |
| | 4.1 | | | | | □ | – | – |
| | 4.2 | | | | | □ | – | – |
| | 4.3 | | | | | □ | – | – |
| | 4.4 | | | | | □ | – | – |
| | 4.5 | | 16 | | | □ | – | – |
| | 4.6 | | | | | □ | – | – |
| | 4.7 | | | | | □ | – | – |
| | 4.8 | | | | | □ | – | – |
| | 4.9 | | | | | □ | – | – |
| | 5 | 55 | 17 | | | □ | – | – |
| | 5.1 | | | | | □ | – | – |
| | 5.2 | | | | | □ | – | – |
| | 5.3 | | | | | □ | – | – |
| | 5.4 | | | | | □ | – | – |
| | 5.5 | | | | | □ | – | – |
| | 5.6 | | | | | □ | – | – |
| | 5.7 | | | | | □ | – | – |
| | 5.8 | | | | | □ | – | – |
| | 5.9 | | | | | □ | – | – |
| | 6 | | | | | □ | – | – |
| | 6.1 | | | | | □ | – | – |
| | 6.2 | | | | | □ | – | – |
| | 6.3 | | | | | □ | – | – |
| | 6.4 | | | | | □ | – | – |
| | 6.5 | | | | | □ | – | – |
| | 6.6 | | | | | □ | – | – |
| | 6.7 | | | | | □ | – | – |
| | 6.8 | | | | | □ | – | – |
| | 6.9 | | | | | □ | – | – |
| | 7 | 65 | 22 | 8 | | □ | – | – |
| | 7.1 | | | | | □ | – | – |
| | 7.2 | | | | | □ | – | – |
| | 7.3 | | | | | □ | – | – |
| | 7.4 | | | | | □ | – | – |
| | 7.5 | | | | | □ | – | – |
| | 7.6 | | | | | □ | – | – |
| | 7.7 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.8 | 65 | 22 | 8 | – | □ | – | – |
| | 7.9 | | | | | □ | – | – |
| | 8 | | | | | □ | – | – |
| | 8.1 | | | | | □ | – | – |
| | 8.2 | | | | | □ | – | – |
| | 8.3 | | | | | □ | – | – |
| | 8.4 | | | | | □ | – | – |
| | 8.5 | | | | | □ | – | – |
| | 8.6 | | | | | □ | – | – |
| | 8.7 | | | | | □ | – | – |
| | 8.8 | | | | | □ | – | – |
| | 8.9 | | | | | □ | – | – |
| | 9 | 70 | | 10 | | □ | – | – |
| | 9.1 | | | | | □ | – | – |
| | 9.2 | | | | | □ | – | – |
| | 9.3 | | | | | □ | – | – |
| | 9.4 | | | | | □ | – | – |
| | 9.5 | | | | | □ | – | – |
| | 9.6 | | | | | □ | – | – |
| | 9.7 | | | | | □ | – | – |
| | 9.8 | | | | | □ | – | – |
| | 9.9 | | | | | □ | – | – |
| | 10 | 75 | 28 | 12 | | □ | – | – |
| | 10.1 | | | | | □ | – | – |
| | 10.2 | | | | | □ | – | – |
| | 10.3 | | | | | □ | – | – |
| | 10.4 | | | | | □ | – | – |
| | 10.5 | | | | | □ | – | – |
| | 10.6 | | | | | □ | – | – |
| | 10.7 | | | | | □ | – | – |
| | 10.8 | | | | | □ | – | – |
| | 10.9 | | | | | □ | – | – |
| | 11 | 80 | | | | □ | – | – |
| | 11.1 | | | | | □ | – | – |
| | 11.2 | | | | | □ | – | – |
| | 11.3 | | | | | □ | – | – |
| | 11.4 | | | | | □ | – | – |
| | 11.5 | | | | | □ | – | – |
| | 11.6 | | | | | □ | – | – |
| | 11.7 | | | | | □ | – | – |
| | 11.8 | | | | | □ | – | – |
| | 11.9 | | | | | □ | – | – |
| | 12 | | | | | □ | – | – |
| | 13 | 85 | 35 | | | □ | – | – |
| | 14 | 95 | 40 | 16 | | □ | – | – |
| | 15 | | | | | □ | – | – |
| | 16 | | | | | □ | – | – |
| | 17 | 115 | 45 | 20 | | □ | – | – |

次ページへ
外径 DC 18～20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DIAコート2枚刃超硬スクエアエンドミル ハイヘリックスショート形
**Diamond Coated 2-flute High Helix Carbide End Mill Short Length**

# DIA-EHDS



CARBIDE | DIA | SHRINK FIT | 45°

前ページより FROM 外径 DC 3～17

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 18 | 115 | 45 | 20 | – | □ | – | – |
| | 19 | | | | | □ | – | – |
| | 20 | | | | | □ | – | – |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1167を参照下さい。 See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DIA-EHDS | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## DIAコート2枚刃超硬スクエアエンドミル ハイヘリックスショート形(ミニチュア)

**Diamond Coated 2-flute High Helix Miniature Carbide End Mill Short Length (φ3 Shank)**

# DIA-EHDS-3



CARBIDE | DIA | SHRINK FIT | 45°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 | 40 | 2.8 | 3 | – | □ | – | – |
| | 1.1 | | | | | □ | – | – |
| | 1.2 | | | | | □ | – | – |
| | 1.3 | | | | | □ | – | – |
| | 1.4 | | | | | □ | – | – |
| | 1.5 | | 4.4 | | | □ | – | – |
| | 1.6 | | | | | □ | – | – |
| | 1.7 | | | | | □ | – | – |
| | 1.8 | | | | | □ | – | – |
| | 1.9 | | | | | □ | – | – |
| | 2 | | 7 | | | □ | – | – |
| | 2.1 | | | | | □ | – | – |
| | 2.2 | | | | | □ | – | – |
| | 2.3 | | | | | □ | – | – |
| | 2.4 | | | | | □ | – | – |
| | 2.5 | | 9 | | | □ | – | – |
| | 2.6 | | | | | □ | – | – |
| | 2.7 | | | | | □ | – | – |
| | 2.8 | | | | | □ | – | – |
| | 2.9 | | | | | □ | – | – |
| | 3 | 50 | 11 | | | □ | – | – |

## DIAコート2枚刃超硬スクエアエンドミル ハイヘリックスロングシャンクショート形

**Diamond Coated 2-flute High Helix Carbide End Mill Short Length with Long Shank**

# DIA-LS-EHDS



CARBIDE | DIA | SHRINK FIT | 45°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LU | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 150 | 11 | 50 | 6 | – | □ | – | – |
| | 4 | | 14 | 55 | | | □ | – | – |
| | 5 | | 17 | 65 | | | □ | – | – |
| | 6 | | | | | | □ | – | – |
| | 8 | | 22 | 80 | 8 | | □ | – | – |
| | 10 | 200 | 28 | – | | | □ | – | – |
| | 12 | | | | 10 | | □ | – | – |
| | 14 | | 40 | | 12 | | □ | – | – |
| | 15 | | | | | | □ | – | – |
| | 16 | | | 120 | 16 | | □ | – | – |
| | 18 | 250 | 45 | – | | | □ | – | – |
| | 20 | | | 150 | 20 | | □ | – | – |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1170 を参照下さい。
See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能



デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIA-EHDS-3 | | | | | | | | | ◎ | ◎ | | | | ○ |
| DIA-LS-EHDS | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# DIAコート2枚刃超硬スクエアエンドミル ハイヘリックスロング形
**Diamond Coated 2-flute High Helix Carbide End Mill Long Length**

## DIA-EHDL



CARBIDE | DIA | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 65 | 22 | 6 | — | □ | — | — |
| | 3.1 | | | | | □ | — | — |
| | 3.2 | | | | | □ | — | — |
| | 3.3 | | | | | □ | — | — |
| | 3.4 | | | | | □ | — | — |
| | 3.5 | | 24 | | | □ | — | — |
| | 3.6 | | | | | □ | — | — |
| | 3.7 | | | | | □ | — | — |
| | 3.8 | | | | | □ | — | — |
| | 3.9 | | | | | □ | — | — |
| | 4 | | 26 | | | □ | — | — |
| | 4.1 | | | | | □ | — | — |
| | 4.2 | | | | | □ | — | — |
| | 4.3 | | | | | □ | — | — |
| | 4.4 | | | | | □ | — | — |
| | 4.5 | | 30 | | | □ | — | — |
| | 4.6 | | | | | □ | — | — |
| | 4.7 | | | | | □ | — | — |
| | 4.8 | | | | | □ | — | — |
| | 4.9 | | | | | □ | — | — |
| | 5 | 75 | 32 | | | □ | — | — |
| | 5.1 | | | | | □ | — | — |
| | 5.2 | | | | | □ | — | — |
| | 5.3 | | | | | □ | — | — |
| | 5.4 | | | | | □ | — | — |
| | 5.5 | | | | | □ | — | — |
| | 5.6 | | | | | □ | — | — |
| | 5.7 | | | | | □ | — | — |
| | 5.8 | | | | | □ | — | — |
| | 5.9 | | | | | □ | — | — |
| | 6 | | | | | □ | — | — |
| | 6.1 | | | | | □ | — | — |
| | 6.2 | | | | | □ | — | — |
| | 6.3 | | | | | □ | — | — |
| | 6.4 | | | | | □ | — | — |
| | 6.5 | 95 | 42 | | | □ | — | — |
| | 6.6 | | | | | □ | — | — |
| | 6.7 | | | | | □ | — | — |
| | 6.8 | | | | | □ | — | — |
| | 6.9 | | | | | □ | — | — |
| | 7 | | | 8 | | □ | — | — |
| | 7.1 | | | | | □ | — | — |
| | 7.2 | | | | | □ | — | — |
| | 7.3 | | | | | □ | — | — |
| | 7.4 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 7.6 | | | | | □ | — | — |
| | 7.7 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.8 | 95 | 42 | 8 | — | □ | — | — |
| | 7.9 | | | | | □ | — | — |
| | 8 | | | | | □ | — | — |
| | 8.1 | | | | | □ | — | — |
| | 8.2 | | | | | □ | — | — |
| | 8.3 | | | | | □ | — | — |
| | 8.4 | | | | | □ | — | — |
| | 8.5 | 110 | | 10 | | □ | — | — |
| | 8.6 | | | | | □ | — | — |
| | 8.7 | | | | | □ | — | — |
| | 8.8 | | | | | □ | — | — |
| | 8.9 | | | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.1 | | | | | □ | — | — |
| | 9.2 | | | | | □ | — | — |
| | 9.3 | | | | | □ | — | — |
| | 9.4 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 9.6 | | | | | □ | — | — |
| | 9.7 | | | | | □ | — | — |
| | 9.8 | | | | | □ | — | — |
| | 9.9 | | | | | □ | — | — |
| | 10 | 120 | 53 | | | □ | — | — |
| | 10.1 | | | | | □ | — | — |
| | 10.2 | | | | | □ | — | — |
| | 10.3 | | | | | □ | — | — |
| | 10.4 | | | | | □ | — | — |
| | 10.5 | | | 12 | | □ | — | — |
| | 10.6 | | | | | □ | — | — |
| | 10.7 | | | | | □ | — | — |
| | 10.8 | | | | | □ | — | — |
| | 10.9 | | | | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 11.1 | | | | | □ | — | — |
| | 11.2 | | | | | □ | — | — |
| | 11.3 | | | | | □ | — | — |
| | 11.4 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 11.6 | | | | | □ | — | — |
| | 11.7 | | | | | □ | — | — |
| | 11.8 | | | | | □ | — | — |
| | 11.9 | | | | | □ | — | — |
| | 12 | | | | | □ | — | — |
| | 13 | 130 | | | | □ | — | — |
| | 14 | 140 | 60 | 16 | | □ | — | — |
| | 15 | | | | | □ | — | — |
| | 16 | | | | | □ | — | — |
| | 17 | 150 | | 20 | | □ | — | — |

次ページへ
外径 DC 18～20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## DIAコート2枚刃超硬スクエアエンドミル ハイヘリックスロング形
**Diamond Coated 2-flute High Helix Carbide End Mill Long Length**

# DIA-EHDL



CARBIDE | DIA | SHRINK FIT | 45°

前ページより FROM 外径 DC 3～17

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **18** | 150 | 60 | 20 | – | □ | – | – |
| | **19** | | | | | □ | – | – |
| | **20** | | | | | □ | – | – |

## DIAコート2枚刃超硬スクエアエンドミル ハイヘリックスロング形（ミニチュア）
**Diamond Coated 2-flute High Helix Miniature Carbide End Mill Long Length (φ3 Shank)**

# DIA-EHDL-3



CARBIDE | DIA | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 45 | 4.5 | 3 | – | □ | – | – |
| | **1.1** | | 5 | | | □ | – | – |
| | **1.2** | | | | | □ | – | – |
| | **1.3** | | 5.5 | | | □ | – | – |
| | **1.4** | | 6 | | | □ | – | – |
| | **1.5** | 50 | 6.5 | | | □ | – | – |
| | **1.6** | | 7 | | | □ | – | – |
| | **1.7** | | 7.5 | | | □ | – | – |
| | **1.8** | | 8 | | | □ | – | – |
| | **1.9** | | 8.5 | | | □ | – | – |
| | **2** | 55 | 9 | | | □ | – | – |
| | **2.1** | | 9.5 | | | □ | – | – |
| | **2.2** | | | | | □ | – | – |
| | **2.3** | | 10 | | | □ | – | – |
| | **2.4** | | 10.5 | | | □ | – | – |
| | **2.5** | 60 | 11 | | | □ | – | – |
| | **2.6** | | 11.5 | | | □ | – | – |
| | **2.7** | | 12 | | | □ | – | – |
| | **2.8** | | 12.5 | | | □ | – | – |
| | **2.9** | | 13 | | | □ | – | – |
| | **3** | 65 | 13.5 | | | □ | – | – |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
部品のアルミ化や樹脂化が可能になり軽量化を実現
※詳細は▶P.1171 を参照下さい。 See p.1171 for details



**デジタルカタログは付箋やしおりの追加など機能が充実** ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DIA-EHDL** | | | | | | | | | ◎ | ◎ | | | | ○ |
| **DIA-EHDL-3** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## DIAコート2枚刃超硬スクエアエンドミル ハイヘリックスロングシャンクショート形
**Diamond Coated 2-flute High Helix Carbide End Mill Short Length with Long Shank**

# DIA-LS-EHDL



CARBIDE | DIA | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LU | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **3** | 150 | 22 | 50 | 6 | – | □ | – | – |
| | **4** | | 26 | 55 | | | □ | – | – |
| | **5** | | 32 | 65 | | | □ | – | – |
| | **6** | | | | | | □ | – | – |
| | **8** | | 42 | 80 | 8 | | □ | – | – |
| | **10** | 200 | 53 | – | | | □ | – | – |
| | **12** | | | | 10 | | □ | – | – |
| | **14** | | 60 | | 12 | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **16** | | | | 16 | | □ | – | – |
| | **18** | 250 | | | | | □ | – | – |
| | **20** | | | | 20 | | □ | – | – |

## DIAコート1枚刃超硬スクエアエンドミルロング形
**Diamond Coated Single-flute Carbide End Mill Long Length**

# DIA-EOE



CARBIDE | DIA | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 60 | 20 | 6 | – | □ | – | – |
| | **3.5** | | 22 | | | □ | – | – |
| | **4** | | 24 | | | □ | – | – |
| | **4.5** | | 28 | | | □ | – | – |
| | **5** | 70 | 30 | | | □ | – | – |
| | **5.5** | | | | | □ | – | – |
| | **6** | | | | | □ | – | – |
| | **6.5** | 90 | 40 | 8 | | □ | – | – |
| | **7** | | | | | □ | – | – |
| | **7.5** | | | | | □ | – | – |
| | **8** | | | | | □ | – | – |
| | **8.5** | 100 | | 10 | | □ | – | – |
| | **9** | | | | | □ | – | – |
| | **9.5** | | | | | □ | – | – |
| | **10** | 110 | 50 | 12 | | □ | – | – |
| | **10.5** | | | | | □ | – | – |
| | **11** | | | | | □ | – | – |
| | **11.5** | | | | | □ | – | – |
| | **12** | | | | | □ | – | – |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
標準サイズ在庫完備!タングが無し!タングレスインサートあります
※詳細は▶P.1167を参照下さい。 See p.1167 for details





製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DIA-LS-EHDL** | | | | | | | | | ◎ | ◎ | | | | ○ |
| **DIA-EOE** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長
**DLC Coated Single-flute Carbide End Mill for Aluminum Sash(3D Type)**

## DLC-E1-3D

切削条件 Cutting Conditions | P687-2



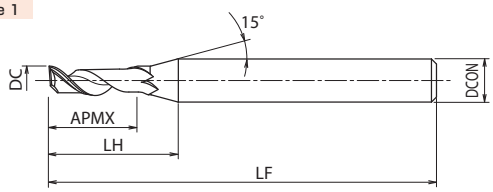
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 45°

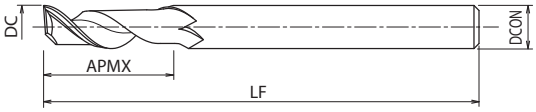
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 50 | 6 | 11.2 | 4 | 1 | – | □ | – | – |
| | **3** | 60 | 9 | 16.9 | 6 | 1 | – | □ | – | – |
| | **4** | 60 | 12 | 18 | 6 | 1 | – | □ | – | – |
| | **5** | 60 | 15 | 19.2 | 6 | 1 | – | □ | – | – |
| | **6** | 60 | 18 | – | 6 | 2 | – | □ | – | – |
| | **8** | 75 | 24 | – | 8 | 2 | – | □ | – | – |
| | **10** | 90 | 30 | – | 10 | 2 | – | □ | – | – |
| | **12** | 100 | 36 | – | 12 | 2 | – | □ | – | – |

Type 1




Type 2




## アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ
**DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix)**

## DLC-E1-3D-L

切削条件 Cutting Conditions | P687-2



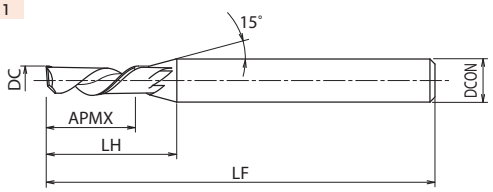
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 45°

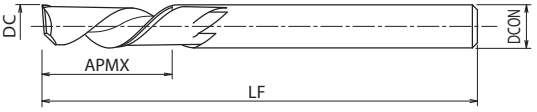
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 55 | 6 | 11.2 | 4 | 1 | – | □ | – | – |
| | **3** | 65 | 9 | 16.9 | 6 | 1 | – | □ | – | – |
| | **4** | 65 | 12 | 18 | 6 | 1 | – | □ | – | – |
| | **5** | 65 | 15 | 19.2 | 6 | 1 | – | □ | – | – |
| | **6** | 70 | 18 | – | 6 | 2 | – | □ | – | – |
| | **8** | 85 | 24 | – | 8 | 2 | – | □ | – | – |
| | **10** | 100 | 30 | – | 10 | 2 | – | □ | – | – |
| | **12** | 110 | 36 | – | 12 | 2 | – | □ | – | – |

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DLC-E1-3D** | | | | | | | | | ○ | ◎ | | | | ◎ |
| **DLC-E1-3D-L** | | | | | | | | | ○ | ◎ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長
**DLC Coated Single-flute Carbide End Mill for Aluminum Sash(5D Type)**

# DLC-E1-5D

切削条件 Cutting Conditions | P687-2



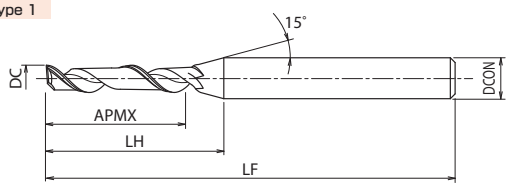
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 45°

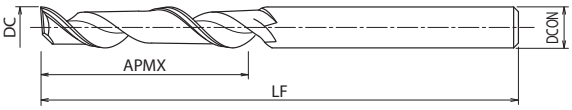
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 50 | 10 | 15.4 | 4 | 1 | — | □ | — | — |
| | **3** | 60 | 15 | 22.9 | 6 | | | □ | — | — |
| | **4** | | 20 | 26 | | | | □ | — | — |
| | **5** | 70 | 25 | 29.2 | | | | □ | — | — |
| | **6** | | 30 | — | | 2 | | □ | — | — |
| | **8** | 90 | 40 | — | 8 | | | □ | — | — |
| | **10** | 110 | 50 | — | 10 | | | □ | — | — |
| | **12** | 120 | 60 | — | 12 | | | □ | — | — |

Type 1




Type 2




## アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ
**DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix)**

# DLC-E1-5D-L

切削条件 Cutting Conditions | P687-2



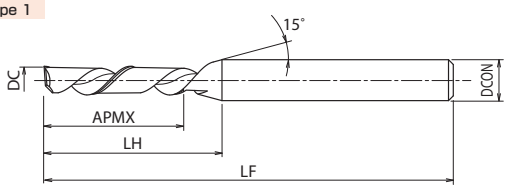
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 45°

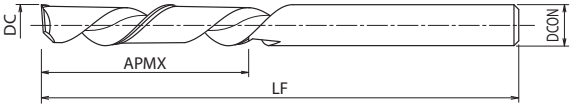
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 55 | 10 | 15.4 | 4 | 1 | — | □ | — | — |
| | **3** | 65 | 15 | 22.9 | 6 | | | □ | — | — |
| | **4** | | 20 | 26 | | | | □ | — | — |
| | **5** | 75 | 25 | 29.2 | | | | □ | — | — |
| | **6** | 80 | 30 | — | | 2 | | □ | — | — |
| | **8** | 100 | 40 | — | 8 | | | □ | — | — |
| | **10** | 120 | 50 | — | 10 | | | □ | — | — |
| | **12** | 130 | 60 | — | 12 | | | □ | — | — |

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DLC-E1-5D** | | | | | | | | | ○ | ◎ | | | | ◎ |
| **DLC-E1-5D-L** | | | | | | | | | ○ | ◎ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長
**DLC Coated 2-flute Carbide End Mill for Aluminum Sash(3D Type)**

## DLC-E2-3D

切削条件 Cutting Conditions | P687-3



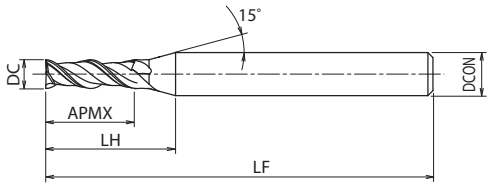
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 45°

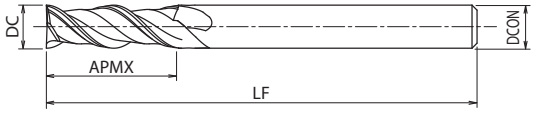
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 50 | 6 | 11.2 | 4 | 1 | – | □ | – | – |
| | **3** | 60 | 9 | 16.9 | 6 | 1 | – | □ | – | – |
| | **4** | 60 | 12 | 18 | 6 | 1 | – | □ | – | – |
| | **5** | 60 | 15 | 19.2 | 6 | 1 | – | □ | – | – |
| | **6** | 60 | 18 | – | 6 | 2 | – | □ | – | – |
| | **8** | 75 | 24 | – | 8 | 2 | – | □ | – | – |
| | **10** | 90 | 30 | – | 10 | 2 | – | □ | – | – |
| | **12** | 100 | 36 | – | 12 | 2 | – | □ | – | – |

Type 1




Type 2




## アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ
**DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix)**

## DLC-E2-3D-L

切削条件 Cutting Conditions | P687-3



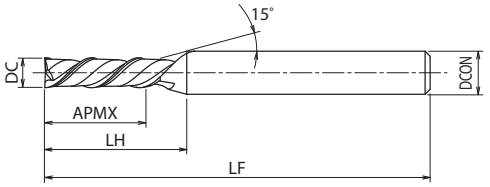
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 45°

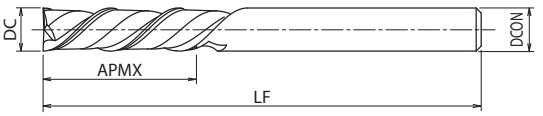
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 55 | 6 | 11.2 | 4 | 1 | – | □ | – | – |
| | **3** | 65 | 9 | 16.9 | 6 | 1 | – | □ | – | – |
| | **4** | 65 | 12 | 18 | 6 | 1 | – | □ | – | – |
| | **5** | 65 | 15 | 19.2 | 6 | 1 | – | □ | – | – |
| | **6** | 70 | 18 | – | 6 | 2 | – | □ | – | – |
| | **8** | 85 | 24 | – | 8 | 2 | – | □ | – | – |
| | **10** | 100 | 30 | – | 10 | 2 | – | □ | – | – |
| | **12** | 110 | 36 | – | 12 | 2 | – | □ | – | – |

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DLC-E2-3D** | | | | | | | | | ○ | ◎ | | | | ◎ |
| **DLC-E2-3D-L** | | | | | | | | | ○ | ◎ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長
**DLC Coated 2-flute Carbide End Mill for Aluminum Sash(5D Type)**

# DLC-E2-5D

切削条件 Cutting Conditions | P687-3



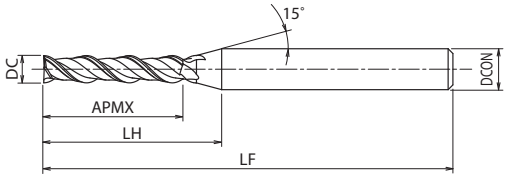
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 45°

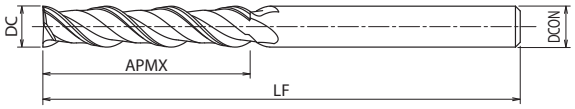
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 50 | 10 | 15.4 | 4 | 1 | — | □ | — | — |
| | **3** | 60 | 15 | 22.9 | 6 | | | □ | — | — |
| | **4** | | 20 | 26 | | | | □ | — | — |
| | **5** | 70 | 25 | 29.2 | | | | □ | — | — |
| | **6** | | 30 | — | | 2 | | □ | — | — |
| | **8** | 90 | 40 | — | 8 | | | □ | — | — |
| | **10** | 110 | 50 | — | 10 | | | □ | — | — |
| | **12** | 120 | 60 | — | 12 | | | □ | — | — |

Type 1




Type 2




## アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ
**DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix)**

# DLC-E2-5D-L

切削条件 Cutting Conditions | P687-3



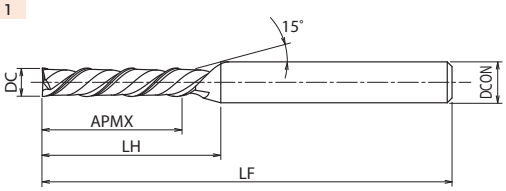
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性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 45°

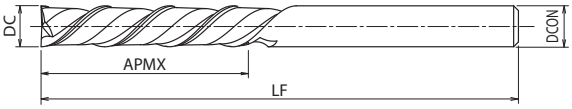
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | 55 | 10 | 15.4 | 4 | 1 | — | □ | — | — |
| | **3** | 65 | 15 | 22.9 | 6 | | | □ | — | — |
| | **4** | | 20 | 26 | | | | □ | — | — |
| | **5** | 75 | 25 | 29.2 | | | | □ | — | — |
| | **6** | 80 | 30 | — | | 2 | | □ | — | — |
| | **8** | 100 | 40 | — | 8 | | | □ | — | — |
| | **10** | 120 | 50 | — | 10 | | | □ | — | — |
| | **12** | 130 | 60 | — | 12 | | | □ | — | — |

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DLC-E2-5D** | | | | | | | | | ○ | ◎ | | | | ◎ |
| **DLC-E2-5D-L** | | | | | | | | | ○ | ◎ | | | | ◎ |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



# WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

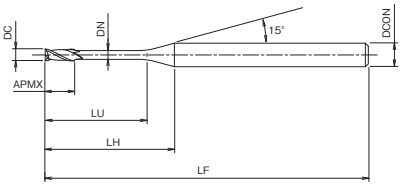
**WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WXL-LN-EDS

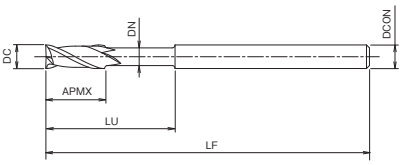
切削条件 Cutting Conditions | P587



Type 1




Type 2




CAD

CARBIDE | WXL | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3131100 | 0.1 × 0.3 | 45 | 0.15 | 7.5 | 4 | 0.09 | 14.61° | 0.31 | 0.32 | 0.33 | 0.34 | 0.37 | 1 | B | ● | 10 | 10,200 |
| 3131101 | 0.1 × 0.5 | | | 7.7 | | | 14.04° | 0.53 | 0.56 | 0.58 | 0.61 | 0.66 | | | ● | 10 | 11,300 |
| 3131102 | 0.1 × 1 | | | 8.2 | | | 13.22° | 1.05 | 1.1 | 1.14 | 1.18 | 1.28 | | | ● | 10 | 14,000 |
| 3131201 | 0.2 × 0.5 | | 0.3 | 7.5 | | 0.18 | 14.02° | 0.52 | 0.55 | 0.57 | 0.6 | 0.64 | | | ● | 13 | 6,690 |
| 3131202 | 0.2 × 1 | | | 8 | | | 13.19° | 1.05 | 1.09 | 1.13 | 1.17 | 1.27 | | | ● | 13 | 7,220 |
| 3131203 | 0.2 × 1.5 | | | 8.5 | | | 12.45° | 1.57 | 1.62 | 1.68 | 1.75 | 1.89 | | | ● | 13 | 8,770 |
| 3131204 | 0.2 × 2 | | | 9 | | | 11.78° | 2.09 | 2.16 | 2.24 | 2.32 | 2.51 | | | ● | 13 | 9,850 |
| 3131205 | 0.2 × 2.5 | | | 9.5 | | | 11.18° | 2.6 | 2.69 | 2.79 | 2.9 | 3.13 | | | ● | 13 | 9,850 |
| 3131206 | 0.2 × 3 | | | 10 | | | 10.64° | 3.12 | 3.23 | 3.35 | 3.47 | 3.75 | | | ● | 13 | 10,200 |
| 3131207 | 0.2 × 3.5 | | | 10.5 | | | 10.15° | 3.64 | 3.76 | 3.9 | 4.05 | 4.37 | | | ● | 13 | 11,400 |
| 3131208 | 0.2 × 4 | | | 11 | | | 9.71° | 4.15 | 4.3 | 4.45 | 4.62 | 5 | | | ● | 13 | 12,400 |
| 3131302 | 0.3 × 1 | | 0.45 | 7.8 | | 0.28 | 13.16° | 1.03 | 1.08 | 1.12 | 1.16 | 1.25 | | | ● | 13 | 5,930 |
| 3131303 | 0.3 × 1.5 | | | 8.3 | | | 12.4° | 1.56 | 1.61 | 1.67 | 1.74 | 1.88 | | | ● | 13 | 5,930 |
| 3131304 | 0.3 × 2 | | | 8.8 | | | 11.73° | 2.08 | 2.15 | 2.23 | 2.31 | 2.5 | | | ● | 13 | 7,220 |
| 3131305 | 0.3 × 2.5 | | | 9.3 | | | 11.12° | 2.59 | 2.68 | 2.78 | 2.88 | 3.12 | | | ● | 13 | 7,570 |
| 3131306 | 0.3 × 3 | | | 9.8 | | | 10.57° | 3.11 | 3.22 | 3.33 | 3.46 | 3.74 | | | ● | 13 | 7,570 |
| 3131308 | 0.3 × 4 | | | 10.8 | | | 9.62° | 4.14 | 4.29 | 4.44 | 4.61 | 4.98 | | | ● | 13 | 8,640 |
| 3131310 | 0.3 × 5 | | | 11.8 | | | 8.83° | 5.18 | 5.36 | 5.55 | 5.76 | 6.23 | | | ● | 13 | 8,640 |
| 3131312 | 0.3 × 6 | | | 12.8 | | | 8.15° | 6.21 | 6.43 | 6.66 | 6.91 | 7.47 | | | ● | 13 | 9,630 |
| 3131318 | 0.3 × 9 | | | 15.8 | | | 6.63° | 9.31 | 9.64 | 9.98 | 10.36 | 11.2 | | | ● | 13 | 10,200 |
| 3131403 | 0.4 × 1.5 | | 0.6 | 8.1 | | 0.37 | 12.4° | 1.52 | 1.57 | 1.63 | 1.69 | 1.82 | | | ● | 13 | 4,280 |
| 3131404 | 0.4 × 2 | | | 8.6 | | | 11.71° | 2.03 | 2.1 | 2.18 | 2.26 | 2.45 | | | ● | 13 | 4,280 |
| 3131406 | 0.4 × 3 | | | 9.6 | | | 10.53° | 3.07 | 3.17 | 3.29 | 3.41 | 3.69 | | | ● | 13 | 4,280 |
| 3131408 | 0.4 × 4 | | | 10.6 | | | 9.56° | 4.1 | 4.24 | 4.4 | 4.56 | 4.93 | | | ● | 13 | 4,280 |
| 3131410 | 0.4 × 5 | | | 11.6 | | | 8.76° | 5.13 | 5.31 | 5.51 | 5.71 | 6.18 | | | ● | 13 | 4,280 |
| 3131412 | 0.4 × 6 | | | 12.6 | | | 8.08° | 6.17 | 6.38 | 6.61 | 6.86 | 7.42 | | | ● | 13 | 5,380 |
| 3131414 | 0.4 × 7 | | | 13.6 | | | 7.49° | 7.2 | 7.45 | 7.72 | 8.01 | 8.66 | | | ● | 13 | 6,550 |
| 3131416 | 0.4 × 8 | | | 14.6 | | | 6.99° | 8.24 | 8.52 | 8.83 | 9.16 | 9.9 | | | ● | 13 | 9,300 |
| 3131418 | 0.4 × 9 | | | 15.6 | | | 6.55° | 9.27 | 9.59 | 9.94 | 10.31 | 11.15 | | | ● | 13 | 9,300 |
| 3131420 | 0.4 ×10 | | | 16.6 | | | 6.16° | 10.3 | 10.66 | 11.05 | 11.46 | 12.39 | | | ● | 13 | 10,200 |
| 3131424 | 0.4 ×12 | | | 18.6 | | | 5.5° | 12.37 | 12.8 | 13.26 | 13.76 | 14.88 | | | ● | 13 | 10,200 |
| 3131501 | 0.5 × 1.5 | | 0.7 | 8.1 | | 0.45 | 12.29° | 1.56 | 1.61 | 1.67 | 1.73 | 1.87 | | | ● | 13 | 3,080 |
| 3131502 | 0.5 × 2 | | | 8.6 | | | 11.59° | 2.07 | 2.14 | 2.22 | 2.31 | 2.49 | | | ● | 13 | 3,080 |
| 3131503 | 0.5 × 3 | | | 9.6 | | | 10.4° | 3.11 | 3.21 | 3.33 | 3.46 | 3.74 | | | ● | 13 | 3,080 |
| 3131504 | 0.5 × 4 | | | 10.6 | | | 9.43° | 4.14 | 4.28 | 4.44 | 4.61 | 4.98 | | | ● | 13 | 3,080 |
| 3131505 | 0.5 × 5 | | | 11.6 | | | 8.63° | 5.17 | 5.35 | 5.55 | 5.75 | 6.22 | | | ● | 13 | 3,080 |
| 3131506 | 0.5 × 6 | | | 12.6 | | | 7.95° | 6.21 | 6.42 | 6.66 | 6.9 | 7.47 | | | ● | 13 | 3,080 |
| 3131507 | 0.5 × 7 | | | 13.6 | | | 7.37° | 7.24 | 7.49 | 7.76 | 8.05 | 8.71 | | | ● | 13 | 5,160 |
| 3131508 | 0.5 × 8 | | | 14.6 | | | 6.86° | 8.27 | 8.56 | 8.87 | 9.2 | 9.95 | | | ● | 13 | 5,160 |
| 3131509 | 0.5 × 9 | | | 15.6 | | | 6.43° | 9.31 | 9.63 | 9.98 | 10.35 | 11.19 | | | ● | 13 | 5,160 |
| 3131510 | 0.5 ×10 | | | 16.6 | | | 6.04° | 10.34 | 10.7 | 11.09 | 11.5 | 12.44 | | | ● | 13 | 5,160 |
| 3131512 | 0.5 ×12 | | | 18.6 | | | 5.39° | 12.41 | 12.84 | 13.31 | 13.8 | 14.92 | | | ● | 13 | 6,130 |
| 3131515 | 0.5 ×15 | 50 | | 21.6 | | | 4.65° | 15.51 | 16.05 | 16.63 | 17.25 | 18.65 | | | ● | 13 | 6,550 |
| 3131602 | 0.6 × 2 | 45 | 0.9 | 8.4 | | 0.55 | 11.51° | 2.07 | 2.14 | 2.22 | 2.31 | 2.49 | | | ● | 13 | 3,290 |
| 3131603 | 0.6 × 3 | | | 9.4 | | | 10.31° | 3.11 | 3.21 | 3.33 | 3.46 | 3.74 | | | ● | 13 | 3,290 |
| 3131604 | 0.6 × 4 | | | 10.4 | | | 9.33° | 4.14 | 4.28 | 4.44 | 4.61 | 4.98 | | | ● | 13 | 3,290 |
| 3131605 | 0.6 × 5 | | | 11.4 | | | 8.52° | 5.17 | 5.35 | 5.55 | 5.75 | 6.22 | | | ● | 13 | 3,290 |
| 3131606 | 0.6 × 6 | | | 12.4 | | | 7.84° | 6.21 | 6.42 | 6.66 | 6.9 | 7.47 | | | ● | 13 | 3,290 |

次ページへ
外径 DC 0.6〜1 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

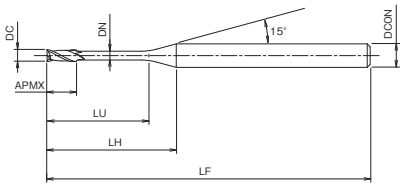
**WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WXL-LN-EDS

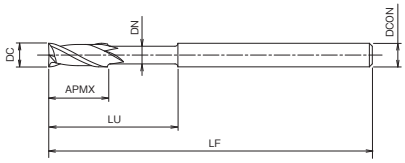
切削条件 Cutting Conditions | P587



Type 1




Type 2




CAD

CARBIDE | WXL | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

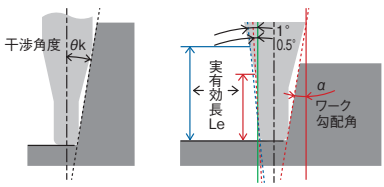
前ページより
FROM 外径 DC 0.1〜0.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3131607 | 0.6 × 7 | 45 | 0.9 | 13.4 | 4 | 0.55 | 7.26° | 7.24 | 7.49 | 7.76 | 8.05 | 8.71 | 1 | B | ● | 13 | 4,170 |
| 3131608 | 0.6 × 8 | | | 14.4 | | | 6.76° | 8.27 | 8.56 | 8.87 | 9.2 | 9.95 | | | ● | 13 | 5,380 |
| 3131610 | 0.6 × 10 | | | 16.4 | | | 5.94° | 10.34 | 10.7 | 11.09 | 11.5 | 12.44 | | | ● | 13 | 6,130 |
| 3131612 | 0.6 × 12 | | | 18.4 | | | 5.29° | 12.41 | 12.84 | 13.31 | 13.8 | 14.92 | | | ● | 13 | 6,900 |
| 3131615 | 0.6 × 15 | 50 | | 21.4 | | | 4.55° | 15.51 | 16.05 | 16.63 | 17.25 | 18.65 | | | ● | 13 | 7,890 |
| 3131618 | 0.6 × 18 | | | 24.4 | | | 3.99° | 18.61 | 19.26 | 19.96 | 20.7 | 22.38 | | | ● | 13 | 8,340 |
| 3131702 | 0.7 × 2 | 45 | 1 | 8.3 | | 0.65 | 11.43° | 2.07 | 2.14 | 2.22 | 2.31 | 2.49 | | | ● | 13 | 3,750 |
| 3131704 | 0.7 × 4 | | | 10.3 | | | 9.22° | 4.14 | 4.28 | 4.44 | 4.61 | 4.98 | | | ● | 13 | 3,750 |
| 3131706 | 0.7 × 6 | | | 12.3 | | | 7.73° | 6.21 | 6.42 | 6.66 | 6.9 | 7.47 | | | ● | 13 | 3,750 |
| 3131708 | 0.7 × 8 | | | 14.3 | | | 6.65° | 8.27 | 8.56 | 8.87 | 9.2 | 9.95 | | | ● | 13 | 5,400 |
| 3131710 | 0.7 × 10 | | | 16.3 | | | 5.83° | 10.34 | 10.7 | 11.09 | 11.5 | 12.44 | | | ● | 13 | 6,160 |
| 3131804 | 0.8 × 4 | | 1.2 | 10.1 | | 0.75 | 9.11° | 4.14 | 4.28 | 4.44 | 4.61 | 4.98 | | | ● | 13 | 3,610 |
| 3131806 | 0.8 × 6 | | | 12.1 | | | 7.61° | 6.21 | 6.42 | 6.66 | 6.9 | 7.47 | | | ● | 13 | 3,610 |
| 3131808 | 0.8 × 8 | | | 14.1 | | | 6.53° | 8.27 | 8.56 | 8.87 | 9.2 | 9.95 | | | ● | 13 | 3,610 |
| 3131810 | 0.8 × 10 | | | 16.1 | | | 5.72° | 10.34 | 10.7 | 11.09 | 11.5 | 12.44 | | | ● | 13 | 5,380 |
| 3131812 | 0.8 × 12 | | | 18.1 | | | 5.09° | 12.41 | 12.84 | 13.31 | 13.8 | 14.92 | | | ● | 13 | 6,040 |
| 3131814 | 0.8 × 14 | 50 | | 20.1 | | | 4.58° | 14.48 | 14.98 | 15.52 | 16.1 | 17.41 | | | ● | 13 | 6,930 |
| 3131816 | 0.8 × 16 | | | 22.1 | | | 4.16° | 16.54 | 17.12 | 17.74 | 18.4 | 19.9 | | | ● | 13 | 6,930 |
| 3131820 | 0.8 × 20 | 55 | | 26.1 | | | 3.52° | 20.68 | 21.4 | 22.17 | 23 | 24.87 | | | ● | 13 | 7,680 |
| 3131824 | 0.8 × 24 | 60 | | 30.1 | | | 3.06° | 24.81 | 25.68 | 26.6 | 27.6 | 29.84 | | | ● | 13 | 8,000 |
| 3131904 | 0.9 × 4 | 45 | 1.35 | 9.9 | | 0.85 | 9° | 4.14 | 4.28 | 4.44 | 4.61 | 4.98 | | | ● | 13 | 4,110 |
| 3131906 | 0.9 × 6 | | | 11.9 | | | 7.49° | 6.21 | 6.42 | 6.66 | 6.9 | 7.47 | | | ● | 13 | 4,110 |
| 3131908 | 0.9 × 8 | | | 13.9 | | | 6.41° | 8.27 | 8.56 | 8.87 | 9.2 | 9.95 | | | ● | 13 | 4,110 |
| 3131910 | 0.9 × 10 | | | 15.9 | | | 5.61° | 10.34 | 10.7 | 11.09 | 11.5 | 12.44 | | | ● | 13 | 4,110 |
| 3131915 | 0.9 × 15 | 50 | | 20.9 | | | 4.26° | 15.51 | 16.05 | 16.63 | 17.25 | 18.65 | | | ● | 13 | 6,160 |
| 3132003 | 1 × 3 | 45 | 1.5 | 8.7 | | 0.95 | 9.89° | 3.11 | 3.21 | 3.33 | 3.46 | 3.74 | | | ● | 13 | 3,290 |
| 3132004 | 1 × 4 | | | 9.7 | | | 8.88° | 4.14 | 4.28 | 4.44 | 4.61 | 4.98 | | | ● | 13 | 3,290 |
| 3132005 | 1 × 5 | | | 10.7 | | | 8.05° | 5.17 | 5.35 | 5.55 | 5.75 | 6.22 | | | ● | 13 | 3,290 |
| 3132006 | 1 × 6 | | | 11.7 | | | 7.37° | 6.21 | 6.42 | 6.66 | 6.9 | 7.47 | | | ● | 13 | 3,290 |

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

次ページへ
外径 DC 1〜1.6 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WXL-LN-EDS | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
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- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

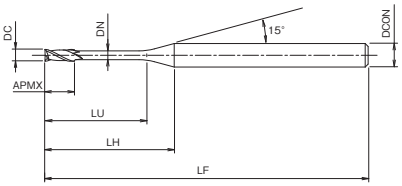
**WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WXL-LN-EDS

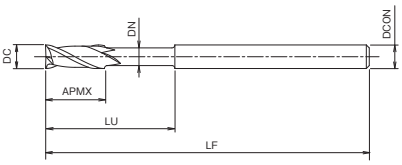
切削条件 Cutting Conditions | P587



Type 1




Type 2




CAD

CARBIDE | WXL | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

前ページより FROM 外径 DC 0.6〜1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3132007 | 1 × 7 | 45 | 1.5 | 12.7 | 4 | 0.95 | 6.79° | 7.24 | 7.49 | 7.76 | 8.05 | 8.71 | 1 | ● | 13 | 3,290 |
| 3132008 | 1 × 8 | | | 13.7 | | | 6.29° | 8.27 | 8.56 | 8.87 | 9.2 | 9.95 | | ● | 13 | 3,290 |
| 3132009 | 1 × 9 | | | 14.7 | | | 5.86° | 9.31 | 9.63 | 9.98 | 10.35 | 11.19 | | ● | 13 | 3,290 |
| 3132010 | 1 × 10 | | | 15.7 | | | 5.49° | 10.34 | 10.7 | 11.09 | 11.5 | 12.44 | | ● | 13 | 3,290 |
| 3132012 | 1 × 12 | | | 17.7 | | | 4.87° | 12.41 | 12.84 | 13.31 | 13.8 | 14.92 | | ● | 13 | 3,290 |
| 3132014 | 1 × 14 | 50 | | 19.7 | | | 4.38° | 14.48 | 14.98 | 15.52 | 16.1 | 17.41 | | ● | 13 | 3,290 |
| 3132016 | 1 × 16 | | | 21.7 | | | 3.97° | 16.54 | 17.12 | 17.74 | 18.4 | 19.9 | | ● | 13 | 5,380 |
| 3132018 | 1 × 18 | 55 | | 23.7 | | | 3.64° | 18.61 | 19.26 | 19.96 | 20.7 | 22.38 | | ● | 13 | 5,380 |
| 3132020 | 1 × 20 | | | 25.7 | | | 3.35° | 20.68 | 21.4 | 22.17 | 23 | 24.87 | | ● | 13 | 5,380 |
| 3132022 | 1 × 22 | 60 | | 27.7 | | | 3.11° | 22.75 | 23.54 | 24.39 | 25.3 | 27.36 | | ● | 13 | 6,130 |
| 3132025 | 1 × 25 | | | 30.7 | | | 2.81° | 25.85 | 26.75 | 27.71 | 28.75 | — | | ● | 13 | 6,130 |
| 3132030 | 1 × 30 | 70 | | 35.7 | | | 2.41° | 31.02 | 32.1 | 33.25 | 34.5 | — | | ● | 13 | 6,900 |
| 3132204 | 1.2 × 4 | 45 | 1.8 | 9.4 | | 1.15 | 8.54° | 4.22 | 4.38 | 4.54 | 4.71 | 5.09 | | ● | 13 | 3,530 |
| 3132206 | 1.2 × 6 | | | 11.4 | | | 7.05° | 6.3 | 6.52 | 6.76 | 7.01 | 7.58 | | ● | 13 | 3,530 |
| 3132208 | 1.2 × 8 | | | 13.4 | | | 6° | 8.37 | 8.66 | 8.98 | 9.31 | 10.07 | | ● | 13 | 3,530 |
| 3132210 | 1.2 × 10 | | | 15.4 | | | 5.22° | 10.44 | 10.8 | 11.19 | 11.61 | 12.55 | | ● | 13 | 3,530 |
| 3132212 | 1.2 × 12 | | | 17.4 | | | 4.62° | 12.51 | 12.94 | 13.41 | 13.91 | 15.04 | | ● | 13 | 3,530 |
| 3132214 | 1.2 × 14 | 50 | | 19.4 | | | 4.14° | 14.57 | 15.08 | 15.63 | 16.21 | 17.53 | | ● | 13 | 3,530 |
| 3132216 | 1.2 × 16 | | | 21.4 | | | 3.76° | 16.64 | 17.22 | 17.84 | 18.51 | 20.01 | | ● | 13 | 5,480 |
| 3132220 | 1.2 × 20 | 55 | | 25.4 | | | 3.16° | 20.77 | 21.5 | 22.28 | 23.11 | 24.99 | | ● | 13 | 5,480 |
| 3132406 | 1.4 × 6 | 45 | 2.1 | 11.1 | | 1.35 | 6.77° | 6.3 | 6.52 | 6.76 | 7.01 | 7.58 | | ● | 13 | 3,290 |
| 3132408 | 1.4 × 8 | | | 13.1 | | | 5.73° | 8.37 | 8.66 | 8.98 | 9.31 | 10.07 | | ● | 13 | 3,290 |
| 3132410 | 1.4 × 10 | | | 15.1 | | | 4.97° | 10.44 | 10.8 | 11.19 | 11.61 | 12.55 | | ● | 13 | 3,290 |
| 3132412 | 1.4 × 12 | | | 17.1 | | | 4.39° | 12.51 | 12.94 | 13.41 | 13.91 | 15.04 | | ● | 13 | 3,290 |
| 3132414 | 1.4 × 14 | 50 | | 19.1 | | | 3.92° | 14.57 | 15.08 | 15.63 | 16.21 | 17.53 | | ● | 13 | 3,290 |
| 3132416 | 1.4 × 16 | | | 21.1 | | | 3.55° | 16.64 | 17.22 | 17.84 | 18.51 | 20.01 | | ● | 13 | 4,110 |
| 3132422 | 1.4 × 22 | 60 | | 27.1 | | | 2.76° | 22.84 | 23.64 | 24.49 | 25.41 | — | | ● | 13 | 5,610 |
| 3132504 | 1.5 × 4 | 45 | 2.3 | 8.9 | | 1.45 | 8.12° | 4.22 | 4.38 | 4.54 | 4.71 | 5.09 | | ● | 13 | 3,530 |
| 3132506 | 1.5 × 6 | | | 10.9 | | | 6.62° | 6.3 | 6.52 | 6.76 | 7.01 | 7.58 | | ● | 13 | 3,530 |
| 3132508 | 1.5 × 8 | | | 12.9 | | | 5.59° | 8.37 | 8.66 | 8.98 | 9.31 | 10.07 | | ● | 13 | 3,530 |
| 3132510 | 1.5 × 10 | | | 14.9 | | | 4.84° | 10.44 | 10.8 | 11.19 | 11.61 | 12.55 | | ● | 13 | 3,530 |
| 3132512 | 1.5 × 12 | | | 16.9 | | | 4.26° | 12.51 | 12.94 | 13.41 | 13.91 | 15.04 | | ● | 13 | 3,530 |
| 3132514 | 1.5 × 14 | 50 | | 18.9 | | | 3.81° | 14.57 | 15.08 | 15.63 | 16.21 | 17.53 | | ● | 13 | 3,610 |
| 3132516 | 1.5 × 16 | | | 20.9 | | | 3.45° | 16.64 | 17.22 | 17.84 | 18.51 | 20.01 | | ● | 13 | 3,610 |
| 3132518 | 1.5 × 18 | 55 | | 22.9 | | | 3.14° | 18.71 | 19.36 | 20.06 | 20.81 | 22.5 | | ● | 13 | 3,610 |
| 3132520 | 1.5 × 20 | | | 24.9 | | | 2.89° | 20.77 | 21.5 | 22.28 | 23.11 | — | | ● | 13 | 3,610 |
| 3132525 | 1.5 × 25 | 60 | | 29.9 | | | 2.4° | 25.94 | 26.85 | 27.82 | 28.86 | — | | ● | 16 | 5,380 |
| 3132530 | 1.5 × 30 | 70 | | 34.9 | | | 2.06° | 31.11 | 32.2 | 33.36 | 34.61 | — | | ● | 16 | 5,380 |
| 3132538 | 1.5 × 38 | 80 | | 42.9 | | | 1.67° | 39.38 | 40.75 | 42.22 | — | — | | ● | 16 | 6,130 |
| 3132540 | 1.5 × 40 | | | 44.9 | | | 1.6° | 41.45 | 42.89 | 44.44 | — | — | | ● | 16 | 6,790 |
| 3132545 | 1.5 × 45 | | | 49.9 | | | 1.44° | 46.62 | 48.24 | — | — | — | | ● | 16 | 6,790 |
| 3132606 | 1.6 × 6 | 45 | 2.4 | 10.7 | | 1.55 | 6.47° | 6.3 | 6.52 | 6.76 | 7.01 | 7.58 | | ● | 16 | 3,610 |
| 3132608 | 1.6 × 8 | | | 12.7 | | | 5.45° | 8.37 | 8.66 | 8.98 | 9.31 | 10.07 | | ● | 16 | 3,610 |
| 3132610 | 1.6 × 10 | | | 14.7 | | | 4.71° | 10.44 | 10.8 | 11.19 | 11.61 | 12.55 | | ● | 16 | 3,610 |
| 3132612 | 1.6 × 12 | | | 16.7 | | | 4.14° | 12.51 | 12.94 | 13.41 | 13.91 | 15.04 | | ● | 16 | 3,610 |
| 3132614 | 1.6 × 14 | 50 | | 18.7 | | | 3.7° | 14.57 | 15.08 | 15.63 | 16.21 | 17.53 | | ● | 16 | 3,610 |
| 3132616 | 1.6 × 16 | | | 20.7 | | | 3.34° | 16.64 | 17.22 | 17.84 | 18.51 | 20.01 | | ● | 16 | 3,610 |
| 3132618 | 1.6 × 18 | 55 | | 22.7 | | | 3.04° | 18.71 | 19.36 | 20.06 | 20.81 | 22.5 | | ● | 16 | 3,610 |

次ページへ 外径 DC 1.6〜2.5 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

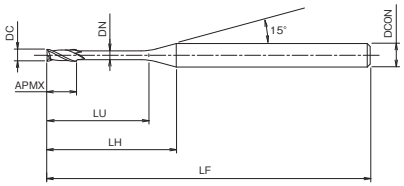
**WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WXL-LN-EDS

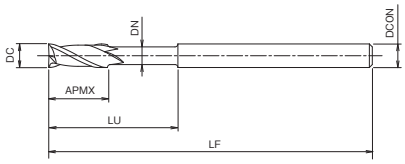
切削条件 Cutting Conditions | P587



Type 1




Type 2




CARBIDE | WXL | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

CAD

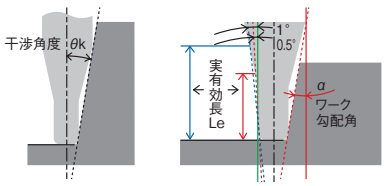
前ページより FROM 外径 DC 1〜1.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3132620 | **1.6 × 20** | 55 | 2.4 | 24.7 | | 1.55 | 2.8° | 20.77 | 21.5 | 22.28 | 23.11 | — | | | 16 | 3,610 |
| 3132806 | **1.8 × 6** | 45 | | 10.6 | | | 5.96° | 6.42 | 6.77 | 7.1 | 7.39 | 7.99 | | | 16 | 3,610 |
| 3132808 | **1.8 × 8** | | | 12.6 | | | 5.01° | 8.53 | 8.96 | 9.34 | 9.69 | 10.48 | | | 16 | 3,610 |
| 3132810 | **1.8 × 10** | | | 14.6 | | | 4.33° | 10.64 | 11.13 | 11.56 | 11.99 | 12.97 | | | 16 | 3,610 |
| 3132812 | **1.8 × 12** | | | 16.6 | | | 3.81° | 12.74 | 13.29 | 13.78 | 14.29 | 15.45 | | | 16 | 3,610 |
| 3132814 | **1.8 × 14** | 50 | 2.7 | 18.6 | | 1.75 | 3.4° | 14.83 | 15.44 | 15.99 | 16.59 | 17.94 | | | 16 | 3,610 |
| 3132816 | **1.8 × 16** | | | 20.6 | | | 3.07° | 16.92 | 17.58 | 18.21 | 18.89 | 20.43 | | | 16 | 3,610 |
| 3132818 | **1.8 × 18** | 55 | | 22.6 | | | 2.79° | 19.01 | 19.71 | 20.43 | 21.19 | — | | | 16 | 3,610 |
| 3132820 | **1.8 × 20** | | | 24.6 | | | 2.57° | 21.09 | 21.85 | 22.64 | 23.49 | — | | | 16 | 3,610 |
| 3132825 | **1.8 × 25** | 60 | | 29.6 | | | 2.13° | 26.28 | 27.2 | 28.18 | 29.24 | — | | | 16 | 4,110 |
| 3133006 | **2 × 6** | 45 | | 10.3 | | | 5.62° | 6.42 | 6.77 | 7.1 | 7.39 | 7.99 | | | 16 | 3,530 |
| 3133008 | **2 × 8** | | | 12.3 | | | 4.7° | 8.53 | 8.96 | 9.34 | 9.69 | 10.48 | | | 16 | 3,530 |
| 3133010 | **2 × 10** | | | 14.3 | | | 4.04° | 10.64 | 11.13 | 11.56 | 11.99 | 12.97 | | | 16 | 3,530 |
| 3133012 | **2 × 12** | | | 16.3 | | | 3.54° | 12.74 | 13.29 | 13.78 | 14.29 | 15.45 | | | 16 | 3,530 |
| 3133014 | **2 × 14** | 50 | | 18.3 | | | 3.15° | 14.83 | 15.44 | 15.99 | 16.59 | 17.94 | | | 16 | 3,530 |
| 3133016 | **2 × 16** | | | 20.3 | | | 2.84° | 16.92 | 17.58 | 18.21 | 18.89 | — | | | 16 | 3,530 |
| 3133018 | **2 × 18** | 55 | | 22.3 | | | 2.58° | 19.01 | 19.71 | 20.43 | 21.19 | — | | | 16 | 3,530 |
| 3133020 | **2 × 20** | | | 24.3 | | | 2.37° | 21.09 | 21.85 | 22.64 | 23.49 | — | | | 16 | 3,530 |
| 3133025 | **2 × 25** | 60 | | 29.3 | | | 1.96° | 26.28 | 27.2 | 28.18 | — | — | | | 16 | 3,530 |
| 3133030 | **2 × 30** | 70 | | 34.3 | | | 1.68° | 31.45 | 32.55 | 33.73 | — | — | | | 16 | 4,280 |
| 3133035 | **2 × 35** | 80 | | 39.3 | | | 1.46° | 36.62 | 37.9 | — | — | — | | | 16 | 5,160 |
| 3133040 | **2 × 40** | 90 | | 44.3 | | | 1.3° | 41.79 | 43.25 | — | — | — | | | 17 | 6,470 |
| 3133050 | **2 × 50** | 100 | | 54.3 | | | 1.06° | 52.13 | 53.94 | — | — | — | | | 18 | 7,760 |
| 3133060 | **2 × 60** | 110 | | 64.3 | | | 0.89° | 62.46 | — | — | — | — | | | 18 | 9,300 |
| 3133508 | **2.5 × 8** | 45 | | 11.2 | | | 3.86° | 8.47 | 8.87 | 9.22 | 9.57 | 10.35 | | | 18 | 3,610 |
| 3133510 | **2.5 × 10** | | | 13.2 | | | 3.27° | 10.57 | 11.03 | 11.44 | 11.87 | 12.83 | | | 18 | 3,610 |
| 3133512 | **2.5 × 12** | | | 15.2 | | | 2.84° | 12.66 | 13.18 | 13.66 | 14.17 | — | | | 18 | 3,610 |
| 3133514 | **2.5 × 14** | 50 | 3.7 | 17.2 | | 2.4 | 2.51° | 14.75 | 15.32 | 15.88 | 16.47 | — | | | 18 | 3,610 |
| 3133516 | **2.5 × 16** | 55 | | 19.2 | | | 2.25° | 16.83 | 17.46 | 18.09 | 18.77 | — | | | 18 | 3,610 |
| 3133518 | **2.5 × 18** | | | 21.2 | | | 2.03° | 18.91 | 19.6 | 20.31 | 21.07 | — | | | 18 | 3,610 |

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

次ページへ 外径 DC 2.5〜12 NEXT

| 製品記号 Abbreviation | 被削材質 Work Material | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | 焼き入れ鋼 Hardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **WXL-LN-EDS** | | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

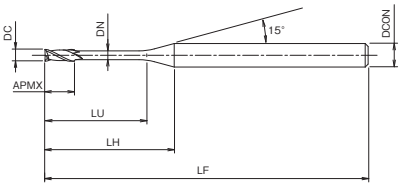
**WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WXL-LN-EDS

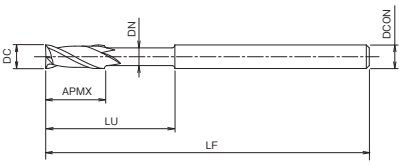
切削条件 Cutting Conditions | P587



Type 1




Type 2




CARBIDE | WXL | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

CAD

前ページより FROM 外径 DC 1.6〜2.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3133520 | 2.5 × 20 | 60 | | 23.2 | | | 1.86° | 20.99 | 21.74 | 22.52 | — | — | | | ● | 18 | 3,610 |
| 3133525 | 2.5 × 25 | 70 | | 28.2 | | | 1.53° | 26.17 | 27.09 | 28.07 | — | — | | | ● | 18 | 3,950 |
| 3133530 | 2.5 × 30 | 80 | 3.7 | 33.2 | 4 | 2.4 | 1.3° | 31.34 | 32.44 | — | — | — | | | ● | 18 | 3,950 |
| 3133540 | 2.5 × 40 | 90 | | 43.2 | | | 1° | 41.68 | — | — | — | — | | | ● | 18 | 5,480 |
| 3133550 | 2.5 × 50 | 100 | | 53.2 | | | 0.81° | 52.02 | — | — | — | — | | | ● | 18 | 6,790 |
| 3134008 | 3 × 8 | 45 | | 13.9 | | | 6.19° | 8.42 | 8.79 | 9.13 | 9.47 | 10.24 | | | ● | 18 | 4,700 |
| 3134010 | 3 × 10 | | | 15.9 | | | 5.41° | 10.51 | 10.95 | 11.35 | 11.77 | 12.73 | | | ● | 18 | 4,700 |
| 3134012 | 3 × 12 | | | 17.9 | | | 4.81° | 12.6 | 13.09 | 13.56 | 14.07 | 15.21 | | | ● | 18 | 4,700 |
| 3134014 | 3 × 14 | 50 | | 19.9 | | | 4.32° | 14.68 | 15.23 | 15.78 | 16.37 | 17.7 | | | ● | 18 | 4,700 |
| 3134016 | 3 × 16 | 55 | | 21.9 | | | 3.93° | 16.76 | 17.37 | 18 | 18.67 | 20.18 | | | ● | 18 | 4,700 |
| 3134018 | 3 × 18 | | | 23.9 | | | 3.6° | 18.84 | 19.51 | 20.21 | 20.97 | 22.67 | | | ● | 18 | 4,700 |
| 3134020 | 3 × 20 | 60 | 4.5 | 25.9 | | 2.85 | 3.32° | 20.91 | 21.65 | 22.43 | 23.27 | 25.16 | | | ● | 20 | 4,700 |
| 3134025 | 3 × 25 | 65 | | 30.9 | | | 2.79° | 26.09 | 27 | 27.97 | 29.02 | — | | | ● | 20 | 4,700 |
| 3134030 | 3 × 30 | 80 | | 35.9 | | | 2.4° | 31.25 | 32.34 | 33.51 | 34.77 | — | | | ● | 25 | 5,610 |
| 3134035 | 3 × 35 | 90 | | 40.9 | | | 2.1° | 36.42 | 37.69 | 39.05 | 40.52 | — | | | ● | 30 | 5,800 |
| 3134040 | 3 × 40 | | | 45.9 | | | 1.87° | 41.59 | 43.04 | 44.6 | — | — | | | ● | 30 | 5,800 |
| 3134050 | 3 × 50 | 100 | | 55.9 | | | 1.54° | 51.93 | 53.74 | 55.68 | — | — | | | ● | 30 | 8,130 |
| 3135012 | 4 × 12 | 50 | | 16.1 | | | 3.58° | 12.6 | 13.09 | 13.56 | 14.07 | 15.21 | 1 | | ● | 22 | 5,380 |
| 3135016 | 4 × 16 | 60 | | 20.1 | | | 2.87° | 16.76 | 17.37 | 18 | 18.67 | — | | | ● | 22 | 5,380 |
| 3135020 | 4 × 20 | | | 24.1 | | | 2.39° | 20.91 | 21.65 | 22.43 | 23.27 | — | | | ● | 22 | 5,380 |
| 3135025 | 4 × 25 | 70 | | 29.1 | | | 1.98° | 26.09 | 27 | 27.97 | — | — | | | ● | 24 | 5,380 |
| 3135030 | 4 × 30 | 80 | 6 | 34.1 | 6 | 3.85 | 1.69° | 31.25 | 32.34 | 33.51 | — | — | | B | ● | 27 | 5,380 |
| 3135035 | 4 × 35 | 90 | | 39.1 | | | 1.47° | 36.42 | 37.69 | — | — | — | | | ● | 33 | 5,380 |
| 3135040 | 4 × 40 | | | 44.1 | | | 1.3° | 41.59 | 43.04 | — | — | — | | | ● | 34 | 6,790 |
| 3135045 | 4 × 45 | 100 | | 49.1 | | | 1.17° | 46.76 | 48.39 | — | — | — | | | ● | 34 | 8,210 |
| 3135050 | 4 × 50 | | | 54.1 | | | 1.06° | 51.93 | 53.74 | — | — | — | | | ● | 34 | 10,100 |
| 3135060 | 4 × 60 | 110 | | 64.1 | | | 0.9° | 62.26 | — | — | — | — | | | ● | 34 | 12,600 |
| 3136016 | 5 × 16 | 60 | | 18.2 | | | 1.58° | 16.76 | 17.37 | 18 | — | — | | | ● | 24 | 6,790 |
| 3136020 | 5 × 20 | 70 | | 22.2 | | | 1.3° | 20.91 | 21.65 | — | — | — | | | ● | 26 | 6,790 |
| 3136025 | 5 × 25 | | | 27.2 | | | 1.06° | 26.09 | 27 | — | — | — | | | ● | 27 | 6,790 |
| 3136030 | 5 × 30 | 90 | 7.5 | 32.2 | | 4.85 | 0.89° | 31.25 | — | — | — | — | | | ● | 37 | 6,790 |
| 3136035 | 5 × 35 | | | 37.2 | | | 0.77° | 36.42 | — | — | — | — | | | ● | 40 | 6,790 |
| 3136040 | 5 × 40 | 100 | | 42.2 | | | 0.68° | 41.59 | — | — | — | — | | | ● | 40 | 6,790 |
| 3136050 | 5 × 50 | 110 | | 52.2 | | | 0.55° | 51.93 | — | — | — | — | | | ● | 42 | 10,700 |
| 3136060 | 5 × 60 | 120 | | 62.2 | | | 0.46° | — | — | — | — | — | | | ● | 45 | 13,200 |
| 3137020 | 6 × 20 | 80 | | — | | | — | — | — | — | — | — | 2 | | ● | 33 | 11,400 |
| 3137030 | 6 × 30 | 90 | | — | | | — | — | — | — | — | — | | | ● | 40 | 11,400 |
| 3137040 | 6 × 40 | 100 | 9 | — | | 5.85 | — | — | — | — | — | — | | | ● | 44 | 11,400 |
| 3137050 | 6 × 50 | 110 | | — | | | — | — | — | — | — | — | | | ● | 47 | 15,000 |
| 3137060 | 6 × 60 | 120 | | — | | | — | — | — | — | — | — | | | ● | 51 | 17,700 |
| 3138040 | 8 × 40 | 110 | 12 | — | 8 | 7.85 | — | — | — | — | — | — | | | ● | 80 | 16,800 |
| 3139050 | 10 × 50 | 125 | 15 | — | 10 | 9.85 | — | — | — | — | — | — | | | ● | 138 | 21,900 |
| 3140060 | 12 × 60 | 140 | 18 | — | 12 | 11.9 | — | — | — | — | — | — | | | ● | 221 | 28,800 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～35HRC | ～350HB | | | | | | |
| WXL-LN-EDS | ◎ | | ◎ | ○ | ○ | ○ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DLCコート2枚刃超硬ロングネックスクエアエンドミルショート形
**DLC Coated 2-flute Long Neck Carbide End Mill Short Length**

## DLC-LN-EDS

切削条件 Cutting Conditions | P687



独自の超平滑DLCコーティングを施したショート刃ロングネック型のエンドミルです。溶着が問題となる圧延アルミ合金などで威力を発揮します。

Long neck end mill with unique DLC coating with ultra lubrication. Works on extruded Aluminum ums eliminating weldings.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8528101 | 0.5 × 2.5 | 60 | 0.7 | 6 | 0.45 | D | ● | 26 | 11,200 |
| 8528102 | 1 × 5 | | 1.5 | | 0.95 | | ● | 29 | 11,200 |
| 8528103 | 1.5 × 7.5 | | 2.3 | | 1.45 | | ● | 26 | 11,200 |
| 8528104 | 2 × 10 | | 3 | | 1.95 | | ● | 26 | 11,200 |
| 8528105 | 2.5 × 12.5 | 70 | 3.7 | | 2.4 | | ● | 29 | 11,200 |
| 8528106 | 3 × 15 | | 4.5 | | 2.85 | | ● | 30 | 12,000 |
| 8528108 | 4 × 20 | 80 | 6 | | 3.85 | | ● | 31 | 12,600 |
| 8528110 | 5 × 25 | 90 | 7.5 | | 4.85 | | ● | 39 | 14,800 |
| 8528112 | 6 × 30 | | 9 | | 5.85 | | ● | 41 | 15,900 |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1170 を参照下さい。 See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能



デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜55HRC | 〜60HRC | 〜65HRC | 〜35HRC | 〜350HB | | | | | | |
| DLC-LN-EDS | | | | | | | | | ○ | ※◎ | | | | ◎ |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。

※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DUARISEコート超硬防振型エンドミル スタブ形

**DUARISE Coated Anti-Vibration Carbide End Mill Stub Length**

A The A Brand

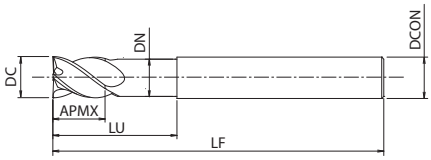
## AE-VMSS

切削条件 Cutting Conditions | P496



Type 3






CAD

CARBIDE | DUARISE | 0〜-0.02 | SHRINK FIT | 37°-40°

ロングネックタイプ Long Neck Type

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8556618 | **6×18** | 60 | 9 | 6 | 5.8 | 3 | B | ● | 25 | 5,700 |
| 8556630 | **6×30** | 70 | | | | | | ● | 29 | 6,070 |
| 8556724 | **8×24** | | 12 | 8 | 7.7 | | | ● | 49 | 10,300 |
| 8556740 | **8×40** | 80 | | | | | | ● | 57 | 10,900 |
| 8556830 | **10×30** | | 15 | 10 | 9.7 | | | ● | 85 | 12,800 |
| 8556850 | **10×50** | 100 | | | | | | ● | 109 | 13,400 |
| 8556936 | **12×36** | 90 | 18 | 12 | 11.7 | | | ● | 137 | 16,000 |
| 8556960 | **12×60** | 110 | | | | | | ● | 169 | 16,700 |


立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
スタブ形(AE-VMSS)はP.296をご覧下さい。
See page 296 for AE-VMSS
ショート形(AE-VMS)はP.301をご覧下さい。
See page 301 for AE-VMS
ロング形(AE-VML)はP.305をご覧下さい。
See page 305 for AE-VML


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **AE-VMSS** | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WXL Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WXL-LN-EMS

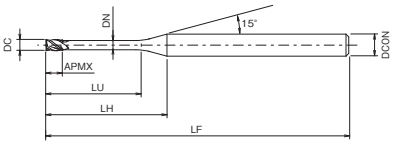
切削条件 Cutting Conditions | P591



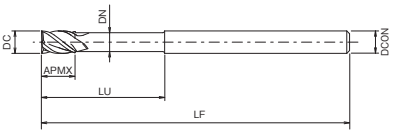
CARBIDE | WXL | 0〜-0.015 | SHRINK FIT | 35°

CAD

Type 1




Type 2




（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3172004 | 1 × 4 | 45 | 1.5 | 9.7 | 4 | 0.95 | 8.88° | 4.14 | 4.28 | 4.44 | 4.61 | 4.98 | 1 | B | 13 | 4,660 |
| 3172006 | 1 × 6 | | | 11.7 | | | 7.37° | 6.21 | 6.42 | 6.66 | 6.9 | 7.47 | | | 13 | 4,660 |
| 3172008 | 1 × 8 | | | 13.7 | | | 6.29° | 8.27 | 8.56 | 8.87 | 9.2 | 9.95 | | | 13 | 4,660 |
| 3172010 | 1 × 10 | | | 15.7 | | | 5.49° | 10.34 | 10.7 | 11.09 | 11.5 | 12.44 | | | 13 | 4,660 |
| 3172012 | 1 × 12 | | | 17.7 | | | 4.87° | 12.41 | 12.84 | 13.31 | 13.8 | 14.92 | | | 13 | 4,660 |
| 3172016 | 1 × 16 | 50 | | 21.7 | | | 3.97° | 16.54 | 17.12 | 17.74 | 18.4 | 19.9 | | | 13 | 7,000 |
| 3172206 | 1.2 × 6 | 45 | 1.8 | 11.4 | | 1.15 | 7.05° | 6.3 | 6.52 | 6.76 | 7.01 | 7.58 | | | 13 | 4,410 |
| 3172208 | 1.2 × 8 | | | 13.4 | | | 6° | 8.37 | 8.66 | 8.98 | 9.31 | 10.07 | | | 13 | 4,410 |
| 3172210 | 1.2 × 10 | | | 15.4 | | | 5.22° | 10.44 | 10.8 | 11.19 | 11.61 | 12.55 | | | 13 | 4,410 |
| 3172212 | 1.2 × 12 | | | 17.4 | | | 4.62° | 12.51 | 12.94 | 13.41 | 13.91 | 15.04 | | | 13 | 4,410 |
| 3172216 | 1.2 × 16 | 50 | | 21.4 | | | 3.76° | 16.64 | 17.22 | 17.84 | 18.51 | 20.01 | | | 13 | 7,120 |
| 3172406 | 1.4 × 6 | 45 | 2.1 | 11.1 | | 1.35 | 6.77° | 6.3 | 6.52 | 6.76 | 7.01 | 7.58 | | | 13 | 4,330 |
| 3172408 | 1.4 × 8 | | | 13.1 | | | 5.73° | 8.37 | 8.66 | 8.98 | 9.31 | 10.07 | | | 13 | 4,330 |
| 3172410 | 1.4 × 10 | | | 15.1 | | | 4.97° | 10.44 | 10.8 | 11.19 | 11.61 | 12.55 | | | 13 | 4,330 |
| 3172412 | 1.4 × 12 | | | 17.1 | | | 4.39° | 12.51 | 12.94 | 13.41 | 13.91 | 15.04 | | | 13 | 4,330 |
| 3172414 | 1.4 × 14 | 50 | | 19.1 | | | 3.92° | 14.57 | 15.08 | 15.63 | 16.21 | 17.53 | | | 13 | 4,330 |
| 3172416 | 1.4 × 16 | | | 21.1 | | | 3.55° | 16.64 | 17.22 | 17.84 | 18.51 | 20.01 | | | 13 | 4,330 |
| 3172422 | 1.4 × 22 | 60 | | 27.1 | | | 2.76° | 22.84 | 23.64 | 24.49 | 25.41 | — | | | 13 | 6,750 |
| 3172506 | 1.5 × 6 | 45 | 2.3 | 10.9 | | 1.45 | 6.62° | 6.3 | 6.52 | 6.76 | 7.01 | 7.58 | | | 13 | 4,330 |
| 3172508 | 1.5 × 8 | | | 12.9 | | | 5.59° | 8.37 | 8.66 | 8.98 | 9.31 | 10.07 | | | 13 | 4,330 |
| 3172510 | 1.5 × 10 | | | 14.9 | | | 4.84° | 10.44 | 10.8 | 11.19 | 11.61 | 12.55 | | | 13 | 4,330 |
| 3172512 | 1.5 × 12 | | | 16.9 | | | 4.26° | 12.51 | 12.94 | 13.41 | 13.91 | 15.04 | | | 13 | 4,330 |
| 3172514 | 1.5 × 14 | 50 | | 18.9 | | | 3.81° | 14.57 | 15.08 | 15.63 | 16.21 | 17.53 | | | 13 | 4,330 |
| 3172516 | 1.5 × 16 | | | 20.9 | | | 3.45° | 16.64 | 17.22 | 17.84 | 18.51 | 20.01 | | | 13 | 4,330 |
| 3172518 | 1.5 × 18 | 55 | | 22.9 | | | 3.14° | 18.71 | 19.36 | 20.06 | 20.81 | 22.5 | | | 13 | 4,330 |
| 3172520 | 1.5 × 20 | | | 24.9 | | | 2.89° | 20.77 | 21.5 | 22.28 | 23.11 | — | | | 13 | 4,330 |
| 3172606 | 1.6 × 6 | 45 | 2.4 | 10.7 | | 1.55 | 6.47° | 6.3 | 6.52 | 6.76 | 7.01 | 7.58 | | | 13 | 4,330 |
| 3172608 | 1.6 × 8 | | | 12.7 | | | 5.45° | 8.37 | 8.66 | 8.98 | 9.31 | 10.07 | | | 13 | 4,330 |
| 3172610 | 1.6 × 10 | | | 14.7 | | | 4.71° | 10.44 | 10.8 | 11.19 | 11.61 | 12.55 | | | 13 | 4,330 |
| 3172612 | 1.6 × 12 | | | 16.7 | | | 4.14° | 12.51 | 12.94 | 13.41 | 13.91 | 15.04 | | | 13 | 4,330 |
| 3172614 | 1.6 × 14 | 50 | | 18.7 | | | 3.7° | 14.57 | 15.08 | 15.63 | 16.21 | 17.53 | | | 13 | 4,330 |
| 3172616 | 1.6 × 16 | | | 20.7 | | | 3.34° | 16.64 | 17.22 | 17.84 | 18.51 | 20.01 | | | 13 | 4,330 |
| 3172618 | 1.6 × 18 | 55 | | 22.7 | | | 3.04° | 18.71 | 19.36 | 20.06 | 20.81 | 22.5 | | | 13 | 4,330 |
| 3172620 | 1.6 × 20 | | | 24.7 | | | 2.8° | 20.77 | 21.5 | 22.28 | 23.11 | — | | | 13 | 4,330 |
| 3172625 | 1.6 × 25 | 60 | | 29.7 | | | 2.32° | 25.94 | 26.85 | 27.82 | 28.86 | — | | | 13 | 6,750 |
| 3172806 | 1.8 × 6 | 45 | 2.7 | 10.6 | | 1.75 | 5.96° | 6.42 | 6.77 | 7.1 | 7.39 | 7.99 | | | 13 | 4,330 |
| 3172808 | 1.8 × 8 | | | 12.6 | | | 5.01° | 8.53 | 8.96 | 9.34 | 9.69 | 10.48 | | | 13 | 4,330 |
| 3172810 | 1.8 × 10 | | | 14.6 | | | 4.33° | 10.64 | 11.13 | 11.56 | 11.99 | 12.97 | | | 13 | 4,330 |
| 3172812 | 1.8 × 12 | | | 16.6 | | | 3.81° | 12.74 | 13.29 | 13.78 | 14.29 | 15.45 | | | 13 | 4,330 |
| 3172814 | 1.8 × 14 | 50 | | 18.6 | | | 3.4° | 14.83 | 15.44 | 15.99 | 16.59 | 17.94 | | | 13 | 4,330 |
| 3172816 | 1.8 × 16 | | | 20.6 | | | 3.07° | 16.92 | 17.58 | 18.21 | 18.89 | 20.43 | | | 13 | 4,330 |
| 3172818 | 1.8 × 18 | 55 | | 22.6 | | | 2.79° | 19.01 | 19.71 | 20.43 | 21.19 | — | | | 13 | 4,330 |
| 3172820 | 1.8 × 20 | | | 24.6 | | | 2.57° | 21.09 | 21.85 | 22.64 | 23.49 | — | | | 13 | 4,330 |
| 3172825 | 1.8 × 25 | 60 | | 29.6 | | | 2.13° | 26.28 | 27.2 | 28.18 | 29.24 | — | | | 13 | 4,330 |
| 3173006 | 2 × 6 | 45 | 3 | 10.3 | | 1.95 | 5.62° | 6.42 | 6.77 | 7.1 | 7.39 | 7.99 | | | 13 | 4,330 |
| 3173008 | 2 × 8 | | | 12.3 | | | 4.7° | 8.53 | 8.96 | 9.34 | 9.69 | 10.48 | | | 13 | 4,330 |
| 3173010 | 2 × 10 | | | 14.3 | | | 4.04° | 10.64 | 11.13 | 11.56 | 11.99 | 12.97 | | | 13 | 4,330 |
| 3173012 | 2 × 12 | | | 16.3 | | | 3.54° | 12.74 | 13.29 | 13.78 | 14.29 | 15.45 | | | 13 | 4,330 |

次ページへ
外径 DC 2〜10 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WXL Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing**

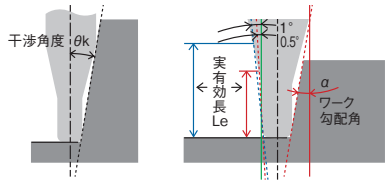
## WXL-LN-EMS

切削条件 Cutting Conditions | P591



■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

CARBIDE | WXL | 0〜-0.015 | SHRINK FIT | 35°

CAD

前ページより FROM 外径 DC 1〜2

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3173014 | 2 × 14 | 50 | 3 | 18.3 | 4 | 1.95 | 3.15° | 14.83 | 15.44 | 15.99 | 16.59 | 17.94 | 1 | B | ● | 13 | 4,330 |
| 3173016 | 2 × 16 | | | 20.3 | | | 2.84° | 16.92 | 17.58 | 18.21 | 18.89 | – | | | ● | 13 | 4,330 |
| 3173018 | 2 × 18 | 55 | | 22.3 | | | 2.58° | 19.01 | 19.71 | 20.43 | 21.19 | – | | | ● | 13 | 4,330 |
| 3173020 | 2 × 20 | | | 24.3 | | | 2.37° | 21.09 | 21.85 | 22.64 | 23.49 | – | | | ● | 13 | 4,330 |
| 3173025 | 2 × 25 | 60 | | 29.3 | | | 1.96° | 26.28 | 27.2 | 28.18 | – | – | | | ● | 13 | 4,330 |
| 3173030 | 2 × 30 | 70 | | 34.3 | | | 1.68° | 31.45 | 32.55 | 33.73 | – | – | | | ● | 13 | 5,380 |
| 3173508 | 2.5 × 8 | 45 | 3.7 | 11.2 | | 2.4 | 3.86° | 8.47 | 8.87 | 9.22 | 9.57 | 10.35 | | | ● | 13 | 4,630 |
| 3173512 | 2.5 × 12 | | | 15.2 | | | 2.84° | 12.66 | 13.18 | 13.66 | 14.17 | – | | | ● | 13 | 4,630 |
| 3173516 | 2.5 × 16 | 55 | | 19.2 | | | 2.25° | 16.83 | 17.46 | 18.09 | 18.77 | – | | | ● | 14 | 4,630 |
| 3173520 | 2.5 × 20 | 60 | | 23.2 | | | 1.86° | 20.99 | 21.74 | 22.52 | – | – | | | ● | 14 | 4,630 |
| 3173525 | 2.5 × 25 | 70 | | 28.2 | | | 1.53° | 26.17 | 27.09 | 28.07 | – | – | | | ● | 17 | 4,630 |
| 3174008 | 3 × 8 | 45 | 4.5 | 13.9 | | 2.85 | 6.19° | 8.42 | 8.79 | 9.13 | 9.47 | 10.24 | | | ● | 17 | 6,020 |
| 3174012 | 3 × 12 | | | 17.9 | | | 4.81° | 12.6 | 13.09 | 13.56 | 14.07 | 15.21 | | | ● | 17 | 6,020 |
| 3174016 | 3 × 16 | 55 | | 21.9 | | | 3.93° | 16.76 | 17.37 | 18 | 18.67 | 20.18 | | | ● | 18 | 6,020 |
| 3174020 | 3 × 20 | 60 | | 25.9 | | | 3.32° | 20.91 | 21.65 | 22.43 | 23.27 | 25.16 | | | ● | 20 | 6,020 |
| 3174025 | 3 × 25 | 65 | | 30.9 | | | 2.79° | 26.09 | 27 | 27.97 | 29.02 | – | | | ● | 21 | 6,020 |
| 3174030 | 3 × 30 | 80 | | 35.9 | | | 2.4° | 31.25 | 32.34 | 33.51 | 34.77 | – | | | ● | 25 | 7,220 |
| 3175012 | 4 × 12 | 50 | 6 | 16.1 | | 3.85 | 3.58° | 12.6 | 13.09 | 13.56 | 14.07 | 15.21 | | | ● | 20 | 8,000 |
| 3175016 | 4 × 16 | 60 | | 20.1 | | | 2.86° | 16.76 | 17.37 | 17.99 | 18.67 | – | | | ● | 23 | 8,000 |
| 3175020 | 4 × 20 | | | 24.1 | | | 2.39° | 20.91 | 21.64 | 22.43 | 23.27 | – | | | ● | 23 | 8,000 |
| 3175025 | 4 × 25 | 70 | | 29.1 | | | 1.97° | 26.08 | 26.99 | 27.97 | – | – | | | ● | 25 | 8,450 |
| 3175030 | 4 × 30 | 80 | | 34.1 | | | 1.68° | 31.25 | 32.34 | 33.51 | – | – | | | ● | 28 | 9,300 |
| 3175035 | 4 × 35 | 90 | | 39.1 | | | 1.47° | 36.42 | 37.69 | – | – | – | | | ● | 30 | 10,100 |
| 3175040 | 4 × 40 | | | 44.1 | | | 1.30° | 41.59 | 43.04 | – | – | – | | | ● | 32 | 10,700 |
| 3175045 | 4 × 45 | 100 | | 49.1 | | | 1.17° | 46.76 | 48.39 | – | – | – | | | ● | 35 | 12,000 |
| 3175050 | 4 × 50 | | | 54.1 | | | 1.06° | 51.93 | 53.74 | – | – | – | | | ● | 35 | 15,400 |
| 3176016 | 5 × 16 | 60 | 7.5 | 18.2 | | 4.85 | 1.58° | 16.76 | 17.37 | 17.99 | – | – | | | ● | 24 | 10,100 |
| 3176025 | 5 × 25 | 70 | | 27.2 | | | 1.06° | 26.08 | 26.99 | – | – | – | | | ● | 28 | 10,600 |
| 3176035 | 5 × 35 | 90 | | 37.2 | | | 0.77° | 36.42 | – | – | – | – | | | ● | 37 | 11,100 |
| 3176050 | 5 × 50 | 110 | | 52.2 | | | 0.55° | 51.93 | – | – | – | – | | | ● | 43 | 15,400 |
| 3177020 | 6 × 20 | 80 | 9 | – | | 5.85 | – | – | – | – | – | – | 2 | | ● | 33 | 10,100 |
| 3177030 | 6 × 30 | 90 | | – | | | – | – | – | – | – | – | | | ● | 41 | 10,600 |
| 3177040 | 6 × 40 | 100 | | – | | | – | – | – | – | – | – | | | ● | 44 | 11,100 |
| 3177050 | 6 × 50 | 110 | | – | | | – | – | – | – | – | – | | | ● | 48 | 15,400 |
| 3179030 | 8 × 30 | 100 | 12 | – | 8 | 7.85 | – | – | – | – | – | – | | | ● | 74 | 20,300 |
| 3179050 | 8 × 50 | 120 | | – | | | – | – | – | – | – | – | | | ● | 88 | 21,700 |
| 3179060 | 8 × 60 | 130 | | – | | | – | – | – | – | – | – | | | ● | 94 | 22,500 |
| 3181040 | 10 × 40 | 110 | 15 | – | 10 | 9.85 | – | – | – | – | – | – | | | ● | 125 | 26,200 |
| 3181060 | 10 × 60 | 130 | | – | | | – | – | – | – | – | – | | | ● | 146 | 29,200 |
| 3181080 | 10 × 80 | 150 | | – | | | – | – | – | – | – | – | | | ● | 172 | 31,600 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WXL-LN-EMS | ◎ | | ◎ | ○ | | | ○ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

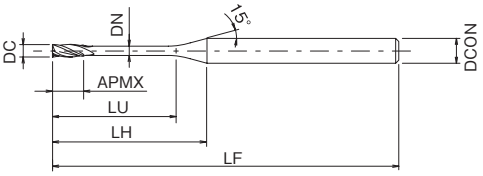
# グラファイト用DGコート4枚刃超硬ロングネックスクエアエンドミルショート形

**DG Coated 4-flute Long Neck Carbide End Mill Short Length for Graphite**

## DG-LN-EMS

切削条件 Cutting Conditions | P695






グラファイト専用のダイヤモンドコーティングを施したエンドミルです。
Diamond Coated end mills for graphite.

CARBIDE | DG | 0〜-0.027 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 外径 DC | 首下長 LU | 刃長 APMX | 首径 DN | LH | シャンク径 DCON | 全長 LF | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8553321 | 1 × 5 | 1 | 5 | 2 | 0.96 | 10.9 | 4 | 50 | B | ● | 13 | 23,600 |
| 8553322 | 1 × 10 | | 10 | | | 15.9 | | | | ● | 13 | 23,600 |
| 8553331 | 1.5 × 7.5 | 1.5 | 7.5 | 3 | 1.44 | 12.5 | | | | ● | 14 | 23,800 |
| 8553332 | 1.5 × 15 | | 15 | | | 20 | | 60 | | ● | 14 | 23,800 |
| 8553341 | 2 × 10 | 2 | 10 | 4 | 1.9 | 13.9 | | | | ● | 15 | 23,800 |
| 8553342 | 2 × 20 | | 20 | | | 23.9 | | | | ● | 15 | 23,800 |
| 8553361 | 3 × 15 | 3 | 15 | 6 | 2.9 | 17 | | | | ● | 15 | 30,800 |
| 8553362 | 3 × 30 | | 30 | | | 32 | | 70 | | ● | 15 | 30,800 |
| 8553381 | 4 × 40 | 4 | 40 | 8 | 3.9 | — | | 100 | | ● | 23 | 32,400 |
| 8553421 | 6 × 60 | 6 | 60 | 12 | 5.7 | — | 6 | | | ● | 43 | 40,600 |



工具自販機 MONOlithbox モノリスボックス
※詳細はこちら▶ Scan for details
「労働人口減少の2030年問題」対策を! 自動化・省人化に貢献します

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DG-LN-EMS | | | | | | | | | | ○ | ◎ | | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WX-LN-EDS

切削条件 Cutting Conditions | P638-11



リブ溝加工や加工時の干渉が問題となる微細部分の加工に最適です。加工に合わせ有効長をお選び下さい。

Suitable for rib processing and very fine operations. Select appropriate cutting length for different operations.

CARBIDE | WX | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3020100 | 0.1 × 0.3 | 45 | 0.15 | 4 | 0.085 | 0.33 | 0.36 | 0.4 | 0.45 | 0.51 | 0.57 | □ | — | — |
| 3020101 | 0.1 × 0.5 | | | | | 0.55 | 0.6 | 0.67 | 0.74 | 0.82 | 0.91 | □ | — | — |
| 3020102 | 0.1 × 1 | | | | | 1.09 | 1.2 | 1.31 | 1.42 | 1.55 | 1.67 | □ | — | — |
| 3020201 | 0.2 × 0.5 | | 0.3 | | 0.18 | 0.52 | 0.55 | 0.57 | 0.60 | 0.62 | 0.64 | □ | — | — |
| 3020202 | 0.2 × 1 | | | | | 1.05 | 1.09 | 1.13 | 1.17 | 1.22 | 1.27 | □ | — | — |
| 3020203 | 0.2 × 1.5 | | | | | 1.57 | 1.62 | 1.68 | 1.75 | 1.81 | 1.89 | □ | — | — |
| 3020204 | 0.2 × 2 | | | | | 2.09 | 2.16 | 2.24 | 2.32 | 2.41 | 2.51 | □ | — | — |
| 3020205 | 0.2 × 2.5 | | | | | 2.60 | 2.69 | 2.79 | 2.90 | 3.01 | 3.13 | □ | — | — |
| 3020206 | 0.2 × 3 | | | | | 3.12 | 3.23 | 3.35 | 3.47 | 3.61 | 3.75 | □ | — | — |
| 3020207 | 0.2 × 3.5 | | | | | 3.64 | 3.76 | 3.90 | 4.05 | 4.20 | 4.37 | □ | — | — |
| 3020208 | 0.2 × 4 | | | | | 4.15 | 4.30 | 4.45 | 4.62 | 4.80 | 5.00 | □ | — | — |
| 3020302 | 0.3 × 1 | | 0.45 | | 0.28 | 1.03 | 1.08 | 1.12 | 1.16 | 1.21 | 1.25 | □ | — | — |
| 3020303 | 0.3 × 1.5 | | | | | 1.56 | 1.61 | 1.67 | 1.74 | 1.80 | 1.88 | □ | — | — |
| 3020304 | 0.3 × 2 | | | | | 2.08 | 2.15 | 2.23 | 2.31 | 2.40 | 2.50 | □ | — | — |
| 3020305 | 0.3 × 2.5 | | | | | 2.59 | 2.68 | 2.78 | 2.88 | 3.00 | 3.12 | □ | — | — |
| 3020306 | 0.3 × 3 | | | | | 3.11 | 3.22 | 3.33 | 3.46 | 3.59 | 3.74 | □ | — | — |
| 3020308 | 0.3 × 4 | | | | | 4.14 | 4.29 | 4.44 | 4.61 | 4.79 | 4.98 | □ | — | — |
| 3020310 | 0.3 × 5 | | | | | 5.18 | 5.36 | 5.55 | 5.76 | 5.98 | 6.23 | □ | — | — |
| 3020312 | 0.3 × 6 | | | | | 6.21 | 6.43 | 6.66 | 6.91 | 7.18 | 7.47 | □ | — | — |
| 3020318 | 0.3 × 9 | | | | | 9.31 | 9.64 | 9.98 | 10.36 | 10.76 | 11.20 | □ | — | — |
| 3020403 | 0.4 × 1.5 | | 0.6 | | 0.37 | 1.52 | 1.57 | 1.63 | 1.69 | 1.75 | 1.82 | □ | — | — |
| 3020404 | 0.4 × 2 | | | | | 2.03 | 2.10 | 2.18 | 2.26 | 2.35 | 2.45 | □ | — | — |
| 3020406 | 0.4 × 3 | | | | | 3.07 | 3.17 | 3.29 | 3.41 | 3.55 | 3.69 | □ | — | — |
| 3020408 | 0.4 × 4 | | | | | 4.10 | 4.24 | 4.40 | 4.56 | 4.74 | 4.93 | □ | — | — |
| 3020410 | 0.4 × 5 | | | | | 5.13 | 5.31 | 5.51 | 5.71 | 5.93 | 6.18 | □ | — | — |
| 3020412 | 0.4 × 6 | | | | | 6.17 | 6.38 | 6.61 | 6.86 | 7.13 | 7.42 | □ | — | — |
| 3020414 | 0.4 × 7 | | | | | 7.20 | 7.45 | 7.72 | 8.01 | 8.32 | 8.66 | □ | — | — |
| 3020416 | 0.4 × 8 | | | | | 8.24 | 8.52 | 8.83 | 9.16 | 9.52 | 9.90 | □ | — | — |
| 3020418 | 0.4 × 9 | | | | | 9.27 | 9.59 | 9.94 | 10.31 | 10.71 | 11.15 | □ | — | — |
| 3020420 | 0.4 × 10 | | | | | 10.30 | 10.66 | 11.05 | 11.46 | 11.91 | 12.39 | □ | — | — |
| 3020424 | 0.4 × 12 | | | | | 12.37 | 12.80 | 13.26 | 13.76 | 14.30 | 14.88 | □ | — | — |
| 3020501 | 0.5 × 1.5 | | 0.7 | | 0.45 | 1.56 | 1.61 | 1.67 | 1.73 | 1.80 | 1.87 | □ | — | — |
| 3020502 | 0.5 × 2 | | | | | 2.07 | 2.14 | 2.22 | 2.31 | 2.40 | 2.49 | □ | — | — |
| 3020503 | 0.5 × 3 | | | | | 3.11 | 3.21 | 3.33 | 3.46 | 3.59 | 3.74 | □ | — | — |
| 3020504 | 0.5 × 4 | | | | | 4.14 | 4.28 | 4.44 | 4.61 | 4.78 | 4.98 | □ | — | — |
| 3020505 | 0.5 × 5 | | | | | 5.17 | 5.35 | 5.55 | 5.75 | 5.98 | 6.22 | □ | — | — |
| 3020506 | 0.5 × 6 | | | | | 6.21 | 6.42 | 6.66 | 6.90 | 7.17 | 7.47 | □ | — | — |
| 3020507 | 0.5 × 7 | | | | | 7.24 | 7.49 | 7.76 | 8.05 | 8.37 | 8.71 | □ | — | — |
| 3020508 | 0.5 × 8 | | | | | 8.27 | 8.56 | 8.87 | 9.20 | 9.56 | 9.95 | □ | — | — |
| 3020509 | 0.5 × 9 | | | | | 9.31 | 9.63 | 9.98 | 10.35 | 10.76 | 11.19 | □ | — | — |
| 3020510 | 0.5 × 10 | | | | | 10.34 | 10.70 | 11.09 | 11.50 | 11.95 | 12.44 | □ | — | — |
| 3020512 | 0.5 × 12 | | | | | 12.41 | 12.84 | 13.31 | 13.80 | 14.34 | 14.92 | □ | — | — |
| 3020515 | 0.5 × 15 | 50 | | | | 15.51 | 16.05 | 16.63 | 17.25 | 17.93 | 18.65 | □ | — | — |
| 3020602 | 0.6 × 2 | 45 | 0.9 | | 0.55 | 2.07 | 2.14 | 2.22 | 2.31 | 2.40 | 2.49 | □ | — | — |
| 3020603 | 0.6 × 3 | | | | | 3.11 | 3.21 | 3.33 | 3.46 | 3.59 | 3.74 | □ | — | — |
| 3020604 | 0.6 × 4 | | | | | 4.14 | 4.28 | 4.44 | 4.61 | 4.78 | 4.98 | □ | — | — |
| 3020605 | 0.6 × 5 | | | | | 5.17 | 5.35 | 5.55 | 5.75 | 5.98 | 6.22 | □ | — | — |
| 3020606 | 0.6 × 6 | | | | | 6.21 | 6.42 | 6.66 | 6.90 | 7.17 | 7.47 | □ | — | — |

次ページへ 外径 DC 0.6〜1 NEXT

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- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
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# WXコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WX-LN-EDS

切削条件 Cutting Conditions | P638-11



リブ溝加工や加工時の干渉が問題となる微細部分の加工に最適です。加工に合わせ有効長をお選び下さい。

Suitable for rib processing and very fine operations. Select appropriate cutting length for different operations.

CARBIDE | WX | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

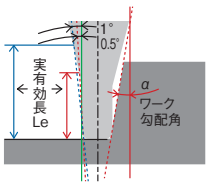
前ページより FROM 外径 DC 0.1〜0.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3020607 | 0.6 × 7 | 45 | 0.9 | 4 | 0.55 | 7.24 | 7.49 | 7.76 | 8.05 | 8.37 | 8.71 | □ | — | — |
| 3020608 | 0.6 × 8 | | | | | 8.27 | 8.56 | 8.87 | 9.20 | 9.56 | 9.95 | □ | — | — |
| 3020610 | 0.6 × 10 | | | | | 10.34 | 10.70 | 11.09 | 11.50 | 11.95 | 12.44 | □ | — | — |
| 3020612 | 0.6 × 12 | | | | | 12.41 | 12.84 | 13.31 | 13.80 | 14.34 | 14.92 | □ | — | — |
| 3020615 | 0.6 × 15 | 50 | | | | 15.51 | 16.05 | 16.63 | 17.25 | 17.93 | 18.65 | □ | — | — |
| 3020618 | 0.6 × 18 | | | | | 18.61 | 19.26 | 19.96 | 20.70 | 21.51 | 22.38 | □ | — | — |
| 3020702 | 0.7 × 2 | 45 | 1 | | 0.65 | 2.07 | 2.14 | 2.22 | 2.31 | 2.40 | 2.49 | □ | — | — |
| 3020704 | 0.7 × 4 | | | | | 4.14 | 4.28 | 4.44 | 4.61 | 4.78 | 4.98 | □ | — | — |
| 3020706 | 0.7 × 6 | | | | | 6.21 | 6.42 | 6.66 | 6.90 | 7.17 | 7.47 | □ | — | — |
| 3020708 | 0.7 × 8 | | | | | 8.27 | 8.56 | 8.87 | 9.20 | 9.56 | 9.95 | □ | — | — |
| 3020710 | 0.7 × 10 | | | | | 10.34 | 10.70 | 11.09 | 11.50 | 11.95 | 12.44 | □ | — | — |
| 3020804 | 0.8 × 4 | | 1.2 | | 0.75 | 4.14 | 4.28 | 4.44 | 4.61 | 4.78 | 4.98 | □ | — | — |
| 3020806 | 0.8 × 6 | | | | | 6.21 | 6.42 | 6.66 | 6.90 | 7.17 | 7.47 | □ | — | — |
| 3020808 | 0.8 × 8 | | | | | 8.27 | 8.56 | 8.87 | 9.20 | 9.56 | 9.95 | □ | — | — |
| 3020810 | 0.8 × 10 | | | | | 10.34 | 10.70 | 11.09 | 11.50 | 11.95 | 12.44 | □ | — | — |
| 3020812 | 0.8 × 12 | | | | | 12.41 | 12.84 | 13.31 | 13.80 | 14.34 | 14.92 | □ | — | — |
| 3020814 | 0.8 × 14 | 50 | | | | 14.48 | 14.98 | 15.52 | 16.10 | 16.73 | 17.41 | □ | — | — |
| 3020816 | 0.8 × 16 | | | | | 16.54 | 17.12 | 17.74 | 18.40 | 19.12 | 19.90 | □ | — | — |
| 3020820 | 0.8 × 20 | 55 | | | | 20.68 | 21.40 | 22.17 | 23.00 | 23.90 | 24.87 | □ | — | — |
| 3020824 | 0.8 × 24 | 60 | | | | 24.81 | 25.68 | 26.60 | 27.60 | 28.68 | 29.84 | □ | — | — |
| 3020904 | 0.9 × 4 | 45 | 1.35 | | 0.85 | 4.14 | 4.28 | 4.44 | 4.61 | 4.78 | 4.98 | □ | — | — |
| 3020906 | 0.9 × 6 | | | | | 6.21 | 6.42 | 6.66 | 6.90 | 7.17 | 7.47 | □ | — | — |
| 3020908 | 0.9 × 8 | | | | | 8.27 | 8.56 | 8.87 | 9.20 | 9.56 | 9.95 | □ | — | — |
| 3020910 | 0.9 × 10 | | | | | 10.34 | 10.70 | 11.09 | 11.50 | 11.95 | 12.44 | □ | — | — |
| 3020915 | 0.9 × 15 | 50 | | | | 15.51 | 16.05 | 16.63 | 17.25 | 17.93 | 18.65 | □ | — | — |
| 3021003 | 1 × 3 | 45 | 1.5 | | 0.95 | 3.11 | 3.21 | 3.33 | 3.46 | 3.59 | 3.74 | □ | — | — |
| 3021004 | 1 × 4 | | | | | 4.14 | 4.28 | 4.44 | 4.61 | 4.78 | 4.98 | □ | — | — |
| 3021005 | 1 × 5 | | | | | 5.17 | 5.35 | 5.55 | 5.75 | 5.98 | 6.22 | □ | — | — |
| 3021006 | 1 × 6 | | | | | 6.21 | 6.42 | 6.66 | 6.90 | 7.17 | 7.47 | □ | — | — |
| 3021007 | 1 × 7 | | | | | 7.24 | 7.49 | 7.76 | 8.05 | 8.37 | 8.71 | □ | — | — |

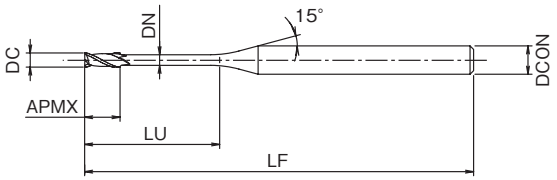
### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.




次ページへ 外径 DC 1〜1.6 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WX-LN-EDS | ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
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# WXコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WX-LN-EDS

切削条件 Cutting Conditions | P638-11



リブ溝加工や加工時の干渉が問題となる微細部分の加工に最適です。加工に合わせ有効長をお選び下さい。

Suitable for rib processing and very fine operations. Select appropriate cutting length for different operations.

CARBIDE | WX | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

前ページより FROM 外径 DC 0.6〜1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3021008 | 1 × 8 | 45 | 1.5 | 4 | 0.95 | 8.27 | 8.56 | 8.87 | 9.20 | 9.56 | 9.95 | □ | — | — |
| 3021009 | 1 × 9 | | | | | 9.31 | 9.63 | 9.98 | 10.35 | 10.76 | 11.19 | □ | — | — |
| 3021010 | 1 × 10 | | | | | 10.34 | 10.70 | 11.09 | 11.50 | 11.95 | 12.44 | □ | — | — |
| 3021012 | 1 × 12 | | | | | 12.41 | 12.84 | 13.31 | 13.80 | 14.34 | 14.92 | □ | — | — |
| 3021014 | 1 × 14 | 50 | | | | 14.48 | 14.98 | 15.52 | 16.10 | 16.73 | 17.41 | □ | — | — |
| 3021016 | 1 × 16 | | | | | 16.54 | 17.12 | 17.74 | 18.40 | 19.12 | 19.90 | □ | — | — |
| 3021018 | 1 × 18 | 55 | | | | 18.61 | 19.26 | 19.96 | 20.70 | 21.51 | 22.38 | □ | — | — |
| 3021020 | 1 × 20 | | | | | 20.68 | 21.40 | 22.17 | 23.00 | 23.90 | 24.87 | □ | — | — |
| 3021022 | 1 × 22 | 60 | | | | 22.75 | 23.54 | 24.39 | 25.30 | 26.29 | 27.36 | □ | — | — |
| 3021025 | 1 × 25 | | | | | 25.85 | 26.75 | 27.71 | 28.75 | 29.87 | — | □ | — | — |
| 3021030 | 1 × 30 | 70 | | | | 31.02 | 32.10 | 33.25 | 34.50 | — | — | □ | — | — |
| 3021204 | 1.2 × 4 | 45 | 1.8 | | 1.15 | 4.22 | 4.38 | 4.54 | 4.71 | 4.90 | 5.09 | □ | — | — |
| 3021206 | 1.2 × 6 | | | | | 6.30 | 6.52 | 6.76 | 7.01 | 7.29 | 7.58 | □ | — | — |
| 3021208 | 1.2 × 8 | | | | | 8.37 | 8.66 | 8.98 | 9.31 | 9.67 | 10.07 | □ | — | — |
| 3021210 | 1.2 × 10 | | | | | 10.44 | 10.80 | 11.19 | 11.61 | 12.06 | 12.55 | □ | — | — |
| 3021212 | 1.2 × 12 | | | | | 12.51 | 12.94 | 13.41 | 13.91 | 14.45 | 15.04 | □ | — | — |
| 3021214 | 1.2 × 14 | 50 | | | | 14.57 | 15.08 | 15.63 | 16.21 | 16.84 | 17.53 | □ | — | — |
| 3021216 | 1.2 × 16 | | | | | 16.64 | 17.22 | 17.84 | 18.51 | 19.23 | 20.01 | □ | — | — |
| 3021220 | 1.2 × 20 | 55 | | | | 20.77 | 21.50 | 22.28 | 23.11 | 24.01 | 24.99 | □ | — | — |
| 3021406 | 1.4 × 6 | 45 | 2.1 | | 1.35 | 6.30 | 6.52 | 6.76 | 7.01 | 7.29 | 7.58 | □ | — | — |
| 3021408 | 1.4 × 8 | | | | | 8.37 | 8.66 | 8.98 | 9.31 | 9.67 | 10.07 | □ | — | — |
| 3021410 | 1.4 × 10 | | | | | 10.44 | 10.80 | 11.19 | 11.61 | 12.06 | 12.55 | □ | — | — |
| 3021412 | 1.4 × 12 | | | | | 12.51 | 12.94 | 13.41 | 13.91 | 14.45 | 15.04 | □ | — | — |
| 3021414 | 1.4 × 14 | 50 | | | | 14.57 | 15.08 | 15.63 | 16.21 | 16.84 | 17.53 | □ | — | — |
| 3021416 | 1.4 × 16 | | | | | 16.64 | 17.22 | 17.84 | 18.51 | 19.23 | 20.01 | □ | — | — |
| 3021422 | 1.4 × 22 | 60 | | | | 22.84 | 23.64 | 24.49 | 25.41 | 26.40 | — | □ | — | — |
| 3021504 | 1.5 × 4 | 45 | 2.3 | | 1.45 | 4.22 | 4.38 | 4.54 | 4.71 | 4.90 | 5.09 | □ | — | — |
| 3021506 | 1.5 × 6 | | | | | 6.30 | 6.52 | 6.76 | 7.01 | 7.29 | 7.58 | □ | — | — |
| 3021508 | 1.5 × 8 | 45 | | | | 8.37 | 8.66 | 8.98 | 9.31 | 9.67 | 10.07 | □ | — | — |
| 3021510 | 1.5 × 10 | | | | | 10.44 | 10.80 | 11.19 | 11.61 | 12.06 | 12.55 | □ | — | — |
| 3021512 | 1.5 × 12 | | | | | 12.51 | 12.94 | 13.41 | 13.91 | 14.45 | 15.04 | □ | — | — |
| 3021514 | 1.5 × 14 | 50 | | | | 14.57 | 15.08 | 15.63 | 16.21 | 16.84 | 17.53 | □ | — | — |
| 3021516 | 1.5 × 16 | | | | | 16.64 | 17.22 | 17.84 | 18.51 | 19.23 | 20.01 | □ | — | — |
| 3021518 | 1.5 × 18 | 55 | | | | 18.71 | 19.36 | 20.06 | 20.81 | 21.62 | 22.50 | □ | — | — |
| 3021520 | 1.5 × 20 | | | | | 20.77 | 21.50 | 22.28 | 23.11 | 24.01 | — | □ | — | — |
| 3021525 | 1.5 × 25 | 60 | | | | 25.94 | 26.85 | 27.82 | 28.86 | — | — | □ | — | — |
| 3021530 | 1.5 × 30 | 70 | | | | 31.11 | 32.20 | 33.36 | 34.61 | — | — | □ | — | — |
| 3021538 | 1.5 × 38 | 80 | | | | 39.38 | 40.75 | 42.22 | — | — | — | □ | — | — |
| 3021540 | 1.5 × 40 | | | | | 41.45 | 42.89 | 44.44 | — | — | — | □ | — | — |
| 3021545 | 1.5 × 45 | | | | | 46.62 | 48.24 | — | — | — | — | □ | — | — |
| 3021606 | 1.6 × 6 | 45 | 2.4 | | 1.55 | 6.30 | 6.52 | 6.76 | 7.01 | 7.29 | 7.58 | □ | — | — |
| 3021608 | 1.6 × 8 | | | | | 8.37 | 8.66 | 8.98 | 9.31 | 9.67 | 10.07 | □ | — | — |
| 3021610 | 1.6 × 10 | | | | | 10.44 | 10.80 | 11.19 | 11.61 | 12.06 | 12.55 | □ | — | — |
| 3021612 | 1.6 × 12 | | | | | 12.51 | 12.94 | 13.41 | 13.91 | 14.45 | 15.04 | □ | — | — |
| 3021614 | 1.6 × 14 | 50 | | | | 14.57 | 15.08 | 15.63 | 16.21 | 16.84 | 17.53 | □ | — | — |
| 3021616 | 1.6 × 16 | | | | | 16.64 | 17.22 | 17.84 | 18.51 | 19.23 | 20.01 | □ | — | — |
| 3021618 | 1.6 × 18 | 55 | | | | 18.71 | 19.36 | 20.06 | 20.81 | 21.62 | 22.50 | □ | — | — |
| 3021620 | 1.6 × 20 | | | | | 20.77 | 21.50 | 22.28 | 23.11 | 24.01 | — | □ | — | — |

次ページへ 外径 DC 1.8〜2.5 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WX-LN-EDS

切削条件 Cutting Conditions | P638-11



リブ溝加工や加工時の干渉が問題となる微細部分の加工に最適です。加工に合わせ有効長をお選び下さい。

Suitable for rib processing and very fine operations. Select appropriate cutting length for different operations.

CARBIDE | WX | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

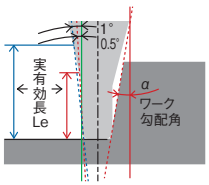
前ページより FROM 外径 DC 1〜1.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3021806 | 1.8 × 6 | 45 | 2.7 | 4 | 1.75 | 6.42 | 6.77 | 7.10 | 7.39 | 7.68 | 7.99 | □ | — | — |
| 3021808 | 1.8 × 8 | | | | | 8.53 | 8.96 | 9.34 | 9.69 | 10.07 | 10.48 | □ | — | — |
| 3021810 | 1.8 × 10 | | | | | 10.64 | 11.13 | 11.56 | 11.99 | 12.46 | 12.97 | □ | — | — |
| 3021812 | 1.8 × 12 | | | | | 12.74 | 13.29 | 13.78 | 14.29 | 14.85 | 15.45 | □ | — | — |
| 3021814 | 1.8 × 14 | 50 | | | | 14.83 | 15.44 | 15.99 | 16.59 | 17.24 | 17.94 | □ | — | — |
| 3021816 | 1.8 × 16 | | | | | 16.92 | 17.58 | 18.21 | 18.89 | 19.63 | 20.43 | □ | — | — |
| 3021818 | 1.8 × 18 | 55 | | | | 19.01 | 19.71 | 20.43 | 21.19 | 22.02 | — | □ | — | — |
| 3021820 | 1.8 × 20 | | | | | 21.09 | 21.85 | 22.64 | 23.49 | 24.41 | — | □ | — | — |
| 3021825 | 1.8 × 25 | 60 | | | | 26.28 | 27.20 | 28.18 | 29.24 | — | — | □ | — | — |
| 3022006 | 2 × 6 | 45 | 3 | | 1.95 | 6.42 | 6.77 | 7.10 | 7.39 | 7.68 | 7.99 | □ | — | — |
| 3022008 | 2 × 8 | | | | | 8.53 | 8.96 | 9.34 | 9.69 | 10.07 | 10.48 | □ | — | — |
| 3022010 | 2 × 10 | | | | | 10.64 | 11.13 | 11.56 | 11.99 | 12.46 | 12.97 | □ | — | — |
| 3022012 | 2 × 12 | | | | | 12.74 | 13.29 | 13.78 | 14.29 | 14.85 | 15.45 | □ | — | — |
| 3022014 | 2 × 14 | 50 | | | | 14.83 | 15.44 | 15.99 | 16.59 | 17.24 | 17.94 | □ | — | — |
| 3022016 | 2 × 16 | | | | | 16.92 | 17.58 | 18.21 | 18.89 | 19.63 | — | □ | — | — |
| 3022018 | 2 × 18 | 55 | | | | 19.01 | 19.71 | 20.43 | 21.19 | 22.02 | — | □ | — | — |
| 3022020 | 2 × 20 | | | | | 21.09 | 21.85 | 22.64 | 23.49 | — | — | □ | — | — |
| 3022025 | 2 × 25 | 60 | | | | 26.28 | 27.20 | 28.18 | — | — | — | □ | — | — |
| 3022030 | 2 × 30 | 70 | | | | 31.45 | 32.55 | 33.73 | — | — | — | □ | — | — |
| 3022035 | 2 × 35 | 80 | | | | 36.62 | 37.90 | — | — | — | — | □ | — | — |
| 3022040 | 2 × 40 | 90 | | | | 41.79 | 43.25 | — | — | — | — | □ | — | — |
| 3022050 | 2 × 50 | 100 | | | | 52.13 | 53.94 | — | — | — | — | □ | — | — |
| 3022060 | 2 × 60 | 110 | | | | 62.46 | — | — | — | — | — | □ | — | — |
| 3022508 | 2.5 × 8 | 45 | 3.7 | | 2.4 | 8.47 | 8.87 | 9.22 | 9.57 | 9.94 | 10.35 | □ | — | — |
| 3022510 | 2.5 × 10 | | | | | 10.57 | 11.03 | 11.44 | 11.87 | 12.33 | 12.83 | □ | — | — |
| 3022512 | 2.5 × 12 | | | | | 12.66 | 13.18 | 13.66 | 14.17 | 14.72 | — | □ | — | — |
| 3022514 | 2.5 × 14 | 50 | | | | 14.75 | 15.32 | 15.88 | 16.47 | 17.11 | — | □ | — | — |
| 3022516 | 2.5 × 16 | 55 | | | | 16.83 | 17.46 | 18.09 | 18.77 | — | — | □ | — | — |
| 3022518 | 2.5 × 18 | | | | | 18.91 | 19.60 | 20.31 | 21.07 | — | — | □ | — | — |
| 3022520 | 2.5 × 20 | 60 | | | | 20.99 | 21.74 | 22.52 | — | — | — | □ | — | — |

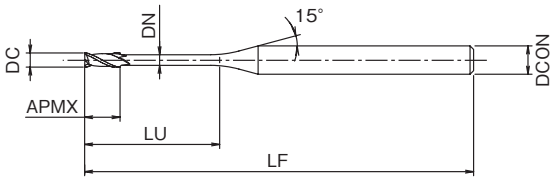
### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.




次ページへ 外径 DC 2.5〜6 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WX-LN-EDS | ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WX-LN-EDS

切削条件 Cutting Conditions | P638-11



リブ溝加工や加工時の干渉が問題となる微細部分の加工に最適です。加工に合わせ有効長をお選び下さい。

Suitable for rib processing and very fine operations. Select appropriate cutting length for different operations.

CARBIDE | WX | 0〜-0.015 | ø2<DC | SHRINK FIT | 30°

前ページより FROM 外径 DC 1.8〜2.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3022525 | 2.5 × 25 | 70 | 3.7 | 4 | 2.4 | 26.17 | 27.09 | 28.07 | – | – | – | □ | – | – |
| 3022530 | 2.5 × 30 | 80 | | | | 31.34 | 32.44 | – | – | – | – | □ | – | – |
| 3022540 | 2.5 × 40 | 90 | | | | 41.68 | – | – | – | – | – | □ | – | – |
| 3022550 | 2.5 × 50 | 100 | | | | 52.02 | – | – | – | – | – | □ | – | – |
| 3023008 | 3 × 8 | 45 | 4.5 | 6 | 2.85 | 8.42 | 8.79 | 9.13 | 9.47 | 9.84 | 10.24 | □ | – | – |
| 3023010 | 3 × 10 | | | | | 10.51 | 10.95 | 11.35 | 11.77 | 12.23 | 12.73 | □ | – | – |
| 3023012 | 3 × 12 | | | | | 12.60 | 13.09 | 13.56 | 14.07 | 14.62 | 15.21 | □ | – | – |
| 3023014 | 3 × 14 | 50 | | | | 14.68 | 15.23 | 15.78 | 16.37 | 17.01 | 17.70 | □ | – | – |
| 3023016 | 3 × 16 | 55 | | | | 16.76 | 17.37 | 18.00 | 18.67 | 19.40 | 20.18 | □ | – | – |
| 3023018 | 3 × 18 | | | | | 18.84 | 19.51 | 20.21 | 20.97 | 21.79 | 22.67 | □ | – | – |
| 3023020 | 3 × 20 | 60 | | | | 20.91 | 21.65 | 22.43 | 23.27 | 24.18 | 25.16 | □ | – | – |
| 3023025 | 3 × 25 | 65 | | | | 26.09 | 27.00 | 27.97 | 29.02 | 30.15 | – | □ | – | – |
| 3023030 | 3 × 30 | 80 | | | | 31.25 | 32.34 | 33.51 | 34.77 | – | – | □ | – | – |
| 3023035 | 3 × 35 | 90 | | | | 36.42 | 37.69 | 39.05 | 40.52 | – | – | □ | – | – |
| 3023040 | 3 × 40 | | | | | 41.59 | 43.04 | 44.60 | – | – | – | □ | – | – |
| 3023050 | 3 × 50 | 100 | | | | 51.93 | 53.74 | 55.68 | – | – | – | □ | – | – |
| 3024012 | 4 × 12 | 50 | 6 | | 3.85 | 12.60 | 13.09 | 13.56 | 14.07 | 14.62 | 15.21 | □ | – | – |
| 3024016 | 4 × 16 | 60 | | | | 16.76 | 17.37 | 18.00 | 18.67 | 19.40 | – | □ | – | – |
| 3024020 | 4 × 20 | | | | | 20.91 | 21.65 | 22.43 | 23.27 | – | – | □ | – | – |
| 3024025 | 4 × 25 | 70 | | | | 26.09 | 27.00 | 27.97 | – | – | – | □ | – | – |
| 3024030 | 4 × 30 | 80 | | | | 31.25 | 32.34 | 33.51 | – | – | – | □ | – | – |
| 3024035 | 4 × 35 | 90 | | | | 36.42 | 37.69 | – | – | – | – | □ | – | – |
| 3024040 | 4 × 40 | | | | | 41.59 | 43.04 | – | – | – | – | □ | – | – |
| 3024045 | 4 × 45 | 100 | | | | 46.76 | 48.39 | – | – | – | – | □ | – | – |
| 3024050 | 4 × 50 | | | | | 51.93 | 53.74 | – | – | – | – | □ | – | – |
| 3024060 | 4 × 60 | 110 | | | | 62.26 | – | – | – | – | – | □ | – | – |
| 3025016 | 5 × 16 | 60 | 7.5 | | 4.85 | 16.76 | 17.37 | 18.00 | – | – | – | □ | – | – |
| 3025020 | 5 × 20 | 70 | | | | 20.91 | 21.65 | – | – | – | – | □ | – | – |
| 3025025 | 5 × 25 | | | | | 26.09 | 27.00 | – | – | – | – | □ | – | – |
| 3025030 | 5 × 30 | 90 | | | | 31.25 | – | – | – | – | – | □ | – | – |
| 3025035 | 5 × 35 | | | | | 36.42 | – | – | – | – | – | □ | – | – |
| 3025040 | 5 × 40 | 100 | | | | 41.59 | – | – | – | – | – | □ | – | – |
| 3025050 | 5 × 50 | 110 | | | | 51.93 | – | – | – | – | – | □ | – | – |
| 3025060 | 5 × 60 | 120 | | | | – | – | – | – | – | – | □ | – | – |
| 3026020 | 6 × 20 | 80 | 9 | | 5.85 | – | – | – | – | – | – | □ | – | – |
| 3026030 | 6 × 30 | 90 | | | | – | – | – | – | – | – | □ | – | – |
| 3026040 | 6 × 40 | 100 | | | | – | – | – | – | – | – | □ | – | – |
| 3026050 | 6 × 50 | 110 | | | | – | – | – | – | – | – | □ | – | – |
| 3026060 | 6 × 60 | 120 | | | | – | – | – | – | – | – | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WX-LN-EDS | ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ロングネックスクエアエンドミルショート形（φ6シャンク）

**FX Coated 2-flute Long Neck Carbide End Mill Short Length (φ6 Shank)**

## FX-LN-EDS-6

切削条件 Cutting Conditions | P667-8



高速高精度型マシニングセンタの性能を十分に引き出す高速加工用エンドミルロングネックタイプです。
High speed long neck end mill. Maximizes performance of high speed and high precision machining centers.

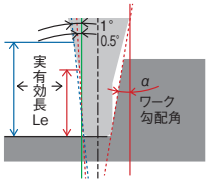



（単位:mm）(Unit:mm)

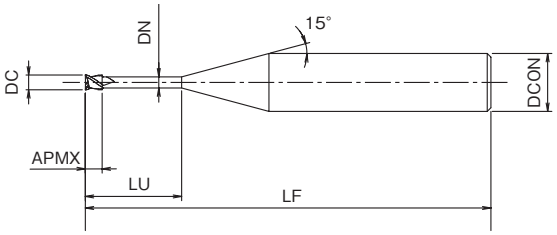
| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8544205 | 0.5 × 2.5 | 60 | 0.7 | 6 | 0.45 | 2.58 | 2.67 | 2.77 | 2.87 | 2.98 | 3.10 | – | □ | – | – |
| 8544206 | 0.6 × 3 | | 0.9 | | 0.55 | 3.10 | 3.20 | 3.32 | 3.45 | 3.58 | 3.72 | | □ | – | – |
| 8544208 | 0.8 × 4 | | 1.2 | | 0.75 | 4.13 | 4.27 | 4.43 | 4.59 | 4.77 | 4.97 | | □ | – | – |
| 8544210 | 1 × 5 | | 1.5 | | 0.95 | 5.16 | 5.34 | 5.54 | 5.74 | 5.97 | 6.21 | | □ | – | – |
| 8544212 | 1.2 × 6 | | 1.8 | | 1.15 | 6.20 | 6.41 | 6.65 | 6.89 | 7.16 | 7.45 | | □ | – | – |
| 8544214 | 1.4 × 7 | | 2.1 | | 1.35 | 7.23 | 7.48 | 7.75 | 8.04 | 8.36 | 8.70 | | □ | – | – |
| 8544215 | 1.5 × 7.5 | | 2.3 | | 1.45 | 7.75 | 8.02 | 8.31 | 8.62 | 8.96 | 9.32 | | □ | – | – |
| 8544216 | 1.6 × 8 | | 2.4 | | 1.55 | 8.26 | 8.55 | 8.86 | 9.19 | 9.55 | 9.94 | | □ | – | – |
| 8544218 | 1.8 × 9 | | 2.7 | | 1.75 | 9.30 | 9.62 | 9.97 | 10.35 | 10.75 | 11.19 | | □ | – | – |
| 8544220 | 2 × 10 | | 3 | | 1.95 | 10.34 | 10.70 | 11.08 | 11.50 | 11.95 | 12.43 | | □ | – | – |
| 8544225 | 2.5 × 12.5 | | 3.7 | | 2.4 | 12.92 | 13.37 | 13.85 | 14.37 | 14.93 | 15.54 | | □ | – | – |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.




デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-LN-EDS-6 | ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃超硬ロングネックスクエアエンドミル ショート形
**2-flute Long Neck Carbide End Mill Short Length**

## LN-MG-EDS



CARBIDE | SHRINK FIT | 30°

0～-0.015

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.5 × 6 | 45 | 0.8 | 4 | 0.45 | □ | — | — |
| | 0.6 × 6 | | | | 0.54 | □ | — | — |
| | 0.7 × 6 | | 1.1 | | 0.64 | □ | — | — |
| | 0.8 × 6 | | 1.2 | | 0.75 | □ | — | — |
| | 0.9 × 6 | | 1.3 | | 0.85 | □ | — | — |
| | 1 × 6 | | 1.5 | | 0.97 | □ | — | — |
| | 1 × 12 | | | | 0.93 | □ | — | — |
| | 1.1 × 6 | | 1.7 | | 1.07 | □ | — | — |
| | 1.1 × 12 | | | | 1.03 | □ | — | — |
| | 1.2 × 6 | | 1.9 | | 1.14 | □ | — | — |
| | 1.2 × 12 | | | | | □ | — | — |
| | 1.3 × 6 | | | | 1.27 | □ | — | — |
| | 1.3 × 12 | | | | 1.23 | □ | — | — |
| | 1.4 × 6 | | 2.1 | | 1.37 | □ | — | — |
| | 1.4 × 12 | | | | 1.33 | □ | — | — |
| | 1.4 × 16 | 50 | | | 1.31 | □ | — | — |
| | 1.4 × 22 | 60 | | | | □ | — | — |
| | 1.5 × 6 | 45 | | | 1.47 | □ | — | — |
| | 1.5 × 12 | | | | 1.41 | □ | — | — |
| | 1.5 × 16 | 50 | | | | □ | — | — |
| | 1.5 × 22 | 60 | | | 1.39 | □ | — | — |
| | 1.6 × 6 | 45 | 2.4 | | 1.54 | □ | — | — |
| | 1.6 × 12 | | | | 1.53 | □ | — | — |
| | 1.6 × 16 | 50 | | | 1.54 | □ | — | — |
| | 1.6 × 22 | 60 | | | 1.49 | □ | — | — |
| | 1.7 × 6 | 45 | | | 1.67 | □ | — | — |
| | 1.7 × 12 | | | | 1.63 | □ | — | — |
| | 1.7 × 16 | 50 | | | 1.61 | □ | — | — |
| | 1.7 × 22 | 60 | | | | □ | — | — |
| | 1.8 × 6 | 45 | 2.6 | | 1.77 | □ | — | — |

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1.8 × 12 | 45 | 2.6 | 4 | 1.73 | □ | — | — |
| | 1.8 × 16 | 50 | | | 1.71 | □ | — | — |
| | 1.8 × 22 | 60 | | | 1.69 | □ | — | — |
| | 1.9 × 6 | 45 | | | 1.84 | □ | — | — |
| | 1.9 × 12 | | | | 1.83 | □ | — | — |
| | 1.9 × 16 | 50 | | | 1.81 | □ | — | — |
| | 1.9 × 22 | 60 | | | | □ | — | — |
| | 2 × 12 | 45 | 3 | | 1.93 | □ | — | — |
| | 2 × 16 | 50 | | | 1.91 | □ | — | — |
| | 2 × 22 | 60 | | | 1.89 | □ | — | — |
| | 2.1 × 12 | 45 | | | 2.02 | □ | — | — |
| | 2.1 × 16 | 50 | | | | □ | — | — |
| | 2.1 × 22 | 60 | | | | □ | — | — |
| | 2.2 × 12 | 45 | 3.4 | | 2.09 | □ | — | — |
| | 2.2 × 16 | 50 | | | | □ | — | — |
| | 2.2 × 22 | 60 | | | | □ | — | — |
| | 2.3 × 12 | 45 | | | 2.22 | □ | — | — |
| | 2.3 × 16 | 50 | | | | □ | — | — |
| | 2.3 × 22 | 60 | | | | □ | — | — |
| | 2.4 × 12 | 45 | 4 | | 2.32 | □ | — | — |
| | 2.4 × 16 | 50 | | | 2.3 | □ | — | — |
| | 2.4 × 22 | 60 | | | | □ | — | — |
| | 2.5 × 12 | 45 | | | 2.4 | □ | — | — |
| | 2.5 × 16 | 50 | | | | □ | — | — |
| | 2.5 × 22 | 60 | | | | □ | — | — |
| | 2.6 × 14.5 | 45 | | | 2.52 | □ | — | — |
| | 2.7 × 14.5 | | | | 2.62 | □ | — | — |
| | 2.8 × 14.5 | | | | 2.72 | □ | — | — |
| | 2.9 × 14.5 | | | | 2.82 | □ | — | — |
| | 3 × 14.5 | | | | 2.92 | □ | — | — |

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| LN-MG-EDS | ○ | | | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅・アルミ合金・プラスチック用2枚刃 超硬ロングネックスクエアエンドミルショート形

**2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics**

# CAP-LN-EDS



CARBIDE | SHRINK FIT | 35°

0～-0.015

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.5 × 2 | 40 | 0.7 | 3 | 0.45 | □ | – | – |
| | 0.5 × 4 | | | | | □ | – | – |
| | 0.5 × 6 | | | | | □ | – | – |
| | 0.6 × 2 | | 0.9 | | 0.55 | □ | – | – |
| | 0.6 × 4 | | | | | □ | – | – |
| | 0.6 × 6 | | | | | □ | – | – |
| | 0.7 × 2 | 50 | 1 | 4 | 0.65 | □ | – | – |
| | 0.7 × 4 | | | | | □ | – | – |
| | 0.7 × 6 | | | | | □ | – | – |
| | 0.8 × 4 | | 1.2 | | 0.75 | □ | – | – |
| | 0.8 × 6 | | | | | □ | – | – |
| | 0.8 × 8 | 60 | | | | □ | – | – |
| | 0.9 × 6 | 50 | 1.35 | | 0.85 | □ | – | – |
| | 0.9 × 8 | 60 | | | | □ | – | – |
| | 0.9 × 10 | | | | | □ | – | – |
| | 1 × 6 | 50 | 1.5 | | 0.97 | □ | – | – |
| | 1 × 8 | 60 | | | 0.95 | □ | – | – |
| | 1 × 10 | | | | | □ | – | – |
| | 1 × 12 | | | | 0.93 | □ | – | – |
| | 1.5 × 6 | 50 | 2.3 | | 1.47 | □ | – | – |
| | 1.5 × 8 | 60 | | | 1.45 | □ | – | – |
| | 1.5 × 10 | | | | | □ | – | – |
| | 1.5 × 12 | | | | 1.43 | □ | – | – |
| | 1.5 × 14 | | | | | □ | – | – |
| | 1.5 × 16 | | | | 1.41 | □ | – | – |
| | 1.5 × 18 | | | | | □ | – | – |
| | 1.5 × 20 | 70 | | | 1.39 | □ | – | – |
| | 2 × 6 | 50 | 3 | | 1.97 | □ | – | – |
| | 2 × 8 | 60 | | | 1.95 | □ | – | – |
| | 2 × 10 | | | | | □ | – | – |
| | 2 × 12 | | | | 1.93 | □ | – | – |
| | 2 × 14 | | | | | □ | – | – |
| | 2 × 16 | | | | 1.91 | □ | – | – |
| | 2 × 18 | | | | | □ | – | – |
| | 2 × 20 | 70 | | | 1.89 | □ | – | – |
| | 2 × 25 | | | | 1.87 | □ | – | – |
| | 2 × 30 | 80 | | | | □ | – | – |
| | 2.5 × 8 | 60 | 3.7 | | 2.4 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2.5 × 10 | 60 | 3.7 | 4 | 2.4 | □ | – | – |
| | 2.5 × 12 | | | | | □ | – | – |
| | 2.5 × 14 | | | | | □ | – | – |
| | 2.5 × 16 | | | | | □ | – | – |
| | 2.5 × 18 | | | | | □ | – | – |
| | 2.5 × 20 | 70 | | | | □ | – | – |
| | 2.5 × 25 | | | | | □ | – | – |
| | 2.5 × 30 | 80 | | | | □ | – | – |
| | 3 × 8 | 70 | 4.5 | 6 | 2.85 | □ | – | – |
| | 3 × 10 | | | | | □ | – | – |
| | 3 × 12 | | | | | □ | – | – |
| | 3 × 14 | | | | | □ | – | – |
| | 3 × 16 | 80 | | | | □ | – | – |
| | 3 × 18 | | | | | □ | – | – |
| | 3 × 20 | | | | | □ | – | – |
| | 3 × 25 | | | | | □ | – | – |
| | 3 × 30 | 90 | | | | □ | – | – |
| | 3 × 40 | 100 | | | | □ | – | – |
| | 4 × 12 | 70 | 6 | | 3.8 | □ | – | – |
| | 4 × 16 | 80 | | | | □ | – | – |
| | 4 × 20 | | | | | □ | – | – |
| | 4 × 25 | | | | | □ | – | – |
| | 4 × 30 | 90 | | | | □ | – | – |
| | 4 × 35 | | | | | □ | – | – |
| | 4 × 40 | 100 | | | | □ | – | – |
| | 5 × 16 | 80 | 7.5 | | 4.8 | □ | – | – |
| | 5 × 20 | | | | | □ | – | – |
| | 5 × 25 | | | | | □ | – | – |
| | 5 × 30 | 90 | | | | □ | – | – |
| | 5 × 35 | | | | | □ | – | – |
| | 5 × 40 | 100 | | | | □ | – | – |
| | 6 × 16 | 80 | 9 | 8 | 5.8 | □ | – | – |
| | 6 × 20 | | | | | □ | – | – |
| | 6 × 25 | | | | | □ | – | – |
| | 6 × 30 | 90 | | | | □ | – | – |
| | 6 × 35 | | | | | □ | – | – |
| | 6 × 40 | 100 | | | | □ | – | – |

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CAP-LN-EDS | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 銅・アルミ合金・プラスチック用CrNコート2枚刃 超硬ロングネックスクエアエンドミルショート形

**CrN Coated 2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics**

## CRN-LN-EDS

切削条件 Cutting Conditions | P682-4



大きな突き出しでも高能率、高精度加工を可能とする剛性の高いショート刃ロングネック形状です。銅電極の高速高精度加工にも最適です。

Best for high speed and precision machining of Copper electrodes.

CARBIDE | CrN | SHRINK FIT | 35°

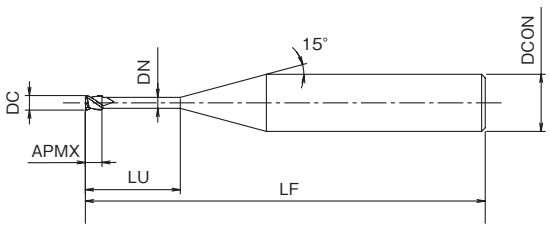
0〜-0.015

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8530005 | 0.5 × 2.5 | 60 | 0.7 | 6 | 0.45 | – | □ | – | – |
| 8531553 | 0.5 × 3 | | | | | | □ | – | – |
| 8531554 | 0.5 × 4 | | | | | | □ | – | – |
| 8531555 | 0.5 × 5 | | | | | | □ | – | – |
| 8531563 | 0.6 × 3 | | 0.9 | | 0.55 | | □ | – | – |
| 8531566 | 0.6 × 6 | | | | | | □ | – | – |
| 8530008 | 0.8 × 4 | | 1.2 | | 0.75 | | □ | – | – |
| 8531588 | 0.8 × 8 | | | | | | □ | – | – |
| 8531603 | 1 × 3 | | 1.5 | | 0.95 | | □ | – | – |
| 8531604 | 1 × 4 | | | | | | □ | – | – |
| 8530010 | 1 × 5 | | | | | | □ | – | – |
| 8531606 | 1 × 6 | | | | | | □ | – | – |
| 8531607 | 1 × 7 | | | | | | □ | – | – |
| 8531608 | 1 × 8 | | | | | | □ | – | – |
| 8531609 | 1 × 9 | | | | | | □ | – | – |
| 8531610 | 1 ×10 | | | | | | □ | – | – |
| 8530015 | 1.5 × 7.5 | | 2.3 | | 1.45 | | □ | – | – |
| 8531655 | 1.5 ×15 | | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8530020 | 2 ×10 | 60 | 3 | 6 | 1.95 | – | □ | – | – |
| 8531712 | 2 ×12 | 70 | | | | | □ | – | – |
| 8531714 | 2 ×14 | | | | | | □ | – | – |
| 8531716 | 2 ×16 | | | | | | □ | – | – |
| 8531718 | 2 ×18 | | | | | | □ | – | – |
| 8531720 | 2 ×20 | | | | | | □ | – | – |
| 8530025 | 2.5×12.5 | | 3.7 | | 2.4 | | □ | – | – |
| 8531753 | 2.5×17.5 | | | | | | □ | – | – |
| 8531756 | 2.5×25 | | | | | | □ | – | – |
| 8530030 | 3 ×15 | | 4.5 | | 2.85 | | □ | – | – |
| 8531830 | 3 ×30 | 80 | | | | | □ | – | – |
| 8530040 | 4 ×20 | | 6 | | 3.85 | | □ | – | – |
| 8531940 | 4 ×40 | 90 | | | | | □ | – | – |
| 8530050 | 5 ×25 | | 7.5 | | 4.85 | | □ | – | – |
| 8530060 | 6 ×30 | | 9 | | 5.85 | | □ | – | – |
| 8530080 | 8 ×40 | 110 | 12 | 8 | 7.85 | | □ | – | – |
| 8530100 | 10 ×50 | 125 | 15 | 10 | 9.85 | | □ | – | – |
| 8530120 | 12 ×60 | 140 | 18 | 12 | 11.85 | | □ | – | – |




CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CRN-LN-EDS | | | | | | | | | ◎ | ○ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DIAコート2枚刃超硬ロングネックスクエアエンドミルショート形
**Diamond Coated 2-flute Long Neck Carbide End Mill Short Length**

# DIA-LN-EDS



CARBIDE | DIA | SHRINK FIT | 35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.5 × 2 | 40 | 0.7 | 3 | | □ | – | – |
| | 0.5 × 4 | | | | | □ | – | – |
| | 0.5 × 6 | | | | | □ | – | – |
| | 0.6 × 2 | | 0.9 | | | □ | – | – |
| | 0.6 × 4 | | | | | □ | – | – |
| | 0.6 × 6 | | | | | □ | – | – |
| | 0.7 × 2 | 50 | 1 | 4 | | □ | – | – |
| | 0.7 × 4 | | | | | □ | – | – |
| | 0.7 × 6 | | | | | □ | – | – |
| | 0.8 × 4 | | 1.2 | | | □ | – | – |
| | 0.8 × 6 | | | | | □ | – | – |
| | 0.8 × 8 | 60 | | | | □ | – | – |
| | 0.9 × 6 | 50 | 1.35 | | | □ | – | – |
| | 0.9 × 8 | 60 | | | | □ | – | – |
| | 0.9 × 10 | | | | | □ | – | – |
| | 1 × 6 | 50 | 1.5 | | | □ | – | – |
| | 1 × 8 | 60 | | | | □ | – | – |
| | 1 × 10 | | | | | □ | – | – |
| | 1 × 12 | | | | – | □ | – | – |
| | 1.2 × 6 | 50 | 1.8 | | | □ | – | – |
| | 1.2 × 12 | 60 | | | | □ | – | – |
| | 1.4 × 6 | 50 | 2.1 | | | □ | – | – |
| | 1.4 × 14 | 60 | | | | □ | – | – |
| | 1.6 × 8 | | 2.4 | | | □ | – | – |
| | 1.6 × 16 | | | | | □ | – | – |
| | 1.8 × 8 | | 2.7 | | | □ | – | – |
| | 1.8 × 18 | | | | | □ | – | – |
| | 1.5 × 6 | 50 | 2.3 | | | □ | – | – |
| | 1.5 × 8 | 60 | | | | □ | – | – |
| | 1.5 × 10 | | | | | □ | – | – |
| | 1.5 × 12 | | | | | □ | – | – |
| | 1.5 × 14 | | | | | □ | – | – |
| | 1.5 × 16 | | | | | □ | – | – |
| | 1.5 × 18 | | | | | □ | – | – |
| | 1.5 × 20 | 70 | | | | □ | – | – |
| | 2 × 6 | 50 | 3 | | | □ | – | – |
| | 2 × 8 | 60 | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × 10 | 60 | 3 | 4 | | □ | – | – |
| | 2 × 12 | | | | | □ | – | – |
| | 2 × 14 | | | | | □ | – | – |
| | 2 × 16 | | | | | □ | – | – |
| | 2 × 18 | | | | | □ | – | – |
| | 2 × 20 | 70 | | | | □ | – | – |
| | 2 × 25 | | | | | □ | – | – |
| | 2 × 30 | 80 | | | | □ | – | – |
| | 2.5 × 8 | 60 | 3.7 | | | □ | – | – |
| | 2.5 × 10 | | | | | □ | – | – |
| | 2.5 × 12 | | | | | □ | – | – |
| | 2.5 × 14 | | | | | □ | – | – |
| | 2.5 × 16 | | | | | □ | – | – |
| | 2.5 × 18 | | | | | □ | – | – |
| | 2.5 × 20 | 70 | | | | □ | – | – |
| | 2.5 × 25 | | | | | □ | – | – |
| | 2.5 × 30 | 80 | | | | □ | – | – |
| | 3 × 8 | 70 | 4.5 | 6 | – | □ | – | – |
| | 3 × 10 | | | | | □ | – | – |
| | 3 × 12 | | | | | □ | – | – |
| | 3 × 14 | | | | | □ | – | – |
| | 3 × 16 | 80 | | | | □ | – | – |
| | 3 × 18 | | | | | □ | – | – |
| | 3 × 20 | | | | | □ | – | – |
| | 3 × 25 | | | | | □ | – | – |
| | 3 × 30 | 90 | | | | □ | – | – |
| | 3 × 40 | 100 | | | | □ | – | – |
| | 4 × 12 | 70 | 6 | | | □ | – | – |
| | 4 × 16 | 80 | | | | □ | – | – |
| | 4 × 20 | | | | | □ | – | – |
| | 4 × 25 | | | | | □ | – | – |
| | 4 × 30 | 90 | | | | □ | – | – |
| | 4 × 35 | | | | | □ | – | – |
| | 4 × 40 | 100 | | | | □ | – | – |
| | 5 × 16 | 80 | 7.5 | | | □ | – | – |
| | 5 × 20 | | | | | □ | – | – |
| | 5 × 25 | | | | | □ | – | – |

形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DIA-LN-EDS | | | | | | | | | ○ | ◎ | ◎ | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WX Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WX-LN-EMS

切削条件 Cutting Conditions | P638-19



狭くて深い部分の加工に対応するロングネックタイプの４枚刃エンドミルです。底刃はコーナ部分の強度を高めた仕様としてあります。

4 flutes long neck design for deep and narrow area milling. Enforced design at bottom corner teeth.

CARBIDE | WX | SHRINK FIT | 35°

0〜-0.015

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3061004 | 1 × 4 | 45 | 1.5 | 4 | 0.95 | 4.14 | 4.28 | 4.44 | 4.61 | 4.78 | 4.98 | □ | — | — |
| 3061006 | 1 × 6 | | | | | 6.21 | 6.42 | 6.66 | 6.90 | 7.17 | 7.47 | □ | — | — |
| 3061008 | 1 × 8 | | | | | 8.27 | 8.56 | 8.87 | 9.20 | 9.56 | 9.95 | □ | — | — |
| 3061010 | 1 × 10 | | | | | 10.34 | 10.70 | 11.09 | 11.50 | 11.95 | 12.44 | □ | — | — |
| 3061012 | 1 × 12 | | | | | 12.41 | 12.84 | 13.31 | 13.80 | 14.34 | 14.92 | □ | — | — |
| 3061016 | 1 × 16 | 50 | | | | 16.54 | 17.12 | 17.74 | 18.40 | 19.12 | 19.9 | □ | — | — |
| 3061206 | 1.2 × 6 | 45 | 1.8 | | 1.15 | 6.30 | 6.52 | 6.76 | 7.01 | 7.29 | 7.58 | □ | — | — |
| 3061208 | 1.2 × 8 | | | | | 8.37 | 8.66 | 8.98 | 9.31 | 9.67 | 10.07 | □ | — | — |
| 3061210 | 1.2 × 10 | | | | | 10.44 | 10.80 | 11.19 | 11.61 | 12.06 | 12.55 | □ | — | — |
| 3061212 | 1.2 × 12 | | | | | 12.51 | 12.94 | 13.41 | 13.91 | 14.45 | 15.04 | □ | — | — |
| 3061216 | 1.2 × 16 | 50 | | | | 16.64 | 17.22 | 17.84 | 18.51 | 19.23 | 20.01 | □ | — | — |
| 3061406 | 1.4 × 6 | 45 | 2.1 | | 1.35 | 6.30 | 6.52 | 6.76 | 7.01 | 7.29 | 7.58 | □ | — | — |
| 3061408 | 1.4 × 8 | | | | | 8.37 | 8.66 | 8.98 | 9.31 | 9.67 | 10.07 | □ | — | — |
| 3061410 | 1.4 × 10 | | | | | 10.44 | 10.80 | 11.19 | 11.61 | 12.06 | 12.55 | □ | — | — |
| 3061412 | 1.4 × 12 | | | | | 12.51 | 12.94 | 13.41 | 13.91 | 14.45 | 15.04 | □ | — | — |
| 3061414 | 1.4 × 14 | 50 | | | | 14.57 | 15.08 | 15.63 | 16.21 | 16.84 | 17.53 | □ | — | — |
| 3061416 | 1.4 × 16 | | | | | 16.64 | 17.22 | 17.84 | 18.51 | 19.23 | 20.01 | □ | — | — |
| 3061422 | 1.4 × 22 | 60 | | | | 22.84 | 23.64 | 24.49 | 25.41 | 26.40 | — | □ | — | — |
| 3061506 | 1.5 × 6 | 45 | 2.3 | | 1.45 | 6.30 | 6.52 | 6.76 | 7.01 | 7.29 | 7.58 | □ | — | — |
| 3061508 | 1.5 × 8 | | | | | 8.37 | 8.66 | 8.98 | 9.31 | 9.67 | 10.07 | □ | — | — |
| 3061510 | 1.5 × 10 | | | | | 10.44 | 10.80 | 11.19 | 11.61 | 12.06 | 12.55 | □ | — | — |
| 3061512 | 1.5 × 12 | | | | | 12.51 | 12.94 | 13.41 | 13.91 | 14.45 | 15.04 | □ | — | — |
| 3061514 | 1.5 × 14 | 50 | | | | 14.57 | 15.08 | 15.63 | 16.21 | 16.84 | 17.53 | □ | — | — |
| 3061516 | 1.5 × 16 | | | | | 16.64 | 17.22 | 17.84 | 18.51 | 19.23 | 20.01 | □ | — | — |
| 3061518 | 1.5 × 18 | 55 | | | | 18.71 | 19.36 | 20.06 | 20.81 | 21.62 | 22.5 | □ | — | — |
| 3061520 | 1.5 × 20 | | | | | 20.77 | 21.50 | 22.28 | 23.11 | 24.01 | — | □ | — | — |
| 3061606 | 1.6 × 6 | 45 | 2.4 | | 1.55 | 6.30 | 6.52 | 6.76 | 7.01 | 7.29 | 7.58 | □ | — | — |
| 3061608 | 1.6 × 8 | | | | | 8.37 | 8.66 | 8.98 | 9.31 | 9.67 | 10.07 | □ | — | — |
| 3061610 | 1.6 × 10 | | | | | 10.44 | 10.80 | 11.19 | 11.61 | 12.06 | 12.55 | □ | — | — |
| 3061612 | 1.6 × 12 | | | | | 12.51 | 12.94 | 13.41 | 13.91 | 14.45 | 15.04 | □ | — | — |
| 3061614 | 1.6 × 14 | 50 | | | | 14.57 | 15.08 | 15.63 | 16.21 | 16.84 | 17.53 | □ | — | — |
| 3061616 | 1.6 × 16 | | | | | 16.64 | 17.22 | 17.84 | 18.51 | 19.23 | 20.01 | □ | — | — |
| 3061618 | 1.6 × 18 | 55 | | | | 18.71 | 19.36 | 20.06 | 20.81 | 21.62 | 22.5 | □ | — | — |
| 3061620 | 1.6 × 20 | | | | | 20.77 | 21.50 | 22.28 | 23.11 | 24.01 | — | □ | — | — |
| 3061625 | 1.6 × 25 | 60 | | | | 25.94 | 26.85 | 27.82 | 28.86 | — | — | □ | — | — |
| 3061806 | 1.8 × 6 | 45 | 2.7 | | 1.75 | 6.42 | 6.77 | 7.10 | 7.39 | 7.68 | 7.99 | □ | — | — |
| 3061808 | 1.8 × 8 | | | | | 8.53 | 8.96 | 9.34 | 9.69 | 10.07 | 10.48 | □ | — | — |
| 3061810 | 1.8 × 10 | | | | | 10.64 | 11.13 | 11.56 | 11.99 | 12.46 | 12.97 | □ | — | — |
| 3061812 | 1.8 × 12 | | | | | 12.74 | 13.29 | 13.78 | 14.29 | 14.85 | 15.45 | □ | — | — |
| 3061814 | 1.8 × 14 | 50 | | | | 14.83 | 15.44 | 15.99 | 16.59 | 17.24 | 17.94 | □ | — | — |
| 3061816 | 1.8 × 16 | | | | | 16.92 | 17.58 | 18.21 | 18.89 | 19.63 | 20.43 | □ | — | — |
| 3061818 | 1.8 × 18 | 55 | | | | 19.01 | 19.71 | 20.43 | 21.19 | 22.02 | — | □ | — | — |
| 3061820 | 1.8 × 20 | | | | | 21.09 | 21.85 | 22.64 | 23.49 | 24.41 | — | □ | — | — |
| 3061825 | 1.8 × 25 | 60 | | | | 26.28 | 27.20 | 28.18 | 29.24 | — | — | □ | — | — |
| 3062006 | 2 × 6 | 45 | 3 | | 1.95 | 6.42 | 6.77 | 7.10 | 7.39 | 7.68 | 7.99 | □ | — | — |
| 3062008 | 2 × 8 | | | | | 8.53 | 8.96 | 9.34 | 9.69 | 10.07 | 10.48 | □ | — | — |
| 3062010 | 2 × 10 | | | | | 10.64 | 11.13 | 11.56 | 11.99 | 12.46 | 12.97 | □ | — | — |
| 3062012 | 2 × 12 | | | | | 12.74 | 13.29 | 13.78 | 14.29 | 14.85 | 15.45 | □ | — | — |
| 3062014 | 2 × 14 | 50 | | | | 14.83 | 15.44 | 15.99 | 16.59 | 17.24 | 17.94 | □ | — | — |
| 3062016 | 2 × 16 | | | | | 16.92 | 17.58 | 18.21 | 18.89 | 19.63 | — | □ | — | — |

次ページへ
外径 DC 2〜10 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）

**WX Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing**

## WX-LN-EMS

切削条件 Cutting Conditions | P638-19



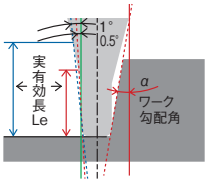
狭くて深い部分の加工に対応するロングネックタイプの４枚刃エンドミルです。底刃はコーナ部分の強度を高めた仕様としてあります。

4 flutes long neck design for deep and narrow area milling. Enforced design at bottom corner teeth.

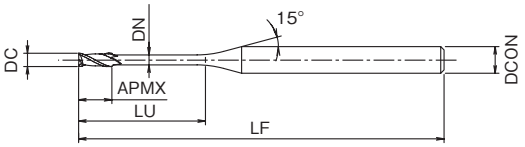
CARBIDE | WX | 0〜-0.015 | SHRINK FIT | 35°

■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.




前ページより FROM 外径 DC 1〜2

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3062018 | 2 × 18 | 55 | 3 | 4 | 1.95 | 19.01 | 19.71 | 20.43 | 21.19 | 22.02 | – | □ | – | – |
| 3062020 | 2 × 20 | | | | | 21.09 | 21.85 | 22.64 | 23.49 | – | – | □ | – | – |
| 3062025 | 2 × 25 | 60 | | | | 26.28 | 27.20 | 28.18 | – | – | – | □ | – | – |
| 3062030 | 2 × 30 | 70 | | | | 31.45 | 32.55 | 33.73 | – | – | – | □ | – | – |
| 3062508 | 2.5 × 8 | 45 | 3.7 | | 2.4 | 8.47 | 8.87 | 9.22 | 9.57 | 9.94 | 10.35 | □ | – | – |
| 3062512 | 2.5 × 12 | | | | | 12.66 | 13.18 | 13.66 | 14.17 | 14.72 | – | □ | – | – |
| 3062516 | 2.5 × 16 | 55 | | | | 16.83 | 17.46 | 18.09 | 18.77 | – | – | □ | – | – |
| 3062520 | 2.5 × 20 | 60 | | | | 20.99 | 21.74 | 22.52 | – | – | – | □ | – | – |
| 3062525 | 2.5 × 25 | 70 | | | | 26.17 | 27.09 | 28.07 | – | – | – | □ | – | – |
| 3063008 | 3 × 8 | 45 | 4.5 | 6 | 2.85 | 8.42 | 8.79 | 9.13 | 9.47 | 9.84 | 10.24 | □ | – | – |
| 3063012 | 3 × 12 | | | | | 12.60 | 13.09 | 13.56 | 14.07 | 14.62 | 15.21 | □ | – | – |
| 3063016 | 3 × 16 | 55 | | | | 16.76 | 17.37 | 18.00 | 18.67 | 19.40 | 20.18 | □ | – | – |
| 3063020 | 3 × 20 | 60 | | | | 20.91 | 21.65 | 22.43 | 23.27 | 24.18 | 25.16 | □ | – | – |
| 3063025 | 3 × 25 | 65 | | | | 26.09 | 27.00 | 27.97 | 29.02 | 30.15 | – | □ | – | – |
| 3063030 | 3 × 30 | 80 | | | | 31.25 | 32.34 | 33.51 | 34.77 | – | – | □ | – | – |
| 3064012 | 4 × 12 | 50 | 6 | | 3.85 | 12.60 | 13.09 | 13.56 | 14.07 | 14.62 | 15.21 | □ | – | – |
| 3064016 | 4 × 16 | 60 | | | | 16.76 | 17.37 | 18.00 | 18.67 | 19.40 | – | □ | – | – |
| 3064020 | 4 × 20 | | | | | 20.91 | 21.65 | 22.43 | 23.27 | – | – | □ | – | – |
| 3064025 | 4 × 25 | 70 | | | | 26.09 | 27.00 | 27.97 | – | – | – | □ | – | – |
| 3064030 | 4 × 30 | 80 | | | | 31.26 | 32.35 | 33.51 | – | – | – | □ | – | – |
| 3064035 | 4 × 35 | 90 | | | | 36.43 | 37.69 | – | – | – | – | □ | – | – |
| 3064040 | 4 × 40 | | | | | 41.59 | 43.04 | – | – | – | – | □ | – | – |
| 3064045 | 4 × 45 | 100 | | | | 46.76 | 48.39 | – | – | – | – | □ | – | – |
| 3064050 | 4 × 50 | | | | | 51.93 | 53.74 | – | – | – | – | □ | – | – |
| 3065016 | 5 × 16 | 60 | 7.5 | | 4.85 | 16.76 | 17.37 | 18.00 | – | – | – | □ | – | – |
| 3065025 | 5 × 25 | 70 | | | | 26.09 | 27.00 | – | – | – | – | □ | – | – |
| 3065035 | 5 × 35 | 90 | | | | 36.43 | – | – | – | – | – | □ | – | – |
| 3065050 | 5 × 50 | 110 | | | | 51.93 | – | – | – | – | – | □ | – | – |
| 3066020 | 6 × 20 | 80 | 9 | | 5.85 | – | – | – | – | – | – | □ | – | – |
| 3066030 | 6 × 30 | 90 | | | | – | – | – | – | – | – | □ | – | – |
| 3066040 | 6 × 40 | 100 | | | | – | – | – | – | – | – | □ | – | – |
| 3066050 | 6 × 50 | 110 | | | | – | – | – | – | – | – | □ | – | – |
| 3068030 | 8 × 30 | 100 | 12 | 8 | 7.85 | – | – | – | – | – | – | □ | – | – |
| 3068050 | 8 × 50 | 120 | | | | – | – | – | – | – | – | □ | – | – |
| 3068060 | 8 × 60 | 130 | | | | – | – | – | – | – | – | □ | – | – |
| 3070040 | 10 × 40 | 110 | 15 | 10 | 9.85 | – | – | – | – | – | – | □ | – | – |
| 3070060 | 10 × 60 | 130 | | | | – | – | – | – | – | – | □ | – | – |
| 3070080 | 10 × 80 | 150 | | | | – | – | – | – | – | – | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WX-LN-EMS | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート4枚刃超硬ロングネックスクエアエンドミルショート形（φ6シャンク）

**FX Coated 4-flute Long Neck Carbide End Mill Short Length (φ6 Shank)**

## FX-LN-EMS-6

切削条件 Cutting Conditions | P667-9



高速高精度型マシニングセンタの性能を十分に引き出す高速加工用エンドミルロングネックタイプです。

High speed long neck end mill. Maximizes performance of high speed and high precision machining centers.

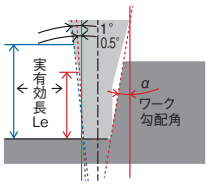
CARBIDE | FX | 0〜-0.015 | ø2≦DC | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8544310 | 1 × 5 | 60 | 1.5 | 6 | 0.95 | 5.16 | 5.34 | 5.54 | 5.74 | 5.97 | 6.21 | □ | — | — |
| 8544312 | 1.2 × 6 | | 1.8 | | 1.15 | 6.2 | 6.41 | 6.65 | 6.89 | 7.16 | 7.45 | □ | — | — |
| | 1.4 × 7 | | 2.1 | | 1.35 | 7.24 | 7.49 | 7.76 | 8.05 | 8.36 | 8.7 | □ | — | — |
| 8544315 | 1.5 × 7.5 | | 2.3 | | 1.45 | 7.75 | 8.02 | 8.31 | 8.62 | 8.96 | 9.32 | □ | — | — |
| | 1.6 × 8 | | 2.4 | | 1.55 | 8.27 | 8.56 | 8.87 | 9.2 | 9.56 | 9.95 | □ | — | — |
| | 1.8 × 9 | | 2.7 | | 1.75 | 9.3 | 9.63 | 9.98 | 10.35 | 10.75 | 11.19 | □ | — | — |
| 8544320 | 2 × 10 | | 3 | | 1.95 | 10.34 | 10.7 | 11.08 | 11.5 | 11.95 | 12.43 | □ | — | — |
| 8544325 | 2.5 × 12.5 | | 3.7 | | 2.4 | 12.92 | 13.37 | 13.85 | 14.37 | 14.93 | 15.54 | □ | — | — |
| 8544330 | 3 × 15 | 70 | 4.5 | | 2.85 | 15.5 | 16.05 | 16.62 | 17.25 | 17.92 | 18.65 | □ | — | — |
| 8544335 | 3.5 × 17.5 | | 5.3 | | 3.35 | 18.09 | 18.72 | 19.4 | 20.12 | 20.91 | 21.76 | □ | — | — |
| 8544340 | 4 × 20 | | 6 | | 3.85 | 20.67 | 21.39 | 22.17 | 23 | — | — | □ | — | — |
| 8544350 | 5 × 25 | 80 | 7.5 | | 4.85 | 25.84 | 26.74 | — | — | — | — | □ | — | — |
| 8544360 | 6 × 30 | 90 | 9 | | 5.85 | — | — | — | — | — | — | □ | — | — |

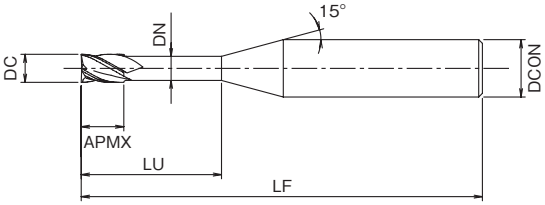
### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.




OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-LN-EMS-6 | ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# DIAコート4枚刃超硬ロングネックスクエアエンドミルショート形
**Diamond Coated 4-flute Long Neck Carbide End Mill Short Length**

# DIA-LN-EMS



CARBIDE | DIA | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 × 6 | 50 | 1.5 | 4 | – | □ | – | – |
| | 1 × 10 | 60 | | | | □ | – | – |
| | 1.2 × 6 | 50 | 1.8 | | | □ | – | – |
| | 1.2 × 12 | 60 | | | | □ | – | – |
| | 1.4 × 6 | 50 | 2.1 | | | □ | – | – |
| | 1.4 × 14 | 60 | | | | □ | – | – |
| | 1.5 × 6 | 50 | 2.3 | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長 DC × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1.5 × 16 | 60 | 2.3 | 4 | – | □ | – | – |
| | 1.6 × 8 | | 2.4 | | | □ | – | – |
| | 1.6 × 16 | | | | | □ | – | – |
| | 1.8 × 8 | | 2.7 | | | □ | – | – |
| | 1.8 × 18 | | | | | □ | – | – |
| | 2 × 8 | | 3 | | | □ | – | – |
| | 2 × 20 | 70 | | | | □ | – | – |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1167 を参照下さい。
See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



**製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6**

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIA-LN-EMS | | | | | | | | | ○ | ◎ | ○ | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXLコート2枚刃超硬ボールエンドミル
**WXL Coated 2-flute Carbide Ball End Mill**

## WXL-EBD

切削条件 Cutting Conditions | P593



硬質潤滑被膜WXLコーティングを施した高精度ボールエンドミルです。幅広い被削材で効果を発揮します。また乾式、湿式加工のどちらでも長寿命を実現します。

Newly developed WXL coating with high hardness and high lubrication. Works on wide range of materials. Recommended with lubrications or dry milling.

CARBIDE | WXL | R ±0.005 (RE<3) | R 0.003~-0.007 (3≦RE≦6) | R ±0.01 (6<RE) | SHRINK FIT | 30°

CAD

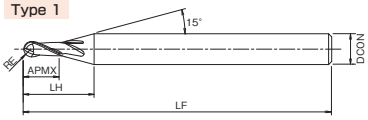
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径X刃長Xシャンク径 RE X APMX X DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3105010 | R0.05X0.2X4 | 40 | 0.2 | 6.5 | 4 | 1 | A | ● | 13 | 11,100 |
| 3105020 | R0.1 X0.4X4 | | 0.4 | | | | | ● | 13 | 7,750 |
| 3105030 | R0.15X0.6X4 | | 0.6 | 6.7 | | | | ● | 13 | 6,320 |
| 3106030 | R0.15X0.6X6 | 50 | | 10.4 | 6 | | D | ● | 24 | 7,600 |
| 3105040 | R0.2 X0.8X4 | 40 | 0.8 | 7.2 | 4 | | A | ● | 13 | 4,250 |
| 3106040 | R0.2 X0.8X6 | 50 | | 10.7 | 6 | | D | ● | 24 | 5,540 |
| 3105050 | R0.25X1.1X4 | 40 | 1.1 | 7.1 | 4 | | A | ● | 13 | 3,910 |
| 3106050 | R0.25X1.1X6 | 50 | | 10.8 | 6 | | D | ● | 23 | 5,240 |
| 3105060 | R0.3 X1.1X4 | 40 | | 6.9 | 4 | | A | ● | 12 | 3,820 |
| 3106060 | R0.3 X1.1X6 | 50 | | 10.6 | 6 | | D | ● | 24 | 5,020 |
| 3106710 | R0.35X1.5X4 | 40 | 1.5 | 8.2 | 4 | | | ● | 10 | 8,510 |
| 3105080 | R0.4 X2 X4 | | 2 | 7.4 | | | A | ● | 12 | 3,820 |
| 3106080 | R0.4 X2 X6 | 50 | | 11.1 | 6 | | D | ● | 23 | 5,020 |
| 3106720 | R0.45X2.2X4 | | 2.2 | 8.5 | 4 | | | ● | 11 | 8,510 |
| 3105100 | R0.5 X1.5X4 | | 1.5 | 6.7 | | | A | ● | 14 | 3,530 |
| 3105101 | R0.5 X2.5X4 | | 2.5 | 7.7 | | | D | ● | 14 | 4,810 |
| 3106100 | R0.5 X2.5X6 | 60 | | 11.5 | 6 | | A | ● | 29 | 4,810 |
| 3106730 | R0.55X2.7X4 | 50 | 2.7 | 8.9 | 4 | | D | ● | 11 | 8,510 |
| 3105120 | R0.6 X3 X4 | | 3 | 7.9 | | | A | ● | 14 | 4,920 |
| 3106740 | R0.65X3.2X4 | | 3.2 | 9.1 | | | | ● | 11 | 8,510 |
| 3105140 | R0.7 X3.5X4 | | 3.5 | 8.1 | | | D | ● | 14 | 4,920 |
| 3105150 | R0.75X2 X4 | | 2 | 6.4 | | | | ● | 14 | 5,460 |
| 3105151 | R0.75X4 X4 | | 4 | 8.4 | | | A | ● | 14 | 5,460 |
| 3106150 | R0.75X4 X6 | | | 12.1 | 6 | | | ● | 23 | 5,840 |
| 3105160 | R0.8 X4 X4 | | | 8.2 | 4 | | | ● | 14 | 4,920 |
| 3106750 | R0.85X4.2X4 | | 4.2 | 9.3 | | | D | ● | 11 | 8,510 |
| 3106760 | R0.9 X4.5X4 | | 4.5 | 9.4 | | | | ● | 11 | 8,530 |
| 3106770 | R0.95X4.7X4 | | 4.7 | | | | | ● | 11 | 8,530 |
| 3105200 | R1 X3 X4 | | 3 | 7.1 | | | A | ● | 14 | 3,180 |
| 3106200 | R1 X5 X6 | | 5 | 12.8 | 6 | | | ● | 22 | 4,250 |
| 3105201 | R1 X6 X4 | | 6 | 10.1 | 4 | | | ● | 14 | 4,250 |
| 3106780 | R1.05X4.8X6 | | 4.8 | 13.5 | 6 | | | ● | 19 | 8,530 |
| 3106790 | R1.1 X4.9X6 | | 4.9 | 13.4 | | | D | ● | 19 | 8,530 |
| 3106800 | R1.15X5 X6 | | 5 | 13.3 | | | | ● | 19 | 8,530 |
| 3106810 | R1.2 X5.1X6 | | 5.1 | 13.2 | | | | ● | 19 | 8,530 |
| 3105250 | R1.25X3 X4 | | 3 | 6.1 | 4 | | A | ● | 15 | 5,480 |
| 3105251 | R1.25X6 X4 | | 6 | 9.1 | | | D | ● | 14 | 6,530 |
| 3106250 | R1.25X6 X6 | 60 | 6 | 12.9 | 6 | | A | ● | 28 | 6,530 |

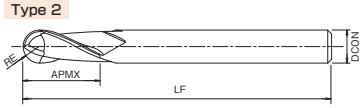
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径X刃長Xシャンク径 RE X APMX X DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3106820 | R1.3 X5.2X6 | 50 | 5.2 | 13.5 | 6 | 1 | D | ● | 20 | 8,530 |
| 3106830 | R1.35X5.4X6 | | 5.4 | | | | | ● | 20 | 8,530 |
| 3106840 | R1.4 X5.6X6 | 60 | 5.6 | | | | | ● | 24 | 8,530 |
| 3106850 | R1.45X5.8X6 | | 5.8 | | | | | ● | 24 | 8,530 |
| 3105300 | R1.5 X4.5X4 | | 4.5 | 7.9 | 4 | | A | ● | 13 | 3,850 |
| 3106300 | R1.5 X4.5X6 | | | 11.6 | 6 | | D | ● | 24 | 4,570 |
| 3106301 | R1.5 X8 X6 | | 8 | 15.1 | | | | ● | 23 | 5,240 |
| 3106350 | R1.75X8 X6 | 70 | | 14.2 | | | | ● | 28 | 7,090 |
| 3106400 | R2 X6 X6 | | 6 | 11.2 | | | A | ● | 29 | 4,360 |
| 3105400 | R2 X8 X4 | 60 | 8 | — | 4 | 2 | D | ● | 14 | 6,000 |
| 3106401 | R2 X8 X6 | 70 | | 13.2 | 6 | 1 | | ● | 28 | 6,000 |
| 3106860 | R2.25X8 X6 | 80 | | 13.6 | | | | ● | 32 | 11,100 |
| 3106500 | R2.5 X8 | | | 11.4 | | | A | ● | 33 | 5,250 |
| 3106501 | R2.5 X10 | | 10 | 13.4 | | | D | ● | 32 | 7,090 |
| 3106502 | R2.5 X12 | | 12 | 15.4 | | | | ● | 32 | 7,090 |
| 3106870 | R2.75X10 | | 10 | 13.7 | | | | ● | 33 | 11,100 |
| 3106600 | R3 X10 | 90 | | — | | 2 | | ● | 41 | 5,460 |
| 3106601 | R3 X12 | | 12 | — | | | A | ● | 40 | 7,430 |
| 3106880 | R3.25X13 | | 13 | — | | 3 | D | ● | 41 | 12,900 |
| 3106610 | R3.5 X14 | | 14 | — | | | | ● | 42 | 8,480 |
| 3106890 | R3.75X14 | | | — | | | | ● | 42 | 12,900 |
| 3106620 | R4 X12 | 100 | 12 | — | 8 | 2 | | ● | 74 | 12,000 |
| 3106621 | R4 X14 | | 14 | — | | | A | ● | 74 | 11,100 |
| 3106900 | R4.25X16 | | 16 | — | | 3 | D | ● | 74 | 16,200 |
| 3106630 | R4.5 X18 | | 18 | — | | | | ● | 78 | 14,800 |
| 3106910 | R4.75X18 | | | — | | | | ● | 79 | 17,100 |
| 3106640 | R5 X15 | | 15 | — | 10 | 2 | | ● | 113 | 11,600 |
| 3106641 | R5 X18 | | 18 | — | | | A | ● | 113 | 11,200 |
| 3106650 | R5.5 X22 | | 22 | — | | 3 | D | ● | 114 | 24,600 |
| 3106660 | R6 X18 | 110 | 18 | — | 12 | 2 | | ● | 175 | 21,300 |
| 3106661 | R6 X22 | | 22 | — | | | A | ● | 175 | 18,200 |
| 3106920 | R6.5 X24 | | 24 | — | | 3 | D | ● | 174 | 32,100 |
| 3106670 | R7 X26 | | 26 | — | | | A | ● | 190 | 53,000 |
| 3106930 | R7.5 X28 | | 28 | — | | | D | ● | 192 | 58,400 |
| 3106680 | R8 X30 | 140 | 30 | — | 16 | 2 | A | ● | 400 | 62,900 |
| 3106690 | R9 X34 | | 34 | — | | 3 | D | ● | 407 | 94,700 |
| 3106700 | R10 X38 | 160 | 38 | — | 20 | 2 | A | ● | 681 | 97,400 |

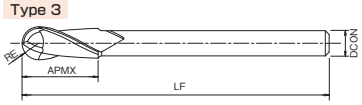
Type 1




Type 2




Type 3




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WXL-EBD | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ボールエンドミル（HSK対応）
**WXL Coated 2-flute Carbide Ball End Mill with HS Shank**

## WXL-HS-EBD

切削条件 Cutting Conditions | **P604**



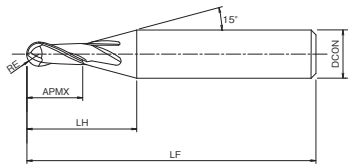
CARBIDE | WXL | R ±0.005 (RE<3) | R 0.003~-0.007 (3≦RE≦6) | SHRINK FIT | 30°

CAD

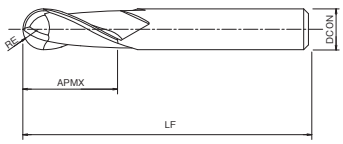
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃長×シャンク径 RE × APMX × DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3107020 | R0.1 × 0.4 × 4 | 35 | 0.4 | 7.6 | 4 | 1 | D | ● | 12 | 7,750 |
| 3107040 | R0.2 × 0.8 × 4 | | 0.8 | 8 | | | | ● | 12 | 4,250 |
| 3107060 | R0.3 × 1.1 × 4 | | 1.1 | | | | | ● | 12 | 3,820 |
| 3107080 | R0.4 × 2 × 4 | | 2 | 8.5 | | | | ● | 12 | 3,820 |
| 3107100 | R0.5 × 1.5 × 4 | 40 | 1.5 | 7.8 | | | | ● | 13 | 3,530 |
| 3107120 | R0.6 × 3 × 4 | | 3 | 9 | | | | ● | 9 | 4,920 |
| 3107150 | R0.75 × 2 × 4 | | 2 | 7.5 | | | | ● | 9 | 5,460 |
| 3107200 | R1 × 3 × 4 | | 3 | 8.2 | | | | ● | 12 | 3,180 |
| 3107300 | R1.5 × 4.5 × 4 | | 4.5 | 9 | | | | ● | 9 | 3,850 |
| 3107400 | R2 × 6 × 6 | | 6 | 12.3 | | | | ● | 16 | 6,000 |
| 3108500 | R2.5 × 8 | | 8 | 12.7 | 6 | | | ● | 16 | 5,250 |
| 3108600 | R3 × 10 | 45 | 10 | – | | 2 | | ● | 18 | 5,460 |
| 3108620 | R4 × 12 | 55 | 12 | – | 8 | | | ● | 39 | 12,000 |
| 3108640 | R5 × 15 | 65 | 15 | – | 10 | | | ● | 71 | 11,600 |
| 3108660 | R6 × 18 | 70 | 18 | – | 12 | | | ● | 107 | 21,300 |

Type 1




Type 2

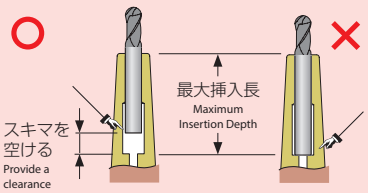



## 使用上の注意 Operating Precautions

### 最大挿入長 Maximum Insertion Depth

刃物挿入時、刃物端が底当り状態になると精度不良の原因となります。必ず最大挿入長さを守って下さい。

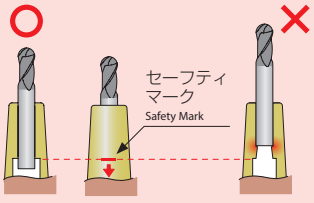
If the cutting tool is inserted until its end bottoms out, it can result in poor precision. Make sure to adhere to the maximum insertion depth.




### セーフティマーク Safety Mark

刃物挿入時、挿入長さが短いとホルダ破損の原因となります。必ずセーフティマークより深く刃物を挿入して下さい。

If the insertion depth of the cutting tool is too short, it can damage the holder. Make sure the cutting tool is inserted deeper than the safety mark.




| 製品記号 Abbreviation / 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WXL-HS-EBD | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 高硬度鋼·高精度仕上げ用DUROREYコート 2枚刃超硬ボールエンドミル

**DUROREY Coated 2-flute High-precision Finishing Carbide Ball End Mill for High-hardness Steels**

A The A Brand

## AE-BD-H

切削条件 Cutting Conditions | P529



CARBIDE | DURAREY | R ±0.005 | SHANK h4 | SHRINK FIT | 25°

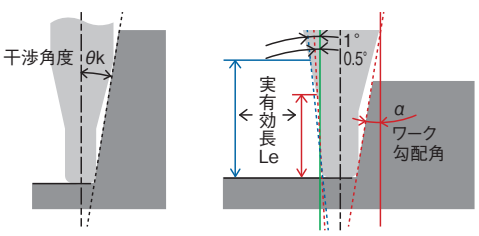
CAD

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | ボール半径×首下長 RE × LU | ショートシャンク Short Shank | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ワーク勾配角αに対する実有効長(Le) Effective length by inclined angles 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3042001 | R0.5 ×2 | – | 50 | 0.8 | 7.6 | 4 | 0.95 | 11.71° | 2.05 | 2.1 | 2.16 | 2.22 | 2.35 | 1 | A | ● | 11 | 3,000 |
| 3042002 | R0.75×3 | – | | 1.2 | 7.8 | | 1.45 | 10.03° | 3.13 | 3.25 | 3.35 | 3.44 | 3.65 | | | ● | 11 | 3,740 |
| 3042003 | R1 ×4 | – | | 1.6 | 11.9 | 6 | 1.95 | 10.64° | 4.22 | 4.44 | 4.65 | 4.85 | 5.25 | | | ● | 20 | 2,720 |
| 3042004 | R1.5 ×6 | – | 60 | 2.4 | 11.8 | | 2.85 | 8.15° | 6.25 | 6.49 | 6.72 | 6.94 | 7.36 | | | ● | 24 | 3,210 |
| 3042005 | R2 ×8-4 | – | | 3.2 | – | 4 | 3.85 | – | – | – | – | – | – | 2 | | ● | 13 | 3,770 |
| 3042006 | R2 ×8 | – | 70 | | 12 | 6 | | 5.65° | 8.32 | 8.62 | 8.9 | 9.15 | 9.71 | 1 | | ● | 30 | 4,340 |
| 3042007 | R2 ×8-S | Yes | 45 | | | | | | | | | | | | | ● | 19 | 3,770 |
| 3042008 | R2.5 ×10 | – | 80 | 4 | 12.1 | 6 | 4.8 | 2.92° | 10.36 | 10.69 | 10.99 | 11.3 | – | | | ● | 36 | 4,550 |
| 3042009 | R2.5 ×10-S | Yes | 50 | | | | | | | | | | | | | ● | 21 | 3,900 |
| 3042010 | R3 ×18 | – | 90 | 9 | – | 6 | 5.8 | – | – | – | – | – | – | 2 | | ● | 41 | 4,660 |
| 3042011 | R3 ×18-S | Yes | 55 | | | | | | | | | | | | | ● | 23 | 4,010 |
| 3042012 | R4 ×24 | – | 100 | 12 | – | 8 | 7.7 | – | – | – | – | – | – | | | ● | 73 | 11,600 |
| 3042013 | R4 ×24-S | Yes | 75 | | | | | | | | | | | | | ● | 53 | 8,160 |
| 3042014 | R5 ×30 | – | 100 | 15 | – | 10 | 9.7 | – | – | – | – | – | – | | | ● | 112 | 14,500 |
| 3042015 | R5 ×30-S | Yes | 75 | | | | | | | | | | | | | ● | 81 | 9,740 |
| 3042016 | R6 ×36 | – | 110 | 18 | – | 12 | 11.7 | – | – | – | – | – | – | | | ● | 173 | 20,800 |
| 3042017 | R6 ×36-S | Yes | 80 | | | | | | | | | | | | | ● | 123 | 13,300 |

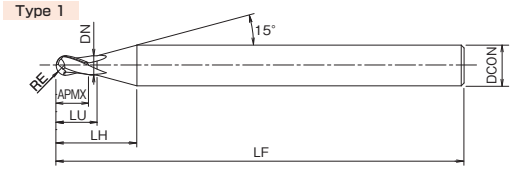
### ■ワーク勾配角αに対する実有効長（Le）

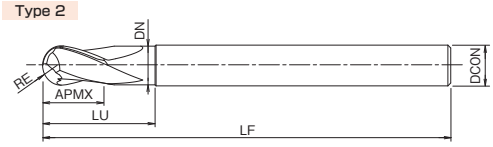
Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel / ～40HRC | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～45HRC | ～55HRC | ～60HRC | ～70HRC | ～35HRC | ～350HB | | | | | | |
| AE-BD-H | ○ | | ○ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
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- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXSコート2枚刃超硬ボールエンドミル
**WXS Coated 2-flute Carbide Ball End Mill**

## WXS-EBD

切削条件 Cutting Conditions | P624



超耐熱、超硬質のWXスーパーコートを施した高精度ボールエンドミルです。一般鋼の高速加工はもちろん、焼き入れ鋼の高速直彫り加工にも最適です。

High precision ball end mills that utilize the ultra wear-resistant, ultra hard WX Super Coating. Great high speed machining performance in general steels, and ideal for high-speed direct milling of hardened steels.

CAD

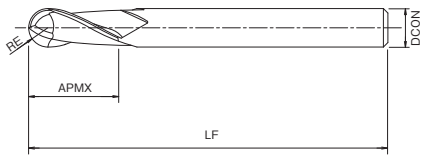
CARBIDE | WXS | R ±0.005 (RE≦1) | R ±0.007 (1＜RE≦6) | R ±0.01 (6＜RE) | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3041520 | **R 6** | 110 | 18 | — | 12 | — | A | ▲ | 175 | 28,400 |
| 3041560 | **R 8** | 140 | 24 | — | 16 | — | | ▲ | 398 | 73,000 |
| 3041600 | **R10** | 160 | 30 | — | 20 | — | | ▲ | 693 | 114,000 |
| 3041650 | **R12.5** | 180 | 38 | — | 25 | — | | △ | 1,199 | 209,000 |

▲＝この製品は、AE-BD-H (P.324)、AM-EBT (P.334) へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-BD-H (p.324) and AM-EBT (p.334)




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WXS-EBD** | ◎ | | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | | | | ○ | ○ | |

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▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ボールエンドミルスリムシャンク
**FX Coated 2-flute Carbide Ball End Mill with Slim Shank**

## FX-SS-EBD

切削条件 Cutting Conditions | P650



シャンク径を刃径マイナス1mmに設定したスリムシャンクタイプです。突出し長さを自由に調整できます。
Employs slim shank diameter (mill dia. -1mm) for flexibility of tool extension from the machine.

CAD

CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8408556 | R3 × 6 | 120 | 12 | 5 | A | △ | 39 | 19,800 |
| 8408558 | R4 × 8 | 130 | 14 | 7 | | △ | 75 | 25,700 |
| 8408560 | R5 × 10 | 150 | 18 | 9 | | △ | 144 | 35,000 |
| 8408562 | R6 × 12 | 160 | 22 | 11 | | △ | 221 | 44,700 |

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-SS-EBD | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート2枚刃超硬ボールエンドミルロングシャンク
**FX Coated 2-flute Carbide Ball End Mill with Long Shank**

## FX-LS-MG-EBD

切削条件 Cutting Conditions | P650



ロングシャンクのため深い部分の加工も可能です。
Long shank end mill for milling deep areas of the work piece.

CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8541010 | R 0.5 × 1 | 70 | 2.5 | 3 | C | △ | 13 | 17,500 |
| 8541020 | R 1 × 2 | | 5 | | | △ | 13 | 18,100 |
| 8541030 | R 1.5 × 3 | 80 | 8 | | A | △ | 13 | 18,700 |
| 8541040 | R 2 × 4 | 100 | | 4 | | △ | 23 | 19,200 |
| 8541050 | R 2.5 × 5 | | 10 | | | △ | 24 | 22,200 |
| 8541060 | R 3 × 6 | 140 | 12 | 6 | | △ | 62 | 24,000 |
| 8541070 | R 3.5 × 7 | | 14 | | C | △ | 64 | 28,100 |
| 8541080 | R 4 × 8 | 160 | | 8 | A | △ | 122 | 33,600 |
| 8541100 | R 5 × 10 | 180 | 18 | 10 | | △ | 223 | 42,500 |
| 8541110 | R 5.5 × 11 | | 22 | | C | △ | 225 | 50,000 |
| 8541120 | R 6 × 12 | 200 | | 12 | A | △ | 354 | 53,400 |
| 8541140 | R 7 × 14 | | 26 | | C | △ | 356 | 73,000 |
| 8541160 | R 8 × 16 | 220 | 30 | 16 | A | △ | 628 | 95,300 |
| 8541180 | R 9 × 18 | | 34 | | C | △ | 648 | 126,000 |
| 8541200 | R10 × 20 | 250 | 38 | 20 | A | △ | 1,074 | 148,000 |
| 8541250 | R12.5 × 25 | 280 | 50 | 25 | C | △ | 1,839 | 227,000 |
| 8541300 | R15 × 30 | | 55 | | | △ | 1,992 | 324,000 |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1177 を参照下さい。
See p.1177 for details
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-LS-MG-EBD | ◎ | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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# 2枚刃超硬ボールエンドミル
**2-flute Carbide Ball End Mill**

## MG-EBD

切削条件 Cutting Conditions | P672



高じん性超硬合金を採用しており中低速での長寿命化を実現します。
Made with tough carbide metal for longer tool life during medium and low speed operations.

CARBIDE | SHRINK FIT | R ±0.01 (RE≦6) | R ±0.015 (6<RE) | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.4 × 0.8 | 45 | 2 | 4 | – | □ | – | – |
| | R0.45 × 0.9 | | | | – | □ | – | – |
| 84701 | R0.5 × 1 | 50 | 2.5 | | A | ▲ | 13 | 12,200 |
| | R0.55 × 1.1 | | 3 | | – | □ | – | – |
| 8524012 | R0.6 × 1.2 | | | | D | ▲ | 14 | 13,000 |
| | R0.65 × 1.3 | | 3.5 | | – | □ | – | – |
| 8524014 | R0.7 × 1.4 | | | | D | ▲ | 10 | 13,000 |
| 8524015 | R0.75 × 1.5 | | 4 | | D | ▲ | 10 | 13,000 |
| 8524016 | R0.8 × 1.6 | | | | D | ▲ | 10 | 13,000 |
| | R0.85 × 1.7 | | 4.5 | | – | □ | – | – |
| 8524018 | R0.9 × 1.8 | | | | D | ▲ | 10 | 13,000 |
| | R0.95 × 1.9 | | 5 | 6 | – | □ | – | – |
| 84702 | R1 × 2 | | | | A | ▲ | 23 | 13,900 |
| | R1.05 × 2.1 | | 6 | | – | □ | – | – |
| | R1.1 × 2.2 | 60 | | | – | □ | – | – |
| | R1.15 × 2.3 | | | | – | □ | – | – |
| | R1.2 × 2.4 | | | | – | □ | – | – |
| 8524025 | R1.25 × 2.5 | | | | D | ▲ | 23 | 14,600 |
| | R1.3 × 2.6 | | 8 | | – | □ | – | – |
| | R1.35 × 2.7 | | | | – | □ | – | – |
| | R1.4 × 2.8 | | | | – | □ | – | – |
| | R1.45 × 2.9 | | | | – | □ | – | – |
| 84703 | R1.5 × 3 | | | | A | ▲ | 23 | 13,900 |
| | R1.55 × 3.1 | 70 | | | – | □ | – | – |
| | R1.6 × 3.2 | | | | – | □ | – | – |
| | R1.65 × 3.3 | | | | – | □ | – | – |
| | R1.7 × 3.4 | | | | – | □ | – | – |
| 8524035 | R1.75 × 3.5 | | | | D | ▲ | 27 | 14,600 |
| | R1.8 × 3.6 | | | | – | □ | – | – |
| | R1.85 × 3.7 | | | | – | □ | – | – |
| | R1.9 × 3.8 | | | | – | □ | – | – |
| | R1.95 × 3.9 | | | | – | □ | – | – |
| 84704 | R2 × 4 | | | | A | ▲ | 28 | 13,900 |

▲＝この製品は、WXL-EBD(P.322)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by WXL-EBD(p.322)

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R2.05 × 4.1 | 80 | 10 | 6 | – | □ | – | – |
| | R2.1 × 4.2 | | | | – | □ | – | – |
| | R2.15 × 4.3 | | | | – | □ | – | – |
| | R2.2 × 4.4 | | | | – | □ | – | – |
| 8524045 | R2.25 × 4.5 | | | | D | ▲ | 32 | 15,900 |
| | R2.3 × 4.6 | | | | – | □ | – | – |
| | R2.35 × 4.7 | | | | – | □ | – | – |
| | R2.4 × 4.8 | | | | – | □ | – | – |
| | R2.45 × 4.9 | | | | – | □ | – | – |
| 84705 | R2.5 × 5 | | | | A | ▲ | 32 | 15,000 |
| | R2.55 × 5.1 | 90 | 12 | | – | □ | – | – |
| | R2.6 × 5.2 | | | | – | □ | – | – |
| | R2.65 × 5.3 | | | | – | □ | – | – |
| | R2.7 × 5.4 | | | | – | □ | – | – |
| 8524055 | R2.75 × 5.5 | | | | D | ▲ | 40 | 17,000 |
| | R2.8 × 5.6 | | | | – | □ | – | – |
| | R2.85 × 5.7 | | | | – | □ | – | – |
| | R2.9 × 5.8 | | | | – | □ | – | – |
| | R2.95 × 5.9 | | | | – | □ | – | – |
| 84706 | R3 × 6 | | | | A | ▲ | 40 | 16,100 |
| | R3.05 × 6.1 | | 14 | | – | □ | – | – |
| | R3.1 × 6.2 | | | | – | □ | – | – |
| | R3.15 × 6.3 | | | | – | □ | – | – |
| | R3.2 × 6.4 | | | | – | □ | – | – |
| 8524065 | R3.25 × 6.5 | | | | D | ▲ | 40 | 20,100 |
| | R3.3 × 6.6 | | | | – | □ | – | – |
| | R3.35 × 6.7 | | | | – | □ | – | – |
| | R3.4 × 6.8 | | | | – | □ | – | – |
| | R3.45 × 6.9 | | | | – | □ | – | – |
| 84707 | R3.5 × 7 | | | | B | ▲ | 41 | 19,200 |
| | R3.55 × 7.1 | | | | – | □ | – | – |
| | R3.6 × 7.2 | | | | – | □ | – | – |
| | R3.65 × 7.3 | | | | – | □ | – | – |
| | R3.7 × 7.4 | | | | – | □ | – | – |
| 8524075 | R3.75 × 7.5 | | | | D | ▲ | 42 | 22,500 |
| | R3.8 × 7.6 | | | | – | □ | – | – |
| | R3.85 × 7.7 | | | | – | □ | – | – |
| | R3.9 × 7.8 | | | | – | □ | – | – |
| | R3.95 × 7.9 | | | | – | □ | – | – |

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

次ページへ
ボール半径 RE 4～12.5 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| MG-EBD | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 2枚刃超硬ボールエンドミル
**2-flute Carbide Ball End Mill**

## MG-EBD

切削条件 Cutting Conditions | P672



高じん性超硬合金を採用しており中低速での長寿命化を実現します。
Made with tough carbide metal for longer tool life during medium and low speed operations.

CAD

CARBIDE | SHRINK FIT | R ±0.01 (RE≦6) | R ±0.015 (6<RE) | 30°

前ページより FROM ボール半径 RE 0.4～3.95

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 84708 | R4 × 8 | 100 | 14 | 8 | A | ▲ | 73 | 21,300 |
| | R4.1 × 8.2 | | 18 | | — | □ | — | — |
| | R4.2 × 8.4 | | | | | □ | — | — |
| 8524085 | R4.25 × 8.5 | | | | D | ▲ | 79 | 28,400 |
| | R4.3 × 8.6 | | | | — | □ | — | — |
| | R4.4 × 8.8 | | | | | □ | — | — |
| 84709 | R4.5 × 9 | | | | B | ▲ | 79 | 27,200 |
| | R4.6 × 9.2 | | | | — | □ | — | — |
| | R4.7 × 9.4 | | | | | □ | — | — |
| 8524095 | R4.75 × 9.5 | | | | D | ▲ | 79 | 28,400 |
| | R4.8 × 9.6 | | | | — | □ | — | — |
| | R4.9 × 9.8 | | | | | □ | — | — |
| 84710 | R5 × 10 | | 22 | 10 | A | ▲ | 111 | 27,200 |
| | R5.25 × 10.5 | | | | — | □ | — | — |
| 84711 | R5.5 × 11 | | | | B | ▲ | 114 | 35,600 |
| | R5.75 × 11.5 | | | | — | □ | — | — |
| 84712 | R6 × 12 | 110 | 26 | 12 | A | ▲ | 170 | 35,600 |
| | R6.25 × 12.5 | | | | — | □ | — | — |
| 84713 | R6.5 × 13 | | | | | □ | — | — |
| | R6.75 × 13.5 | | | | | □ | — | — |
| 84714 | R 7 × 14 | | | | | □ | — | — |
| | R 7.25 × 14.5 | | 30 | | | □ | — | — |
| 84715 | R 7.5 × 15 | | | | | □ | — | — |
| | R 7.75 × 15.5 | | | | | □ | — | — |
| 84716 | R 8 × 16 | 140 | 34 | 16 | — | □ | — | — |
| | R 8.25 × 16.5 | | | | | □ | — | — |
| 84717 | R 8.5 × 17 | | | | | □ | — | — |
| | R 8.75 × 17.5 | | | | | □ | — | — |
| 84718 | R 9 × 18 | | | | | □ | — | — |
| | R 9.25 × 18.5 | | 38 | | | □ | — | — |
| 84719 | R 9.5 × 19 | | | | | □ | — | — |
| | R 9.75 × 19.5 | | | | | □ | — | — |
| 84720 | R10 × 20 | 160 | 50 | 20 | | □ | — | — |
| 84722 | R12.5 × 25 | 180 | | 25 | | □ | — | — |

▲＝この製品は、WXL-EBD(P.322)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by WXL-EBD(p.322)

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 製品記号 Abbreviation / 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MG-EBD | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃小径CBNボールエンドミル
**2-flute Small Size CBN Ball End Mill**

## CBN-SXB

切削条件 Cutting Conditions | P625



独自のねじれを持つスパイラルボール刃が、鋭い切れ味と小径での深切込みを実現しました。超硬の感覚の切込みでご使用いただけるCBNエンドミルです。

A unique spiral ball nose design made the sharper teeth and deep cutting possible. CBN end mill can be used easier as Carbide end mills.

CBN | R ±0.005 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8525304 | R0.2 × 1.2 × 4 | 45 | 0.3 | 4 | C | ● | 13 | 34,300 |
| 8525305 | R0.25 × 1.5 × 4 | | | | D | ● | 13 | 39,100 |
| 8525306 | R0.3 × 1.8 × 4 | | 0.4 | | C | ● | 13 | 34,300 |
| 8525307 | R0.35 × 2.1 × 4 | | 0.5 | | D | ● | 13 | 39,100 |
| 8525308 | R0.4 × 2.4 × 4 | | | | | ● | 13 | 39,100 |
| 8525309 | R0.45 × 2.7 × 4 | | 0.6 | | | ● | 13 | 39,100 |
| 8525310 | R0.5 × 2.5 × 4 | | | | C | ● | 13 | 29,900 |
| 8525210 | R0.5 × 2.5 × 6 | 50 | | 6 | | ● | 23 | 29,900 |
| 8525211 | R0.55 × 2.8 × 6 | | 0.7 | | D | ● | 23 | 35,600 |
| 8525212 | R0.6 × 3 × 6 | | | | | ● | 23 | 35,600 |
| 8525213 | R0.65 × 3.3 × 6 | | 0.8 | | | ● | 23 | 35,600 |
| 8525214 | R0.7 × 3.5 × 6 | | | | | ● | 23 | 35,600 |
| 8525215 | R0.75 × 3.8 × 6 | | 0.9 | | | ● | 23 | 35,600 |
| 8525216 | R0.8 × 4 × 6 | | 1 | | | ● | 23 | 35,600 |
| 8525217 | R0.85 × 4.3 × 6 | | | | | ● | 23 | 35,600 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8525218 | R0.9 × 4.5 × 6 | 50 | 1.1 | 6 | D | ● | 23 | 35,600 |
| 8525219 | R0.95 × 4.8 × 6 | | | | | ● | 23 | 35,600 |
| 8525220 | R1 × 5 × 6 | | 1.2 | | C | ● | 23 | 31,000 |
| 8525221 | R1.05 × 4.2 × 6 | | 1.3 | | D | ● | 24 | 44,700 |
| 8525222 | R1.1 × 4.4 × 6 | | | | | ● | 24 | 44,700 |
| 8525223 | R1.15 × 4.6 × 6 | | 1.4 | | | ● | 24 | 44,700 |
| 8525224 | R1.2 × 4.8 × 6 | | | | | ● | 24 | 44,700 |
| 8525225 | R1.25 × 5 × 6 | | 1.5 | | D | ● | 24 | 44,700 |
| 8525226 | R1.3 × 5.2 × 6 | | 1.6 | | | ● | 24 | 44,700 |
| 8525227 | R1.35 × 5.4 × 6 | | | | | ● | 24 | 44,700 |
| 8525228 | R1.4 × 5.6 × 6 | | 1.7 | | | ● | 24 | 44,700 |
| 8525229 | R1.45 × 5.8 × 6 | | | | | ● | 24 | 44,700 |
| 8525230 | R1.5 × 6 × 6 | | 1.8 | | C | ● | 24 | 37,500 |

OSGアプリから製品ラベルの二次元コードを読み込んで検査成績表をダウンロード（一部製品に限る） ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBN-SXB | ○ | | ◎ | ◎ | ◎ | ◎ | | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃CBNボールエンドミル
**2-flute CBN Ball End Mill**

## CBN-EBD
切削条件 Cutting Conditions | P626



高硬度材・鋳鉄の加工に威力を発揮します。
Suitable for operations on quenched steel, gray cast iron.

CBN | R ±0.01 | SHRINK FIT | 0°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | 首下長 LU | シャンク径 DCON | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8525406 | **R3 × 6** | 90 | 4 | 20 | 6 | D | ● | 40 | 56,200 |
| 8525408 | **R4 × 8** | 100 | 5 | | 8 | | ● | 73 | 61,600 |
| 8525410 | **R5 × 10** | | 6 | | 10 | | ● | 114 | 66,900 |
| 8525412 | **R6 × 12** | 110 | 7 | | 12 | | ● | 186 | 77,000 |

## 銅・アルミ合金・プラスチック用2枚刃超硬ボールエンドミル
**2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics**

## CAP-EBD
切削条件 Cutting Conditions | P677



銅、アルミ合金、プラスチック用ボールエンドミル。切れ味がよく切りくずの排出も良好です。
Ball-end mill for copper aluminum alloys and plastic. Reduces chattering and produces an excellent machined surface.

CARBIDE | R ±0.01 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8503410 | **R 0.5 × 1** | 60 | 2.5 | 4 | B | ▲ | 19 | 12,100 |
| 8503412 | **R 0.6 × 1.2** | | 3 | | | △ | 18 | 12,900 |
| 8503414 | **R 0.7 × 1.4** | | 3.5 | | | △ | 17 | 12,900 |
| 8503415 | **R 0.75 × 1.5** | | 4 | | | △ | 17 | 12,900 |
| 8503416 | **R 0.8 × 1.6** | | | | | △ | 17 | 12,900 |
| 8503418 | **R 0.9 × 1.8** | | 4.5 | | | △ | 17 | 12,900 |
| 8503420 | **R 1 × 2** | | 5 | 6 | | ▲ | 28 | 13,700 |
| 8503425 | **R 1.25 × 2.5** | 70 | 6 | | | △ | 28 | 14,500 |
| 8503430 | **R 1.5 × 3** | | 8 | | | ▲ | 28 | 13,700 |
| 8503435 | **R 1.75 × 3.5** | | | | | △ | 28 | 14,500 |
| 8503440 | **R 2 × 4** | 80 | | | | ▲ | 33 | 13,700 |
| 8503441 | **R 2 × 4-4** | 70 | | 4 | | △ | 17 | 12,900 |
| | **R 2.25 × 4.5** | 80 | 10 | 6 | – | □ | – | – |
| 8503450 | **R 2.5 × 5** | 90 | | | B | △ | 40 | 14,800 |
| | **R 2.75 × 5.5** | | 12 | | – | □ | – | – |
| 8503460 | **R 3 × 6** | | | | B | ▲ | 40 | 15,100 |
| | **R 3.25 × 6.5** | 100 | 14 | | – | □ | – | – |
| | **R 3.5 × 7** | | | | | □ | – | – |
| | **R 3.75 × 7.5** | | | | | □ | – | – |
| 8503480 | **R 4 × 8** | 110 | 18 | 8 | B | ▲ | 82 | 20,900 |
| | **R 4.25 × 8.5** | | | | – | □ | – | – |
| | **R 4.5 × 9** | | | | | □ | – | – |
| | **R 4.75 × 9.5** | | | | | □ | – | – |
| 8503500 | **R 5 × 10** | 125 | 22 | 10 | B | ▲ | 142 | 27,800 |
| | **R 5.25 × 10.5** | | | | – | □ | – | – |
| | **R 5.5 × 11** | | | | | □ | – | – |
| | **R 5.75 × 11.5** | | | | | □ | – | – |
| 8503520 | **R 6 × 12** | 140 | | 12 | B | ▲ | 229 | 37,400 |
| 8503560 | **R 8 × 16** | 160 | 30 | 16 | | ▲ | 454 | 72,000 |
| 8503600 | **R10 × 20** | 180 | 38 | 20 | | ▲ | 777 | 121,000 |

※R2×4−4の−4はシャンク径4mmを表します。
※R2×4−4　−4 means $\phi$4 shank.

▲＝この製品は、DLC-EBD(P.332)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by DLC-EBD(p.332)

OSGアプリから製品ラベルの二次元コードを読み込んで検査成績表をダウンロード(一部製品に限る) ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **CBN-EBD** | ○ | | ◎ | ◎ | ◎ | ◎ | | ○ | | | | | | |
| **CAP-EBD** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols
● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DLCコート2枚刃超硬ボールエンドミル
**DLC Coated 2-flute Carbide Ball End Mill**

## DLC-EBD

切削条件 Cutting Conditions | P689



独自の超平滑DLCコーティングが溶着を防止します。アルミ合金などの形状加工での高速化を実現するとともに、良好な仕上げ面が得られます。

Unique DLC coating with ultra lubrication eliminates weldings. Enable high speed milling on Aluminum alloys. Give better surface finish.

CARBIDE | DLC | R ±0.015 (3≦RE) | R ±0.01 (RE<3) | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径 RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8528401 | R 0.5 | 50 | 2.5 | 4 | D | ● | 20 | 13,900 |
| 8528402 | R 1 | | 5 | 6 | | ● | 24 | 15,200 |
| 8528403 | R 1.5 | 60 | 8 | | | ● | 30 | 15,200 |
| 8528404 | R 2 | 70 | | | | ● | 35 | 15,200 |
| 8528406 | R 3 | 90 | 12 | | | ● | 41 | 16,500 |
| 8528408 | R 4 | 100 | 14 | 8 | | ● | 75 | 22,900 |
| 8528410 | R 5 | | 18 | 10 | | ● | 113 | 27,500 |
| 8528412 | R 6 | 110 | 22 | 12 | | ● | 175 | 33,800 |
| 8528416 | R 8 | 140 | 30 | 16 | | ● | 394 | 69,500 |
| 8528420 | R10 | 160 | 38 | 20 | | ● | 686 | 106,000 |


OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1167を参照下さい。 See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります





デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DLC-EBD | | | | | | | | | ○ | ※◎ | | | | ◎ |

※高Si（13%以上）鋳物、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。

※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

## グラファイト用DGコート2枚刃超硬ボールエンドミル
**DG Coated 2-flute Carbide Ball End Mill for Graphite**

# DG-EBD

切削条件 Cutting Conditions | P696



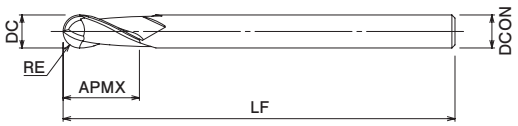
グラファイト専用のダイヤモンドコーティングを施したエンドミルです。
Diamond Coated end mills for graphite.

CARBIDE | DG | R ±0.01 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃長×全長 RE × APMX × LF | 刃先 RE | 刃長 APMX | ｼｬﾝｸ径 DCON | 全長 LF | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8553541 | R2 × 8 × 80 | 2 | 8 | 4 | 80 | | ● | 17 | 27,000 |
| 8553542 | R2 × 20 × 120 | | 20 | | 120 | | ● | 27 | 27,500 |
| 8553551 | R2.5 × 25 × 120 | 2.5 | 25 | 5 | | | ● | 38 | 39,500 |
| 8553561 | R3 × 12 × 80 | 3 | 12 | 6 | 80 | | ● | 45 | 39,100 |
| 8553562 | R3 × 30 × 120 | | 30 | | 120 | | ● | 51 | 39,900 |
| 8553563 | R3 × 30 × 150 | | | | 150 | | ● | 70 | 40,700 |
| 8553581 | R4 × 16 × 100 | 4 | 16 | 8 | 100 | B | ● | 74 | 47,900 |
| 8553582 | R4 × 40 × 170 | | 40 | | 170 | | ● | 132 | 49,500 |
| 8553601 | R5 × 20 × 100 | 5 | 20 | 10 | 100 | | ● | 112 | 59,600 |
| 8553602 | R5 × 50 × 150 | | 50 | | 150 | | ● | 150 | 61,800 |
| 8553603 | R5 × 50 × 200 | | | | 200 | | ● | 210 | 64,700 |
| 8553621 | R6 × 36 × 130 | 6 | 36 | 12 | 130 | | ● | 201 | 65,500 |
| 8553622 | R6 × 60 × 200 | | 60 | | 200 | | ● | 335 | 70,900 |




## DIAコート2枚刃超硬ボールエンドミル
**Diamond Coated 2-flute Carbide Ball End Mill**

# DIA-EBD

切削条件 Cutting Conditions | P693



アルミの高速加工はもちろんアルミのドライ切削も可能です。さらにグラファイト加工でも飛躍的な工具寿命の延長を実現します。
Not only high speed milling but also can run dry. Shows remarkable tool life improvement on Graphite machining.

CARBIDE | DIA | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8504110 | R0.5 × 1 | 60 | 2.5 | 4 | B | ● | 17 | 27,000 |
| | R0.6 × 1.2 | | 3 | | – | □ | – | – |
| | R0.7 × 1.4 | | 3.5 | | | □ | – | – |
| | R0.75 × 1.5 | | 4 | | | □ | – | – |
| | R0.8 × 1.6 | | | | | □ | – | – |
| | R0.9 × 1.8 | | 4.5 | | | □ | – | – |
| 8504120 | R1 × 2 | | 5 | 6 | B | ● | 29 | 37,500 |
| | R1.25 × 2.5 | | 6 | | – | □ | – | – |
| 8504130 | R1.5 × 3 | 70 | 8 | | B | ● | 30 | 37,500 |
| | R1.75 × 3.5 | | | | – | □ | – | – |
| 8504140 | R2 × 4 | 80 | | | B | ● | 33 | 37,500 |
| 8504141 | R2 × 4-4 | 70 | | 4 | | ● | 20 | 37,000 |
| | R2.25 × 4.5 | 80 | 10 | 6 | – | □ | – | – |
| 8504150 | R2.5 × 5 | 90 | | | B | ● | 40 | 38,500 |
| | R2.75 × 5.5 | | 12 | | – | □ | – | – |
| 8504160 | R3 × 6 | | | | B | ● | 41 | 39,000 |
| | R3.25 × 6.5 | 100 | 14 | | – | □ | – | – |
| | R3.5 × 7 | | | | | □ | – | – |
| | R3.75 × 7.5 | | | | | □ | – | – |
| 8504180 | R4 × 8 | 110 | 18 | 8 | B | ● | 82 | 49,800 |
| | R4.25 × 8.5 | | | | – | □ | – | – |
| | R4.5 × 9 | | | | | □ | – | – |
| | R4.75 × 9.5 | | | | | □ | – | – |
| 8504200 | R5 × 10 | 125 | 22 | 10 | B | ● | 142 | 66,900 |
| | R5.25 × 10.5 | | | | – | □ | – | – |
| | R5.5 × 11 | | | | | □ | – | – |
| | R5.75 × 11.5 | | | | | □ | – | – |
| 8504220 | R6 × 12 | 140 | | 12 | B | ● | 235 | 80,000 |

OSGのPSシリーズ

## 商品シリーズ Parts & Supply series

部品のアルミ化や樹脂化が可能になり軽量化を実現

※詳細は▶P.1171 を参照下さい。
See p.1171 for details



製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DG-EBD | | | | | | | | | | ○ | ◎ | | | ◎ |
| DIA-EBD | | | | | | | | | ○ | ◎ | ◎ | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# アディティブ・マニュファクチャリング用 DUROREYコート3枚刃超硬ボールエンドミル

**DUROREY Coated 3-flute Carbide Ball End Mill for Additive Manufacturing**

## AM-EBT

切削条件 Cutting Conditions | P705

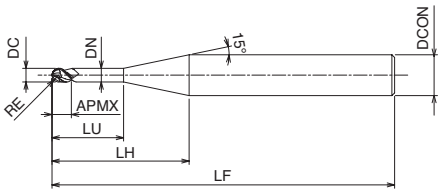


CARBIDE | DUROREY | R ±0.01 | SHRINK FIT | 30°

CAD

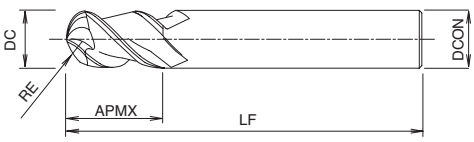
Type 1






Type 2





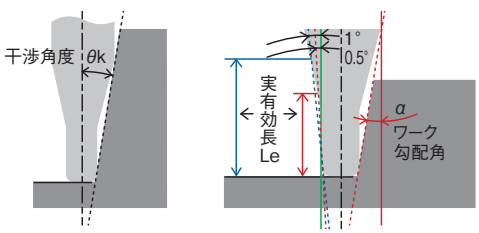

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径×首下長 RE × DC × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 刃数 ZEFP | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3187240 | R1 × 2× 4 | 60 | 2 | 11.9 | 6 | 1.95 | 3 | 10.32° | 4.22 | 4.44 | 4.65 | 4.86 | 5.26 | 1 | B | ● | 24 | 4,760 |
| 3187280 | R1 × 2× 8 | | | 15.9 | | | | 7.62° | 8.47 | 8.87 | 9.22 | 9.54 | 10.24 | | | ● | 23 | 5,680 |
| 3187360 | R1.5× 3× 6 | | 3 | 11.8 | | 2.85 | | 8.18° | 6.25 | 6.49 | 6.72 | 6.94 | 7.4 | | | ● | 25 | 5,640 |
| 3187392 | R1.5× 3×12 | | | 17.8 | | | | 5.23° | 12.53 | 12.98 | 13.4 | 13.85 | 14.85 | | | ● | 23 | 6,770 |
| 3187408 | R2 × 4× 8 | | 4 | 12 | | 3.85 | | 5.68° | 8.32 | 8.62 | 8.91 | 9.17 | 9.76 | | | ● | 25 | 5,890 |
| 3187416 | R2 × 4×16 | | | 20 | | | | 3.18° | 16.68 | 17.23 | 17.78 | 18.37 | 19.71 | | | ● | 23 | 7,070 |
| 3187510 | R2.5× 5×10 | | 5 | 12.1 | | 4.85 | | 2.97° | 10.4 | 10.75 | 11.08 | 11.4 | — | | | ● | 26 | 6,310 |
| 3187520 | R2.5× 5×20 | | | 22.1 | | | | 1.46° | 20.82 | 21.47 | — | — | — | | | ● | 24 | 7,570 |
| 3188060 | R3 × 6 | | 9 | — | | — | | — | — | — | — | — | — | 2 | | ● | 26 | 6,320 |
| 3188080 | R4 × 8 | 70 | 12 | — | 8 | — | | — | — | — | — | — | — | | | ● | 51 | 7,570 |
| 3188100 | R5 ×10 | 80 | 15 | — | 10 | — | | — | — | — | — | — | — | | | ● | 89 | 12,000 |
| 3188120 | R6 ×12 | 90 | 18 | — | 12 | — | | — | — | — | — | — | — | | | ● | 143 | 16,400 |
| 3188160 | R8 ×16 | 105 | 24 | — | 16 | — | | — | — | — | — | — | — | | | ● | 291 | 29,200 |
| 3188200 | R10 ×20 | 110 | 30 | — | 20 | — | | — | — | — | — | — | — | | | ● | 465 | 45,400 |

ラジアスタイプ(AM-CRE)はP385、高送りラジアスタイプ(AM-HFC)はP.386をご覧下さい。
See page 385 for AM-CRE, page 386 for AM-HFC

### ■ワーク勾配角αに対する実有効長 (Le)

Effective Neck length (Le) depending on Inclined Angle (α) of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | コバルトクロム基 Cobalt Chromium Based Alloy | Ni基合金 Ni-based Alloy (Inconel 718) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～70HRC | ～35HRC | ～350HB | | | | | | | | |
| AM-EBT | ○ | | ◎ | ◎ | ◎ | ○ | ○ | ○ | | | | ◎ | ◎ | | ◎ | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート3枚刃超硬ボールエンドミル
**FX Coated 3-flute Carbide Ball End Mill**

## PHX-DBT

切削条件 Cutting Conditions | P578



1刃あたりの切削量を大きく取るために、工具形状を低抵抗刃型とした新発想のボールエンドミルです。今までにない高送り加工が可能となります。

New concept ball end mills that increase metal removal per tooth with a new low-resistance cutting edge form. Previously unattainable high feed machining is now possible.

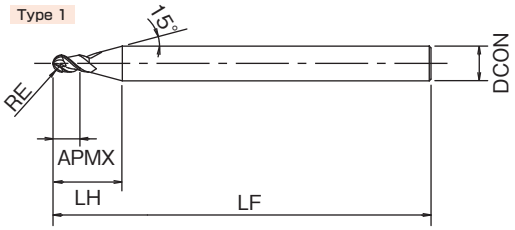
CARBIDE | FX | R ±0.01 | SHRINK FIT | 45°

CAD

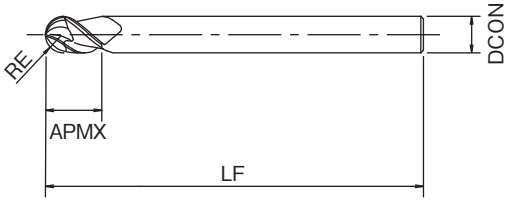
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×全長 RE × LF | LH | 刃長 APMX | シャンク径 DCON | 干渉角度 θk | ■ワーク勾配角αに対する実有効長 (Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3090202 | R 0.5 × 60 | 12 | 1.5 | 6 | 13.53° | 1.53 | 1.56 | 1.6 | 1.65 | 1.74 | 3 | 1 | A | ● | 26 | 20,100 |
| 3090204 | R 1 × 60 | 12.3 | 3 | | 11.81° | 3.06 | 3.13 | 3.21 | 3.3 | 3.49 | | | | ● | 26 | 20,100 |
| 3090206 | R 1.5 × 70 | 12.6 | 4.5 | | 9.76° | 4.6 | 4.7 | 4.82 | 4.95 | 5.23 | | | | ● | 28 | 21,900 |
| 3090208 | R 2 × 70 | 12.2 | 6 | | 7.26° | 6.13 | 6.27 | 6.43 | 6.6 | 6.98 | | | | ● | 28 | 21,900 |
| 3090210 | R 2.5 × 70 | 12.1 | 7.5 | | 4.12° | 7.66 | 7.84 | 8.04 | 8.25 | 8.73 | | | | ● | 28 | 23,100 |
| 3090212 | R 3 × 80 | – | 9 | | – | – | – | – | – | – | | 2 | | ● | 34 | 23,600 |
| 3090312 | R 3 × 110 | – | | | – | – | – | – | – | – | | | | ● | 50 | 25,100 |
| 3090216 | R 4 × 90 | – | 12 | 8 | – | – | – | – | – | – | | | | ● | 67 | 31,300 |
| 3090316 | R 4 × 120 | – | | | – | – | – | – | – | – | | | | ● | 88 | 32,700 |
| 3090220 | R 5 × 100 | – | 15 | 10 | – | – | – | – | – | – | | | | ● | 115 | 42,500 |
| 3090320 | R 5 × 130 | – | | | – | – | – | – | – | – | | | | ● | 147 | 45,700 |
| 3090222 | R 6 × 100 | – | 18 | 12 | – | – | – | – | – | – | | | | ● | 159 | 55,400 |
| 3090322 | R 6 × 140 | – | | | – | – | – | – | – | – | | | | ● | 227 | 60,500 |
| 3090226 | R 8 × 150 | – | 24 | 16 | – | – | – | – | – | – | | | | ● | 442 | 94,400 |
| 3090230 | R10 × 150 | – | 30 | 20 | – | – | – | – | – | – | | | | ● | 652 | 148,000 |
| 3090330 | R10 × 200 | – | | | – | – | – | – | – | – | | | | ● | 884 | 162,000 |

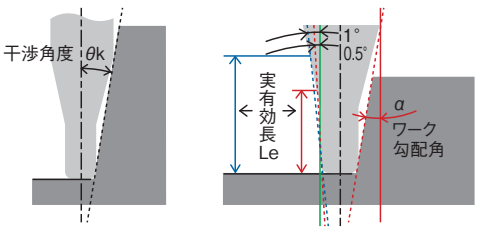
Type 1




Type 2




### ■ワーク勾配角αに対する実有効長 (Le)
Effective Neck length (Le) depending on Inclined Angle (α) of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | コバルトクロム基 Cobalt Chromium Based Alloy | Ni基合金 Ni-based Alloy (Inconel 718) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
| PHX-DBT | ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

## WXSコート3枚刃超硬ボールエンドミル高能率タイプ
**WXS Coated 3-flute Carbide Ball End Mill (Highly Efficient Type)**

# FXS-EBT

切削条件 Cutting Conditions | P658



中心まで3枚の刃で構成されるボール形状により、テーブル送り50%アップの高能率加工が可能です。
Thanks to 3 flutes ball nose geometry, all of that reach the center, the feed can be increased 50%.

CARBIDE | WXS | R ± 0.015 | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8518102 | R 1 × 2 | 50 | 5 | 6 | A | ▲ | 15 | 18,800 |
| | R 1.25 × 2.5 | 60 | 6 | | – | □ | – | – |
| 8518103 | R 1.5 × 3 | | 8 | | A | ▲ | 20 | 19,800 |
| | R 1.75 × 3.5 | 70 | | | – | □ | – | – |
| 8518104 | R 2 × 4 | | | | A | ▲ | 28 | 19,800 |
| 8518094 | R 2 × 4-4 | 60 | | 4 | | △ | 15 | 19,800 |
| | R 2.25 × 4.5 | 80 | 10 | 6 | – | □ | – | – |
| 8518105 | R 2.5 × 5 | | | | A | ▲ | 36 | 22,700 |
| | R 2.75 × 5.5 | 90 | 12 | | – | □ | – | – |
| 8518106 | R 3 × 6 | | | | A | ▲ | 41 | 22,200 |
| | R 3.25 × 6.5 | | 14 | | – | □ | – | – |
| | R 3.5 × 7 | | | | | □ | – | – |
| | R 3.75 × 7.5 | | | | | □ | – | – |
| 8518108 | R 4 × 8 | 100 | | 8 | A | ▲ | 74 | 28,100 |
| | R 4.25 × 8.5 | | 18 | | – | □ | – | – |
| | R 4.5 × 9 | | | | | □ | – | – |
| | R 4.75 × 9.5 | | | | | □ | – | – |
| 8518110 | R 5 × 10 | | | 10 | A | ▲ | 115 | 36,100 |
| | R 5.25 × 10.5 | | 22 | | – | □ | – | – |
| | R 5.5 × 11 | | | | | □ | – | – |
| | R 5.75 × 11.5 | | | | | □ | – | – |
| 8518112 | R 6 × 12 | 110 | | 12 | A | ▲ | 177 | 45,400 |
| | R 6.25 × 12.5 | | 26 | | – | □ | – | – |
| | R 6.5 × 13 | | | | | □ | – | – |
| | R 6.75 × 13.5 | | | | | □ | – | – |
| | R 7 × 14 | | | | | □ | – | – |
| | R 7.25 × 14.5 | | 30 | | | □ | – | – |
| | R 7.5 × 15 | | | | | □ | – | – |
| | R 7.75 × 15.5 | | | | | □ | – | – |
| 8518116 | R 8 × 16 | 140 | | 16 | A | ▲ | 402 | 91,700 |
| | R 8.25 × 16.5 | | 34 | | – | □ | – | – |
| | R 8.5 × 17 | | | | | □ | – | – |
| | R 8.75 × 17.5 | | | | | □ | – | – |
| | R 9 × 18 | | | | | □ | – | – |
| | R 9.25 × 18.5 | | 38 | | | □ | – | – |
| | R 9.5 × 19 | | | | | □ | – | – |
| | R 9.75 × 19.5 | | | | | □ | – | – |
| 8518120 | R10 × 20 | 160 | | 20 | A | ▲ | 700 | 143,000 |

▲＝この製品は、AM-EBT(P.334)、AE-BM-H(P.337)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AM-EBT(p.334) , AE-BM-H(p.337)

## WXSコート3枚刃超硬ボールエンドミル ロングシャンク高能率タイプ
**WXS Coated 3-flute Carbide Ball End Mill with Long Shank (Highly Efficient Type)**

# FXS-LS-EBT

切削条件 Cutting Conditions | P664



CARBIDE | WXS | R ± 0.015 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×全長 RE × LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8518406 | R 3 × 140 | 12 | 6 | B | △ | 63 | 25,100 |
| 8518408 | R 4 × 160 | 14 | 8 | | △ | 124 | 32,400 |
| 8518410 | R 5 × 180 | 18 | 10 | | △ | 225 | 42,500 |
| 8518412 | R 6 × 200 | 22 | 12 | | △ | 353 | 54,500 |
| 8518416 | R 8 × 220 | 30 | 16 | | △ | 649 | 106,000 |
| 8518420 | R10 × 250 | 38 | 20 | | △ | 1,099 | 165,000 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-EBT | ◎ | | ◎ | ◎ | ◎ | ○ | | | | | | | | |
| FXS-LS-EBT | ◎ | | ◎ | ◎ | ○ | ○ | | | | | | | | |

**在庫記号について** Inventory symbols
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○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 高硬度鋼用DUROREYコート4枚刃 超硬ボールエンドミル高能率型

**DUROREY Coated 4-flute High-efficiency Carbide Ball End Mill for High-hardness Steels**

A The A Brand

## AE-BM-H

切削条件 Cutting Conditions | P530



CARBIDE | DUROREY | R ±0.005 (RE≦1.5) | R ±0.007 (1.5<RE≦3) | R ±0.01 (3<RE) | SHRINK FIT | 40°

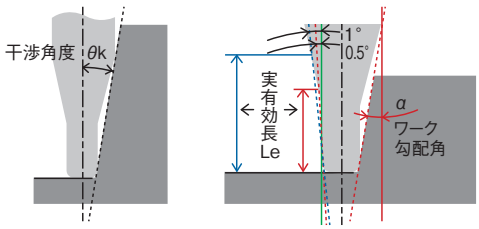
CAD

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | ボール半径X首下長 RE × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ワーク勾配角αに対する実有効長(Le) Effective length by inclined angles 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8549602 | R1 ×4 | 50 | 2 | 11.9 | 6 | 1.95 | 10.32° | 4.22 | 4.44 | 4.65 | 4.85 | 5.25 | 1 | B | ● | 20 | 5,940 |
| 8549603 | R1.5 ×6 | | 3 | 11.8 | | 2.85 | 8.18° | 6.25 | 6.49 | 6.72 | 6.94 | 7.36 | | | ● | 21 | 6,290 |
| 8549604 | R2 ×8 | 60 | 4 | 12 | | 3.85 | 5.68° | 8.32 | 8.62 | 8.9 | 9.15 | 9.71 | | | ● | 25 | 6,550 |
| 8549605 | R2.5 ×10 | | 5 | 12.1 | | 4.85 | 2.97° | 10.39 | 10.75 | 11.07 | 11.37 | – | | | ● | 26 | 7,480 |
| 8549606 | R3 | | 9 | – | | – | – | – | – | – | – | – | 2 | | ● | 26 | 8,400 |
| 8549608 | R4 | 70 | 12 | – | 8 | – | – | – | – | – | – | – | | | ● | 52 | 11,600 |
| 8549610 | R5 | 80 | 15 | – | 10 | – | – | – | – | – | – | – | | | ● | 91 | 15,900 |
| 8549612 | R6 | 90 | 18 | – | 12 | – | – | – | – | – | – | – | | | ● | 147 | 19,200 |

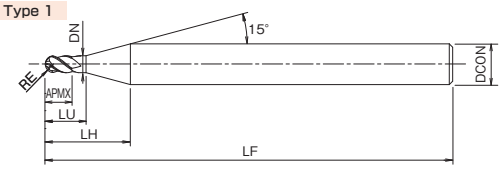
### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece

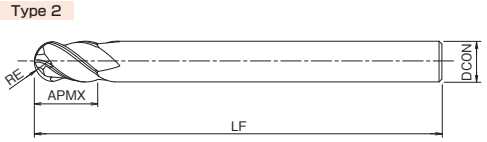



実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～70HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-BM-H | ○ | | ○ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ○ | | ○ | ○ | |

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# グラファイト用DGコート4枚刃超硬ボールエンドミル
**DG Coated 4-flute Carbide Ball End Mill for Graphite**

## DG-EBM

切削条件 Cutting Conditions | P696



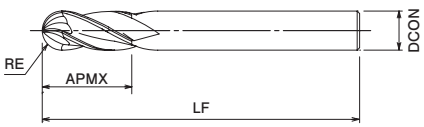
グラファイト専用のダイヤモンドコーティングを施したエンドミルです。
Diamond Coated end mills for graphite.

CARBIDE | DG | R ± 0.015 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃長 RE × APMX | ボール半径 RE | 刃長 APMX | シャンク径 DCON | 全長 LF | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8555008 | **R2 × 8** | R2 | 8 | 4 | 80 | B | ● | 17 | 26,200 |
| 8555012 | **R3 × 12** | R3 | 12 | 6 | | | ● | 40 | 33,600 |
| 8555016 | **R4 × 16** | R4 | 16 | 8 | 100 | | ● | 74 | 39,900 |
| 8555020 | **R5 × 20** | R5 | 20 | 10 | | | ● | 114 | 54,600 |




OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DG-EBM** | | | | | | | | | | ○ | ◎ | | | ◎ |

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## GXコート2枚刃超硬ボールエンドミル（焼きばめ対応）
**GX Coated 2-flute Carbide Ball End Mill (Shrink Fit Type)**

# GX-EBD-SF



シュリンクフィット用に開発された、きのこ形超硬ボールエンドミルです。
These mushroom shaped carbide ball end mills have been specially developed for the Shrink Tooling System.

CARBIDE | GX | R ±0.01 | SHRINK FIT | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3000100 | **R 5 × 10** | 32 | 10 | 6 | B | △ | 21 | 10,000 |
| 3000120 | **R 6 × 12** | 34 | 12 | | | △ | 25 | 12,100 |
| 3000160 | **R 8 × 16** | 49 | 16 | 10 | | △ | 77 | 23,600 |
| 3000200 | **R10 × 20** | 58 | 20 | 12 | | △ | 129 | 34,000 |

## GXコート2枚刃超硬エンドミル球形（焼きばめ対応）
**GX Coated 2-flute Carbide End Mill Sphere Type (Shrink Fit Type)**

# GX-EQD-SF

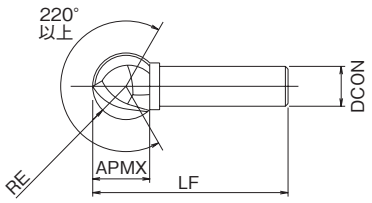


シュリンクフィット用に開発された、球形状の切れ刃を持つボールエンドミルです。
These mushroom shaped carbide ball end mills (sphere type) have been specially developed for Shrink Tooling System.

CARBIDE | GX | SHRINK FIT

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径 RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3002160 | **R 8** | 49 | 12 | 10 | B | △ | 76 | 23,600 |
| 3002200 | **R10** | 58 | 15 | 12 | | △ | 130 | 34,000 |




OSGアプリから製品ラベルの二次元コードを読み込んで検査成績表をダウンロード（一部製品に限る） ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GX-EBD-SF** | ◎ | | ◎ | | | | ◎ | ◎ | ○ | ○ | | | | |
| **GX-EQD-SF** | ◎ | | ◎ | | | | ◎ | ◎ | ○ | ○ | | | | |

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- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DIAコート2枚刃超硬ボールエンドミル（焼きばめ対応）
**Diamond Coated 2-flute Carbide Ball End Mill (Shrink Fit Type)**

## DIA-EBD-SF



グラファイトやアルミなどの加工に優れた耐久性を発揮します。
DIA-EBD-SF has an enhanced tool life when cutting graphite or aluminum alloys.

CARBIDE　DIA　SHRINK FIT

CAD

（単位:mm）（Unit:mm）

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3003100 | **R5×10** | 32 | 10 | 6 | B | ● | 24 | 61,300 |
| 3003120 | **R6×12** | 34 | 12 | | | ● | 26 | 73,800 |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1167を参照下さい。 See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります





デジタルカタログで最新情報を公開中 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DIA-EBD-SF** | | | | | | | | | ○ | ◎ | ◎ | | | |

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# DLCコート2枚刃超硬ボールエンドミル（焼きばめ対応）
**DLC Coated 2-flute Carbide Ball End Mill (Shrink Fit Type)**

# DLC-EBD-SF



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE　DLC　R ±0.015　SHRINK FIT

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **R5×10** | 32 | 10 | 6 | – | □ | – | – |
| | **R6×12** | 34 | 12 | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DLC-EBD-SF** | | | | | | | | | ○ | ※◎ | | | | ◎ |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※ Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

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# SXLコート超硬エキストラボールエンドミル
**SXL Coated Carbide Ball End Mill (Super High Precision)**

## SXLE-EBD

切削条件 Cutting Conditions | P638-1



CARBIDE | SXL | R ± 0.003 HP3 | R ± 0.005 HP5 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 精度 Limit | 全長 LF | 刃長 APMX | 首径 DN | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **R3×12** | HP3 | 90 | 6 | 5.7 | 6 | – | □ | – | – |
| | **R4×16** | | 100 | 8 | 7.6 | 8 | | □ | – | – |
| | **R5×20** | | | 10 | 9.5 | 10 | | □ | – | – |
| | **R6×24** | | 110 | 12 | 11.4 | 12 | | □ | – | – |
| | **R3×12** | HP5 | 90 | 6 | 5.7 | 6 | | □ | – | – |
| | **R4×16** | | 100 | 8 | 7.6 | 8 | | □ | – | – |
| | **R5×20** | | | 10 | 9.5 | 10 | | □ | – | – |
| | **R6×24** | | 110 | 12 | 11.4 | 12 | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **SXLE-EBD** | ◎ | | ◎ | ◎ | ○ | ○ | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ボールエンドミル
**FX Coated 2-flute Carbide Ball End Mill**

## FX-MG-EBD

切削条件 Cutting Conditions | **P650**



一般材から焼き入れ鋼までの幅広い加工が可能です。高速型マシニングセンタへの対応も可能です。
Applicable for both general and quenched steels. Can be used with high speed machining centers.

CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.2 × 0.4 | 50 | 0.8 | 4 | □ | – | – |
| | R0.25 × 0.5 | | 1.1 | | □ | – | – |
| | R0.3 × 0.6 | | | | □ | – | – |
| | R0.35 × 0.7 | | 1.5 | | □ | – | – |
| | R0.4 × 0.8 | | 2 | | □ | – | – |
| | R0.45 × 0.9 | | 2.2 | | □ | – | – |
| 8521010 | R0.5 × 1 | | 2.5 | | □ | – | – |
| | R0.55 × 1.1 | | 3 | | □ | – | – |
| 8521012 | R0.6 × 1.2 | | | | □ | – | – |
| | R0.65 × 1.3 | | 3.5 | | □ | – | – |
| 8521014 | R0.7 × 1.4 | | | | □ | – | – |
| 8521015 | R0.75 × 1.5 | | 4 | | □ | – | – |
| 8521016 | R0.8 × 1.6 | | | | □ | – | – |
| | R0.85 × 1.7 | | 4.5 | | □ | – | – |
| 8521018 | R0.9 × 1.8 | | | | □ | – | – |
| | R0.95 × 1.9 | | 5 | 6 | □ | – | – |
| 8521020 | R1 × 2 | | | | □ | – | – |
| | R1.05 × 2.1 | 60 | 6 | | □ | – | – |
| | R1.1 × 2.2 | | | | □ | – | – |
| | R1.15 × 2.3 | | | | □ | – | – |
| | R1.2 × 2.4 | | | | □ | – | – |
| 8521025 | R1.25 × 2.5 | | | | □ | – | – |
| | R1.3 × 2.6 | | 8 | | □ | – | – |
| | R1.35 × 2.7 | | | | □ | – | – |
| | R1.4 × 2.8 | | | | □ | – | – |
| | R1.45 × 2.9 | | | | □ | – | – |
| 8521030 | R1.5 × 3 | | | | □ | – | – |
| | R1.55 × 3.1 | 70 | | | □ | – | – |
| | R1.6 × 3.2 | | | | □ | – | – |
| | R1.65 × 3.3 | | | | □ | – | – |
| | R1.7 × 3.4 | | | | □ | – | – |
| 8521035 | R1.75 × 3.5 | | | | □ | – | – |
| | R1.8 × 3.6 | | | | □ | – | – |
| | R1.85 × 3.7 | | | | □ | – | – |
| | R1.9 × 3.8 | | | | □ | – | – |
| | R1.95 × 3.9 | | | | □ | – | – |
| 8521040 | R2 × 4 | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8521041 | R2 × 4 | 60 | 8 | 4 | □ | – | – |
| | R2.05 × 4.1 | 80 | 10 | | □ | – | – |
| | R2.1 × 4.2 | | | | □ | – | – |
| | R2.15 × 4.3 | | | | □ | – | – |
| | R2.2 × 4.4 | | | | □ | – | – |
| 8521045 | R2.25 × 4.5 | | | | □ | – | – |
| | R2.3 × 4.6 | | | | □ | – | – |
| | R2.35 × 4.7 | | | | □ | – | – |
| | R2.4 × 4.8 | | | | □ | – | – |
| | R2.45 × 4.9 | | | | □ | – | – |
| 8521050 | R2.5 × 5 | 90 | 12 | 6 | □ | – | – |
| | R2.55 × 5.1 | | | | □ | – | – |
| | R2.6 × 5.2 | | | | □ | – | – |
| | R2.65 × 5.3 | | | | □ | – | – |
| | R2.7 × 5.4 | | | | □ | – | – |
| 8521055 | R2.75 × 5.5 | | | | □ | – | – |
| | R2.8 × 5.6 | | | | □ | – | – |
| | R2.85 × 5.7 | | | | □ | – | – |
| | R2.9 × 5.8 | | | | □ | – | – |
| | R2.95 × 5.9 | | | | □ | – | – |
| 8521060 | R3 × 6 | | | | □ | – | – |
| | R3.05 × 6.1 | | 14 | | □ | – | – |
| | R3.1 × 6.2 | | | | □ | – | – |
| | R3.15 × 6.3 | | | | □ | – | – |
| | R3.2 × 6.4 | | | | □ | – | – |
| 8521065 | R3.25 × 6.5 | | | | □ | – | – |
| | R3.3 × 6.6 | | | | □ | – | – |
| | R3.35 × 6.7 | | | | □ | – | – |
| | R3.4 × 6.8 | | | | □ | – | – |
| | R3.45 × 6.9 | | | | □ | – | – |
| 8521070 | R3.5 × 7 | | | | □ | – | – |
| | R3.55 × 7.1 | | | | □ | – | – |
| | R3.6 × 7.2 | | | | □ | – | – |
| | R3.65 × 7.3 | | | | □ | – | – |
| | R3.7 × 7.4 | | | | □ | – | – |
| 8521075 | R3.75 × 7.5 | | | | □ | – | – |
| | R3.8 × 7.6 | | | | □ | – | – |
| | R3.85 × 7.7 | | | | □ | – | – |
| | R3.9 × 7.8 | | | | □ | – | – |
| | R3.95 × 7.9 | | | | □ | – | – |

※R2×4−4の−4はシャンク径4mmを表します。
※R2×4−4　−4 means φ4 shank.

次ページへ
ボール半径 RE 4〜15 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-MG-EBD | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート2枚刃超硬ボールエンドミル
**FX Coated 2-flute Carbide Ball End Mill**

## FX-MG-EBD

切削条件 Cutting Conditions | P650



一般材から焼き入れ鋼までの幅広い加工が可能です。高速型マシニングセンタへの対応も可能です。
Applicable for both general and quenched steels. Can be used with high speed machining centers.

CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.2～3.95

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8521080 | R4 × 8 | 100 | 14 | 8 | — □ | — | — |
| | R4.05 × 8.1 | | 18 | | | — | — |
| | R4.1 × 8.2 | | | | | — | — |
| | R4.15 × 8.3 | | | | | — | — |
| | R4.2 × 8.4 | | | | | — | — |
| 8521085 | R4.25 × 8.5 | | | | | — | — |
| | R4.3 × 8.6 | | | | | — | — |
| | R4.35 × 8.7 | | | | | — | — |
| | R4.4 × 8.8 | | | | | — | — |
| | R4.45 × 8.9 | | | | | — | — |
| 8521090 | R4.5 × 9 | | | | | — | — |
| | R4.55 × 9.1 | | | | | — | — |
| | R4.6 × 9.2 | | | | | — | — |
| | R4.65 × 9.3 | | | | | — | — |
| | R4.7 × 9.4 | | | | | — | — |
| 8521095 | R4.75 × 9.5 | | | | | — | — |
| | R4.8 × 9.6 | | | | | — | — |
| | R4.85 × 9.7 | | | | | — | — |
| | R4.9 × 9.8 | | | | | — | — |
| | R4.95 × 9.9 | | | | | — | — |
| 8521100 | R5 × 10 | | | 10 | | — | — |
| | R5.25 × 10.5 | | 22 | | | — | — |
| 8521110 | R5.5 × 11 | | | | | — | — |
| | R5.75 × 11.5 | | | | | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8521120 | R 6 × 12 | 110 | 22 | 12 | — □ | — | — |
| | R 6.25 × 12.5 | | 26 | | | — | — |
| 8521130 | R 6.5 × 13 | | | | | — | — |
| | R 6.75 × 13.5 | | | | | — | — |
| 8521140 | R 7 × 14 | | | | | — | — |
| | R 7.25 × 14.5 | | 30 | | | — | — |
| 8521150 | R 7.5 × 15 | | | | | — | — |
| | R 7.75 × 15.5 | | | | | — | — |
| 8521160 | R 8 × 16 | 140 | 34 | 16 | — | — | — |
| | R 8.25 × 16.5 | | | | | — | — |
| | R 8.5 × 17 | | | | | — | — |
| | R 8.75 × 17.5 | | | | | — | — |
| 8521180 | R 9 × 18 | | 38 | | | — | — |
| | R 9.25 × 18.5 | | | | | — | — |
| | R 9.5 × 19 | | | | | — | — |
| | R 9.75 × 19.5 | | | | | — | — |
| 8521200 | R10 × 20 | 160 | 45 | 20 | | — | — |
| | R10.5 × 21 | | | | | — | — |
| | R11 × 22 | | | | | — | — |
| | R12 × 24 | | 50 | | | — | — |
| 8521250 | R12.5 × 25 | 180 | | 25 | | — | — |
| | R13 × 26 | | | | | — | — |
| | R14 × 28 | | 55 | | | — | — |
| 8521300 | R15 × 30 | | | | | — | — |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、水・油・ヘドロをスピード吸入・スピード吐出
※詳細は▶P.1176を参照下さい。 See p.1176 for details




デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-MG-EBD | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
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# FXコート2枚刃超硬ボールエンドミル高精度タイプ（φ6シャンク）

**FX Coated 2-flute Carbide Ball End Mill High-precision Type (φ6 Shank)**

## FX-EBD-6

切削条件 Cutting Conditions | P667-9



高速高精度型マシニングセンタの性能を十分に引き出す高速加工用高精度ボールエンドミルです。超超微粒子超硬母材が、焼き入れ鋼高速加工での長寿命化を実現します。

Ball nose end mill for high speed tighter tolerance made for high speed and precision machining centers.Ultra fine grain carbide base material give long tool life on prehardened material milling.

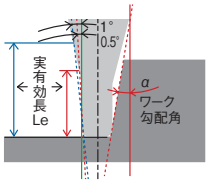
CARBIDE | FX | R ±0.005 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8544402 | R0.1 | | 0.2 | | – | – | – | – | – | – | – | □ | – | – |
| 8544403 | R0.15 | | 0.3 | | – | – | – | – | – | – | – | □ | – | – |
| 8544404 | R0.2 | | 0.4 | | – | – | – | – | – | – | – | □ | – | – |
| 8544405 | R0.25 × 1.5 | | 0.5 | | 0.45 | 1.61 | 1.74 | 1.87 | 2 | 2.14 | 2.28 | □ | – | – |
| 8544806 | R0.3 × 1.1 | | 0.6 | | 0.55 | 1.18 | 1.28 | 1.38 | 1.49 | 1.6 | 1.72 | □ | – | – |
| 8544406 | R0.3 × 1.8 | | | | | 1.94 | 2.08 | 2.23 | 2.38 | 2.53 | 2.68 | □ | – | – |
| 8544808 | R0.4 × 1.5 | | 0.8 | | 0.75 | 1.61 | 1.74 | 1.87 | 2 | 2.14 | 2.28 | □ | – | – |
| 8544408 | R0.4 × 2.4 | | | | | 2.58 | 2.76 | 2.94 | 3.12 | 3.3 | 3.48 | □ | – | – |
| 8544810 | R0.5 × 1.8 | | 1 | | 0.95 | 1.94 | 2.08 | 2.23 | 2.38 | 2.53 | 2.68 | □ | – | – |
| 8544410 | R0.5 × 2.5 | | | | | 2.69 | 2.88 | 3.06 | 3.24 | 3.43 | 3.61 | □ | – | – |
| 8544812 | R0.6 × 2.2 | | 1.2 | | 1.15 | 2.37 | 2.54 | 2.71 | 2.88 | 3.05 | 3.21 | □ | – | – |
| 8544412 | R0.6 × 3 | | | | | 3.22 | 3.44 | 3.65 | 3.85 | 4.05 | 4.25 | □ | – | – |
| 8544414 | R0.7 × 3.5 | 50 | 1.4 | 6 | 1.35 | 3.76 | 4 | 4.23 | 4.45 | 4.67 | 4.88 | – □ | – | – |
| 8544815 | R0.75 × 2.7 | | 1.5 | | 1.45 | 2.9 | 3.1 | 3.3 | 3.49 | 3.68 | 3.86 | □ | – | – |
| 8544415 | R0.75 × 3.8 | | | | | 4.08 | 4.33 | 4.58 | 4.81 | 5.04 | 5.25 | □ | – | – |
| 8544416 | R0.8 × 4 | | 1.6 | | 1.55 | 4.29 | 4.56 | 4.81 | 5.05 | 5.28 | 5.5 | □ | – | – |
| 8544418 | R0.9 × 4.5 | | 1.8 | | 1.75 | 4.82 | 5.11 | 5.38 | 5.64 | 5.88 | 6.13 | □ | – | – |
| 8544820 | R1 × 3.6 | | 2 | | 1.95 | 3.86 | 4.11 | 4.35 | 4.57 | 4.79 | 5.01 | □ | – | – |
| 8544420 | R1 × 5 | | | | | 5.35 | 5.67 | 5.96 | 6.23 | 6.48 | 6.75 | □ | – | – |
| 8544425 | R1.25 × 5 | | 2.5 | | 2.4 | 5.31 | 5.59 | 5.86 | 6.11 | 6.35 | 6.61 | □ | – | – |
| 8544430 | R1.5 × 6 | | 3 | | 2.85 | | | | | | | □ | – | – |
| 8544435 | R1.75 × 6 | | 3.5 | | 3.35 | 6.32 | 6.62 | 6.9 | 7.17 | 7.45 | 7.75 | □ | – | – |
| 8544440 | R2 × 6 | | 4 | | 3.85 | | | | | | | □ | – | – |
| 8544450 | R2.5 × 7.5 | | 5 | | 4.85 | 7.9 | 8.25 | 8.57 | 8.89 | 9.24 | – | □ | – | – |
| 8544460 | R3 × 9 | | 6 | | 5.85 | – | – | – | – | – | – | □ | – | – |

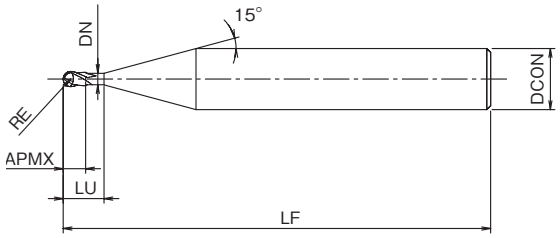
### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-EBD-6 | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート2枚刃超硬ボールエンドミルスタブ形（φ6シャンク）

**FX Coated 2-flute Carbide Ball End Mill Stub Length (φ6 Shank)**

## FX-EBDSS-6



CARBIDE | FX | R ± 0.005 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.1 × 0.2 | 50 | 0.2 | 6 | — | □ | — | — |
| | R0.15 × 0.3 | | 0.4 | | | □ | — | — |
| | R0.2 × 0.4 | | 0.5 | | | □ | — | — |
| | R0.25 × 0.5 | | 0.6 | | | □ | — | — |
| | R0.3 × 0.6 | | 0.7 | | | □ | — | — |
| | R0.4 × 0.8 | | 1 | | | □ | — | — |
| | R0.5 × 1 | | 1.2 | | | □ | — | — |
| | R0.6 × 1.2 | | 1.4 | | | □ | — | — |
| | R0.7 × 1.4 | | 1.7 | | | □ | — | — |
| | R0.75 × 1.5 | | 1.8 | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.8 × 1.6 | 50 | 1.9 | 6 | — | □ | — | — |
| | R0.9 × 1.8 | | 2.2 | | | □ | — | — |
| | R1 × 2 | | 2.4 | | | □ | — | — |
| | R1.25 × 2.5 | | 3 | | | □ | — | — |
| | R1.5 × 3 | | 3.6 | | | □ | — | — |
| | R1.75 × 3.5 | | 4.2 | | | □ | — | — |
| | R2 × 4 | | 4.8 | | | □ | — | — |
| | R2.5 × 5 | | 6 | | | □ | — | — |
| | R3 × 6 | | 7.2 | | | □ | — | — |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。 See p.1175 for details





CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel<br>～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-EBDSS-6 | ◎ | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ボールエンドミルDL形（φ6シャンク）

**FX Coated 2-flute Carbide Ball End Mill (φ6 Shank DL Type)**

## FX-EBD-DL-6



CARBIDE | FX | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.15 × 0.3 | | 0.6 | | □ | – | – |
| | R0.15 × 0.3 | | 0.9 | | □ | – | – |
| | R0.15 × 0.3 | | 1.2 | | □ | – | – |
| | R0.15 × 0.3 | | 1.8 | | □ | – | – |
| | R0.2 × 0.4 | | 0.8 | | □ | – | – |
| | R0.2 × 0.4 | | 1.2 | | □ | – | – |
| | R0.2 × 0.4 | | 1.6 | | □ | – | – |
| | R0.2 × 0.4 | | 2.4 | | □ | – | – |
| | R0.25 × 0.5 | | 1 | | □ | – | – |
| | R0.25 × 0.5 | | 1.5 | | □ | – | – |
| | R0.25 × 0.5 | | 2 | | □ | – | – |
| | R0.25 × 0.5 | | 3 | | □ | – | – |
| | R0.25 × 0.5 | | 4 | | □ | – | – |
| | R0.3 × 0.6 | | 1.2 | | □ | – | – |
| | R0.3 × 0.6 | | 2.4 | | □ | – | – |
| | R0.3 × 0.6 | | 3.6 | | □ | – | – |
| | R0.3 × 0.6 | | 4.8 | | □ | – | – |
| | R0.35 × 0.7 | | 1.4 | | □ | – | – |
| | R0.35 × 0.7 | | 2.8 | | □ | – | – |
| | R0.35 × 0.7 | | 4.2 | | □ | – | – |
| | R0.35 × 0.7 | 50 | 5.6 | 6 | □ – | – | – |
| | R0.4 × 0.8 | | 1.6 | | □ | – | – |
| | R0.4 × 0.8 | | 3.2 | | □ | – | – |
| | R0.4 × 0.8 | | 4.8 | | □ | – | – |
| | R0.4 × 0.8 | | 6.4 | | □ | – | – |
| | R0.45 × 0.9 | | 1.8 | | □ | – | – |
| | R0.45 × 0.9 | | 3.6 | | □ | – | – |
| | R0.45 × 0.9 | | 5.4 | | □ | – | – |
| | R0.45 × 0.9 | | 7.2 | | □ | – | – |
| | R0.5 × 1 | | 2 | | □ | – | – |
| | R0.5 × 1 | | 3 | | □ | – | – |
| | R0.5 × 1 | | 4 | | □ | – | – |
| | R0.5 × 1 | | 5 | | □ | – | – |
| | R0.5 × 1 | | 6 | | □ | – | – |
| | R0.5 × 1 | | 8 | | □ | – | – |
| | R0.55 × 1.1 | | 2.2 | | □ | – | – |
| | R0.55 × 1.1 | | 4.4 | | □ | – | – |
| | R0.55 × 1.1 | | 6.6 | | □ | – | – |
| | R0.55 × 1.1 | | 8.8 | | □ | – | – |
| | R0.6 × 1.2 | | 2.4 | | □ | – | – |
| | R0.6 × 1.2 | | 4.8 | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.6 × 1.2 | | 7.2 | | □ | – | – |
| | R0.6 × 1.2 | | 9.6 | | □ | – | – |
| | R0.65 × 1.3 | | 2.6 | | □ | – | – |
| | R0.65 × 1.3 | | 5.2 | | □ | – | – |
| | R0.65 × 1.3 | | 7.8 | | □ | – | – |
| | R0.65 × 1.3 | | 10.4 | | □ | – | – |
| | R0.7 × 1.4 | | 2.8 | | □ | – | – |
| | R0.7 × 1.4 | | 5.6 | | □ | – | – |
| | R0.7 × 1.4 | | 8.4 | | □ | – | – |
| | R0.7 × 1.4 | | 11.2 | | □ | – | – |
| | R0.75 × 1.5 | | 3 | | □ | – | – |
| | R0.75 × 1.5 | | 4.5 | | □ | – | – |
| | R0.75 × 1.5 | | 6 | | □ | – | – |
| | R0.75 × 1.5 | | 8 | | □ | – | – |
| | R0.75 × 1.5 | | 10 | | □ | – | – |
| | R0.75 × 1.5 | | 12 | | □ | – | – |
| | R0.8 × 1.6 | | 3.2 | | □ | – | – |
| | R0.8 × 1.6 | | 6.4 | | □ | – | – |
| | R0.8 × 1.6 | 50 | 9.6 | 6 | □ – | – | – |
| | R0.8 × 1.6 | | 12.8 | | □ | – | – |
| | R0.85 × 1.7 | | 3.4 | | □ | – | – |
| | R0.85 × 1.7 | | 6.8 | | □ | – | – |
| | R0.85 × 1.7 | | 10.2 | | □ | – | – |
| | R0.85 × 1.7 | | 13.6 | | □ | – | – |
| | R0.9 × 1.8 | | 3.6 | | □ | – | – |
| | R0.9 × 1.8 | | 7.2 | | □ | – | – |
| | R0.9 × 1.8 | | 10.8 | | □ | – | – |
| | R0.9 × 1.8 | | 14.4 | | □ | – | – |
| | R0.95 × 1.9 | | 3.8 | | □ | – | – |
| | R0.95 × 1.9 | | 7 | | □ | – | – |
| | R0.95 × 1.9 | | 9.5 | | □ | – | – |
| | R0.95 × 1.9 | | 15.2 | | □ | – | – |
| | R1 × 2 | | 4 | | □ | – | – |
| | R1 × 2 | | 6 | | □ | – | – |
| | R1 × 2 | | 8 | | □ | – | – |
| | R1 × 2 | | 12 | | □ | – | – |
| | R1 × 2 | | 16 | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

次ページへ
ボール半径 RE 1.25～3 NEXT

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶ P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## FXコート2枚刃超硬ボールエンドミルDL形（φ6シャンク）
**FX Coated 2-flute Carbide Ball End Mill (φ6 Shank DL Type)**

## FX-EBD-DL-6



## FXコート2枚刃超硬ボールエンドミル（ミニチュア）
**FX Coated 2-flute Miniature Carbide Ball End Mill (φ3 Shank)**

## FX-MG-EBD-3

切削条件 Cutting Conditions | P667-3



FXコーティングと高じん性超硬材質の採用で幅広い加工を可能としました。
Made with FX coating and tough carbide metal for a wide range of operations.

CARBIDE | FX | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.15～1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R1.25 × 2.5 | 60 | 7.5 | 6 | — | — | — |
| | R1.25 × 2.5 | | 10 | | | — | — |
| | R1.25 × 2.5 | | 15 | | | — | — |
| | R1.25 × 2.5 | | 20 | | | — | — |
| | R1.5 × 3 | | 9 | | | — | — |
| | R1.5 × 3 | | 12 | | | — | — |
| | R1.5 × 3 | | 15 | | | — | — |
| | R1.5 × 3 | | 18 | | | — | — |
| | R1.5 × 3 | | 24 | | | — | — |
| | R1.75 × 3.5 | 70 | 10.5 | | | — | — |
| | R1.75 × 3.5 | | 14 | | | — | — |
| | R1.75 × 3.5 | | 17.5 | | | — | — |
| | R1.75 × 3.5 | | 21 | | | — | — |
| | R1.75 × 3.5 | | 28 | | | — | — |
| | R2 × 4 | | 12 | | | — | — |
| | R2 × 4 | | 16 | | | — | — |
| | R2 × 4 | | 20 | | | — | — |
| | R2 × 4 | | 24 | | | — | — |
| | R2 × 4 | | 32 | | | — | — |
| | R2.5 × 5 | 80 | 15 | | | — | — |
| | R2.5 × 5 | | 20 | | | — | — |
| | R2.5 × 5 | | 25 | | | — | — |
| | R2.5 × 5 | | 30 | | | — | — |
| | R2.5 × 5 | | 40 | | | — | — |
| | R3 × 6 | 90 | 18 | | | — | — |
| | R3 × 6 | | 24 | | | — | — |
| | R3 × 6 | | 30 | | | — | — |
| | R3 × 6 | | 36 | | | — | — |
| | R3 × 6 | | 48 | | | — | — |

CARBIDE | FX | R ± 0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8523504 | R0.2 × 0.4 | 40 | 0.8 | 3 | — | — | — |
| 8523505 | R0.25 × 0.5 | | 1.1 | | | — | — |
| 8523506 | R0.3 × 0.6 | | | | | — | — |
| 8523507 | R0.35 × 0.7 | | 1.5 | | | — | — |
| 8523508 | R0.4 × 0.8 | | 2 | | | — | — |
| 8523509 | R0.45 × 0.9 | | 2.2 | | | — | — |
| 8523510 | R0.5 × 1 | | 2.5 | | | — | — |
| 8523511 | R0.55 × 1.1 | | 3 | | | — | — |
| 8523512 | R0.6 × 1.2 | | | | | — | — |
| 8523513 | R0.65 × 1.3 | | 3.5 | | | — | — |
| 8523514 | R0.7 × 1.4 | | | | | — | — |
| 8523515 | R0.75 × 1.5 | | 4 | | | — | — |
| 8523516 | R0.8 × 1.6 | | | | | — | — |
| 8523517 | R0.85 × 1.7 | | 4.5 | | | — | — |
| 8523518 | R0.9 × 1.8 | | | | | — | — |
| 8523519 | R0.95 × 1.9 | | 5 | | | — | — |
| 8523520 | R1 × 2 | | | | | — | — |
| 8523521 | R1.05 × 2.1 | | 6 | | | — | — |
| 8523522 | R1.1 × 2.2 | | | | | — | — |
| 8523523 | R1.15 × 2.3 | | | | | — | — |
| 8523524 | R1.2 × 2.4 | | | | | — | — |
| 8523525 | R1.25 × 2.5 | | | | | — | — |
| 8523526 | R1.3 × 2.6 | | 8 | | | — | — |
| 8523527 | R1.35 × 2.7 | | | | | — | — |
| 8523528 | R1.4 × 2.8 | | | | | — | — |
| 8523529 | R1.45 × 2.9 | | | | | — | — |
| 8523530 | R1.5 × 3 | | | | | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-EBD-DL-6 | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |
| FX-MG-EBD-3 | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ボールエンドミルロング形（ミニチュア）

**FX Coated 2-flute Miniature Carbide Ball End Mill Long Length (φ3 Shank)**

## FX-MG-EBDL-3



CARBIDE | FX | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.2 × 0.4 | 40 | 2 | 3 | – | □ | – | – |
| | R0.25 × 0.5 | | 2.5 | | | □ | – | – |
| | R0.3 × 0.6 | | 2.8 | | | □ | – | – |
| | R0.35 × 0.7 | | 3.6 | | | □ | – | – |
| | R0.4 × 0.8 | | 4 | | | □ | – | – |
| | R0.45 × 0.9 | | 4.5 | | | □ | – | – |
| | R0.5 × 1 | | 5 | | | □ | – | – |
| | R0.55 × 1.1 | | 5.6 | | | □ | – | – |
| | R0.6 × 1.2 | | 6.2 | | | □ | – | – |
| | R0.65 × 1.3 | | | | | □ | – | – |
| | R0.7 × 1.4 | | 7 | | | □ | – | – |
| | R0.75 × 1.5 | | | | | □ | – | – |
| | R0.8 × 1.6 | | 8 | | | □ | – | – |
| | R0.85 × 1.7 | | | | | □ | – | – |
| | R0.9 × 1.8 | | 9 | | | □ | – | – |
| | R0.95 × 1.9 | | | | | □ | – | – |
| | R1 × 2 | | 10 | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-MG-EBDL-3 | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## FXコート2枚刃超硬ボールエンドミル エキストラロング形（ミニチュア）

**FX Coated 2-flute Miniature Carbide Ball End Mill Extra Long Length (φ3 Shank)**

# FX-MG-EBDLL-3



CARBIDE | FX | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.2 × 0.4 | 40 | 3 | 3 | – | □ | – | – |
| | R0.3 × 0.6 | | 4.2 | | | □ | – | – |
| | R0.4 × 0.8 | | 6 | | | □ | – | – |
| | R0.5 × 1 | | 7.5 | | | □ | – | – |
| | R0.6 × 1.2 | | 9.4 | | | □ | – | – |
| | R0.7 × 1.4 | | 10.5 | | | □ | – | – |
| | R0.8 × 1.6 | | 12 | | | □ | – | – |
| | R0.9 × 1.8 | | 13.5 | | | □ | – | – |
| | R1 × 2 | | 15 | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

## 重切削用FXコート2枚刃超硬ボールエンドミル 強力型（HSK対応）

**FX Coated 2-flute Carbide Ball End Mill with HS Shank (Heavy-duty Operation Type)**

# FX-HS-EBDS

切削条件 Cutting Conditions | P667-4



高速・高能率（大きな切込み）に対応した重切削用ボールエンドミルです。シュリンク・HSKにジャストフィットの短全長です。
Ball nose end mill for heavy milling operation fit for high speed and larger cutting depth. Designed with shorter OAL to fit Shrink·HSK holders.

CARBIDE | FX | R ±0.01 (RE≦1) | R ±0.015 (1.5≦RE) | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | 首径 DN | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8521400 | R0.5 × 2.5 | 50 | 1 | 0.95 | 6 | – | □ | – | – |
| | R0.6 × 3 | | 1.2 | – | | | □ | – | – |
| | R0.7 × 3.5 | | 1.4 | – | | | □ | – | – |
| 8521401 | R0.75 × 3.75 | | 1.5 | 1.45 | | | □ | – | – |
| | R0.8 × 4 | | 1.6 | – | | | □ | – | – |
| | R0.9 × 4.5 | | 1.8 | – | | | □ | – | – |
| 8521402 | R1 × 5 | | 2 | 1.95 | | | □ | – | – |
| | R1.25 × 6.3 | | 2.5 | – | | | □ | – | – |
| 8521403 | R1.5 × 7.5 | | 3 | 2.85 | | | □ | – | – |
| | R1.75 × 8.8 | | 3.5 | – | | | □ | – | – |
| 8521404 | R2 × 10 | | 4 | 3.85 | | | □ | – | – |
| | R2.25 × 11.3 | | 4.5 | – | | | □ | – | – |
| 8521405 | R2.5 × 12.5 | | 5 | 4.8 | | | □ | – | – |
| 8521406 | R3 × 15 | | 6 | 5.7 | | | □ | – | – |
| | R3.5 × 17.5 | 60 | 7 | – | 8 | | □ | – | – |
| 8521408 | R4 × 20 | | 8 | 7.6 | | | □ | – | – |
| | R4.5 × 22.5 | 70 | 9 | – | 10 | | □ | – | – |
| 8521410 | R5 × 25 | | 10 | 9.5 | | | □ | – | – |
| | R5.5 × 27.5 | 80 | 11 | – | 12 | | □ | – | – |
| 8521412 | R6 × 30 | | 12 | 11.4 | | | □ | – | – |


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※詳細は▶P.1178 を参照下さい。 See p.1178 for details



OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 焼き入れ鋼 Hardened Steel | | | | | | | | | | | |
| FX-MG-EBDLL-3 | ◎ | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |
| FX-HS-EBDS | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 仕上げ用FXコート2枚刃超硬ボールエンドミル（HSK対応）
**FX Coated 2-flute Carbide Ball End Mill with HS Shank**

## FX-H-EBD
切削条件 Cutting Conditions | P652-1



HSKホルダはもちろん、L/Dの大きなシュリンクロングアーバでも安定した切削を実現します。
Capable of stable milling,especially with HSK holders and shrink fit holders with extended gage lengths.

CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | 首径 DN | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8520990 | R0.5 × 2.5 | | 1 | 0.95 | | | – | – |
| 8520991 | R0.75 × 3.75 | | 1.5 | 1.45 | | | – | – |
| 8520992 | R1 × 5 | | 2 | 1.95 | | | – | – |
| 8521303 | R1.5 × 7.5 | 50 | 3 | 2.85 | 6 | | – | – |
| 8521304 | R2 ×10 | | 4 | 3.85 | | – | – | – |
| 8521305 | R2.5 ×12.5 | | 5 | 4.8 | | | – | – |
| 8521306 | R3 ×15 | | 6 | 5.7 | | | – | – |
| 8521308 | R4 ×20 | 60 | 8 | 7.6 | 8 | | – | – |
| 8521310 | R5 ×25 | 70 | 10 | 9.5 | 10 | | – | – |
| 8521312 | R6 ×30 | 80 | 12 | 11.4 | 12 | | – | – |

## FXコート2枚刃油穴付き超硬ボールエンドミル
**FX Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply**

## FX-HO-MG-EBD
切削条件 Cutting Conditions | P667-5

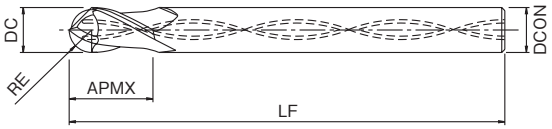


切りくずの排出が問題となる深い部分の加工でオイルホールが威力を発揮します。
The internal coolant supply helps remove chips from deep areas of the work piece.

CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8521560 | R 3 × 6 | 90 | 12 | 6 | | – | – |
| 8521580 | R 4 × 8 | 100 | 14 | 8 | | – | – |
| 8521600 | R 5 × 10 | | 18 | 10 | – | – | – |
| 8521620 | R 6 × 12 | 110 | 22 | 12 | | – | – |
| 8521660 | R 8 × 16 | 140 | 30 | 16 | | – | – |
| 8521700 | R10 × 20 | 160 | 38 | 20 | | – | – |




製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-H-EBD | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |
| FX-HO-MG-EBD | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート2枚刃超硬ボールエンドミル ロングシャンクロング形
**FX Coated 2-flute Carbide Ball End Mill Long Length with Long Shank**

## FX-LS-MG-EBDL



CARBIDE | FX | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 3 × 6 | 150 | 30 | 6 | | □ | – | – |
| | R 4 × 8 | | 35 | 8 | | □ | – | – |
| | R 5 × 10 | 200 | 40 | 10 | | □ | – | – |
| | R 6 × 12 | | 45 | 12 | – | □ | – | – |
| | R 8 × 16 | 250 | 55 | 16 | | □ | – | – |
| | R10 × 20 | 300 | 65 | 20 | | □ | – | – |
| | R12.5 × 25 | | 70 | 25 | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.


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粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ



デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-LS-MG-EBDL | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

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- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## WXSコート2枚刃油穴付き超硬ボールエンドミル 高剛性タイプ

**WXS Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply (Highly Rigid Type)**

# FXS-HO-EBDS

切削条件 Cutting Conditions | P667-16

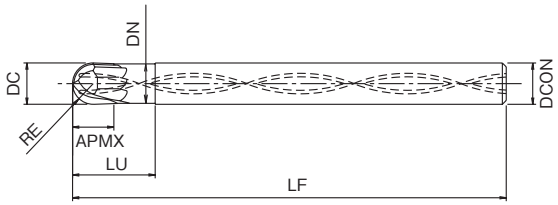


工具剛性を極限にまで高めた高硬度鋼用ボールエンドミルのオイルホール付きです。
Rigid ball end mill for hardened steels. Uses internal coolant supply system.

CARBIDE | WXS | R ±0.01 | SHRINK FIT | 15°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8518306 | R 3 × 6 | 90 | 6 | 6 | 12 | 5.9 | | □ | – | – |
| 8518308 | R 4 × 8 | 100 | 8 | 8 | 16 | 7.9 | | □ | – | – |
| 8518310 | R 5 × 10 | | 10 | 10 | 20 | 9.9 | – | □ | – | – |
| 8518312 | R 6 × 12 | 110 | 12 | 12 | 24 | 11.9 | | □ | – | – |
| 8518316 | R 8 × 16 | 140 | 16 | 16 | 32 | 15.8 | | □ | – | – |
| 8518320 | R10 × 20 | 160 | 20 | 20 | 40 | 19.8 | | □ | – | – |




## FXコート2枚刃超硬ボールエンドミル左刃左ねじれ

**FX Coated 2-flute Carbide Ball End Mill (LH Cut and LH Helix)**

# FX-MR-EBD



CARBIDE | FX | R ±0.01 | SHRINK FIT

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R3 × 6 | 90 | 12 | 6 | | □ | – | – |
| | R3.5 × 7 | | 14 | | | □ | – | – |
| | R4 × 8 | 100 | | 8 | – | □ | – | – |
| | R4.5 × 9 | | 18 | | | □ | – | – |
| | R5 × 10 | | | 10 | | □ | – | – |
| | R5.5 × 11 | | 22 | | | □ | – | – |
| | R6 × 12 | 110 | | 12 | | □ | – | – |

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See p.1179 for details



製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FXS-HO-EBDS | ◎ | | ◎ | ◎ | ◎ | ○ | ◎ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# Vコート2枚刃超硬ボールエンドミルロングシャンク
**V Coated 2-flute Carbide Ball End Mill with Long Shank**

## V-LS-MG-EBD



CARBIDE | V | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 0.5 × 1 | 100 | 2.5 | 4 | | □ | — | — |
| | R 1 × 2 | | 5 | 6 | | □ | — | — |
| | R 1.5 × 3 | 120 | 8 | | | □ | — | — |
| | R 2 × 4 | | | | | □ | — | — |
| | R 2.5 × 5 | 150 | 10 | | | □ | — | — |
| | R 3 × 6 | | 12 | | | □ | — | — |
| | R 3.5 × 7 | | 14 | | | □ | — | — |
| | R 4 × 8 | 180 | | 8 | | □ | — | — |
| | R 4.5 × 9 | | 18 | | | □ | — | — |
| | R 5 × 10 | | | 10 | | □ | — | — |
| | R 5.5 × 11 | | 22 | | — | □ | — | — |
| | R 6 × 12 | 200 | | 12 | | □ | — | — |
| | R 7 × 14 | | 26 | | | □ | — | — |
| | R 7.5 × 15 | | | | | □ | — | — |
| | R 8 × 16 | 250 | 30 | 16 | | □ | — | — |
| | R 9 × 18 | | 34 | | | □ | — | — |
| | R10 × 20 | 300 | 38 | 20 | | □ | — | — |
| | R12.5 × 25 | 350 | 50 | 25 | | □ | — | — |
| | R15 × 30 | | 55 | | | □ | — | — |
| | R16 × 32 | | 60 | 32 | | □ | — | — |
| | R17.5 × 35 | | | | | □ | — | — |
| | R20 × 40 | | 65 | | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| V-LS-MG-EBD | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# TiNコート2枚刃超硬ボールエンドミル
**TiN Coated 2-flute Carbide Ball End Mill**

## TIN-MG-EBD



CARBIDE | TiN | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.5 × 1 | 50 | 2.5 | 4 | □ | – | – |
| | R0.75 × 1.5 | | 4 | | □ | – | – |
| | R1 × 2 | | 5 | | □ | – | – |
| | R1.25 × 2.5 | 60 | 6 | | □ | – | – |
| | R1.5 × 3 | | 8 | | □ | – | – |
| | R1.55 × 3.1 | 70 | | | □ | – | – |
| | R1.6 × 3.2 | | | | □ | – | – |
| | R1.65 × 3.3 | | | | □ | – | – |
| | R1.7 × 3.4 | | | | □ | – | – |
| | R1.75 × 3.5 | | | | □ | – | – |
| | R1.8 × 3.6 | | | | □ | – | – |
| | R1.85 × 3.7 | | | | □ | – | – |
| | R1.9 × 3.8 | | | | □ | – | – |
| | R1.95 × 3.9 | | | | □ | – | – |
| | R2 × 4 | | | | □ | – | – |
| | R2.05 × 4.1 | 80 | 10 | | □ | – | – |
| | R2.1 × 4.2 | | | | □ | – | – |
| | R2.15 × 4.3 | | | | □ | – | – |
| | R2.2 × 4.4 | | | | □ | – | – |
| | R2.25 × 4.5 | | | | □ | – | – |
| | R2.3 × 4.6 | | | | □ | – | – |
| | R2.35 × 4.7 | | | | □ | – | – |
| | R2.4 × 4.8 | | | | □ | – | – |
| | R2.45 × 4.9 | | | 6 | □ | – | – |
| | R2.5 × 5 | | | | □ | – | – |
| | R2.55 × 5.1 | 90 | 12 | | □ | – | – |
| | R2.6 × 5.2 | | | | □ | – | – |
| | R2.65 × 5.3 | | | | □ | – | – |
| | R2.7 × 5.4 | | | | □ | – | – |
| | R2.75 × 5.5 | | | | □ | – | – |
| | R2.8 × 5.6 | | | | □ | – | – |
| | R2.85 × 5.7 | | | | □ | – | – |
| | R2.9 × 5.8 | | | | □ | – | – |
| | R2.95 × 5.9 | | | | □ | – | – |
| | R3 × 6 | | | | □ | – | – |
| | R3.05 × 6.1 | | 14 | | □ | – | – |
| | R3.1 × 6.2 | | | | □ | – | – |
| | R3.15 × 6.3 | | | | □ | – | – |
| | R3.2 × 6.4 | | | | □ | – | – |
| | R3.25 × 6.5 | | | | □ | – | – |
| | R3.3 × 6.6 | | | | □ | – | – |
| | R3.35 × 6.7 | | | | □ | – | – |
| | R3.4 × 6.8 | | | | □ | – | – |
| | R3.45 × 6.9 | | | | □ | – | – |
| | R3.5 × 7 | | | | □ | – | – |
| | R3.55 × 7.1 | | | | □ | – | – |
| | R3.6 × 7.2 | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R3.65 × 7.3 | 90 | 14 | 6 | □ | – | – |
| | R3.7 × 7.4 | | | | □ | – | – |
| | R3.75 × 7.5 | | | | □ | – | – |
| | R3.8 × 7.6 | | | | □ | – | – |
| | R3.85 × 7.7 | | | | □ | – | – |
| | R3.9 × 7.8 | | | | □ | – | – |
| | R3.95 × 7.9 | | | | □ | – | – |
| | R4 × 8 | 100 | 18 | 8 | □ | – | – |
| | R4.05 × 8.1 | | | | □ | – | – |
| | R4.1 × 8.2 | | | | □ | – | – |
| | R4.15 × 8.3 | | | | □ | – | – |
| | R4.2 × 8.4 | | | | □ | – | – |
| | R4.25 × 8.5 | | | | □ | – | – |
| | R4.3 × 8.6 | | | | □ | – | – |
| | R4.35 × 8.7 | | | | □ | – | – |
| | R4.4 × 8.8 | | | | □ | – | – |
| | R4.45 × 8.9 | | | | □ | – | – |
| | R4.5 × 9 | | | | □ | – | – |
| | R4.55 × 9.1 | | | | □ | – | – |
| | R4.6 × 9.2 | | | | □ | – | – |
| | R4.65 × 9.3 | | | | □ | – | – |
| | R4.7 × 9.4 | | | | □ | – | – |
| | R4.75 × 9.5 | | | | □ | – | – |
| | R4.8 × 9.6 | | | | □ | – | – |
| | R4.85 × 9.7 | | | | □ | – | – |
| | R4.9 × 9.8 | | | | □ | – | – |
| | R4.95 × 9.9 | | | | □ | – | – |
| | R5 × 10 | | | | □ | – | – |
| | R5.05 × 10.1 | | 22 | 10 | □ | – | – |
| | R5.1 × 10.2 | | | | □ | – | – |
| | R5.15 × 10.3 | | | | □ | – | – |
| | R5.2 × 10.4 | | | | □ | – | – |
| | R5.25 × 10.5 | | | | □ | – | – |
| | R5.3 × 10.6 | | | | □ | – | – |
| | R5.35 × 10.7 | | | | □ | – | – |
| | R5.4 × 10.8 | | | | □ | – | – |
| | R5.45 × 10.9 | | | | □ | – | – |
| | R5.5 × 11 | | | | □ | – | – |
| | R5.55 × 11.1 | | | | □ | – | – |
| | R5.6 × 11.2 | | | | □ | – | – |
| | R5.65 × 11.3 | | | | □ | – | – |
| | R5.7 × 11.4 | | | | □ | – | – |
| | R5.75 × 11.5 | | | | □ | – | – |
| | R5.8 × 11.6 | | | | □ | – | – |
| | R5.85 × 11.7 | | | | □ | – | – |
| | R5.9 × 11.8 | | | | □ | – | – |
| | R5.95 × 11.9 | | | | □ | – | – |

次ページへ
ボール半径 RE 6～12.5 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート2枚刃超硬ボールエンドミル
TiN Coated 2-flute Carbide Ball End Mill

## TIN-MG-EBD



CARBIDE | TiN | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.5～5.95

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R6 × 12 | 110 | 22 | 12 | – | □ | – | – |
| | R6.05 × 12.1 | | 26 | | | □ | – | – |
| | R6.1 × 12.2 | | | | | □ | – | – |
| | R6.15 × 12.3 | | | | | □ | – | – |
| | R6.2 × 12.4 | | | | | □ | – | – |
| | R6.25 × 12.5 | | | | | □ | – | – |
| | R6.3 × 12.6 | | | | | □ | – | – |
| | R6.35 × 12.7 | | | | | □ | – | – |
| | R6.4 × 12.8 | | | | | □ | – | – |
| | R6.45 × 12.9 | | | | | □ | – | – |
| | R6.5 × 13 | | | | | □ | – | – |
| | R6.55 × 13.1 | | | | | □ | – | – |
| | R6.6 × 13.2 | | | | | □ | – | – |
| | R6.65 × 13.3 | | | | | □ | – | – |
| | R6.7 × 13.4 | | | | | □ | – | – |
| | R6.75 × 13.5 | | | | | □ | – | – |
| | R6.8 × 13.6 | | | | | □ | – | – |
| | R6.85 × 13.7 | | | | | □ | – | – |
| | R6.9 × 13.8 | | | | | □ | – | – |
| | R6.95 × 13.9 | | | | | □ | – | – |
| | R7 × 14 | | 30 | | | □ | – | – |
| | R7.05 × 14.1 | | | | | □ | – | – |
| | R7.1 × 14.2 | | | | | □ | – | – |
| | R7.15 × 14.3 | | | | | □ | – | – |
| | R7.2 × 14.4 | | | | | □ | – | – |
| | R7.25 × 14.5 | | | | | □ | – | – |
| | R7.3 × 14.6 | | | | | □ | – | – |
| | R7.35 × 14.7 | | | | | □ | – | – |
| | R7.4 × 14.8 | | | | | □ | – | – |
| | R7.45 × 14.9 | | | | | □ | – | – |
| | R7.5 × 15 | | | | | □ | – | – |
| | R7.55 × 15.1 | | | | | □ | – | – |
| | R7.6 × 15.2 | | | | | □ | – | – |
| | R7.65 × 15.3 | | | | | □ | – | – |
| | R7.7 × 15.4 | | | | | □ | – | – |
| | R7.75 × 15.5 | | | | | □ | – | – |
| | R7.8 × 15.6 | | | | | □ | – | – |
| | R7.85 × 15.7 | | | | | □ | – | – |
| | R7.9 × 15.8 | | | | | □ | – | – |
| | R7.95 × 15.9 | | | | | □ | – | – |
| | R8 × 16 | 140 | | 16 | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 8.05 × 16.1 | 140 | 34 | 16 | – | □ | – | – |
| | R 8.1 × 16.2 | | | | | □ | – | – |
| | R 8.15 × 16.3 | | | | | □ | – | – |
| | R 8.2 × 16.4 | | | | | □ | – | – |
| | R 8.25 × 16.5 | | | | | □ | – | – |
| | R 8.3 × 16.6 | | | | | □ | – | – |
| | R 8.35 × 16.7 | | | | | □ | – | – |
| | R 8.4 × 16.8 | | | | | □ | – | – |
| | R 8.45 × 16.9 | | | | | □ | – | – |
| | R 8.5 × 17 | | | | | □ | – | – |
| | R 8.55 × 17.1 | | | | | □ | – | – |
| | R 8.6 × 17.2 | | | | | □ | – | – |
| | R 8.65 × 17.3 | | | | | □ | – | – |
| | R 8.7 × 17.4 | | | | | □ | – | – |
| | R 8.75 × 17.5 | | | | | □ | – | – |
| | R 8.8 × 17.6 | | | | | □ | – | – |
| | R 8.85 × 17.7 | | | | | □ | – | – |
| | R 8.9 × 17.8 | | | | | □ | – | – |
| | R 8.95 × 17.9 | | | | | □ | – | – |
| | R 9 × 18 | | 38 | | | □ | – | – |
| | R 9.05 × 18.1 | | | | | □ | – | – |
| | R 9.1 × 18.2 | | | | | □ | – | – |
| | R 9.15 × 18.3 | | | | | □ | – | – |
| | R 9.2 × 18.4 | | | | | □ | – | – |
| | R 9.25 × 18.5 | | | | | □ | – | – |
| | R 9.3 × 18.6 | | | | | □ | – | – |
| | R 9.35 × 18.7 | | | | | □ | – | – |
| | R 9.4 × 18.8 | | | | | □ | – | – |
| | R 9.45 × 18.9 | | | | | □ | – | – |
| | R 9.5 × 19 | | | | | □ | – | – |
| | R 9.55 × 19.1 | | | | | □ | – | – |
| | R 9.6 × 19.2 | | | | | □ | – | – |
| | R 9.65 × 19.3 | | | | | □ | – | – |
| | R 9.7 × 19.4 | | | | | □ | – | – |
| | R 9.75 × 19.5 | | | | | □ | – | – |
| | R 9.8 × 19.6 | | | | | □ | – | – |
| | R 9.85 × 19.7 | | | | | □ | – | – |
| | R 9.9 × 19.8 | | | | | □ | – | – |
| | R 9.95 × 19.9 | | | | | □ | – | – |
| | R10 × 20 | 160 | | 20 | | □ | – | – |
| | R12.5 × 25 | 180 | 50 | 25 | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| TIN-MG-EBD | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# GXコート2枚刃超硬ボールエンドミル
**GX Coated 2-flute Carbide Ball End Mill**

## GX-EBD



ハイグレード超微粒子超硬合金＋GXコーティング。
High grade micro grain carbide and GX coating.

CARBIDE | GX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.2 × 0.4 | 40 | 0.8 | 3 | | □ | – | – |
| | R0.25 × 0.5 | | 1.1 | | | □ | – | – |
| | R0.3 × 0.6 | | | | | □ | – | – |
| | R0.4 × 0.8 | | 2 | | | □ | – | – |
| | R0.5 × 1 | 50 | 2.5 | 4 | | □ | – | – |
| | R0.6 × 1.2 | | 3 | | | □ | – | – |
| | R0.7 × 1.4 | | 3.5 | | | □ | – | – |
| | R0.75 × 1.5 | | 4 | | | □ | – | – |
| | R0.8 × 1.6 | | | | – | □ | – | – |
| | R1 × 2 | | 5 | 6 | | □ | – | – |
| | R1.5 × 3 | 60 | 8 | | | □ | – | – |
| | R2 × 4 | 70 | | | | □ | – | – |
| | R2.5 × 5 | 80 | 10 | | | □ | – | – |
| | R3 × 6 | 90 | 12 | | | □ | – | – |
| | R4 × 8 | 100 | 14 | 8 | | □ | – | – |
| | R5 × 10 | | 18 | 10 | | □ | – | – |
| | R6 × 12 | 110 | 22 | 12 | | □ | – | – |

最新の加工動画を公開中 ▶▶▶P.6

次ページへ
ボール半径 RE 2.05～12.5 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GX-EBD | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃超硬ボールエンドミル（ミニチュア）
**2-flute Miniature Carbide Ball End Mill (φ3 Shank)**

## MG-EBD-3

切削条件 Cutting Conditions | P672



抗折力の大きな高じん性超硬合金を採用しています。
Made with tough carbide metal.

CARBIDE | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 86271 | R0.05 × 0.1 | 40 | 0.2 | 3 | — | □ | — | — |
| 86301 | R0.075 × 0.15 | | 0.3 | | | □ | — | — |
| 86272 | R0.1 × 0.2 | | 0.4 | | | □ | — | — |
| 86302 | R0.125 × 0.25 | | 0.5 | | | □ | — | — |
| 86273 | R0.15 × 0.3 | | 0.6 | | | □ | — | — |
| 86303 | R0.175 × 0.35 | | 0.7 | | | □ | — | — |
| 86274 | R0.2 × 0.4 | | 0.8 | | | □ | — | — |
| 86275 | R0.25 × 0.5 | | 1.1 | | | □ | — | — |
| 86276 | R0.3 × 0.6 | | | | | □ | — | — |
| 86277 | R0.35 × 0.7 | | 1.5 | | | □ | — | — |
| 86278 | R0.4 × 0.8 | | 2 | | | □ | — | — |
| 86279 | R0.45 × 0.9 | | 2.2 | | | □ | — | — |
| 86280 | R0.5 × 1 | | 2.5 | | | □ | — | — |
| 86281 | R0.55 × 1.1 | | 3 | | | □ | — | — |
| 86282 | R0.6 × 1.2 | | | | | □ | — | — |
| 86283 | R0.65 × 1.3 | | 3.5 | | | □ | — | — |
| 86284 | R0.7 × 1.4 | | | | | □ | — | — |
| 86285 | R0.75 × 1.5 | | 4 | | | □ | — | — |
| 86286 | R0.8 × 1.6 | | | | | □ | — | — |
| 86287 | R0.85 × 1.7 | | 4.5 | | | □ | — | — |
| 86288 | R0.9 × 1.8 | | | | | □ | — | — |
| 86289 | R0.95 × 1.9 | | 5 | | | □ | — | — |
| 86290 | R1 × 2 | | | | | □ | — | — |
| 86291 | R1.05 × 2.1 | | 6 | | | □ | — | — |
| 86292 | R1.1 × 2.2 | | | | | □ | — | — |
| 86293 | R1.15 × 2.3 | | | | | □ | — | — |
| 86294 | R1.2 × 2.4 | | | | | □ | — | — |
| 86295 | R1.25 × 2.5 | | | | | □ | — | — |
| 86296 | R1.3 × 2.6 | | 8 | | | □ | — | — |
| 86297 | R1.35 × 2.7 | | | | | □ | — | — |
| 86298 | R1.4 × 2.8 | | | | | □ | — | — |
| 86299 | R1.45 × 2.9 | | | | | □ | — | — |
| 86300 | R1.5 × 3 | | | | | □ | — | — |

## 2枚刃超硬ボールエンドミル（φ4シャンク）
**2-flute Carbide Ball End Mill (φ4 Shank)**

## MG-EBD-4



CARBIDE | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.4 × 0.8 | 45 | 2 | 4 | — | □ | — | — |
| | R0.45 × 0.9 | | | | | □ | — | — |
| | R0.55 × 1.1 | 50 | 3 | | | □ | — | — |
| | R0.65 × 1.3 | | 3.5 | | | □ | — | — |
| | R0.85 × 1.7 | | 4.5 | | | □ | — | — |
| | R0.95 × 1.9 | | 5 | | | □ | — | — |
| | R1 × 2 | | | | | □ | — | — |
| | R1.05 × 2.1 | | 6 | | | □ | — | — |
| | R1.1 × 2.2 | 60 | | | | □ | — | — |
| | R1.15 × 2.3 | | | | | □ | — | — |
| | R1.2 × 2.4 | | | | | □ | — | — |
| | R1.25 × 2.5 | | | | | □ | — | — |
| | R1.3 × 2.6 | | 8 | | | □ | — | — |
| | R1.35 × 2.7 | | | | | □ | — | — |
| | R1.4 × 2.8 | | | | | □ | — | — |
| | R1.45 × 2.9 | | | | | □ | — | — |
| | R1.5 × 3 | | | | | □ | — | — |
| | R1.55 × 3.1 | | | | | □ | — | — |
| | R1.6 × 3.2 | 70 | | | | □ | — | — |
| | R1.65 × 3.3 | | | | | □ | — | — |
| | R1.7 × 3.4 | | | | | □ | — | — |
| | R1.75 × 3.5 | | | | | □ | — | — |
| | R1.8 × 3.6 | | | | | □ | — | — |
| | R1.85 × 3.7 | | | | | □ | — | — |
| | R1.9 × 3.8 | | | | | □ | — | — |
| | R1.95 × 3.9 | | | | | □ | — | — |
| | R2 × 4 | | | | | □ | — | — |

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| MG-EBD-3 | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| MG-EBD-4 | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃超硬ボールエンドミルロング形（ミニチュア）
**2-flute Miniature Carbide Ball End Mill Long Length (φ3 Shank)**

## MG-EBDL-3



CARBIDE | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.2 × 0.4 | 40 | 2 | 3 | – | – | – |
| | R0.25 × 0.5 | | 2.5 | | | – | – |
| | R0.3 × 0.6 | | 2.8 | | | – | – |
| | R0.35 × 0.7 | | 3.6 | | | – | – |
| | R0.4 × 0.8 | | 4 | | | – | – |
| | R0.45 × 0.9 | | 4.5 | | | – | – |
| | R0.5 × 1 | | 5 | | | – | – |
| | R0.55 × 1.1 | | 5.6 | | | – | – |
| | R0.6 × 1.2 | | 6.2 | | | – | – |
| | R0.65 × 1.3 | | | | | – | – |
| | R0.7 × 1.4 | | 7 | | | – | – |
| | R0.75 × 1.5 | | | | | – | – |
| | R0.8 × 1.6 | | 8 | | | – | – |
| | R0.85 × 1.7 | | | | | – | – |
| | R0.9 × 1.8 | | 9 | | | – | – |
| | R0.95 × 1.9 | | | | | – | – |
| | R1 × 2 | | 10 | | | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

## 2枚刃超硬ボールエンドミルエキストラロング形（ミニチュア）
**2-flute Miniature Carbide Ball End Mill Extra Long Length (φ3 Shank)**

## MG-EBDLL-3



CARBIDE | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.2 × 0.4 | 40 | 3 | 3 | – | – | – |
| | R0.3 × 0.6 | | 4.2 | | | – | – |
| | R0.4 × 0.8 | | 6 | | | – | – |
| | R0.5 × 1 | | 7.5 | | | – | – |
| | R0.6 × 1.2 | | 9.4 | | | – | – |
| | R0.7 × 1.4 | | 10.5 | | | – | – |
| | R0.8 × 1.6 | | 12 | | | – | – |
| | R0.9 × 1.8 | | 13.5 | | | – | – |
| | R1 × 2 | | 15 | | | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177 を参照下さい。
See p.1177 for details



**デジタルカタログで最新情報を公開中** ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| MG-EBDL-3 | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |
| MG-EBDLL-3 | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃超硬ボールエンドミルDL形
**2-flute Carbide Ball End Mill (DL Type)**

## MG-EBD-DL



CARBIDE　SHRINK FIT　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.15 × 0.3 | 50 | 0.6 | 3 | □ | – | – |
| | R0.15 × 0.3 | | 1.2 | | □ | – | – |
| | R0.15 × 0.3 | | 1.8 | | □ | – | – |
| | R0.2 × 0.4 | | 0.8 | | □ | – | – |
| | R0.2 × 0.4 | | 1.6 | | □ | – | – |
| | R0.2 × 0.4 | | 2 | | □ | – | – |
| | R0.2 × 0.4 | | 2.4 | | □ | – | – |
| | R0.2 × 0.4 | | 3 | | □ | – | – |
| | R0.25 × 0.5 | | 1 | | □ | – | – |
| | R0.25 × 0.5 | | 2 | | □ | – | – |
| | R0.25 × 0.5 | | 2.5 | | □ | – | – |
| | R0.25 × 0.5 | | 3 | | □ | – | – |
| | R0.25 × 0.5 | | 4 | | □ | – | – |
| | R0.3 × 0.6 | | 1.2 | | □ | – | – |
| | R0.3 × 0.6 | | 2.4 | | □ | – | – |
| | R0.3 × 0.6 | | 2.8 | | □ | – | – |
| | R0.3 × 0.6 | | 3.6 | | □ | – | – |
| | R0.3 × 0.6 | | 4.2 | | □ | – | – |
| | R0.3 × 0.6 | | 4.8 | | □ | – | – |
| | R0.35 × 0.7 | | 1.4 | | □ | – | – |
| | R0.35 × 0.7 | | 2.8 | | □ | – | – |
| | R0.35 × 0.7 | | 3.6 | – | □ | – | – |
| | R0.35 × 0.7 | | 4.2 | | □ | – | – |
| | R0.4 × 0.8 | | 1.6 | | □ | – | – |
| | R0.4 × 0.8 | | 3.2 | | □ | – | – |
| | R0.4 × 0.8 | | 4.5 | | □ | – | – |
| | R0.4 × 0.8 | | 4.8 | | □ | – | – |
| | R0.4 × 0.8 | | 6 | | □ | – | – |
| | R0.45 × 0.9 | | 1.8 | | □ | – | – |
| | R0.45 × 0.9 | | 3.6 | | □ | – | – |
| | R0.45 × 0.9 | | 5 | | □ | – | – |
| | R0.45 × 0.9 | | 5.4 | | □ | – | – |
| | R0.5 × 1 | | 2 | 4 | □ | – | – |
| | R0.5 × 1 | | 3 | | □ | – | – |
| | R0.5 × 1 | | 4 | | □ | – | – |
| | R0.5 × 1 | | 5 | 3 | □ | – | – |
| | R0.5 × 1 | | | 4 | □ | – | – |
| | R0.5 × 1 | | 6 | | □ | – | – |
| | R0.5 × 1 | | 7.5 | 3 | □ | – | – |
| | R0.55 × 1.1 | | 2.2 | 4 | □ | – | – |
| | R0.55 × 1.1 | | 4.4 | | □ | – | – |
| | R0.55 × 1.1 | | 5.6 | 3 | □ | – | – |
| | R0.55 × 1.1 | | 6.6 | 4 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.6 × 1.2 | 50 | 2.4 | 4 | □ | – | – |
| | R0.6 × 1.2 | | 4.8 | | □ | – | – |
| | R0.6 × 1.2 | | 6.2 | 3 | □ | – | – |
| | R0.6 × 1.2 | | 7.2 | 4 | □ | – | – |
| | R0.6 × 1.2 | | 9.4 | 3 | □ | – | – |
| | R0.65 × 1.3 | | 2.6 | 4 | □ | – | – |
| | R0.65 × 1.3 | | 5.2 | | □ | – | – |
| | R0.65 × 1.3 | | 6.2 | 3 | □ | – | – |
| | R0.65 × 1.3 | | 7.8 | 4 | □ | – | – |
| | R0.7 × 1.4 | | 2.8 | | □ | – | – |
| | R0.7 × 1.4 | | 5.6 | | □ | – | – |
| | R0.7 × 1.4 | | 7 | 3 | □ | – | – |
| | R0.7 × 1.4 | | 8.4 | 4 | □ | – | – |
| | R0.7 × 1.4 | | 10.5 | 3 | □ | – | – |
| | R0.75 × 1.5 | | 3 | 4 | □ | – | – |
| | R0.75 × 1.5 | | 4.5 | | □ | – | – |
| | R0.75 × 1.5 | | 6 | | □ | – | – |
| | R0.75 × 1.5 | | 7 | 3 | □ | – | – |
| | R0.75 × 1.5 | | 7.5 | 4 | □ | – | – |
| | R0.8 × 1.6 | | 3.2 | | □ | – | – |
| | R0.8 × 1.6 | | 6.4 | – | □ | – | – |
| | R0.8 × 1.6 | | 8 | 3 | □ | – | – |
| | R0.8 × 1.6 | | 12 | | □ | – | – |
| | R0.85 × 1.7 | | 3.4 | 4 | □ | – | – |
| | R0.85 × 1.7 | | 6.8 | | □ | – | – |
| | R0.85 × 1.7 | | 8 | 3 | □ | – | – |
| | R0.9 × 1.8 | | 3.6 | 4 | □ | – | – |
| | R0.9 × 1.8 | | 7.2 | | □ | – | – |
| | R0.9 × 1.8 | | 9 | 3 | □ | – | – |
| | R0.9 × 1.8 | | 13.5 | | □ | – | – |
| | R0.95 × 1.9 | | 3.8 | 4 | □ | – | – |
| | R0.95 × 1.9 | | 7.6 | | □ | – | – |
| | R0.95 × 1.9 | | 9 | 3 | □ | – | – |
| | R1 × 2 | | 4 | 4 | □ | – | – |
| | R1 × 2 | | 6 | | □ | – | – |
| | R1 × 2 | | 8 | | □ | – | – |
| | R1 × 2 | | 10 | 3 | □ | – | – |
| | R1 × 2 | | | 4 | □ | – | – |
| | R1 × 2 | | 12 | | □ | – | – |
| | R1 × 2 | | 14 | | □ | – | – |
| | R1 × 2 | | 15 | 3 | □ | – | – |
| | R1 × 2 | | 16 | 4 | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MG-EBD-DL | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 銅・アルミ合金用2枚刃超硬ボールエンドミル
**2-flute Carbide Ball End Mill for Copper and Aluminum Alloys**

# CA-RG-EBD



CARBIDE | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 0.5 × 1 | 50 | 2.5 | 4 | – | □ | – | – |
| | R 1 × 2 | | 5 | 6 | | □ | – | – |
| | R 1.5 × 3 | 60 | 8 | | | □ | – | – |
| | R 2 × 4 | 70 | | | | □ | – | – |
| | R 2.5 × 5 | 80 | 10 | | | □ | – | – |
| | R 3 × 6 | 90 | 12 | | | □ | – | – |
| | R 3.5 × 7 | | 14 | | | □ | – | – |
| | R 4 × 8 | 100 | | 8 | | □ | – | – |
| | R 4.5 × 9 | | 18 | | | □ | – | – |
| | R 5 × 10 | | | 10 | | □ | – | – |
| | R 5.5 × 11 | | 22 | | | □ | – | – |
| | R 6 × 12 | 110 | | 12 | | □ | – | – |
| | R 7 × 14 | | 26 | | | □ | – | – |
| | R 8 × 16 | 140 | 30 | 16 | | □ | – | – |
| | R 9 × 18 | | 34 | | | □ | – | – |
| | R10 × 20 | 160 | 38 | 20 | | □ | – | – |

## 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル
**CrN Coated 2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics**

# CRN-EBD

切削条件 Cutting Conditions | P682-1



CrNコーティングと切れ味の良い刃形により銅、銅合金のドライ切削も可能としたボールエンドミルです。
This is a ball-end mill for milling copper alloy. The CrN coating and sharp cutting edge enable dry milling on pure copper and copper alloys.

CARBIDE | CrN | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8503702 | R0.1 × 0.2 | 60 | 0.4 | 4 | – | □ | – | – |
| 8503704 | R0.2 × 0.4 | | 0.8 | | | □ | – | – |
| 8503706 | R0.3 × 0.6 | | 1.1 | | | □ | – | – |
| 8503708 | R0.4 × 0.8 | | 2 | | | □ | – | – |
| 8503710 | R0.5 × 1 | | 2.5 | | | □ | – | – |
| 8503712 | R0.6 × 1.2 | | 3 | | | □ | – | – |
| 8503714 | R0.7 × 1.4 | | 3.5 | | | □ | – | – |
| 8503715 | R0.75 × 1.5 | | 4 | | | □ | – | – |
| 8503716 | R0.8 × 1.6 | | | | | □ | – | – |
| 8503718 | R0.9 × 1.8 | | 4.5 | | | □ | – | – |
| 8503720 | R1 × 2 | | 5 | 6 | | □ | – | – |
| 8503725 | R1.25 × 2.5 | | 6 | | | □ | – | – |
| 8503730 | R1.5 × 3 | 70 | 8 | | | □ | – | – |
| 8503735 | R1.75 × 3.5 | | | | | □ | – | – |
| 8503740 | R2 × 4 | 80 | | | | □ | – | – |
| 8503741 | R2 × 4-4 | 70 | | 4 | | □ | – | – |
| | R2.25 × 4.5 | 80 | 10 | 6 | | □ | – | – |
| 8503750 | R2.5 × 5 | | | | | □ | – | – |
| | R2.75 × 5.5 | 90 | 12 | | | □ | – | – |
| 8503860 | R3 × 6 | | | | | □ | – | – |
| | R3.25 × 6.5 | | 14 | | | □ | – | – |
| | R3.5 × 7 | 100 | | | | □ | – | – |
| | R3.75 × 7.5 | | | | | □ | – | – |
| 8503880 | R4 × 8 | | | 8 | | □ | – | – |
| | R4.25 × 8.5 | 110 | 18 | | | □ | – | – |
| | R4.5 × 9 | | | | | □ | – | – |
| | R4.75 × 9.5 | | | | | □ | – | – |
| 8503900 | R5 × 10 | | | 10 | | □ | – | – |
| | R5.25 × 10.5 | 125 | 22 | | | □ | – | – |
| | R5.5 × 11 | | | | | □ | – | – |
| | R5.75 × 11.5 | | | | | □ | – | – |
| 8503920 | R6 × 12 | 140 | | 12 | | □ | – | – |

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CA-RG-EBD | | | | | | | | | ◎ | ◎ | | | | ○ |
| CRN-EBD | | | | | | | | | ◎ | ○ | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル（ミニチュア）

**CrN Coated 2-flute Miniature Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ3 Shank)**

**CRN-EBD-3** 切削条件 Cutting Conditions | P682-1



潤滑性に優れたCrNコーティングを施したボールエンドミル小径シリーズです。銅電極やIT部品の微細加工に最適です。

Ball nose end mill with CrN coating with better lubrication works better on Copper Electrode, fine milling on IT parts.

CARBIDE | CrN | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8531052 | R0.1 × 0.2 | 40 | 0.4 | 3 | – | □ | – | – |
| 8531054 | R0.2 × 0.4 | | 0.8 | | | □ | – | – |
| 8531055 | R0.25 × 0.5 | | 1.1 | | | □ | – | – |
| 8531056 | R0.3 × 0.6 | | | | | □ | – | – |
| 8531057 | R0.35 × 0.7 | | 1.5 | | | □ | – | – |
| 8531058 | R0.4 × 0.8 | | 2 | | | □ | – | – |
| 8531059 | R0.45 × 0.9 | | 2.2 | | | □ | – | – |
| 8531060 | R0.5 × 1 | | 2.5 | | | □ | – | – |
| 8531061 | R0.55 × 1.1 | | 3 | | | □ | – | – |
| 8531062 | R0.6 × 1.2 | | | | | □ | – | – |
| 8531063 | R0.65 × 1.3 | | 3.5 | | | □ | – | – |
| 8531064 | R0.7 × 1.4 | | | | | □ | – | – |
| 8531065 | R0.75 × 1.5 | | 4 | | | □ | – | – |
| 8531066 | R0.8 × 1.6 | | | | | □ | – | – |
| 8531067 | R0.85 × 1.7 | | 4.5 | | | □ | – | – |
| 8531068 | R0.9 × 1.8 | | | | | □ | – | – |
| 8531069 | R0.95 × 1.9 | | 5 | | | □ | – | – |
| 8531070 | R1 × 2 | | | | | □ | – | – |
| 8531071 | R1.05 × 2.1 | | 6 | | | □ | – | – |
| 8531072 | R1.1 × 2.2 | | | | | □ | – | – |
| 8531073 | R1.15 × 2.3 | | | | | □ | – | – |
| 8531074 | R1.2 × 2.4 | | | | | □ | – | – |
| 8531075 | R1.25 × 2.5 | | | | | □ | – | – |
| 8531076 | R1.3 × 2.6 | | 8 | | | □ | – | – |
| 8531077 | R1.35 × 2.7 | | | | | □ | – | – |
| 8531078 | R1.4 × 2.8 | | | | | □ | – | – |
| 8531079 | R1.45 × 2.9 | | | | | □ | – | – |
| 8531080 | R1.5 × 3 | | | | | □ | – | – |

## 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル（HSK対応）

**CrN Coated 2-flute Carbide Ball End Mill with HS Shank for Copper, Aluminum Alloys and Plastics**

**CRN-HS-EBD** 切削条件 Cutting Conditions | P682-2



シュリンク・HSKとの融合で高速・高精度加工を実現します。

High-speed, high-precision milling made possible through the fusion of shrink and HSK.

CARBIDE | CrN | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×有効長 RE × LH | 全長 LF | 刃長 APMX | 首径 DN | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8534310 | R0.5 × 2.5 | 50 | 1 | 0.95 | 6 | – | □ | – | – |
| | R0.6 × 3 | | 1.2 | 1.15 | | | □ | – | – |
| | R0.7 × 3.5 | | 1.4 | 1.35 | | | □ | – | – |
| 8534315 | R0.75 × 3.8 | | 1.5 | 1.45 | | | □ | – | – |
| | R0.8 × 4 | | 1.6 | 1.55 | | | □ | – | – |
| | R0.9 × 4.5 | | 1.8 | 1.75 | | | □ | – | – |
| 8534320 | R1 × 5 | | 2 | 1.95 | | | □ | – | – |
| | R1.25 × 6.3 | | 2.5 | 2.45 | | | □ | – | – |
| 8534330 | R1.5 × 7.5 | | 3 | 2.85 | | | □ | – | – |
| | R1.75 × 8.8 | | 3.5 | 3.35 | | | □ | – | – |
| 8534340 | R2 × 10 | | 4 | 3.85 | | | □ | – | – |
| | R2.25 × 11.3 | | 4.5 | 4.35 | | | □ | – | – |
| 8534350 | R2.5 × 12.5 | | 5 | 4.85 | | | □ | – | – |
| 8534360 | R3 × 15 | | 6 | 5.7 | | | □ | – | – |
| | R3.5 × 17.5 | 60 | 7 | 6.7 | 8 | | □ | – | – |
| 8534380 | R4 × 20 | | 8 | 7.6 | | | □ | – | – |
| | R4.5 × 22.5 | 70 | 9 | 8.6 | 10 | | □ | – | – |
| 8534400 | R5 × 25 | | 10 | 9.5 | | | □ | – | – |
| | R5.5 × 27.5 | 80 | 11 | 10.5 | 12 | | □ | – | – |
| 8534420 | R6 × 30 | | 12 | 11.4 | | | □ | – | – |


OSGのPSシリーズ

**商品シリーズ** Parts & Supply series

※詳細は▶P.1170 を参照下さい。
See p.1170 for details

標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能



**CADデータ（DXF・STEP）ダウンロードサービス公開中** ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CRN-EBD-3 | | | | | | | | | ◎ | ○ | | | | ◎ |
| CRN-HS-EBD | | | | | | | | | ◎ | ○ | | | | ◎ |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミルロングシャンク

**CrN Coated 2-flute Carbide Ball End Mill with Long Shank for Copper, Aluminum Alloys and Plastics**

## CRN-LS-EBD



CARBIDE | CrN | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R3 × 6 | 140 | 12 | 6 | – | □ | – | – |
| | R4 × 8 | 160 | 14 | 8 | | □ | – | – |
| | R5 × 10 | 180 | 18 | 10 | | □ | – | – |
| | R6 × 12 | 200 | 22 | 12 | | □ | – | – |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
標準サイズ在庫完備!タングが無し!タングレスインサートあります
※詳細は▶P.1167 を参照下さい。 See p.1167 for details

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CRN-LS-EBD | | | | | | | | | ◎ | ○ | | | | ◎ |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## グラファイト用2枚刃超硬ボールエンドミルレギュラ形
**2-flute Carbide Ball End Mill Regular Length for Graphite**

## GF-EBDR

切削条件 Cutting Conditions | P694-2

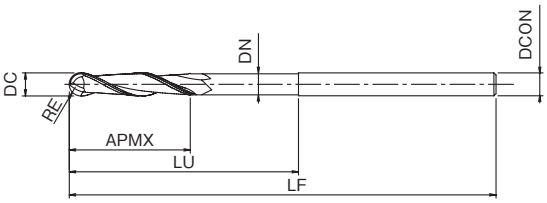


耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。
Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8537102 | R1 × 2 | 75 | 10 | 4 | 20 | 1.9 | | □ | — | — |
| 8537103 | R1.5 × 3 | | 15 | | 30 | 2.9 | | □ | — | — |
| 8537104 | R2 × 4 | | 20 | | 40 | 3.9 | | □ | — | — |
| 8537105 | R2.5 × 5 | 100 | 25 | 6 | 50 | 4.8 | | □ | — | — |
| 8537106 | R3 × 6 | | 30 | | 60 | 5.8 | | □ | — | — |
| 8537107 | R3.5 × 7 | 110 | 35 | | — | — | — | □ | — | — |
| 8537108 | R4 × 8 | | 40 | 8 | 70 | 7.8 | | □ | — | — |
| 8537109 | R4.5 × 9 | 120 | 45 | | — | — | | □ | — | — |
| 8537110 | R5 × 10 | | 50 | 10 | 80 | 9.7 | | □ | — | — |
| 8537111 | R5.5 × 11 | 130 | 55 | | — | — | | □ | — | — |
| 8537112 | R6 × 12 | | 65 | 12 | 85 | 11.7 | | □ | — | — |




## グラファイト用2枚刃超硬ボールエンドミルロング形
**2-flute Carbide Ball End Mill Long Length for Graphite**

## GF-EBDL

切削条件 Cutting Conditions | P694-2

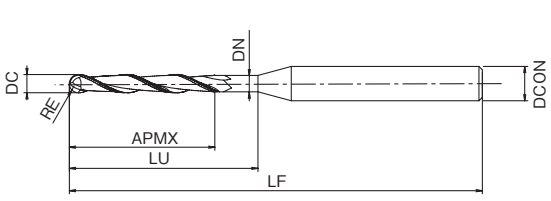


耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。
Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8456100 | R1 × 2 | 100 | 20 | 6 | 25 | 1.9 | | □ | — | — |
| 8456150 | R1.5 × 3 | | 30 | | 40 | 2.9 | | □ | — | — |
| 8456200 | R2 × 4 | 120 | 60 | | 70 | 3.9 | | □ | — | — |
| 8456250 | R2.5 × 5 | 140 | 70 | | 80 | 4.8 | | □ | — | — |
| 8456300 | R3 × 6 | | 80 | | — | — | | □ | — | — |
| 8456350 | R3.5 × 7 | 160 | 90 | | — | — | — | □ | — | — |
| 8456400 | R4 × 8 | | 100 | 8 | — | — | | □ | — | — |
| 8456450 | R4.5 × 9 | 180 | 110 | | — | — | | □ | — | — |
| 8456500 | R5 × 10 | | 120 | 10 | — | — | | □ | — | — |
| 8456550 | R5.5 × 11 | 200 | 130 | | — | — | | □ | — | — |
| 8456600 | R6 × 12 | | | 12 | — | — | | □ | — | — |




形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| GF-EBDR | | | | | | | | | | | ◎ | | | |
| GF-EBDL | | | | | | | | | | | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## グラファイト用2枚刃超硬ボールエンドミル ロングシャンクレギュラ形
**2-flute Carbide Ball End Mill Regular Length with Long Shank for Graphite**

**GF-LS-EBDR** 切削条件 Cutting Conditions | **P694-2**



耐摩耗性に極めて優れる超硬合金を母材に採用しており、グラファイト加工における長寿命化を実現します。
Employs micro grain carbide body for high wear resistance. Maximizes tool life when milling graphite materials.

CARBIDE | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8526942 | R1 × 2 | 100 | 10 | 4 | 25 | 1.9 | — | □ | — | — |
| 8526943 | R1.5× 3 | | 15 | | 40 | 2.9 | | □ | — | — |
| 8526944 | R2 × 4 | | 20 | | 60 | 3.9 | | □ | — | — |
| 8526965 | R2.5× 5 | | 25 | | — | — | | □ | — | — |
| 8526945 | R2.5× 5 | 140 | | 6 | 70 | 4.8 | | □ | — | — |
| 8526966 | R3 × 6 | 100 | 30 | 4 | — | — | | □ | — | — |
| 8526946 | R3 × 6 | 140 | | 6 | 80 | 5.8 | | □ | — | — |
| 8526947 | R3.5× 7 | | 35 | | — | — | | □ | — | — |
| 8526968 | R4 × 8 | 160 | 40 | | — | — | — | □ | — | — |
| 8526948 | R4 × 8 | | | 8 | 100 | 7.8 | | □ | — | — |
| 8526949 | R4.5× 9 | 180 | 45 | | — | — | | □ | — | — |
| 8526970 | R5 × 10 | | 50 | | — | — | | □ | — | — |
| 8526950 | R5 × 10 | | | 10 | 120 | 9.7 | | □ | — | — |
| 8526951 | R5.5× 11 | | 55 | | — | — | | □ | — | — |
| 8526972 | R6 × 12 | 200 | 65 | | — | — | | □ | — | — |
| 8526952 | R6 × 12 | | | 12 | 130 | 11.7 | | □ | — | — |

## グラファイト用DIAコート2枚刃超硬ボールエンドミル
**Diamond Coated 2-flute Carbide Ball End Mill for Graphite**

**DIA-GF-EBDR** 切削条件 Cutting Conditions | **P694-1**

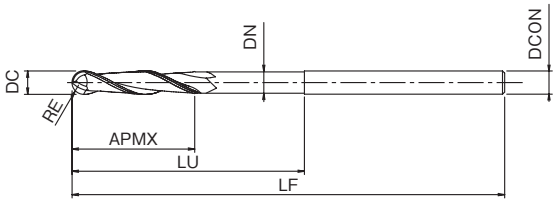


グラファイト加工用ダイヤモンドコーティングエンドミルです。素晴らしい工具寿命の延長をお約束します。
Employs Diamond Coating for high quality cutting of graphite materials.

CARBIDE | DIA | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8537152 | R1 × 2 | 75 | 10 | 4 | 20 | 1.9 | — | □ | — | — |
| 8537153 | R1.5× 3 | | 15 | | 30 | 2.9 | | □ | — | — |
| 8537154 | R2 × 4 | | 20 | | 40 | 3.9 | | □ | — | — |
| 8537155 | R2.5× 5 | 100 | 25 | 6 | 50 | 4.8 | | □ | — | — |
| 8537156 | R3 × 6 | | 30 | | 60 | 5.8 | | □ | — | — |
| 8537157 | R3.5× 7 | 110 | 35 | | — | — | — | □ | — | — |
| 8537158 | R4 × 8 | | 40 | 8 | 70 | 7.8 | | □ | — | — |
| 8537159 | R4.5× 9 | 120 | 45 | | — | — | | □ | — | — |
| 8537160 | R5 × 10 | | 50 | 10 | 80 | 9.7 | | □ | — | — |
| 8537161 | R5.5× 11 | 130 | 55 | | — | — | | □ | — | — |
| 8537162 | R6 × 12 | | 65 | 12 | 85 | 11.7 | | □ | — | — |




OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| GF-LS-EBDR | | | | | | | | | | | ◎ | | | |
| DIA-GF-EBDR | | | | | | | | | | | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## グラファイト用DIAコート2枚刃超硬ボールエンドミルロングシャンク
**Diamond Coated 2-flute Carbide Ball End Mill with Long Shank for Graphite**

# D-GF-LS-EBDR

切削条件 Cutting Conditions | P694-1

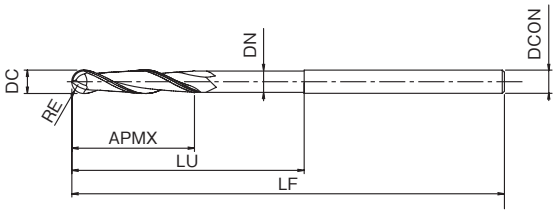


グラファイト加工用ダイヤモンドコーティングエンドミルです。
素晴らしい工具寿命の延長をお約束します。
Employs Diamond Coating for high quality cutting of graphite materials.

CARBIDE | DIA | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8537172 | R1 × 2 | 100 | 10 | 4 | 25 | 1.9 | □ | – | – |
| 8537173 | R1.5 × 3 | | 15 | | 40 | 2.9 | □ | – | – |
| 8537174 | R2 × 4 | | 20 | | 60 | 3.9 | □ | – | – |
| 8537185 | R2.5 × 5 | | 25 | | – | – | □ | – | – |
| 8537175 | R2.5 × 5 | 140 | | 6 | 70 | 4.8 | □ | – | – |
| 8537186 | R3 × 6 | 100 | 30 | 4 | – | – | □ | – | – |
| 8537176 | R3 × 6 | 140 | | 6 | 80 | 5.8 | □ | – | – |
| 8537177 | R3.5 × 7 | 160 | 35 | | – | – | □ | – | – |
| 8537188 | R4 × 8 | | 40 | | – | – | □ | – | – |
| 8537178 | R4 × 8 | | | 8 | 100 | 7.8 | □ | – | – |
| 8537179 | R4.5 × 9 | 180 | 45 | | – | – | □ | – | – |
| 8537190 | R5 × 10 | | 50 | | – | – | □ | – | – |
| 8537180 | R5 × 10 | | | | 120 | 9.7 | □ | – | – |
| 8537181 | R5.5 × 11 | 200 | 55 | 10 | – | – | □ | – | – |
| 8537192 | R6 × 12 | | 65 | | – | – | □ | – | – |
| 8537182 | R6 × 12 | | | 12 | 130 | 11.7 | □ | – | – |




## DIAコート3枚刃超硬ボールエンドミル
**Diamond Coated 3-flute Carbide Ball End Mill**

# DIA-EBT



CARBIDE | DIA | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | R0.5 × 3 | 45 | 1 | 4 | – □ | – | – |
| | R1 × 6 | | 2 | | | – | – |
| | R1.5 × 9 | | 3 | | | – | – |
| | R2 × 12 | 50 | 4 | | | – | – |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| D-GF-LS-EBDR | | | | | | | | | | | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## FXコート4枚刃超硬ボールエンドミル
**FX Coated 4-flute Carbide Ball End Mill**

# FX-MG-EBM



CARBIDE | FX | R ±0.015 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 1.5 × 3 | 60 | 8 | 6 | 4 | — | □ | — | — |
| | R 2 × 4 | 70 | | | | | □ | — | — |
| | R 2.5 × 5 | 80 | 10 | | | | □ | — | — |
| | R 3 × 6 | 90 | 12 | | | | □ | — | — |
| | R 4 × 8 | 100 | 14 | 8 | | | □ | — | — |
| | R 5 × 10 | | 18 | 10 | | | □ | — | — |
| | R 6 × 12 | 110 | 22 | 12 | | | □ | — | — |
| | R 7 × 14 | | 26 | | | | □ | — | — |
| | R 8 × 16 | 140 | 30 | 16 | | | □ | — | — |
| | R 9 × 18 | | 34 | | | | □ | — | — |
| | R10 × 20 | 160 | 38 | 20 | | | □ | — | — |
| | R12.5 × 25 | 180 | 50 | 25 | | | □ | — | — |

## DIAコート4枚刃超硬ボールエンドミル
**Diamond Coated 4-flute Carbide End Mill**

# DIA-EBM



CARBIDE | DIA | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R3×18 | 60 | 6 | 6 | — | □ | — | — |
| | R4×24 | 70 | 8 | 8 | | □ | — | — |
| | R5×30 | 80 | 10 | 10 | | □ | — | — |

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-MG-EBM | ◎ | | ○ | ○ | | | | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックボールエンドミル（焼きばめ対応）

**2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (Shrink Fit Type)**

## CAP-LN-EBD-SF



アルミ合金、プラスチック加工用オリジナルシリーズの精密微細加工対応用追加展開。最新の高速加工機、シュリンクホルダ対応を配慮し、シャンクは高精度仕様φ4に統一。切れ味の良い切れ刃がバリの発生を防止。

Original micro end mill series developed for aluminum alloy and plastics processing. Its sharp cutting edge geometry prevents the occurrence of burrs. With a standard φ4 shank, this series is applicable for the latest high-speed machining centers and shrink holders.

CARBIDE　SHRINK FIT

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.1 × 0.5 | 45 | 0.3 | 4 | — | □ | — | — |
| | R0.1 × 1 | | | | | □ | — | — |
| | R0.1 × 1.5 | | | | | □ | — | — |
| | R0.1 × 2 | | | | | □ | — | — |
| | R0.15 × 1 | | 0.45 | | | □ | — | — |
| | R0.15 × 1.5 | | | | | □ | — | — |
| | R0.15 × 2 | | | | | □ | — | — |
| | R0.15 × 2.5 | | | | | □ | — | — |
| | R0.15 × 3 | | | | | □ | — | — |
| | R0.2 × 1.5 | | 0.6 | | | □ | — | — |
| | R0.2 × 2 | | | | | □ | — | — |
| | R0.2 × 3 | | | | | □ | — | — |
| | R0.2 × 4 | | | | | □ | — | — |
| | R0.3 × 2 | | 0.9 | | | □ | — | — |
| | R0.3 × 3 | | | | | □ | — | — |
| | R0.3 × 4 | | | | | □ | — | — |
| | R0.3 × 5 | | | | | □ | — | — |
| | R0.3 × 6 | | | | | □ | — | — |


OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1167を参照下さい。 See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります





製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CAP-LN-EBD-SF | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WXL-LN-EBD

切削条件 Cutting Conditions | P594

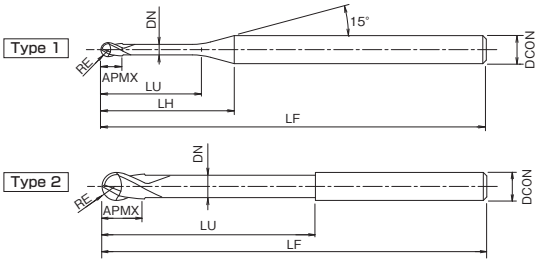


硬質潤滑被膜WXLコーティングの効果により金型材加工から銅電極加工まで幅広い用途で威力を発揮します。加工にあった有効長さをお選びください。

WXL coating with high hardness and better lubrication enable to machine wide range of applications, such as Mold machining to Copper machining. Please select proper length tool.

CARBIDE | WXL | R ±0.005 | SHRINK FIT | 30°

CAD

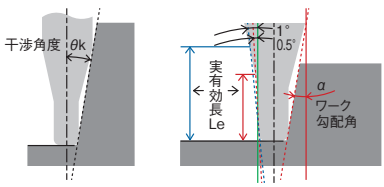



（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3110103 | R0.05×0.3×4 | 45 | 0.08 | 7.5 | 4 | 0.085 | 14.46° | 0.34 | 0.35 | 0.36 | 0.37 | 0.4 | 1 | A | ● | 14 | 11,300 |
| 3110105 | R0.05×0.5×4 | | | 7.7 | | | 14.1° | 0.54 | 0.56 | 0.58 | 0.6 | 0.64 | | | ● | 14 | 12,100 |
| 3110203 | R0.1×0.3×4 | | 0.16 | 7.3 | | 0.18 | 14.59° | 0.3 | 0.31 | 0.32 | 0.33 | 0.35 | | | ● | 14 | 8,910 |
| 3110205 | R0.1×0.5×4 | | | 7.5 | | | 14.44° | 0.53 | 0.55 | 0.57 | 0.59 | 0.63 | | | ● | 14 | 7,760 |
| 3120205 | R0.1×0.5×6 | 50 | | 11.3 | 6 | | 14.16° | 0.53 | 0.55 | 0.57 | 0.59 | 0.63 | | D | ● | 23 | 11,000 |
| 3110207 | R0.1×0.75×4 | 45 | | 7.8 | 4 | | 13.72° | 0.79 | 0.82 | 0.85 | 0.88 | 0.94 | | | ● | 14 | 7,760 |
| 3110210 | R0.1×1×4 | | | 8 | | | 13.31° | 1.05 | 1.09 | 1.13 | 1.17 | 1.26 | | A | ● | 14 | 7,760 |
| 3120210 | R0.1×1×6 | 50 | | 11.8 | 6 | | 13.85° | 1.05 | 1.09 | 1.13 | 1.17 | 1.26 | | D | ● | 23 | 11,000 |
| 3110212 | R0.1×1.25×4 | 45 | | 8.3 | 4 | | 12.92° | 1.31 | 1.36 | 1.41 | 1.46 | 1.57 | | | ● | 14 | 8,450 |
| 3110215 | R0.1×1.5×4 | | | 8.5 | | | 12.56° | 1.57 | 1.63 | 1.68 | 1.74 | 1.88 | | A | ● | 14 | 8,450 |
| 3120215 | R0.1×1.5×6 | 50 | | 12.3 | 6 | | 13.3° | 1.57 | 1.63 | 1.68 | 1.74 | 1.88 | | D | ● | 23 | 11,800 |
| 3110217 | R0.1×1.75×4 | 45 | | 8.8 | 4 | | 12.21° | 1.83 | 1.9 | 1.96 | 2.03 | 2.19 | | | ● | 14 | 9,300 |
| 3110220 | R0.1×2×4 | | | 9 | | | 11.88° | 2.09 | 2.16 | 2.24 | 2.32 | 2.5 | | A | ● | 14 | 9,300 |
| 3120220 | R0.1×2×6 | 50 | | 12.8 | 6 | | 12.8° | 2.09 | 2.16 | 2.24 | 2.32 | 2.5 | | D | ● | 22 | 12,800 |
| 3110225 | R0.1×2.5×4 | 45 | | 9.5 | 4 | | 11.28° | 2.61 | 2.7 | 2.79 | 2.89 | 3.12 | | | ● | 14 | 10,200 |
| 3110230 | R0.1×3×4 | | | 10 | | | 10.73° | 3.13 | 3.23 | 3.35 | 3.47 | 3.74 | | | ● | 14 | 11,100 |
| 3110305 | R0.15×0.5×4 | 45 | 0.24 | 7.3 | 4 | 0.28 | 14.22° | 0.52 | 0.54 | 0.56 | 0.58 | 0.62 | | | ● | 14 | 7,680 |
| 3110306 | R0.15×0.6×4 | | | 7.4 | | | 14.03° | 0.63 | 0.65 | 0.68 | 0.7 | 0.75 | | A | ● | 14 | 7,680 |
| 3110307 | R0.15×0.75×4 | | | 7.6 | | | 13.77° | 0.79 | 0.82 | 0.85 | 0.87 | 0.93 | | D | ● | 14 | 7,680 |
| 3110310 | R0.15×1×4 | | | 7.8 | | | 13.34° | 1.05 | 1.09 | 1.12 | 1.16 | 1.24 | | A | ● | 14 | 7,680 |
| 3120310 | R0.15×1×6 | 50 | | 11.6 | 6 | | 13.88° | 1.05 | 1.09 | 1.12 | 1.16 | 1.24 | | D | ● | 23 | 10,500 |
| 3110312 | R0.15×1.25×4 | 45 | | 8.1 | 4 | | 12.94° | 1.31 | 1.36 | 1.4 | 1.45 | 1.55 | | | ● | 14 | 8,210 |
| 3110315 | R0.15×1.5×4 | | | 8.3 | | | 12.57° | 1.57 | 1.63 | 1.68 | 1.74 | 1.87 | | A | ● | 14 | 8,210 |
| 3120315 | R0.15×1.5×6 | 50 | | 12.1 | 6 | | 13.33° | 1.57 | 1.63 | 1.68 | 1.74 | 1.87 | | D | ● | 23 | 11,500 |
| 3110317 | R0.15×1.75×4 | 45 | | 8.6 | 4 | | 12.21° | 1.83 | 1.89 | 1.96 | 2.02 | 2.18 | | | ● | 14 | 8,210 |
| 3110320 | R0.15×2×4 | | | 8.8 | | | 11.87° | 2.09 | 2.16 | 2.23 | 2.31 | 2.49 | | A | ● | 14 | 8,210 |
| 3120320 | R0.15×2×6 | 50 | | 12.6 | 6 | | 12.81° | 2.09 | 2.16 | 2.23 | 2.31 | 2.49 | | D | ● | 23 | 11,500 |
| 3110322 | R0.15×2.25×4 | 45 | | 9.1 | 4 | | 11.56° | 2.35 | 2.43 | 2.51 | 2.6 | 2.8 | | | ● | 14 | 8,450 |
| 3110325 | R0.15×2.5×4 | | | 9.3 | | | 11.25° | 2.61 | 2.69 | 2.79 | 2.89 | 3.11 | | A | ● | 14 | 8,450 |
| 3120325 | R0.15×2.5×6 | 50 | | 13.1 | 6 | | 12.34° | 2.61 | 2.69 | 2.79 | 2.89 | 3.11 | | D | ● | 23 | 11,500 |

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

次ページへ
ボール半径 RE 0.15～0.25 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WXL-LN-EBD | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WXL-LN-EBD

切削条件 Cutting Conditions | P594



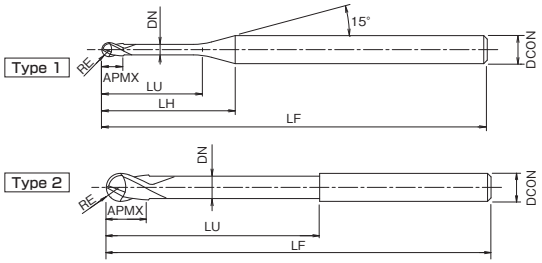
硬質潤滑被膜WXLコーティングの効果により金型材加工から銅電極加工まで幅広い用途で威力を発揮します。加工にあった有効長さをお選びください。

WXL coating with high hardness and better lubrication enable to machine wide range of applications, such as Mold machining to Copper machining. Please select proper length tool.

CAD

CARBIDE | WXL | R ±0.005 | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.05～0.15




（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE×LU×DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3110327 | R0.15×2.75×4 | 45 | 0.24 | 9.6 | 4 | 0.28 | 10.97° | 2.87 | 2.96 | 3.06 | 3.17 | 3.42 | 1 | D | ● | 10 | 8,450 |
| 3110330 | R0.15×3 ×4 | | | 9.8 | | | 10.69° | 3.13 | 3.23 | 3.34 | 3.46 | 3.73 | | A | ● | 14 | 8,450 |
| 3120330 | R0.15×3 ×6 | 50 | | 13.6 | 6 | | 11.89° | 3.13 | 3.23 | 3.34 | 3.46 | 3.73 | | D | ● | 23 | 11,500 |
| 3110335 | R0.15×3.5 ×4 | 45 | | 10.3 | 4 | | 10.19° | 3.64 | 3.76 | 3.9 | 4.04 | 4.35 | | D | ● | 14 | 8,450 |
| 3110340 | R0.15×4 ×4 | | | 10.8 | | | 9.72° | 4.16 | 4.3 | 4.45 | 4.61 | 4.97 | | D | ● | 14 | 8,770 |
| 3110345 | R0.15×4.5 ×4 | | | 11.3 | | | 9.3° | 4.68 | 4.83 | 5 | 5.19 | 5.59 | | D | ● | 14 | 8,770 |
| 3110350 | R0.15×5 ×4 | | | 11.8 | | | 8.91° | 5.19 | 5.37 | 5.56 | 5.76 | 6.22 | | A | ● | 14 | 9,850 |
| 3110405 | R0.2 ×0.5 ×4 | 45 | 0.3 | 7.1 | 4 | 0.37 | 14.3° | 0.52 | 0.53 | 0.55 | 0.56 | 0.6 | | A | ● | 14 | 5,250 |
| 3110407 | R0.2 ×0.75×4 | | | 7.4 | | | 13.83° | 0.78 | 0.8 | 0.83 | 0.85 | 0.91 | | D | ● | 14 | 5,250 |
| 3110410 | R0.2 ×1 ×4 | | | 7.6 | | | 13.39° | 1.04 | 1.07 | 1.11 | 1.14 | 1.22 | | A | ● | 14 | 5,250 |
| 3120410 | R0.2 ×1 ×6 | 50 | | 11.4 | 6 | | 13.93° | 1.04 | 1.07 | 1.11 | 1.14 | 1.22 | | D | ● | 23 | 7,810 |
| 3110415 | R0.2 ×1.5 ×4 | 45 | | 8.1 | 4 | | 12.59° | 1.56 | 1.61 | 1.66 | 1.72 | 1.84 | | A | ● | 14 | 5,380 |
| 3120415 | R0.2 ×1.5 ×6 | 50 | | 11.9 | 6 | | 13.36° | 1.56 | 1.61 | 1.66 | 1.72 | 1.84 | | D | ● | 23 | 7,810 |
| 3110420 | R0.2 ×2 ×4 | 45 | | 8.6 | 4 | | 11.88° | 2.08 | 2.14 | 2.21 | 2.29 | 2.46 | | A | ● | 14 | 5,480 |
| 3120420 | R0.2 ×2 ×6 | 50 | | 12.4 | 6 | | 12.83° | 2.08 | 2.14 | 2.21 | 2.29 | 2.46 | | D | ● | 23 | 8,020 |
| 3110425 | R0.2 ×2.5 ×4 | 45 | | 9.1 | 4 | | 11.24° | 2.6 | 2.68 | 2.77 | 2.87 | 3.08 | | A | ● | 14 | 5,700 |
| 3120425 | R0.2 ×2.5 ×6 | 50 | | 12.9 | 6 | | 12.35° | 2.6 | 2.68 | 2.77 | 2.87 | 3.08 | | D | ● | 23 | 8,230 |
| 3110430 | R0.2 ×3 ×4 | 45 | | 9.6 | 4 | | 10.67° | 3.11 | 3.21 | 3.32 | 3.44 | 3.7 | | A | ● | 14 | 6,040 |
| 3120430 | R0.2 ×3 ×6 | 50 | | 13.4 | 6 | | 11.9° | 3.11 | 3.21 | 3.32 | 3.44 | 3.7 | | D | ● | 23 | 8,770 |
| 3110435 | R0.2 ×3.5 ×4 | 45 | | 10.1 | 4 | | 10.15° | 3.63 | 3.75 | 3.88 | 4.02 | 4.33 | | D | ● | 13 | 6,550 |
| 3110440 | R0.2 ×4 ×4 | | | 10.6 | | | 9.68° | 4.15 | 4.28 | 4.43 | 4.59 | 4.95 | | A | ● | 14 | 6,550 |
| 3120440 | R0.2 ×4 ×6 | 50 | | 14.4 | 6 | | 11.09° | 4.15 | 4.28 | 4.43 | 4.59 | 4.95 | | D | ● | 23 | 9,090 |
| 3110445 | R0.2 ×4.5 ×4 | 45 | | 11.1 | 4 | | 9.25° | 4.66 | 4.82 | 4.99 | 5.17 | 5.57 | | D | ● | 13 | 6,900 |
| 3110450 | R0.2 ×5 ×4 | | | 11.6 | | | 8.86° | 5.18 | 5.35 | 5.54 | 5.74 | 6.19 | | A | ● | 14 | 6,900 |
| 3120450 | R0.2 ×5 ×6 | 50 | | 15.4 | 6 | | 10.38° | 5.18 | 5.35 | 5.54 | 5.74 | 6.19 | | D | ● | 23 | 9,570 |
| 3110455 | R0.2 ×5.5 ×4 | 45 | | 12.1 | 4 | | 8.5° | 5.7 | 5.89 | 6.09 | 6.32 | 6.81 | | D | ● | 14 | 8,000 |
| 3110460 | R0.2 ×6 ×4 | | | 12.6 | | | 8.16° | 6.21 | 6.42 | 6.65 | 6.89 | 7.43 | | A | ● | 14 | 8,000 |
| 3120460 | R0.2 ×6 ×6 | 50 | | 16.4 | 6 | | 9.76° | 6.21 | 6.42 | 6.65 | 6.89 | 7.43 | | D | ● | 23 | 10,700 |
| 3110510 | R0.25×1 ×4 | 45 | 0.4 | 7.6 | 4 | 0.45 | 13.45° | 1.03 | 1.06 | 1.09 | 1.12 | 1.19 | | A | ● | 14 | 5,250 |
| 3110515 | R0.25×1.5 ×4 | | | 8.1 | | | 12.62° | 1.55 | 1.59 | 1.64 | 1.69 | 1.81 | | A | ● | 14 | 5,250 |
| 3120515 | R0.25×1.5 ×6 | 50 | | 11.9 | 6 | | 13.4° | 1.55 | 1.59 | 1.64 | 1.69 | 1.81 | | D | ● | 23 | 7,680 |
| 3110520 | R0.25×2 ×4 | 45 | | 8.6 | 4 | | 11.89° | 2.06 | 2.13 | 2.2 | 2.27 | 2.43 | | A | ● | 14 | 5,250 |
| 3120520 | R0.25×2 ×6 | 50 | | 12.4 | 6 | | 12.86° | 2.06 | 2.13 | 2.2 | 2.27 | 2.43 | | D | ● | 23 | 7,680 |
| 3110525 | R0.25×2.5 ×4 | 45 | | 9.1 | 4 | | 11.23° | 2.58 | 2.66 | 2.75 | 2.84 | 3.05 | | A | ● | 14 | 5,250 |
| 3120525 | R0.25×2.5 ×6 | 50 | | 12.9 | 6 | | 12.36° | 2.58 | 2.66 | 2.75 | 2.84 | 3.05 | | D | ● | 23 | 6,590 |
| 3110530 | R0.25×3 ×4 | 45 | | 9.6 | 4 | | 10.65° | 3.1 | 3.2 | 3.3 | 3.42 | 3.68 | | A | ● | 14 | 5,250 |
| 3120530 | R0.25×3 ×6 | 50 | | 13.4 | 6 | | 11.9° | 3.1 | 3.2 | 3.3 | 3.42 | 3.68 | | D | ● | 23 | 6,590 |
| 3110535 | R0.25×3.5 ×4 | 45 | | 10.1 | 4 | | 10.12° | 3.61 | 3.73 | 3.86 | 3.99 | 4.3 | | D | ● | 13 | 5,250 |
| 3110540 | R0.25×4 ×4 | | | 10.6 | | | 9.64° | 4.13 | 4.27 | 4.41 | 4.57 | 4.92 | | A | ● | 14 | 5,250 |
| 3120540 | R0.25×4 ×6 | 50 | | 14.4 | 6 | | 11.08° | 4.13 | 4.27 | 4.41 | 4.57 | 4.92 | | D | ● | 23 | 7,680 |
| 3110545 | R0.25×4.5 ×4 | 45 | | 11.1 | 4 | | 9.2° | 4.65 | 4.8 | 4.97 | 5.14 | 5.54 | | D | ● | 12 | 5,380 |
| 3110550 | R0.25×5 ×4 | | | 11.6 | | | 8.8° | 5.17 | 5.34 | 5.52 | 5.72 | 6.16 | | A | ● | 14 | 5,380 |
| 3120550 | R0.25×5 ×6 | 50 | | 15.4 | 6 | | 10.36° | 5.17 | 5.34 | 5.52 | 5.72 | 6.16 | | D | ● | 23 | 7,810 |
| 3110555 | R0.25×5.5 ×4 | 45 | | 12.1 | 4 | | 8.43° | 5.68 | 5.87 | 6.07 | 6.29 | 6.78 | | D | ● | 12 | 5,480 |
| 3110560 | R0.25×6 ×4 | | | 12.6 | | | 8.1° | 6.2 | 6.41 | 6.63 | 6.87 | 7.41 | | A | ● | 14 | 5,480 |
| 3120560 | R0.25×6 ×6 | 50 | | 16.4 | 6 | | 9.73° | 6.2 | 6.41 | 6.63 | 6.87 | 7.41 | | D | ● | 23 | 8,000 |
| 3110570 | R0.25×7 ×4 | 45 | | 13.6 | 4 | | 7.49° | 7.23 | 7.48 | 7.74 | 8.02 | 8.65 | | D | ● | 12 | 6,550 |
| 3110580 | R0.25×8 ×4 | | | 14.6 | | | 6.98° | 8.27 | 8.55 | 8.85 | 9.17 | 9.89 | | A | ● | 14 | 6,550 |
| 3120580 | R0.25×8 ×6 | 50 | | 18.4 | 6 | | 8.67° | 8.27 | 8.55 | 8.85 | 9.17 | 9.89 | | D | ● | 23 | 9,210 |

次ページへ ボール半径 RE 0.25～0.3 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WXL-LN-EBD

切削条件 Cutting Conditions | P594

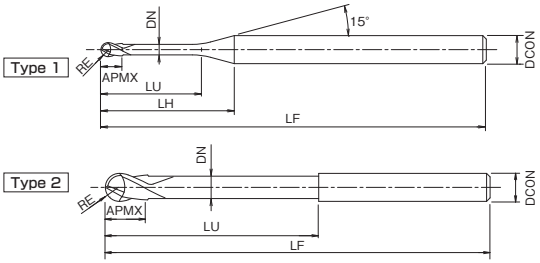


硬質潤滑被膜WXLコーティングの効果により金型材加工から銅電極加工まで幅広い用途で威力を発揮します。加工にあった有効長さをお選びください。

WXL coating with high hardness and better lubrication enable to machine wide range of applications, such as Mold machining to Copper machining. Please select proper length tool.

CARBIDE | WXL | R ±0.005 | SHRINK FIT | 30°

CAD



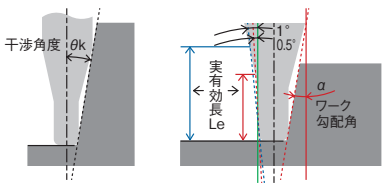

前ページより
FROM ボール半径 RE 0.15～0.25

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3110590 | R0.25× 9 ×4 | 45 | 0.4 | 15.6 | 4 | 0.45 | 6.52° | 9.3 | 9.62 | 9.95 | 10.32 | 11.14 | 1 | D | ● | 12 | 7,680 |
| 3110600 | R0.25×10 ×4 | | | 16.6 | | | 6.13° | 10.33 | 10.68 | 11.06 | 11.47 | 12.38 | | | ● | 12 | 8,450 |
| 3110610 | R0.3 × 1 ×4 | | 0.5 | 7.4 | | 0.55 | 13.49° | 1.03 | 1.05 | 1.08 | 1.11 | 1.18 | | A | ● | 14 | 4,470 |
| 3110615 | R0.3 × 1.5×4 | | | 7.9 | | | 12.64° | 1.55 | 1.59 | 1.64 | 1.69 | 1.8 | | | ● | 14 | 4,060 |
| 3120615 | R0.3 × 1.5×6 | 50 | | 11.7 | 6 | | 13.42° | 1.55 | 1.59 | 1.64 | 1.69 | 1.8 | | D | ● | 23 | 5,250 |
| 3110620 | R0.3 × 2 ×4 | 45 | | 8.4 | 4 | | 11.88° | 2.06 | 2.12 | 2.19 | 2.26 | 2.42 | | A | ● | 14 | 4,060 |
| 3120620 | R0.3 × 2 ×6 | 50 | | 12.2 | 6 | | 12.87° | 2.06 | 2.12 | 2.19 | 2.26 | 2.42 | | D | ● | 23 | 6,130 |
| 3110625 | R0.3 × 2.5×4 | 45 | | 8.9 | 4 | | 11.21° | 2.58 | 2.66 | 2.74 | 2.84 | 3.04 | | A | ● | 14 | 4,170 |
| 3120625 | R0.3 × 2.5×6 | 50 | | 12.7 | 6 | | 12.37° | 2.58 | 2.66 | 2.74 | 2.84 | 3.04 | | D | ● | 23 | 5,400 |
| 3110630 | R0.3 × 3 ×4 | 45 | | 9.4 | 4 | | 10.61° | 3.1 | 3.19 | 3.3 | 3.41 | 3.66 | | A | ● | 14 | 4,170 |
| 3120630 | R0.3 × 3 ×6 | 50 | | 13.2 | 6 | | 11.9° | 3.1 | 3.19 | 3.3 | 3.41 | 3.66 | | D | ● | 23 | 6,260 |
| 3110635 | R0.3 × 3.5×4 | 45 | | 9.9 | 4 | | 10.07° | 3.61 | 3.73 | 3.85 | 3.99 | 4.29 | | | ● | 13 | 4,280 |
| 3110640 | R0.3 × 4 ×4 | | | 10.4 | | | 9.58° | 4.13 | 4.26 | 4.41 | 4.56 | 4.91 | | A | ● | 14 | 4,280 |
| 3120640 | R0.3 × 4 ×6 | 50 | | 14.2 | 6 | | 11.06° | 4.13 | 4.26 | 4.41 | 4.56 | 4.91 | | D | ● | 23 | 6,480 |
| 3110645 | R0.3 × 4.5×4 | 45 | | 10.9 | 4 | | 9.13° | 4.65 | 4.8 | 4.96 | 5.14 | 5.53 | | | ● | 13 | 4,280 |
| 3110650 | R0.3 × 5 ×4 | | | 11.4 | | | 8.73° | 5.16 | 5.33 | 5.51 | 5.71 | 6.15 | | A | ● | 14 | 4,280 |
| 3120650 | R0.3 × 5 ×6 | 50 | | 15.2 | 6 | | 10.33° | 5.16 | 5.33 | 5.51 | 5.71 | 6.15 | | D | ● | 23 | 5,570 |
| 3110655 | R0.3 × 5.5×4 | 45 | | 11.9 | 4 | | 8.36° | 5.68 | 5.87 | 6.07 | 6.29 | 6.77 | | | ● | 13 | 4,280 |
| 3110660 | R0.3 × 6 ×4 | | | 12.4 | | | 8.02° | 6.2 | 6.4 | 6.62 | 6.86 | 7.39 | | A | ● | 14 | 4,280 |
| 3120660 | R0.3 × 6 ×6 | 50 | | 16.2 | 6 | | 9.69° | 6.2 | 6.4 | 6.62 | 6.86 | 7.39 | | D | ● | 23 | 6,480 |
| 3110665 | R0.3 × 6.5×4 | 45 | | 12.9 | 4 | | 7.7° | 6.71 | 6.94 | 7.18 | 7.44 | 8.02 | | | ● | 14 | 4,820 |
| 3110670 | R0.3 × 7 ×4 | | | 13.4 | | | 7.41° | 7.23 | 7.47 | 7.73 | 8.01 | 8.64 | | | ● | 12 | 4,820 |
| 3110675 | R0.3 × 7.5×4 | | | 13.9 | | | 7.14° | 7.75 | 8.01 | 8.29 | 8.59 | 9.26 | | | ● | 12 | 5,700 |
| 3110680 | R0.3 × 8 ×4 | | | 14.4 | | | 6.89° | 8.26 | 8.54 | 8.84 | 9.16 | 9.88 | | A | ● | 14 | 5,700 |
| 3120680 | R0.3 × 8 ×6 | 50 | | 18.2 | 6 | | 8.62° | 8.26 | 8.54 | 8.84 | 9.16 | 9.88 | | D | ● | 20 | 8,230 |
| 3110685 | R0.3 × 8.5×4 | 45 | | 14.9 | 4 | | 6.66° | 8.78 | 9.08 | 9.39 | 9.74 | 10.5 | | | ● | 8 | 6,040 |
| 3110690 | R0.3 × 9 ×4 | | | 15.4 | | | 6.44° | 9.3 | 9.61 | 9.95 | 10.31 | 11.12 | | | ● | 12 | 6,040 |
| 3110695 | R0.3 × 9.5×4 | | | 15.9 | | | 6.23° | 9.81 | 10.15 | 10.5 | 10.89 | 11.75 | | | ● | 8 | 6,040 |
| 3110700 | R0.3 ×10 ×4 | | | 16.4 | | | 6.04° | 10.33 | 10.68 | 11.06 | 11.46 | 12.37 | | A | ● | 14 | 5,800 |
| 3120700 | R0.3 ×10 ×6 | 50 | | 20.2 | 6 | | 7.76° | 10.33 | 10.68 | 11.06 | 11.46 | 12.37 | | D | ● | 20 | 8,770 |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

次ページへ
ボール半径 RE 0.3～0.6 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WXL-LN-EBD | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WXL-LN-EBD

切削条件 Cutting Conditions | P594

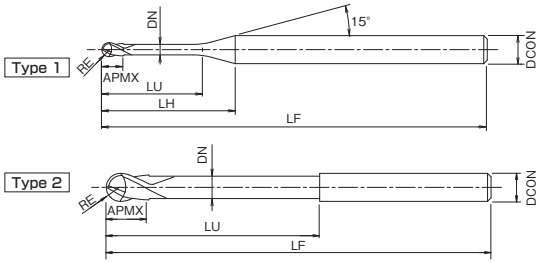


硬質潤滑被膜WXLコーティングの効果により金型材加工から銅電極加工まで幅広い用途で威力を発揮します。加工にあった有効長さをお選びください。

WXL coating with high hardness and better lubrication enable to machine wide range of applications, such as Mold machining to Copper machining. Please select proper length tool.

CARBIDE | WXL | R ±0.005 | SHRINK FIT | 30°

CAD




前ページより

FROM ボール半径 RE 0.25～0.3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3110711 | R0.3 × 11 × 4 | 45 | 0.5 | 17.4 | 4 | 0.55 | 5.69° | 11.37 | 11.75 | 12.16 | 12.61 | 13.61 | 1 | D | ● | 12 | 6,550 |
| 3110712 | R0.3 × 12 × 4 | | | 18.4 | | | 5.38° | 12.4 | 12.82 | 13.27 | 13.76 | 14.85 | | | ● | 12 | 6,550 |
| 3110820 | R0.4 × 2 × 4 | | 0.6 | 8.1 | | 0.75 | 11.86° | 2.06 | 2.12 | 2.18 | 2.25 | 2.4 | | A | ● | 14 | 4,060 |
| 3120820 | R0.4 × 2 × 6 | 50 | | 11.8 | 6 | | 12.9° | 2.06 | 2.12 | 2.18 | 2.25 | 2.4 | | D | ● | 24 | 6,130 |
| 3110830 | R0.4 × 3 × 4 | 45 | | 9.1 | 4 | | 10.52° | 3.09 | 3.19 | 3.29 | 3.4 | 3.64 | | A | ● | 14 | 4,280 |
| 3120830 | R0.4 × 3 × 6 | 50 | | 12.8 | 6 | | 11.89° | 3.09 | 3.19 | 3.29 | 3.4 | 3.64 | | D | ● | 24 | 6,480 |
| 3110840 | R0.4 × 4 × 4 | 45 | | 10.1 | 4 | | 9.45° | 4.13 | 4.26 | 4.4 | 4.55 | 4.88 | | A | ● | 14 | 4,280 |
| 3120840 | R0.4 × 4 × 6 | 50 | | 13.8 | 6 | | 11.02° | 4.13 | 4.26 | 4.4 | 4.55 | 4.88 | | D | ● | 23 | 6,480 |
| 3110850 | R0.4 × 5 × 4 | 45 | | 11.1 | 4 | | 8.58° | 5.16 | 5.33 | 5.5 | 5.7 | 6.13 | | A | ● | 14 | 4,280 |
| 3120850 | R0.4 × 5 × 6 | 50 | | 14.8 | 6 | | 10.27° | 5.16 | 5.33 | 5.5 | 5.7 | 6.13 | | D | ● | 21 | 5,500 |
| 3110860 | R0.4 × 6 × 4 | 45 | | 12.1 | 4 | | 7.85° | 6.19 | 6.4 | 6.61 | 6.85 | 7.37 | | A | ● | 14 | 4,280 |
| 3120860 | R0.4 × 6 × 6 | 50 | | 15.8 | 6 | | 9.62° | 6.19 | 6.4 | 6.61 | 6.85 | 7.37 | | D | ● | 20 | 6,480 |
| 3110870 | R0.4 × 7 × 4 | 45 | | 13.1 | 4 | | 7.24° | 7.23 | 7.47 | 7.72 | 8 | 8.61 | | | ● | 12 | 4,280 |
| 3110880 | R0.4 × 8 × 4 | | | 14.1 | | | 6.71° | 8.26 | 8.54 | 8.83 | 9.15 | 9.86 | | A | ● | 14 | 4,280 |
| 3120880 | R0.4 × 8 × 6 | 50 | | 17.8 | 6 | | 8.53° | 8.26 | 8.54 | 8.83 | 9.15 | 9.86 | | D | ● | 20 | 6,480 |
| 3110890 | R0.4 × 9 × 4 | 45 | | 15.1 | 4 | | 6.25° | 9.29 | 9.6 | 9.94 | 10.3 | 11.1 | | | ● | 12 | 5,700 |
| 3110900 | R0.4 × 10 × 4 | | | 16.1 | | | 5.86° | 10.33 | 10.67 | 11.05 | 11.45 | 12.34 | | A | ● | 14 | 5,700 |
| 3120900 | R0.4 × 10 × 6 | 50 | | 19.8 | 6 | | 7.66° | 10.33 | 10.67 | 11.05 | 11.45 | 12.34 | | D | ● | 20 | 8,210 |
| 3110912 | R0.4 × 12 × 4 | 45 | | 18.1 | 4 | | 5.2° | 12.4 | 12.81 | 13.26 | 13.75 | 14.83 | | | ● | 12 | 7,000 |
| 3111025 | R0.5 × 2.5 × 4 | | 0.8 | 8.2 | | 0.95 | 11.09° | 2.57 | 2.64 | 2.72 | 2.81 | 3 | | A | ● | 14 | 3,400 |
| 3111030 | R0.5 × 3 × 4 | | | 8.7 | | | 10.43° | 3.09 | 3.18 | 3.28 | 3.38 | 3.62 | | | ● | 14 | 3,400 |
| 3121030 | R0.5 × 3 × 6 | 50 | | 12.4 | 6 | | 11.88° | 3.09 | 3.18 | 3.28 | 3.38 | 3.62 | | D | ● | 23 | 5,400 |
| 3111040 | R0.5 × 4 × 4 | 45 | | 9.7 | 4 | | 9.32° | 4.12 | 4.25 | 4.39 | 4.53 | 4.86 | | A | ● | 14 | 3,850 |
| 3121040 | R0.5 × 4 × 6 | 50 | | 13.4 | 6 | | 10.98° | 4.12 | 4.25 | 4.39 | 4.53 | 4.86 | | D | ● | 23 | 5,930 |
| 3111050 | R0.5 × 5 × 4 | 45 | | 10.7 | 4 | | 8.41° | 5.16 | 5.32 | 5.49 | 5.68 | 6.1 | | A | ● | 14 | 3,850 |
| 3121050 | R0.5 × 5 × 6 | 50 | | 14.4 | 6 | | 10.21° | 5.16 | 5.32 | 5.49 | 5.68 | 6.1 | | D | ● | 22 | 5,930 |
| 3111060 | R0.5 × 6 × 4 | 45 | | 11.7 | 4 | | 7.67° | 6.19 | 6.39 | 6.6 | 6.83 | 7.35 | | A | ● | 14 | 4,170 |
| 3121060 | R0.5 × 6 × 6 | 50 | | 15.4 | 6 | | 9.54° | 6.19 | 6.39 | 6.6 | 6.83 | 7.35 | | D | ● | 22 | 6,260 |
| 3111070 | R0.5 × 7 × 4 | 45 | | 12.7 | 4 | | 7.05° | 7.22 | 7.46 | 7.71 | 7.98 | 8.59 | | A | ● | 14 | 4,170 |
| 3121070 | R0.5 × 7 × 6 | 50 | | 16.4 | 6 | | 8.95° | 7.22 | 7.46 | 7.71 | 7.98 | 8.59 | | D | ● | 22 | 5,400 |
| 3111080 | R0.5 × 8 × 4 | 45 | | 13.7 | 4 | | 6.52° | 8.26 | 8.53 | 8.82 | 9.13 | 9.83 | | A | ● | 14 | 4,170 |
| 3121080 | R0.5 × 8 × 6 | 50 | | 17.4 | 6 | | 8.43° | 8.26 | 8.53 | 8.82 | 9.13 | 9.83 | | D | ● | 21 | 6,260 |
| 3111090 | R0.5 × 9 × 4 | 45 | | 14.7 | 4 | | 6.06° | 9.29 | 9.6 | 9.93 | 10.28 | 11.08 | | | ● | 12 | 4,170 |
| 3111100 | R0.5 × 10 × 4 | | | 15.7 | | | 5.66° | 10.33 | 10.67 | 11.04 | 11.43 | 12.32 | | A | ● | 14 | 4,170 |
| 3121100 | R0.5 × 10 × 6 | 50 | | 19.4 | 6 | | 7.55° | 10.33 | 10.67 | 11.04 | 11.43 | 12.32 | | D | ● | 20 | 6,260 |
| 3111112 | R0.5 × 12 × 4 | 45 | | 17.7 | 4 | | 5.01° | 12.39 | 12.81 | 13.25 | 13.73 | 14.81 | | A | ● | 14 | 4,170 |
| 3121112 | R0.5 × 12 × 6 | 50 | | 21.4 | 6 | | 6.83° | 12.39 | 12.81 | 13.25 | 13.73 | 14.81 | | D | ● | 19 | 6,260 |
| 3111114 | R0.5 × 14 × 4 | | | 19.7 | 4 | | 4.49° | 14.46 | 14.95 | 15.47 | 16.03 | 17.29 | | A | ● | 14 | 4,820 |
| 3121114 | R0.5 × 14 × 6 | 60 | | 23.4 | 6 | | 6.24° | 14.46 | 14.95 | 15.47 | 16.03 | 17.29 | | D | ● | 23 | 7,140 |
| 3111116 | R0.5 × 16 × 4 | 50 | | 21.7 | 4 | | 4.06° | 16.53 | 17.09 | 17.69 | 18.33 | 19.78 | | A | ● | 14 | 5,700 |
| 3121116 | R0.5 × 16 × 6 | 60 | | 25.4 | 6 | | 5.74° | 16.53 | 17.09 | 17.69 | 18.33 | 19.78 | | D | ● | 22 | 8,230 |
| 3111118 | R0.5 × 18 × 4 | 55 | | 23.7 | 4 | | 3.71° | 18.59 | 19.23 | 19.9 | 20.63 | 22.26 | | | ● | 12 | 5,700 |
| 3111120 | R0.5 × 20 × 4 | | | 25.7 | | | 4.95° | 20.66 | 21.36 | 22.12 | 22.93 | 24.75 | | A | ● | 14 | 6,900 |
| 3121120 | R0.5 × 20 × 6 | 60 | | 29.4 | 6 | | 3.42° | 20.66 | 21.36 | 22.12 | 22.93 | 24.75 | | D | ● | 21 | 9,740 |
| 3121122 | R0.5 × 22 × 6 | | | 31.4 | | | 4.63° | 22.73 | 23.5 | 24.33 | 25.23 | 27.24 | | | ● | 20 | 10,200 |
| 3111240 | R0.6 × 4 × 4 | 45 | 1 | 9.4 | 4 | 1.15 | 9.07° | 4.19 | 4.34 | 4.48 | 4.62 | 4.95 | | A | ● | 14 | 5,160 |
| 3111260 | R0.6 × 6 × 4 | | | 11.4 | | | 7.41° | 6.27 | 6.48 | 6.69 | 6.92 | 7.44 | | | ● | 14 | 5,610 |
| 3121260 | R0.6 × 6 × 6 | 50 | | 15.2 | 6 | | 9.4° | 6.27 | 6.48 | 6.69 | 6.92 | 7.44 | | D | ● | 20 | 7,940 |
| 3111280 | R0.6 × 8 × 4 | 45 | | 13.4 | 4 | | 6.26° | 8.35 | 8.62 | 8.91 | 9.22 | 9.93 | | A | ● | 14 | 5,610 |

次ページへ

ボール半径 RE 0.6～0.75 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WXL-LN-EBD

切削条件 Cutting Conditions | P594

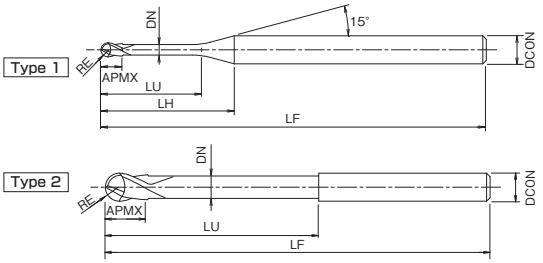


硬質潤滑被膜WXLコーティングの効果により金型材加工から銅電極加工まで幅広い用途で威力を発揮します。加工にあった有効長さをお選びください。

WXL coating with high hardness and better lubrication enable to machine wide range of applications, such as Mold machining to Copper machining. Please select proper length tool.

CARBIDE | WXL | R ±0.005 | SHRINK FIT | 30°

CAD



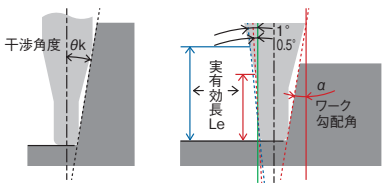

前ページより FROM ボール半径 RE 0.3～0.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径R×首径×下長×シャンク径 RE×LU×DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3121280 | R0.6 × 8 × 6 | 50 | 1 | 17.1 | 6 | 1.15 | 8.28° | 8.35 | 8.62 | 8.91 | 9.22 | 9.93 | 1 | D | ● | 20 | 7,940 |
| 3111300 | R0.6 × 10 × 4 | 45 | | 15.4 | 4 | | 5.42° | 10.42 | 10.76 | 11.13 | 11.52 | 12.41 | | A | ● | 14 | 5,610 |
| 3121300 | R0.6 × 10 × 6 | 50 | | 19.2 | 6 | | 7.39° | 10.42 | 10.76 | 11.13 | 11.52 | 12.41 | | D | ● | 19 | 7,940 |
| 3111312 | R0.6 × 12 × 4 | 45 | | 17.4 | 4 | | 4.78° | 12.49 | 12.9 | 13.34 | 13.82 | 14.9 | | A | ● | 14 | 5,610 |
| 3121312 | R0.6 × 12 × 6 | 50 | | 21.2 | 6 | | 6.68° | 12.49 | 12.9 | 13.34 | 13.82 | 14.9 | | D | ● | 18 | 7,940 |
| 3111314 | R0.6 × 14 × 4 | | | 19.4 | 4 | | 4.27° | 14.55 | 15.04 | 15.56 | 16.12 | 17.38 | | | ● | 12 | 6,040 |
| 3111316 | R0.6 × 16 × 4 | | | 21.4 | | | 3.86° | 16.62 | 17.18 | 17.78 | 18.42 | 19.87 | | A | ● | 14 | 6,550 |
| 3121316 | R0.6 × 16 × 6 | 60 | | 25.2 | 6 | | 5.6° | 16.62 | 17.18 | 17.78 | 18.42 | 19.87 | | D | ● | 22 | 9,050 |
| 3111318 | R0.6 × 18 × 4 | 55 | | 23.4 | 4 | | 3.52° | 18.69 | 19.32 | 19.99 | 20.72 | 22.36 | | | ● | 13 | 7,120 |
| 3111320 | R0.6 × 20 × 4 | 60 | | 25.4 | | | 3.24° | 20.75 | 21.46 | 22.21 | 23.02 | 24.84 | | | ● | 13 | 7,120 |
| 3111324 | R0.6 × 24 × 4 | | | 29.4 | | | 2.79° | 24.89 | 25.74 | 26.64 | 27.62 | — | | | ● | 13 | 9,300 |
| 3111480 | R0.7 × 8 × 4 | 45 | 1.1 | 13.1 | | 1.35 | 6.04° | 8.35 | 8.61 | 8.9 | 9.21 | 9.9 | | | ● | 13 | 4,820 |
| 3111512 | R0.7 × 12 × 4 | | | 17.1 | | | 4.57° | 12.48 | 12.89 | 13.33 | 13.81 | 14.87 | | | ● | 13 | 4,820 |
| 3111516 | R0.7 × 16 × 4 | 50 | | 21.1 | | | 3.67° | 16.62 | 17.17 | 17.77 | 18.41 | 19.85 | | | ● | 13 | 4,820 |
| 3111530 | R0.75 × 3 × 4 | 45 | 1.2 | 7.9 | | 1.45 | 10.01° | 3.13 | 3.25 | 3.35 | 3.45 | 3.67 | | | ● | 13 | 3,950 |
| 3111540 | R0.75 × 4 × 4 | | | 8.9 | | | 8.8° | 4.18 | 4.33 | 4.46 | 4.6 | 4.92 | | A | ● | 14 | 3,950 |
| 3111560 | R0.75 × 6 × 4 | | | 10.9 | | | 7.08° | 6.27 | 6.47 | 6.68 | 6.9 | 7.4 | | | ● | 14 | 3,950 |
| 3121560 | R0.75 × 6 × 6 | 50 | | 14.6 | 6 | | 9.26° | 6.27 | 6.47 | 6.68 | 6.9 | 7.4 | | D | ● | 22 | 5,220 |
| 3111580 | R0.75 × 8 × 4 | 45 | | 12.9 | 4 | | 5.92° | 8.34 | 8.61 | 8.9 | 9.2 | 9.89 | | A | ● | 14 | 4,170 |
| 3121580 | R0.75 × 8 × 6 | 50 | | 16.6 | 6 | | 8.11° | 8.34 | 8.61 | 8.9 | 9.2 | 9.89 | | D | ● | 22 | 6,360 |
| 3111600 | R0.75 × 10 × 4 | 45 | | 14.9 | 4 | | 5.09° | 10.41 | 10.75 | 11.11 | 11.5 | 12.38 | | A | ● | 14 | 4,470 |
| 3121600 | R0.75 × 10 × 6 | 50 | | 18.6 | 6 | | 7.21° | 10.41 | 10.75 | 11.11 | 11.5 | 12.38 | | D | ● | 20 | 5,750 |
| 3111612 | R0.75 × 12 × 4 | 45 | | 16.9 | 4 | | 4.46° | 12.48 | 12.89 | 13.33 | 13.8 | 14.86 | | A | ● | 14 | 4,820 |
| 3121612 | R0.75 × 12 × 6 | 50 | | 20.6 | 6 | | 6.49° | 12.48 | 12.89 | 13.33 | 13.8 | 14.86 | | D | ● | 20 | 7,220 |
| 3111614 | R0.75 × 14 × 4 | | | 18.9 | 4 | | 3.96° | 14.55 | 15.03 | 15.55 | 16.1 | 17.35 | | | ● | 13 | 4,820 |
| 3111616 | R0.75 × 16 × 4 | 55 | | 20.9 | | | 3.57° | 16.62 | 17.17 | 17.76 | 18.4 | 19.83 | | A | ● | 14 | 4,820 |
| 3121616 | R0.75 × 16 × 6 | 60 | | 24.6 | 6 | | 5.4° | 16.62 | 17.17 | 17.76 | 18.4 | 19.83 | | D | ● | 23 | 7,220 |
| 3111618 | R0.75 × 18 × 4 | 55 | | 22.9 | 4 | | 3.25° | 18.68 | 19.31 | 19.98 | 20.7 | 22.32 | | | ● | 13 | 4,820 |
| 3111620 | R0.75 × 20 × 4 | | | 24.9 | | | 2.98° | 20.75 | 21.45 | 22.19 | 23 | — | | A | ● | 14 | 4,820 |
| 3121620 | R0.75 × 20 × 6 | 60 | | 28.6 | 6 | | 4.63° | 20.75 | 21.45 | 22.19 | 23 | 24.81 | | D | ● | 21 | 7,220 |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

次ページへ ボール半径 RE 0.75～1.5 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WXL-LN-EBD | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WXL-LN-EBD

切削条件 Cutting Conditions | P594

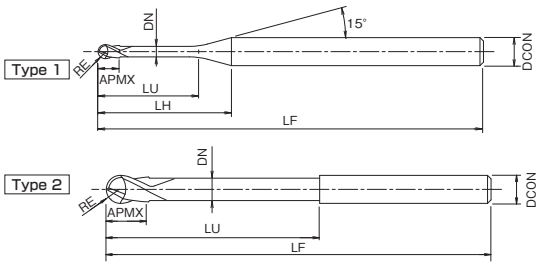


硬質潤滑被膜WXLコーティングの効果により金型材加工から銅電極加工まで幅広い用途で威力を発揮します。加工にあった有効長さをお選びください。

WXL coating with high hardness and better lubrication enable to machine wide range of applications, such as Mold machining to Copper machining. Please select proper length tool.

CARBIDE | WXL | R ± 0.005 | SHRINK FIT | 30°

CAD




前ページより FROM ボール半径 RE 0.6～0.75

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE×LU×DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3111622 | R0.75×22×4 | 55 | 1.2 | 26.9 | 4 | 1.45 | 2.75° | 22.82 | 23.59 | 24.41 | 25.3 | — | 1 | D | ● | 13 | 4,820 |
| 3111630 | R0.75×30×4 | 65 | | 34.9 | | | 2.1° | 31.09 | 32.14 | 33.28 | 34.5 | — | | | ● | 15 | 7,890 |
| 3111640 | R0.8×4×4 | 45 | 1.3 | 8.7 | | 1.55 | 8.7° | 4.18 | 4.33 | 4.46 | 4.59 | 4.91 | | | ● | 13 | 5,480 |
| 3111680 | R0.8×8×4 | | | 12.7 | | | 5.8° | 8.34 | 8.61 | 8.89 | 9.19 | 9.88 | | | ● | 13 | 5,610 |
| 3111712 | R0.8×12×4 | | | 16.7 | | | 4.34° | 12.48 | 12.89 | 13.32 | 13.79 | 14.85 | | | ● | 13 | 5,610 |
| 3111716 | R0.8×16×4 | 50 | | 20.7 | | | 3.47° | 16.61 | 17.16 | 17.76 | 18.39 | 19.82 | | | ● | 13 | 5,610 |
| 3111720 | R0.8×20×4 | 55 | | 24.7 | | | 2.89° | 20.75 | 21.44 | 22.19 | 22.99 | — | | | ● | 13 | 5,610 |
| 3111880 | R0.9×8×4 | 45 | 1.4 | 12.6 | | 1.75 | 5.38° | 8.48 | 8.88 | 9.23 | 9.56 | 10.27 | | | ● | 13 | 4,820 |
| 3111912 | R0.9×12×4 | | | 16.6 | | | 4.02° | 12.69 | 13.22 | 13.68 | 14.16 | 15.24 | | | ● | 13 | 4,820 |
| 3111916 | R0.9×16×4 | 50 | | 20.6 | | | 3.2° | 16.88 | 17.51 | 18.11 | 18.76 | 20.21 | | | ● | 13 | 4,820 |
| 3111920 | R0.9×20×4 | 55 | | 24.6 | | | 2.66° | 21.05 | 21.79 | 22.55 | 23.36 | — | | | ● | 13 | 4,820 |
| 3112030 | R1×3×4 | 45 | 1.6 | 7.3 | | 1.95 | 9.1° | 3.16 | 3.31 | 3.47 | 3.64 | 3.96 | | A | ● | 14 | 3,400 |
| 3112040 | R1×4×4 | | | 8.3 | | | 7.87° | 4.23 | 4.44 | 4.66 | 4.86 | 5.26 | | | ● | 14 | 3,400 |
| 3122040 | R1×4×6 | 50 | | 12 | 6 | | 10.32° | 4.23 | 4.44 | 4.66 | 4.86 | 5.26 | | D | ● | 24 | 5,400 |
| 3112060 | R1×6×4 | 45 | | 10.3 | 4 | | 6.19° | 6.36 | 6.67 | 6.96 | 7.23 | 7.76 | | A | ● | 14 | 3,850 |
| 3122060 | R1×6×6 | 50 | | 14 | 6 | | 8.77° | 6.36 | 6.67 | 6.96 | 7.23 | 7.76 | | D | ● | 23 | 5,830 |
| 3112080 | R1×8×4 | 45 | | 12.3 | 4 | | 5.1° | 8.48 | 8.87 | 9.22 | 9.55 | 10.24 | | A | ● | 14 | 4,170 |
| 3122080 | R1×8×6 | 50 | | 16 | 6 | | 7.61° | 8.48 | 8.87 | 9.22 | 9.55 | 10.24 | | D | ● | 22 | 6,260 |
| 3112100 | R1×10×4 | 45 | | 14.3 | 4 | | 4.33° | 10.59 | 11.05 | 11.45 | 11.85 | 12.73 | | A | ● | 14 | 4,170 |
| 3122100 | R1×10×6 | 50 | | 18 | 6 | | 6.73° | 10.59 | 11.05 | 11.45 | 11.85 | 12.73 | | D | ● | 21 | 6,260 |
| 3112112 | R1×12×4 | 45 | | 16.3 | 4 | | 3.77° | 12.69 | 13.21 | 13.67 | 14.15 | 15.22 | | A | ● | 14 | 4,170 |
| 3122112 | R1×12×6 | 50 | | 20 | 6 | | 6.03° | 12.69 | 13.21 | 13.67 | 14.15 | 15.22 | 1 | D | ● | 21 | 6,260 |
| 3112114 | R1×14×4 | | | 18.3 | 4 | | 3.33° | 14.78 | 15.36 | 15.89 | 16.45 | 17.7 | | | ● | 13 | 4,170 |
| 3112116 | R1×16×4 | | | 20.3 | | | 2.98° | 16.88 | 17.51 | 18.1 | 18.75 | — | | A | ● | 14 | 4,170 |
| 3122116 | R1×16×6 | 60 | | 24 | 6 | | 4.98° | 16.88 | 17.51 | 18.1 | 18.75 | 20.19 | | D | ● | 23 | 6,260 |
| 3112118 | R1×18×4 | 55 | | 22.3 | 4 | | 2.7° | 18.96 | 19.65 | 20.32 | 21.04 | — | | | ● | 13 | 4,170 |
| 3112120 | R1×20×4 | | | 24.3 | | | 2.47° | 21.05 | 21.78 | 22.54 | 23.34 | — | | A | ● | 14 | 4,170 |
| 3122120 | R1×20×6 | 65 | | 28 | 6 | | 4.25° | 21.05 | 21.78 | 22.54 | 23.34 | 25.16 | | D | ● | 26 | 6,260 |
| 3112122 | R1×22×4 | 60 | | 26.3 | 4 | | 2.27° | 23.13 | 23.92 | 24.75 | 25.64 | — | | | ● | 14 | 5,700 |
| 3112125 | R1×25×4 | 65 | | 29.3 | | | 2.03° | 26.24 | 27.13 | 28.08 | 29.09 | — | | A | ● | 16 | 5,800 |
| 3122125 | R1×25×6 | 70 | | 33 | 6 | | 3.58° | 26.24 | 27.13 | 28.08 | 29.09 | 31.38 | | D | ● | 26 | 8,230 |
| 3112130 | R1×30×4 | | | 34.3 | 4 | | 1.73° | 31.42 | 32.48 | 33.62 | — | — | | A | ● | 16 | 6,550 |
| 3122130 | R1×30×6 | 75 | | 38 | 6 | | 3.1° | 31.42 | 32.48 | 33.62 | 34.84 | 37.59 | | D | ● | 26 | 9,300 |
| 3112135 | R1×35×4 | | | 39.3 | 4 | | 1.5° | 36.59 | 37.83 | 39.16 | — | — | | A | ● | 16 | 8,980 |
| 3122135 | R1×35×6 | 80 | | 43 | 6 | | 2.73° | 36.59 | 37.83 | 39.16 | 40.59 | — | | D | ● | 26 | 12,200 |
| 3112140 | R1×40×4 | | | 44.3 | 4 | | 1.33° | 41.76 | 43.18 | — | — | — | | | ● | 16 | 8,980 |
| 3112560 | R1.25×6×4 | 45 | 2 | 9.1 | 4 | 2.35 | 5.46° | 6.26 | 6.51 | 6.75 | 6.99 | 7.46 | | A | ● | 16 | 4,470 |
| 3112600 | R1.25×10×4 | 50 | | 13.1 | | | 3.63° | 10.46 | 10.85 | 11.21 | 11.59 | 12.43 | | | ● | 16 | 4,700 |
| 3112615 | R1.25×15×4 | 55 | | 18.1 | | | 2.55° | 15.67 | 16.21 | 16.75 | 17.34 | — | | | ● | 16 | 5,610 |
| 3112620 | R1.25×20×4 | 60 | | 23.1 | | | 1.97° | 20.87 | 21.56 | 22.3 | — | — | | | ● | 16 | 6,550 |
| 3112625 | R1.25×25×4 | 65 | | 28.1 | | | 1.6° | 26.04 | 26.91 | 27.84 | — | — | | D | ● | 16 | 7,000 |
| 3112630 | R1.25×30×4 | 70 | | 33.1 | | | 1.35° | 31.21 | 32.26 | — | — | — | | | ● | 16 | 7,000 |
| 3112635 | R1.25×35×4 | | | 38.1 | | | 1.17° | 36.38 | 37.61 | — | — | — | | | ● | 16 | 8,130 |
| 3123059 | R1.5×6×3 | 45 | 2.4 | — | 3 | 2.85 | — | — | — | — | — | — | 2 | | ● | 10 | 3,850 |
| 3113060 | R1.5×6×4 | | | 8.2 | 4 | | 4.29° | 6.25 | 6.49 | 6.72 | 6.95 | 7.4 | | A | ● | 16 | 3,850 |
| 3123060 | R1.5×6×6 | 50 | | 11.9 | 6 | | 8.17° | 6.25 | 6.49 | 6.72 | 6.95 | 7.4 | | D | ● | 19 | 4,170 |
| 3123080 | R1.5×8×6 | | | 13.9 | | | 6.88° | 8.35 | 8.67 | 8.97 | 9.25 | 9.88 | 1 | A | ● | 19 | 4,170 |
| 3123100 | R1.5×10×6 | | | 15.9 | | | 5.94° | 10.44 | 10.83 | 11.19 | 11.55 | 12.37 | | | ● | 19 | 4,820 |
| 3123112 | R1.5×12×6 | 55 | | 17.9 | | | 5.22° | 12.53 | 12.98 | 13.4 | 13.85 | 14.86 | | | ● | 20 | 5,030 |

次ページへ ボール半径 RE 1.5～3 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WXL-LN-EBD

切削条件 Cutting Conditions | P594

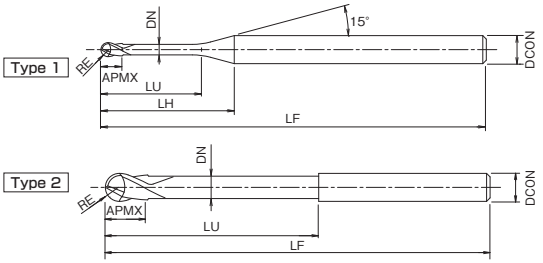


硬質潤滑被膜WXLコーティングの効果により金型材加工から銅電極加工まで幅広い用途で威力を発揮します。加工にあった有効長さをお選びください。

WXL coating with high hardness and better lubrication enable to machine wide range of applications, such as Mold machining to Copper machining. Please select proper length tool.

CARBIDE | WXL | R ±0.005 | SHRINK FIT | 30°

CAD




前ページより

FROM ボール半径 RE 0.75～1.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首径×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3123114 | R1.5 × 14 × 6 | 55 | 2.4 | 19.9 | 6 | 2.85 | 4.66° | 14.62 | 15.13 | 15.62 | 16.15 | 17.34 | 1 | A | ● | 20 | 5,610 |
| 3123115 | R1.5 × 15 × 6 | | | 20.9 | | | 4.42° | 15.66 | 16.2 | 16.73 | 17.3 | 18.59 | | | ● | 20 | 5,480 |
| 3123116 | R1.5 × 16 × 6 | | | 21.9 | | | 4.21° | 16.7 | 17.26 | 17.84 | 18.45 | 19.83 | | | ● | 20 | 5,610 |
| 3123120 | R1.5 × 20 × 6 | 60 | | 25.9 | | | 3.52° | 20.86 | 21.54 | 22.27 | 23.05 | 24.8 | | D | ● | 20 | 5,380 |
| 3123125 | R1.5 × 25 × 6 | 65 | | 30.9 | | | 2.92° | 26.04 | 26.89 | 27.81 | 28.8 | — | | | ● | 20 | 5,380 |
| 3123130 | R1.5 × 30 × 6 | 70 | | 35.9 | | | 2.5° | 31.2 | 32.24 | 33.35 | 34.55 | — | | | ● | 21 | 6,130 |
| 3123135 | R1.5 × 35 × 6 | 80 | | 40.9 | | | 2.18° | 36.37 | 37.59 | 38.89 | 40.3 | — | | | ● | 23 | 7,760 |
| 3123140 | R1.5 × 40 × 6 | 85 | | 45.9 | | | 1.94° | 41.54 | 42.94 | 44.43 | — | — | | | ● | 27 | 9,630 |
| 3123600 | R1.75 × 10 × 6 | 60 | 2.8 | 15 | | 3.35 | 5.4° | 10.43 | 10.81 | 11.16 | 11.51 | 12.31 | | | ● | 24 | 6,130 |
| 3123615 | R1.75 × 15 × 6 | | | 20 | | | 3.93° | 15.65 | 16.18 | 16.7 | 17.26 | 18.53 | | D | ● | 22 | 6,130 |
| 3123620 | R1.75 × 20 × 6 | 65 | | 25 | | | 3.08° | 20.85 | 21.53 | 22.24 | 23.01 | 24.74 | | | ● | 23 | 6,550 |
| 3123625 | R1.75 × 25 × 6 | | | 30 | | | 2.54° | 26.03 | 26.87 | 27.78 | 28.76 | — | | | ● | 21 | 6,550 |
| 3123630 | R1.75 × 30 × 6 | 70 | | 35 | | | 2.16° | 31.2 | 32.22 | 33.32 | 34.51 | — | | | ● | 22 | 7,000 |
| 3123635 | R1.75 × 35 × 6 | 80 | | 40 | | | 1.88° | 36.36 | 37.57 | 38.87 | — | — | | | ● | 25 | 8,450 |
| 3123640 | R1.75 × 40 × 6 | 90 | | 45 | | | 1.66° | 41.53 | 42.92 | 44.41 | — | — | | | ● | 30 | 9,300 |
| 3123645 | R1.75 × 45 × 6 | | | 50 | | | 1.49° | 46.7 | 48.27 | — | — | — | | | ● | 29 | 10,200 |
| 3114080 | R2 × 8 × 4 | 55 | | — | 4 | | — | — | — | — | — | — | 2 | A | ● | 16 | 4,280 |
| 3124080 | R2 × 8 × 6 | 60 | 3.2 | 12.1 | 6 | 3.85 | 5.67° | 8.33 | 8.63 | 8.91 | 9.18 | 9.77 | 1 | D | ● | 25 | 4,630 |
| 3124100 | R2 × 10 × 6 | | | 14.1 | | | 4.74° | 10.42 | 10.79 | 11.13 | 11.48 | 12.25 | | | ● | 24 | 4,280 |
| 3124112 | R2 × 12 × 6 | | | 16.1 | | | 4.07° | 12.51 | 12.95 | 13.35 | 13.78 | 14.74 | | | ● | 24 | 5,610 |
| 3124114 | R2 × 14 × 6 | | | 18.1 | | | 3.57° | 14.6 | 15.09 | 15.57 | 16.08 | 17.22 | | | ● | 24 | 5,610 |
| 3124115 | R2 × 15 × 6 | | | 19.1 | | | 3.36° | 15.64 | 16.16 | 16.67 | 17.23 | 18.47 | | A | ● | 24 | 5,610 |
| 3124116 | R2 × 16 × 6 | | | 20.1 | | | 3.18° | 16.68 | 17.23 | 17.78 | 18.38 | 19.71 | | | ● | 24 | 5,610 |
| 3124120 | R2 × 20 × 6 | 65 | | 24.1 | | | 2.6° | 20.84 | 21.51 | 22.22 | 22.98 | — | | | ● | 24 | 5,610 |
| 3124125 | R2 × 25 × 6 | 70 | | 29.1 | | | 2.12° | 26.02 | 26.86 | 27.76 | 28.72 | — | | | ● | 25 | 5,610 |
| 3124130 | R2 × 30 × 6 | 80 | | 34.1 | | | 1.79° | 31.19 | 32.21 | 33.3 | — | — | | | ● | 28 | 5,610 |
| 3124135 | R2 × 35 × 6 | | | 39.1 | | | 1.55° | 36.36 | 37.55 | 38.84 | — | — | | | ● | 26 | 6,470 |
| 3124140 | R2 × 40 × 6 | 90 | | 44.1 | | | 1.36° | 41.52 | 42.9 | — | — | — | | | ● | 32 | 7,220 |
| 3124145 | R2 × 45 × 6 | | | 49.1 | | | 1.22° | 46.69 | 48.25 | — | — | — | | | ● | 31 | 9,300 |
| 3124150 | R2 × 50 × 6 | 100 | | 54.1 | | | 1.1° | 51.86 | 53.6 | — | — | — | | | ● | 34 | 9,950 |
| 3125100 | R2.5 × 10 | 65 | 5 | 12.2 | 6 | 4.85 | 2.96° | 10.4 | 10.75 | 11.08 | 11.4 | — | | D | ● | 27 | 6,550 |
| 3125115 | R2.5 × 15 | 70 | | 17.2 | | | 1.96° | 15.62 | 16.13 | 16.62 | — | — | | | ● | 27 | 9,300 |
| 3125120 | R2.5 × 20 | | | 22.2 | | | 1.46° | 20.82 | 21.47 | — | — | — | | | ● | 27 | 9,300 |
| 3125125 | R2.5 × 25 | | | 27.2 | | | 1.16° | 26 | 26.82 | — | — | — | | | ● | 27 | 9,300 |
| 3125130 | R2.5 × 30 | 80 | | 32.2 | | | 0.97° | 31.17 | — | — | — | — | | | ● | 31 | 9,950 |
| 3125135 | R2.5 × 35 | | | 37.2 | | | 0.83° | 36.34 | — | — | — | — | | | ● | 30 | 9,950 |
| 3125140 | R2.5 × 40 | 90 | | 42.2 | | | 0.72° | 41.51 | — | — | — | — | | | ● | 36 | 12,700 |
| 3125145 | R2.5 × 45 | 100 | | 47.2 | | | 0.64° | 46.68 | — | — | — | — | | | ● | 39 | 13,200 |
| 3125150 | R2.5 × 50 | | | 52.2 | | | 0.58° | 51.84 | — | — | — | — | | | ● | 39 | 14,300 |
| 3126100 | R3 × 10 | 60 | 6 | — | | 5.85 | — | — | — | — | — | — | 2 | A | ● | 25 | 7,000 |
| 3126120 | R3 × 20 | 70 | | — | | | — | — | — | — | — | — | | | ● | 30 | 7,000 |
| 3126125 | R3 × 25 | | | — | | | — | — | — | — | — | — | | | ● | 30 | 7,000 |
| 3126130 | R3 × 30 | 80 | | — | | | — | — | — | — | — | — | | | ● | 33 | 7,220 |
| 3126135 | R3 × 35 | | | — | | | — | — | — | — | — | — | | D | ● | 33 | 7,430 |
| 3126140 | R3 × 40 | 90 | | — | | | — | — | — | — | — | — | | | ● | 41 | 7,890 |
| 3126145 | R3 × 45 | 100 | | — | | | — | — | — | — | — | — | | | ● | 44 | 8,450 |
| 3126150 | R3 × 50 | 120 | | — | | | — | — | — | — | — | — | | | ● | 50 | 8,530 |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 高硬度鋼・高精度仕上げ用DUROREYコート 2枚刃超硬ロングネックボールエンドミル

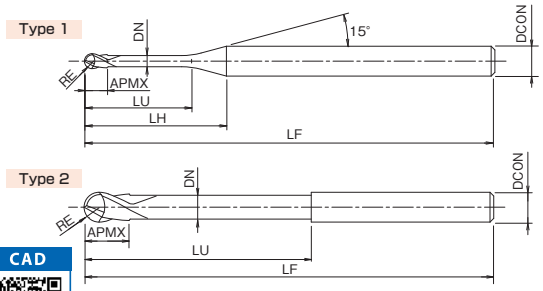
**DUROREY Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for High-hardness Steels**

The A Brand

## AE-LNBD-H

切削条件 Cutting Conditions | P533






CAD

CARBIDE | DUROREY | R ±0.003 (RE≦0.25) | R ±0.005 (0.25<RE) | SHANK h4 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3056100 | R0.05 × 0.2 × 4 | 45 | 0.08 | 7.5 | 0.09 | 14.7° | 0.2 | 0.21 | 0.21 | 0.22 | 0.23 | 1 | A | 10 | 10,200 |
| 3056101 | R0.05 × 0.3 × 4 | | | 7.6 | | 14.52° | 0.3 | 0.31 | 0.32 | 0.33 | 0.35 | | | 11 | 8,980 |
| 3056102 | R0.05 × 0.5 × 4 | | | 7.8 | | 14.07° | 0.53 | 0.56 | 0.59 | 0.62 | 0.67 | | | 14 | 9,740 |
| 3056103 | R0.1 × 0.3 × 4 | | 0.16 | 7.4 | 0.19 | 14.59° | 0.3 | 0.31 | 0.32 | 0.32 | 0.34 | | | 11 | 6,210 |
| 3056104 | R0.1 × 0.5 × 4 | | | 7.6 | | 14.12° | 0.53 | 0.56 | 0.58 | 0.61 | 0.65 | | | 11 | 6,210 |
| 3056105 | R0.1 × 0.75 × 4 | | | 7.9 | | 13.74° | 0.79 | 0.83 | 0.87 | 0.9 | 0.96 | | | 11 | 6,210 |
| 3056106 | R0.1 × 1 × 4 | | | 8.1 | | 13.33° | 1.06 | 1.11 | 1.15 | 1.19 | 1.27 | | | 11 | 6,210 |
| 3056107 | R0.1 × 1 × 6 | | | 11.9 | | 13.86° | | | | | | | | 20 | 8,850 |
| 3056108 | R0.1 × 1.25 × 4 | | | 8.4 | | 12.94° | 1.32 | 1.38 | 1.43 | 1.47 | 1.59 | | | 10 | 6,790 |
| 3056109 | R0.1 × 1.5 × 4 | | | 8.6 | | 12.58° | 1.58 | 1.65 | 1.7 | 1.76 | 1.9 | | | 10 | 6,790 |
| 3056110 | R0.1 × 1.75 × 4 | | | 8.9 | | 12.23° | 1.85 | 1.91 | 1.98 | 2.05 | 2.21 | | | 10 | 7,540 |
| 3056111 | R0.1 × 2 × 4 | | | 9.1 | | 11.9° | 2.11 | 2.18 | 2.26 | 2.34 | 2.52 | | | 10 | 7,540 |
| 3056112 | R0.1 × 2.5 × 4 | | | 9.6 | | 11.29° | 2.63 | 2.72 | 2.81 | 2.91 | 3.14 | | | 10 | 8,240 |
| 3056113 | R0.1 × 3 × 4 | | | 10.1 | | 10.74° | 3.14 | 3.25 | 3.36 | 3.49 | 3.76 | | | 10 | 8,850 |
| 3056114 | R0.15 × 0.5 × 4 | | 0.24 | 7.4 | 0.285 | 14.22° | 0.52 | 0.54 | 0.56 | 0.59 | 0.63 | | | 11 | 6,210 |
| 3056115 | R0.15 × 0.6 × 4 | | | 7.5 | | 14.04° | 0.63 | 0.65 | 0.68 | 0.7 | 0.75 | | | 10 | 6,210 |
| 3056116 | R0.15 × 0.75 × 4 | | | 7.7 | | 13.77° | 0.78 | 0.82 | 0.85 | 0.88 | 0.93 | | | 10 | 6,210 |
| 3056117 | R0.15 × 1 × 4 | | | 7.9 | | 13.35° | 1.05 | 1.09 | 1.13 | 1.16 | 1.25 | | | 11 | 6,210 |
| 3056118 | R0.15 × 1.25 × 4 | | | 8.2 | | 12.95° | 1.31 | 1.36 | 1.4 | 1.45 | 1.56 | | | 10 | 6,640 |
| 3056119 | R0.15 × 1.5 × 4 | | | 8.4 | | 12.57° | 1.57 | 1.63 | 1.68 | 1.74 | 1.87 | | | 10 | 6,640 |
| 3056120 | R0.15 × 1.5 × 6 | | | 12.2 | | 13.33° | | | | | | | | 20 | 9,300 |
| 3056121 | R0.15 × 1.75 × 4 | | | 8.7 | | 12.22° | 1.83 | 1.9 | 1.96 | 2.03 | 2.18 | | | 10 | 6,640 |
| 3056122 | R0.15 × 2 × 4 | | | 8.9 | | 11.88° | 2.09 | 2.16 | 2.24 | 2.31 | 2.49 | | | 10 | 6,640 |
| 3056123 | R0.15 × 2.25 × 4 | | | 9.2 | | 11.56° | 2.35 | 2.43 | 2.51 | 2.6 | 2.8 | | | 10 | 6,790 |
| 3056124 | R0.15 × 2.5 × 4 | | | 9.4 | | 11.26° | 2.61 | 2.7 | 2.79 | 2.89 | 3.11 | | | 10 | 6,790 |
| 3056125 | R0.15 × 3 × 4 | | | 9.9 | | 10.7° | 3.13 | 3.23 | 3.34 | 3.46 | 3.73 | | | 10 | 6,790 |
| 3056126 | R0.15 × 3.5 × 4 | | | 10.4 | | 10.19° | 3.65 | 3.77 | 3.9 | 4.04 | 4.35 | | | 10 | 6,980 |
| 3056127 | R0.15 × 4 × 4 | | | 10.9 | | 9.73° | 4.16 | 4.3 | 4.45 | 4.61 | 4.97 | | | 10 | 6,980 |
| 3056128 | R0.15 × 4.5 × 4 | | | 11.4 | | 9.31° | 4.68 | 4.84 | 5.01 | 5.19 | 5.6 | | | 10 | 7,540 |
| 3056129 | R0.15 × 5 × 4 | | | 11.9 | | 8.92° | 5.2 | 5.37 | 5.56 | 5.76 | 6.22 | | | 10 | 7,540 |
| 3056130 | R0.2 × 0.5 × 4 | | 0.3 | 7.2 | 0.38 | 14.27° | 0.51 | 0.53 | 0.55 | 0.57 | 0.6 | | | 14 | 4,280 |
| 3056131 | R0.2 × 0.75 × 4 | | | 7.5 | | 13.8° | 0.78 | 0.81 | 0.83 | 0.86 | 0.91 | | | 10 | 4,280 |
| 3056132 | R0.2 × 0.8 × 4 | | | 7.5 | | 13.71° | 0.83 | 0.86 | 0.89 | 0.92 | 0.97 | | | 14 | 4,280 |
| 3056133 | R0.2 × 1 × 4 | | | 7.7 | | 13.37° | 1.04 | 1.08 | 1.11 | 1.15 | 1.22 | | | 11 | 4,280 |
| 3056134 | R0.2 × 1 × 6 | | | 11.5 | | 13.91° | | | | | | | | 20 | 6,260 |
| 3056135 | R0.2 × 1.5 × 4 | | | 8.2 | | 12.57° | 1.56 | 1.62 | 1.67 | 1.72 | 1.84 | | | 10 | 4,340 |
| 3056136 | R0.2 × 2 × 4 | | | 8.7 | | 11.86° | 2.08 | 2.15 | 2.22 | 2.3 | 2.46 | | | 10 | 4,390 |
| 3056137 | R0.2 × 2 × 6 | | | 12.5 | | 12.82° | | | | | | | | 20 | 6,530 |
| 3056138 | R0.2 × 2.5 × 4 | | | 9.2 | | 11.22° | 2.6 | 2.68 | 2.77 | 2.87 | 3.09 | | | 10 | 4,610 |
| 3056139 | R0.2 × 3 × 4 | | | 9.7 | | 10.65° | 3.12 | 3.22 | 3.33 | 3.45 | 3.71 | | | 10 | 4,870 |
| 3056140 | R0.2 × 3.5 × 4 | | | 10.2 | | 10.14° | 3.63 | 3.75 | 3.88 | 4.02 | 4.33 | | | 10 | 5,300 |
| 3056141 | R0.2 × 4 × 4 | | | 10.7 | | 9.67° | 4.15 | 4.29 | 4.44 | 4.59 | 4.95 | | | 10 | 5,300 |
| 3056142 | R0.2 × 4.5 × 4 | | | 11.2 | | 9.24° | 4.67 | 4.82 | 4.99 | 5.17 | 5.57 | | | 10 | 5,540 |
| 3056143 | R0.2 × 5 × 4 | | | 11.7 | | 8.85° | 5.19 | 5.36 | 5.54 | 5.74 | 6.19 | | | 13 | 5,540 |
| 3056144 | R0.2 × 5.5 × 4 | | | 12.2 | | 8.49° | 5.7 | 5.89 | 6.1 | 6.32 | 6.81 | | | 13 | 6,210 |
| 3056145 | R0.2 × 6 × 4 | | | 12.7 | | 8.15° | 6.22 | 6.43 | 6.65 | 6.89 | 7.44 | | | 10 | 6,450 |
| 3056146 | R0.25 × 0.75 × 4 | | 0.4 | 7.3 | 0.475 | 13.84° | 0.77 | 0.8 | 0.82 | 0.84 | 0.89 | | | 10 | 4,200 |
| 3056147 | R0.25 × 1 × 4 | | | 7.6 | | 13.39° | 1.03 | 1.07 | 1.1 | 1.13 | 1.2 | | | 11 | 4,200 |
| 3056148 | R0.25 × 1.5 × 4 | | | 8.1 | | 12.56° | 1.55 | 1.6 | 1.65 | 1.7 | 1.82 | | | 10 | 4,200 |
| 3056149 | R0.25 × 2 × 4 | | | 8.6 | | 11.84° | 2.07 | 2.14 | 2.21 | 2.28 | 2.44 | | | 10 | 4,200 |

次ページへ
ボール半径 RE 0.25～0.4 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 高硬度鋼・高精度仕上げ用DUROREYコート 2枚刃超硬ロングネックボールエンドミル

DUROREY Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for High-hardness Steels

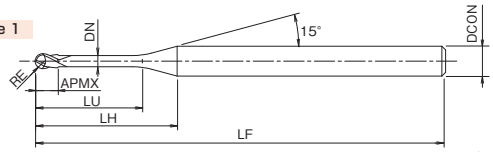
A The A Brand

## AE-LNBD-H

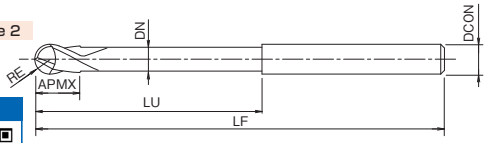
切削条件 Cutting Conditions | P533



Type 1




Type 2




CAD

CARBIDE | DURAREY | R ± 0.003 (RE≦0.25) | R ± 0.005 (0.25<RE) | SHANK h4 | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.05～0.25

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3056150 | R0.25 × 2.5 × 4 | 45 | 0.4 | 9.1 | 0.475 | 11.19° | 2.59 | 2.67 | 2.76 | 2.85 | 3.06 | 1 | A | ● | 10 | 4,200 |
| 3056151 | R0.25 × 3 × 4 | | | 9.6 | | 10.61° | 3.11 | 3.21 | 3.31 | 3.43 | 3.68 | | | ● | 10 | 4,200 |
| 3056152 | R0.25 × 3.5 × 4 | | | 10.1 | | 10.08° | 3.63 | 3.74 | 3.87 | 4 | 4.31 | | | ● | 10 | 4,200 |
| 3056153 | R0.25 × 4 × 4 | | | 10.6 | | 9.6° | 4.14 | 4.28 | 4.42 | 4.58 | 4.93 | | | ● | 10 | 4,200 |
| 3056154 | R0.25 × 4.5 × 4 | | | 11.1 | | 9.17° | 4.66 | 4.81 | 4.98 | 5.15 | 5.55 | | | ● | 10 | 4,340 |
| 3056155 | R0.25 × 5 × 4 | | | 11.6 | | 8.77° | 5.18 | 5.35 | 5.53 | 5.73 | 6.17 | | | ● | 14 | 4,340 |
| 3056156 | R0.25 × 5.5 × 4 | | | 12.1 | | 8.41° | 5.69 | 5.88 | 6.09 | 6.3 | 6.79 | | | ● | 10 | 4,430 |
| 3056157 | R0.25 × 6 × 4 | | | 12.6 | | 8.07° | 6.21 | 6.42 | 6.64 | 6.88 | 7.41 | | | ● | 10 | 4,430 |
| 3056158 | R0.25 × 7 × 4 | | | 13.6 | | 7.48° | 7.24 | 7.49 | 7.75 | 8.03 | 8.66 | | | ● | 10 | 4,810 |
| 3056159 | R0.25 × 8 × 4 | | | 14.6 | | 6.96° | 8.28 | 8.56 | 8.86 | 9.18 | 9.9 | | | ● | 14 | 4,840 |
| 3056160 | R0.25 × 9 × 4 | | | 15.6 | | 6.51° | 9.31 | 9.63 | 9.96 | 10.33 | 11.14 | | | ● | 10 | 5,750 |
| 3056161 | R0.25 × 10 × 4 | | | 16.6 | | 6.12° | 10.34 | 10.7 | 11.07 | 11.48 | 12.39 | | | ● | 12 | 6,450 |
| 3056162 | R0.3 × 0.75 × 4 | | 0.5 | 7.1 | 0.55 | 13.8° | 0.76 | 0.78 | 0.8 | 0.81 | 0.85 | | | ● | 11 | 3,590 |
| 3056163 | R0.3 × 1 × 4 | | | 7.3 | | 13.34° | 1.02 | 1.05 | 1.07 | 1.1 | 1.16 | | | ● | 11 | 3,590 |
| 3056164 | R0.3 × 1.2 × 4 | | | 7.5 | | 12.99° | 1.23 | 1.26 | 1.29 | 1.33 | 1.41 | | | ● | 10 | 3,320 |
| 3056165 | R0.3 × 1.5 × 4 | | | 7.8 | | 12.5° | 1.54 | 1.58 | 1.63 | 1.68 | 1.78 | | | ● | 11 | 3,240 |
| 3056166 | R0.3 × 2 × 4 | | | 8.3 | | 11.76° | 2.05 | 2.12 | 2.18 | 2.25 | 2.41 | | | ● | 10 | 3,240 |
| 3056167 | R0.3 × 2 × 6 | | | 12.1 | | 12.78° | | | | | | | | ● | 19 | 4,980 |
| 3056168 | R0.3 × 2.5 × 4 | | | 8.8 | | 11.1° | 2.57 | 2.65 | 2.74 | 2.83 | 3.03 | | | ● | 10 | 3,320 |
| 3056169 | R0.3 × 3 × 4 | | | 9.3 | | 10.51° | 3.09 | 3.19 | 3.29 | 3.4 | 3.65 | | | ● | 10 | 3,320 |
| 3056170 | R0.3 × 3 × 6 | | | 13.1 | | 11.83° | | | | | | | | ● | 18 | 5,110 |
| 3056171 | R0.3 × 3.5 × 4 | | | 9.8 | | 9.98° | 3.61 | 3.72 | 3.84 | 3.98 | 4.27 | | | ● | 14 | 3,450 |
| 3056172 | R0.3 × 4 × 4 | | | 10.3 | | 9.5° | 4.12 | 4.26 | 4.4 | 4.55 | 4.89 | | | ● | 10 | 3,450 |
| 3056173 | R0.3 × 4 × 6 | | | 14.1 | | 11° | | | | | | | | ● | 18 | 5,270 |
| 3056174 | R0.3 × 4.5 × 4 | | | 10.8 | | 9.06° | 4.64 | 4.79 | 4.95 | 5.13 | 5.51 | | | ● | 10 | 3,450 |
| 3056175 | R0.3 × 5 × 4 | | | 11.3 | | 8.67° | 5.16 | 5.32 | 5.51 | 5.7 | 6.14 | | | ● | 10 | 3,450 |
| 3056176 | R0.3 × 5.5 × 4 | | | 11.8 | | 8.3° | 5.67 | 5.86 | 6.06 | 6.28 | 6.76 | | | ● | 10 | 3,450 |
| 3056177 | R0.3 × 6 × 4 | | | 12.3 | | 7.96° | 6.19 | 6.39 | 6.61 | 6.85 | 7.38 | | | ● | 10 | 3,450 |
| 3056178 | R0.3 × 6.5 × 4 | | | 12.8 | | 7.65° | 6.71 | 6.93 | 7.17 | 7.42 | 8 | | | ● | 10 | 3,450 |
| 3056179 | R0.3 × 7 × 4 | | | 13.3 | | 7.37° | 7.22 | 7.46 | 7.72 | 8 | 8.62 | | | ● | 10 | 3,900 |
| 3056180 | R0.3 × 7.5 × 4 | | | 13.8 | | 7.1° | 7.74 | 8 | 8.28 | 8.57 | 9.24 | | | ● | 10 | 3,900 |
| 3056181 | R0.3 × 8 × 4 | | | 14.3 | | 6.85° | 8.26 | 8.53 | 8.83 | 9.15 | 9.86 | | | ● | 10 | 4,610 |
| 3056182 | R0.3 × 8.5 × 4 | | | 14.8 | | 6.62° | 8.77 | 9.07 | 9.38 | 9.72 | 10.49 | | | ● | 10 | 4,660 |
| 3056183 | R0.3 × 9 × 4 | | | 15.3 | | 6.41° | 9.29 | 9.6 | 9.94 | 10.3 | 11.11 | | | ● | 10 | 4,790 |
| 3056184 | R0.3 × 9.5 × 4 | | | 15.8 | | 6.2° | 9.81 | 10.14 | 10.49 | 10.87 | 11.73 | | | ● | 10 | 4,790 |
| 3056185 | R0.3 × 10 × 4 | | | 16.3 | | 6.01° | 10.32 | 10.67 | 11.05 | 11.45 | 12.35 | | | ● | 10 | 4,790 |
| 3056186 | R0.3 × 11 × 4 | 50 | | 17.3 | | 5.67° | 11.36 | 11.74 | 12.16 | 12.6 | 13.59 | | | ● | 10 | 5,110 |
| 3056187 | R0.3 × 12 × 4 | | | 18.3 | | 5.36° | 12.39 | 12.81 | 13.26 | 13.75 | 14.84 | | | ● | 10 | 5,290 |
| 3056188 | R0.4 × 1 × 4 | 45 | 0.6 | 7 | 0.75 | 13.41° | 1.02 | 1.04 | 1.06 | 1.08 | 1.14 | | | ● | 11 | 3,500 |
| 3056189 | R0.4 × 1.5 × 4 | | | 7.5 | | 12.52° | 1.53 | 1.57 | 1.62 | 1.66 | 1.76 | | | ● | 12 | 3,500 |
| 3056190 | R0.4 × 2 × 4 | | | 8 | | 11.74° | 2.05 | 2.11 | 2.17 | 2.23 | 2.38 | | | ● | 10 | 3,240 |
| 3056191 | R0.4 × 2 × 6 | | | 11.7 | | 12.81° | | | | | | | | ● | 19 | 4,980 |
| 3056192 | R0.4 × 2.5 × 4 | | | 8.5 | | 11.04° | 2.57 | 2.64 | 2.72 | 2.81 | 3 | | | ● | 24 | 3,500 |

次ページへ ボール半径 RE 0.4～0.6 NEXT

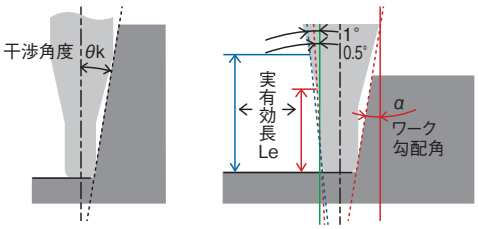
| 製品記号 Abbreviation | 被削材質 Work Material: 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～70HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-LNBD-H | ○ | | ○ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより
FROM ボール半径 RE 0.25～0.4

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3056193 | R0.4 × 3 × 4 | 45 | 0.6 | 9 | 0.75 | 10.42° | 3.09 | 3.18 | 3.28 | 3.38 | 3.62 | 1 | A | ● | 12 | 3,500 |
| 3056194 | R0.4 × 4 × 4 | | | 10 | | 9.37° | 4.12 | 4.25 | 4.39 | 4.53 | 4.87 | | | ● | 10 | 3,500 |
| 3056195 | R0.4 × 5 × 4 | | | 11 | | 8.51° | 5.15 | 5.32 | 5.49 | 5.68 | 6.11 | | | ● | 10 | 3,500 |
| 3056196 | R0.4 × 6 × 4 | | | 12 | | 7.8° | 6.19 | 6.39 | 6.6 | 6.83 | 7.35 | | | ● | 10 | 3,500 |
| 3056197 | R0.4 × 7 × 4 | | | 13 | | 7.19° | 7.22 | 7.46 | 7.71 | 7.98 | 8.6 | | | ● | 10 | 3,500 |
| 3056198 | R0.4 × 8 × 4 | | | 14 | | 6.67° | 8.25 | 8.53 | 8.82 | 9.13 | 9.84 | | | ● | 10 | 3,500 |
| 3056199 | R0.4 × 9 × 4 | | | 15 | | 6.22° | 9.29 | 9.6 | 9.93 | 10.28 | 11.08 | | | ● | 10 | 4,010 |
| 3056200 | R0.4 × 10 × 4 | | | 16 | | 5.83° | 10.32 | 10.67 | 11.04 | 11.43 | 12.32 | | | ● | 13 | 4,610 |
| 3056201 | R0.4 × 12 × 4 | 50 | | 18 | | 5.18° | 12.39 | 12.81 | 13.25 | 13.73 | 14.81 | | | ● | 13 | 4,610 |
| 3056202 | R0.5 × 1.5 × 4 | 45 | 0.8 | 7.1 | 0.95 | 12.54° | 1.53 | 1.57 | 1.6 | 1.64 | 1.73 | | | ● | 10 | 2,780 |
| 3056203 | R0.5 × 2 × 4 | | | 7.6 | | 11.71° | 2.05 | 2.1 | 2.16 | 2.22 | 2.35 | | | ● | 10 | 2,780 |
| 3056204 | R0.5 × 2 × 6 | | | 11.3 | | 12.83° | | | | | | | | ● | 18 | 4,430 |
| 3056205 | R0.5 × 2.5 × 4 | | | 8.1 | | 10.97° | 2.56 | 2.64 | 2.71 | 2.79 | 2.98 | | | ● | 10 | 2,780 |
| 3056206 | R0.5 × 3 × 4 | | | 8.6 | | 10.33° | 3.08 | 3.17 | 3.27 | 3.37 | 3.6 | | | ● | 10 | 2,780 |
| 3056207 | R0.5 × 3 × 6 | | | 12.3 | | 11.8° | | | | | | | | ● | 18 | 4,430 |
| 3056208 | R0.5 × 4 × 4 | | | 9.6 | | 9.23° | 4.12 | 4.24 | 4.38 | 4.52 | 4.84 | | | ● | 10 | 3,080 |
| 3056209 | R0.5 × 4 × 6 | | | 13.3 | | 10.91° | | | | | | | | ● | 18 | 4,870 |
| 3056210 | R0.5 × 5 × 4 | | | 10.6 | | 8.35° | 5.15 | 5.31 | 5.48 | 5.67 | 6.08 | | | ● | 10 | 3,080 |
| 3056211 | R0.5 × 5 × 6 | | | 14.3 | | 10.15° | | | | | | | | ● | 17 | 4,870 |
| 3056212 | R0.5 × 6 × 4 | | | 11.6 | | 7.62° | 6.18 | 6.38 | 6.59 | 6.82 | 7.33 | | | ● | 10 | 3,320 |
| 3056213 | R0.5 × 6 × 6 | | | 15.3 | | 9.49° | | | | | | | | ● | 17 | 5,110 |
| 3056214 | R0.5 × 7 × 4 | | | 12.6 | | 7° | 7.22 | 7.45 | 7.7 | 7.97 | 8.57 | | | ● | 10 | 3,320 |
| 3056215 | R0.5 × 7 × 6 | | | 16.3 | | 8.91° | | | | | | | | ● | 16 | 5,110 |
| 3056216 | R0.5 × 8 × 4 | | | 13.6 | | 6.48° | 8.25 | 8.52 | 8.81 | 9.12 | 9.81 | | | ● | 10 | 3,320 |
| 3056217 | R0.5 × 8 × 6 | | | 17.3 | | 8.39° | | | | | | | | ● | 16 | 5,110 |
| 3056218 | R0.5 × 9 × 4 | | | 14.6 | | 6.03° | 9.28 | 9.59 | 9.92 | 10.27 | 11.06 | | | ● | 10 | 3,320 |
| 3056219 | R0.5 × 10 × 4 | | | 15.6 | | 5.64° | 10.32 | 10.66 | 11.02 | 11.42 | 12.3 | | | ● | 10 | 3,320 |
| 3056220 | R0.5 × 10 × 6 | 50 | | 19.3 | | 7.52° | | | | | | | | ● | 18 | 5,110 |
| 3056221 | R0.5 × 12 × 4 | 45 | | 17.6 | | 4.99° | 12.38 | 12.8 | 13.24 | 13.72 | 14.79 | | | ● | 10 | 3,320 |
| 3056222 | R0.5 × 13 × 4 | 50 | | 18.6 | | 4.71° | 13.42 | 13.87 | 14.35 | 14.87 | 16.03 | | | ● | 10 | 3,900 |
| 3056223 | R0.5 × 14 × 4 | | | 19.6 | | 4.47° | 14.45 | 14.94 | 15.46 | 16.02 | 17.27 | | | ● | 10 | 3,900 |
| 3056224 | R0.5 × 16 × 4 | | | 21.6 | | 4.05° | 16.52 | 17.08 | 17.67 | 18.32 | 19.76 | | | ● | 12 | 4,610 |
| 3056225 | R0.5 × 18 × 4 | 55 | | 23.6 | | 3.7° | 18.59 | 19.22 | 19.89 | 20.62 | 22.24 | | | ● | 10 | 4,610 |
| 3056226 | R0.5 × 20 × 4 | | | 25.6 | | 3.41° | 20.65 | 21.36 | 22.11 | 22.92 | 24.73 | | | ● | 10 | 5,620 |
| 3056227 | R0.5 × 22 × 4 | 60 | | 27.6 | | 3.16° | 22.72 | 23.5 | 24.32 | 25.22 | 27.22 | | | ● | 10 | 5,620 |
| 3056228 | R0.5 × 22 × 6 | | | 31.3 | | 4.62° | | | | | | | | ● | 18 | 8,400 |
| 3056229 | R0.6 × 2 × 4 | 45 | 1 | 7.3 | 1.15 | 11.67° | 2.08 | 2.17 | 2.24 | 2.32 | 2.45 | | | ● | 10 | 4,170 |
| 3056230 | R0.6 × 2 × 6 | | | 11.1 | | 12.86° | | | | | | | | ● | 20 | 6,210 |
| 3056231 | R0.6 × 2.4 × 4 | | | 7.7 | | 11.04° | 2.51 | 2.61 | 2.7 | 2.78 | 2.95 | | | ● | 10 | 4,170 |
| 3056232 | R0.6 × 2.5 × 4 | | | 7.8 | | 10.9° | 2.61 | 2.71 | 2.81 | 2.89 | 3.07 | | | ● | 12 | 4,170 |
| 3056233 | R0.6 × 3 × 4 | | | 8.3 | | 10.22° | 3.14 | 3.26 | 3.37 | 3.47 | 3.69 | | | ● | 10 | 4,170 |
| 3056234 | R0.6 × 4 × 4 | | | 9.3 | | 9.08° | 4.19 | 4.34 | 4.47 | 4.62 | 4.94 | | | ● | 12 | 4,170 |
| 3056235 | R0.6 × 4 × 6 | | | 13.1 | | 10.87° | | | | | | | | ● | 18 | 6,210 |
| 3056236 | R0.6 × 6 × 4 | | | 11.3 | | 7.42° | 6.27 | 6.48 | 6.69 | 6.92 | 7.42 | | | ● | 13 | 4,540 |
| 3056237 | R0.6 × 8 × 4 | | | 13.3 | | 6.27° | 8.35 | 8.62 | 8.91 | 9.22 | 9.91 | | | ● | 10 | 4,540 |
| 3056238 | R0.6 × 10 × 4 | | | 15.3 | | 5.43° | 10.42 | 10.76 | 11.12 | 11.52 | 12.4 | | | ● | 10 | 4,540 |
| 3056239 | R0.6 × 12 × 4 | | | 17.3 | | 4.78° | 12.48 | 12.9 | 13.34 | 13.82 | 14.88 | | | ● | 18 | 4,540 |
| 3056240 | R0.6 × 14 × 4 | 50 | | 19.3 | | 4.28° | 14.55 | 15.04 | 15.56 | 16.12 | 17.37 | | | ● | 10 | 4,540 |

次ページへ
ボール半径 RE 0.6～1 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 高硬度鋼・高精度仕上げ用DUROREYコート 2枚刃超硬ロングネックボールエンドミル

**DUROREY Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for High-hardness Steels**

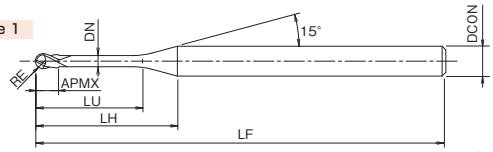
A The A Brand

## AE-LNBD-H

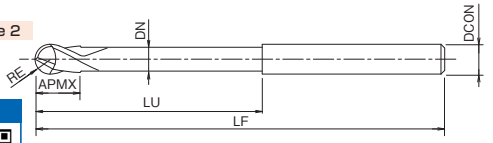
切削条件 Cutting Conditions | P533



Type 1




Type 2




CAD

CARBIDE | DURAREY | R ±0.003 (RE≦0.25) | R ±0.005 (0.25<RE) | SHANK h4 | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.4〜0.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE×LU×DCON | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3056241 | R0.6 × 16 × 4 | 50 | 1 | 21.3 | 1.15 | 3.87° | 16.62 | 17.18 | 17.77 | 18.42 | 19.85 | 1 | A | ● | 10 | 5,300 |
| 3056242 | R0.6 × 18 × 4 | 55 | | 23.3 | | 3.53° | 18.69 | 19.32 | 19.99 | 20.71 | 22.34 | | | ● | 18 | 5,860 |
| 3056243 | R0.6 × 20 × 4 | | | 25.3 | | 3.24° | 20.75 | 21.45 | 22.21 | 23.01 | 24.83 | | | ● | 12 | 6,530 |
| 3056244 | R0.75 × 2 × 4 | 45 | 1.2 | 6.8 | 1.45 | 11.61° | 2.08 | 2.15 | 2.22 | 2.29 | 2.41 | | | ● | 10 | 3,210 |
| 3056245 | R0.75 × 2.5 × 4 | | | 7.3 | | 10.76° | 2.6 | 2.7 | 2.79 | 2.87 | 3.03 | | | ● | 10 | 3,210 |
| 3056246 | R0.75 × 3 × 4 | | | 7.8 | | 10.03° | 3.13 | 3.25 | 3.35 | 3.44 | 3.65 | | | ● | 10 | 3,210 |
| 3056247 | R0.75 × 3 × 6 | | | 11.5 | | 11.75° | | | | | | | | ● | 20 | 5,220 |
| 3056248 | R0.75 × 4 × 4 | | | 8.8 | | 8.81° | 4.18 | 4.33 | 4.46 | 4.59 | 4.9 | | | ● | 10 | 3,210 |
| 3056249 | R0.75 × 5 × 4 | | | 9.8 | | 7.86° | 5.22 | 5.4 | 5.56 | 5.74 | 6.14 | | | ● | 10 | 3,210 |
| 3056250 | R0.75 × 5 × 6 | | | 13.5 | | 9.97° | | | | | | | | ● | 18 | 5,220 |
| 3056251 | R0.75 × 6 × 4 | | | 10.8 | | 7.09° | 6.27 | 6.47 | 6.67 | 6.89 | 7.38 | | | ● | 10 | 3,210 |
| 3056252 | R0.75 × 6 × 6 | | | 14.5 | | 9.26° | | | | | | | | ● | 18 | 5,220 |
| 3056253 | R0.75 × 8 × 4 | | | 12.8 | | 5.93° | 8.34 | 8.61 | 8.89 | 9.19 | 9.87 | | | ● | 10 | 3,320 |
| 3056254 | R0.75 × 8 × 6 | | | 16.5 | | 8.11° | | | | | | | | ● | 16 | 5,220 |
| 3056255 | R0.75 × 10 × 4 | | | 14.8 | | 5.09° | 10.41 | 10.75 | 11.11 | 11.49 | 12.36 | | | ● | 13 | 3,610 |
| 3056256 | R0.75 × 12 × 4 | | | 16.8 | | 4.46° | 12.48 | 12.89 | 13.32 | 13.79 | 14.84 | | | ● | 10 | 3,900 |
| 3056257 | R0.75 × 14 × 4 | 50 | | 18.8 | | 3.97° | 14.55 | 15.03 | 15.54 | 16.09 | 17.33 | | | ● | 13 | 3,900 |
| 3056258 | R0.75 × 16 × 4 | | | 20.8 | | 3.58° | 16.61 | 17.17 | 17.76 | 18.39 | 19.82 | | | ● | 13 | 3,900 |
| 3056259 | R0.75 × 18 × 4 | 55 | | 22.8 | | 3.25° | 18.68 | 19.3 | 19.97 | 20.69 | 22.3 | | | ● | 10 | 3,900 |
| 3056260 | R0.75 × 20 × 4 | | | 24.8 | | 2.98° | 20.75 | 21.44 | 22.19 | 22.99 | | | | ● | 10 | 3,900 |
| 3056261 | R0.75 × 22 × 4 | 60 | | 26.8 | | 2.75° | 22.82 | 23.58 | 24.41 | 25.29 | — | | | ● | 14 | 3,900 |
| 3056262 | R0.75 × 25 × 4 | 65 | | 29.8 | | 2.47° | 25.92 | 26.79 | 27.73 | 28.74 | | | | ● | 15 | 3,900 |
| 3056263 | R0.75 × 30 × 4 | 70 | | 34.8 | | 2.11° | 31.08 | 32.14 | 33.27 | 34.49 | | | | ● | 11 | 3,900 |
| 3056264 | R0.8 × 4 × 4 | 45 | 1.3 | 8.6 | 1.55 | 8.72° | 4.18 | 4.32 | 4.45 | 4.59 | 4.88 | | | ● | 14 | 4,540 |
| 3056265 | R0.8 × 8 × 4 | | | 12.6 | | 5.81° | 8.34 | 8.6 | 8.88 | 9.18 | 9.86 | | | ● | 13 | 4,540 |
| 3056266 | R0.8 × 12 × 4 | | | 16.6 | | 4.35° | 12.48 | 12.88 | 13.32 | 13.78 | 14.83 | | | ● | 10 | 4,540 |
| 3056267 | R0.8 × 16 × 4 | 50 | | 20.6 | | 3.47° | 16.61 | 17.16 | 17.75 | 18.38 | 19.8 | | | ● | 13 | 4,540 |
| 3056268 | R0.8 × 20 × 4 | 55 | | 24.6 | | 2.89° | 20.75 | 21.44 | 22.18 | 22.98 | — | | | ● | 13 | 4,540 |
| 3056269 | R1 × 2.5 × 4 | 45 | 1.6 | 6.7 | 1.95 | 10.46° | 2.61 | 2.74 | 2.87 | 3 | 3.28 | | | ● | 10 | 2,780 |
| 3056270 | R1 × 3 × 4 | | | 7.2 | | 9.61° | 3.15 | 3.31 | 3.47 | 3.63 | 3.95 | | | ● | 10 | 2,780 |
| 3056271 | R1 × 3 × 6 | | | 10.9 | | 11.7° | | | | | | | | ● | 19 | 4,200 |
| 3056272 | R1 × 4 × 4 | | | 8.2 | | 8.25° | 4.22 | 4.44 | 4.65 | 4.85 | 5.25 | | | ● | 14 | 2,780 |
| 3056273 | R1 × 4 × 6 | | | 11.9 | | 10.64° | | | | | | | | ● | 20 | 4,200 |
| 3056274 | R1 × 5 × 4 | | | 9.2 | | 7.23° | 5.29 | 5.56 | 5.81 | 6.05 | 6.48 | | | ● | 10 | 3,110 |
| 3056275 | R1 × 6 × 4 | | | 10.2 | | 6.43° | 6.35 | 6.67 | 6.96 | 7.23 | 7.73 | | | ● | 20 | 3,110 |
| 3056276 | R1 × 6 × 6 | | | 13.9 | | 9° | | | | | | | | ● | 18 | 4,790 |
| 3056277 | R1 × 8 × 4 | | | 12.2 | | 5.26° | 8.47 | 8.87 | 9.22 | 9.53 | 10.21 | | | ● | 10 | 3,320 |
| 3056278 | R1 × 8 × 6 | | | 15.9 | | 7.79° | | | | | | | | ● | 17 | 5,110 |
| 3056279 | R1 × 10 × 4 | | | 14.2 | | 4.45° | 10.58 | 11.04 | 11.45 | 11.83 | 12.7 | | | ● | 13 | 3,320 |
| 3056280 | R1 × 10 × 6 | 50 | | 17.9 | | 6.87° | | | | | | | | ● | 18 | 5,110 |
| 3056281 | R1 × 12 × 4 | 45 | | 16.2 | | 3.86° | 12.68 | 13.21 | 13.66 | 14.13 | 15.19 | | | ● | 10 | 3,320 |
| 3056282 | R1 × 12 × 6 | 50 | | 19.9 | | 6.14° | | | | | | | | ● | 18 | 5,110 |

次ページへ ボール半径 RE 1〜2 NEXT

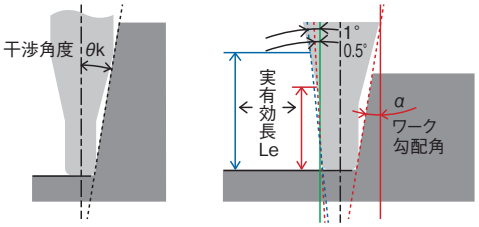
| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～70HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-LNBD-H | ○ | | ○ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより
FROM ボール半径 RE 0.6～1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径X首下長Xシャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3056283 | R1 × 13 × 4 | 50 | 1.6 | 17.2 | 1.95 | 3.61° | 13.73 | 14.28 | 14.77 | 15.28 | 16.43 | 1 | A | ● | 10 | 3,320 |
| 3056284 | R1 × 14 × 4 | | | 18.2 | | 3.4° | 14.78 | 15.36 | 15.88 | 16.43 | 17.67 | | | ● | 10 | 3,320 |
| 3056285 | R1 × 16 × 4 | | | 20.2 | | 3.04° | 16.87 | 17.5 | 18.09 | 18.73 | 20.16 | | | ● | 12 | 3,320 |
| 3056286 | R1 × 16 × 6 | 55 | | 23.9 | | 5.06° | | | | | | | | ● | 18 | 5,110 |
| 3056287 | R1 × 18 × 4 | | | 22.2 | | 2.75° | 18.96 | 19.64 | 20.31 | 21.03 | – | | | ● | 14 | 3,320 |
| 3056288 | R1 × 20 × 4 | | | 24.2 | | 2.51° | 21.04 | 21.78 | 22.53 | 23.33 | | | | ● | 10 | 3,320 |
| 3056289 | R1 × 20 × 6 | 60 | | 27.9 | | 4.31° | | | | | 25.13 | | | ● | 19 | 5,110 |
| 3056290 | R1 × 22 × 4 | | | 26.2 | | 2.31° | 23.12 | 23.92 | 24.74 | 25.63 | – | | | ● | 11 | 4,610 |
| 3056291 | R1 × 25 × 4 | 65 | | 29.2 | | 2.06° | 26.24 | 27.13 | 28.07 | 29.08 | | | | ● | 12 | 4,660 |
| 3056292 | R1 × 25 × 6 | | | 32.9 | | 3.63° | | | | | 31.35 | | | ● | 20 | 4,790 |
| 3056293 | R1 × 30 × 4 | 70 | | 34.2 | | 1.75° | 31.42 | 32.47 | 33.61 | – | – | | | ● | 12 | 5,300 |
| 3056294 | R1 × 35 × 4 | | | 39.2 | | 1.52° | 36.58 | 37.82 | 39.15 | | | | | ● | 15 | 7,320 |
| 3056295 | R1 × 40 × 4 | 80 | | 44.2 | | 1.34° | 41.75 | 43.17 | – | | | | | ● | 12 | 7,320 |
| 3056296 | R1.25 × 6 × 4 | 45 | 2 | 9 | 2.35 | 5.44° | 6.26 | 6.51 | 6.75 | 6.98 | 7.42 | | | ● | 14 | 4,110 |
| 3056297 | R1.25 × 8 × 4 | | | 11 | | 4.35° | 8.36 | 8.69 | 8.99 | 9.27 | 9.91 | | | ● | 10 | 3,640 |
| 3056298 | R1.25 × 10 × 4 | | | 13 | | 3.62° | 10.45 | 10.85 | 11.2 | 11.57 | 12.4 | | | ● | 10 | 4,340 |
| 3056299 | R1.25 × 15 × 4 | 50 | | 18 | | 2.55° | 15.67 | 16.21 | 16.74 | 17.32 | | | | ● | 14 | 4,540 |
| 3056300 | R1.25 × 20 × 4 | 55 | | 23 | | 1.97° | 20.86 | 21.55 | 22.29 | | | | | ● | 10 | 5,270 |
| 3056301 | R1.25 × 25 × 4 | 65 | | 28 | | 1.61° | 26.04 | 26.9 | 27.83 | – | – | | | ● | 12 | 5,680 |
| 3056302 | R1.25 × 30 × 4 | 70 | | 33 | | 1.35° | 31.21 | 32.25 | – | | | | | ● | 12 | 6,500 |
| 3056303 | R1.25 × 35 × 4 | | | 38 | | 1.17° | 36.38 | 37.6 | | | | | | ● | 12 | 7,970 |
| 3056304 | R1.5 × 6 × 6 | 50 | 2.4 | 11.8 | 2.85 | 8.15° | 6.25 | 6.49 | 6.72 | 6.94 | 7.36 | | | ● | 20 | 3,400 |
| 3056305 | R1.5 × 8 × 6 | | | 13.8 | | 6.87° | 8.35 | 8.66 | 8.96 | 9.23 | 9.84 | | | ● | 20 | 3,400 |
| 3056306 | R1.5 × 10 × 6 | | | 15.8 | | 5.93° | 10.44 | 10.83 | 11.17 | 11.53 | 12.33 | | | ● | 23 | 3,860 |
| 3056307 | R1.5 × 12 × 6 | 55 | | 17.8 | | 5.22° | 12.53 | 12.98 | 13.39 | 13.83 | 14.82 | | | ● | 24 | 3,860 |
| 3056308 | R1.5 × 13 × 6 | | | 18.8 | | 4.92° | 13.57 | 14.05 | 14.5 | 14.98 | 16.06 | | | ● | 20 | 4,540 |
| 3056309 | R1.5 × 14 × 6 | | | 19.8 | | 4.66° | 14.62 | 15.12 | 15.61 | 16.13 | 17.3 | | | ● | 20 | 4,540 |
| 3056310 | R1.5 × 15 × 6 | | | 20.8 | | 4.42° | 15.66 | 16.19 | 16.72 | 17.28 | 18.55 | | | ● | 20 | 4,540 |
| 3056311 | R1.5 × 16 × 6 | | | 21.8 | | 4.2° | 16.7 | 17.26 | 17.82 | 18.43 | 19.79 | | | ● | 19 | 4,540 |
| 3056312 | R1.5 × 20 × 6 | 60 | | 25.8 | | 3.52° | 20.85 | 21.54 | 22.26 | 23.03 | 24.76 | | | ● | 22 | 4,390 |
| 3056313 | R1.5 × 25 × 6 | 65 | | 30.8 | | 2.92° | 26.03 | 26.89 | 27.8 | 28.78 | | | | ● | 21 | 4,390 |
| 3056314 | R1.5 × 30 × 6 | 70 | | 35.8 | | 2.5° | 31.2 | 32.23 | 33.34 | 34.53 | – | | | ● | 22 | 4,950 |
| 3056315 | R1.5 × 35 × 6 | 80 | | 40.8 | | 2.18° | 36.37 | 37.58 | 38.88 | 40.28 | | | | ● | 23 | 6,310 |
| 3056316 | R1.5 × 40 × 6 | 90 | | 45.8 | | 1.94° | 41.54 | 42.93 | 44.42 | – | | | | ● | 29 | 7,860 |
| 3056317 | R1.75 × 10 × 6 | 50 | 2.8 | 14.9 | 3.35 | 5.38° | 10.43 | 10.81 | 11.15 | 11.49 | 12.26 | | | ● | 20 | 5,750 |
| 3056318 | R1.75 × 15 × 6 | 55 | | 19.9 | | 3.92° | 15.65 | 16.17 | 16.69 | 17.24 | 18.48 | | | ● | 22 | 5,750 |
| 3056319 | R1.75 × 16 × 6 | | | 20.9 | | 3.72° | 16.69 | 17.24 | 17.8 | 18.39 | 19.72 | | | ● | 24 | 5,750 |
| 3056320 | R1.75 × 20 × 6 | 60 | | 24.9 | | 3.08° | 20.84 | 21.52 | 22.23 | 22.99 | 24.7 | | | ● | 25 | 5,750 |
| 3056321 | R1.75 × 25 × 6 | 65 | | 29.9 | | 2.54° | 26.02 | 26.87 | 27.77 | 28.74 | | | | ● | 27 | 6,000 |
| 3056322 | R1.75 × 30 × 6 | 70 | | 34.9 | | 2.16° | 31.19 | 32.22 | 33.31 | 34.49 | | | | ● | 23 | 6,000 |
| 3056323 | R1.75 × 35 × 6 | 80 | | 39.9 | | 1.88° | 36.36 | 37.56 | 38.85 | – | – | | | ● | 28 | 7,750 |
| 3056324 | R1.75 × 40 × 6 | 90 | | 44.9 | | 1.66° | 41.53 | 42.91 | 44.4 | | | | | ● | 30 | 7,750 |
| 3056325 | R1.75 × 45 × 6 | | | 49.9 | | 1.49° | 46.7 | 48.26 | – | | | | | ● | 30 | 9,300 |
| 3056326 | R2 × 8 × 4 | 55 | 3.2 | – | 3.85 | – | – | – | – | – | – | 2 | A | ● | 24 | 3,320 |
| 3056327 | R2 × 8 × 6 | | | 12 | | 5.65° | 8.32 | 8.62 | 8.9 | 9.15 | 9.71 | 1 | | ● | 24 | 3,500 |
| 3056328 | R2 × 10 × 6 | 60 | | 14 | | 4.73° | 10.42 | 10.79 | 11.12 | 11.45 | 12.2 | | | ● | 26 | 3,500 |
| 3056329 | R2 × 12 × 6 | | | 16 | | 4.07° | 12.51 | 12.94 | 13.33 | 13.75 | 14.69 | | | ● | 24 | 4,550 |
| 3056330 | R2 × 13 × 6 | | | 17 | | 3.8° | 13.55 | 14.02 | 14.44 | 14.9 | 15.93 | | | ● | 24 | 4,550 |
| 3056331 | R2 × 14 × 6 | | | 18 | | 3.56° | 14.59 | 15.09 | 15.55 | 16.05 | 17.17 | | | ● | 24 | 4,550 |
| 3056332 | R2 × 15 × 6 | | | 19 | | 3.36° | 15.64 | 16.15 | 16.66 | 17.2 | 18.41 | | | ● | 24 | 4,550 |

次ページへ
ボール半径 RE 2～3 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 高硬度鋼・高精度仕上げ用DUROREYコート 2枚刃超硬ロングネックボールエンドミル

**DUROREY Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for High-hardness Steels**

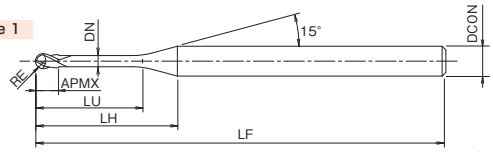
A The A Brand

## AE-LNBD-H

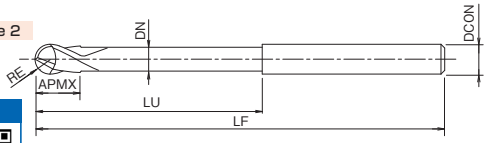
切削条件 Cutting Conditions | P533



Type 1




Type 2




CAD

CARBIDE | DURODREY | R ± 0.003 (RE≦0.25) | R ± 0.005 (0.25<RE) | SHANK h4 | SHRINK FIT | 30°

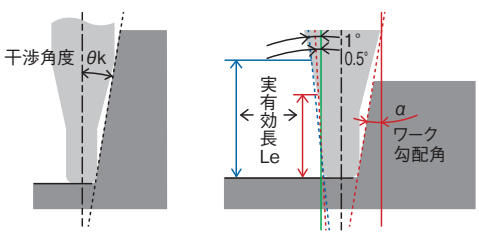
前ページより FROM ボール半径 RE 1～2

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径R×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3056333 | R2 × 16 × 6 | 60 | 3.2 | 20 | 3.85 | 3.17° | 16.68 | 17.22 | 17.77 | 18.35 | 19.66 | 1 | A | ● | 23 | 4,550 |
| 3056334 | R2 × 20 × 6 | 65 | | 24 | | 2.6° | 20.83 | 21.5 | 22.2 | 22.95 | – | | | ● | 25 | 4,550 |
| 3056335 | R2 × 25 × 6 | 70 | | 29 | | 2.12° | 26.01 | 26.85 | 27.74 | 28.7 | | | | ● | 26 | 4,550 |
| 3056336 | R2 × 30 × 6 | 80 | | 34 | | 1.79° | 31.18 | 32.2 | 33.28 | – | | | | ● | 28 | 4,550 |
| 3056337 | R2 × 35 × 6 | | | 39 | | 1.55° | 36.35 | 37.55 | 38.83 | | | | | ● | 28 | 5,240 |
| 3056338 | R2 × 40 × 6 | 90 | | 44 | | 1.37° | 41.52 | 42.89 | – | – | | | | ● | 32 | 5,890 |
| 3056339 | R2 × 45 × 6 | | | 49 | | 1.22° | 46.69 | 48.24 | | | | | | ● | 31 | 7,570 |
| 3056340 | R2 × 50 × 6 | 100 | | 54 | | 1.11° | 51.86 | 53.59 | | | | | | ● | 34 | 8,190 |
| 3056341 | R2.5 × 10 × 6 | 60 | 4 | 12.1 | 4.85 | 2.95° | 10.39 | 10.75 | 11.07 | 11.37 | | | | ● | 26 | 5,300 |
| 3056342 | R2.5 × 15 × 6 | | | 17.1 | | 1.95° | 15.62 | 16.12 | 16.6 | | | | | ● | 25 | 7,410 |
| 3056343 | R2.5 × 20 × 6 | 70 | | 22.1 | | 1.46° | 20.81 | 21.47 | | | | | | ● | 29 | 7,550 |
| 3056344 | R2.5 × 25 × 6 | | | 27.1 | | 1.17° | 26 | 26.81 | | | | | | ● | 28 | 7,550 |
| 3056345 | R2.5 × 30 × 6 | 80 | | 32.1 | | 0.97° | 31.17 | | | | | | | ● | 31 | 8,130 |
| 3056346 | R2.5 × 35 × 6 | | | 37.1 | | 0.83° | 36.34 | | – | – | – | | | ● | 30 | 9,070 |
| 3056347 | R2.5 × 40 × 6 | 90 | | 42.1 | | 0.73° | 41.5 | – | | | | | | ● | 36 | 9,740 |
| 3056348 | R2.5 × 45 × 6 | 100 | | 47.1 | | 0.65° | 46.67 | | | | | | | ● | 40 | 10,200 |
| 3056349 | R2.5 × 50 × 6 | | | 52.1 | | 0.58° | 51.84 | | | | | | | ● | 40 | 10,700 |
| 3056350 | R3 × 10 × 6 | 60 | 4.8 | – | 5.85 | – | – | – | – | – | – | 2 | | ● | 26 | 5,680 |
| 3056351 | R3 × 12 × 6 | | | – | | | | | | | | | | ● | 26 | 5,680 |
| 3056352 | R3 × 15 × 6 | 65 | | – | | | | | | | | | | ● | 29 | 5,680 |
| 3056353 | R3 × 20 × 6 | 70 | | – | | | | | | | | | | ● | 35 | 5,680 |
| 3056354 | R3 × 25 × 6 | | | – | | | | | | | | | | ● | 35 | 5,680 |
| 3056355 | R3 × 30 × 6 | 80 | | – | | | | | | | | | | ● | 34 | 5,830 |
| 3056356 | R3 × 35 × 6 | | | – | | | | | | | | | | ● | 34 | 5,830 |
| 3056357 | R3 × 40 × 6 | 90 | | – | | | | | | | | | | ● | 41 | 6,450 |
| 3056358 | R3 × 45 × 6 | 100 | | – | | | | | | | | | | ● | 46 | 6,640 |
| 3056359 | R3 × 50 × 6 | 120 | | – | | | | | | | | | | ● | 58 | 6,870 |
| 3056360 | R3 × 60 × 6 | | | – | | | | | | | | | | ● | 52 | 7,410 |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～70HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-LNBD-H | ○ | | ○ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXSコート3枚刃超硬ロングネックボールエンドミル
**WXS Coated 3-flute Long Neck Carbide Ball End Mill**

## PHX-LN-DBT

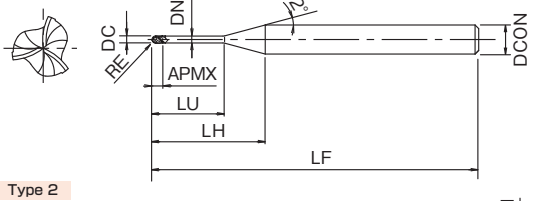
切削条件 Cutting Conditions | P581



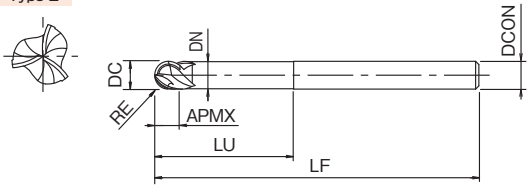
CARBIDE | WXS | R ± 0.007 | SHRINK FIT | 45°

CAD

Type 1



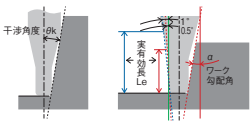

Type 2




（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3194901 | R0.3 × 1 | 9.1 | 50 | 0.45 | 4 | 0.55 | 10.89° | 1.15 | 1.19 | 1.23 | 1.27 | 1.38 | 3 | 1 | B | 13 | 4,760 |
| 3194902 | R0.3 × 2 | 10.1 | | | | | 9.81° | 2.19 | 2.28 | 2.37 | 2.47 | 2.71 | | | | 13 | 4,760 |
| 3194903 | R0.3 × 3 | 11.1 | | | | | 8.92° | 3.23 | 3.36 | 3.51 | 3.67 | 4.04 | | | | 13 | 4,760 |
| 3194904 | R0.3 × 4 | 12.1 | | | | | 8.18° | 4.28 | 4.45 | 4.65 | 4.86 | 5.36 | | | | 13 | 4,980 |
| 3194906 | R0.3 × 6 | 14.1 | | | | | 7.01° | 6.36 | 6.63 | 6.93 | 7.26 | 8.02 | | | | 13 | 4,980 |
| 3195004 | R0.5 × 4 | 11.2 | | 0.75 | | 0.95 | 7.98° | 4.27 | 4.44 | 4.62 | 4.83 | 5.3 | | | | 13 | 4,540 |
| 3195006 | R0.5 × 6 | 13.2 | | | | | 6.74° | 6.35 | 6.62 | 6.9 | 7.22 | 7.96 | | | | 13 | 4,840 |
| 3195008 | R0.5 × 8 | 15.2 | | | | | 5.83° | 8.44 | 8.79 | 9.18 | 9.61 | 10.61 | | | | 13 | 4,840 |
| 3195010 | R0.5 ×10 | 17.2 | | | | | 5.14° | 10.52 | 10.97 | 11.46 | 12.01 | 13.26 | | | | 13 | 4,840 |
| 3195012 | R0.5 ×12 | 19.2 | | | | | 4.59° | 12.61 | 13.15 | 13.75 | 14.4 | 15.92 | | | | 13 | 4,840 |
| 3195014 | R0.5 ×14 | 21.2 | | | | | 4.15° | 14.7 | 15.33 | 16.03 | 16.79 | 18.57 | | | | 13 | 5,720 |
| 3195016 | R0.5 ×16 | 23.2 | | | | | 3.79° | 16.78 | 17.51 | 18.31 | 19.18 | 21.23 | | | | 13 | 6,690 |
| 3195106 | R0.75 × 6 | 12 | | 1.13 | | 1.45 | 6.32° | 6.34 | 6.59 | 6.87 | 7.17 | 7.88 | | | | 13 | 4,610 |
| 3195108 | R0.75 × 8 | 14 | | | | | 5.38° | 8.43 | 8.77 | 9.15 | 9.56 | 10.53 | | | | 13 | 4,840 |
| 3195110 | R0.75 ×10 | 16 | | | | | 4.68° | 10.51 | 10.95 | 11.43 | 11.96 | 13.18 | | | | 13 | 5,270 |
| 3195112 | R0.75 ×12 | 18 | | | | | 4.14° | 12.6 | 13.13 | 13.71 | 14.35 | 15.84 | | | | 13 | 5,720 |
| 3195116 | R0.75 ×16 | 22 | | | | | 3.37° | 16.77 | 17.49 | 18.27 | 19.14 | 21.15 | | | | 13 | 5,720 |
| 3195206 | R1 × 6 | 11 | | 1.5 | | 1.95 | 5.79° | 6.33 | 6.57 | 6.83 | 7.12 | 7.8 | | | | 13 | 4,540 |
| 3195208 | R1 × 8 | 13 | | | | | 4.82° | 8.42 | 8.75 | 9.11 | 9.52 | 10.45 | | | | 13 | 4,840 |
| 3195210 | R1 ×10 | 15 | | | | | 4.13° | 10.5 | 10.93 | 11.4 | 11.91 | 13.1 | | | | 13 | 4,840 |
| 3195212 | R1 ×12 | 17 | | | | | 3.61° | 12.59 | 13.11 | 13.68 | 14.3 | 15.76 | | | | 13 | 4,840 |
| 3195214 | R1 ×14 | 19 | | | | | 3.21° | 14.67 | 15.29 | 15.96 | 16.69 | 18.41 | | | | 13 | 4,840 |
| 3195216 | R1 ×16 | 21 | | | | | 2.89° | 16.76 | 17.47 | 18.24 | 19.09 | – | | | | 13 | 4,840 |
| 3195218 | R1 ×18 | 23 | 60 | 2.25 | | 2.85 | 2.63° | 18.85 | 19.64 | 20.52 | 21.48 | – | | | | 13 | 4,840 |
| 3195220 | R1 ×20 | 25 | | | | | 2.41° | 20.93 | 21.82 | 22.8 | 23.87 | – | | | | 13 | 4,840 |
| 3195222 | R1 ×22 | 27 | | | | | 2.22° | 23.02 | 24 | 25.08 | 26.27 | – | | | | 13 | 6,690 |
| 3195312 | R1.5 ×12 | 14.5 | | | | | 2.17° | 12.81 | 13.32 | 13.88 | 14.49 | – | | | | 13 | 5,610 |
| 3195316 | R1.5 ×16 | 18.5 | | | | | 1.67° | 16.98 | 17.68 | 18.44 | – | – | | | | 13 | 6,590 |
| 3195320 | R1.5 ×20 | 22.5 | | | | | 1.35° | 21.16 | 22.04 | – | – | – | | | | 13 | 6,360 |
| 3195325 | R1.5 ×25 | 27.5 | | | | | 1.1° | 26.37 | 27.48 | – | – | – | | | | 13 | 6,360 |
| 3195416 | R2 ×16 | – | | 3 | | 3.85 | – | – | – | – | – | – | | 2 | | 13 | 6,590 |
| 3195420 | R2 ×20 | – | | | | | – | – | – | – | – | – | | | | 13 | 6,590 |
| 3195425 | R2 ×25 | – | | | | | – | – | – | – | – | – | | | | 13 | 6,590 |
| 3195520 | R3 ×20 | – | 70 | 4.5 | 6 | 5.85 | – | – | – | – | – | – | | | | 29 | 8,230 |
| 3195530 | R3 ×30 | – | | | | | – | – | – | – | – | – | | | | 29 | 8,450 |

### ■ワーク勾配角αに対する実有効長（Le）
Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～45HRC | ～55HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHX-LN-DBT | ◎ | ◎ | ◎ | ○ | | ○ | ○ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## グラファイト用DGコート2枚刃超硬ロングネックボールエンドミル
**DG Coated 2-flute Long Neck Carbide Ball End Mill for Graphite**

# DG-LN-EBD

切削条件 Cutting Conditions | P697



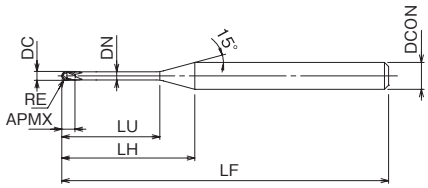
グラファイト専用のダイヤモンドコーティングを施したエンドミルです。
Diamond Coated end mills for graphite.

CARBIDE | DG | R ±0.008 (RE<0.5) | R ±0.01 (0.5≦RE) | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | ボール半径 RE | 首下長 LU | 刃長 APMX | 首径 DN | LH | シャンク径 DCON | 全長 LF | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8553701 | R0.2 × 4 | 0.2 | 4 | 0.6 | 0.36 | 11.17 | 4 | 50 | B ● | 13 | 25,600 |
| 8553702 | R0.2 × 8 | | 8 | | | 15.17 | | | B ● | 13 | 25,600 |
| 8553703 | R0.2 × 12 | | 12 | | | 19.17 | | | B ● | 13 | 25,600 |
| 8553711 | R0.3 × 6 | 0.3 | 6 | 0.9 | 0.56 | 12.8 | | | B ● | 13 | 25,600 |
| 8553712 | R0.3 × 10 | | 10 | | | 16.8 | | | B ● | 13 | 25,600 |
| 8553713 | R0.3 × 16 | | 16 | | | 22.8 | | 60 | B ● | 13 | 25,700 |
| 8553714 | R0.3 × 20 | | 20 | | | 26.8 | | | B ● | 13 | 25,700 |
| 8553721 | R0.5 × 4 | 0.5 | 4 | 1.5 | 0.96 | 10.05 | | 50 | B ● | 14 | 25,600 |
| 8553722 | R0.5 × 6 | | 6 | | | 12.05 | | | B ● | 14 | 25,600 |
| 8553723 | R0.5 × 10 | | 10 | | | 16.05 | | | B ● | 14 | 25,600 |
| 8553724 | R0.5 × 16 | | 16 | | | 22.05 | | 60 | B ● | 14 | 25,700 |
| 8553725 | R0.5 × 20 | | 20 | | | 26.05 | | | B ● | 14 | 25,700 |
| 8553726 | R0.5 × 30 | | 30 | | | 36.05 | | 80 | B ● | 17 | 26,500 |
| 8553727 | R0.5 × 40 | | 40 | | | 46.05 | | | B ● | 17 | 26,500 |
| 8553731 | R0.75 × 6 | 0.75 | 6 | 2.3 | 1.44 | 11.07 | | 50 | B ● | 14 | 25,600 |
| 8553732 | R0.75 × 10 | | 10 | | | 15.07 | | | B ● | 14 | 25,600 |
| 8553733 | R0.75 × 16 | | 16 | | | 21.07 | | 60 | B ● | 14 | 25,700 |
| 8553734 | R0.75 × 20 | | 20 | | | 25.07 | | | B ● | 14 | 25,700 |
| 8553735 | R0.75 × 30 | | 30 | | | 35.07 | | 80 | B ● | 17 | 26,500 |
| 8553736 | R0.75 × 40 | | 40 | | | 45.07 | | | B ● | 17 | 26,500 |
| 8553741 | R1 × 6 | 1 | 6 | 3 | 1.9 | 10.35 | | 50 | B ● | 14 | 25,600 |
| 8553742 | R1 × 10 | | 10 | | | 14.35 | | | B ● | 14 | 25,600 |
| 8553743 | R1 × 16 | | 16 | | | 20.35 | | 60 | B ● | 14 | 25,700 |
| 8553744 | R1 × 20 | | 20 | | | 24.35 | | | B ● | 14 | 25,700 |
| 8553745 | R1 × 30 | | 30 | | | 34.35 | | 80 | B ● | 17 | 26,500 |
| 8553746 | R1 × 40 | | 40 | | | 44.35 | | | B ● | 17 | 26,500 |
| 8553747 | R1 × 60 | | 60 | | | 64.35 | | 100 | B ● | 17 | 27,000 |
| 8553761 | R1.5 × 20 | 1.5 | 20 | 4.5 | 2.9 | 22.48 | | 60 | B ● | 14 | 25,700 |
| 8553762 | R1.5 × 40 | | 40 | | | 42.48 | | 80 | B ● | 14 | 26,500 |
| 8553763 | R1.5 × 60 | | 60 | | | 62.48 | | 100 | B ● | 19 | 27,000 |
| 8553781 | R2 × 20 | 2 | 20 | 6 | 3.9 | — | | 60 | B ● | 14 | 25,700 |
| 8553782 | R2 × 40 | | 40 | | | — | | 80 | B ● | 17 | 26,500 |
| 8553783 | R2 × 60 | | 60 | | | — | | 100 | B ● | 23 | 27,000 |




## DIAコート2枚刃超硬ロングネックボールエンドミル
**Diamond Coated 2-flute Long Neck Carbide Ball End Mill**

# DIA-LN-EBD

切削条件 Cutting Conditions | P693



超微結晶ダイアモンドコーティングを施したロングネック形状のボールエンドミルです。グラファイト加工では抜群の耐久を示します。銅、アルミ合金にも有効です。
Long neck ball nose end mill with the Ultra fine Diamond coating. Works superb on Copper and Aluminum Alloys.

CARBIDE | DIA | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8505211 | R0.5 × 5 | 60 | 1.5 | 6 | 0.95 | B ● | 27 | 37,500 |
| 8505212 | R0.5 × 10 | | | | | B ● | 25 | 37,500 |
| | R0.6 × 6 | | 1.8 | | 1.15 | — □ | — | — |
| | R0.6 × 12 | | | | 1.17 | — □ | — | — |
| | R0.7 × 7 | | 2.1 | | 1.35 | — □ | — | — |
| | R0.7 × 14 | | | | | — □ | — | — |
| | R0.75 × 7.5 | | 2.3 | | 1.45 | — □ | — | — |
| | R0.75 × 15 | | | | | — □ | — | — |
| | R0.8 × 8 | | 2.4 | | 1.55 | — □ | — | — |
| | R0.8 × 16 | | | | | — □ | — | — |
| | R0.9 × 9 | | 2.7 | | 1.75 | — □ | — | — |
| | R0.9 × 18 | | | | | — □ | — | — |
| 8505222 | R1 × 10 | | 3 | | 1.95 | B ● | 26 | 37,500 |
| 8505224 | R1 × 20 | | | | | B ● | 23 | 37,500 |
| | R1.25 × 12.5 | 70 | 3.7 | | 2.4 | — □ | — | — |
| | R1.25 × 25 | | | | | — □ | — | — |
| 8505233 | R1.5 × 15 | | 4.5 | | 2.85 | B ● | 26 | 37,500 |
| 8505236 | R1.5 × 30 | | | | | B ● | 21 | 37,500 |
| | R1.75 × 17.5 | | 5.3 | | 3.35 | — □ | — | — |
| | R1.75 × 35 | | | | | — □ | — | — |
| 8505244 | R2 × 20 | 80 | 6 | | 3.85 | B ● | 30 | 37,500 |
| 8505247 | R2 × 40 | | | | | B ● | 25 | 37,500 |
| | R2.25 × 22.5 | | 6.8 | | 4.35 | — □ | — | — |
| | R2.25 × 45 | 90 | | | | — □ | — | — |
| 8505255 | R2.5 × 25 | | 7.5 | | 4.85 | B ● | 39 | 38,500 |
| 8505258 | R2.5 × 50 | 100 | | | | B ● | 39 | 39,300 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DG-LN-EBD | | | | | | | | | | ○ | ◎ | | | ◎ |
| DIA-LN-EBD | | | | | | | | | ○ | ◎ | ◎ | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## グラファイト用DGコート4枚刃超硬ロングネックボールエンドミル
**DG Coated 4-flute Long Neck Carbide Ball End Mill for Graphite**

# DG-LN-EBM

切削条件 Cutting Conditions | P696



グラファイト専用のダイヤモンドコーティングを施したエンドミルです。
Diamond Coated end mills for graphite.

CARBIDE | DG | R ± 0.015 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 首下長 LU | 刃長 APMX | 首径 DN | LH | シャンク径 DCON | 全長 LF | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8554821 | R1 × 10 | 10 | 3 | 1.9 | 14.35 | 4 | 60 | B | ● | 14 | 25,600 |
| 8554822 | R1 × 16 | 16 | | | 20.35 | | | | ● | 15 | 25,600 |
| 8554823 | R1 × 20 | 20 | | | 24.35 | | | | ● | 15 | 25,600 |
| 8554831 | R1.5 × 10 | 10 | 4.5 | 2.9 | 12.48 | | | | ● | 14 | 25,600 |
| 8554832 | R1.5 × 20 | 20 | | | 22.48 | | | | ● | 15 | 25,600 |

## DLCコート2枚刃超硬ロングネックボールエンドミル
**DLC Coated 2-flute Long Neck Carbide Ball End Mill**

# DLC-LN-EBD

切削条件 Cutting Conditions | P689



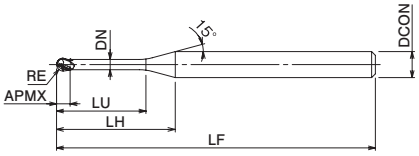
独自の超平滑DLCコーティングが溶着を防止します。アルミ合金などの形状加工での高速化を実現するとともに、良好な仕上げ面が得られます。
End mill with unique DLC coating with ultra lubrication. Works on extruded Aluminums eliminating weldings and better surface finish.

CARBIDE | DLC | R ± 0.01 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | 首径 DN | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8528201 | R0.5 × 5 | 60 | 1.5 | 0.95 | 6 | D | ● | 28 | 14,500 |
| 8528202 | R1 × 10 | | 3 | 1.95 | | | ● | 28 | 14,500 |
| 8528203 | R1.5 × 15 | 70 | 4.5 | 2.85 | | | ● | 28 | 15,400 |
| 8528204 | R2 × 20 | 80 | 6 | 3.85 | | | ● | 30 | 15,400 |







工具自販機 MONOlithbox モノリスボックス
※詳細はこちら▶ Scan for details
「労働人口減少の2030年問題」対策を! 自動化・省人化に貢献します


製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DG-LN-EBM | | | | | | | | | | ○ | ◎ | | | ◎ |
| DLC-LN-EBD | | | | | | | | | ○ | ※◎ | | | | ◎ |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅電極・高精度仕上げ用DLCコート2枚刃 超硬ロングネックボールエンドミル

**DLC Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for Copper Electrodes**

A The A Brand

## AE-LNBD-N

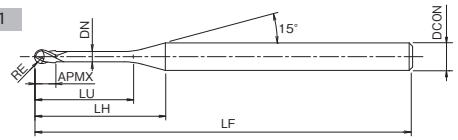
切削条件 Cutting Conditions | P518



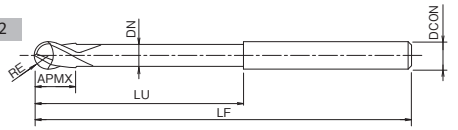
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC-IGUSS | R ±0.002 (RE≦0.2) | R ±0.003 (0.2<RE≦1.5) | R ±0.004 (1.5<RE) | SHANK h4 | SHRINK FIT | 30°

Type1




Type2



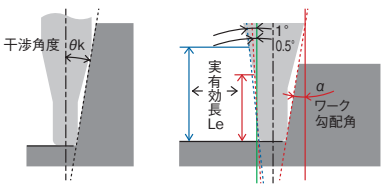

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3056370 | R0.05 ×0.3×4 | | 0.08 | 7.6 | 0.09 | 14.52° | 0.3 | 0.31 | 0.32 | 0.33 | 0.36 | | | ● | 11 | 8,980 |
| 3056371 | R0.05 ×0.5×4 | | | 7.8 | | 14.07° | 0.53 | 0.56 | 0.59 | 0.62 | 0.67 | | | ● | 14 | 9,740 |
| 3056372 | R0.075×0.3×4 | | 0.12 | 7.5 | 0.135 | 14.55° | 0.3 | 0.31 | 0.32 | 0.33 | 0.35 | | | ● | 14 | 9,950 |
| 3056373 | R0.075×0.5×4 | | | 7.7 | | 14.12° | 0.52 | 0.55 | 0.58 | 0.6 | 0.65 | | | ● | 11 | 10,700 |
| 3056374 | R0.075×1 ×4 | | | 8.2 | | 13.29° | 1.05 | 1.1 | 1.14 | 1.18 | 1.27 | | | ● | 14 | 11,100 |
| 3056375 | R0.1 ×0.3×4 | | 0.16 | 7.4 | 0.19 | 14.59° | 0.3 | 0.31 | 0.32 | 0.33 | 0.34 | | | ● | 10 | 7,430 |
| 3056376 | R0.1 ×0.5×4 | | | 7.6 | | 14.12° | 0.53 | 0.56 | 0.58 | 0.61 | 0.66 | | | ● | 11 | 7,430 |
| 3056377 | R0.1 ×1 ×4 | | | 8.1 | | 13.28° | 1.06 | 1.11 | 1.15 | 1.19 | 1.28 | | | ● | 10 | 7,430 |
| 3056378 | R0.1 ×1.5×4 | | | 8.6 | | 12.53° | 1.58 | 1.65 | 1.7 | 1.76 | 1.9 | | | ● | 17 | 8,140 |
| 3056379 | R0.15 ×0.6×4 | | 0.24 | 7.5 | 0.285 | 14.02° | 0.63 | 0.65 | 0.68 | 0.7 | 0.75 | | | ● | 11 | 7,430 |
| 3056380 | R0.15 ×1 ×4 | | | 7.9 | | 13.33° | 1.05 | 1.09 | 1.13 | 1.17 | 1.25 | | | ● | 10 | 7,430 |
| 3056381 | R0.15 ×1.5×4 | | | 8.4 | | 12.56° | 1.57 | 1.63 | 1.68 | 1.74 | 1.87 | | | ● | 11 | 7,970 |
| 3056382 | R0.15 ×2 ×4 | | | 8.9 | | 11.87° | 2.09 | 2.16 | 2.24 | 2.32 | 2.49 | | | ● | 10 | 7,970 |
| 3056383 | R0.2 ×1 ×4 | | 0.3 | 7.7 | 0.38 | 13.38° | 1.04 | 1.08 | 1.11 | 1.15 | 1.23 | | | ● | 10 | 6,630 |
| 3056384 | R0.2 ×2 ×4 | | | 8.7 | | 11.87° | 2.08 | 2.15 | 2.22 | 2.3 | 2.47 | | | ● | 10 | 6,800 |
| 3056385 | R0.2 ×3 ×4 | | | 9.7 | | 10.66° | 3.12 | 3.22 | 3.33 | 3.45 | 3.71 | | | ● | 10 | 7,550 |
| 3056386 | R0.2 ×4 ×4 | 45 | | 10.7 | | 9.68° | 4.15 | 4.29 | 4.44 | 4.6 | 4.95 | 1 | A | ● | 10 | 8,230 |
| 3056387 | R0.25 ×1 ×4 | | 0.4 | 7.6 | 0.475 | 13.43° | 1.03 | 1.07 | 1.1 | 1.13 | 1.2 | | | ● | 10 | 6,530 |
| 3056388 | R0.25 ×2 ×4 | | | 8.6 | | 11.87° | 2.07 | 2.14 | 2.21 | 2.28 | 2.45 | | | ● | 10 | 6,530 |
| 3056389 | R0.25 ×3 ×4 | | | 9.6 | | 10.63° | 3.11 | 3.21 | 3.32 | 3.43 | 3.69 | | | ● | 10 | 6,530 |
| 3056390 | R0.25 ×4 ×4 | | | 10.6 | | 9.63° | 4.14 | 4.28 | 4.42 | 4.58 | 4.93 | | | ● | 10 | 6,530 |
| 3056391 | R0.25 ×5 ×4 | | | 11.6 | | 8.79° | 5.18 | 5.35 | 5.53 | 5.73 | 6.18 | | | ● | 10 | 6,690 |
| 3056392 | R0.3 ×1 ×4 | | 0.5 | 7.3 | 0.55 | 13.5° | 1.02 | 1.05 | 1.07 | 1.1 | 1.17 | | | ● | 10 | 5,570 |
| 3056393 | R0.3 ×2 ×4 | | | 8.3 | | 11.89° | 2.06 | 2.12 | 2.18 | 2.25 | 2.41 | | | ● | 10 | 5,000 |
| 3056394 | R0.3 ×3 ×4 | | | 9.3 | | 10.62° | 3.09 | 3.19 | 3.29 | 3.4 | 3.66 | | | ● | 10 | 5,180 |
| 3056395 | R0.3 ×4 ×4 | | | 10.3 | | 9.59° | 4.12 | 4.26 | 4.4 | 4.55 | 4.9 | | | ● | 10 | 5,300 |
| 3056396 | R0.3 ×5 ×4 | | | 11.3 | | 8.74° | 5.16 | 5.33 | 5.51 | 5.7 | 6.14 | | | ● | 10 | 5,300 |
| 3056397 | R0.3 ×6 ×4 | | | 12.3 | | 8.02° | 6.19 | 6.4 | 6.62 | 6.85 | 7.39 | | | ● | 10 | 5,300 |
| 3056398 | R0.4 ×2 ×4 | | 0.6 | 8 | 0.75 | 11.87° | 2.05 | 2.11 | 2.17 | 2.24 | 2.39 | | | ● | 14 | 5,000 |
| 3056399 | R0.4 ×3 ×4 | | | 9.1 | | 10.53° | 3.09 | 3.18 | 3.28 | 3.39 | 3.63 | | | ● | 10 | 5,400 |
| 3056400 | R0.4 ×4 ×4 | | | 10 | | 9.46° | 4.12 | 4.25 | 4.39 | 4.54 | 4.88 | | | ● | 10 | 5,400 |
| 3056401 | R0.4 ×6 ×4 | | | 12 | | 7.86° | 6.19 | 6.39 | 6.61 | 6.84 | 7.36 | | | ● | 10 | 5,400 |
| 3056402 | R0.4 ×8 ×4 | | | 14 | | 6.72° | 8.25 | 8.53 | 8.82 | 9.14 | 9.85 | | | ● | 10 | 5,400 |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

次ページへ
ボール半径 RE 0.5～3 NEXT

| 製品記号 Abbreviation | 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-LNBD-N | | | | | | | | | | ◎ | ○ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅電極・高精度仕上げ用DLCコート2枚刃 超硬ロングネックボールエンドミル

**DLC Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for Copper Electrodes**

A The A Brand

## AE-LNBD-N

切削条件 Cutting Conditions | P518



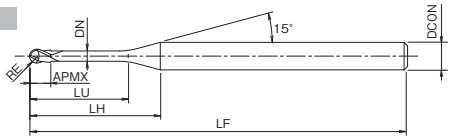


コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

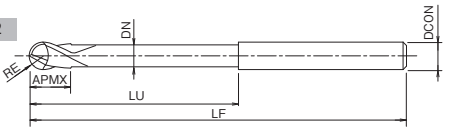
CARBIDE | DLC-IGUSS | R ±0.002 (RE≦0.2) | R ±0.003 (0.2<RE≦1.5) | R ±0.004 (1.5<RE) | SHANK h4 | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.05～0.4

Type1




Type2




CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×ﾈｯｸ径 RE×LU×DCON | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3056403 | R0.5 × 2×4 | 45 | 0.8 | 7.6 | 0.95 | 11.85° | 2.05 | 2.1 | 2.16 | 2.22 | 2.37 | 1 | A | ● | 10 | 4,330 |
| 3056404 | R0.5 × 3×4 | | | 8.6 | | 10.44° | 3.08 | 3.17 | 3.27 | 3.37 | 3.61 | | | ● | 10 | 4,330 |
| 3056405 | R0.5 × 4×4 | | | 9.6 | | 9.32° | 4.12 | 4.24 | 4.38 | 4.52 | 4.85 | | | ● | 10 | 4,760 |
| 3056406 | R0.5 × 5×4 | | | 10.6 | | 8.42° | 5.15 | 5.31 | 5.49 | 5.67 | 6.1 | | | ● | 13 | 4,760 |
| 3056407 | R0.5 × 6×4 | | | 11.6 | | 7.68° | 6.18 | 6.38 | 6.59 | 6.82 | 7.34 | | | ● | 10 | 5,180 |
| 3056408 | R0.5 × 8×4 | | | 13.6 | | 6.52° | 8.25 | 8.52 | 8.81 | 9.12 | 9.83 | | | ● | 13 | 5,180 |
| 3056409 | R0.5 ×10×4 | | | 15.6 | | 5.67° | 10.32 | 10.66 | 11.03 | 11.42 | 12.31 | | | ● | 10 | 5,180 |
| 3056410 | R0.5 ×12×4 | | | 17.6 | | 5.01° | 12.39 | 12.8 | 13.24 | 13.72 | 14.8 | | | ● | 10 | 5,180 |
| 3056411 | R0.75× 4×4 | | 1.2 | 8.8 | 1.45 | 8.8° | 4.18 | 4.33 | 4.46 | 4.6 | 4.92 | | | ● | 10 | 4,980 |
| 3056412 | R0.75× 6×4 | | | 10.8 | | 7.09° | 6.27 | 6.47 | 6.68 | 6.9 | 7.4 | | | ● | 10 | 4,980 |
| 3056413 | R0.75×12×4 | 55 | | 16.8 | | 4.46° | 12.48 | 12.89 | 13.33 | 13.8 | 14.86 | | | ● | 11 | 6,020 |
| 3056414 | R0.75×18×4 | | | 22.8 | | 3.25° | 18.68 | 19.31 | 19.98 | 20.7 | 22.32 | | | ● | 10 | 6,020 |
| 3056415 | R1 × 4×4 | 50 | 1.6 | 8.2 | 1.95 | 7.88° | 4.22 | 4.44 | 4.65 | 4.86 | 5.26 | | | ● | 11 | 4,330 |
| 3056416 | R1 × 6×4 | | | 10.2 | | 6.2° | 6.35 | 6.67 | 6.96 | 7.23 | 7.75 | | | ● | 11 | 4,820 |
| 3056417 | R1 × 8×4 | | | 12.2 | | 5.1° | 8.47 | 8.87 | 9.22 | 9.54 | 10.24 | | | ● | 11 | 5,180 |
| 3056418 | R1 ×10×4 | | | 14.2 | | 4.34° | 10.58 | 11.05 | 11.45 | 11.84 | 12.73 | | | ● | 10 | 5,180 |
| 3056419 | R1 ×12×4 | | | 16.2 | | 3.77° | 12.68 | 13.21 | 13.67 | 14.14 | 15.21 | | | ● | 10 | 5,180 |
| 3056420 | R1 ×14×4 | | | 18.2 | | 3.33° | 14.78 | 15.36 | 15.88 | 16.44 | 17.7 | | | ● | 10 | 5,180 |
| 3056421 | R1 ×16×4 | | | 20.2 | | 2.99° | 16.87 | 17.5 | 18.1 | 18.74 | — | | | ● | 13 | 5,180 |
| 3056422 | R1 ×20×4 | 60 | | 24.2 | | 2.47° | 21.04 | 21.78 | 22.53 | 23.34 | — | | | ● | 11 | 5,180 |
| 3056423 | R1 ×25×4 | | | 29.2 | | 2.04° | 26.24 | 27.13 | 28.07 | 29.09 | — | | | ● | 14 | 7,220 |
| 3056424 | R1.5 ×10×6 | 55 | 2.4 | 15.8 | 2.85 | 5.95° | 10.44 | 10.83 | 11.18 | 11.55 | 12.37 | | | ● | 21 | 6,000 |
| 3056425 | R1.5 ×12×6 | | | 17.8 | | 5.23° | 12.53 | 12.98 | 13.4 | 13.85 | 14.85 | | | ● | 21 | 6,000 |
| 3056426 | R1.5 ×14×6 | | | 19.8 | | 4.67° | 14.62 | 15.12 | 15.62 | 16.15 | 17.34 | | | ● | 20 | 7,000 |
| 3056427 | R1.5 ×16×6 | | | 21.8 | | 4.21° | 16.7 | 17.26 | 17.83 | 18.45 | 19.83 | | | ● | 19 | 7,000 |
| 3056428 | R1.5 ×20×6 | | | 25.8 | | 3.53° | 20.85 | 21.54 | 22.27 | 23.05 | 24.8 | | | ● | 22 | 6,800 |
| 3056429 | R1.5 ×25×6 | 65 | | 30.8 | | 2.93° | 26.03 | 26.89 | 27.81 | 28.8 | — | | | ● | 21 | 6,800 |
| 3056430 | R1.5 ×30×6 | | | 35.8 | | 2.5° | 31.2 | 32.24 | 33.35 | 34.54 | — | | | ● | 20 | 7,680 |
| 3056431 | R2 ×10×6 | 60 | 3.2 | 14 | 3.85 | 4.75° | 10.42 | 10.79 | 11.13 | 11.47 | 12.25 | | | ● | 24 | 5,400 |
| 3056432 | R2 ×15×6 | | | 19 | | 3.37° | 15.64 | 16.16 | 16.67 | 17.22 | 18.47 | | | ● | 23 | 7,060 |
| 3056433 | R2 ×20×6 | 65 | | 24 | | 2.61° | 20.84 | 21.51 | 22.21 | 22.97 | — | | | ● | 25 | 7,060 |
| 3056434 | R2 ×25×6 | | | 29 | | 2.13° | 26.02 | 26.85 | 27.75 | 28.72 | — | | | ● | 23 | 7,060 |
| 3056435 | R2 ×30×6 | 80 | | 34 | | 1.79° | 31.18 | 32.2 | 33.3 | — | — | | | ● | 27 | 7,060 |
| 3056436 | R2 ×40×6 | | | 44 | | 1.37° | 41.52 | 42.9 | — | — | — | | | ● | 25 | 9,100 |
| 3056437 | R3 ×10×6 | 70 | 4.8 | — | 5.85 | — | — | — | — | — | — | 2 | | ● | 31 | 8,780 |
| 3056438 | R3 ×15×6 | | | — | | — | — | — | — | — | — | | | ● | 31 | 8,780 |
| 3056439 | R3 ×20×6 | | | — | | — | — | — | — | — | — | | | ● | 30 | 8,780 |
| 3056440 | R3 ×30×6 | 90 | | — | | — | — | — | — | — | — | | | ● | 37 | 9,040 |
| 3056441 | R3 ×50×6 | | | — | | — | — | — | — | — | — | | | ● | 40 | 10,700 |

高能率仕上げ用ロングネックラジアスタイプ(AE-CPR-N)はP.398をご覧下さい。
See page 398 for AE-CPR-N

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-LNBD-N | | | | | | | | | ◎ | ○ | | | | ○ |

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃小径CBNロングネックボールエンドミル
**2-flute Long Neck Small Size CBN Ball End Mill**

## CBN-LN-SXB

切削条件 Cutting Conditions | P625



CBN | R ±0.005 | SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長×シャンク径 RE × LU × DCON | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8525622 | R0.2 × 2 × 4 | 45 | 0.3 | 4 | 0.37 | C | ● | 13 | 28,400 |
| 8525623 | R0.2 × 3 × 4 | | | | | | ● | 13 | 28,400 |
| 8525633 | R0.3 × 3 × 4 | | 0.4 | | 0.55 | | ● | 13 | 26,800 |
| 8525634 | R0.3 × 4.5 × 4 | | | | | | ● | 13 | 26,800 |
| 8525654 | R0.5 × 4 × 4 | | 0.6 | | 0.95 | | ● | 13 | 26,500 |
| 8525655 | R0.5 × 5 × 4 | | | | | | ● | 13 | 26,500 |
| 8525656 | R0.5 × 6 × 4 | | | | | | ● | 13 | 26,500 |
| 8525657 | R0.5 × 7.5 × 4 | | | | | | ● | 13 | 26,500 |
| 8525854 | R0.5 × 4 × 6 | 50 | | 6 | | | ● | 23 | 29,200 |
| 8525855 | R0.5 × 5 × 6 | | | | | | ● | 21 | 29,200 |
| 8525856 | R0.5 × 6 × 6 | | | | | | ● | 20 | 29,200 |
| 8525857 | R0.5 × 7.5 × 6 | | | | | | ● | 21 | 29,200 |
| 8525877 | R0.75 × 7.5 × 6 | | 0.9 | | 1.4 | | ● | 22 | 32,400 |
| 8525903 | R1 × 6 × 6 | | 1.2 | | 1.9 | | ● | 22 | 31,000 |
| 8525904 | R1 × 8 × 6 | | | | | | ● | 18 | 32,100 |
| 8525905 | R1 × 10 × 6 | | | | | | ● | 18 | 33,600 |
| 8525956 | R1.5 × 12 × 6 | | 1.8 | | 2.9 | | ● | 18 | 35,900 |
| 8525957 | R1.5 × 15 × 6 | | | | | | ● | 18 | 35,900 |

※上記サイズ以外も製作可能です。又、再研磨も承っております。当社営業まで問い合わせ下さい。
Sizes not featured above are also available. OSG also offers re-grinding. Please contact our sales staff for more information.

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1170 を参照下さい。 See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能

OSGアプリから製品ラベルの二次元コードを読み込んで検査成績表をダウンロード(一部製品に限る) ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBN-LN-SXB | ○ | | ◎ | ◎ | ◎ | ◎ | | | | | | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形・ミニチュア）

**WXL Coated 2-flute Long Neck Miniature Carbide Ball End Mill for Rib Processing (φ3 Shank)**

## WXL-LN-EBD-3

切削条件 Cutting Conditions | P594



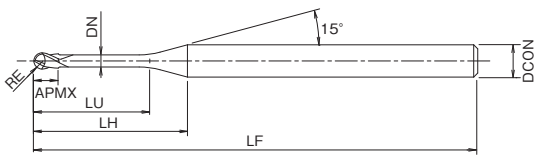
CARBIDE | WXL | R ± 0.005 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R0.2 × 3 | 45 | 0.3 | 7.9 | 3 | 0.37 | — | — | — |
| | R0.2 × 4 | | | 8.9 | | | | — | — |
| | R0.2 × 5 | | | 9.9 | | | | — | — |
| | R0.2 × 6 | | | 10.9 | | | | — | — |
| | R0.25× 2 | | 0.4 | 6.8 | | 0.45 | | — | — |
| | R0.25× 2.5 | | | 7.3 | | | | — | — |
| | R0.25× 3 | | | 7.8 | | | | — | — |
| | R0.25× 4 | | | 8.8 | | | | — | — |
| | R0.25× 5 | | | 9.8 | | | | — | — |
| | R0.25× 6 | | | 10.8 | | | | — | — |
| | R0.25× 8 | | | 12.8 | | | | — | — |
| | R0.3 × 2.5 | | 0.5 | 7.1 | | 0.55 | | — | — |
| | R0.3 × 3 | | | 7.6 | | | | — | — |
| | R0.3 × 3.5 | | | 8.1 | | | | — | — |
| | R0.3 × 5 | | | 9.6 | | | | — | — |
| | R0.3 × 6 | | | 10.6 | | | | — | — |
| | R0.3 × 7 | | | 11.6 | | | | — | — |
| | R0.3 × 9 | | | 13.6 | | | | — | — |
| | R0.4 × 3 | | 0.6 | 7.2 | | 0.75 | | — | — |
| | R0.4 × 4 | | | 8.2 | | | | — | — |
| | R0.4 × 5 | | | 9.2 | | | | — | — |
| | R0.4 × 8 | | | 12.2 | | | | — | — |
| | R0.4 × 10 | | | 14.2 | | | | — | — |
| | R0.4 × 12 | 50 | | 16.2 | | | | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R0.5 × 4 | 50 | 0.8 | 7.8 | 3 | 0.95 | — | — | — |
| | R0.5 × 5 | | | 8.8 | | | | — | — |
| | R0.5 × 6 | | | 9.8 | | | | — | — |
| | R0.5 × 8 | | | 11.8 | | | | — | — |
| | R0.5 × 10 | | | 13.8 | | | | — | — |
| | R0.5 × 12 | | | 15.8 | | | | — | — |
| | R0.5 × 16 | | | 19.8 | | | | — | — |
| | R0.75× 6 | | 1.2 | 8.9 | | 1.45 | | — | — |
| | R0.75× 8 | | | 10.9 | | | | — | — |
| | R0.75× 10 | | | 12.9 | | | | — | — |
| | R0.75× 12 | | | 14.9 | | | | — | — |
| | R0.75× 16 | | | 18.9 | | | | — | — |
| | R1 × 8 | | 1.6 | 10 | | 1.95 | | — | — |
| | R1 × 10 | | | 12 | | | | — | — |
| | R1 × 12 | | | 14 | | | | — | — |
| | R1 × 16 | | | 18 | | | | — | — |
| | R1 × 18 | | | 20 | | | | — | — |
| | R1 × 20 | 55 | | 22 | | | | — | — |
| | R1.25× 10 | 50 | 2 | 11.2 | | 2.35 | | — | — |
| | R1.25× 15 | | | 16.2 | | | | — | — |
| | R1.25× 20 | | | 21.2 | | | | — | — |
| | R1.25× 25 | 55 | | 26.2 | | | | — | — |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WXL-LN-EBD-3 | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WX Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WX-LN-EBD

切削条件 Cutting Conditions | **P638-3**



加工形状に合わせて自由に有効長が選べるロングネックボールです。高じん性超硬母材が幅広い加工で安定した切削を実現します。
A long neck ball nose end mill, prepared with wider selection of effective length for various milling operations. Newly developed high hardness ultra fine carbide base material gives wide range of applications and consistent performances.

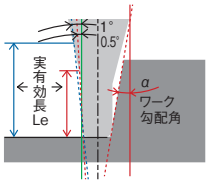
CARBIDE | WX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

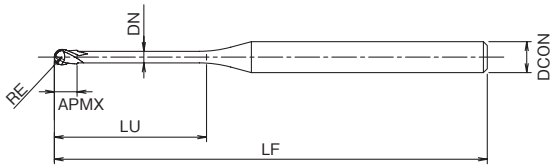
| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3030201 | R0.1 × 0.5 | 45 | 0.16 | 4 | 0.18 | 14.44° | 0.53 | 0.55 | 0.57 | 0.59 | 0.61 | 0.63 | □ | – | – |
| 3030202 | R0.1 × 1 | | | | | 13.31° | 1.05 | 1.09 | 1.13 | 1.17 | 1.21 | 1.26 | □ | – | – |
| 3030203 | R0.1 × 1.5 | | | | | 12.56° | 1.57 | 1.63 | 1.68 | 1.74 | 1.81 | 1.88 | □ | – | – |
| 3030302 | R0.15 × 1 | | 0.24 | | 0.28 | 13.34° | 1.05 | 1.09 | 1.12 | 1.16 | 1.20 | 1.24 | □ | – | – |
| 3030303 | R0.15 × 1.5 | | | | | 12.57° | 1.57 | 1.63 | 1.68 | 1.74 | 1.80 | 1.87 | □ | – | – |
| 3030304 | R0.15 × 2 | | | | | 11.87° | 2.09 | 2.16 | 2.23 | 2.31 | 2.40 | 2.49 | □ | – | – |
| 3030402 | R0.2 × 1 | | 0.3 | | 0.37 | 13.39° | 1.04 | 1.07 | 1.11 | 1.14 | 1.18 | 1.22 | □ | – | – |
| 3030403 | R0.2 × 1.5 | | | | | 12.59° | 1.56 | 1.61 | 1.66 | 1.72 | 1.77 | 1.84 | □ | – | – |
| 3030404 | R0.2 × 2 | | | | | 11.88° | 2.08 | 2.14 | 2.21 | 2.29 | 2.37 | 2.46 | □ | – | – |
| 3030405 | R0.2 × 2.5 | | | | | 11.24° | 2.60 | 2.68 | 2.77 | 2.87 | 2.97 | 3.08 | □ | – | – |
| 3030406 | R0.2 × 3 | | | | | 10.67° | 3.11 | 3.21 | 3.32 | 3.44 | 3.57 | 3.70 | □ | – | – |
| 3030502 | R0.25 × 2 | | 0.4 | | 0.45 | 11.89° | 2.06 | 2.13 | 2.20 | 2.27 | 2.35 | 2.43 | □ | – | – |
| 3030503 | R0.25 × 3 | | | | | 10.65° | 3.10 | 3.20 | 3.30 | 3.42 | 3.54 | 3.68 | □ | – | – |
| 3030504 | R0.25 × 4 | | | | | 9.64° | 4.13 | 4.27 | 4.41 | 4.57 | 4.74 | 4.92 | □ | – | – |
| 3030505 | R0.25 × 5 | | | | | 8.80° | 5.17 | 5.34 | 5.52 | 5.72 | 5.93 | 6.16 | □ | – | – |
| 3030506 | R0.25 × 6 | | | | | 8.10° | 6.20 | 6.41 | 6.63 | 6.87 | 7.13 | 7.41 | □ | – | – |
| 3030508 | R0.25 × 8 | | | | | 6.98° | 8.27 | 8.55 | 8.85 | 9.17 | 9.52 | 9.89 | □ | – | – |
| 3030602 | R0.3 × 2 | | 0.5 | | 0.55 | 11.88° | 2.06 | 2.12 | 2.19 | 2.26 | 2.34 | 2.42 | □ | – | – |
| 3030603 | R0.3 × 3 | | | | | 10.61° | 3.10 | 3.19 | 3.30 | 3.41 | 3.53 | 3.66 | □ | – | – |
| 3030604 | R0.3 × 4 | | | | | 9.58° | 4.13 | 4.26 | 4.41 | 4.56 | 4.73 | 4.91 | □ | – | – |
| 3030605 | R0.3 × 5 | | | | | 8.73° | 5.16 | 5.33 | 5.51 | 5.71 | 5.92 | 6.15 | □ | – | – |
| 3030606 | R0.3 × 6 | | | | | 8.02° | 6.20 | 6.40 | 6.62 | 6.86 | 7.12 | 7.39 | □ | – | – |
| 3030608 | R0.3 × 8 | | | | | 6.89° | 8.26 | 8.54 | 8.84 | 9.16 | 9.51 | 9.88 | □ | – | – |
| 3030802 | R0.4 × 2 | | 0.6 | | 0.75 | 11.86° | 2.06 | 2.12 | 2.18 | 2.25 | 2.32 | 2.40 | □ | – | – |
| 3030804 | R0.4 × 4 | | | | | 9.45° | 4.13 | 4.26 | 4.40 | 4.55 | 4.71 | 4.88 | □ | – | – |
| 3030805 | R0.4 × 5 | | | | | 8.58° | 5.16 | 5.33 | 5.50 | 5.70 | 5.90 | 6.13 | □ | – | – |
| 3030806 | R0.4 × 6 | | | | | 7.85° | 6.19 | 6.40 | 6.61 | 6.85 | 7.10 | 7.37 | □ | – | – |
| 3030807 | R0.4 × 7 | | | | | 7.24° | 7.23 | 7.47 | 7.72 | 8.00 | 8.29 | 8.61 | □ | – | – |
| 3030808 | R0.4 × 8 | | | | | 6.71° | 8.26 | 8.54 | 8.83 | 9.15 | 9.49 | 9.86 | □ | – | – |
| 3030810 | R0.4 ×10 | | | | | 5.86° | 10.33 | 10.67 | 11.05 | 11.45 | 11.88 | 12.34 | □ | – | – |
| 3031003 | R0.5 × 3 | | 0.8 | | 0.95 | 10.43° | 3.09 | 3.18 | 3.28 | 3.38 | 3.49 | 3.62 | □ | – | – |
| 3031004 | R0.5 × 4 | | | | | 9.32° | 4.12 | 4.25 | 4.39 | 4.53 | 4.69 | 4.86 | □ | – | – |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.




次ページへ
ボール半径 RE 0.5～1 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WX-LN-EBD | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
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# WXコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WX Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WX-LN-EBD

切削条件 Cutting Conditions | P638-3



加工形状に合わせて自由に有効長が選べるロングネックボールです。高じん性超硬母材が幅広い加工で安定した切削を実現します。

A long neck ball nose end mill, prepared with wider selection of effective length for various milling operations. Newly developed high hardness ultra fine carbide base material gives wide range of applications and consistent performances.

CARBIDE | WX | R ±0.01 | SHRINK FIT | 30°

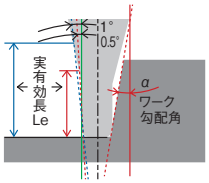
前ページより FROM ボール半径 RE 0.1～0.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3031005 | R0.5 × 5 | 45 | 0.8 | 4 | 0.95 | 8.41° | 5.16 | 5.32 | 5.49 | 5.68 | 5.88 | 6.10 | – | □ | – | – |
| 3031006 | R0.5 × 6 | | | | | 7.67° | 6.19 | 6.39 | 6.60 | 6.83 | 7.08 | 7.35 | | □ | – | – |
| 3031007 | R0.5 × 7 | | | | | 7.05° | 7.22 | 7.46 | 7.71 | 7.98 | 8.27 | 8.59 | | □ | – | – |
| 3031008 | R0.5 × 8 | | | | | 6.52° | 8.26 | 8.53 | 8.82 | 9.13 | 9.47 | 9.83 | | □ | – | – |
| 3031009 | R0.5 × 9 | | | | | 6.06° | 9.29 | 9.60 | 9.93 | 10.28 | 10.66 | 11.08 | | □ | – | – |
| 3031010 | R0.5 × 10 | | | | | 5.66° | 10.33 | 10.67 | 11.04 | 11.43 | 11.86 | 12.32 | | □ | – | – |
| 3031012 | R0.5 × 12 | | | | | 5.01° | 12.39 | 12.81 | 13.25 | 13.73 | 14.25 | 14.81 | | □ | – | – |
| 3031014 | R0.5 × 14 | 50 | | | | 4.49° | 14.46 | 14.95 | 15.47 | 16.03 | 16.64 | 17.29 | | □ | – | – |
| 3031016 | R0.5 × 16 | | | | | 4.06° | 16.53 | 17.09 | 17.69 | 18.33 | 19.03 | 19.78 | | □ | – | – |
| 3031020 | R0.5 × 20 | 55 | | | | 4.95° | 20.66 | 21.36 | 22.12 | 22.93 | 23.80 | 24.75 | | □ | – | – |
| 3031206 | R0.6 × 6 | 45 | 1 | | 1.15 | 7.41° | 6.27 | 6.48 | 6.69 | 6.92 | 7.17 | 7.44 | | □ | – | – |
| 3031208 | R0.6 × 8 | | | | | 6.26° | 8.35 | 8.62 | 8.91 | 9.22 | 9.56 | 9.93 | | □ | – | – |
| 3031210 | R0.6 × 10 | | | | | 5.42° | 10.42 | 10.76 | 11.13 | 11.52 | 11.95 | 12.41 | | □ | – | – |
| 3031212 | R0.6 × 12 | | | | | 4.78° | 12.49 | 12.90 | 13.34 | 13.82 | 14.34 | 14.90 | | □ | – | – |
| 3031408 | R0.7 × 8 | | 1.1 | | 1.35 | 6.04° | 8.35 | 8.61 | 8.90 | 9.21 | 9.54 | 9.90 | | □ | – | – |
| 3031412 | R0.7 × 12 | | | | | 4.57° | 12.48 | 12.89 | 13.33 | 13.81 | 14.32 | 14.87 | | □ | – | – |
| 3031416 | R0.7 × 16 | 50 | | | | 3.67° | 16.62 | 17.17 | 17.77 | 18.41 | 19.10 | 19.85 | | □ | – | – |
| 3031508 | R0.75 × 8 | 45 | 1.2 | | 1.45 | 5.92° | 8.34 | 8.61 | 8.90 | 9.20 | 9.53 | 9.89 | | □ | – | – |
| 3031512 | R0.75 × 12 | | | | | 4.46° | 12.48 | 12.89 | 13.33 | 13.80 | 14.31 | 14.86 | | □ | – | – |
| 3031516 | R0.75 × 16 | 50 | | | | 3.57° | 16.62 | 17.17 | 17.76 | 18.40 | 19.09 | 19.83 | | □ | – | – |
| 3031520 | R0.75 × 20 | 55 | | | | 2.98° | 20.75 | 21.45 | 22.19 | 23.00 | 23.87 | – | | □ | – | – |
| 3031608 | R0.8 × 8 | 45 | 1.3 | | 1.55 | 5.80° | 8.34 | 8.61 | 8.89 | 9.19 | 9.52 | 9.88 | | □ | – | – |
| 3031612 | R0.8 × 12 | | | | | 4.34° | 12.48 | 12.89 | 13.32 | 13.79 | 14.30 | 14.85 | | □ | – | – |
| 3031616 | R0.8 × 16 | 50 | | | | 3.47° | 16.61 | 17.16 | 17.76 | 18.39 | 19.08 | 19.82 | | □ | – | – |
| 3031620 | R0.8 × 20 | 55 | | | | 2.89° | 20.75 | 21.44 | 22.19 | 22.99 | 23.86 | – | | □ | – | – |
| 3031808 | R0.9 × 8 | 45 | 1.4 | | 1.75 | 5.38° | 8.48 | 8.88 | 9.23 | 9.56 | 9.90 | 10.27 | | □ | – | – |
| 3031812 | R0.9 × 12 | | | | | 4.02° | 12.69 | 13.22 | 13.68 | 14.16 | 14.68 | 15.24 | | □ | – | – |
| 3031816 | R0.9 × 16 | 50 | | | | 3.20° | 16.88 | 17.51 | 18.11 | 18.76 | 19.46 | 20.21 | | □ | – | – |
| 3031820 | R0.9 × 20 | 55 | | | | 2.66° | 21.05 | 21.79 | 22.55 | 23.36 | 24.24 | – | | □ | – | – |
| 3032004 | R1 × 4 | 45 | 1.6 | | 1.95 | 7.87° | 4.23 | 4.44 | 4.66 | 4.86 | 5.06 | 5.26 | | □ | – | – |
| 3032006 | R1 × 6 | | | | | 6.19° | 6.36 | 6.67 | 6.96 | 7.23 | 7.49 | 7.76 | | □ | – | – |
| 3032008 | R1 × 8 | | | | | 5.10° | 8.48 | 8.87 | 9.22 | 9.55 | 9.88 | 10.24 | | □ | – | – |

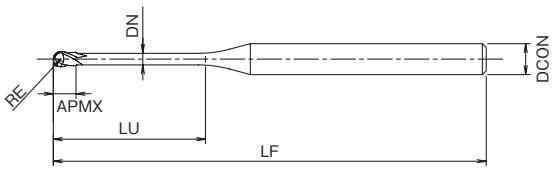
### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.




次ページへ ボール半径 RE 1～3 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WX-LN-EBD | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXコート2枚刃超硬ロングネックボールエンドミル（深リブ形）

**WX Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing**

## WX-LN-EBD

切削条件 Cutting Conditions | **P638-3**



加工形状に合わせて自由に有効長が選べるロングネックボールです。高じん性超硬母材が幅広い加工で安定した切削を実現します。

A long neck ball nose end mill, prepared with wider selection of effective length for various milling operations. Newly developed high hardness ultra fine carbide base material gives wide range of applications and consistent performances.

CARBIDE | WX | R ±0.01 | SHRINK FIT | 30°

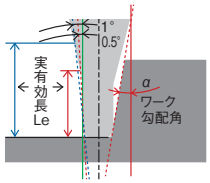
前ページより FROM ボール半径 RE 0.5～1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3032010 | R1 × 10 | 45 | 1.6 | 4 | 1.95 | 4.33° | 10.59 | 11.05 | 11.45 | 11.85 | 12.27 | 12.73 | □ | – | – |
| 3032012 | R1 × 12 | | | | | 3.77° | 12.69 | 13.21 | 13.67 | 14.15 | 14.66 | 15.22 | □ | – | – |
| 3032014 | R1 × 14 | 50 | | | | 3.33° | 14.78 | 15.36 | 15.89 | 16.45 | 17.05 | 17.70 | □ | – | – |
| 3032016 | R1 × 16 | | | | | 2.98° | 16.88 | 17.51 | 18.10 | 18.75 | 19.44 | – | □ | – | – |
| 3032018 | R1 × 18 | 55 | | | | 2.70° | 18.96 | 19.65 | 20.32 | 21.04 | 21.83 | – | □ | – | – |
| 3032020 | R1 × 20 | | | | | 2.47° | 21.05 | 21.78 | 22.54 | 23.34 | – | – | □ | – | – |
| 3032022 | R1 × 22 | 60 | | | | 2.27° | 23.13 | 23.92 | 24.75 | 25.64 | – | – | □ | – | – |
| 3032025 | R1 × 25 | 65 | | | | 2.03° | 26.24 | 27.13 | 28.08 | 29.09 | – | – | □ | – | – |
| 3032030 | R1 × 30 | 70 | | | | 1.73° | 31.42 | 32.48 | 33.62 | – | – | – | □ | – | – |
| 3033008 | R1.5 × 8 | 50 | 2.4 | 6 | 2.85 | 6.88° | 8.35 | 8.67 | 8.97 | 9.25 | 9.55 | 9.88 | □ | – | – |
| 3033010 | R1.5 × 10 | | | | | 5.94° | 10.44 | 10.83 | 11.19 | 11.55 | 11.94 | 12.37 | □ | – | – |
| 3033016 | R1.5 × 16 | 55 | | | | 4.21° | 16.70 | 17.26 | 17.84 | 18.45 | 19.11 | 19.83 | □ | – | – |
| 3033020 | R1.5 × 20 | 60 | | | | 3.52° | 20.86 | 21.54 | 22.27 | 23.05 | 23.89 | 24.80 | □ | – | – |
| 3033025 | R1.5 × 25 | 65 | | | | 2.92° | 26.04 | 26.89 | 27.81 | 28.80 | 29.86 | – | □ | – | – |
| 3033030 | R1.5 × 30 | 70 | | | | 2.50° | 31.20 | 32.24 | 33.35 | 34.55 | – | – | □ | – | – |
| 3033035 | R1.5 × 35 | 80 | | | | 2.18° | 36.37 | 37.59 | 38.89 | 40.30 | – | – | □ | – | – |
| 3034010 | R2 × 10 | 60 | 3.2 | | 3.85 | 4.74° | 10.42 | 10.79 | 11.13 | 11.48 | 11.85 | 12.25 | □ | – | – |
| 3034016 | R2 × 16 | | | | | 3.18° | 16.68 | 17.23 | 17.78 | 18.38 | 19.02 | 19.71 | □ | – | – |
| 3034020 | R2 × 20 | 65 | | | | 2.60° | 20.84 | 21.51 | 22.22 | 22.98 | 23.80 | – | □ | – | – |
| 3034025 | R2 × 25 | 70 | | | | 2.12° | 26.02 | 26.86 | 27.76 | 28.72 | – | – | □ | – | – |
| 3034030 | R2 × 30 | 80 | | | | 1.79° | 31.19 | 32.21 | 33.30 | – | – | – | □ | – | – |
| 3034035 | R2 × 35 | | | | | 1.55° | 36.36 | 37.55 | 38.84 | – | – | – | □ | – | – |
| 3034040 | R2 × 40 | 90 | | | | 1.36° | 41.52 | 42.90 | – | – | – | – | □ | – | – |
| 3034045 | R2 × 45 | | | | | 1.22° | 46.69 | 48.25 | – | – | – | – | □ | – | – |
| 3034050 | R2 × 50 | 100 | | | | 1.10° | 51.86 | 53.60 | – | – | – | – | □ | – | – |
| 3035020 | R2.5 × 20 | 70 | 4 | | 4.85 | 1.46° | 20.82 | 21.47 | – | – | – | – | □ | – | – |
| 3035025 | R2.5 × 25 | | | | | 1.16° | 26.00 | 26.82 | – | – | – | – | □ | – | – |
| 3035030 | R2.5 × 30 | 80 | | | | 0.97° | 31.17 | – | – | – | – | – | □ | – | – |
| 3035035 | R2.5 × 35 | | | | | 0.83° | 36.34 | – | – | – | – | – | □ | – | – |
| 3036030 | R3 × 30 | | 4.8 | | 5.85 | – | – | – | – | – | – | – | □ | – | – |
| 3036050 | R3 × 50 | 120 | | | | – | – | – | – | – | – | – | □ | – | – |

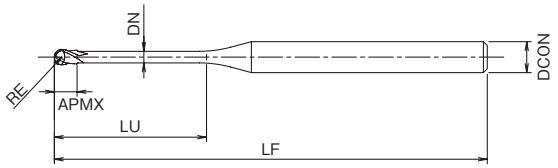
### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WX-LN-EBD | ◎ | ◎ | ○ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
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# FXコート2枚刃超硬ロングネックボールエンドミル 高精度タイプ(φ6シャンク)

**FX Coated 2-flute Long Neck Carbide Ball End Mill High-precision Type (φ6 Shank)**

## FX-LN-EBD-6

切削条件 Cutting Conditions | P667-10



高速高精度型マシニングセンタの性能を十分に引き出す高速加工用ボールエンドミルロングネックタイプです。

High speed long neck type ball end mill. Maximizes performance of high speed and high precision machining centers.

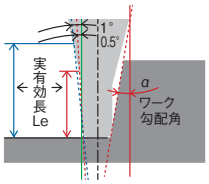
CARBIDE | FX | R ± 0.005 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8544505 | R0.25 × 2.5 | 60 | 0.5 | 6 | 0.45 | 2.69 | 2.88 | 3.06 | 3.24 | 3.43 | 3.61 | □ | — | — |
| 8544506 | R0.3 × 3 | | 0.6 | | 0.55 | 3.22 | 3.44 | 3.65 | 3.85 | 4.05 | 4.25 | □ | — | — |
| 8544508 | R0.4 × 4 | | 0.8 | | 0.75 | 4.29 | 4.56 | 4.81 | 5.05 | 5.28 | 5.5 | □ | — | — |
| 8544510 | R0.5 × 5 | | 1 | | 0.95 | 5.35 | 5.67 | 5.96 | 6.23 | 6.48 | 6.75 | □ | — | — |
| 8544512 | R0.6 × 6 | | 1.2 | | 1.15 | 6.41 | 6.77 | 7.09 | 7.39 | 7.68 | 7.99 | □ | — | — |
| 8544514 | R0.7 × 7 | | 1.4 | | 1.35 | 7.47 | 7.87 | 8.22 | 8.54 | 8.87 | 9.23 | □ | — | — |
| 8544515 | R0.75 × 7.5 | | 1.5 | | 1.45 | 8 | 8.41 | 8.78 | 9.11 | 9.47 | 9.85 | □ | — | — |
| 8544516 | R0.8 × 8 | | 1.6 | | 1.55 | 8.53 | 8.96 | 9.34 | 9.69 | 10.07 | 10.48 | □ | — | — |
| 8544518 | R0.9 × 9 | | 1.8 | | 1.75 | 9.58 | 10.05 | 10.45 | 10.84 | 11.27 | 11.72 | □ | — | — |
| 8544520 | R1 × 10 | | 2 | | 1.95 | 10.64 | 11.13 | 11.56 | 11.99 | 12.46 | 12.97 | □ | — | — |
| 8544525 | R1.25 × 12.5 | | 2.5 | | 2.4 | 13.18 | 13.71 | 14.21 | 14.74 | 15.32 | 15.94 | □ | — | — |
| 8544530 | R1.5 × 15 | 70 | 3 | | 2.85 | 15.72 | 16.3 | 16.89 | 17.52 | 18.21 | 18.94 | □ | — | — |
| 8544535 | R1.75 × 17.5 | | 3.5 | | 3.35 | 18.32 | 19.98 | 19.66 | 20.4 | 21.19 | 22.05 | □ | — | — |
| 8544540 | R2 × 20 | | 4 | | 3.85 | 20.91 | 21.65 | 22.43 | 23.27 | — | — | □ | — | — |
| 8544550 | R2.5 × 25 | 80 | 5 | | 4.85 | 26.09 | 27 | — | — | — | — | □ | — | — |
| 8544560 | R3 × 30 | 90 | 6 | | 5.85 | — | — | — | — | — | — | □ | — | — |

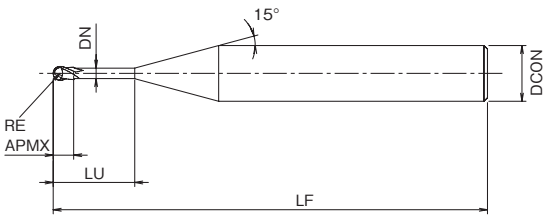
### ■ワーク勾配角αに対する実有効長 (Le)

Effective Neck length (Le) depending on Inclined Angle (α) of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-LN-EBD-6 | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# FXコート2枚刃超硬ロングネックボールエンドミル
**FX Coated 2-flute Long Neck Carbide Ball End Mill**

## FX-LN-MG-EBD



CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 0.5 × 10 | 80 | 2 | 4 | 0.95 | □ | — | — |
| | R 0.5 × 15 | 90 | | | | □ | — | — |
| | R 0.5 × 20 | | | | | □ | — | — |
| | R 0.75 × 10 | 80 | 2.5 | | 1.45 | □ | — | — |
| | R 0.75 × 15 | 90 | | | | □ | — | — |
| | R 0.75 × 20 | | | | | □ | — | — |
| | R 1 × 10 | 80 | 4 | | 1.92 | □ | — | — |
| | R 1 × 15 | 90 | | | | □ | — | — |
| | R 1 × 20 | | | | | □ | — | — |
| | R 1 × 25 | 100 | | | | □ | — | — |
| | R 1 × 30 | | | | | □ | — | — |
| | R 1.25 × 20 | 90 | | | 2.42 | □ | — | — |
| | R 1.25 × 30 | 100 | | | | □ | — | — |
| | R 1.5 × 15 | 90 | | 6 | 2.92 | □ | — | — |
| | R 1.5 × 20 | | | | | □ | — | — |
| | R 1.5 × 25 | 100 | | | | □ | — | — |
| | R 1.5 × 35 | | | | | □ | — | — |
| | R 1.75 × 20 | 90 | | | 3.41 | □ | — | — |
| | R 1.75 × 35 | 100 | | | | □ | — | — |
| | R 2 × 20 | 90 | 6 | | 3.91 | □ | — | — |
| | R 2 × 25 | 100 | | | | □ | — | — |
| | R 2 × 30 | | | | | □ | — | — |
| | R 2 × 35 | 110 | | | | □ | — | — |
| | R 2 × 40 | | | | | □ | — | — |
| | R 2.25 × 25 | 100 | | | 4.41 | □ | — | — |
| | R 2.25 × 35 | 110 | | | | □ | — | — |
| | R 2.5 × 30 | | 7 | 8 | 4.91 | □ | — | — |
| | R 2.5 × 40 | 120 | | | | □ | — | — |
| | R 2.75 × 30 | 110 | | | 5.41 | □ | — | — |
| | R 2.75 × 40 | 120 | | | | □ | — | — |
| | R 3 × 30 | 110 | 8 | | 5.91 | □ | — | — |
| | R 3 × 45 | 120 | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 3.5 × 30 | 110 | 10 | 10 | 6.9 | □ | — | — |
| | R 3.5 × 45 | 120 | | | | □ | — | — |
| | R 4 × 30 | 110 | 12 | | 7.9 | □ | — | — |
| | R 4 × 40 | 120 | | | | □ | — | — |
| | R 4 × 55 | 140 | | | | □ | — | — |
| | R 4.5 × 30 | 110 | 15 | 12 | 8.9 | □ | — | — |
| | R 4.5 × 55 | 140 | | | | □ | — | — |
| | R 5 × 40 | 120 | | | 9.9 | □ | — | — |
| | R 5 × 65 | 150 | | | | □ | — | — |
| | R 5.5 × 70 | | 20 | 16 | 10.89 | □ | — | — |
| | R 6 × 45 | 120 | | | 11.89 | □ | — | — |
| | R 6 × 75 | 150 | | | | □ | — | — |
| | R 7 × 75 | 180 | 25 | | 13.89 | □ | — | — |
| | R 8 × 75 | | | | 15.87 | □ | — | — |
| | R 9 × 100 | 200 | 30 | 20 | 17.89 | □ | — | — |
| | R10 × 100 | | | | 19.87 | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-LN-MG-EBD | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃超硬ロングネックボールエンドミル
**TiN Coated 2-flute Long Neck Carbide Ball End Mill**

# TIN-MG-LN-EBD



CARBIDE | TiN | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R1 × 30 | 100 | 4 | 4 | 1.92 | | □ | — | — |
| | R1.25 × 30 | | | | 2.42 | | □ | — | — |
| | R1.5 × 35 | | | 6 | 2.92 | | □ | — | — |
| | R1.75 × 35 | | | | 3.41 | | □ | — | — |
| | R2 × 35 | 110 | 6 | | 3.91 | | □ | — | — |
| | R2.25 × 35 | | | | 4.41 | | □ | — | — |
| | R2.5 × 40 | 120 | 7 | 8 | 4.91 | | □ | — | — |
| | R2.75 × 40 | | | | 5.41 | — | □ | — | — |
| | R3 × 45 | | 8 | | 5.91 | | □ | — | — |
| | R3.5 × 45 | | 10 | 10 | 6.9 | | □ | — | — |
| | R4 × 55 | 140 | 12 | | 7.9 | | □ | — | — |
| | R4.5 × 55 | | 15 | 12 | 8.9 | | □ | — | — |
| | R5 × 65 | | | | 9.9 | | □ | — | — |
| | R5.5 × 70 | 150 | 20 | 16 | 10.89 | | □ | — | — |
| | R6 × 75 | | | | 11.89 | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| TIN-MG-LN-EBD | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃超硬ロングネックボールエンドミル
**2-flute Long Neck Carbide Ball End Mill**

## MG-LN-EBD



CARBIDE | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 0.5 × 10 | 80 | 2 | 4 | 0.95 | | □ | — | — |
| | R 0.5 × 15 | 90 | | | | | □ | — | — |
| | R 0.5 × 20 | | | | | | □ | — | — |
| | R 0.75 × 10 | 80 | 2.5 | | 1.45 | | □ | — | — |
| | R 0.75 × 15 | 90 | | | | | □ | — | — |
| | R 0.75 × 20 | | | | | | □ | — | — |
| | R 1 × 10 | 80 | 4 | | 1.92 | | □ | — | — |
| | R 1 × 15 | 90 | | | | | □ | — | — |
| | R 1 × 20 | | | | | | □ | — | — |
| | R 1 × 25 | 100 | | | | | □ | — | — |
| | R 1 × 30 | | | | | | □ | — | — |
| | R 1.25 × 20 | 90 | | | 2.42 | | □ | — | — |
| | R 1.25 × 30 | 100 | | | | | □ | — | — |
| | R 1.5 × 15 | 90 | | 6 | 2.92 | | □ | — | — |
| | R 1.5 × 20 | | | | | | □ | — | — |
| | R 1.5 × 25 | 100 | | | | | □ | — | — |
| | R 1.5 × 35 | | | | | | □ | — | — |
| | R 1.75 × 20 | 90 | | | 3.41 | | □ | — | — |
| | R 1.75 × 35 | 100 | | | | | □ | — | — |
| | R 2 × 20 | 90 | 6 | | 3.91 | — | □ | — | — |
| | R 2 × 25 | 100 | | | | | □ | — | — |
| | R 2 × 30 | | | | | | □ | — | — |
| | R 2 × 35 | 110 | | | | | □ | — | — |
| | R 2 × 40 | | | | | | □ | — | — |
| | R 2.25 × 25 | 100 | | | 4.41 | | □ | — | — |
| | R 2.25 × 35 | 110 | | | | | □ | — | — |
| | R 2.5 × 30 | | 7 | 8 | 4.91 | | □ | — | — |
| | R 2.5 × 40 | 120 | | | | | □ | — | — |
| | R 2.75 × 30 | 110 | | | 5.41 | | □ | — | — |
| | R 2.75 × 40 | 120 | | | | | □ | — | — |
| | R 3 × 30 | 110 | 8 | | 5.91 | | □ | — | — |
| | R 3 × 45 | 120 | | | | | □ | — | — |
| | R 3.5 × 30 | 110 | 10 | 10 | 6.9 | | □ | — | — |
| | R 3.5 × 45 | 120 | | | | | □ | — | — |
| | R 4 × 30 | 110 | 12 | | 7.9 | | □ | — | — |
| | R 4 × 40 | 120 | | | | | □ | — | — |
| | R 4 × 55 | 140 | | | | | □ | — | — |
| | R 4.5 × 30 | 110 | 15 | 12 | 8.9 | | □ | — | — |
| | R 4.5 × 55 | 140 | | | | | □ | — | — |
| | R 5 × 40 | 120 | | | 9.9 | | □ | — | — |
| | R 5 × 65 | 150 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 5.5 × 70 | 150 | 20 | 16 | 10.89 | — | □ | — | — |
| | R 6 × 45 | 120 | | | 11.89 | | □ | — | — |
| | R 6 × 75 | 150 | | | | | □ | — | — |
| | R 7 × 75 | 180 | 25 | | 13.89 | | □ | — | — |
| | R 8 × 75 | | | | 15.87 | | □ | — | — |
| | R 9 × 100 | 200 | 30 | 20 | 17.89 | | □ | — | — |
| | R10 × 100 | | | | 19.87 | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MG-LN-EBD | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックボールエンドミル

**2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics**

## CAP-LN-EBD



CARBIDE | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.3 × 2 | 40 | 0.9 | 3 | 0.55 | □ | — | — |
| | R0.3 × 4 | | | | | □ | — | — |
| | R0.3 × 6 | | | | | □ | — | — |
| | R0.4 × 4 | 50 | 1.2 | 4 | 0.75 | □ | — | — |
| | R0.4 × 6 | | | | | □ | — | — |
| | R0.4 × 8 | 60 | | | | □ | — | — |
| | R0.5 × 6 | 50 | 1.5 | | 0.97 | □ | — | — |
| | R0.5 × 8 | 60 | | | 0.95 | □ | — | — |
| | R0.5 × 10 | | | | | □ | — | — |
| | R0.5 × 12 | | | | 0.93 | □ | — | — |
| | R0.6 × 6 | 50 | 1.8 | | 1.17 | □ | — | — |
| | R0.6 × 8 | 60 | | | 1.15 | □ | — | — |
| | R0.6 × 10 | | | | | □ | — | — |
| | R0.6 × 12 | | | | 1.13 | □ | — | — |
| | R0.7 × 8 | | 2.1 | | 1.35 | □ | — | — |
| | R0.7 × 12 | | | | 1.33 | □ | — | — |
| | R0.7 × 16 | | | | 1.31 | □ | — | — |
| | R0.75× 8 | | 2.3 | | 1.45 | □ | — | — |
| | R0.75× 12 | | | | 1.43 | □ | — | — |
| | R0.75× 16 | | | | 1.41 | □ | — | — |
| | R0.75× 20 | 70 | | | 1.39 | □ | — | — |
| | R0.8 × 8 | 60 | 2.4 | | 1.55 | □ | — | — |
| | R0.8 × 12 | | | | 1.53 | □ | — | — |
| | R0.8 × 16 | | | | 1.51 | □ | — | — |
| | R0.8 × 20 | 70 | | | 1.49 | □ | — | — |
| | R0.9 × 8 | 60 | 2.7 | | 1.75 | □ | — | — |
| | R0.9 × 12 | | | | 1.73 | □ | — | — |
| | R0.9 × 16 | | | | 1.71 | □ | — | — |
| | R0.9 × 20 | 70 | | | 1.69 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1 × 8 | 60 | 3 | 4 | 1.95 | □ | — | — |
| | R1 × 12 | | | | 1.93 | □ | — | — |
| | R1 × 16 | | | | 1.91 | □ | — | — |
| | R1 × 20 | 70 | | | 1.89 | □ | — | — |
| | R1.5 × 16 | 80 | 4.5 | 6 | 2.85 | □ | — | — |
| | R1.5 × 20 | | | | | □ | — | — |
| | R1.5 × 25 | | | | | □ | — | — |
| | R1.5 × 35 | 100 | | | | □ | — | — |
| | R2 × 16 | 80 | 6 | | 3.8 | □ | — | — |
| | R2 × 20 | | | | | □ | — | — |
| | R2 × 25 | | | | | □ | — | — |
| | R2 × 30 | 90 | | | | □ | — | — |
| | R2 × 40 | 100 | | | | □ | — | — |
| | R2.5 × 20 | 80 | 7.5 | | 4.8 | □ | — | — |
| | R2.5 × 30 | 90 | | | | □ | — | — |
| | R2.5 × 40 | 100 | | | | □ | — | — |
| | R3 × 20 | 80 | 9 | 8 | 5.8 | □ | — | — |
| | R3 × 30 | 90 | | | | □ | — | — |
| | R3 × 40 | 100 | | | | □ | — | — |
| | R4 × 20 | 90 | 12 | 10 | 7.8 | □ | — | — |
| | R4 × 40 | 100 | | | | □ | — | — |
| | R4 × 60 | 120 | | | | □ | — | — |
| | R5 × 30 | 100 | 15 | 12 | 9.8 | □ | — | — |
| | R5 × 50 | 120 | | | | □ | — | — |
| | R5 × 70 | 140 | | | | □ | — | — |
| | R6 × 40 | 120 | 18 | 16 | 11.8 | □ | — | — |
| | R6 × 60 | 140 | | | | □ | — | — |
| | R6 × 80 | 160 | | | | □ | — | — |

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CAP-LN-EBD | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 銅・アルミ合金・プラスチック用CrNコート2枚刃 超硬ロングネックボールエンドミル

**CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics**

**CRN-LN-EBD** 切削条件 Cutting Conditions | **P682-2**



剛性の高いショート刃・ロングネック形状のため、大きな突出し量が必要となる銅電極加工にも最適です。
A highly rigid, long necked, short tooth endmill. The optimum tool for copper electrode process involving long overhangs.

CARBIDE | CrN | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8510203 | R0.5 × 3 | 60 | 1.5 | 6 | 0.95 | □ | – | – |
| 8510204 | R0.5 × 4 | | | | | □ | – | – |
| 8503810 | R0.5 × 5 | | | | | □ | – | – |
| 8510206 | R0.5 × 6 | | | | | □ | – | – |
| 8510207 | R0.5 × 7 | | | | | □ | – | – |
| 8510208 | R0.5 × 8 | | | | | □ | – | – |
| 8510209 | R0.5 × 9 | | | | | □ | – | – |
| 8510210 | R0.5 ×10 | | | | | □ | – | – |
| 8503812 | R0.6 × 6 | | 1.8 | | 1.15 | □ | – | – |
| 8503814 | R0.7 × 7 | | 2.1 | | 1.35 | □ | – | – |
| 8503815 | R0.75 × 7.5 | | 2.3 | | 1.45 | □ | – | – |
| 8503816 | R0.8 × 8 | | 2.4 | | 1.55 | □ | – | – |
| 8503818 | R0.9 × 9 | | 2.7 | | 1.75 | □ | – | – |
| 8510306 | R1 × 6 | | 3 | | 1.95 | □ | – | – |
| 8510308 | R1 × 8 | | | | | □ | – | – |
| 8503820 | R1 ×10 | | | | | □ | – | – |
| 8510312 | R1 ×12 | | | | | □ | – | – |
| 8510314 | R1 ×14 | | | | | □ | – | – |
| 8510316 | R1 ×16 | | | | | □ | – | – |
| 8510318 | R1 ×18 | | | | | □ | – | – |
| 8510320 | R1 ×20 | | | | | □ | – | – |
| 8503825 | R1.25 ×12.5 | 70 | 3.7 | | 2.4 | □ | – | – |
| 8503830 | R1.5 ×15 | | 4.5 | | 2.85 | □ | – | – |
| 8510430 | R1.5 ×30 | | | | | □ | – | – |
| 8503835 | R1.75 ×17.5 | | 5.3 | | 3.35 | □ | – | – |
| 8503840 | R2 ×20 | 80 | 6 | | 3.85 | □ | – | – |
| 8510540 | R2 ×40 | 90 | | | | □ | – | – |
| 8503850 | R2.5 ×25 | | 7.5 | | 4.85 | □ | – | – |

## 銅・アルミ合金・プラスチック用CrNコート2枚刃 超硬ロングネックボールエンドミル（φ4シャンク）

**CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ4 Shank)**

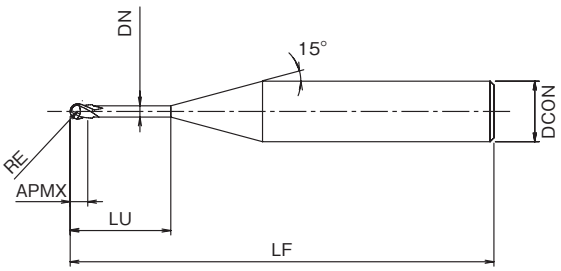
**CRN-LN-EBD-4** 切削条件 Cutting Conditions | **P682-2**



CARBIDE | CrN | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8551202 | R0.1 × 1 | 45 | 0.16 | 4 | 0.18 | □ | – | – |
| 8551203 | R0.1 × 1.5 | | | | | □ | – | – |
| 8551404 | R0.2 × 2 | | 0.3 | | 0.37 | □ | – | – |
| 8551408 | R0.2 × 4 | | | | | □ | – | – |
| 8551603 | R0.3 × 3 | | 0.5 | | 0.55 | □ | – | – |
| 8551606 | R0.3 × 6 | | | | | □ | – | – |
| 8551804 | R0.4 × 4 | | 0.6 | | 0.75 | □ | – | – |
| 8551808 | R0.4 × 8 | | | | | □ | – | – |
| 8551810 | R0.4 × 10 | | | | | □ | – | – |
| 8552003 | R0.5 × 3 | | 0.8 | | 0.95 | □ | – | – |
| 8552004 | R0.5 × 4 | | | | | □ | – | – |
| 8552005 | R0.5 × 5 | | | | | □ | – | – |
| 8552006 | R0.5 × 6 | | | | | □ | – | – |
| 8552007 | R0.5 × 7 | | | | | □ | – | – |
| 8552008 | R0.5 × 8 | | | | | □ | – | – |
| 8552009 | R0.5 × 9 | | | | | □ | – | – |
| 8552010 | R0.5 × 10 | | | | | □ | – | – |
| 8552012 | R0.5 × 12 | | | | | □ | – | – |
| 8552016 | R0.5 × 16 | 50 | | | | □ | – | – |
| 8552020 | R0.5 × 20 | 55 | | | | □ | – | – |
| 8553010 | R1 × 10 | 45 | 1.6 | | 1.95 | □ | – | – |
| 8553012 | R1 × 12 | | | | | □ | – | – |
| 8553016 | R1 × 16 | 50 | | | | □ | – | – |
| 8553020 | R1 × 20 | 55 | | | | □ | – | – |
| 8553025 | R1 × 25 | 65 | | | | □ | – | – |
| 8553030 | R1 × 30 | 70 | | | | □ | – | – |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CRN-LN-EBD | | | | | | | | | ◎ | ○ | | | | ○ |
| CRN-LN-EBD-4 | | | | | | | | | ◎ | ○ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# DLCコート2枚刃超硬エンドミル球形
**DLC Coated 2-flute Carbide End Mill Sphere Type**

## DLC-EQD

切削条件 Cutting Conditions | P687-4



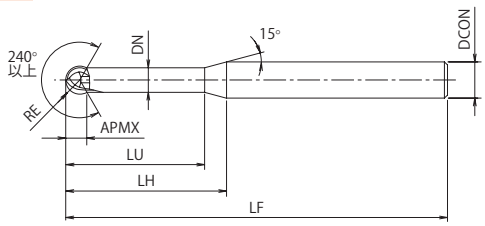
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | R ±0.01 (RE=1) | R ±0.015 (2≦RE) | SHRINK FIT

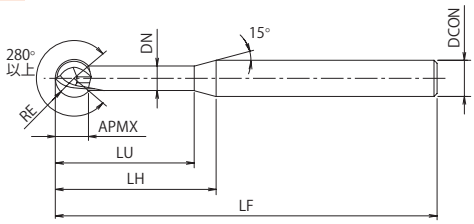
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE×LU | 全長 LF | 刃長 APMX | LH | 首径 DN | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | R1 × 6 | 60 | 1.5 | 11.1 | 1.6 | 4 | 1 | – | □ | – | – |
| | R1 × 10 | 70 | | 15.1 | | | | | □ | – | – |
| | R1.5 × 9 | | 2.2 | 12.6 | 2.4 | | | | □ | – | – |
| | R1.5 × 15 | 80 | | 18.6 | | | | | □ | – | – |
| | R2 × 12 | 70 | 3.5 | 15 | | | 2 | | □ | – | – |
| | R2 × 20 | 80 | | 23 | | | | | □ | – | – |
| | R2.5 × 15 | 70 | 4.4 | 16.9 | 3 | | | | □ | – | – |
| | R2.5 × 25 | 80 | | 26.9 | | | | | □ | – | – |
| | R3 × 18 | 70 | 5.3 | 22.5 | 3.6 | 6 | | | □ | – | – |
| | R3 × 30 | 80 | | 34.5 | | | | | □ | – | – |
| | R4 × 24 | 90 | 7.1 | 30 | 4.8 | 8 | | | □ | – | – |
| | R4 × 40 | 110 | | 46 | | | | | □ | – | – |
| | R5 × 30 | 100 | 8.8 | 37.5 | 6 | 10 | | | □ | – | – |
| | R5 × 50 | 120 | | 57.5 | | | | | □ | – | – |
| | R6 × 36 | 100 | 10.6 | 45 | 7.2 | 12 | | | □ | – | – |
| | R6 × 60 | 120 | | 69 | | | | | □ | – | – |

Type 1




Type 2




デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DLC-EQD | | | | | | | | | ○ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



# WXLコート2枚刃超硬ペンシルネックボールエンドミル
**WXL Coated 2-flute Pencil Neck Carbide Ball End Mill**

## WXL-PC-EBD

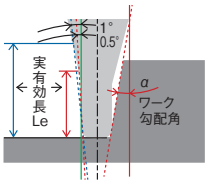
切削条件 Cutting Conditions | P605



CARBIDE | WXL | R ± 0.005 | SHRINK FIT | 30°

CAD

### ■ワーク勾配角αに対する実有効長（Le）
Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE × θn × LU | 全長 LF | 刃長 APMX | 首径 D1 | 首元径 DN | LH | シャンク径 DCON | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3170012 | R0.1 × 0.5° × 1.5 | 45 | 0.16 | 0.19 | 0.21 | 8.8 | 4 | 12.4° | 1.57 | 1.67 | 1.77 | 1.85 | 2.01 | 1 | A | △ | 13 | 10,900 |
| 3170013 | R0.1 × 0.5° × 2 | | | | 0.22 | 9.2 | | 11.77° | 2.07 | 2.2 | 2.32 | 2.42 | 2.61 | | | △ | 13 | 11,400 |
| 3170014 | R0.1 × 0.5° × 2.5 | | | | 0.23 | 9.7 | | 11.19° | 2.57 | 2.73 | 2.86 | 2.98 | 3.21 | | | △ | 13 | 12,400 |
| 3170015 | R0.1 × 0.5° × 3 | | | | 0.24 | 10.2 | | 10.67° | 3.07 | 3.26 | 3.41 | 3.54 | 3.81 | | | △ | 13 | 13,400 |
| 3170022 | R0.1 × 1° × 2.5 | | | | 0.27 | 9.6 | | 11.29° | 1.19 | 2.59 | 2.75 | 2.87 | 3.11 | | | △ | 13 | 12,400 |
| 3170023 | R0.1 × 1° × 3 | | | | 0.28 | 10.1 | | 10.77° | 1.19 | 3.09 | 3.27 | 3.42 | 3.69 | | | △ | 13 | 13,400 |
| 3170031 | R0.15 × 0.5° × 2 | | 0.24 | 0.29 | 0.31 | 9.1 | | 11.75° | 2.07 | 2.2 | 2.31 | 2.41 | 2.6 | | | △ | 13 | 10,700 |
| 3170032 | R0.15 × 0.5° × 3 | | | | 0.33 | 10 | | 10.63° | 3.07 | 3.26 | 3.4 | 3.53 | 3.81 | | | △ | 13 | 11,400 |
| 3170042 | R0.15 × 1° × 4 | | | | 0.41 | 10.9 | | 9.82° | 1.3 | 4.09 | 4.32 | 4.49 | 4.84 | | | △ | 13 | 11,700 |
| 3170051 | R0.2 × 0.5° × 2 | | 0.3 | 0.38 | 0.41 | 9 | | 11.7° | 2.14 | 2.25 | 2.36 | 2.45 | 2.63 | | | ● | 13 | 8,300 |
| 3170052 | R0.2 × 0.5° × 3 | | | | 0.43 | 9.9 | | 10.57° | 3.11 | 3.28 | 3.42 | 3.55 | 3.82 | | | ● | 13 | 8,300 |
| 3170053 | R0.2 × 0.5° × 4 | | | | 0.44 | 10.9 | | 9.63° | 4.11 | 4.33 | 4.5 | 4.66 | 5.02 | | | ● | 13 | 8,300 |
| 3170054 | R0.2 × 0.5° × 5 | | | | 0.46 | 11.9 | | 8.83° | 5.14 | 5.39 | 5.58 | 5.79 | 6.24 | | | ● | 13 | 8,610 |
| 3170055 | R0.2 × 0.5° × 6 | | | | 0.47 | 12.8 | | 8.16° | 6.14 | 6.43 | 6.66 | 6.9 | 7.44 | | | ● | 13 | 8,850 |
| 3170061 | R0.2 × 1° × 4 | | | | 0.5 | 10.8 | | 9.72° | 2.74 | 4.18 | 4.38 | 4.54 | 4.89 | | | ● | 13 | 8,300 |
| 3170062 | R0.2 × 1° × 5 | | | | 0.53 | 11.7 | | 8.94° | 2.74 | 5.18 | 5.42 | 5.61 | 6.06 | | | ● | 13 | 8,610 |
| 3170063 | R0.2 × 1° × 6 | | | | 0.57 | 12.7 | | 8.28° | 2.74 | 6.18 | 6.45 | 6.69 | 7.22 | | | ● | 13 | 8,850 |
| 3170073 | R0.25 × 0.5° × 8 | | 0.4 | 0.48 | 0.61 | 14.6 | | 7° | 8.14 | 8.5 | 8.8 | 9.12 | 9.84 | | | △ | 13 | 8,230 |
| 3170074 | R0.25 × 0.5° × 10 | | | | 0.64 | 16.5 | | 6.17° | 10.14 | 10.57 | 10.94 | 11.35 | 12.25 | | | △ | 13 | 8,850 |
| 3170081 | R0.25 × 1° × 4 | | | | 0.59 | 10.6 | | 9.66° | 2.89 | 4.19 | 4.38 | 4.54 | 4.89 | | | △ | 13 | 7,810 |
| 3170082 | R0.25 × 1° × 6 | | | | 0.66 | 12.5 | | 8.2° | 2.89 | 6.19 | 6.46 | 6.69 | 7.21 | | | △ | 13 | 8,230 |
| 3170084 | R0.25 × 1° × 10 | | | | 0.8 | 16.2 | | 6.29° | 2.89 | 10.19 | 10.6 | 10.99 | 11.86 | | | △ | 13 | 8,850 |
| 3170085 | R0.25 × 1° × 12 | 50 | | | 0.87 | 18.1 | | 5.63° | 2.89 | 12.19 | 12.67 | 13.14 | 14.19 | | | △ | 13 | 9,200 |
| 3170091 | R0.3 × 0.5° × 2 | 45 | 0.5 | 0.58 | 0.61 | 9 | | 11.19° | 2.14 | 2.3 | 2.46 | 2.62 | 2.95 | | | ● | 13 | 7,540 |
| 3170092 | R0.3 × 0.5° × 4 | | | | 0.64 | 10.9 | | 9.18° | 4.14 | 4.45 | 4.72 | 4.98 | 5.46 | | | ● | 13 | 7,750 |
| 3170093 | R0.3 × 0.5° × 6 | | | | 0.67 | 12.8 | | 7.77° | 6.17 | 6.6 | 6.97 | 7.29 | 7.89 | | | ● | 13 | 7,750 |
| 3170094 | R0.3 × 0.5° × 8 | | | | 0.7 | 14.8 | | 6.74° | 8.17 | 8.72 | 9.16 | 9.54 | 10.29 | | | ● | 13 | 7,940 |
| 3170095 | R0.3 × 0.5° × 10 | | | | 0.74 | 16.7 | | 5.95° | 10.17 | 10.83 | 11.33 | 11.77 | 12.7 | | | ● | 13 | 8,000 |
| 3170096 | R0.3 × 0.5° × 12 | | | | 0.77 | 18.7 | | 5.32° | 12.17 | 12.93 | 13.49 | 13.99 | 15.11 | | | ● | 13 | 8,670 |
| 3170097 | R0.3 × 0.5° × 16 | 50 | | | 0.84 | 22.5 | | 4.4° | 16.17 | 17.12 | 17.79 | 18.44 | 19.92 | | | ● | 13 | 8,670 |
| 3170101 | R0.3 × 1° × 4 | 45 | | | 0.69 | 10.8 | | 9.29° | 3.04 | 4.24 | 4.53 | 4.79 | 5.28 | | | ● | 13 | 7,390 |
| 3170102 | R0.3 × 1° × 6 | | | | 0.76 | 12.6 | | 7.9° | 3.04 | 6.24 | 6.65 | 7.01 | 7.62 | | | ● | 13 | 7,750 |
| 3170103 | R0.3 × 1° × 8 | | | | 0.83 | 14.5 | | 6.87° | 3.04 | 8.24 | 8.77 | 9.19 | 9.95 | | | ● | 13 | 7,940 |
| 3170104 | R0.3 × 1° × 10 | | | | 0.9 | 16.4 | | 6.07° | 3.04 | 10.24 | 10.87 | 11.37 | 12.27 | | | ● | 13 | 8,000 |
| 3170105 | R0.3 × 1° × 12 | | | | 0.97 | 18.2 | | 5.44° | 3.04 | 12.24 | 12.97 | 13.52 | 14.6 | | | ● | 13 | 8,670 |
| 3170106 | R0.3 × 1° × 16 | 50 | | | 1.11 | 22 | | 4.51° | 3.04 | 16.24 | 17.16 | 17.82 | 19.25 | | | ● | 13 | 8,960 |
| 3170111 | R0.4 × 0.5° × 4 | 45 | 0.6 | 0.78 | 0.84 | 10.5 | | 9.04° | 4.14 | 4.44 | 4.71 | 4.97 | 5.44 | | | ● | 13 | 8,070 |
| 3170112 | R0.4 × 0.5° × 6 | | | | 0.87 | 12.5 | | 7.59° | 6.17 | 6.6 | 6.96 | 7.28 | 7.87 | | | ● | 13 | 8,300 |
| 3170113 | R0.4 × 0.5° × 8 | | | | 0.9 | 14.4 | | 6.55° | 8.17 | 8.72 | 9.15 | 9.53 | 10.28 | | | ● | 13 | 8,300 |
| 3170114 | R0.4 × 0.5° × 12 | | | | 0.97 | 18.3 | | 5.14° | 12.17 | 12.93 | 13.49 | 13.98 | 15.09 | | | ● | 13 | 8,750 |
| 3170121 | R0.4 × 1° × 8 | | | | 1.02 | 14.1 | | 6.68° | 3.14 | 8.24 | 8.76 | 9.19 | 9.93 | | | ● | 13 | 8,300 |
| 3170122 | R0.4 × 1° × 12 | | | | 1.16 | 17.9 | | 5.26° | 3.14 | 12.24 | 12.97 | 13.52 | 14.58 | | | ● | 13 | 8,750 |
| 3170123 | R0.4 × 1° × 16 | 50 | | | 1.3 | 21.6 | | 4.33° | 3.14 | 16.24 | 17.15 | 17.82 | 19.23 | | | ● | 13 | 9,040 |

次ページへ
ボール半径 RE 0.5～0.75 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXLコート2枚刃超硬ペンシルネックボールエンドミル
## WXL Coated 2-flute Pencil Neck Carbide Ball End Mill

**WXL-PC-EBD** 切削条件 Cutting Conditions **P605**

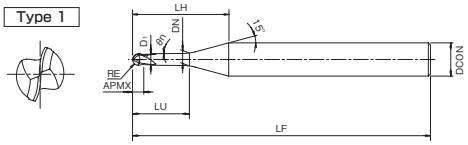


CARBIDE | WXL | R ±0.005 | SHRINK FIT | 30°

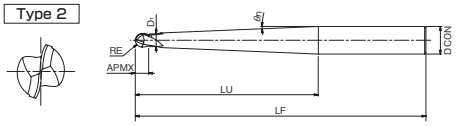
CAD

ボール形状 Ball Type

Type 1




Type 2




前ページより
FROM ボール半径 RE 0.1～0.4

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE × θn × LU | 全長 LF | 刃長 APMX | 首径 D1 | 首元径 DN | LH | シャンク径 DCON | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3170131 | R0.5 × 0.5° × 6 | 45 | 0.63 | 0.95 | 1.03 | 12.2 | 4 | 7.37° | 6.31 | 6.7 | 7.04 | 7.34 | 7.92 | 3 | ● | 13 | 7,070 |
| 3170132 | R0.5 × 0.5° × 8 | | | | 1.07 | 14.1 | | 6.33° | 8.31 | 8.81 | 9.22 | 9.59 | 10.33 | | ● | 13 | 7,070 |
| 3170133 | R0.5 × 0.5° × 10 | | | | 1.1 | 16 | | 5.55° | 10.31 | 10.91 | 11.39 | 11.81 | 12.73 | | ● | 13 | 7,070 |
| 3170134 | R0.5 × 0.5° × 12 | | | | 1.14 | 18 | | 4.93° | 12.31 | 13.01 | 13.55 | 14.04 | 15.14 | | ● | 13 | 7,220 |
| 3170135 | R0.5 × 0.5° × 16 | 50 | | | 1.21 | 21.8 | | 4.04° | 16.31 | 17.19 | 17.84 | 18.49 | 19.95 | | ● | 13 | 7,390 |
| 3170136 | R0.5 × 0.5° × 18 | 55 | | | 1.24 | 23.8 | | 3.71° | 18.31 | 19.27 | 19.98 | 20.71 | 22.35 | | ● | 13 | 8,180 |
| 3170137 | R0.5 × 0.5° × 20 | | | | 1.28 | 25.7 | | 3.42° | 20.31 | 21.35 | 22.13 | 22.94 | 24.76 | | ● | 13 | 8,960 |
| 3170138 | R0.5 × 0.5° × 25 | 60 | | | 1.37 | 30.5 | | 2.87° | 25.31 | 26.54 | 27.49 | 28.5 | – | | ● | 13 | 9,520 |
| 3170139 | R0.5 × 0.5° × 30 | 65 | | | 1.45 | 35.4 | | 2.47° | 30.31 | 31.72 | 32.85 | 34.06 | – | | ● | 13 | 9,780 |
| 3170140 | R0.5 × 0.5° × 35 | 70 | | | 1.54 | 40.2 | | 2.17° | 35.31 | 36.89 | 38.21 | 39.62 | – | | ● | 13 | 10,300 |
| 3170141 | R0.5 × 1° × 10 | 45 | | | 1.26 | 15.7 | | 5.67° | 5.06 | 10.37 | 10.95 | 11.42 | 12.31 | | ● | 13 | 7,070 |
| 3170142 | R0.5 × 1° × 16 | 50 | | | 1.47 | 21.3 | | 4.14° | 5.06 | 16.37 | 17.23 | 17.88 | 19.29 | | ● | 13 | 7,390 |
| 3170143 | R0.5 × 1° × 20 | 55 | | | 1.61 | 25 | | 3.51° | 5.06 | 20.37 | 21.39 | 22.18 | 23.94 | | ● | 13 | 8,960 |
| 3170144 | R0.5 × 1° × 25 | 60 | | | 1.78 | 29.7 | | 2.95° | 5.06 | 25.37 | 26.57 | 27.55 | – | | ● | 13 | 9,520 |
| 3170145 | R0.5 × 1° × 30 | 65 | | | 1.96 | 34.4 | | 2.55° | 5.06 | 30.37 | 31.75 | 32.93 | – | | ● | 15 | 9,780 |
| 3170146 | R0.5 × 1° × 35 | 70 | | | 2.13 | 39.1 | | 2.24° | 5.06 | 35.37 | 36.93 | 38.3 | – | | ● | 15 | 10,300 |
| 3170147 | R0.5 × 1° × 40 | 80 | | | 2.31 | 43.7 | | 2° | 5.06 | 40.37 | 42.11 | – | – | | ● | 15 | 10,600 |
| 3170148 | R0.5 × 1° × 50 | 90 | | | 2.66 | 53.1 | | 1.64° | 5.06 | 50.37 | 52.48 | – | – | | ● | 16 | 11,300 |
| 3170149 | R0.5 × 1° × 60 | 100 | | | 3 | 62.4 | | 1.39° | 5.06 | 60.37 | – | – | – | | ● | 17 | 12,000 |
| 3170150 | R0.5 × 1° × 70 | 110 | | | 3.35 | 71.8 | | 1.21° | 5.06 | 70.37 | – | – | – | | ● | 18 | 12,800 |
| 3170151 | R0.5 × 1.5° × 8 | 45 | | | 1.31 | 13.5 | | 6.59° | 3.2 | 5.92 | 8.43 | 8.9 | 9.66 | | A ● | 13 | 6,420 |
| 3170152 | R0.5 × 1.5° × 10 | | | | 1.41 | 15.4 | | 5.79° | 3.2 | 5.92 | 10.43 | 10.99 | 11.9 | | ● | 13 | 7,070 |
| 3170153 | R0.5 × 1.5° × 12 | | | | 1.52 | 17.2 | | 5.17° | 3.2 | 5.92 | 12.43 | 13.09 | 14.14 | | ● | 13 | 7,070 |
| 3170154 | R0.5 × 1.5° × 16 | 50 | | | 1.73 | 20.8 | | 4.25° | 3.2 | 5.92 | 16.43 | 17.26 | 18.63 | | ● | 13 | 7,390 |
| 3170155 | R0.5 × 1.5° × 20 | 55 | | | 1.94 | 24.4 | | 3.61° | 3.2 | 5.92 | 20.43 | 21.42 | 23.12 | | ● | 13 | 8,960 |
| 3170156 | R0.5 × 1.5° × 25 | 60 | | | 2.2 | 28.9 | | 3.04° | 3.2 | 5.92 | 25.43 | 26.61 | 28.73 | | ● | 13 | 9,520 |
| 3170157 | R0.5 × 1.5° × 30 | 65 | | | 2.46 | 33.4 | | 2.62° | 3.2 | 5.92 | 30.43 | 31.79 | – | | ● | 15 | 9,520 |
| 3170158 | R0.5 × 1.5° × 35 | 70 | | | 2.72 | 37.9 | | 2.31° | 3.2 | 5.92 | 35.43 | 36.98 | – | | ● | 15 | 10,500 |
| 3170161 | R0.5 × 2° × 45 | 80 | | | – | – | | 1.94° | 2.58 | 3.63 | 6.76 | – | – | 4 | ● | 17 | 11,600 |
| 3170171 | R0.6 × 0.5° × 12 | 45 | 0.76 | 1.15 | 1.34 | 17.6 | | 4.73° | 12.31 | 13.01 | 13.54 | 14.03 | 15.12 | 3 | △ | 13 | 8,070 |
| 3170172 | R0.6 × 0.5° × 25 | 60 | | | 1.56 | 30.2 | | 2.72° | 25.31 | 26.54 | 27.48 | 28.49 | – | | △ | 13 | 10,000 |
| 3170182 | R0.6 × 1° × 25 | 60 | | | 1.98 | 29.4 | | 2.8° | 5.26 | 25.38 | 26.57 | 27.55 | – | | △ | 13 | 10,000 |
| 3170191 | R0.6 × 1.5° × 12 | 45 | | | 1.71 | 16.8 | | 4.96° | 3.38 | 6.17 | 12.44 | 13.09 | 14.14 | | △ | 13 | 8,070 |
| 3170192 | R0.6 × 1.5° × 25 | 60 | | | 2.39 | 28.5 | | 2.88° | 3.38 | 6.17 | 25.44 | 26.61 | – | | △ | 13 | 10,000 |
| 3170211 | R0.75 × 0.5° × 8 | 45 | 0.95 | 1.42 | 1.53 | 13.2 | | 5.75° | 8.43 | 8.89 | 9.28 | 9.63 | 10.35 | 3 | ● | 13 | 7,110 |
| 3170212 | R0.75 × 0.5° × 10 | | | | 1.57 | 15.2 | | 4.98° | 10.43 | 10.99 | 11.44 | 11.85 | 12.76 | | ● | 13 | 7,390 |
| 3170213 | R0.75 × 0.5° × 12 | | | | 1.6 | 17.1 | | 4.39° | 12.43 | 13.08 | 13.6 | 14.08 | 15.16 | | ● | 13 | 7,390 |
| 3170214 | R0.75 × 0.5° × 16 | 55 | | | 1.67 | 21 | | 3.55° | 16.43 | 17.26 | 17.88 | 18.53 | 19.97 | | ● | 13 | 8,070 |
| 3170215 | R0.75 × 0.5° × 20 | | | | 1.74 | 24.8 | | 2.98° | 20.43 | 21.42 | 22.17 | 22.98 | – | | ● | 13 | 8,070 |
| 3170216 | R0.75 × 0.5° × 25 | 60 | | | 1.83 | 29.7 | | 2.49° | 25.43 | 26.6 | 27.53 | 28.54 | – | | ● | 13 | 11,400 |
| 3170217 | R0.75 × 0.5° × 30 | 65 | | | 1.92 | 34.5 | | 2.13° | 30.43 | 31.77 | 32.9 | 34.1 | – | | ● | 14 | 11,400 |

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ボール半径 RE 0.75～1.5 NEXT

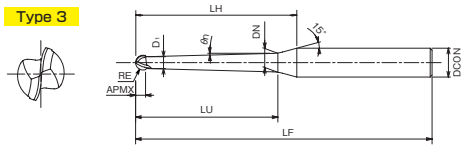
| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WXL-PC-EBD | ◎ | | ◎ | ○ | | | ◎ | ◎ | ◎ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

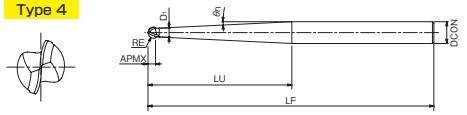
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

Qボール形状 Q-Ball Type

Type 3

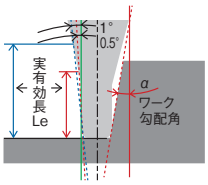



Type 4




## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより
FROM ボール半径 RE 0.5～0.75

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE × θn × LU | 全長 LF | 刃長 APMX | 首径 D1 | 首元径 DN | LH | シャンク径 DCON | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3170218 | R0.75 × 0.5° × 35 | 70 | 0.95 | 1.42 | 2 | 39.4 | 4 | 1.86° | 35.43 | 36.95 | 38.26 | – | – | 3 | ● | 14 | 12,000 |
| 3170221 | R0.75 × 1° × 10 | 45 | | | 1.71 | 14.8 | | 5.1° | 7.23 | 10.5 | 11.03 | 11.48 | 12.35 | | ● | 14 | 7,390 |
| 3170222 | R0.75 × 1° × 12 | | | | 1.79 | 16.7 | | 4.5° | 7.23 | 12.5 | 13.12 | 13.63 | 14.68 | | ● | 14 | 7,750 |
| 3170223 | R0.75 × 1° × 16 | 55 | | | 1.93 | 20.4 | | 3.65° | 7.23 | 16.5 | 17.29 | 17.93 | 19.33 | | ● | 14 | 8,070 |
| 3170224 | R0.75 × 1° × 20 | | | | 2.07 | 24.2 | | 3.07° | 7.23 | 20.5 | 21.45 | 22.23 | 23.98 | | ● | 14 | 8,960 |
| 3170225 | R0.75 × 1° × 25 | 60 | | | 2.24 | 28.9 | | 2.56° | 7.23 | 25.5 | 26.63 | 27.6 | – | | ● | 14 | 10,200 |
| 3170226 | R0.75 × 1° × 30 | 65 | | | 2.41 | 33.5 | | 2.19° | 7.23 | 30.5 | 31.81 | 32.98 | – | | ● | 15 | 11,400 |
| 3170227 | R0.75 × 1° × 35 | 70 | | | 2.59 | 38.2 | | 1.92° | 7.23 | 35.5 | 36.99 | – | – | | ● | 15 | 12,000 |
| 3170230 | R0.75 × 1.5° × 10 | 45 | | | 1.87 | 14.5 | | 5.21° | 4.46 | 8.19 | 10.55 | 11.08 | 11.95 | | ● | 15 | 7,390 |
| 3170231 | R0.75 × 1.5° × 12 | | | | 1.97 | 16.3 | | 4.61° | 4.46 | 8.19 | 12.55 | 13.17 | 14.2 | | ● | 13 | 7,750 |
| 3170232 | R0.75 × 1.5° × 16 | 55 | | | 2.18 | 19.9 | | 3.75° | 4.46 | 8.19 | 16.55 | 17.33 | 18.68 | | ● | 13 | 8,070 |
| 3170233 | R0.75 × 1.5° × 20 | | | | 2.39 | 23.5 | | 3.15° | 4.46 | 8.19 | 20.55 | 21.48 | 23.17 | | ● | 13 | 8,960 |
| 3170234 | R0.75 × 1.5° × 25 | 60 | | | 2.65 | 28 | | 2.63° | 4.46 | 8.19 | 25.55 | 26.67 | – | | ● | 13 | 10,200 |
| 3170235 | R0.75 × 1.5° × 30 | 65 | | | 2.91 | 32.6 | | 2.26° | 4.46 | 8.19 | 30.55 | 31.86 | – | | ● | 15 | 11,400 |
| 3170236 | R0.75 × 1.5° × 35 | 70 | | | 3.17 | 37.1 | | 1.98° | 4.46 | 8.19 | 35.55 | – | – | | ● | 17 | 12,000 |
| 3170241 | R0.75 × 2° × 38.6 | | | | – | – | | 1.9° | 3.54 | 4.93 | 9.12 | – | – | 4 | ● | 17 | 12,100 |
| 3170271 | R1 × 0.5° × 8 | 45 | 1.26 | 1.93 | 2.04 | 12.3 | 4 | 5.09° | 8.4 | 8.85 | 9.24 | 9.58 | 10.28 | 3 | ● | 12 | 7,480 |
| 3170272 | R1 × 0.5° × 10 | | | | 2.07 | 14.2 | | 4.35° | 10.4 | 10.95 | 11.4 | 11.81 | 12.69 | | ● | 12 | 7,480 |
| 3170273 | R1 × 0.5° × 12 | | | | 2.11 | 16.2 | | 3.79° | 12.4 | 13.05 | 13.56 | 14.03 | 15.09 | | ● | 12 | 7,810 |
| 3170274 | R1 × 0.5° × 16 | 50 | | | 2.18 | 20 | | 3.02° | 16.4 | 17.22 | 17.85 | 18.48 | 19.9 | | ● | 12 | 7,810 |
| 3170275 | R1 × 0.5° × 20 | 55 | | | 2.25 | 23.9 | | 2.51° | 20.4 | 21.39 | 22.14 | 22.93 | – | | ● | 13 | 8,070 |
| 3170276 | R1 × 0.5° × 25 | 65 | | | 2.33 | 28.7 | | 2.08° | 25.4 | 26.57 | 27.5 | 28.49 | – | | ● | 17 | 11,200 |
| 3170277 | R1 × 0.5° × 30 | 70 | | | 2.42 | 33.6 | | 1.77° | 30.4 | 31.75 | 32.86 | – | – | | ● | 17 | 9,850 |
| 3170278 | R1 × 0.5° × 35 | 75 | | | 2.51 | 38.4 | | 1.54° | 35.4 | 36.92 | 38.22 | – | – | | A ● | 17 | 11,300 |
| 3170279 | R1 × 0.5° × 40 | 80 | | | 2.6 | 43.2 | | 1.36° | 40.4 | 42.1 | – | – | – | | ● | 16 | 11,700 |
| 3170281 | R1 × 1° × 16 | 50 | | | 2.43 | 19.5 | | 3.11° | 7.01 | 16.47 | 17.27 | 17.89 | 19.27 | | ● | 13 | 6,740 |
| 3170282 | R1 × 1° × 20 | 55 | | | 2.57 | 23.3 | | 2.59° | 7.01 | 20.47 | 21.42 | 22.19 | – | | ● | 13 | 8,070 |
| 3170283 | R1 × 1° × 25 | 65 | | | 2.74 | 27.9 | | 2.14° | 7.01 | 25.47 | 26.61 | 27.57 | – | | ● | 16 | 8,960 |
| 3170284 | R1 × 1° × 30 | 70 | | | 2.91 | 32.6 | | 1.82° | 7.01 | 30.47 | 31.79 | – | – | | ● | 17 | 9,850 |
| 3170285 | R1 × 1° × 35 | 75 | | | 3.09 | 37.3 | | 1.59° | 7.01 | 35.47 | 36.97 | – | – | | ● | 18 | 12,900 |
| 3170286 | R1 × 1° × 40 | 80 | | | 3.26 | 41.9 | | 1.41° | 7.01 | 40.47 | – | – | – | | ● | 17 | 13,500 |
| 3170287 | R1 × 1° × 50 | 90 | | | 3.61 | 55 | 6 | 2.13° | 7.01 | 50.47 | 52.51 | 54.44 | – | | ● | 27 | 14,700 |
| 3170288 | R1 × 1° × 60 | 100 | | | 3.96 | 64.4 | | 1.81° | 7.01 | 60.47 | 62.87 | – | – | | ● | 29 | 15,500 |
| 3170289 | R1 × 1° × 70 | 110 | | | 4.31 | 73.7 | | 1.58° | 7.01 | 70.47 | 73.23 | – | – | | ● | 31 | 16,200 |
| 3170291 | R1 × 1.5° × 16 | 50 | | | 2.67 | 19 | 4 | 3.19° | 4.5 | 8.02 | 16.53 | 17.31 | 18.64 | | ● | 13 | 6,740 |
| 3170292 | R1 × 1.5° × 20 | 55 | | | 2.88 | 22.6 | | 2.66° | 4.5 | 8.02 | 20.53 | 21.46 | – | | ● | 13 | 8,070 |
| 3170293 | R1 × 1.5° × 25 | 65 | | | 3.15 | 27.1 | | 2.2° | 4.5 | 8.02 | 25.53 | 26.65 | – | | ● | 16 | 8,960 |
| 3170294 | R1 × 1.5° × 30 | 70 | | | 3.41 | 31.6 | | 1.88° | 4.5 | 8.02 | 30.53 | – | – | | ● | 17 | 11,700 |
| 3170295 | R1 × 1.5° × 35 | 75 | | | 3.67 | 36.1 | | 1.64° | 4.5 | 8.02 | 35.53 | – | – | | ● | 18 | 12,900 |
| 3170296 | R1 × 1.5° × 41.4 | 80 | | | – | – | | 1.42° | 4.49 | 7.96 | – | – | – | 4 | ● | 18 | 13,500 |
| 3170301 | R1 × 2° × 31.5 | 70 | | | – | – | | 1.88° | 3.66 | 4.98 | 8.91 | – | – | | ● | 17 | 11,700 |
| 3170321 | R1.5 × 0.5° × 8 | 50 | 2.4 | 2.95 | 3.05 | 14.1 | 6 | 6.78° | 8.33 | 8.77 | 9.14 | 9.48 | 10.14 | 1 | ● | 19 | 7,860 |
| 3170322 | R1.5 × 0.5° × 10 | | | | 3.08 | 16.1 | | 5.89° | 10.33 | 10.87 | 11.32 | 11.71 | 12.55 | | ● | 18 | 8,160 |
| 3170323 | R1.5 × 0.5° × 12 | 55 | | | 3.12 | 18 | | 5.2° | 12.33 | 12.97 | 13.48 | 13.94 | 14.95 | | ● | 20 | 8,450 |
| 3170324 | R1.5 × 0.5° × 16 | | | | 3.18 | 21.9 | | 4.22° | 16.36 | 17.18 | 17.79 | 18.4 | 19.78 | | ● | 18 | 8,750 |
| 3170325 | R1.5 × 0.5° × 20 | 60 | | | 3.25 | 25.8 | | 3.55° | 20.36 | 21.34 | 22.08 | 22.85 | 24.59 | | ● | 20 | 9,040 |
| 3170326 | R1.5 × 0.5° × 25 | 65 | | | 3.34 | 30.6 | | 2.96° | 25.36 | 26.53 | 27.44 | 28.41 | – | | ● | 21 | 9,630 |

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ボール半径 RE 1.5～6 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

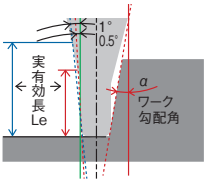
# WXLコート2枚刃超硬ペンシルネックボールエンドミル
**WXL Coated 2-flute Pencil Neck Carbide Ball End Mill**

## WXL-PC-EBD

切削条件 Cutting Conditions **P605**



■ワーク勾配角αに対する実有効長（Le）
Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

CARBIDE | WXL | R ±0.005 | SHRINK FIT | 30°

CAD

前ページより FROM ボール半径 RE 0.75～1.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE × θn × LU | 全長 LF | 刃長 APMX | 首径 D1 | 首元径 DN | LH | シャンク径 DCON | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3170327 | R1.5 × 0.5° × 30 | 70 | 2.4 | 2.95 | 3.42 | 35.4 | 6 | 2.54° | 30.36 | 31.71 | 32.8 | 33.98 | – | 1 | A | ● | 22 | 11,200 |
| 3170328 | R1.5 × 0.5° × 35 | 80 | | | 3.51 | 40.3 | | 2.22° | 35.36 | 36.88 | 38.16 | 39.54 | – | | | ● | 24 | 11,800 |
| 3170329 | R1.5 × 0.5° × 40 | 85 | | | 3.6 | 45.1 | | 1.98° | 40.36 | 42.06 | 43.52 | – | – | | | ● | 28 | 12,400 |
| 3170330 | R1.5 × 0.5° × 50 | 90 | | | 3.77 | 54.8 | | 1.62° | 50.36 | 52.4 | 54.24 | – | – | | | ● | 28 | 14,400 |
| 3170331 | R1.5 × 1° × 20 | 60 | | | 3.55 | 25.1 | | 3.64° | 7.37 | 20.46 | 21.4 | 22.15 | 23.83 | | | ● | 21 | 9,040 |
| 3170332 | R1.5 × 1° × 25 | 65 | | | 3.73 | 29.8 | | 3.04° | 7.37 | 25.46 | 26.58 | 27.53 | 29.64 | | | ● | 21 | 9,630 |
| 3170333 | R1.5 × 1° × 30 | 70 | | | 3.9 | 34.5 | | 2.61° | 7.37 | 30.46 | 31.77 | 32.9 | – | | | ● | 22 | 11,200 |
| 3170334 | R1.5 × 1° × 35 | 80 | | | 4.07 | 39.2 | | 2.29° | 7.37 | 35.46 | 36.95 | 38.28 | – | | | ● | 25 | 11,800 |
| 3170335 | R1.5 × 1° × 40 | 85 | | | 4.25 | 43.8 | | 2.04° | 7.37 | 40.46 | 42.13 | 43.65 | – | | | ● | 29 | 12,400 |
| 3170336 | R1.5 × 1° × 50 | 90 | | | 4.6 | 53.2 | | 1.67° | 7.37 | 50.46 | 52.49 | – | – | | | ● | 30 | 14,400 |
| 3170337 | R1.5 × 1° × 60 | 100 | | | 4.95 | 62.5 | | 1.41° | 7.37 | 60.46 | – | – | – | | | ● | 32 | 15,700 |
| 3170338 | R1.5 × 1° × 70 | 110 | | | 5.3 | 71.9 | | 1.23° | 7.37 | 70.46 | – | – | – | | | ● | 35 | 17,600 |
| 3170341 | R1.5 × 1.5° × 20 | 60 | | | 3.85 | 24.5 | | 3.74° | 5.18 | 8.88 | 20.55 | 21.46 | 23.08 | | | ● | 21 | 9,040 |
| 3170342 | R1.5 × 1.5° × 25 | 65 | | | 4.11 | 29 | | 3.13° | 5.18 | 8.88 | 25.55 | 26.64 | 28.69 | | | ● | 22 | 9,630 |
| 3170343 | R1.5 × 1.5° × 30 | 70 | | | 4.37 | 33.6 | | 2.69° | 5.18 | 8.88 | 30.55 | 31.83 | – | | | ● | 23 | 11,200 |
| 3170344 | R1.5 × 1.5° × 35 | 80 | | | 4.64 | 38.1 | | 2.36° | 5.18 | 8.88 | 35.55 | 37.02 | – | | | ● | 26 | 11,800 |
| 3170345 | R1.5 × 1.5° × 40 | 85 | | | 4.9 | 42.6 | | 2.1° | 5.18 | 8.88 | 40.55 | 42.21 | – | | | ● | 31 | 12,400 |
| 3170346 | R1.5 × 1.5° × 50 | 90 | | | 5.42 | 51.6 | | 1.72° | 5.18 | 8.88 | 50.55 | – | – | | | ● | 32 | 14,400 |
| 3170347 | R1.5 × 1.5° × 62.5 | 100 | | | – | – | | 1.41° | 5.25 | 9.28 | – | – | – | 2 | | ● | 35 | 15,700 |
| 3170351 | R1.5 × 2° × 47.5 | | | | – | – | | 1.87° | 4.49 | 6.05 | 11.01 | – | – | | | ● | 38 | 14,400 |
| 3170371 | R2 × 1° × 20 | 65 | 3.2 | 3.93 | 4.5 | 23.4 | | 2.69° | 9.61 | 20.57 | 21.45 | 22.18 | – | 1 | | ● | 24 | 9,630 |
| 3170372 | R2 × 1° × 30 | 80 | | | 4.85 | 32.7 | | 1.87° | 9.61 | 30.57 | 31.81 | – | – | | | ● | 29 | 11,600 |
| 3170373 | R2 × 1° × 40 | 90 | | | 5.2 | 42.1 | | 1.44° | 9.61 | 40.57 | – | – | – | | | ● | 35 | 13,600 |
| 3170374 | R2 × 1° × 50 | 100 | | | 5.55 | 55.1 | 8 | 2.16° | 9.61 | 50.57 | 52.53 | 54.43 | – | | | ● | 53 | 17,300 |
| 3170375 | R2 × 1° × 60 | 110 | | | 5.9 | 64.5 | | 1.84° | 9.61 | 60.57 | 62.89 | – | – | | | ● | 57 | 17,900 |
| 3170381 | R2 × 1.5° × 44.2 | 80 | | | – | – | 6 | 1.36° | 6.8 | 11.97 | – | – | – | 2 | | ● | 30 | 15,600 |
| 3170391 | R2 × 2° × 34 | | | | – | – | | 1.79° | 5.78 | 7.76 | 14.04 | – | – | | | ● | 31 | 15,600 |
| 3170401 | R2.5 × 1° × 30 | 100 | 5 | 4.95 | 5.81 | 34.7 | 8 | 1.01° | 11.57 | 30.65 | – | – | – | 1 | | △ | 64 | 19,700 |
| 3170411 | R2.5 × 1.5° × 26.9 | | | | – | – | 6 | 1.18° | 8.87 | 16.65 | – | – | – | 2 | | △ | 44 | 17,900 |
| 3170431 | R3 × 1° × 30 | | 6 | 5.95 | 6.77 | 32.9 | 8 | 1.93° | 13.07 | 30.71 | 31.86 | – | – | 1 | | ● | 68 | 21,900 |
| 3170432 | R3 × 1° × 40 | | | | 7.12 | 42.2 | | 1.47° | 13.07 | 40.71 | – | – | – | | | ● | 66 | 21,900 |
| 3170433 | R3 × 1° × 50 | | | | 7.47 | 51.6 | | 1.19° | 13.07 | 50.71 | – | – | – | | | ● | 65 | 21,900 |
| 3170434 | R3 × 1° × 60 | 110 | | | 7.82 | 64.6 | 10 | 1.86° | 13.07 | 60.71 | 62.95 | – | – | | | ● | 94 | 31,600 |
| 3170435 | R3 × 1° × 70 | 120 | | | 8.17 | 74 | | 1.62° | 13.07 | 70.71 | 73.31 | – | – | | | ● | 99 | 32,700 |
| 3170436 | R3 × 1° × 80 | 130 | | | 8.52 | 87.1 | 12 | 2.05° | 13.07 | 80.71 | 83.67 | 86.7 | – | | | ● | 134 | 43,600 |
| 3170441 | R3 × 1.5° × 49 | 100 | | | – | – | 8 | 1.25° | 10.25 | 19.74 | – | – | – | 2 | | ● | 69 | 21,900 |
| 3170451 | R3 × 2° × 36 | | | | – | – | | 1.74° | 8.76 | 11.67 | 20.46 | – | – | | | ● | 69 | 21,900 |
| 3170576 | R4 × 1.5° × 54.5 | 120 | 8 | 7.95 | – | – | 10 | 1.14° | 23.85 | 42.11 | – | – | – | | | ● | 125 | 29,500 |
| 3170574 | R4 × 3° × 35.5 | 100 | | | – | – | | 1.82° | 19.46 | 23.18 | 29.24 | – | – | | | ● | 107 | 27,500 |
| 3170587 | R5 × 1.5° × 58.5 | 130 | 10 | 9.95 | – | – | 12 | 1.07° | 29.29 | 51.63 | – | – | – | | | ● | 196 | 35,900 |
| 3170585 | R5 × 3° × 39.5 | 110 | | | – | – | | 1.66° | 24.04 | 28.61 | 36.08 | – | – | | | ● | 166 | 34,000 |
| 3170599 | R6 × 1.5° × 80 | 160 | 12 | 11.9 | 14.8 | 82.2 | 16 | 1.55° | 32.56 | 44.3 | – | – | – | 1 | | ● | 393 | 55,700 |
| 3170598 | R6 × 3° × 60 | 140 | | | 15.6 | 60.7 | | 2.12° | 29.33 | 34.3 | 41.97 | 55.32 | – | | | ● | 358 | 51,100 |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬エンドミル球形
**FX Coated 2-flute Carbide End Mill Sphere Type**

## FXS-EQD

切削条件 Cutting Conditions | P664



球形状の切れ刃のため立ち壁の加工においてもびびりを防止できます。アンダーカットの加工も可能です。
Reduces chattering between the side wall and peripheral cutting edges. Undercut operation is also possible.

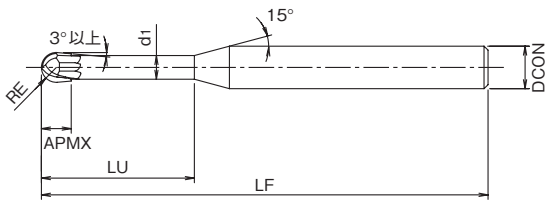
CARBIDE | FX | SHRINK FIT

CAD

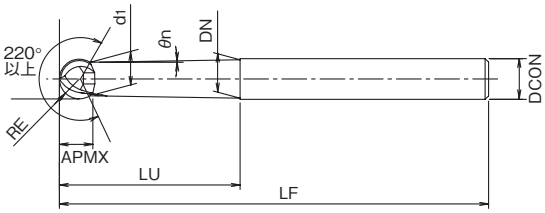
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径 RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首先径 d1 | 首元径 DN | 首部テーパ半角 θn | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8544005 | **R0.5** | 60 | 0.7 | 6 | 5 | 0.85 | — | — | 1 | A | ● | 27 | 17,600 |
| 8544010 | **R1** | | 1.5 | | 10 | 1.7 | — | — | | | ● | 27 | 17,600 |
| 8544015 | **R1.5** | 70 | 2.3 | | 15 | 2.7 | — | — | | | ● | 32 | 18,100 |
| 8544020 | **R2** | | 3 | | 20 | 3.7 | — | — | | | ● | 33 | 18,100 |
| 8544030 | **R3** | 90 | 4 | | 30 | 4.6 | 5.9 | 1°30′ | 2 | | ● | 39 | 22,200 |
| 8544040 | **R4** | 100 | 5.4 | 8 | 40 | 6.2 | 7.9 | | | | ● | 70 | 29,200 |
| 8544050 | **R5** | 110 | 6.7 | 10 | 50 | 7.7 | 9.9 | | | | ● | 117 | 35,400 |
| 8544060 | **R6** | | 8.1 | 12 | 60 | 9.2 | 11.9 | | | | ● | 163 | 46,000 |

### Type 1




### Type 2




デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-EQD | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXSコート3枚刃超硬ペンシルネックボールエンドミル
**WXS Coated 3-flute Pencil Neck Carbide Ball End Mill**

## PHX-PC-DBT

切削条件 Cutting Conditions | P578




深彫り加工の常識を変える高能率加工を実現します。独特なスパイラルボール刃が深彫り加工時の振動を防止し安定した高送り切削を実現します。

Changes the idea of deep milling with high efficiency machining. Unique spiral fluted ball nose gives stable high feed milling and eliminated vibrations.

CAD

CARBIDE | WXS | R ±0.01 | SHRINK FIT | 45°

（単位:mm）(Unit:mm)

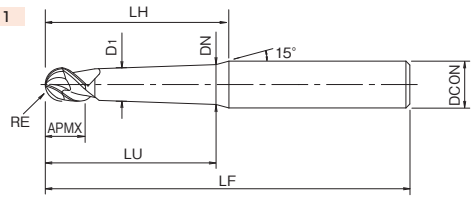
| ツール No. EDP No. | 有効勾配角 α | ボール半径×首部テーパ半角×首下長×全長 RE × θn × LU × LF | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 D1 | 首元径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長 (Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3094000 | 0.25° | R0.5 × 0.5° × 8 | 17.9 | 60 | 1.5 | 6 | 0.95 | 1.06 | 8.49° | 8.13 | 8.4 | 8.68 | 8.99 | 9.68 | 3 | 1 | A | ● | 22 | 15,200 |
| 3094001 | 0.34° | R0.5 × 0.5° × 12 | 21.8 | | | | | 1.13 | 6.92° | 12.13 | 12.54 | 12.97 | 13.44 | 14.49 | | | | ● | 20 | 15,400 |
| 3095125 | 0.38° | R0.5 × 0.5° × 16 | 25.6 | | | | | 1.2 | 5.84° | 16.13 | 16.68 | 17.26 | 17.89 | 19.3 | | | | ● | 21 | 15,600 |
| 3094002 | 0.41° | R0.5 × 0.5° × 20 | 29.5 | | | | | 1.27 | 5.04° | 20.13 | 20.82 | 21.55 | 22.34 | 24.11 | | | | ● | 17 | 15,700 |
| 3095141 | 0.56° | R0.5 × 1° × 6 | 15.7 | | | | | 1.1 | 9.67° | 5.75 | 6.18 | 6.38 | 6.61 | 7.1 | | | | ● | 28 | 15,100 |
| 3095142 | 0.68° | R0.5 × 1° × 8 | 17.6 | | | | | 1.17 | 8.59° | 5.62 | 8.18 | 8.46 | 8.76 | 9.43 | | | | ● | 25 | 15,200 |
| 3095143 | 0.75° | R0.5 × 1° × 10 | 19.5 | | | | | 1.24 | 7.74° | 5.55 | 10.18 | 10.53 | 10.9 | 11.75 | | | | ● | 23 | 15,200 |
| 3095144 | 0.79° | R0.5 × 1° × 12 | 21.4 | | | | | 1.31 | 7.03° | 5.51 | 12.18 | 12.6 | 13.05 | 14.08 | | | | ● | 23 | 15,400 |
| 3094003 | 0.83° | R0.5 × 1° × 14 | 23.3 | | | | | 1.39 | 6.45° | 5.3 | 14.16 | 14.65 | 15.18 | 16.38 | | | | ● | 20 | 15,500 |
| 3095145 | 0.85° | R0.5 × 1° × 16 | 25.1 | | | | | 1.45 | 5.95° | 5.46 | 16.18 | 16.74 | 17.35 | 18.72 | | | | ● | 22 | 15,600 |
| 3094004 | 0.87° | R0.5 × 1° × 18 | 27.1 | | | | | 1.53 | 5.53° | 5.31 | 18.16 | 18.8 | 19.48 | 21.02 | | | | ● | 19 | 15,600 |
| 3095146 | 0.88° | R0.5 × 1° × 20 | 28.8 | | | | | 1.59 | 5.15° | 5.44 | 20.18 | 20.89 | 21.65 | 23.37 | | | | ● | 24 | 15,700 |
| 3094005 | 0.89° | R0.5 × 1° × 22 | 30.8 | | | | | 1.67 | 4.83° | 5.32 | 22.16 | 22.94 | 23.78 | 25.67 | | | | ● | 16 | 15,800 |
| 3094006 | 0.9° | R0.5 × 1° × 24 | 32.7 | | | | | 1.74 | 4.55° | 5.32 | 24.16 | 25.01 | 25.93 | 28 | | | | ● | 16 | 15,900 |
| 3095147 | 0.91° | R0.5 × 1° × 25 | 33.5 | 70 | | | | 1.77 | 4.42° | 5.37 | 25.17 | 26.06 | 27.02 | 29.17 | | | | ● | 24 | 16,500 |
| 3094007 | 0.91° | R0.5 × 1° × 26 | 34.5 | | | | | 1.81 | 4.29° | 5.32 | 26.16 | 27.08 | 28.08 | 30.32 | | | | ● | 20 | 16,500 |
| 3094008 | 0.92° | R0.5 × 1° × 28 | 36.4 | | | | | 1.88 | 4.07° | 5.33 | 28.16 | 29.15 | 30.23 | 32.64 | | | | ● | 19 | 16,600 |
| 3094009 | 0.92° | R0.5 × 1° × 30 | 38.3 | | | | | 1.95 | 3.86° | 5.33 | 30.15 | 31.23 | 32.38 | 34.97 | | | | ● | 19 | 16,700 |
| 3094010 | 0.93° | R0.5 × 1° × 32 | 40.1 | 80 | | | | 2.02 | 3.68° | 5.33 | 32.15 | 33.3 | 34.53 | 37.29 | | | | ● | 25 | 17,500 |
| 3094011 | 0.93° | R0.5 × 1° × 34 | 42 | | | | | 2.09 | 3.51° | 5.33 | 34.15 | 35.37 | 36.68 | 39.62 | | | | ● | 24 | 17,500 |
| 3094012 | 0.94° | R0.5 × 1° × 36 | 43.9 | | | | | 2.16 | 3.36° | 5.33 | 36.15 | 37.44 | 38.83 | 41.94 | | | | ● | 24 | 17,600 |
| 3095155 | 1.3° | R0.5 × 1.5° × 15 | 23.7 | 60 | | | | 1.65 | 6.3° | 3.46 | 6.52 | 15.22 | 15.77 | 17.02 | | | | ● | 24 | 15,500 |
| 3094013 | 1.31° | R0.5 × 1.5° × 16 | 24.7 | | | | | 1.71 | 6.07° | 3.43 | 6.36 | 16.21 | 16.8 | 18.12 | | | | ● | 19 | 15,600 |
| 3094014 | 1.35° | R0.5 × 1.5° × 20 | 28.3 | | | | | 1.92 | 5.27° | 3.43 | 6.35 | 20.21 | 20.94 | 22.61 | | | | ● | 18 | 15,700 |
| 3094015 | 1.38° | R0.5 × 1.5° × 24 | 31.9 | | | | | 2.13 | 4.65° | 3.43 | 6.35 | 24.2 | 25.09 | 27.09 | | | | ● | 16 | 15,900 |
| 3095157 | 1.39° | R0.5 × 1.5° × 25 | 32.7 | 70 | | | | 2.18 | 4.52° | 3.43 | 6.38 | 25.21 | 26.14 | 28.22 | | | | ● | 24 | 16,500 |
| 3094016 | 1.4° | R0.5 × 1.5° × 30 | 37.4 | | | | | 2.44 | 3.96° | 3.44 | 6.4 | 30.21 | 31.33 | 33.83 | | | | ● | 19 | 16,700 |
| 3094017 | 1.43° | R0.5 × 1.5° × 40 | 46.4 | 80 | | | | 2.97 | 3.17° | 3.43 | 6.34 | 40.2 | 41.69 | 45.03 | | | | ● | 24 | 17,100 |
| 3094018 | 1.44° | R0.5 × 1.5° × 50 | 55.4 | 90 | | | | 3.49 | 2.65° | 3.43 | 6.37 | 50.21 | 52.07 | — | | | | ● | 25 | 17,400 |
| 3094019 | 1.45° | R0.5 × 1.5° × 60 | 64.4 | 100 | | | | 4.02 | 2.27° | 3.43 | 6.34 | 60.19 | 62.43 | — | | | | ● | 27 | 17,700 |
| 3095191 | 4.3° | R0.5 × 4.5° × 30 | 31.6 | 70 | | | | 5.43 | 4.68° | 1.98 | 2.2 | 2.48 | 2.88 | 4.48 | | | | ● | 27 | 16,700 |
| 3094020 | 0.45° | R0.75 × 0.7° × 12 | 20.8 | 60 | 2.25 | | 1.45 | 1.67 | 6.63° | 12.05 | 12.44 | 12.86 | 13.32 | 14.34 | | | | ● | 21 | 15,400 |
| 3094021 | 0.52° | R0.75 × 0.7° × 16 | 24.6 | | | | | 1.77 | 5.55° | 15.35 | 16.52 | 17.09 | 17.7 | 19.08 | | | | ● | 19 | 15,600 |
| 3094022 | 0.56° | R0.75 × 0.7° × 20 | 28.4 | | | | | 1.87 | 4.77° | 14.53 | 20.6 | 21.32 | 22.09 | 23.82 | | | | ● | 19 | 15,700 |
| 3094023 | 0.61° | R0.75 × 0.7° × 30 | 38 | 70 | | | | 2.11 | 3.53° | 14.29 | 30.82 | 31.9 | 33.07 | 35.7 | | | | ● | 19 | 16,700 |
| 3095211 | 0.45° | R0.75 × 1° × 6 | 14.8 | 60 | | | | 1.58 | 9.43° | 6.02 | 6.2 | 6.4 | 6.61 | 7.09 | | | | ● | 28 | 15,100 |
| 3094024 | 0.49° | R0.75 × 1° × 8 | 16.9 | | | | | 1.63 | 8.29° | 7.75 | 8.24 | 8.51 | 8.8 | 9.46 | | | | ● | 22 | 15,200 |
| 3095212 | 0.65° | R0.75 × 1° × 9 | 17.6 | | | | | 1.68 | 7.83° | 6.84 | 9.21 | 9.52 | 9.85 | 10.59 | | | | ● | 24 | 15,200 |
| 3094025 | 0.62° | R0.75 × 1° × 10 | 18.7 | | | | | 1.7 | 7.41° | 7.4 | 10.24 | 10.58 | 10.95 | 11.78 | | | | ● | 22 | 15,200 |
| 3095213 | 0.74° | R0.75 × 1° × 12 | 20.4 | | | | | 1.79 | 6.71° | 6.63 | 12.2 | 12.61 | 13.06 | 14.06 | | | | ● | 24 | 15,400 |
| 3094026 | 0.74° | R0.75 × 1° × 14 | 22.5 | | | | | 1.84 | 6.11° | 7.09 | 14.24 | 14.73 | 15.25 | 16.43 | | | | ● | 20 | 15,500 |
| 3095214 | 0.8° | R0.75 × 1° × 15 | 23.2 | | | | | 1.89 | 5.86° | 6.72 | 15.21 | 15.73 | 16.3 | 17.56 | | | | ● | 24 | 15,500 |
| 3094027 | 0.77° | R0.75 × 1° × 16 | 24.3 | | | | | 1.91 | 5.61° | 7.01 | 16.24 | 16.8 | 17.4 | 18.76 | | | | ● | 19 | 15,600 |
| 3094028 | 0.8° | R0.75 × 1° × 18 | 26.2 | | | | | 1.98 | 5.19° | 6.96 | 18.24 | 18.87 | 19.55 | 21.08 | | | | ● | 19 | 15,600 |
| 3094029 | 0.82° | R0.75 × 1° × 20 | 28.1 | | | | | 2.05 | 4.83° | 6.91 | 20.24 | 20.94 | 21.7 | 23.4 | | | | ● | 18 | 15,700 |
| 3095215 | 0.86° | R0.75 × 1° × 21 | 28.8 | | | | | 2.1 | 4.67° | 6.68 | 21.21 | 21.95 | 22.74 | 24.53 | | | | ● | 21 | 15,800 |
| 3094030 | 0.86° | R0.75 × 1° × 26 | 33.7 | 70 | | | | 2.26 | 4° | 6.83 | 26.24 | 27.16 | 28.15 | 30.38 | | | | ● | 21 | 16,500 |
| 3095216 | 0.9° | R0.75 × 1° × 30 | 37.3 | | | | | 2.41 | 3.58° | 6.7 | 30.22 | 31.28 | 32.43 | 35 | | | | ● | 24 | 16,700 |
| 3094031 | 0.92° | R0.75 × 1° × 40 | 46.8 | 80 | | | | 2.75 | 2.85° | 6.74 | 40.24 | 41.66 | 43.2 | — | | | | ● | 23 | 17,800 |
| 3094032 | 0.93° | R0.75 × 1° × 50 | 56.1 | 90 | | | | 3.1 | 2.36° | 6.71 | 50.23 | 52.02 | 53.94 | — | | | | ● | 25 | 18,500 |

次ページへ
ボール半径 RE 1〜1.5 NEXT

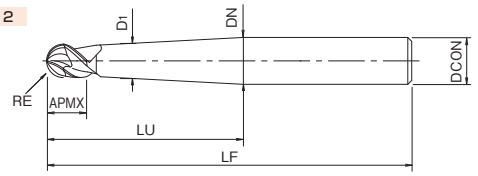
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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

Type 1

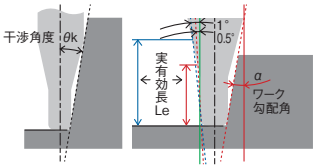



Type 2



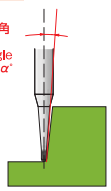

## ■ワーク勾配角αに対する実有効長 (Le)

Effective Neck length (Le) depending on Inclined Angle (α) of workpiece

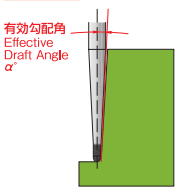



実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

Type 1




Type 2




前ページより
FROM ボール半径 RE 0.5～0.75

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 有効勾配角 α | ボール半径×首部テーパ(半角)×首下長×全長 RE×θn×LU×LF | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 D1 | 首元径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長 (Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3094033 | 0.21° | R1 ×0.5° × 10 | 18 | 60 | 3 | 6 | 1.95 | 2.06 | 6.95° | 10.18 | 10.5 | 10.85 | 11.22 | 12.05 | 3 | 1 | A | 22 | 15,000 |
| 3095223 | 0.38° | R1 ×0.5° × 20 | 27.6 | | | | | 2.24 | 4.39° | 20.17 | 20.84 | 21.56 | 22.33 | 24.06 | | | | 22 | 15,700 |
| 3094034 | 0.41° | R1 ×0.5° × 30 | 37.4 | 70 | | | | 2.41 | 3.21° | 30.18 | 31.2 | 32.29 | 33.46 | 36.1 | | | | 20 | 16,400 |
| 3095241 | 0.62° | R1 ×1° × 10 | 17.7 | 60 | | | | 2.19 | 7.06° | 8.05 | 10.24 | 10.58 | 10.94 | 11.75 | | | | 25 | 15,200 |
| 3094035 | 0.64° | R1 ×1° × 12 | 19.7 | | | | | 2.24 | 6.32° | 8.75 | 12.28 | 12.69 | 13.13 | 14.12 | | | | 22 | 15,400 |
| 3094036 | 0.69° | R1 ×1° × 14 | 21.6 | | | | | 2.31 | 5.73° | 8.56 | 14.28 | 14.76 | 15.28 | 16.44 | | | | 21 | 15,500 |
| 3095242 | 0.76° | R1 ×1° × 15 | 22.4 | | | | | 2.36 | 5.49° | 8.08 | 15.25 | 15.77 | 16.32 | 17.57 | | | | 23 | 15,500 |
| 3094037 | 0.74° | R1 ×1° × 16 | 23.5 | | | | | 2.38 | 5.25° | 8.44 | 16.28 | 16.84 | 17.43 | 18.77 | | | | 20 | 15,600 |
| 3094038 | 0.77° | R1 ×1° × 18 | 25.3 | | | | | 2.45 | 4.84° | 8.35 | 18.28 | 18.91 | 19.58 | 21.09 | | | | 20 | 15,600 |
| 3095243 | 0.82° | R1 ×1° × 20 | 27 | | | | | 2.54 | 4.49° | 7.93 | 20.24 | 20.94 | 21.69 | 23.37 | | | | 22 | 15,700 |
| 3094039 | 0.83° | R1 ×1° × 24 | 30.9 | | | | | 2.66 | 3.91° | 8.2 | 24.28 | 25.12 | 26.03 | 28.06 | | | | 18 | 15,800 |
| 3095244 | 0.86° | R1 ×1° × 25 | 31.7 | 70 | | | | 2.71 | 3.8° | 7.97 | 25.25 | 26.13 | 27.07 | 29.19 | | | | 26 | 16,500 |
| 3094040 | 0.84° | R1 ×1° × 26 | 32.8 | | | | | 2.73 | 3.68° | 8.16 | 26.28 | 27.19 | 28.18 | 30.39 | | | | 22 | 16,500 |
| 3095245 | 0.89° | R1 ×1° × 30 | 36.4 | 80 | | | | 2.89 | 3.29° | 7.9 | 30.24 | 31.3 | 32.43 | 34.99 | | | | 28 | 17,500 |
| 3095246 | 0.92° | R1 ×1° × 40 | 45.7 | | | | | 3.24 | 2.6° | 7.88 | 40.24 | 41.66 | 43.18 | — | | | | 25 | 17,800 |
| 3095247 | 0.93° | R1 ×1° × 50 | 55.1 | 100 | | | | 3.59 | 2.15° | 7.87 | 50.24 | 52.02 | 53.93 | — | | | | 31 | 19,500 |
| 3094041 | 1.15° | R1 ×1.5° × 16 | 23.1 | 60 | | | | 2.6 | 5.35° | 5.61 | 10.96 | 16.38 | 16.96 | 18.26 | | | | 20 | 15,600 |
| 3094042 | 1.22° | R1 ×1.5° × 20 | 26.7 | | | | | 2.81 | 4.58° | 5.56 | 10.66 | 20.38 | 21.11 | 22.74 | | | | 19 | 15,700 |
| 3094043 | 1.27° | R1 ×1.5° × 24 | 30.3 | | | | | 3.02 | 4.01° | 5.54 | 10.49 | 24.38 | 25.26 | 27.23 | | | | 18 | 15,800 |
| 3094044 | 1.32° | R1 ×1.5° × 30 | 35.7 | 80 | | | | 3.33 | 3.37° | 5.52 | 10.41 | 30.39 | 31.49 | 33.97 | | | | 24 | 17,500 |
| 3095251 | 1.39° | R1 ×1.5° × 40 | 44.5 | | | | | 3.88 | 2.67° | 5.45 | 9.96 | 40.33 | 41.81 | — | | | | 26 | 19,700 |
| 3094045 | 1.40° | R1 ×1.5° × 50 | 53.7 | 100 | | | | 4.38 | 2.21° | 5.48 | 10.15 | 50.38 | 52.23 | — | | | | 31 | 19,500 |
| 3094046 | 1.41° | R1 ×1.5° × 60 | 62.8 | | | | | | 1.85° | 6.38 | 18.56 | 61.46 | — | — | | | | 30 | 21,900 |
| 3095262 | 1.93° | R1 ×2° × 60.3 | — | 80 | | | | 6 | 1.94° | 4.6 | 6.36 | 11.49 | — | — | | 2 | | 31 | 21,900 |
| 3095273 | 2.85° | R1 ×3° × 41.2 | | | | | | | 2.85° | 3.96 | 4.69 | 5.9 | 8.28 | — | | | | 30 | 19,800 |
| 3095281 | 3.94° | R1 ×4° × 30 | | | | | | | 3.95° | 3.64 | 4.04 | 4.59 | 5.38 | 8.81 | | | | 30 | 19,300 |
| 3094047 | 0.44° | R1.25 ×0.7° × 16 | 22.8 | 60 | 3.8 | 6 | 2.45 | 2.72 | 4.79° | 16.07 | 16.58 | 17.14 | 17.74 | 19.08 | 3 | 1 | A | 21 | 18,700 |
| 3094048 | 0.5° | R1.25 ×0.7° × 20 | 26.6 | | | | | 2.82 | 4.05° | 20.01 | 20.66 | 21.37 | 22.12 | 23.82 | | | | 20 | 19,000 |
| 3094049 | 0.53° | R1.25 ×0.7° × 24 | 30.4 | | | | | 2.92 | 3.51° | 20.07 | 24.74 | 25.59 | 26.51 | 28.56 | | | | 18 | 19,300 |
| 3094050 | 0.57° | R1.25 ×0.7° × 30 | 36.2 | 80 | | | | 3.07 | 2.93° | 19.03 | 30.86 | 31.93 | 33.08 | — | | | | 25 | 19,700 |
| 3094051 | 0.83° | R1.25 ×1° × 30 | 35.7 | | | | | 3.33 | 2.97° | 9.66 | 30.34 | 31.39 | 32.53 | — | | | | 25 | 19,700 |
| 3094052 | 0.88° | R1.25 ×1° × 40 | 45 | | | | | 3.68 | 2.33° | 9.53 | 40.34 | 41.75 | 43.27 | — | | | | 22 | 20,100 |
| 3094053 | 0.9° | R1.25 ×1° × 50 | 54.4 | 100 | | | | 4.03 | 1.92° | 9.45 | 50.34 | 52.11 | — | — | | | | 32 | 21,400 |
| 3094054 | 1.33° | R1.25 ×1.5° × 40 | 43.9 | | | | | 4.3 | 2.39° | 6.61 | 12.41 | 40.47 | 41.94 | — | | | | 34 | 21,100 |
| 3094055 | 1.39° | R1.25 ×1.5° × 60 | 65.7 | 120 | | 8 | | 5.34 | 2.48° | 6.58 | 12.24 | 60.49 | 62.71 | — | | | | 58 | 23,600 |
| 3094056 | 1.42° | R1.25 ×1.5° × 80 | 83.7 | 150 | | | | 6.39 | 1.93° | 6.56 | 12.1 | 80.48 | — | — | | | | 81 | 25,700 |
| 3095321 | 0.27° | R1.5 ×0.5° × 20 | 26 | 80 | 4.5 | 6 | 2.9 | 3.17 | 3.61° | 20.29 | 20.95 | 21.65 | 22.41 | 24.11 | | 1 | | 28 | 19,000 |
| 3094057 | 0.51° | R1.5 ×1° × 16 | 21.8 | | | | | 3.26 | 4.37° | 15.51 | 16.49 | 17.03 | 17.61 | 18.93 | | | | 30 | 18,700 |
| 3095341 | 0.69° | R1.5 ×1° × 20 | 25.5 | | | | | 3.44 | 3.68° | 13.27 | 20.41 | 21.09 | 21.83 | 23.48 | | | | 28 | 19,000 |
| 3094058 | 0.69° | R1.5 ×1° × 24 | 29.3 | | | | | 3.54 | 3.17° | 14.42 | 24.49 | 25.32 | 26.21 | 28.22 | | | | 27 | 19,300 |
| 3095342 | 0.76° | R1.5 ×1° × 25 | 30.1 | | | | | 3.61 | 3.07° | 13.37 | 25.42 | 26.28 | 27.21 | 29.3 | | | | 28 | 19,200 |
| 3094059 | 0.71° | R1.5 ×1° × 26 | 31.2 | | | | | | 2.97° | 14.29 | 26.49 | 27.39 | 28.36 | — | | | | 27 | 19,200 |
| 3095343 | 0.8° | R1.5 ×1° × 30 | 34.8 | | | | | 3.79 | 2.63° | 13.24 | 30.4 | 31.45 | 32.57 | — | | | | 26 | 19,300 |
| 3095344 | 0.85° | R1.5 ×1° × 40 | 44.2 | | | | | 4.13 | 2.05° | 13.37 | 40.42 | 41.83 | 43.34 | — | | | | 24 | 19,700 |
| 3095345 | 0.88° | R1.5 ×1° × 50 | 53.5 | 100 | | | | 4.48 | 1.68° | 13.33 | 50.42 | 52.19 | — | — | | | | 33 | 21,400 |
| 3095346 | 0.9° | R1.5 ×1° × 60 | 62.9 | | | | | 4.83 | 1.42° | 13.3 | 60.42 | — | — | — | | | | 31 | 21,900 |
| 3094060 | 0.9° | R1.5 ×1° × 70 | 72.3 | 110 | | | | 5.14 | 1.23° | 13.61 | 70.5 | — | — | — | | | | 34 | 22,400 |
| 3095356 | 1.45° | R1.5 ×1.5° × 60.8 | — | 100 | | | | 6 | 1.45° | 8.55 | 14.68 | — | — | — | | 2 | | 34 | 21,900 |
| 3095365 | 1.91° | R1.5 ×2° × 46.5 | | | | | | | 1.91° | 7.21 | 9.77 | 16.54 | — | — | | | | 37 | 21,400 |
| 3095374 | 2.8° | R1.5 ×3° × 32.1 | | 80 | | | | | 2.81° | 6.11 | 7.15 | 8.81 | 11.83 | — | | | | 29 | 19,500 |

次ページへ
ボール半径 RE 1.5～3 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# WXSコート3枚刃超硬ペンシルネックボールエンドミル
**WXS Coated 3-flute Pencil Neck Carbide Ball End Mill**

## PHX-PC-DBT

切削条件 Cutting Conditions | P578




深彫り加工の常識を変える高能率加工を実現します。独特なスパイラルボール刃が深彫り加工時の振動を防止し安定した高送り切削を実現します。

Changes the idea of deep milling with high efficiency machining. Unique spiral fluted ball nose gives stable high feed milling and eliminated vibrations.

CARBIDE | WXS | R ±0.01 | SHRINK FIT | 45°

CAD

前ページより FROM ボール半径 RE 1〜1.5

（単位:mm）(Unit:mm)

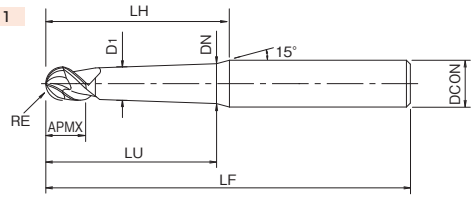
| ツール No. EDP No. | 有効勾配角 α | ボール半径×首部テーパ半角×首下長×全長 RE × θn × LU × LF | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 D1 | 首元径 DN | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長 (Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3094061 | 2.6° | R1.5 X3° X 40 | 43.6 | 80 | 4.5 | 8 | 2.9 | 6.49 | 3.46° | 6.32 | 7.6 | 9.79 | 14.45 | 41.27 | 3 | 1 | ● | 43 | 20,100 |
| 3094062 | 2.69° | R1.5 X3° X 50 | 55.4 | 120 | | 10 | | 7.54 | 3.77° | 6.3 | 7.56 | 9.7 | 14.19 | 51.27 | | | ● | 101 | 23,800 |
| 3094063 | 2.78° | R1.5 X3° X 70 | 75.2 | | | 12 | | 9.64 | 3.53° | 6.28 | 7.52 | 9.61 | 13.92 | 71.26 | | | ● | 122 | 26,200 |
| 3094064 | 2.83° | R1.5 X3° X 90 | 91.3 | 130 | | | | 11.74 | 2.9° | 6.27 | 7.5 | 9.56 | 13.78 | — | | | ● | 134 | 27,300 |
| 3094065 | 0.58° | R1.75 X1° X 20 | 24.7 | 80 | 5.3 | 6 | 3.4 | 3.87 | 3.22° | 16.46 | 20.53 | 21.21 | 21.94 | 23.59 | | | ● | 29 | 19,000 |
| 3094066 | 0.73° | R1.75 X1° X 30 | 34 | | | | | 4.22 | 2.27° | 15.6 | 30.53 | 31.57 | 32.69 | — | | | ● | 27 | 19,300 |
| 3094067 | 0.8° | R1.75 X1° X 40 | 43.4 | | | | | 4.57 | 1.75° | 15.27 | 40.53 | 41.93 | — | — | | | ● | 25 | 19,700 |
| 3094068 | 0.85° | R1.75 X1° X 50 | 52.7 | 100 | | | | 4.92 | 1.43° | 15.09 | 50.52 | — | — | — | | | ● | 35 | 21,400 |
| 3094069 | 1.33° | R1.75 X1.5° X 60 | 64.1 | | | 8 | | 6.2 | 2.1° | 10.1 | 19.09 | 60.72 | 62.94 | — | | | ● | 49 | 25,700 |
| 3094070 | 1.38° | R1.75 X1.5° X 80 | 82.1 | 120 | | | | 7.25 | 1.62° | 10.06 | 18.8 | 80.72 | — | — | | | ● | 59 | 28,400 |
| 3094071 | 1.4° | R1.75 X1.5° X 100 | 103.9 | 150 | | 10 | | 8.29 | 1.84° | 10.04 | 18.72 | 100.73 | — | — | | | ● | 107 | 34,300 |
| 3095421 | 0.29° | R2 X0.5° X 25 | 29 | 80 | 6 | 6 | 3.9 | 4.23 | 2.18° | 25.33 | 26.14 | 27.01 | 27.95 | — | | | ● | 29 | 19,200 |
| 3095441 | 0.76° | R2 X1° X 30 | 33 | | | | | 4.73 | 1.89° | 15.92 | 30.49 | 31.52 | — | — | | | ● | 28 | 19,300 |
| 3095442 | 0.82° | R2 X1° X 40 | 42.4 | | | | | 5.08 | 1.45° | 15.85 | 40.49 | — | — | — | | | ● | 28 | 19,700 |
| 3095443 | 0.86° | R2 X1° X 50 | 51.8 | 100 | | | | 5.43 | 1.17° | 15.81 | 50.49 | — | — | — | | | ● | 38 | 21,400 |
| 3094072 | 0.86° | R2 X1° X 60 | 61.2 | | | | | 5.74 | 0.98° | 16.23 | — | — | — | — | | | ● | 36 | 22,200 |
| 3095444 | 0.97° | R2 X1° X 61.3 | — | | | | | 6 | 0.97° | 14.28 | — | — | — | — | | 2 | ● | 37 | 22,200 |
| 3094073 | 0.89° | R2 X1° X 70 | 74.3 | 120 | | 8 | | 6.09 | 1.61° | 16.14 | 70.56 | 73.04 | — | — | | 1 | ● | 60 | 26,800 |
| 3095445 | 0.92° | R2 X1° X 80 | 83.5 | 120 | | | | 6.48 | 1.42° | 15.76 | 80.48 | — | — | — | | | ● | 57 | 27,200 |
| 3095453 | 1.42° | R2 X1.5° X 42.2 | — | 80 | | 6 | | 6 | 1.43° | 10.19 | 16.4 | — | — | — | | 2 | ● | 28 | 19,800 |
| 3094074 | 1.32° | R2 X1.5° X 60 | 63.2 | 120 | | 8 | | 6.66 | 1.9° | 11.05 | 20.83 | 60.78 | — | — | | 1 | ● | 67 | 26,500 |
| 3095454 | 1.46° | R2 X1.5° X 80.4 | — | | | | | 8 | 1.47° | 10.51 | 17.9 | — | — | — | | 2 | ● | 64 | 27,200 |
| 3094075 | 1.4° | R2 X1.5° X 100 | 103 | 150 | | 10 | | 8.76 | 1.72° | 10.96 | 20.31 | 100.77 | — | — | | 1 | ● | 113 | 32,700 |
| 3094076 | 1.53° | R2 X2° X 30 | 35.4 | 80 | | 8 | | 5.49 | 3.5° | 9.48 | 13.67 | 28.4 | 31 | 33.36 | | | ● | 47 | 19,300 |
| 3095462 | 1.93° | R2 X2° X 61.3 | — | 120 | | | | 8 | 1.94° | 9 | 12.12 | 20.28 | — | — | 3 | A | ● | 71 | 26,500 |
| 3094077 | 1.78° | R2 X2° X 66.7 X 140 | | 140 | | | | | 1.77° | 9.39 | 13.36 | 26.49 | — | — | | 2 | ● | 87 | 29,400 |
| 3094078 | 1.78° | R2 X2° X 66.7 X 160 | | 160 | | | | | 1.77° | 9.39 | 13.36 | 26.49 | — | — | | | ● | 105 | 32,000 |
| 3094079 | 2.35° | R2 X3° X 30 | 34 | 80 | | | | 6.29 | 3.67° | 8.07 | 9.71 | 12.58 | 18.84 | 31.5 | | 1 | ● | 49 | 19,300 |
| 3095472 | 2.84° | R2 X3° X 42.2 | — | 100 | | | | 8 | 2.85° | 7.77 | 9.07 | 11.11 | 14.79 | — | | 2 | ● | 62 | 23,600 |
| 3094080 | 2.54° | R2 X3° X 47.1 X 120 | | 120 | | | | | 2.54° | 8.07 | 9.7 | 12.56 | 18.76 | — | | | ● | 75 | 26,500 |
| 3094081 | 2.54° | R2 X3° X 47.1 X 140 | — | 140 | | | | | 2.54° | 8.07 | 9.7 | 12.56 | 18.76 | — | | | ● | 93 | 29,400 |
| 3094082 | 2.54° | R2 X3° X 47.1 X 160 | | 160 | | | | | 2.54° | 8.07 | 9.7 | 12.56 | 18.76 | — | | | ● | 111 | 32,000 |
| 3094083 | 2.54° | R2 X3° X 47.1 X 200 | | 200 | | | | | 2.54° | 8.07 | 9.7 | 12.56 | 18.76 | — | | | ● | 168 | 35,300 |
| 3094084 | 0.67° | R2.5 X1° X 30 | 35.1 | 80 | 7.5 | 8 | 4.9 | 5.64 | 2.69° | 19.64 | 30.64 | 31.65 | 32.75 | — | | 1 | ● | 50 | 19,300 |
| 3095541 | 0.76° | R2.5 X1° X 35 | 39.7 | 100 | | | | 5.86 | 2.36° | 18.24 | 35.54 | 36.74 | 38.03 | — | | | ● | 61 | 24,000 |
| 3094085 | 0.76° | R2.5 X1° X 40 | 44.5 | 80 | | | | 5.99 | 2.09° | 19.15 | 40.63 | 42.01 | 43.5 | — | | | ● | 55 | 23,600 |
| 3095542 | 0.84° | R2.5 X1° X 50 | 53.7 | 100 | | | | 6.38 | 1.7° | 18.29 | 50.55 | 52.29 | — | — | | | ● | 58 | 24,900 |
| 3094086 | 0.85° | R2.5 X1° X 60 | 63.2 | | | | | 6.69 | 1.44° | 18.76 | 60.63 | — | — | — | | | ● | 45 | 25,200 |
| 3095543 | 0.89° | R2.5 X1° X 70 | 72.4 | | | | | 7.08 | 1.25° | 18.26 | 70.55 | — | — | — | | | ● | 74 | 28,100 |
| 3094087 | 0.89° | R2.5 X1° X 80 | 81.9 | | | | | 7.39 | 1.1° | 18.6 | 80.63 | — | — | — | | | ● | 73 | 28,800 |
| 3095544 | 0.98° | R2.5 X1° X 90.4 | — | 130 | | | | 8 | 0.98° | 16.9 | — | — | — | — | | 2 | ● | 74 | 29,400 |
| 3095553 | 1.45° | R2.5 X1.5° X 61.8 | | | | | | | 1.45° | 12.23 | 19.91 | — | — | — | | | ● | 81 | 27,900 |
| 3094088 | 1.36° | R2.5 X1.5° X 90 | 92.3 | | | 10 | | 9.15 | 1.61° | 13 | 24.08 | 90.89 | — | — | | 1 | ● | 100 | 35,000 |
| 3095562 | 1.91° | R2.5 X2° X 47.5 | — | | | 8 | | 8 | 1.91° | 10.62 | 13.96 | 21.97 | — | — | | 2 | ● | 85 | 27,500 |
| 3095641 | 0.77° | R3 X1° X 40 | 42.6 | 100 | 9 | 8 | 5.9 | 6.98 | 1.48° | 20.79 | 40.62 | — | — | — | | 1 | ● | 65 | 26,200 |
| 3095642 | 0.82° | R3 X1° X 50 | 51.9 | | | | | 7.33 | 1.19° | 20.76 | 50.62 | — | — | — | | | ● | 63 | 26,800 |
| 3094089 | 0.83° | R3 X1° X 60 | 65.1 | | | 10 | | 7.64 | 1.87° | 21.3 | 60.7 | 62.78 | — | — | | | ● | 80 | 32,000 |
| 3095643 | 0.97° | R3 X1° X 62.3 | — | 130 | | 8 | | 8 | 0.97° | 18.34 | — | — | — | — | | 2 | ● | 85 | 29,700 |
| 3095644 | 0.9° | R3 X1° X 90 | 93.1 | | | 10 | | 8.72 | 1.29° | 20.81 | 90.63 | — | — | — | | 1 | ● | 115 | 35,000 |

次ページへ ボール半径 RE 3〜6 NEXT

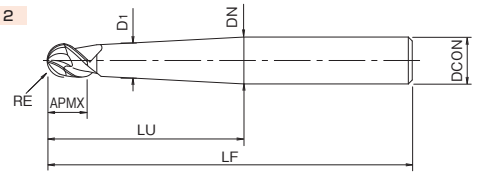
**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

Type 1

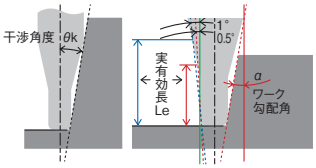



Type 2



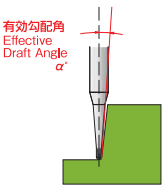

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece

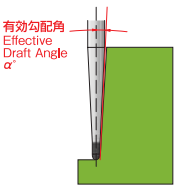



実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

Type 1




Type 2




前ページより
FROM ボール半径 RE 1.5～3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 有効勾配角 α | ボール半径×首部テーパ半角×首下長×全長 RE×θn×LU×LF | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 D1 | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長（Le） 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3095651 | 1.42° | R3×1.5°×43.2 | | 100 | | 8 | | 8 | 1.43° | 13.66 | 20.72 | — | — | — | | | | 67 | 26,500 |
| 3095653 | 1.46° | R3×1.5°×81.4 | | 130 | | 10 | | 10 | 1.47° | 14.23 | 23.29 | — | — | — | | | | 117 | 34,300 |
| 3095661 | 1.87° | R3×2°×33.6 | | 100 | | 8 | | 8 | 1.87° | 12.02 | 15.15 | 21.62 | — | — | | | | 69 | 25,700 |
| 3095662 | 1.93° | R3×2°×62.3 | | 130 | | | | | 1.94° | 12.45 | 16.39 | 25.96 | — | — | | | | 125 | 33,600 |
| 3094090 | 1.72° | R3×2°×69.7×130 | — | | 9 | | 5.9 | | 1.72° | 13.09 | 18.51 | 36.44 | — | — | | 2 | | 123 | 35,000 |
| 3094091 | 1.72° | R3×2°×69.7×160 | | 160 | | | | 10 | 1.72° | 13.09 | 18.51 | 36.44 | — | — | | | | 160 | 38,500 |
| 3094092 | 2.44° | R3×3°×50.1×130 | | 130 | | | | | 2.43° | 11.49 | 13.79 | 17.79 | 26.47 | — | | | | 131 | 35,000 |
| 3094093 | 2.44° | R3×3°×50.1×160 | | 160 | | 10 | | | 2.43° | 11.49 | 13.79 | 17.79 | 26.47 | — | | | | 168 | 38,500 |
| 3094094 | 2.44° | R3×3°×50.1×200 | | 200 | | | | | 2.43° | 11.49 | 13.79 | 17.79 | 26.47 | — | | | | 241 | 42,200 |
| 3094095 | 0.67° | R4×1°×40 | 42.9 | 100 | | | | 8.83 | 1.5° | 27.22 | 40.85 | — | — | — | | 1 | | 103 | 30,800 |
| 3095841 | 0.77° | R4×1°×50 | 52.3 | | | | | 9.22 | 1.21° | 25.88 | 50.77 | — | — | — | | | | 124 | 34,300 |
| 3095842 | 0.97° | R4×1°×63.3 | — | 120 | | | | 10 | 0.97° | 22.22 | — | — | — | — | | 2 | | 123 | 35,000 |
| 3094096 | 0.82° | R4×1°×70 | 70.9 | | | | | 9.88 | 0.87° | 26.38 | — | — | — | — | | | | 121 | 35,600 |
| 3094097 | 0.85° | R4×1°×80 | 84 | | | | | 10.23 | 1.45° | 26.27 | 80.84 | — | — | — | | 1 | | 142 | 42,800 |
| 3095843 | 0.88° | R4×1°×90 | 93.4 | 150 | | 12 | | 10.62 | 1.3° | 25.78 | 90.76 | — | — | — | | | | 189 | 45,400 |
| 3094098 | 0.88° | R4×1°×100 | 102.7 | | | | | 10.93 | 1.17° | 26.13 | 100.84 | — | — | — | | | | 185 | 46,800 |
| 3095844 | 0.98° | R4×1°×120.6 | — | 180 | 12 | | 7.9 | 12 | 0.99° | 23.82 | — | — | — | — | | 2 | | 252 | 51,100 |
| 3095851 | 1.42° | R4×1.5°×44.2 | — | 120 | | 10 | | 10 | 1.43° | 17.02 | 24.55 | — | — | — | | | | 127 | 34,000 |
| 3094099 | 1.21° | R4×1.5°×60 | 63.8 | | | | | 10.35 | 1.94° | 19.14 | 35.59 | 61.21 | — | — | | 1 | | 159 | 41,200 |
| 3095853 | 1.46° | R4×1.5°×82.4 | | 150 | | | | | 1.47° | 17.88 | 28.31 | — | — | — | | | | 206 | 44,700 |
| 3094100 | 1.3° | R4×1.5°×92.3 | | | | | | | 1.3° | 19.14 | 35.56 | — | — | — | | | | 201 | 44,700 |
| 3095862 | 1.93° | R4×2°×63.3 | — | 120 | | | | 12 | 1.93° | 15.84 | 20.45 | 30.94 | — | — | 3 | 2 | A | 168 | 41,200 |
| 3094101 | 1.67° | R4×2°×72.7×150 | | 150 | | 12 | | | 1.67° | 16.79 | 23.66 | 46.38 | — | — | | | | 211 | 44,700 |
| 3094102 | 1.67° | R4×2°×72.7×160 | | 160 | | | | | 1.67° | 16.79 | 23.66 | 46.38 | — | — | | | | 227 | 49,500 |
| 3094103 | 0.69° | R5×1°×50 | 52.4 | 120 | | | | 11.08 | 1.23° | 31.91 | 50.98 | — | — | — | | 1 | | 179 | 46,100 |
| 3096041 | 0.97° | R5×1°×64.3 | — | | | | | 12 | 0.97° | 25.93 | — | — | — | — | | 2 | | 177 | 47,000 |
| 3096042 | 0.83° | R5×1°×80 | 88 | 160 | | | | 12.16 | 2.09° | 30.88 | 80.91 | 83.66 | 86.61 | — | | | | 330 | 69,100 |
| 3096043 | 0.87° | R5×1°×100 | 106.7 | | | | | 12.86 | 1.71° | 30.83 | 100.91 | 104.38 | — | — | | | | 325 | 69,800 |
| 3096044 | 0.89° | R5×1°×120 | 125.4 | 180 | | 16 | | 13.56 | 1.44° | 30.8 | 120.91 | — | — | — | | 1 | | 375 | 75,700 |
| 3096045 | 0.91° | R5×1°×140 | 144.1 | 200 | 15 | | 9.9 | 14.26 | 1.25° | 30.78 | 140.9 | — | — | — | | | | 425 | 81,600 |
| 3096046 | 0.92° | R5×1°×160 | 162.8 | 220 | | | | 14.96 | 1.1° | 30.76 | 160.9 | — | — | — | | | | 477 | 87,500 |
| 3096051 | 1.42° | R5×1.5°×45.2 | — | 120 | | 12 | | 12 | 1.43° | 20.28 | 28.01 | — | — | — | | 2 | | 182 | 46,500 |
| 3094104 | 1.24° | R5×1.5°×80 | 85.9 | 160 | | 16 | | 13.24 | 2.15° | 23.1 | 42.35 | 81.42 | 84.3 | — | | 1 | | 357 | 69,100 |
| 3096053 | 1.47° | R5×1.5°×121.6 | | 180 | | | | 16 | 1.48° | 21.91 | 35.2 | — | — | — | | | | 407 | 75,700 |
| 3096061 | 1.87° | R5×2°×35.6 | — | 120 | | 12 | | 12 | 1.87° | 18.25 | 21.72 | 27.65 | — | — | | 2 | | 185 | 46,100 |
| 3096064 | 1.95° | R5×2°×92.9 | | 160 | | | | 16 | 1.96° | 19.52 | 25.38 | 39.18 | — | — | | | | 377 | 69,500 |
| 3096241 | 0.73° | R6×1°×60 | 65.8 | 120 | | | | 13.36 | 1.95° | 35.9 | 61.05 | 63.04 | — | — | | | | 283 | 66,400 |
| 3094105 | 0.77° | R6×1°×80 | 84.5 | 160 | | 16 | | 13.98 | 1.48° | 37.25 | 81.2 | — | — | — | | 1 | | 383 | 69,100 |
| 3096242 | 0.85° | R6×1°×100 | 103.2 | 180 | | | | 14.76 | 1.19° | 35.79 | 101.04 | — | — | — | | | | 439 | 83,400 |
| 3096243 | 0.98° | R6×1°×122.6 | — | | 18 | | 11.9 | 16 | 0.99° | 32.25 | — | — | — | — | | 2 | | 439 | 84,000 |
| 3096244 | 0.91° | R6×1°×160 | 166.7 | 220 | | 20 | | 16.85 | 1.44° | 35.8 | 161.05 | — | — | — | | 1 | | 662 | 122,000 |
| 3094106 | 1.18° | R6×1.5°×80 | 90 | 130 | | | | 15.03 | 2.75° | 27.38 | 51.44 | 81.75 | 84.6 | — | | | | 383 | 95,000 |
| 3096254 | 1.48° | R6×1.5°×160.8 | — | 220 | | | | 20 | 1.48° | 25.89 | 41.87 | — | — | — | | 2 | | 662 | 122,000 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| PHX-PC-DBT | ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXSコート3枚刃超硬ペンシルネックボール エンドミル高能率タイプ

**WXS Coated 3-flute Pencil Neck Carbide Ball End Mill Highly Efficient Type**

## FXS-PC-EBT

切削条件 Cutting Conditions | P662



CARBIDE | WXS | R ±0.015 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE×θn×LB | 全長 LF | 刃長 APMX | シャンク径 DCON | 首元径 DN | 首平行長 LU | 有効勾配角 α | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8511222 | R1 × 1° × 20 | 70 | 2 | 6 | 2.6 | 4 | 0°54′ | B | ▲ | 25 | 21,900 |
| 8511224 | R1 × 1° × 40 | 80 | | | 3.3 | | 0°57′ | | ▲ | 25 | 22,400 |
| 8511264 | R1 × 3° × 40 | | | | 5.8 | | 2°47′ | | ▲ | 26 | 22,400 |
| 8511335 | R1.5 × 1° 30′ × 50 | 90 | 3 | | 5.3 | 5.5 | 1°22′ | | ▲ | 31 | 22,900 |
| 8511363 | R1.5 × 3° × 30 | 70 | | | 5.6 | | 2°36′ | | ▲ | 25 | 21,900 |
| 8511435 | R2 × 1° 30′ × 44.7 | 90 | 4 | | 6 | 6.5 | 1°20′ | | ▲ | 36 | 22,900 |
| 8511463 | R2 × 3° × 25.6 | 70 | | | | | 2°25′ | | ▲ | 27 | 21,700 |
| 8511536 | R2.5 × 1° 30′ × 60 | 110 | 5 | 8 | 7.8 | 7.5 | 1°23′ | | ▲ | 67 | 28,100 |
| 8511564 | R2.5 × 3° × 36.1 | 90 | | | 8 | | 2°33′ | | △ | 60 | 27,200 |
| 8511625 | R3 × 1° × 52 | 110 | 6 | | 7.6 | 8.5 | 0°56′ | | ▲ | 73 | 29,500 |
| 8511635 | R3 × 1° 30′ × 46.7 | | | | 8 | | 1°18′ | | ▲ | 75 | 29,500 |
| 8511663 | R3 × 3° × 27.6 | 90 | | | | | 2°19′ | | ▲ | 64 | 27,900 |
| 8511726 | R4 × 1° × 57 | 120 | 8 | 10 | 9.6 | 10.5 | 0°52′ | | ▲ | 125 | 37,700 |
| 8511735 | R4 × 1° 30′ × 48.7 | | | | 10 | | 1°16′ | | ▲ | 129 | 37,700 |
| 8511826 | R5 × 1° × 57 | 130 | 10 | 12 | 11.6 | 12.5 | 0°51′ | | ▲ | 197 | 46,500 |
| 8511836 | R5 × 1° 30′ × 50.7 | | | | 12 | | 1°15′ | | ▲ | 202 | 46,500 |
| 8511864 | R5 × 3° × 31.6 | 110 | | | | | 2°8′ | | △ | 171 | 44,100 |
| 8511929 | R6 × 1° × 85 | 160 | 12 | 16 | 14.5 | 15 | 0°54′ | | ▲ | 395 | 69,800 |

▲=この製品は、PHX-PC-DBT(P.365)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by PHX-PC-DBT(p.365)

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 製品記号 Abbreviation / 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FXS-PC-EBT | ◎ | ◎ | ◎ | ○ | ○ | | | | | | | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート2枚刃超硬ペンシルショートネック ボールエンドミル高精度タイプ（φ6シャンク）

**FX Coated 2-flute Pencil Short Neck Carbide Ball End Mill High-precision Type (φ6 Shank)**

## FX-PCS-EBD-6 切削条件 Cutting Conditions | P667-11



**超超微粒子超硬合金と剛性の高いペンシルネックが高速、高精度、超寿命を実現します。微細形状加工や掘り込み加工でのびびり問題も解消します。**

Ultra fine grain Carbide Alloy with pencil neck design for more rigidity enable high speed ultra long tool life. Eliminates vibrations at fine shape and deep milling conditions.

CARBIDE | FX | R ± 0.005 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE×θn×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 有効勾配角 α | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8513212 | R0.1 × 30′ × 1 | 50 | 0.16 | 6 | 0°11′ | □ | – | – |
| 8513213 | R0.1 × 30′ × 1.5 | | | | 0°17′ | □ | – | – |
| 8513222 | R0.1 × 1° × 1 | | | | 0°22′ | □ | – | – |
| 8513223 | R0.1 × 1° × 1.5 | | | | 0°36′ | □ | – | – |
| 8513232 | R0.1 × 1°30′ × 1 | | | | 0°57′ | □ | – | – |
| 8513233 | R0.1 × 1°30′ × 1.5 | | | | 1°1′ | □ | – | – |
| 8513242 | R0.1 × 2° × 1 | | | | 1°16′ | □ | – | – |
| 8513243 | R0.1 × 2° × 1.5 | | | | 1°25′ | □ | – | – |
| 8513312 | R0.15 × 30′ × 1 | | 0.24 | | 0°9′ | □ | – | – |
| 8513314 | R0.15 × 30′ × 2 | | | | 0°20′ | □ | – | – |
| 8513322 | R0.15 × 1° × 1 | | | | 0°18′ | □ | – | – |
| 8513324 | R0.15 × 1° × 2 | | | | 0°40′ | □ | – | – |
| 8513332 | R0.15 × 1°30′ × 1 | | | | 0°27′ | □ | – | – |
| 8513334 | R0.15 × 1°30′ × 2 | | | | 1°4′ | □ | – | – |
| 8513342 | R0.15 × 2° × 1 | | | | 0°36′ | □ | – | – |
| 8513344 | R0.15 × 2° × 2 | | | | 1°21′ | □ | – | – |
| 8513412 | R0.2 × 30′ × 2 | | 0.3 | | 0°19′ | □ | – | – |
| 8513413 | R0.2 × 30′ × 3 | | | | 0°23′ | □ | – | – |
| 8513414 | R0.2 × 30′ × 4 | | | | 0°25′ | □ | – | – |
| 8513415 | R0.2 × 30′ × 5 | | | | 0°26′ | □ | – | – |
| 8513422 | R0.2 × 1° × 2 | | | | 0°39′ | □ | – | – |
| 8513423 | R0.2 × 1° × 3 | | | | 0°47′ | □ | – | – |
| 8513424 | R0.2 × 1° × 4 | | | | 0°50′ | □ | – | – |
| 8513425 | R0.2 × 1° × 5 | | | | 0°52′ | □ | – | – |
| 8513432 | R0.2 × 1°30′ × 2 | | | | 0°59′ | □ | – | – |
| 8513433 | R0.2 × 1°30′ × 3 | | | | 1°10′ | □ | – | – |
| 8513434 | R0.2 × 1°30′ × 4 | | | | 1°15′ | □ | – | – |
| 8513435 | R0.2 × 1°30′ × 5 | | | | 1°18′ | □ | – | – |
| 8513442 | R0.2 × 2° × 2 | | | | 1°19′ | □ | – | – |
| 8513443 | R0.2 × 2° × 3 | | | | 1°34′ | □ | – | – |
| 8513444 | R0.2 × 2° × 4 | | | | 1°41′ | □ | – | – |
| 8513445 | R0.2 × 2° × 5 | | | | 1°45′ | □ | – | – |
| 8513513 | R0.25 × 30′ × 3 | | 0.4 | | 0°22′ | □ | – | – |
| 8513515 | R0.25 × 30′ × 5 | | | | 0°25′ | □ | – | – |
| 8513523 | R0.25 × 1° × 3 | | | | 0°45′ | □ | – | – |
| 8513525 | R0.25 × 1° × 5 | | | | 0°51′ | □ | – | – |
| 8513533 | R0.25 × 1°30′ × 3 | | | | 1°8′ | □ | – | – |
| 8513535 | R0.25 × 1°30′ × 5 | | | | 1°17′ | □ | – | – |
| 8513543 | R0.25 × 2° × 3 | | | | 1°31′ | □ | – | – |
| 8513545 | R0.25 × 2° × 5 | | | | 1°47′ | □ | – | – |
| 8513613 | R0.3 × 30′ × 3 | | 0.5 | | 0°22′ | □ | – | – |
| 8513615 | R0.3 × 30′ × 5 | | | | 0°25′ | □ | – | – |

次ページへ
ボール半径 RE 0.3～0.5 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-PCS-EBD-6 | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ペンシルショートネックボールエンドミル高精度タイプ（φ6シャンク）

**FX Coated 2-flute Pencil Short Neck Carbide Ball End Mill High-precision Type (φ6 Shank)**

## FX-PCS-EBD-6 切削条件 Cutting Conditions P667-11



超超微粒子超硬合金と剛性の高いペンシルネックが高速、高精度、超寿命を実現します。微細形状加工や掘り込み加工でのびびり問題も解消します。

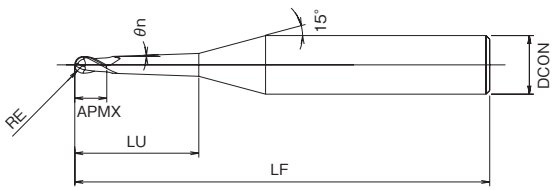
Ultra fine grain Carbide Alloy with pencil neck design for more rigidity enable high speed ultra long tool life. Eliminates vibrations at fine shape and deep milling conditions.

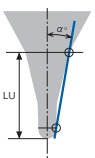
CARBIDE | FX | R ±0.005 | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.1～0.3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE × θn × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 有効勾配角 α | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8513623 | R0.3 × 1° × 3 | 50 | 0.5 | 6 | 0°44′ | – | □ | – | – |
| 8513625 | R0.3 × 1° × 5 | | | | 0°51′ | | □ | – | – |
| 8513633 | R0.3 × 1° 30′ × 3 | | | | 1°6′ | | □ | – | – |
| 8513635 | R0.3 × 1° 30′ × 5 | | | | 1°16′ | | □ | – | – |
| 8513643 | R0.3 × 2° × 3 | | | | 1°28′ | | □ | – | – |
| 8513645 | R0.3 × 2° × 5 | | | | 1°42′ | | □ | – | – |
| 8513813 | R0.4 × 30′ × 3 | | 0.6 | | 0°21′ | | □ | – | – |
| 8513815 | R0.4 × 30′ × 5 | | | | 0°25′ | | □ | – | – |
| 8513817 | R0.4 × 30′ × 7 | | | | 0°26′ | | □ | – | – |
| 8513823 | R0.4 × 1° × 3 | | | | 0°43′ | | □ | – | – |
| 8513825 | R0.4 × 1° × 5 | | | | 0°50′ | | □ | – | – |
| 8513827 | R0.4 × 1° × 7 | | | | 0°53′ | | □ | – | – |
| 8513833 | R0.4 × 1° 30′ × 3 | | | | 1°5′ | | □ | – | – |
| 8513835 | R0.4 × 1° 30′ × 5 | | | | 1°16′ | | □ | – | – |
| 8513837 | R0.4 × 1° 30′ × 7 | | | | 1°20′ | | □ | – | – |
| 8513843 | R0.4 × 2° × 3 | | | | 1°27′ | | □ | – | – |
| 8513845 | R0.4 × 2° × 5 | | | | 1°41′ | | □ | – | – |
| 8513847 | R0.4 × 2° × 7 | | | | 1°47′ | | □ | – | – |
| 8514013 | R0.5 × 30′ × 3 | | 0.8 | | 0°17′ | | □ | – | – |
| 8514015 | R0.5 × 30′ × 5 | | | | 0°23′ | | □ | – | – |
| 8514017 | R0.5 × 30′ × 7 | | | | 0°25′ | | □ | – | – |
| 8514019 | R0.5 × 30′ × 9 | | | | 0°26′ | | □ | – | – |
| 8514023 | R0.5 × 1° × 3 | | | | 0°35′ | | □ | – | – |
| 8514025 | R0.5 × 1° × 5 | | | | 0°46′ | | □ | – | – |
| 8514027 | R0.5 × 1° × 7 | | | | 0°50′ | | □ | – | – |
| 8514029 | R0.5 × 1° × 9 | | | | 0°52′ | | □ | – | – |
| 8514033 | R0.5 × 1° 30′ × 3 | | | | 0°53′ | | □ | – | – |
| 8514035 | R0.5 × 1° 30′ × 5 | | | | 1°9′ | | □ | – | – |
| 8514037 | R0.5 × 1° 30′ × 7 | | | | 1°16′ | | □ | – | – |
| 8514039 | R0.5 × 1° 30′ × 9 | | | | 1°19′ | | □ | – | – |
| 8514043 | R0.5 × 2° × 3 | | | | 1°11′ | | □ | – | – |
| 8514045 | R0.5 × 2° × 5 | | | | 1°33′ | | □ | – | – |
| 8514047 | R0.5 × 2° × 7 | | | | 1°41′ | | □ | – | – |
| 8514049 | R0.5 × 2° × 9 | | | | 1°45′ | | □ | – | – |




※有効勾配角（α°）とは、図に示すような首元部と刃部とを結んだ実際の干渉角度です。

※Effective angle (α°) refers to the angle connecting the conical neck and the cutting edge diameter as shown in the figure.

次ページへ ボール半径 RE 0.75～2 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-PCS-EBD-6 | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート2枚刃超硬ペンシルショートネック ボールエンドミル高精度タイプ（φ6シャンク）

**FX Coated 2-flute Pencil Short Neck Carbide Ball End Mill High-precision Type (φ6 Shank)**

## FX-PCS-EBD-6 切削条件 Cutting Conditions P667-11



**超超微粒子超硬合金と剛性の高いペンシルネックが高速、高精度、超寿命を実現します。微細形状加工や掘り込み加工でのびびり問題も解消します。**

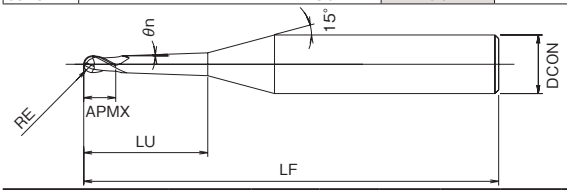
Ultra fine grain Carbide Alloy with pencil neck design for more rigidity enable high speed ultra long tool life. Eliminates vibrations at fine shape and deep milling conditions.

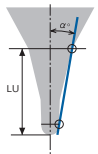
CARBIDE | FX | R ± 0.005 | SHRINK FIT | 30°

前ページより FROM ボール半径 RE 0.3～0.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE × θn × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 有効勾配角 α | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8514512 | R0.75 × 30′ × 7 | 50 | 1.2 | 6 | 0°24′ | □ | — | — |
| 8514516 | R0.75 × 30′ × 11 | | | | 0°26′ | □ | — | — |
| 8514522 | R0.75 × 1° × 7 | | | | 0°48′ | □ | — | — |
| 8514526 | R0.75 × 1° × 11 | | | | 0°53′ | □ | — | — |
| 8514532 | R0.75 × 1° 30′ × 7 | | | | 1°13′ | □ | — | — |
| 8514536 | R0.75 × 1° 30′ × 11 | | | | 1°19′ | □ | — | — |
| 8514542 | R0.75 × 2° × 7 | | | | 1°37′ | □ | — | — |
| 8514546 | R0.75 × 2° × 11 | | | | 1°46′ | □ | — | — |
| 8515011 | R1 × 30′ × 10 | | 1.6 | | 0°23′ | □ | — | — |
| 8515013 | R1 × 30′ × 15 | | | | 0°25′ | □ | — | — |
| 8515021 | R1 × 1° × 10 | | | | 0°47′ | □ | — | — |
| 8515023 | R1 × 1° × 15 | | | | 0°51′ | □ | — | — |
| 8515031 | R1 × 1° 30′ × 10 | | | | 1°10′ | □ | — | — |
| 8515033 | R1 × 1° 30′ × 15 | | | | 1°17′ | □ | — | — |
| 8515041 | R1 × 2° × 10 | | | | 1°34′ | □ | — | — |
| 8515043 | R1 × 2° × 15 | | | | 1°43′ | □ | — | — |
| 8515213 | R1.5 × 30′ × 15 | | 2.4 | | 0°23′ | □ | — | — |
| 8515215 | R1.5 × 30′ × 20 | 60 | | | 0°25′ | □ | — | — |
| 8515216 | R1.5 × 30′ × 25 | | | | 0°26′ | □ | — | — |
| 8515223 | R1.5 × 1° × 15 | 50 | | | 0°47′ | □ | — | — |
| 8515225 | R1.5 × 1° × 20 | 70 | | | 0°50′ | □ | — | — |
| 8515226 | R1.5 × 1° × 25 | 100 | | | 0°52′ | □ | — | — |
| 8515233 | R1.5 × 1° 30′ × 15 | 50 | | | 1°10′ | □ | — | — |
| 8515235 | R1.5 × 1° 30′ × 20 | 70 | | | 1°15′ | □ | — | — |
| 8515236 | R1.5 × 1° 30′ × 25 | 100 | | | 1°18′ | □ | — | — |
| 8515243 | R1.5 × 2° × 15 | 50 | | | 1°34′ | □ | — | — |
| 8515245 | R1.5 × 2° × 20 | 70 | | | 1°41′ | □ | — | — |
| 8515246 | R1.5 × 2° × 25 | 100 | | | 1°45′ | □ | — | — |
| 8515415 | R2 × 30′ × 20 | 60 | 3.2 | | 0°24′ | □ | — | — |
| 8515417 | R2 × 30′ × 30 | 90 | | | 0°26′ | □ | — | — |
| 8515425 | R2 × 1° × 20 | 60 | | | 0°49′ | □ | — | — |
| 8515427 | R2 × 1° × 30 | 90 | | | 0°53′ | □ | — | — |
| 8515435 | R2 × 1° 30′ × 20 | 60 | | | 1°13′ | □ | — | — |
| 8515437 | R2 × 1° 30′ × 30 | 90 | | | 1°19′ | □ | — | — |
| 8515445 | R2 × 2° × 20 | 60 | | | 1°28′ | □ | — | — |
| 8515447 | R2 × 2° × 30 | 90 | | | 1°46′ | □ | — | — |




※有効勾配角（α°）とは、図に示すような首元部と刃部とを結んだ実際の干渉角度です。

※Effective angle (α°) refers to the angle connecting the conical neck and the cutting edge diameter as shown in the figure.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-PCS-EBD-6 | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ペンシルネックボールエンドミル
**FX Coated 2-flute Pencil Neck Carbide Ball End Mill**

## FX-PC-MG-EBD 切削条件 Cutting Conditions P667-6

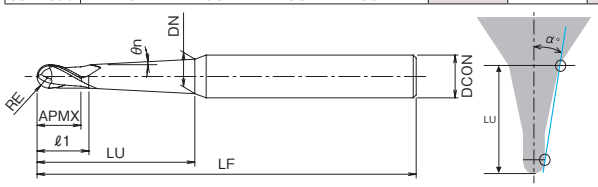


剛性の高いペンシルネックのため大きな突出し長さでも良好な切削が可能です。
Rigid pencil neck end mill. Can perform precision operations with long tool extension.

CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | ボール半径×全長×首部テーパ半角×首下長 RE×LF×θn×LU | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首元径 DN | 首平行長 ℓ1 | 有効勾配角 α | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8541377 | R0.3 × 60 × 30′ × 10 | 0.6 | 6 | 10 | 0.74 | 1.2 | 0°25′ | □ | – | – |
| 8541376 | R0.3 × 60 × 1° × 10 | | | | 0.9 | | 0°52′ | □ | – | – |
| 8541397 | R0.4 × 60 × 30′ × 12 | 0.8 | | 12 | 0.97 | 1.6 | 0°26′ | □ | – | – |
| 8541396 | R0.4 × 60 × 1° × 12 | | | | 1.15 | | 0°52′ | □ | – | – |
| 8541410 | R0.5 × 60 × 5° × 20 | 2.5 | | 20 | 3.85 | 4 | 4°12′ | □ | – | – |
| 8541417 | R0.5 × 70 × 30′ × 20 | 1 | | | 1.3 | 2 | 0°27′ | □ | – | – |
| 8541416 | R0.5 × 70 × 1° × 20 | | | | 1.62 | | 0°55′ | □ | – | – |
| 8541414 | R0.5 × 70 × 1°30′ × 20 | 2.5 | | | 1.83 | 4 | 1°14′ | □ | – | – |
| 8541412 | R0.5 × 80 × 3° × 40 | | | 40 | 4.81 | | 2°46′ | □ | – | – |
| 8541530 | R1 × 60 × 5° × 20 | 5 | | 20 | 4.32 | 7 | 3°30′ | □ | – | – |
| 8541537 | R1 × 70 × 30′ × 20 | 2 | | | 2.27 | 4 | 0°25′ | □ | – | – |
| 8541538 | R1 × 70 × 30′ × 30 | | | 30 | 2.44 | | 0°27′ | □ | – | – |
| 8541536 | R1 × 70 × 1° × 20 | | | 20 | 2.55 | | 0°50′ | □ | – | – |
| 8541540 | R1 × 70 × 1° × 30 | | | 30 | 2.9 | | 0°54′ | □ | – | – |
| 8541534 | R1 × 70 × 1°30′ × 20 | 5 | | 20 | 2.68 | 7 | 1°2′ | □ | – | – |
| 8541548 | R1 × 80 × 30′ × 40 | 2 | | 40 | 2.62 | 4 | 0°28′ | □ | – | – |
| 8541550 | R1 × 80 × 1° × 40 | | | | 3.25 | | 0°56′ | □ | – | – |
| 8541532 | R1 × 80 × 3° × 40 | 5 | | | 5.49 | 7 | 2°34′ | □ | – | – |
| 8541571 | R1.5 × 70 × 3° × 30 | 8 | | 30 | 5.08 | 10.5 | 2°6′ | □ | – | – |
| 8541578 | R1.5 × 90 × 30′ × 50 | 3 | | 50 | 3.79 | 6 | 0°29′ | □ | – | – |
| 8541580 | R1.5 × 90 × 1° × 50 | | | | 4.56 | | 0°56′ | □ | – | – |
| 8541573 | R1.5 × 90 × 1°30′ × 50 | 8 | | | 5.09 | 10.5 | 1°15′ | □ | – | – |
| 8541611 | R2 × 70 × 3° × 28 | | | 28 | 6 | | 2°12′ | □ | – | – |
| 8541613 | R2 × 90 × 1°30′ × 48 | | | 48 | | | 1°14′ | □ | – | – |
| 8541618 | R2 × 110 × 30′ × 60 | 4 | | 60 | 4.93 | 8 | 0°28′ | □ | – | – |
| 8541620 | R2 × 110 × 1° × 60 | | | | 6 | | 0°59′ | □ | – | – |
| 8541653 | R2.5 × 90 × 3° × 40 | 10 | 8 | 40 | 8 | 12.5 | 2°17′ | □ | – | – |
| 8541655 | R2.5 × 110 × 1°30′ × 60 | | | 60 | 7.51 | | 1°16′ | □ | – | – |
| 8541693 | R3 × 90 × 3° × 33.5 | 12 | | 33.5 | 8 | 14.5 | 1°52′ | □ | – | – |
| 8541695 | R3 × 110 × 1°30′ × 52 | | | 52 | | | 1°10′ | □ | – | – |
| 8541774 | R4 × 100 × 3° × 35.5 | 14 | 10 | 35.5 | 10 | 16.5 | 1°48′ | □ | – | – |
| 8541776 | R4 × 120 × 1°30′ × 54.5 | | | 54.5 | | | 1°8′ | □ | – | – |
| 8541855 | R5 × 110 × 3° × 39.5 | 18 | 12 | 39.5 | 12 | 20.5 | 1°39′ | □ | – | – |
| 8541857 | R5 × 130 × 1°30′ × 58.5 | | | 58.5 | | | 1°4′ | □ | – | – |
| 8541898 | R6 × 140 × 3° × 60 | 22 | 16 | 60 | 16 | 25 | 2°7′ | □ | – | – |
| 8541899 | R6 × 160 × 1°30′ × 80 | | | 80 | 14.9 | | 1°8′ | □ | – | – |




有効勾配角（α）とは、図に示すように首部勾配と外径とを結んだ角度です。加工勾配角に合わせてご使用下さい。

Effective angle (α) refers to the angle connecting between the conical neck and the cutting edge diameter as shown in the figure. Please select the tool according to the machining angle.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-PC-MG-EBD | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ペンシルロングネックボールエンドミル
**FX Coated 2-flute Pencil Long Neck Carbide Ball End Mill**

## FX-PCL-EBD

切削条件 Cutting Conditions | P667-7

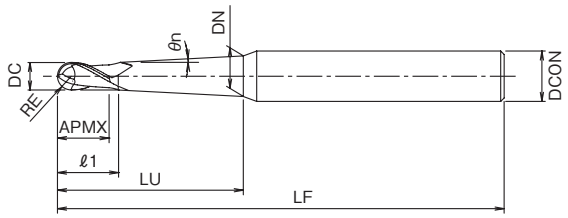


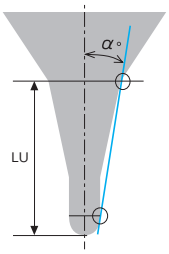
通常のエンドミルでは届かないような深彫り加工用ボールエンドミルです。
This ball-end mill is for deep hole processing, which cannot be performed by ordinary end mills.

CARBIDE | FX | R ±0.01 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径×全長 RE×DC×LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首元径 DN | 首平行長 ℓ1 | 首部テーパ半角 θn | 有効勾配角 α | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8545604 | R2 × 4 × 200 | 8 | 10 | 100 | 8.8 | 12 | 1°30′ | 1°24′ | – | □ | – | – |
| 8545606 | R3 × 6 × 200 | 12 | 12 | 120 | 11.5 | 18 | | 1°20′ | | □ | – | – |
| 8545608 | R4 × 8 × 200 | 14 | | 100 | 12 | 24 | | 1°11′ | | □ | – | – |
| 8545610 | R5 × 10 × 250 | 18 | 16 | 140 | 15.9 | 30 | | 1°15′ | | □ | – | – |
| 8545612 | R6 × 12 × 250 | 22 | | 110 | 16 | 36 | | 1°6′ | | □ | – | – |




有効勾配角（α）とは、図に示すように首部勾配と外径とを結んだ角度です。加工勾配角に合わせてご使用下さい。
Effective angle (α) refers to the angle connecting between the conical neck and the cutting edge diameter as shown in the figure. Please select the tool according to the machining angle.

OSGのPSシリーズ
商品シリーズ Parts & Supply series
吹き飛ばし・吸込・搬送1台で三役!
※詳細は▶P.1178 を参照下さい。 See p.1178 for details

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-PCL-EBD | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DIAコート2枚刃超硬ペンシルネックボールエンドミル
**Diamond Coated 2-flute Pencil Neck Carbide Ball End Mill**

## DIA-PC-EBD

切削条件 Cutting Conditions | **P692**



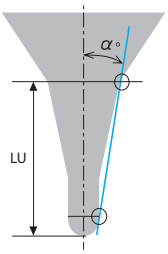
グラファイト電極の超深彫り加工に対応するペンシルネックボールです。超微結晶ダイヤモンドコーティングが飛躍的な工具寿命の延長を実現します。

A pencil neck ball nose end mill for Graphite electrode deep millings. The ultra fine grain Diamond coating gives extreme long tool life.

CARBIDE | DIA | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首部テーパ半角×首下長 RE×θn×LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首元径 DN | 首平行長 ℓ1 | 有効勾配角 α | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8504913 | R0.5 × 30′ × 30 | 100 | 2.5 | 6 | 1.5 | 4 | 0°26′ | □ | — | — |
| 8504914 | R0.5 × 30′ × 40 | | | | 1.7 | | 0°27′ | □ | — | — |
| 8504915 | R0.5 × 30′ × 50 | | | | 1.8 | | | □ | — | — |
| 8504916 | R0.5 × 30′ × 60 | 120 | | | 2 | | 0°28′ | □ | — | — |
| 8504917 | R0.5 × 30′ × 70 | 140 | | | 2.2 | | | □ | — | — |
| 8504963 | R0.5 × 1° × 30 | 100 | | | 1.9 | | 0°52′ | □ | — | — |
| 8504964 | R0.5 × 1° × 40 | | | | 2.3 | | 0°54′ | □ | — | — |
| 8504965 | R0.5 × 1° × 50 | | | | 2.6 | | 0°55′ | □ | — | — |
| 8504966 | R0.5 × 1° × 60 | 120 | | | 3 | | 0°56′ | □ | — | — |
| 8504967 | R0.5 × 1° × 70 | 140 | | | 3.3 | | | □ | — | — |
| 8504968 | R0.5 × 1° × 80 | | | | 3.7 | | 0°57′ | □ | — | — |
| 8504900 | R0.5 × 1° × 90 | 150 | | | 4 | | | □ | — | — |
| 8504921 | R1 × 30′ × 60 | 120 | 5 | | 3 | 7 | 0°26′ | □ | — | — |
| 8504923 | R1 × 30′ × 80 | 140 | | | 3.3 | | 0°27′ | □ | — | — |
| 8504925 | R1 × 30′ × 100 | 160 | | | 3.7 | | 0°28′ | □ | — | — |
| 8504976 | R1 × 1° × 60 | 120 | | | 3.9 | | 0°53′ | □ | — | — |
| 8504978 | R1 × 1° × 80 | 140 | | | 4.5 | | 0°55′ | □ | — | — |
| 8504902 | R1 × 1° × 100 | 160 | | | 5.3 | | 0°56′ | □ | — | — |
| 8504934 | R1.5 × 30′ × 90 | 160 | 8 | 8 | 4.4 | 10.5 | 0°26′ | □ | — | — |
| 8504937 | R1.5 × 30′ × 120 | 180 | | | 4.9 | | 0°27′ | □ | — | — |
| 8504989 | R1.5 × 1° × 90 | 160 | | | 5.8 | | 0°53′ | □ | — | — |
| 8504903 | R1.5 × 1° × 120 | 180 | | | 6.9 | | 0°55′ | □ | — | — |
| 8504947 | R2 × 30′ × 120 | | | 10 | 5.9 | | 0°27′ | □ | — | — |
| 8504904 | R2 × 1° × 120 | | | | 7.9 | | 0°55′ | □ | — | — |
| 8504950 | R3 × 30′ × 150 | 220 | 12 | 12 | 8.4 | 14.5 | 0°27′ | □ | — | — |
| 8504906 | R3 × 1° × 150 | | | | 10.8 | | 0°55′ | □ | — | — |




有効勾配角（α°）とは、図に示すように首部勾配と外径とを結んだ角度です。加工勾配角に合わせてご使用下さい。

Effective angle (α°) refers to the angle connecting between the conical neck and the cutting edge diameter as shown in the figure. Please select the tool according to the machining angle.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIA-PC-EBD | | | | | | | | | ○ | ◎ | ◎ | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DUARISEコート超硬防振型エンドミル ショート形

**DUARISE Coated Anti-Vibration Carbide End Mill Short Length**

A The A Brand

## AE-VMS

切削条件 Cutting Conditions | P497

Type 1



Type 2



CARBIDE | DUARISE | R ±0.02 | DC≦12 0~-0.02 16≦DC 0~-0.03 | SHRINK FIT | 37°·40°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8555830 | 3 | 60 | 8 | 15.9 | 6 | 1 | ● | 23 | 3,130 |
| 8556050 | 3×R0.2 | | | | | | ● | 23 | 3,750 |
| 8556060 | 3×R0.5 | | | | | | ● | 23 | 3,750 |
| 8555840 | 4 | | 11 | 17.1 | | | ● | 23 | 3,610 |
| 8556070 | 4×R0.2 | | | | | | ● | 23 | 4,340 |
| 8556080 | 4×R0.5 | | | | | | ● | 23 | 4,340 |
| 8556090 | 4×R1 | | | | | | ● | 23 | 4,340 |
| 8555850 | 5 | | 13 | 17.2 | | | ● | 23 | 3,610 |
| 8556100 | 5×R0.2 | | | | | | ● | 24 | 4,340 |
| 8556110 | 5×R0.5 | | | | | | ● | 24 | 4,340 |
| 8556120 | 5×R1 | | | | | | ● | 24 | 4,340 |
| 8555860 | 6 | | | — | | 2 | ● | 24 | 4,200 |
| 8556130 | 6×R0.3 | | | | | | ● | 25 | 5,080 |
| 8556140 | 6×R0.5 | | | | | | ● | 25 | 5,080 |
| 8556150 | 6×R1 | | | | | | A ● | 25 | 5,080 |
| 8555880 | 8 | 70 | 19 | — | 8 | | ● | 47 | 7,750 |
| 8556160 | 8×R0.3 | | | | | | ● | 47 | 9,280 |
| 8556170 | 8×R0.5 | | | | | | ● | 47 | 9,280 |
| 8556180 | 8×R1 | | | | | | ● | 47 | 9,280 |
| 8556190 | 8×R1.5 | | | | | | ● | 47 | 9,280 |
| 8556200 | 8×R2 | | | | | | ● | 47 | 9,280 |
| 8555900 | 10 | 80 | 22 | — | 10 | | ● | 83 | 10,400 |
| 8556210 | 10×R0.3 | | | | | | ● | 82 | 12,600 |
| 8556220 | 10×R0.5 | | | | | | ● | 83 | 12,600 |
| 8556230 | 10×R1 | | | | | | ● | 82 | 12,600 |
| 8556240 | 10×R1.5 | | | | | | ● | 82 | 12,600 |
| 8556250 | 10×R2 | | | | | | ● | 82 | 12,600 |
| 8556260 | 10×R3 | | | | | | ● | 82 | 12,600 |
| 8555920 | 12 | 90 | 26 | — | 12 | | ● | 133 | 13,100 |

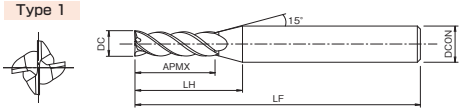
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8556270 | 12×R0.5 | 90 | 26 | — | 12 | 2 | A ● | 132 | 15,700 |
| 8556280 | 12×R1 | | | | | | ● | 133 | 15,700 |
| 8556290 | 12×R1.5 | | | | | | ● | 134 | 15,700 |
| 8556300 | 12×R2 | | | | | | ● | 134 | 15,700 |
| 8556310 | 12×R3 | | | | | | ● | 134 | 15,700 |
| 8555960 | 16 | 100 | 32 | — | 16 | | ● | 256 | 33,800 |
| 8557300 | 16×R0.5 | | | | | | ● | 254 | 40,400 |
| 8557301 | 16×R1 | | | | | | ● | 253 | 40,400 |
| 8557302 | 16×R2 | | | | | | ● | 253 | 40,400 |
| 8557303 | 16×R2.5 | | | | | | ● | 253 | 40,400 |
| 8557304 | 16×R3 | | | | | | ● | 253 | 40,400 |
| 8557305 | 16×R4 | | | | | | ● | 253 | 40,400 |
| 8556000 | 20 | 110 | 40 | — | 20 | | ● | 425 | 48,700 |
| 8557310 | 20×R0.5 | | | | | | ● | 421 | 58,400 |
| 8557311 | 20×R1 | | | | | | ● | 421 | 58,400 |
| 8557312 | 20×R2 | | | | | | ● | 421 | 58,400 |
| 8557313 | 20×R2.5 | | | | | | ● | 421 | 58,400 |
| 8557314 | 20×R3 | | | | | | ● | 419 | 58,400 |
| 8557315 | 20×R4 | | | | | | ● | 421 | 58,400 |
| 8557316 | 20×R5 | | | | | | ● | 419 | 58,400 |
| 8556010 | 25 | 120 | 50 | — | 25 | | ● | 692 | 82,100 |
| 8557321 | 25×R1 | | | | | | ● | 690 | 94,600 |
| 8557322 | 25×R2 | | | | | | ● | 688 | 94,600 |
| 8557324 | 25×R3 | | | | | | ● | 689 | 94,600 |
| 8557325 | 25×R4 | | | | | | ● | 690 | 94,600 |
| 8557326 | 25×R5 | | | | | | ● | 689 | 94,600 |

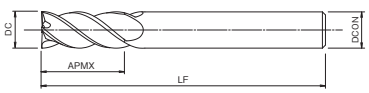
立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
スタブ形(AE-VMSS)はP.296をご覧下さい。
See page 296 for AE-VMSS
ロング形(AE-VML)はP.305をご覧下さい。
See page 305 for AE-VML

### スクエアタイプ Square Type

Type 1

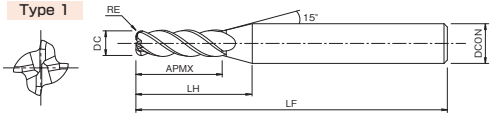



Type 2

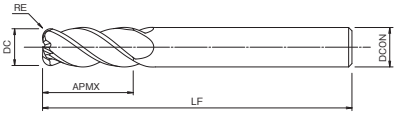



### ラジアスタイプ Radius Type

Type 1




Type 2




| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-VMS スクエアタイプ | ◎ | | ○ | | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |
| AE-VMS ラジアスタイプ | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DUARISEコート超硬防振型エンドミル ロング形

**DUARISE Coated Anti-Vibration Carbide End Mill Long Length**

A The A Brand

## AE-VML

切削条件 Cutting Conditions | P499



CARBIDE | DUARISE | R ± 0.03 | 0～ -0.02 | SHRINK FIT | 42°・44° | CAD

（単位:mm）(Unit:mm)

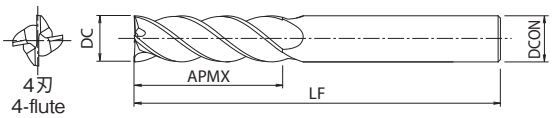
| ツール No. EDP No. | 外径×刃長×コーナ半径 DC × APMX × RE | 全長 LF | シャンク径 DCON | 刃数 ZEFP | L/D | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8556320 | **6×19** | 70 | 6 | 4 | 3 | A | ● | 30 | 4,490 |
| 8556336 | **6×19×R0.3** | | | | | | ● | 30 | 6,590 |
| 8556337 | **6×19×R0.5** | | | | | | ● | 30 | 6,590 |
| 8556338 | **6×19×R1** | | | | | | ● | 30 | 6,590 |
| 8556328 | **6×24** | | | | 4 | | ● | 29 | 7,120 |
| 8556355 | **6×24×R0.3** | | | | | | ● | 29 | 7,280 |
| 8556356 | **6×24×R0.5** | | | | | | ● | 29 | 7,280 |
| 8556357 | **6×24×R1** | | | | | | ● | 29 | 7,280 |
| 8556322 | **8×25** | 80 | 8 | | 3 | | ● | 58 | 8,140 |
| 8556339 | **8×25×R0.3** | | | | | | ● | 58 | 9,780 |
| 8556340 | **8×25×R0.5** | | | | | | ● | 58 | 9,780 |
| 8556341 | **8×25×R1** | | | | | | ● | 58 | 9,780 |
| 8556342 | **8×25×R1.5** | | | | | | ● | 58 | 9,780 |
| 8556343 | **8×25×R2** | | | | | | ● | 58 | 9,780 |
| 8556330 | **8×32** | 90 | | | 4 | | ● | 64 | 13,100 |
| 8556358 | **8×32×R0.3** | | | | | | ● | 64 | 15,800 |
| 8556359 | **8×32×R0.5** | | | | | | ● | 64 | 15,800 |
| 8556360 | **8×32×R1** | | | | | | ● | 64 | 15,800 |
| 8556361 | **8×32×R1.5** | | | | | | ● | 64 | 15,800 |
| 8556362 | **8×32×R2** | | | | | | ● | 64 | 15,800 |
| 8556324 | **10×31** | | 10 | | 3 | | ● | 99 | 11,800 |
| 8556344 | **10×31×R0.3** | | | | | | ● | 99 | 14,200 |
| 8556345 | **10×31×R0.5** | | | | | | ● | 99 | 14,200 |
| 8556346 | **10×31×R1** | | | | | | ● | 98 | 14,200 |
| 8556347 | **10×31×R1.5** | | | | | | ● | 99 | 14,200 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃長×コーナ半径 DC × APMX × RE | 全長 LF | シャンク径 DCON | 刃数 ZEFP | L/D | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8556348 | **10×31×R2** | 90 | 10 | 4 | 3 | A | ● | 99 | 14,200 |
| 8556349 | **10×31×R3** | | | | | | ● | 99 | 14,200 |
| 8556332 | **10×40** | 100 | | | 4 | | ● | 108 | 17,800 |
| 8556363 | **10×40×R0.3** | | | | | | ● | 108 | 21,400 |
| 8556364 | **10×40×R0.5** | | | | | | ● | 107 | 21,400 |
| 8556365 | **10×40×R1** | | | | | | ● | 108 | 21,400 |
| 8556366 | **10×40×R1.5** | | | | | | ● | 108 | 21,400 |
| 8556367 | **10×40×R2** | | | | | | ● | 108 | 21,400 |
| 8556368 | **10×40×R3** | | | | | | ● | 107 | 21,400 |
| 8556326 | **12×38** | | 12 | | 3 | | ● | 152 | 15,700 |
| 8556350 | **12×38×R0.5** | | | | | | ● | 151 | 18,800 |
| 8556351 | **12×38×R1** | | | | | | ● | 151 | 18,800 |
| 8556352 | **12×38×R1.5** | | | | | | ● | 151 | 18,800 |
| 8556353 | **12×38×R2** | | | | | | ● | 151 | 18,800 |
| 8556354 | **12×38×R3** | | | | | | ● | 151 | 18,800 |
| 8556334 | **12×48** | 110 | | | 4 | | ● | 164 | 23,500 |
| 8556369 | **12×48×R0.5** | | | | | | ● | 164 | 27,900 |
| 8556370 | **12×48×R1** | | | | | | ● | 164 | 27,900 |
| 8556371 | **12×48×R1.5** | | | | | | ● | 164 | 27,900 |
| 8556372 | **12×48×R2** | | | | | | ● | 164 | 27,900 |
| 8556373 | **12×48×R3** | | | | | | ● | 163 | 27,900 |
| 8556374 | **16×50** | 125 | 16 | 5 | 3 | | ● | 340 | 40,200 |
| 8556378 | **16×64** | 140 | | | 4 | | ● | 371 | 60,400 |
| 8556376 | **20×62** | 135 | 20 | | 3 | | ● | 552 | 57,800 |
| 8556380 | **20×80** | 155 | | | 4 | | ● | 620 | 86,700 |

立ち壁対応型(AE-VMFE)はP.288をご覧下さい。
See page 288 for AE-VMFE
スタブ形(AE-VMSS)はP.296をご覧下さい。
See page 296 for AE-VMSS
ショート形(AE-VMS)はP.301をご覧下さい。
See page 301 for AE-VMS

### スクエアタイプ Square Type

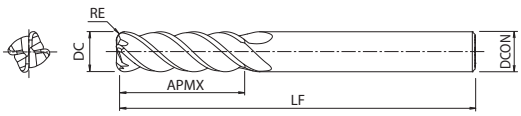



4刃 4-flute



5刃 5-flute

### ラジアスタイプ Radius Type




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **AE-VML** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# チタン合金用FXコート4枚刃超硬エンドミル 不等リード

**FX Coated 4-flute Carbide End Mill Variable Lead for Titanium Alloy**

## UVX-TI-4FL

切削条件 Cutting Conditions | P641





CARBIDE | FX | 0～-0.050 | 40.5°/43.5°

CAD

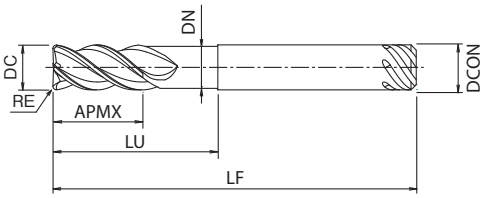
(単位:mm) (Unit:mm)

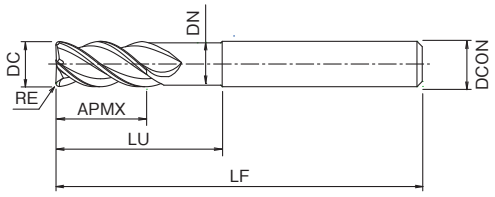
| ツール No. EDP No. | 外径×コーナR×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首径 DN | 刃数 ZEFP | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8555120 | 12 × 36 | 90 | 24 | 12 | 11.5 | 4 | B | ● | 135 | 18,500 |
| 8555121 | 12×R1 × 36 | | | | | | | ● | 136 | 22,200 |
| 8555122 | 12×R1.5×36 | | | | | | | ● | 136 | 22,200 |
| 8555123 | 12×R2 × 36 | | | | | | | ● | 136 | 22,200 |
| 8555124 | 12×R2.5×36 | | | | | | | ● | 136 | 22,200 |
| 8555125 | 12×R3 × 36 | | | | | | | ● | 136 | 22,200 |
| 8555126 | 12×R4 × 36 | | | | | | | ● | 126 | 22,200 |
| 8555160 | 16 × 48 | 100 | 32 | 16 | 15.5 | | | ● | 259 | 39,900 |
| 8555161 | 16×R1 × 48 | | | | | | | ● | 259 | 42,500 |
| 8555162 | 16×R1.5×48 | | | | | | | ● | 260 | 42,500 |
| 8555163 | 16×R2 × 48 | | | | | | | ● | 260 | 42,500 |
| 8555164 | 16×R2.5×48 | | | | | | | ● | 260 | 42,500 |
| 8555165 | 16×R3 × 48 | | | | | | | ● | 258 | 42,500 |
| 8555166 | 16×R4 × 48 | | | | | | | ● | 260 | 42,500 |
| 8555200 | 20 × 60 | 120 | 40 | 20 | 19.5 | | | ● | 484 | 58,000 |
| 8555201 | 20×R1 × 60 | | | | | | | ● | 480 | 60,500 |
| 8555202 | 20×R1.5×60 | | | | | | | ● | 484 | 60,500 |
| 8555203 | 20×R2 × 60 | | | | | | | ● | 484 | 60,500 |
| 8555204 | 20×R2.5×60 | | | | | | | ● | 485 | 60,500 |
| 8555205 | 20×R3 × 60 | | | | | | | ● | 477 | 60,500 |
| 8555206 | 20×R4 × 60 | | | | | | | ● | 478 | 60,500 |
| 8555207 | 20×R5 × 60 | | | | | | | ● | 477 | 60,500 |
| 8555250 | 25 × 75 | 140 | 50 | 25 | 24.5 | | | ● | 845 | 112,000 |
| 8555251 | 25×R1 × 75 | | | | | | | ● | 846 | 118,000 |
| 8555252 | 25×R1.5×75 | | | | | | | ● | 846 | 118,000 |
| 8555253 | 25×R2 × 75 | | | | | | | ● | 848 | 118,000 |
| 8555254 | 25×R2.5×75 | | | | | | | ● | 848 | 118,000 |
| 8555255 | 25×R3 × 75 | | | | | | | ● | 844 | 118,000 |
| 8555256 | 25×R4 × 75 | | | | | | | ● | 849 | 118,000 |
| 8555257 | 25×R5 × 75 | | | | | | | ● | 848 | 118,000 |
| 8555258 | 25×R6 × 75 | | | | | | | ● | 849 | 118,000 |

## ■SAFE-LOCK®溝付き

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナR×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首径 DN | 刃数 ZEFP | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8555660 | 12×R1 ×36-SL | 90 | 24 | 12 | 11.5 | 4 | B | ● | 136 | 26,800 |
| 8555661 | 12×R3 ×36-SL | | | | | | | ● | 136 | 26,800 |
| 8555662 | 16×R1 ×48-SL | 100 | 32 | 16 | 15.5 | | | ● | 260 | 48,200 |
| 8555663 | 16×R3 ×48-SL | | | | | | | ● | 260 | 48,200 |
| 8555664 | 20×R1 ×60-SL | 120 | 40 | 20 | 19.5 | | | ● | 478 | 68,700 |
| 8555665 | 20×R3 ×60-SL | | | | | | | ● | 478 | 68,700 |
| 8555666 | 20×R5 ×60-SL | | | | | | | ● | 478 | 68,700 |
| 8555667 | 25×R1 ×75-SL | 140 | 50 | 25 | 24.5 | | | ● | 850 | 128,000 |
| 8555668 | 25×R3 ×75-SL | | | | | | | ● | 850 | 128,000 |
| 8555669 | 25×R5 ×75-SL | | | | | | | ● | 850 | 128,000 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UVX-TI-4FL | | | | | | | ○ | | | | | ◎ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# チタン合金用FXコート5枚刃超硬エンドミル 不等リード

**FX Coated 5-flute Carbide End Mill Variable Lead for Titanium Alloy**

## UVX-TI-5FL

切削条件 Cutting Conditions | **P641**



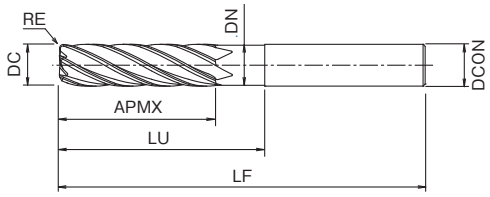


CARBIDE | FX | 0～-0.050 | 41°/42°/43°

CAD

（単位:mm）(Unit:mm)

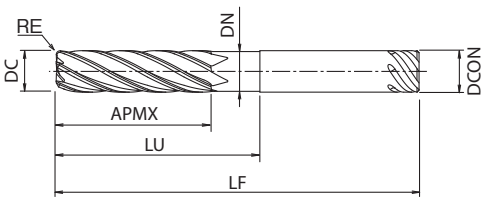
| ツール No. EDP No. | 外径×コーナR×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首径 DN | 刃数 ZEFP | | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8555320 | 12 ×36 | 90 | 24 | 12 | 11.5 | 5 | B | ● | | 135 | 21,300 |
| 8555321 | 12×R1 ×36 | | | | | | | ● | | 136 | 25,400 |
| 8555322 | 12×R1.5×36 | | | | | | | ● | | 136 | 25,400 |
| 8555323 | 12×R2 ×36 | | | | | | | ● | | 134 | 25,400 |
| 8555324 | 12×R2.5×36 | | | | | | | ● | | 135 | 25,400 |
| 8555325 | 12×R3 ×36 | | | | | | | ● | | 135 | 25,400 |
| 8555326 | 12×R4 ×36 | | | | | | | ● | | 135 | 25,400 |
| 8555360 | 16 ×48 | 100 | 32 | 16 | 15.5 | | | ● | | 261 | 42,500 |
| 8555361 | 16×R1 ×48 | | | | | | | ● | | 262 | 45,700 |
| 8555362 | 16×R1.5×48 | | | | | | | ● | | 262 | 45,700 |
| 8555363 | 16×R2 ×48 | | | | | | | ● | | 263 | 45,700 |
| 8555364 | 16×R2.5×48 | | | | | | | ● | | 263 | 45,700 |
| 8555365 | 16×R3 ×48 | | | | | | | ● | | 262 | 45,700 |
| 8555366 | 16×R4 ×48 | | | | | | | ● | | 262 | 45,700 |
| 8555400 | 20 ×60 | 120 | 40 | 20 | 19.5 | | | ● | | 490 | 62,100 |
| 8555401 | 20×R1 ×60 | | | | | | | ● | | 489 | 65,000 |
| 8555402 | 20×R1.5×60 | | | | | | | ● | | 489 | 65,000 |
| 8555403 | 20×R2 ×60 | | | | | | | ● | | 490 | 65,000 |
| 8555404 | 20×R2.5×60 | | | | | | | ● | | 489 | 65,000 |
| 8555405 | 20×R3 ×60 | | | | | | | ● | | 488 | 65,000 |
| 8555406 | 20×R4 ×60 | | | | | | | ● | | 488 | 65,000 |
| 8555407 | 20×R5 ×60 | | | | | | | ● | | 488 | 65,000 |
| 8555450 | 25 ×75 | 140 | 50 | 25 | 24.5 | | | ● | | 858 | 119,000 |
| 8555451 | 25×R1 ×75 | | | | | | | ● | | 859 | 126,000 |
| 8555452 | 25×R1.5×75 | | | | | | | ● | | 860 | 126,000 |
| 8555453 | 25×R2 ×75 | | | | | | | ● | | 859 | 126,000 |
| 8555454 | 25×R2.5×75 | | | | | | | ● | | 860 | 126,000 |
| 8555455 | 25×R3 ×75 | | | | | | | ● | | 860 | 126,000 |
| 8555456 | 25×R4 ×75 | | | | | | | ● | | 861 | 126,000 |
| 8555457 | 25×R5 ×75 | | | | | | | ● | | 861 | 126,000 |
| 8555458 | 25×R6 ×75 | | | | | | | ● | | 858 | 126,000 |




## ■SAFE-LOCK®溝付き

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナR×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首径 DN | 刃数 ZEFP | | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8555670 | 12×R1 ×36-SL | 90 | 24 | 12 | 11.5 | 5 | B | ● | | 134 | 29,900 |
| 8555671 | 12×R3 ×36-SL | | | | | | | ● | | 134 | 29,900 |
| 8555672 | 16×R1 ×48-SL | 100 | 32 | 16 | 15.5 | | | ● | | 260 | 51,300 |
| 8555673 | 16×R3 ×48-SL | | | | | | | ● | | 260 | 51,300 |
| 8555674 | 20×R1 ×60-SL | 120 | 40 | 20 | 19.5 | | | ● | | 485 | 73,300 |
| 8555675 | 20×R3 ×60-SL | | | | | | | ● | | 485 | 73,300 |
| 8555676 | 20×R5 ×60-SL | | | | | | | ● | | 485 | 73,300 |
| 8555677 | 25×R1 ×75-SL | 140 | 50 | 25 | 24.5 | | | ● | | 849 | 136,000 |
| 8555678 | 25×R3 ×75-SL | | | | | | | ● | | 851 | 136,000 |
| 8555679 | 25×R5 ×75-SL | | | | | | | ● | | 853 | 136,000 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| UVX-TI-5FL | | | | | | | ○ | | | | | ◎ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# チタン合金用FXコート5枚刃超硬エンドミル ロング形不等リード

**FX Coated 5-flute Carbide End Mill Long Length Variable Lead for Titanium Alloy**

## UVXL-TI-5FL

切削条件 Cutting Conditions | P642



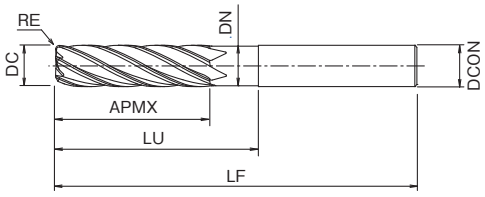


CARBIDE | FX | 0〜-0.050 | 41°/42°/43°

CAD

(単位:mm) (Unit:mm)

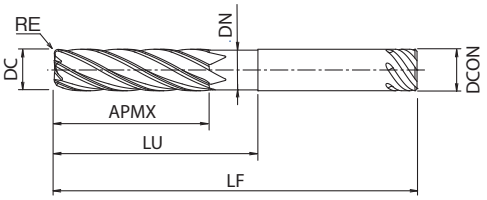
| ツール No. EDP No. | 外径×コーナR×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 刃数 ZEFP | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8555520 | 12 × 60 | 110 | 48 | 12 | 11.5 | 5 | B | ● | 156 | 27,500 |
| 8555521 | 12×R1 × 60 | | | | | | | ● | 155 | 30,200 |
| 8555522 | 12×R1.5× 60 | | | | | | | ● | 155 | 30,200 |
| 8555523 | 12×R2 × 60 | | | | | | | ● | 155 | 30,200 |
| 8555524 | 12×R2.5× 60 | | | | | | | ● | 155 | 30,200 |
| 8555525 | 12×R3 × 60 | | | | | | | ● | 156 | 30,200 |
| 8555526 | 12×R4 × 60 | | | | | | | ● | 155 | 30,200 |
| 8555560 | 16 × 80 | 130 | 64 | 16 | 15.5 | | | ● | 327 | 59,300 |
| 8555561 | 16×R1 × 80 | | | | | | | ● | 325 | 62,300 |
| 8555562 | 16×R1.5× 80 | | | | | | | ● | 325 | 62,300 |
| 8555563 | 16×R2 × 80 | | | | | | | ● | 325 | 62,300 |
| 8555564 | 16×R2.5× 80 | | | | | | | ● | 326 | 62,300 |
| 8555565 | 16×R3 × 80 | | | | | | | ● | 328 | 62,300 |
| 8555566 | 16×R4 × 80 | | | | | | | ● | 326 | 62,300 |
| 8555600 | 20 ×100 | 160 | 80 | 20 | 19.5 | | | ● | 612 | 88,200 |
| 8555601 | 20×R1 ×100 | | | | | | | ● | 612 | 92,600 |
| 8555602 | 20×R1.5×100 | | | | | | | ● | 612 | 92,600 |
| 8555603 | 20×R2 ×100 | | | | | | | ● | 613 | 92,600 |
| 8555604 | 20×R2.5×100 | | | | | | | ● | 618 | 92,600 |
| 8555605 | 20×R3 ×100 | | | | | | | ● | 612 | 92,600 |
| 8555606 | 20×R4 ×100 | | | | | | | ● | 611 | 92,600 |
| 8555607 | 20×R5 ×100 | | | | | | | ● | 612 | 92,600 |
| 8555650 | 25 ×125 | 190 | 100 | 25 | 24.5 | | | ● | 1,110 | 131,000 |
| 8555651 | 25×R1 ×125 | | | | | | | ● | 1,121 | 137,000 |
| 8555652 | 25×R1.5×125 | | | | | | | ● | 1,110 | 137,000 |
| 8555653 | 25×R2 ×125 | | | | | | | ● | 1,111 | 137,000 |
| 8555654 | 25×R2.5×125 | | | | | | | ● | 1,109 | 137,000 |
| 8555655 | 25×R3 ×125 | | | | | | | ● | 1,117 | 137,000 |
| 8555656 | 25×R4 ×125 | | | | | | | ● | 1,121 | 137,000 |
| 8555657 | 25×R5 ×125 | | | | | | | ● | 1,117 | 137,000 |
| 8555658 | 25×R6 ×125 | | | | | | | ● | 1,115 | 137,000 |




## ■SAFE-LOCK®溝付き

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナR×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 刃数 ZEFP | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8555680 | 12×R1 × 60-SL | 110 | 48 | 12 | 11.5 | 5 | B | ● | 154 | 34,800 |
| 8555681 | 12×R3 × 60-SL | | | | | | | ● | 155 | 34,800 |
| 8555682 | 16×R1 × 80-SL | 130 | 64 | 16 | 15.5 | | | ● | 323 | 67,900 |
| 8555683 | 16×R3 × 80-SL | | | | | | | ● | 322 | 67,900 |
| 8555684 | 20×R1 ×100-SL | 160 | 80 | 20 | 19.5 | | | ● | 609 | 102,000 |
| 8555685 | 20×R3 ×100-SL | | | | | | | ● | 610 | 102,000 |
| 8555686 | 20×R5 ×100-SL | | | | | | | ● | 606 | 102,000 |
| 8555687 | 25×R1 ×125-SL | 190 | 100 | 25 | 24.5 | | | ● | 1,103 | 148,000 |
| 8555688 | 25×R3 ×125-SL | | | | | | | ● | 1,107 | 148,000 |
| 8555689 | 25×R5 ×125-SL | | | | | | | ● | 1,107 | 148,000 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| UVXL-TI-5FL | | | | | | | ○ | | | | | ◎ | | |

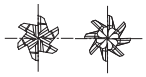
**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# チタン合金用高送り超硬ラジアスエンドミル
**High Feed Carbide End Mill with Corner Radius for Titanium Alloy**

## HFC-TI

切削条件 Cutting Conditions | **P642**



6刃 6-flute　8刃 8-flute



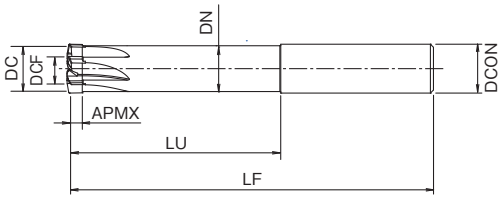
CAD

CARBIDE　0°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 有効径 DCF | 全長 LF | 刃長 APMX | シャンク径 DCON | 首長 LU | 首径 DN | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8555716 | **16** | 7.77 | 120 | 5 | 16 | 70 | 15 | 6 | B | ● | 321 | 43,900 |
| 8555720 | **20** | 9.72 | | | 20 | | 19 | 8 | | ● | 504 | 62,300 |
| 8555725 | **25** | 12.15 | | | 25 | | 24 | | | ● | 769 | 97,400 |

擬似RについてはP642をご参照下さい。For details of Simulated R (rt), see P642.




OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **HFC-TI** | | | | | | | | | | | | ◎ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## アルミ合金用DLCコート2枚刃超硬ラジアスエンドミルショート形

**DLC Coated 2-flute Carbide End Mill with Corner Radius Short Length for Aluminum Alloys**

# DLC-AIR-EDS

切削条件 Cutting Conditions | P685

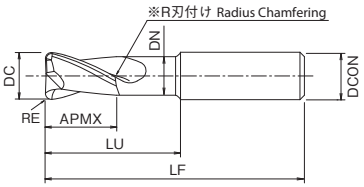


CARBIDE | DLC | 0〜-0.03 | SHRINK FIT | 約25° ABOUT 25°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8528822 | 12 × R1 | 90 | 14 | 12 | 40 | 11 | D ● | 133 | 27,800 |
| 8528823 | 12 × R1.6 | | | | | | ● | 133 | 27,800 |
| 8528826 | 12 × R3 | | | | | | ● | 133 | 27,800 |
| 8528862 | 16 × R1 | 100 | 18 | 16 | 45 | 14.4 | ● | 256 | 54,500 |
| 8528863 | 16 × R1.6 | | | | | | ● | 256 | 54,500 |
| 8528866 | 16 × R3 | | | | | | ● | 256 | 54,500 |
| 8528902 | 20 × R1 | 110 | 22 | 20 | 56 | 18 | ● | 427 | 79,800 |
| 8528903 | 20 × R1.6 | | | | | | ● | 427 | 79,800 |
| 8528906 | 20 × R3 | | | | | | ● | 427 | 79,800 |
| 8528952 | 25 × R1 | | 27 | 25 | | 23 | ● | 655 | 109,000 |
| 8528953 | 25 × R1.6 | | | | | | ● | 655 | 109,000 |
| 8528956 | 25 × R3 | | | | | | ● | 655 | 109,000 |




※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

Since radius chamfering is also provided on the end faces of the shank side, no line is marked on the boundary section during step milling. This is partial radius.

## アルミ合金用DLCコート3枚刃超硬エンドミルショート形

**DLC Coated 3-flute Carbide End Mill Short Length for Aluminum Alloys**

# AERO-ETS

切削条件 Cutting Conditions | P685

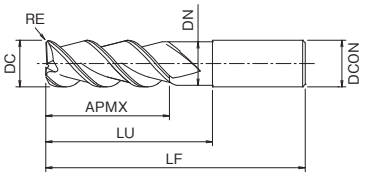


CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約30° ABOUT 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8533249 | 12 | 100 | 18 | 12 | 55 | 11 | D ● | 148 | 15,900 |
| 8533250 | 12 × R1 | | | | | | ● | 146 | 17,600 |
| 8533252 | 12 × R3 | | | | | | ● | 147 | 17,600 |
| 8533253 | 16 | | 24 | 16 | | 14.4 | ● | 250 | 37,200 |
| 8533254 | 16 × R1 | | | | | | ● | 251 | 39,500 |
| 8533256 | 16 × R3 | | | | | | ● | 252 | 39,500 |
| 8533257 | 16 × R4 | | | | | | ● | 251 | 39,500 |
| 8533258 | 16 × R5 | | | | | | ● | 251 | 39,500 |
| 8533259 | 20 | | 30 | 20 | | 18 | ● | 380 | 45,400 |
| 8533260 | 20 × R1 | | | | | | ● | 382 | 48,400 |
| 8533262 | 20 × R3 | | | | | | ● | 384 | 48,400 |
| 8533263 | 20 × R4 | | | | | | ● | 381 | 48,400 |
| 8533264 | 20 × R5 | | | | | | ● | 381 | 48,400 |
| 8533265 | 25 | | 37.5 | 25 | | 23 | ● | 580 | 57,500 |
| 8533266 | 25 × R1 | | | | | | ● | 575 | 61,600 |
| 8533268 | 25 × R3 | | | | | | ● | 576 | 61,600 |
| 8533269 | 25 × R4 | | | | | | ● | 576 | 61,600 |
| 8533270 | 25 × R5 | | | | | | ● | 576 | 61,600 |




※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

Since radius chamfering is also provided on the end faces of the shank side, no line is marked on the boundary section during step milling. This is partial radius.

形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DLC-AIR-EDS | | | | | | | | | | ※◎ | | | | |
| AERO-ETS | | | | | | | | | | ※◎ | | | | |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。

※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## アルミ合金用DLCコート3枚刃油穴付き超硬エンドミルショート形
**DLC Coated 3-flute Carbide End Mill Short Length with Internal Coolant Supply for Aluminum Alloys**

## AERO-O-ETS

切削条件 Cutting Conditions | P686

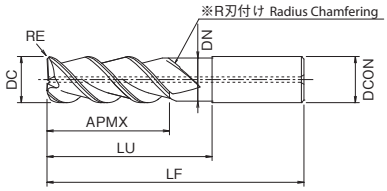


CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約30° ABOUT 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8533300 | **20** | 100 | 30 | 20 | 55 | 18 | D | ● | 375 | 46,800 |
| 8533301 | **20 × R1** | | | | | | | ● | 375 | 50,200 |
| 8533303 | **20 × R3** | | | | | | | ● | 376 | 50,200 |
| 8533304 | **20 × R4** | | | | | | | ● | 375 | 50,200 |
| 8533305 | **20 × R5** | | | | | | | ● | 375 | 50,200 |
| 8533306 | **25** | | 37.5 | 25 | | 23 | | ● | 570 | 59,300 |
| 8533307 | **25 × R1** | | | | | | | ● | 563 | 63,200 |
| 8533309 | **25 × R3** | | | | | | | ● | 567 | 63,200 |
| 8533310 | **25 × R4** | | | | | | | ● | 563 | 63,200 |
| 8533311 | **25 × R5** | | | | | | | ● | 563 | 63,200 |




## アルミ合金用DLCコート3枚刃超硬エンドミルロング形
**DLC Coated 3-flute Carbide End Mill Long Length for Aluminum Alloys**

## AERO-ETL

切削条件 Cutting Conditions | P686

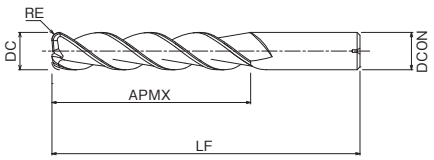


CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約35° ABOUT 35°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8533350 | **12** | 110 | 50 | 12 | D | ● | 153 | 21,700 |
| 8533351 | **12 × R1** | | | | | ● | 154 | 22,900 |
| 8533353 | **12 × R3** | | | | | ● | 154 | 22,900 |
| 8533354 | **12 × R4** | | | | | ● | 155 | 22,900 |
| 8533355 | **16** | | | 16 | | ● | 269 | 46,500 |
| 8533356 | **16 × R1** | | | | | ● | 271 | 48,600 |
| 8533358 | **16 × R3** | | | | | ● | 271 | 48,600 |
| 8533359 | **16 × R4** | | | | | ● | 272 | 48,600 |
| 8533360 | **16 × R5** | | | | | ● | 271 | 48,600 |
| 8533361 | **20** | | | 20 | | ● | 417 | 55,000 |
| 8533362 | **20 × R1** | | | | | ● | 416 | 57,300 |
| 8533364 | **20 × R3** | | | | | ● | 417 | 57,300 |
| 8533365 | **20 × R4** | | | | | ● | 418 | 57,300 |
| 8533366 | **20 × R5** | | | | | ● | 418 | 57,300 |




OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1167 を参照下さい。
See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



**OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6**

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **AERO-O-ETS** | | | | | | | | | | ※◎ | | | | |
| **AERO-ETL** | | | | | | | | | | ※◎ | | | | |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols
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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# アルミ合金用DLCコート3枚刃超硬エンドミル エキストラロング形
**DLC Coated 3-flute Carbide End Mill Extra Long Length for Aluminum Alloys**

## AERO-EXTL

切削条件 Cutting Conditions | P686

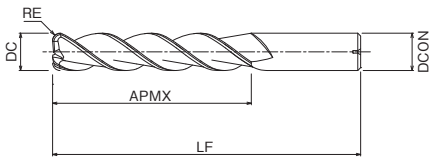


CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約35° ABOUT 35°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC×RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8533400 | 20 | 160 | 100 | 20 | D | ● | 570 | 86,700 |
| 8533401 | 20 × R1 | | | | | ● | 565 | 89,100 |
| 8533403 | 20 × R3 | | | | | ● | 567 | 89,100 |
| 8533404 | 20 × R4 | | | | | ● | 566 | 89,100 |
| 8533405 | 20 × R5 | | | | | ● | 566 | 89,100 |





OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1170 を参照下さい。 See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **AERO-EXTL** | | | | | | | | | | ※◎ | | | | |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols
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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ラジアスエンドミルショート形
**FX Coated 2-flute Carbide End Mill Short Length with Corner Radius**

## FX-CR-MG-EDS

切削条件 Cutting Conditions | P643



深い部分の加工も可能なロングシャンクタイプです。コーナ欠け防止対策としても活用いただけます。
Long shank type end mill for deep area of work piece. Reduces chipping of corner edges.

CARBIDE | FX | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8543790 | 1 × R0.1 | 40 | 2.5 | 4 | D | △ | 11 | 11,400 |
| | 1 × R0.2 | | | | – | □ | – | – |
| | 1 × R0.3 | | | | | □ | – | – |
| 8543800 | 1.5 × R0.1 | | 4 | | D | △ | 12 | 11,400 |
| | 1.5 × R0.2 | | | | – | □ | – | – |
| | 1.5 × R0.3 | | | | | □ | – | – |
| | 1.5 × R0.5 | | | | | □ | – | – |
| 8543810 | 2 × R0.1 | | 6 | | D | △ | 12 | 10,500 |
| | 2 × R0.2 | | | | – | □ | – | – |
| | 2 × R0.3 | | | | | □ | – | – |
| | 2 × R0.4 | | | | | □ | – | – |
| | 2 × R0.5 | | | | | □ | – | – |
| 8543820 | 2.5 × R0.1 | 60 | | 6 | D | △ | 15 | 15,900 |
| | 2.5 × R0.2 | | | | – | □ | – | – |
| | 2.5 × R0.3 | | | | | □ | – | – |
| | 2.5 × R0.5 | | | | | □ | – | – |
| | 2.5 × R0.75 | | | | | □ | – | – |
| 8543830 | 3 × R0.1 | | 8 | | D | △ | 23 | 15,900 |
| 8543831 | 3 × R0.2 | | | | A | ▲ | 23 | 15,900 |
| | 3 × R0.3 | | | | – | □ | – | – |
| | 3 × R0.4 | | | | | □ | – | – |
| 8543833 | 3 × R0.5 | | | | A | ▲ | 23 | 15,900 |
| | 3 × R0.75 | | | | – | □ | – | – |
| | 3 × R0.8 | | | | | □ | – | – |
| 8543841 | 4 × R0.2 | 70 | 11 | | A | ▲ | 26 | 17,000 |
| | 4 × R0.4 | | | | – | □ | – | – |
| 8543843 | 4 × R0.5 | | | | A | ▲ | 26 | 17,000 |
| | 4 × R0.75 | | | | – | □ | – | – |
| | 4 × R0.8 | | | | | □ | – | – |
| 8543845 | 4 × R1 | | | | A | ▲ | 28 | 17,000 |
| 8543851 | 5 × R0.2 | 80 | 13 | | A | ▲ | 31 | 18,200 |
| | 5 × R0.4 | | | | – | □ | – | – |
| 8543853 | 5 × R0.5 | | | | A | ▲ | 31 | 18,200 |
| | 5 × R0.8 | | | | – | □ | – | – |
| 8543855 | 5 × R1 | | | | A | ▲ | 31 | 18,200 |
| | 5 × R1.5 | | | | – | □ | – | – |
| 8543861 | 6 × R0.2 | 90 | | | A | △ | 40 | 19,300 |
| | 6 × R0.4 | | | | – | □ | – | – |
| 8543863 | 6 × R0.5 | | | | A | ▲ | 40 | 19,300 |
| | 6 × R0.8 | | | | – | □ | – | – |
| 8543865 | 6 × R1 | | | | A | ▲ | 40 | 19,300 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8543867 | 6 × R1.5 | 90 | 13 | 6 | C | △ | 40 | 19,300 |
| 8543869 | 6 × R2 | | | | A | △ | 40 | 19,300 |
| | 8 × R0.4 | 100 | 19 | 8 | – | □ | – | – |
| 8543883 | 8 × R0.5 | | | | A | ▲ | 71 | 24,700 |
| | 8 × R0.8 | | | | – | □ | – | – |
| 8543885 | 8 × R1 | | | | A | ▲ | 71 | 24,700 |
| 8543887 | 8 × R1.5 | | | | C | ▲ | 71 | 24,700 |
| 8543889 | 8 × R2 | | | | A | ▲ | 71 | 24,700 |
| | 8 × R2.5 | | | | – | □ | – | – |
| | 8 × R3 | | | | | □ | – | – |
| | 10 × R0.4 | | 22 | 10 | | □ | – | – |
| 8543903 | 10 × R0.5 | | | | A | ▲ | 108 | 28,800 |
| | 10 × R0.8 | | | | – | □ | – | – |
| 8543905 | 10 × R1 | | | | A | ▲ | 108 | 28,800 |
| 8543907 | 10 × R1.5 | | | | C | ▲ | 109 | 28,800 |
| 8543909 | 10 × R2 | | | | A | ▲ | 109 | 28,800 |
| | 10 × R2.5 | | | | – | □ | – | – |
| 8543913 | 10 × R3 | | | | A | ▲ | 109 | 28,800 |
| | 12 × R0.4 | 110 | 26 | 12 | – | □ | – | – |
| 8543933 | 12 × R0.5 | | | | C | ▲ | 168 | 38,200 |
| | 12 × R0.8 | | | | – | □ | – | – |
| 8543935 | 12 × R1 | | | | A | ▲ | 168 | 38,200 |
| 8543937 | 12 × R1.5 | | | | C | ▲ | 168 | 38,200 |
| 8543939 | 12 × R2 | | | | A | ▲ | 168 | 38,200 |
| | 12 × R2.5 | | | | – | □ | – | – |
| 8543943 | 12 × R3 | | | | A | ▲ | 168 | 38,200 |
| | 12 × R4 | | | | | □ | – | – |
| | 16 × R1 | 100 | 32 | 16 | | □ | – | – |
| | 16 × R1.5 | | | | | □ | – | – |
| | 16 × R2 | | | | | □ | – | – |
| | 16 × R2.5 | | | | | □ | – | – |
| | 16 × R3 | | | | | □ | – | – |
| | 16 × R4 | | | | | □ | – | – |
| | 20 × R1 | 105 | 38 | 20 | | □ | – | – |
| | 20 × R1.5 | | | | | □ | – | – |
| | 20 × R2 | | | | | □ | – | – |
| | 20 × R2.5 | | | | | □ | – | – |
| | 20 × R3 | | | | | □ | – | – |
| | 20 × R4 | | | | | □ | – | – |

▲＝この製品は、AE-VMS(P.370)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AE-VMS(p.370)

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-CR-MG-EDS | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ラジアスエンドミルロング形
**FX Coated 2-flute Carbide End Mill Long Length with Corner Radius**

## FX-CR-MG-EDL

切削条件 Cutting Conditions | P644



深い部分の加工も可能なロングシャンクタイプです。コーナ欠け防止対策としても活用いただけます。
Long shank end mill for milling deep areas of the work piece. Also reduces chipping of corner edges.

CARBIDE | FX | 0〜-0.03 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × R0.2 | 50 | 10 | 4 | | □ | – | – |
| | 2 × R0.3 | | | | | □ | – | – |
| | 3 × R0.2 | 60 | 12 | 6 | | □ | – | – |
| | 3 × R0.3 | | | | | □ | – | – |
| | 3 × R0.5 | | | | | □ | – | – |
| | 4 × R0.2 | 70 | 17 | | – | □ | – | – |
| | 4 × R0.3 | | | | | □ | – | – |
| | 4 × R0.5 | | | | | □ | – | – |
| | 4 × R1 | | | | | □ | – | – |
| | 5 × R0.2 | 80 | 20 | | | □ | – | – |
| | 5 × R0.3 | | | | | □ | – | – |
| | 5 × R0.5 | | | | | □ | – | – |
| | 5 × R1 | | | | | □ | – | – |
| 8523643 | 6 × R0.5 | 90 | | | B | ▲ | 40 | 22,400 |
| 8523645 | 6 × R1 | | | | | ▲ | 40 | 22,400 |
| | 6 × R1.5 | | | | – | □ | – | – |
| | 6 × R2 | | | | | □ | – | – |
| 8523663 | 8 × R0.5 | 100 | 28 | 8 | B | ▲ | 70 | 27,800 |
| 8523665 | 8 × R1 | | | | | ▲ | 70 | 27,800 |
| 8523667 | 8 × R1.5 | | | | | ▲ | 70 | 27,800 |
| 8523669 | 8 × R2 | | | | | ▲ | 70 | 27,800 |
| | 8 × R2.5 | | | | – | □ | – | – |
| | 8 × R3 | | | | | □ | – | – |
| 8523683 | 10 × R0.5 | | 34 | 10 | B | ▲ | 105 | 35,300 |
| 8523685 | 10 × R1 | | | | | ▲ | 105 | 35,300 |
| 8523687 | 10 × R1.5 | | | | | ▲ | 105 | 35,300 |
| 8523689 | 10 × R2 | | | | | ▲ | 105 | 35,300 |
| | 10 × R2.5 | 100 | | | – | □ | – | – |
| | 10 × R3 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8523703 | 12 × R0.5 | 110 | 40 | 12 | B | ▲ | 159 | 43,800 |
| 8523705 | 12 × R1 | | | | | ▲ | 160 | 43,800 |
| 8523707 | 12 × R1.5 | | | | | ▲ | 161 | 43,800 |
| 8523709 | 12 × R2 | | | | | ▲ | 161 | 43,800 |
| | 12 × R2.5 | | | | – | □ | – | – |
| 8523713 | 12 × R3 | | | | B | ▲ | 161 | 43,800 |
| | 12 × R4 | | | | – | □ | – | – |
| | 16 × R2 | 140 | 48 | 16 | | □ | – | – |
| | 16 × R2.5 | | | | | □ | – | – |
| | 16 × R3 | | | | | □ | – | – |
| | 16 × R4 | | | | | □ | – | – |
| | 16 × R5 | | | | | □ | – | – |
| | 16 × R6 | | | | | □ | – | – |
| | 20 × R2 | 160 | 56 | 20 | | □ | – | – |
| | 20 × R3 | | | | | □ | – | – |
| | 20 × R4 | | | | | □ | – | – |
| | 20 × R5 | | | | | □ | – | – |
| | 20 × R6 | | | | | □ | – | – |
| | 25 × R3 | 180 | 67 | 25 | | □ | – | – |
| | 25 × R4 | | | | | □ | – | – |
| | 25 × R5 | | | | | □ | – | – |
| | 25 × R6 | | | | | □ | – | – |
| | 25 × R8 | | | | | □ | – | – |

▲＝この製品は、AE-VML(P.371)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AE-VML(p.371)

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-CR-MG-EDL | ◎ | | ◎ | ○ | | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

## 2枚刃CBNラジアスエンドミルショート形
**2-flute CBN End Mill Short Length with Corner Radius**

## CBN-CR-EDS

切削条件 Cutting Conditions | P626



高硬度材の加工に威力を発揮します。
Suitable for operations on quenched steels.

CBN | 0〜-0.03 | SHRINK FIT | 0°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8525531 | 3 × R0.2 | 50 | 3 | 6 | D | ● | 24 | 52,700 |
| 8525532 | 3 × R0.3 | | | | | ● | 21 | 52,700 |
| 8525533 | 3 × R0.5 | | | | | ● | 22 | 52,700 |
| 8525534 | 3 × R0.75 | | | | | ● | 21 | 52,700 |
| 8525541 | 4 × R0.2 | 45 | 4 | | | ● | 20 | 46,800 |
| 8525542 | 4 × R0.3 | | | | | ● | 20 | 46,800 |
| 8525543 | 4 × R0.5 | | | | | ● | 20 | 46,800 |
| 8525545 | 4 × R1 | | | | | ● | 20 | 46,800 |
| 8525551 | 5 × R0.2 | 50 | 5 | | | ● | 20 | 44,700 |
| 8525552 | 5 × R0.3 | | | | | ● | 20 | 44,700 |
| 8525553 | 5 × R0.5 | | | | | ● | 20 | 44,700 |
| 8525554 | 5 × R0.75 | | | | | ● | 20 | 44,700 |
| 8525555 | 5 × R1 | | | | | ● | 20 | 44,700 |
| 8525556 | 5 × R1.5 | | | | | ● | 20 | 44,700 |
| 8525561 | 6 × R0.2 | | 6 | | | ● | 21 | 50,800 |
| 8525562 | 6 × R0.3 | | | | | ● | 21 | 50,800 |
| 8525563 | 6 × R0.5 | | | | | ● | 21 | 50,800 |
| 8525564 | 6 × R0.75 | | | | | ● | 21 | 50,800 |
| 8525565 | 6 × R1 | | | | | ● | 21 | 50,800 |
| 8525566 | 6 × R1.5 | | | | | ● | 21 | 50,800 |
| 8525567 | 6 × R2 | | | | | ● | 21 | 50,800 |

## 2枚刃小径CBNラジアスエンドミル
**2-flute Small Size CBN End Mill with Corner Radius**

## CBN-SXR

切削条件 Cutting Conditions | P652



CBN | R ±0.005 | DC≦1 0〜-0.010, 1<DC 0〜-0.015 | SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8526210 | 0.5× R0.05 × 1.5 | 45 | 0.3 | 4 | C | ● | 13 | 26,200 |
| 8526211 | 0.5× R0.1 × 1.5 | | | | | ● | 13 | 26,200 |
| 8526220 | 1 × R0.05 × 2.5 | | 0.6 | | | ● | 13 | 24,000 |
| 8526221 | 1 × R0.1 × 2.5 | | | | | ● | 13 | 24,000 |
| 8526222 | 1 × R0.2 × 2.5 | | | | | ● | 13 | 24,000 |
| 8526223 | 1 × R0.3 × 2.5 | | | | | ● | 13 | 24,000 |
| 8526231 | 1.5× R0.1 × 3.8 | 50 | 0.9 | 6 | | ● | 23 | 28,800 |
| 8526232 | 1.5× R0.2 × 3.8 | | | | | ● | 23 | 28,800 |
| 8526233 | 1.5× R0.3 × 3.8 | | | | | ● | 23 | 28,800 |
| 8526241 | 2 × R0.1 × 5 | | 1.2 | | | ● | 23 | 30,000 |
| 8526242 | 2 × R0.2 × 5 | | | | | ● | 23 | 30,000 |
| 8526243 | 2 × R0.3 × 5 | | | | | ● | 23 | 30,000 |
| 8526245 | 2 × R0.5 × 5 | | | | | ● | 23 | 30,000 |
| 8526261 | 3 × R0.1 × 6 | | 1.8 | | | ● | 19 | 38,200 |
| 8526262 | 3 × R0.2 × 6 | | | | | ● | 19 | 38,200 |
| 8526263 | 3 × R0.3 × 6 | | | | | ● | 19 | 38,200 |
| 8526265 | 3 × R0.5 × 6 | | | | | ● | 20 | 38,200 |

OSGアプリから製品ラベルの二次元コードを読み込んで検査成績表をダウンロード（一部製品に限る） ▶▶▶ P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CBN-CR-EDS | ○ | | ◎ | ◎ | ◎ | ◎ | | ○ | | | | | | |
| CBN-SXR | ○ | | ◎ | ◎ | ◎ | ◎ | | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## FXコート6枚刃超硬ラジアスエンドミルショート形 不等リード

**FX Coated 6-flute Variable Lead Carbide End Mill Short Length with Corner Radius**

**NEO-CR-EMS** 切削条件 Cutting Conditions | P639



進化形“不等リード”の効果によりびびりを抑えて、驚異の高能率加工を実現します。

Introducing the highly evolved "variable-lead" shape. Suppresses chattering, allowing for outstanding milling performance.

CARBIDE | FX | SHRINK FIT | 37°~39°

DC≦16 0~-0.02
16<DC 0~-0.03

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8519662 | 6 × R0.3 | 50 | 12 | 6 | B | ▲ | 21 | 18,100 |
| 8519663 | 6 × R0.5 | | | | | ▲ | 21 | 18,100 |
| 8519665 | 6 × R1 | | | | | ▲ | 43 | 18,100 |
| 8519682 | 8 × R0.3 | 60 | 16 | 8 | | ▲ | 43 | 21,300 |
| 8519683 | 8 × R0.5 | | | | | ▲ | 43 | 21,300 |
| 8519685 | 8 × R1 | | | | | ▲ | 43 | 21,300 |
| 8519687 | 8 × R1.5 | | | | | ▲ | 76 | 21,300 |
| 8519689 | 8 × R2 | | | | | ▲ | 76 | 21,300 |
| 8519702 | 10 × R0.3 | 70 | 20 | 10 | | ▲ | 76 | 27,300 |
| 8519703 | 10 × R0.5 | | | | | ▲ | 77 | 27,300 |
| 8519705 | 10 × R1 | | | | | ▲ | 77 | 27,300 |
| 8519707 | 10 × R1.5 | | | | | ▲ | 77 | 27,300 |
| 8519709 | 10 × R2 | | | | | ▲ | 117 | 27,300 |
| 8519713 | 10 × R3 | | | | | ▲ | 117 | 27,300 |
| 8519733 | 12 × R0.5 | 75 | 24 | 12 | | ▲ | 117 | 33,100 |
| 8519735 | 12 × R1 | | | | | ▲ | 117 | 33,100 |
| 8519737 | 12 × R1.5 | | | | | ▲ | 117 | 33,100 |
| 8519739 | 12 × R2 | | | | | ▲ | 274 | 33,100 |
| 8519743 | 12 × R3 | | | | | ▲ | 275 | 33,100 |
| 8519762 | 16 × R1 | 100 | 32 | 16 | | ▲ | 275 | 58,400 |
| 8519763 | 16 × R1.5 | | | | | △ | 275 | 58,400 |
| 8519764 | 16 × R2 | | | | | ▲ | 275 | 58,400 |
| 8519765 | 16 × R3 | | | | | ▲ | 275 | 58,400 |
| 8519782 | 20 × R1 | 105 | 40 | 20 | | ▲ | 437 | 83,400 |
| 8519784 | 20 × R2 | | | | | ▲ | 437 | 83,400 |
| 8519785 | 20 × R3 | | | | | ▲ | 437 | 83,400 |
| 8519786 | 20 × R4 | | | | | ▲ | 437 | 83,400 |
| 8519787 | 20 × R5 | | | | | ▲ | 437 | 83,400 |
| 8519802 | 25 × R1 | 120 | 50 | 25 | | ▲ | 758 | 161,000 |
| 8519804 | 25 × R2 | | | | | ▲ | 760 | 161,000 |
| 8519805 | 25 × R3 | | | | | ▲ | 760 | 161,000 |
| 8519806 | 25 × R4 | | | | | ▲ | 760 | 161,000 |
| 8519807 | 25 × R5 | | | | | ▲ | 760 | 161,000 |

▲＝この製品は、AE-VMS(P.370)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-VMS(p.370)

## FXコート4枚刃超硬ラジアスエンドミルロング形

**FX Coated 4-flute Carbide End Mill Long Length with Corner Radius**

**FX-CR-MG-EML** 切削条件 Cutting Conditions | P645



深い部分の加工も可能なロングシャンクタイプです。コーナ欠け防止対策としても活用いただけます。

Long shank end mill for milling deep areas of the work piece. Also reduces chipping of corner edges.

CARBIDE | FX | SHRINK FIT | 30°

0~-0.03

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8523883 | 10 × R0.5 | 100 | 34 | 10 | A | ▲ | 105 | 40,200 |
| 8523887 | 10 × R1.5 | | | | B | ▲ | 105 | 40,200 |
| 8523907 | 12 × R1.5 | 110 | 40 | 12 | | ▲ | 161 | 50,000 |
| 8523918 | 16 × R0.5 | 140 | 48 | 16 | | △ | 368 | 86,200 |
| 8523920 | 16 × R1 | | | | | △ | 369 | 86,200 |
| 8523922 | 16 × R1.5 | | | | | △ | 369 | 86,200 |
| 8523924 | 16 × R2 | | | | | △ | 369 | 86,200 |
| 8523926 | 16 × R3 | | | | | △ | 369 | 86,200 |
| 8523933 | 20 × R0.5 | 160 | 56 | 20 | | △ | 644 | 129,000 |
| 8523935 | 20 × R1 | | | | | △ | 648 | 129,000 |
| 8523937 | 20 × R1.5 | | | | | △ | 648 | 129,000 |
| 8523939 | 20 × R2 | | | | | △ | 644 | 129,000 |
| 8523941 | 20 × R3 | | | | | △ | 648 | 129,000 |

▲＝この製品は、AE-VML(P.371)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-VML(p.371)

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~40HRC | | ~45HRC | ~55HRC | ~60HRC | ~65HRC | ~35HRC | ~350HB | | | | | | |
| NEO-CR-EMS | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ◎ | ◎ | |
| FX-CR-MG-EML | ◎ | | ◎ | ○ | | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

NEW

# 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高能率型

**DUROREY Coated Multi-flute High Efficiency Carbide End Mill with Corner Radius for High-hardness Steels**

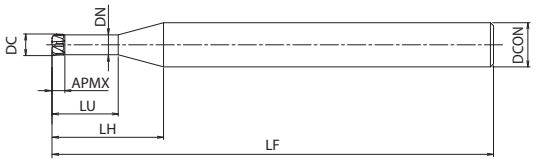
A The A Brand

## AE-CRE-H

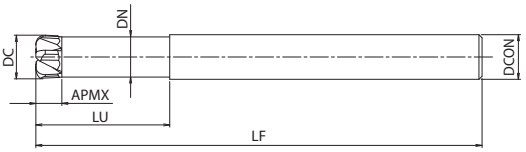
切削条件 Cutting Conditions | P526




Type 1

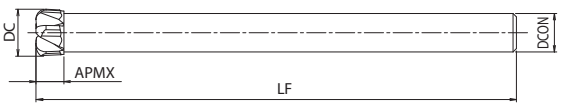



Type 2




CARBIDE | DUROREY | R ± 0.005 (DC<6) | R ± 0.008 (6≦DC) | DC<6 0~-0.02, 6≦DC 0~-0.03 | SHRINK FIT

Type 3

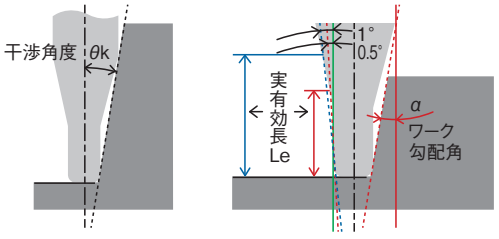



(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC×RE | 全長 LF | 刃長 APMX | 首下長 LU | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8550028 | 1×R0.2 | 50 | 0.4 | 3 | 12.6 | 6 | 0.85 | 11.24° | 3.37 | 3.54 | 3.71 | 3.88 | 4.22 | 4 | 1 | A | ● | 20 | 11,200 |
| 8550029 | 2×R0.5 | 60 | 0.8 | 6 | 13.6 | | 1.8 | 8.51° | 6.48 | 6.75 | 7 | 7.25 | 7.8 | | | | ● | 24 | 11,200 |
| 8550030 | 3×R0.75 | | 1.3 | 9 | 14.7 | | 2.7 | 6.05° | 9.55 | 9.88 | 10.21 | 10.56 | 11.36 | 5 | | | ● | 24 | 12,600 |
| 8550031 | 4×R1 | 70 | 1.6 | 12 | 15.8 | | 3.6 | 3.82° | 12.61 | 13.01 | 13.45 | 13.92 | 14.97 | | | | ● | 30 | 13,100 |
| 8550032 | 5×R1.2 | 80 | 2 | 15 | 16.9 | | 4.5 | 1.81° | 15.68 | 16.18 | 16.72 | – | – | | | | ● | 32 | 13,700 |
| 8550033 | 6×R1.5 | 90 | 2.5 | 18 | – | | 5.4 | – | – | – | – | – | – | | 2 | | ● | – | 16,200 |
| 8550034 | 7×R1.5 | | 3 | – | – | | – | – | – | – | – | – | – | | 3 | | ● | 40 | 21,400 |
| 8550035 | 8×R2 | 100 | 3.5 | 24 | – | 8 | 7.2 | – | – | – | – | – | – | | 2 | | ● | 72 | 19,500 |
| 8550036 | 9×R2 | | 4 | – | – | | – | – | – | – | – | – | – | | 3 | | ● | 74 | 27,500 |
| 8550037 | 10×R2 | | 5 | 30 | – | 10 | 9 | – | – | – | – | – | – | | 2 | | ● | – | 24,700 |
| 8550038 | 11×R2 | | | – | – | | – | – | – | – | – | – | – | | 3 | | ● | 116 | 33,400 |
| 8550039 | 12×R3 | 110 | | 36 | – | 12 | 11 | – | – | – | – | – | – | | 2 | | ● | 172 | 29,700 |
| 8550040 | 13×R3 | | 6 | – | – | | – | – | – | – | – | – | – | | 3 | | ● | 182 | 40,100 |

### ■ワーク勾配角αに対する実有効長 (Le)

Effective Neck length (Le) depending on Inclined Angle (α) of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～45HRC | ～55HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | コバルトクロム基 Cobalt Chromium Based Alloy | Ni基合金 Ni-based Alloy (Inconel 718) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-CRE-H | ◎ | ◎ | ◎ | ◎ | ◎ | | ◎ | | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

NEW

# 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高送り型

**DUROREY Coated Multi-flute High Feed Carbide End Mill with Corner Radius for High-hardness Steels**

A The A Brand

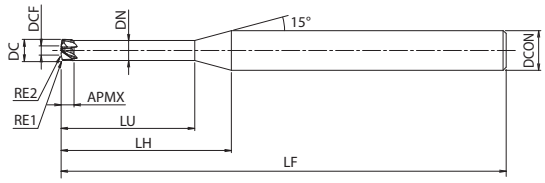
## AE-HFE-H

切削条件 Cutting Conditions | P527

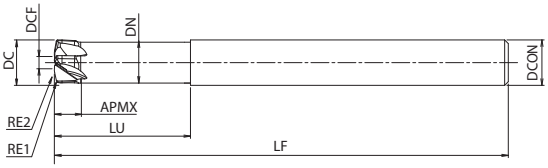



CARBIDE | DURAREY | R ± 0.02 DC≦6 | R ± 0.05 6<DC | DC<6 0~-0.02 6≦DC 0~-0.03 | SHRINK FIT

Type 1



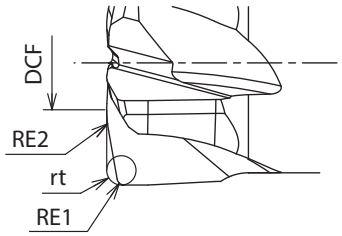

Type 2




（単位:mm）(Unit:mm)

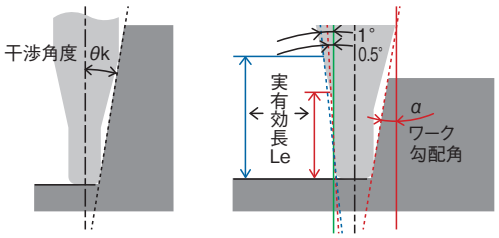
| ツール No. EDP No. | 外径×擬似R DC×rt | 有効径 DCF | コーナR RE1 | 底刃R RE2 | 全長 LF | 刃長 APMX | 首下長 LU | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8550019 | 1×R0.1 | 0.36 | 0.1 | 0.488 | 60 | 0.4 | 3 | 12.6 | 6 | 0.85 | 11.33° | 3.16 | 3.33 | 3.5 | 3.66 | 4 | 4 | 1 | A | ● | 24 | 11,200 |
| 8550020 | 2×R0.2 | 0.73 | 0.15 | 0.975 | | 0.8 | 6 | 13.6 | | 1.8 | 8.46° | 6.29 | 6.56 | 6.82 | 7.07 | 7.63 | | | | ● | 24 | 11,200 |
| 8550021 | 3×R0.3 | 1.1 | 0.2 | 1.463 | | 1.3 | 9 | 14.7 | | 2.7 | 5.95° | 9.36 | 9.7 | 10.04 | 10.4 | 11.22 | 5 | | | ● | 24 | 12,600 |
| 8550022 | 4×R0.35 | 1.5 | | 1.95 | 70 | 1.6 | 12 | 15.8 | | 3.6 | 3.71° | 12.42 | 12.85 | 13.3 | 13.78 | 14.87 | | | | ● | 30 | 13,100 |
| 8550023 | 5×R0.4 | 1.87 | | 2.438 | 80 | 2 | 15 | 16.9 | | 4.5 | 1.74° | 15.5 | 16.02 | 16.59 | — | — | | | | ● | 32 | 13,700 |
| 8550024 | 6×R0.45 | 2.24 | | 2.925 | 90 | 2.5 | 18 | — | | 5.4 | — | — | — | — | — | — | | 2 | | ● | 38 | 16,200 |
| 8550025 | 8×R0.65 | 2.99 | 0.3 | 3.9 | 100 | 3.5 | 24 | — | 8 | 7.2 | — | — | — | — | — | — | | | | ● | 71 | 19,500 |
| 8550026 | 10×R0.7 | 3.83 | | 4.875 | 110 | 4.5 | 30 | — | 10 | 9 | — | — | — | — | — | — | | | | ● | 120 | 24,700 |
| 8550027 | 12×R0.8 | 4.59 | | 5.85 | 135 | 5 | 36 | — | 12 | 11 | — | — | — | — | — | — | | | | ● | 216 | 29,700 |

### コーナR部詳細 Details of corner R




### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | コバルトクロム基 Cobalt Chromium Based Alloy | Ni基合金 Ni-based Alloy (Inconel 718) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | |
| AE-HFE-H | ◎ | | ◎ | ◎ | ◎ | ◎ | | ◎ | | | | | | | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# アディティブ・マニュファクチャリング用 DUROREYコート多刃超硬ラジアスエンドミル

**DUROREY Coated Multi-flute Carbide End Mill with Corner Radius for Additive Manufacturing**

## AM-CRE

切削条件 Cutting Conditions | P705


6刃
6-flute


8刃
8-flute



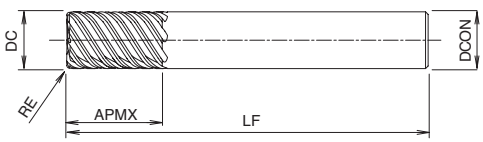
CARBIDE | DUROREY | R ±0.03 | ±0.01 | SHRINK FIT | 60°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 3183010 | **6 × R1** | 60 | 9 | 6 | 6 | B | ● | 27 | 7,570 |
| 3183015 | **6 × R1.5** | | | | | | ● | 27 | 7,570 |
| 3183018 | **8 × R1** | 70 | 12 | 8 | | | ● | 52 | 9,250 |
| 3183020 | **8 × R2** | | | | | | ● | 52 | 9,250 |
| 3183110 | **10 × R1** | 80 | 15 | 10 | | | ● | 91 | 14,500 |
| 3183120 | **10 × R2** | | | | | | ● | 92 | 14,500 |
| 3183210 | **12 × R1** | 90 | 18 | 12 | 8 | | ● | 149 | 19,700 |
| 3183220 | **12 × R2** | | | | | | ● | 150 | 19,700 |
| 3183226 | **16 × R1** | 105 | 24 | 16 | | | ● | 304 | 34,800 |
| 3183230 | **16 × R3** | | | | | | ● | 305 | 34,800 |
| 3183310 | **20 × R1** | 110 | 30 | 20 | | | ● | 486 | 48,100 |
| 3183330 | **20 × R3** | | | | | | ● | 490 | 48,100 |

ボールタイプ（AM-EBT)はP334、高送りラジアスタイプ（AM-HFC)はP.386をご覧下さい。
See page 334 for AM-EBT, page 386 for AM-HFC




製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | コバルトクロム基 Cobalt Chromium Based Alloy | Ni基合金 Ni-based Alloy (Inconel 718) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～70HRC | ～35HRC | ～350HB | | | | | | | | |
| **AM-CRE** | ○ | | ◎ | ◎ | ○ | ○ | ◎ | ○ | | | | ◎ | ◎ | | ◎ | ◎ |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# アディティブ・マニュファクチャリング用DURAREY コート6枚刃高送り超硬ラジアスエンドミル

**DURAREY Coated 6-flute High Feed Carbide End Mill with Corner Radius for Additive Manufacturing**

## AM-HFC

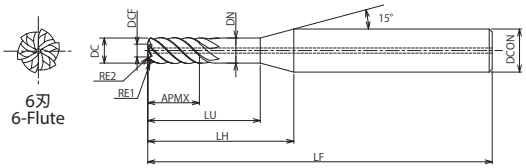
切削条件 Cutting Conditions | P706



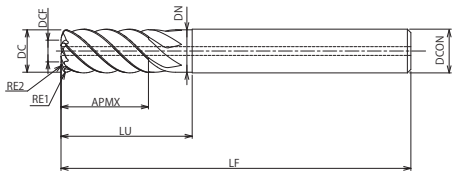
CARBIDE | DURAREY | R ± 0.03 | ±0.01 | SHRINK FIT | 45°

CAD

Type 1




Type 2

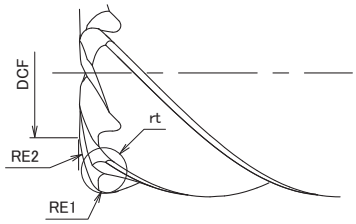



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×擬似R DC × rt | 有効径 DCF | コーナR RE1 | 底刃R RE2 | 全長 LF | 刃長 APMX | 首下長 LU | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3188204 | **4×R0.5** | 2 | 0.4 | 2.5 | 50 | 8 | 12 | 15.9 | 6 | 3.8 | 3.73° | 12.53 | 12.98 | 13.43 | 13.91 | 15 | 6 | 1 | B | ● | 20 | 7,090 |
| 3188205 | **5×R0.6** | 2.5 | 0.5 | 3 | 60 | 10 | 15 | 17 | | 4.8 | 1.76° | 15.64 | 16.18 | 16.74 | – | – | | | | ● | 26 | 7,570 |
| 3188206 | **6×R0.8** | 3 | 0.6 | 3.5 | | 12 | 18 | – | | 5.8 | – | – | – | – | – | – | | 2 | | ● | 22 | 7,570 |
| 3188208 | **8×R1** | 4 | 0.8 | 5 | 70 | 16 | 24 | – | 8 | 7.7 | – | – | – | – | – | – | | | | ● | 50 | 9,250 |
| 3188210 | **10×R1.2** | 5 | 1 | 6 | 80 | 20 | 30 | – | 10 | 9.7 | – | – | – | – | – | – | | | | ● | 90 | 14,500 |
| 3188212 | **12×R1.5** | 6 | 1.2 | 7 | 90 | 24 | 36 | – | 12 | 11.7 | – | – | – | – | – | – | | | | ● | 143 | 19,700 |

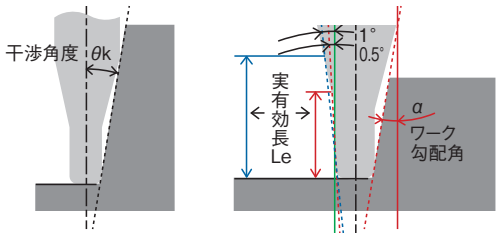
ボールタイプ（AM-EBT）はP.334、ラジアスタイプ（AM-CRE）はP.385をご覧下さい。
See page 334 for AM-EBT, page 385 for AM-CRE

### コーナR部詳細 Details of corner R




### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | コバルトクロム基 Cobalt Chromium Based Alloy | Ni基合金 Ni-based Alloy (Inconel 718) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～70HRC | ～35HRC | ～350HB | | | | | | | | |
| **AM-HFC** | ○ | | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | | | ◎ | ◎ | | ◎ | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## WXコート超硬ラジアスエンドミル
**WX Coated Carbide End Mill with Corner Radius**

## WX-CRE
切削条件 Cutting Conditions | P637



金型の高能率荒加工を実現する新しいタイプのラジアスエンドミルです。焼入れ鋼の高能率直彫り加工も可能としました。
New radius end mills for high-efficiency roughing of dies. High efficiency direct milling of hardened steels is also possible.

CARBIDE | WX | 0〜-0.03 | SHRINK FIT | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8549421 | 2×R0.5 | 60 | 0.8 | 6 | 5 | 1.8 | 3 | B | ▲ | 28 | 10,200 |
| 8549433 | 3×R0.75 | | 1.2 | | 7.5 | 2.7 | 4 | | ▲ | 24 | 11,500 |
| 8549445 | 4×R1 | 70 | 1.6 | | 10 | 3.6 | | | ▲ | 29 | 11,900 |
| 8549457 | 5×R1.2 | 80 | 2 | | 12.5 | 4.5 | | | ▲ | 33 | 12,600 |
| 8549467 | 6×R1.5 | 90 | 2.5 | | 12 | 5.4 | | | ▲ | 42 | 14,800 |
| 8549477 | 7×R1.5 | | 3 | | — | — | | | ▲ | 42 | 16,300 |
| 8549489 | 8×R2 | 100 | 3.5 | 8 | 16 | 7.2 | | | ▲ | 76 | 17,700 |
| 8549499 | 9×R2 | | 4 | | — | — | | | ▲ | 78 | 20,900 |
| 8549509 | 10×R2 | | | 10 | 20 | 9 | | | ▲ | 117 | 22,400 |
| 8549519 | 11×R2 | | 4.5 | | — | — | | | ▲ | 120 | 25,400 |
| 8549533 | 12×R3 | 110 | 5 | 12 | 24 | 11 | | | ▲ | 182 | 27,200 |
| 8549543 | 13×R3 | | 5.5 | | — | — | | | ▲ | 185 | 30,200 |

▲＝この製品は、AE-CRE-H(P.383)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AE-CRE-H(p.383)

## WXSコート3枚刃超硬ラジアスエンドミル
**WXS Coated 3-flute Carbide End Mill with Corner Radius**

## PHX-DFR
切削条件 Cutting Conditions | P575



CARBIDE | WXS | R ±0.03 | ±0.01 | SHRINK FIT | 55° | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 3090512 | 6 × R1.5 | 80 | 12 | 6 | 3 | B | ● | 34 | 21,100 |
| 3090516 | 8 × R2 | 90 | 16 | 8 | | | ● | 67 | 27,200 |
| 3090520 | 10 × R2 | 100 | 20 | 10 | | | ● | 114 | 33,200 |
| 3090522 | 12 × R2 | 120 | 24 | 12 | | | ● | 194 | 45,400 |
| 3090526 | 16 × R3 | 130 | 32 | 16 | | | ● | 380 | 93,700 |
| 3090530 | 20 × R3 | 150 | 40 | 20 | | | ● | 666 | 132,000 |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1180 を参照下さい。
See p.1180 for details
タップでの加工に最適なペースト状の切削剤(非塩素タイプ)
TMP
最新の加工動画を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WX-CRE | ◎ | | ◎ | ◎ | ◎ | ○ | | ◎ | | | | | | |
| PHX-DFR | ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | |

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○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート3枚刃超硬ラジアスエンドミル
**FX Coated 3-flute Carbide End Mill with Corner Radius**

## PHX-CRT

切削条件 Cutting Conditions | P575



1刃あたりの切削量を大きく取るために、工具形状を低抵抗刃型とした新発想のコーナラジアスタイプです。今までにない高送り加工が可能となります。

New concept corner radius end mills that increase metal removal per tooth with a new low-resistance cutting edge form. Previously unattainable high feed machining is now possible.

CARBIDE | FX | R ±0.01 | DC≦5 0～ -0.015 / 6≦DC 0.010～ -0.005 | SHRINK FIT | 55°

CAD

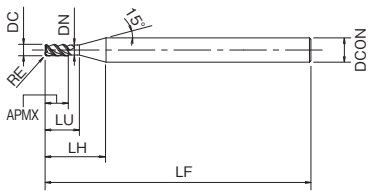
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 首下長 LU | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3090002 | 1 × R0.3 | 4 | 13.9 | 60 | 2 | 6 | 0.95 | 10.55° | 4.23 | 4.37 | 4.53 | 4.7 | 5.08 | 3 | 1 | A | ● | 25 | 25,100 |
| 3090003 | 1.5 × R0.3 | 4.5 | 12.9 | | 3 | | 1.45 | 9.83° | 4.74 | 4.91 | 5.09 | 5.28 | 5.71 | | 1 | | ● | 25 | 25,100 |
| 3090004 | 2 × R0.5 | 6 | 14 | | 4 | | 1.95 | 8.4° | 6.29 | 6.51 | 6.75 | 7 | 7.57 | | 1 | | ● | 25 | 23,800 |
| 3090006 | 3 × R0.8 | 9 | 14.9 | 70 | 6 | | 2.85 | 5.76° | 9.59 | 9.92 | 10.28 | 10.67 | 11.53 | | 1 | | ● | 28 | 23,600 |
| 3090008 | 4 × R1 | 12 | 16.1 | | 8 | | 3.85 | 3.58° | 12.69 | 13.13 | 13.6 | 14.12 | 15.26 | | 1 | | ● | 28 | 23,600 |
| 3090010 | 5 × R1 | 15 | 17.2 | | 10 | | 4.85 | 1.68° | 15.79 | 16.34 | 16.93 | – | – | | 1 | | ● | 28 | 23,800 |
| 3090016 | 8 × R2 | – | – | 90 | 16 | 8 | – | – | – | – | – | – | – | | 2 | | ▲ | 66 | 32,900 |
| 3090022 | 12 × R2 | – | – | 120 | 24 | 12 | – | – | – | – | – | – | – | | 2 | | ▲ | 193 | 54,500 |
| 3090030 | 20 × R3 | – | – | 150 | 40 | 20 | – | – | – | – | – | – | – | | 2 | | ▲ | 643 | 156,000 |

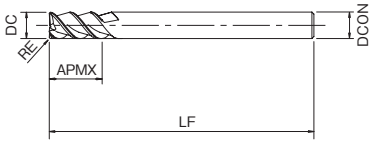
▲＝この製品は、PHX-DFR(P.387)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲＝These products have been stopped producing and replaced by PHX-DFR(p.387)

Type 1

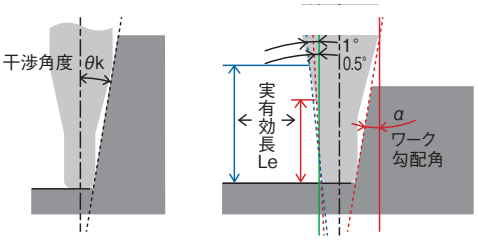



Type 2




### ■ワーク勾配角αに対する実有効長 (Le)

Effective Neck length (Le) depending on Inclined Angle (α) of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PHX-CRT | ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | |

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート4枚刃超硬ラジアスエンドミルショート形 強力重切削型不等リード

**FX Coated 4-flute Variable Lead Carbide End Mill Short Length with Corner Radius (Heavy-duty Operation Type)**

## NEO-CR-PHS

切削条件 Cutting Conditions | **P640**



“不等リード”の効果によりびびりを抑えて、驚異の高能率加工を実現します。

The "variable-lead" shape suppresses chattering, allowing for outstanding milling performance.

CARBIDE | FX | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 36°·39°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | 有効長 LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8529531 | **3 × R0.2** | 50 | 6 | 12.8 | 6 | 1 | B | ▲ | 18 | 13,100 |
| 8529533 | **3 × R0.5** | | | | | | | ▲ | 18 | 13,100 |
| 8529541 | **4 × R0.2** | | 8 | 13 | | | | ▲ | 19 | 13,500 |
| 8529543 | **4 × R0.5** | | | | | | | ▲ | 19 | 13,500 |
| 8529545 | **4 × R1** | | | | | | | ▲ | 19 | 13,500 |
| 8529551 | **5 × R0.2** | | 10 | 13.2 | | | | ▲ | 20 | 14,200 |
| 8529553 | **5 × R0.5** | | | | | | | ▲ | 19 | 14,200 |
| 8529555 | **5 × R1** | | | | | | | ▲ | 19 | 14,200 |
| 8529562 | **6 × R0.3** | | 12 | — | | 2 | | ▲ | 20 | 15,100 |
| 8529563 | **6 × R0.5** | | | — | | | | ▲ | 20 | 15,100 |
| 8529565 | **6 × R1** | | | — | | | | ▲ | 20 | 15,100 |
| 8529582 | **8 × R0.3** | 60 | 16 | — | 8 | | | ▲ | 41 | 17,800 |
| 8529583 | **8 × R0.5** | | | — | | | | ▲ | 41 | 17,800 |
| 8529585 | **8 × R1** | | | — | | | | ▲ | 41 | 17,800 |
| 8529587 | **8 × R1.5** | | | — | | | | ▲ | 41 | 17,800 |
| 8529589 | **8 × R2** | | | — | | | | ▲ | 41 | 17,800 |
| 8529602 | **10 × R0.3** | 70 | 20 | — | 10 | | | ▲ | 72 | 22,700 |
| 8529603 | **10 × R0.5** | | | — | | | | ▲ | 72 | 22,700 |
| 8529605 | **10 × R1** | | | — | | | | ▲ | 72 | 22,700 |
| 8529607 | **10 × R1.5** | | | — | | | | ▲ | 72 | 22,700 |
| 8529609 | **10 × R2** | | | — | | | | ▲ | 73 | 22,700 |

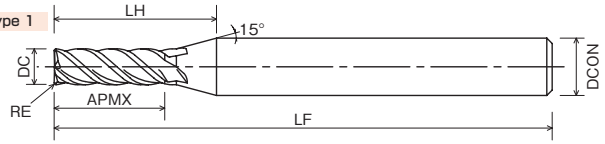
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | 有効長 LH | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8529613 | **10 × R3** | 70 | 20 | — | 10 | 2 | B | ▲ | 73 | 22,700 |
| 8529633 | **12 × R0.5** | 75 | 24 | — | 12 | | | ▲ | 109 | 27,500 |
| 8529635 | **12 × R1** | | | — | | | | ▲ | 109 | 27,500 |
| 8529637 | **12 × R1.5** | | | — | | | | ▲ | 109 | 27,500 |
| 8529639 | **12 × R2** | | | — | | | | ▲ | 109 | 27,500 |
| 8529643 | **12 × R3** | | | — | | | | ▲ | 109 | 27,500 |
| 8529662 | **16 × R1** | 100 | 32 | — | 16 | | | ▲ | 258 | 53,000 |
| 8529663 | **16 × R1.5** | | | — | | | | △ | 258 | 53,000 |
| 8529664 | **16 × R2** | | | — | | | | ▲ | 258 | 53,000 |
| 8529665 | **16 × R3** | | | — | | | | ▲ | 258 | 53,000 |
| 8529682 | **20 × R1** | 105 | 40 | — | 20 | | | ▲ | 406 | 75,900 |
| 8529684 | **20 × R2** | | | — | | | | ▲ | 406 | 75,900 |
| 8529685 | **20 × R3** | | | — | | | | ▲ | 406 | 75,900 |
| 8529686 | **20 × R4** | | | — | | | | ▲ | 407 | 75,900 |
| 8529687 | **20 × R5** | | | — | | | | ▲ | 406 | 75,900 |
| 8529702 | **25 × R1** | 120 | 50 | — | 25 | | | ▲ | 704 | 146,000 |
| 8529704 | **25 × R2** | | | — | | | | ▲ | 702 | 146,000 |
| 8529705 | **25 × R3** | | | — | | | | ▲ | 702 | 146,000 |
| 8529706 | **25 × R4** | | | — | | | | ▲ | 702 | 146,000 |
| 8529707 | **25 × R5** | | | — | | | | ▲ | 702 | 146,000 |

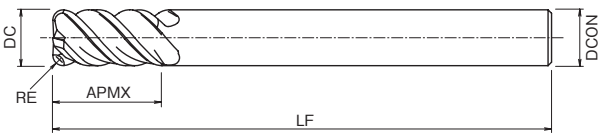
▲＝この製品は、AE-VMS(P.370)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-VMS(p.370)

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ~40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ~40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ~45HRC | ~55HRC | ~60HRC | ~65HRC | ステンレス鋼 Stainless Steel ~35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ~350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NEO-CR-PHS** | ◎ | | ◎ | ○ | | | ◎ | ◎ | | | | ◎ | ◎ | |

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート4枚刃超硬ラジアスエンドミル ハイヘリックスショート形

**FX Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius**

## FX-CR-MG-EHS

切削条件 Cutting Conditions | P646



切れ味の良いポジの切れ刃は、加工硬化などの発生を防止。
コーナR付のため、多様なカッタパスに対応できます。

Positive and sharp cutting edge keeps work material from hardening during milling operation.

CARBIDE | FX | SHRINK FIT | 50°

DC≦12 0～-0.02
12<DC 0～-0.03

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8524261 | 6 × R0.2 | 90 | 13 | 6 | B | △ | 40 | 22,900 |
| 8524265 | 6 × R1 | | | | | ▲ | 40 | 22,900 |
| 8524281 | 8 × R0.2 | 100 | 19 | 8 | | △ | 72 | 28,800 |
| 8524285 | 8 × R1 | | | | | ▲ | 73 | 28,800 |
| 8524289 | 8 × R2 | | | | | ▲ | 73 | 28,800 |
| 8524301 | 10 × R0.2 | | 22 | 10 | | △ | 111 | 36,100 |
| 8524303 | 10 × R0.5 | | | | | ▲ | 111 | 36,100 |
| 8524331 | 12 × R0.2 | 110 | 26 | 12 | | △ | 172 | 46,500 |
| 8524333 | 12 × R0.5 | | | | | ▲ | 172 | 46,500 |
| 8524339 | 12 × R2 | | | | | ▲ | 172 | 46,500 |

（単位:mm）(Unit:mm)

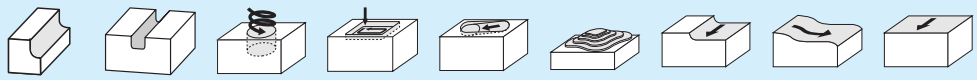
| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8524362 | 16 × R1 | 140 | 32 | 16 | B | ▲ | 394 | 89,900 |
| 8524364 | 16 × R2 | | | | | ▲ | 394 | 89,900 |
| 8524365 | 16 × R3 | | | | | ▲ | 394 | 89,900 |
| 8524382 | 20 × R1 | 160 | 38 | 20 | | ▲ | 692 | 132,000 |
| 8524384 | 20 × R2 | | | | | ▲ | 689 | 132,000 |
| 8524385 | 20 × R3 | | | | | ▲ | 690 | 132,000 |
| 8524401 | 25 × R0.5 | 180 | 45 | 25 | | △ | 1,190 | 203,000 |
| 8524402 | 25 × R1 | | | | | ▲ | 1,193 | 203,000 |
| 8524404 | 25 × R2 | | | | | ▲ | 1,189 | 203,000 |
| 8524405 | 25 × R3 | | | | | ▲ | 1,194 | 203,000 |

▲＝この製品は、AE-VMS(P.370)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲＝These products have been stopped producing and replaced by AE-VMS(p.370)

加工形態 Type of Operation

FX-CR-MG-EHS



側面切削 Side milling | 溝切削 Slotting | ヘリカル加工 Helical Milling | コンタリング加工 Contour Milling | ランピング加工 Ramping | 等高線加工 Contour line operation | R削り加工 Radius Shoulder Milling | 倣い削り加工 Copying | 平削り加工 Planing

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-CR-MG-EHS | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート4枚刃超硬ラジアスエンドミル 多機能強力型

**FX Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type**

## FXS-PKE

切削条件 Cutting Conditions | P654



ポケット彫込みでの高能率加工に最適です。必要最小限の刃長のため剛性が高く、強ねじれで切りくず排出も抜群です。
High efficient contour operation in pocket. Good chip ejection.

CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約45° ABOUT 45°

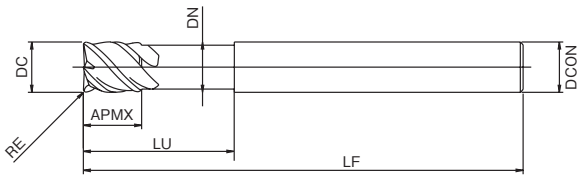
CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×全長 DC × RE × LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8547803 | 3 × R0.2 × 60 | 4.5 | 6 | 9 | 2.85 | B | ● | 24 | 14,600 |
| 8547853 | 3 × R0.2 × 70 | | | 15 | | | ● | 26 | 15,100 |
| 8548003 | 3 × R0.5 × 60 | | | 9 | | | ● | 24 | 14,600 |
| 8548053 | 3 × R0.5 × 70 | | | 15 | | | ● | 26 | 15,100 |
| 8547804 | 4 × R0.2 × 70 | 6 | | 12 | 3.8 | | ● | 28 | 15,000 |
| 8547854 | 4 × R0.2 × 80 | | | 20 | | | ● | 30 | 15,600 |
| 8548004 | 4 × R0.5 × 70 | | | 12 | | | ● | 28 | 15,000 |
| 8548054 | 4 × R0.5 × 80 | | | 20 | | | ● | 30 | 15,600 |
| 8547805 | 5 × R0.2 × 80 | 7.5 | | 15 | 4.8 | | ● | 33 | 17,600 |
| 8547855 | 5 × R0.2 × 90 | | | 25 | | | ● | 41 | 18,100 |
| 8548005 | 5 × R0.5 × 80 | | | 15 | | | ● | 33 | 17,600 |
| 8548055 | 5 × R0.5 × 90 | | | 25 | | | ● | 41 | 18,100 |
| 8548006 | 6 × R0.5 × 90 | 9 | | 18 | 5.8 | | ● | 41 | 19,200 |
| 8548056 | 6 × R0.5 ×100 | | | 30 | | | ● | 44 | 19,700 |
| 8548206 | 6 × R1 × 90 | | | 18 | | | ● | 41 | 19,200 |
| 8548256 | 6 × R1 ×100 | | | 30 | | | ● | 45 | 19,700 |
| 8548008 | 8 × R0.5 ×100 | 12 | 8 | 24 | 7.7 | | ● | 74 | 24,000 |
| 8548058 | 8 × R0.5 ×110 | | | 40 | | | ● | 80 | 24,700 |
| 8548208 | 8 × R1 ×100 | | | 24 | | | ● | 74 | 24,000 |

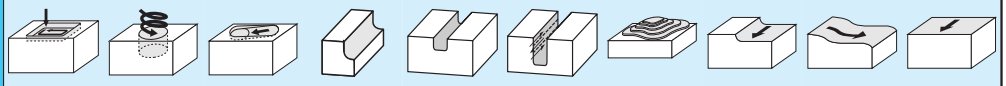
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×全長 DC × RE × LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8548258 | 8 × R1 ×110 | 12 | 8 | 40 | 7.7 | B | ● | 80 | 24,700 |
| 8548010 | 10 × R0.5 ×100 | 15 | 10 | 30 | 9.7 | | ● | 113 | 28,800 |
| 8548060 | 10 × R0.5 ×120 | | | 50 | | | ● | 134 | 30,500 |
| 8548210 | 10 × R1 ×100 | | | 30 | | | ● | 114 | 28,800 |
| 8548260 | 10 × R1 ×120 | | | 50 | | | ● | 134 | 30,500 |
| 8548610 | 10 × R2 ×100 | | | 30 | | | ● | 114 | 28,800 |
| 8548660 | 10 × R2 ×120 | | | 50 | | | ● | 134 | 30,500 |
| 8548012 | 12 × R0.5 ×110 | 18 | 12 | 36 | 11.7 | | ● | 175 | 35,600 |
| 8548062 | 12 × R0.5 ×130 | | | 60 | | | ● | 208 | 38,200 |
| 8548212 | 12 × R1 ×110 | | | 36 | | | ● | 175 | 35,600 |
| 8548262 | 12 × R1 ×130 | | | 60 | | | ● | 208 | 38,200 |
| 8548612 | 12 × R2 ×110 | | | 36 | | | ● | 175 | 35,600 |
| 8548662 | 12 × R2 ×130 | | | 60 | | | ● | 208 | 38,200 |
| 8548216 | 16 × R1 ×140 | 24 | 16 | 48 | 15.5 | | ● | 380 | 69,500 |
| 8548616 | 16 × R2 ×140 | | | | | | ● | 380 | 69,500 |
| 8548816 | 16 × R3 ×140 | | | | | | ● | 380 | 69,500 |
| 8548220 | 20 × R1 ×160 | 30 | 20 | 60 | 19.4 | | ● | 691 | 106,000 |
| 8548620 | 20 × R2 ×160 | | | | | | ● | 690 | 106,000 |
| 8548820 | 20 × R3 ×160 | | | | | | ● | 692 | 106,000 |




加工形態 Type of Operation

FXS-PKE



コンタリング加工 Contour Milling / ヘリカル加工 Helical Milling / ランピング加工 Ramping / 側面切削 Side milling / 溝切削 Slotting / 深溝のステップ加工 Step milling for deep groove / 等高線加工 Contour line operation / R削り加工 Radius Shoulder Milling / 倣い削り加工 Copying / 平削り加工 Planing

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-PKE | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# FXコート4枚刃超硬ラジアスエンドミル 多機能強力型(HSK対応)

**FX Coated 4-flute Carbide End Mill with Corner Radius HS Shank High Speed Pocket Operation Type**

## FXS-HS-PKE

切削条件 Cutting Conditions | P656



必要最小限の刃長と強ねじれにより、ポケット彫込みの高能率加工に最適です。シュリンク・HSKにジャストフィットの工具全長です。

High efficient contour operation in pocket. A perfect combination with the Shrink Fit and HSK type holder.

CAD

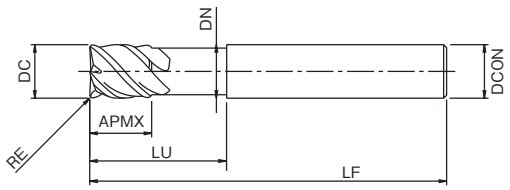
CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約45° ABOUT 45°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×全長 DC × RE × LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8535016 | 6 × R0.5 × 50 | 9 | 6 | 15 | 5.7 | B | ▲ | 21 | 17,000 |
| 8535216 | 6 × R1 × 50 | | | | | | ▲ | 21 | 17,000 |
| 8535018 | 8 × R0.5 × 60 | 12 | 8 | 20 | 7.6 | | ▲ | 43 | 21,300 |
| 8535218 | 8 × R1 × 60 | | | | | | ▲ | 43 | 21,300 |
| 8535020 | 10 × R0.5 × 70 | 15 | 10 | 25 | 9.5 | | ▲ | 76 | 25,700 |
| 8535220 | 10 × R1 × 70 | | | | | | ▲ | 76 | 25,700 |
| 8535022 | 12 × R0.5 × 80 | 18 | 12 | 30 | 11.4 | | ▲ | 126 | 32,000 |
| 8535222 | 12 × R1 × 80 | | | | | | ▲ | 126 | 32,000 |
| 8535626 | 16 × R2 × 100 | 24 | 16 | 40 | 15.2 | | △ | 270 | 61,800 |
| 8535826 | 16 × R3 × 100 | | | | | | △ | 269 | 61,800 |
| 8535230 | 20 × R1 × 110 | 30 | 20 | 50 | 19 | | △ | 450 | 90,100 |
| 8535630 | 20 × R2 × 110 | | | | | | △ | 451 | 90,100 |
| 8535830 | 20 × R3 × 110 | | | | | | △ | 450 | 90,100 |

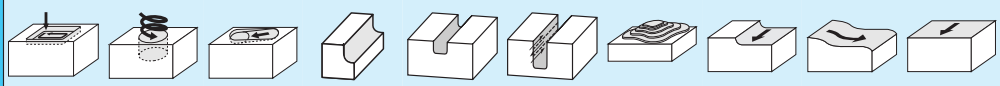
▲=この製品は、FXS-PKE(P.391)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by FXS-PKE(p.391)




加工形態 Type of Operation

FXS-HS-PKE



コンタリング加工 Contour Milling | ヘリカル加工 Helical Milling | ランピング加工 Ramping | 側面切削 Side milling | 溝切削 Slotting | 深溝のステップ加工 Step milling for deep groove | 等高線加工 Contour line operation | R削り加工 Radius Shoulder Milling | 倣い削り加工 Copying | 平削り加工 Planing

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-HS-PKE | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# DUARISEコート超硬防振型エンドミル 立ち壁対応型

**DUARISE Coated Carbide End Mill for Deep Side Milling**

A The A Brand

## AE-VMFE

切削条件 Cutting Conditions | P502



CARBIDE | DUARISE | R ± 0.03 | SHRINK FIT | 40~44°

DC≦12 0~-0.02
14≦DC 0~-0.03

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8549916 | **6** | 100 | 15 | 4 | 4 | A | ● | 24 | 7,390 |
| 8549945 | **6 × R0.5** | | | | | | ● | 26 | 8,890 |
| 8549918 | **8** | 110 | 20 | 6 | | | ● | 52 | 11,500 |
| 8549955 | **8 × R0.5** | | | | | | ● | 48 | 13,700 |
| 8549920 | **10** | 130 | 25 | 8 | | | ● | 104 | 15,200 |
| 8549965 | **10 × R0.5** | | | | | | ● | 104 | 18,200 |
| 8549966 | **10 × R1** | | | | | D | ○ | 102 | 18,200 |
| 8549922 | **12** | 150 | 30 | 10 | | A | ● | 178 | 20,900 |
| 8549975 | **12 × R0.5** | | | | | | ● | 180 | 25,100 |
| 8549976 | **12 × R1** | | | | | D | ○ | 182 | 25,100 |
| 8549924 | **14** | 160 | 35 | 12 | 5 | A | ● | 278 | 28,100 |
| 8549985 | **14 × R0.5** | | | | | | ● | 282 | 33,600 |
| 8549986 | **14 × R1** | | | | | D | ○ | 280 | 33,600 |
| 8549928 | **18** | 180 | 45 | 16 | | A | ● | 530 | 47,300 |
| 8549995 | **18 × R0.5** | | | | | D | ○ | 534 | 56,800 |
| 8549996 | **18 × R1** | | | | | A | ● | 532 | 56,800 |
| 8549932 | **22** | 200 | 55 | 20 | | | ● | 906 | 75,400 |
| 8550005 | **22 × R0.5** | | | | | D | ○ | 908 | 90,400 |
| 8550006 | **22 × R1** | | | | | A | ● | 906 | 90,400 |

スタブ形(AE-VMSS)はP.296をご覧下さい。
See page 296 for AE-VMSS.
ショート形(AE-VMS)はP.301をご覧下さい。
See page 301 for AE-VMS.
ロング形(AE-VML)はP.305をご覧下さい。
See page 305 for AE-VML.

### スクエアタイプ Square Type




4枚刃 4-Flute

5枚刃 5-Flute

※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

The radius chamfering is not a full radius since it is for preventing streaks during step milling.

### ラジアスタイプ Radius Type




4枚刃 4-Flute

5枚刃 5-Flute

※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

The radius chamfering is not a full radius since it is for preventing streaks during step milling.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~ 40HRC | | ~ 45HRC | ~ 55HRC | ~ 60HRC | ~ 65HRC | ~ 35HRC | ~ 350HB | | | | | | |
| **AE-VMFE** | ◎ | | ◎ | ○ | | | ◎ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅・アルミ合金用3枚刃超硬ラジアスエンドミル ショート形

**3-flute Carbide End Mill Short Length with Corner Radius for Copper and Aluminum Alloys**

## CA-CR-ETS

切削条件 Cutting Conditions | P675



切削除去量の多いアルミ部品の加工でも、独自の溝フォームが生み出す優れた切りくず排出性で、大きな切込みと高送りを同時に実現します。

Unique fluted design gives superb chip ejection and make deep cut and high feed on Aluminum part machining.

CAD

CARBIDE | 0～-0.02 | SHRINK FIT | 約40° ABOUT 40°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8502231 | 3 × R0.2 | 50 | 8 | 6 | | ▲ | 19 | 10,200 |
| 8502233 | 3 × R0.5 | | | | | ▲ | 19 | 10,200 |
| 8502241 | 4 × R0.2 | | 11 | | | ▲ | 19 | 10,600 |
| 8502243 | 4 × R0.5 | | | | | ▲ | 19 | 10,600 |
| 8502245 | 4 × R1 | | | | | ▲ | 19 | 10,600 |
| 8502251 | 5 × R0.2 | | 13 | | | ▲ | 19 | 11,400 |
| 8502253 | 5 × R0.5 | | | | | ▲ | 19 | 11,400 |
| 8502255 | 5 × R1 | | | | | ▲ | 19 | 11,400 |
| 8502262 | 6 × R0.3 | | | | | ▲ | 20 | 11,700 |
| 8502263 | 6 × R0.5 | | | | | ▲ | 20 | 11,700 |
| 8502265 | 6 × R1 | | | | | ▲ | 20 | 11,700 |
| 8502282 | 8 × R0.3 | 60 | 19 | 8 | | ▲ | 40 | 14,800 |
| 8502283 | 8 × R0.5 | | | | | ▲ | 40 | 14,800 |
| 8502285 | 8 × R1 | | | | | ▲ | 40 | 14,800 |
| 8502287 | 8 × R1.5 | | | | | ▲ | 40 | 14,800 |
| 8502289 | 8 × R2 | | | | | ▲ | 40 | 14,800 |
| 8502302 | 10 × R0.3 | 70 | 22 | 10 | D | ▲ | 71 | 17,700 |
| 8502303 | 10 × R0.5 | | | | | ▲ | 71 | 17,700 |
| 8502305 | 10 × R1 | | | | | ▲ | 71 | 17,700 |
| 8502307 | 10 × R1.5 | | | | | ▲ | 71 | 17,700 |
| 8502309 | 10 × R2 | | | | | ▲ | 71 | 17,700 |
| 8502313 | 10 × R3 | | | | | ▲ | 71 | 17,700 |
| 8502333 | 12 × R0.5 | 75 | 26 | 12 | | ▲ | 106 | 23,500 |
| 8502335 | 12 × R1 | | | | | ▲ | 106 | 23,500 |
| 8502337 | 12 × R1.5 | | | | | ▲ | 106 | 23,500 |
| 8502339 | 12 × R2 | | | | | ▲ | 106 | 23,500 |
| 8502343 | 12 × R3 | | | | | ▲ | 106 | 23,500 |
| 8502375 | 16 × R1 | 100 | 32 | 16 | | △ | 256 | 40,100 |
| 8502377 | 16 × R1.5 | | | | | △ | 255 | 40,100 |
| 8502379 | 16 × R2 | | | | | △ | 256 | 40,100 |
| 8502383 | 16 × R3 | | | | | △ | 257 | 40,100 |
| 8502415 | 20 × R1 | 105 | 38 | 20 | | △ | 404 | 66,300 |
| 8502417 | 20 × R1.5 | | | | | △ | 404 | 66,300 |
| 8502419 | 20 × R2 | | | | | △ | 404 | 66,300 |
| 8502423 | 20 × R3 | | | | | △ | 404 | 66,300 |

▲＝この製品は、AE-TS-N(P.395)、AE-VTS-N(P.396)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-TS-N(p.395), AE-VTS-N(p.396)

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CA-CR-ETS | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル ショート形

**DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials**

A The A Brand

## AE-TS-N

切削条件 Cutting Conditions | P504



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | R ±0.02 | 0〜-0.02 | SHRINK FIT | 41°

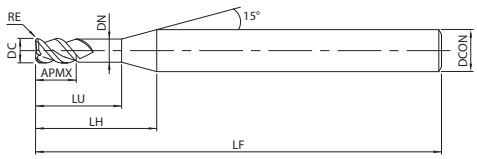
CAD

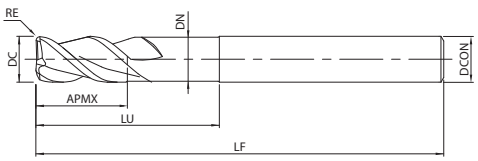
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長×コーナ半径 DC×LU×RE | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8557370 | 3 × 9 × R0.2 | 55 | 4.5 | 14.8 | 6 | 2.85 | 1 | ● | 20 | 3,290 |
| 8557371 | 3 × 9 × R0.5 | | | | | | | ● | 20 | 3,290 |
| 8557372 | 4 × 12 × R0.2 | | 6 | 15.9 | | 3.8 | | ● | 20 | 3,790 |
| 8557373 | 4 × 12 × R0.5 | | | | | | | ● | 20 | 3,790 |
| 8557374 | 4 × 12 × R1 | | | | | | | ● | 20 | 3,790 |
| 8557375 | 5 × 15 × R0.2 | | 7.5 | 16.8 | | 4.8 | | ● | 20 | 3,790 |
| 8557376 | 5 × 15 × R0.5 | | | | | | | ● | 22 | 3,790 |
| 8557377 | 5 × 15 × R1 | | | | | | | ● | 22 | 3,790 |
| 8557378 | 6 × 18 × R0.3 | 60 | 9 | — | | 5.8 | 2 | ● | 26 | 4,430 |
| 8557379 | 6 × 18 × R0.5 | | | — | | | | ● | 24 | 4,430 |
| 8557380 | 6 × 18 × R1 | | | — | | | | ● | 26 | 4,430 |
| 8557381 | 8 × 24 × R0.3 | 70 | 12 | — | 8 | 7.7 | | ● | 48 | 8,140 |
| 8557382 | 8 × 24 × R0.5 | | | — | | | | ● | 48 | 8,140 |
| 8557383 | 8 × 24 × R1 | | | — | | | | ● | 48 | 8,140 |
| 8557384 | 8 × 24 × R1.5 | | | — | | | | ● | 48 | 8,140 |
| 8557385 | 8 × 24 × R2 | | | — | | | | ● | 48 | 8,140 |
| 8557386 | 10 × 30 × R0.3 | 75 | 15 | — | 10 | 9.7 | | ● | 78 | 11,000 |
| 8557387 | 10 × 30 × R0.5 | | | — | | | | ● | 78 | 11,000 |
| 8557388 | 10 × 30 × R1 | | | — | | | | ● | 78 | 11,000 |
| 8557389 | 10 × 30 × R1.5 | | | — | | | | ● | 78 | 11,000 |
| 8557390 | 10 × 30 × R2 | | | — | | | | ● | 78 | 11,000 |
| 8557391 | 10 × 30 × R3 | | | — | | | | ● | 78 | 11,000 |
| 8557392 | 12 × 36 × R0.3 | 80 | 18 | — | 12 | 11.7 | | ● | 120 | 13,900 |
| 8557393 | 12 × 36 × R0.5 | | | — | | | | ● | 118 | 13,900 |
| 8557394 | 12 × 36 × R1 | | | — | | | | ● | 120 | 13,900 |
| 8557395 | 12 × 36 × R1.5 | | | — | | | | ● | 118 | 13,900 |
| 8557396 | 12 × 36 × R2 | | | — | | | | ● | 120 | 13,900 |
| 8557397 | 12 × 36 × R3 | | | — | | | | ● | 120 | 13,900 |

高機能タイプショート形ラジアスタイプ(AE-VTS-N)はP.396をご覧下さい。
See page 396 for AE-VTS-N.
高機能タイプ立ち壁対応型ラジアスタイプ(AE-VTFE-N)はP.397をご覧下さい。
See page 397 for AE-VTFE-N.

ラジアスタイプ Radius Type




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-TS-N | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル 高機能タイプショート形

DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials

The A Brand

## AE-VTS-N

切削条件 Cutting Conditions | P512



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC-IGUSS | R ±0.02 | 0〜-0.02 | SHRINK FIT | 40°〜43°

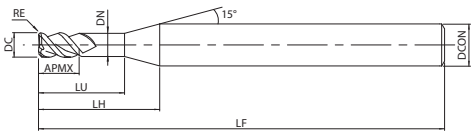
CAD

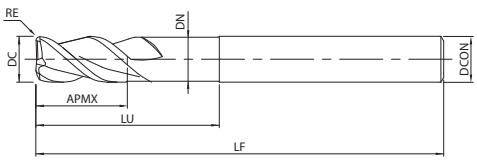
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長×コーナ半径 DC×LU×RE | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8557400 | 3 × 9 × R0.2 | 55 | 4.5 | 14.8 | 6 | 2.85 | 1 | A ● | 21 | 7,890 |
| 8557401 | 3 × 9 × R0.5 | | | | | | | ● | 20 | 7,890 |
| 8557402 | 4 × 12 × R0.2 | | 6 | 15.9 | | 3.8 | | ● | 20 | 8,230 |
| 8557403 | 4 × 12 × R0.5 | | | | | | | ● | 22 | 8,230 |
| 8557404 | 4 × 12 × R1 | | | | | | | ● | 22 | 8,230 |
| 8557405 | 5 × 15 × R0.2 | | 7.5 | 16.8 | | 4.8 | | ● | 22 | 9,070 |
| 8557406 | 5 × 15 × R0.5 | | | | | | | ● | 20 | 9,070 |
| 8557407 | 5 × 15 × R1 | | | | | | | ● | 22 | 9,070 |
| 8557408 | 6 × 18 × R0.3 | 60 | 9 | — | | 5.8 | 2 | ● | 26 | 9,470 |
| 8557409 | 6 × 18 × R0.5 | | | — | | | | ● | 26 | 9,470 |
| 8557410 | 6 × 18 × R1 | | | — | | | | ● | 26 | 9,470 |
| 8557411 | 8 × 24 × R0.3 | 70 | 12 | — | 8 | 7.7 | | ● | 48 | 12,900 |
| 8557412 | 8 × 24 × R0.5 | | | — | | | | ● | 48 | 12,900 |
| 8557413 | 8 × 24 × R1 | | | — | | | | ● | 48 | 12,900 |
| 8557414 | 8 × 24 × R1.5 | | | — | | | | ● | 48 | 12,900 |
| 8557415 | 8 × 24 × R2 | | | — | | | | ● | 48 | 12,900 |
| 8557416 | 10 × 30 × R0.3 | 75 | 15 | — | 10 | 9.7 | | ● | 78 | 16,100 |
| 8557417 | 10 × 30 × R0.5 | | | — | | | | ● | 78 | 16,100 |
| 8557418 | 10 × 30 × R1 | | | — | | | | ● | 78 | 16,100 |
| 8557419 | 10 × 30 × R1.5 | | | — | | | | ● | 78 | 16,100 |
| 8557420 | 10 × 30 × R2 | | | — | | | | ● | 78 | 16,100 |
| 8557421 | 10 × 30 × R3 | | | — | | | | ● | 78 | 16,100 |
| 8557422 | 12 × 36 × R0.3 | 80 | 18 | — | 12 | 11.7 | | ● | 23 | 22,500 |
| 8557423 | 12 × 36 × R0.5 | | | — | | | | ● | 118 | 22,500 |
| 8557424 | 12 × 36 × R1 | | | — | | | | ● | 120 | 22,500 |
| 8557425 | 12 × 36 × R1.5 | | | — | | | | ● | 118 | 22,500 |
| 8557426 | 12 × 36 × R2 | | | — | | | | ● | 124 | 22,500 |
| 8557427 | 12 × 36 × R3 | | | — | | | | ● | 120 | 22,500 |

スタンダードタイプショート形ラジアスタイプ(AE-TS-N)はP.395をご覧下さい。
See page 395 for AE-TS-N.
高機能タイプ立ち壁対応型ラジアスタイプ(AE-VTFE-N)はP.397をご覧下さい。
See page 397 for AE-VTFE-N.

ラジアスタイプ Radius Type




| 製品記号 Abbreviation ＼ 被削材 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-VTS-N | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 非鉄用DLCコート3枚刃超硬エンドミル 高機能タイプ立ち壁対応型

**DLC Coated 3-flute High Performance Carbide End Mill for Deep Side Milling in Non-ferrous Materials**

A The A Brand

## AE-VTFE-N

切削条件 Cutting Conditions | P516



コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

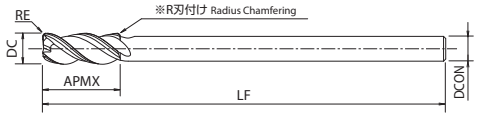
CARBIDE | DLC-IGUSS | R ± 0.03 | 0〜-0.02 | SHRINK FIT | 40°〜43°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8550156 | **6 × R0.2** | 100 | 15 | 4 | | ● | 22 | 16,300 |
| 8550158 | **8 × R0.5** | 110 | 20 | 6 | A | ● | 46 | 18,200 |
| 8550160 | **10 × R0.5** | 130 | 25 | 8 | | ● | 96 | 22,700 |
| 8550161 | **10 × R1** | | | | D | ○ | 96 | 22,700 |
| 8550168 | **12 × R0.5** | 150 | 30 | 10 | A | ● | 166 | 27,800 |
| 8550169 | **12 × R1** | | | | D | ○ | 166 | 27,800 |
| 8550174 | **14 × R0.5** | 160 | 35 | 12 | A | ● | 254 | 33,200 |
| 8550175 | **14 × R1** | | | | D | ○ | 254 | 33,200 |
| 8550180 | **18 × R1** | 180 | 45 | 16 | A | ● | 484 | 49,500 |
| 8550184 | **22 × R1** | 200 | 55 | 20 | | ● | 818 | 66,300 |

スタンダードタイプショート形ラジアスタイプ(AE-TS-N)はP.395をご覧下さい。
See page 395 for AE-TS-N.
高機能タイプショート形ラジアスタイプ(AE-VTS-N)はP.396をご覧下さい。
See page 396 for AE-VTS-N.




※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。
The radius chamfering is not a full radius since it is for preventing streaks during step milling.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AE-VTFE-N** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

NEW

# 銅電極・高能率仕上げ用DLCコート超硬ロングネックラジアスエンドミル

**DLC Coated High-efficiency Finishing Long Neck Carbide End Mill with Corner Radius for Copper Electrodes**

A The A Brand

## AE-CPR-N

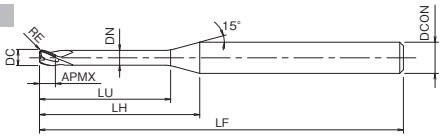
切削条件 Cutting Conditions | P520



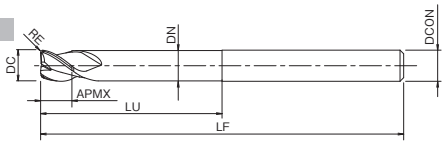
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC-IGUSS | R ± 0.004 | DC≦1 0〜-0.006 / 1<DC 0〜-0.01 | SHANK h4 | SHRINK FIT | 38°

Type1




Type2

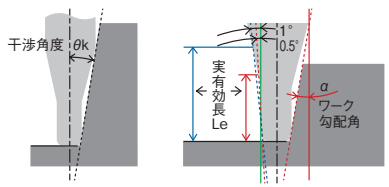



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | シャンク径 DCON | 刃数 ZEFP | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557646 | 0.2×R0.05×0.4 | 45 | 0.2 | 7.5 | 0.175 | 14.28° | 4 | 2 | 0.41 | 0.43 | 0.45 | 0.47 | 0.51 | 1 | A | 12 | 8,240 |
| 8557647 | 0.2×R0.05×0.6 | | | 7.7 | | 13.92° | | | 0.62 | 0.65 | 0.68 | 0.7 | 0.75 | | | 10 | 8,340 |
| 8557648 | 0.2×R0.05×1 | | | 8.1 | | 13.26° | | | 1.04 | 1.08 | 1.12 | 1.16 | 1.25 | | | 10 | 8,690 |
| 8557649 | 0.2×R0.05×1.5 | | | 8.6 | | 12.51° | | | 1.56 | 1.62 | 1.68 | 1.74 | 1.87 | | | 10 | 8,930 |
| 8557650 | 0.3×R0.05×0.6 | | 0.3 | 7.5 | 0.275 | 13.9° | | | 0.62 | 0.65 | 0.68 | 0.7 | 0.75 | | | 12 | 8,480 |
| 8557651 | 0.3×R0.05×1 | | | 7.9 | | 13.22° | | | 1.04 | 1.08 | 1.12 | 1.16 | 1.25 | | | 10 | 8,690 |
| 8557652 | 0.3×R0.05×1.5 | | | 8.4 | | 12.45° | | | 1.56 | 1.62 | 1.68 | 1.74 | 1.87 | | | 10 | 8,930 |
| 8557653 | 0.3×R0.05×2 | | | 8.9 | | 11.77° | | | 2.08 | 2.15 | 2.23 | 2.31 | 2.5 | | | 10 | 9,050 |
| 8557654 | 0.4×R0.02×0.8 | | 0.4 | 7.5 | 0.37 | 13.47° | | | 0.83 | 0.86 | 0.9 | 0.93 | 1 | | | 11 | 7,540 |
| 8557655 | 0.4×R0.02×2 | | | 8.7 | | 11.68° | | | 2.08 | 2.15 | 2.23 | 2.31 | 2.5 | | | 10 | 7,750 |
| 8557656 | 0.4×R0.05×0.8 | | | 7.5 | | 13.52° | | | 0.83 | 0.86 | 0.89 | 0.92 | 1 | | | 11 | 7,540 |
| 8557657 | 0.4×R0.05×1.2 | | | 7.9 | | 12.86° | | | 1.25 | 1.29 | 1.34 | 1.38 | 1.49 | | | 10 | 7,600 |
| 8557658 | 0.4×R0.05×2 | | | 8.7 | | 11.71° | | | 2.08 | 2.15 | 2.22 | 2.3 | 2.49 | | | 12 | 7,750 |
| 8557659 | 0.4×R0.05×3 | | | 9.7 | | 10.53° | | | 3.11 | 3.22 | 3.33 | 3.45 | 3.73 | | | 12 | 7,890 |
| 8557660 | 0.4×R0.05×4 | | | 10.7 | | 9.57° | | | 4.14 | 4.29 | 4.44 | 4.6 | 4.97 | | | 10 | 8,070 |
| 8557661 | 0.4×R0.1 ×0.8 | | | 7.5 | | 13.6° | | | 0.83 | 0.86 | 0.89 | 0.92 | 0.98 | | | 11 | 7,540 |
| 8557662 | 0.4×R0.1 ×1.2 | | | 7.9 | | 12.93° | | | 1.24 | 1.29 | 1.33 | 1.38 | 1.48 | | | 10 | 7,600 |
| 8557663 | 0.4×R0.1 ×2 | | | 8.7 | | 11.77° | | | 2.07 | 2.14 | 2.22 | 2.3 | 2.48 | | | 11 | 7,750 |
| 8557664 | 0.4×R0.1 ×3 | | | 9.7 | | 10.58° | | | 3.11 | 3.21 | 3.33 | 3.45 | 3.72 | | | 10 | 7,890 |
| 8557665 | 0.4×R0.1 ×4 | | | 10.7 | | 9.61° | | | 4.14 | 4.28 | 4.43 | 4.6 | 4.96 | | | 10 | 8,070 |
| 8557666 | 0.5×R0.05×1 | | 0.5 | 7.5 | 0.45 | 13.16° | | | 1.03 | 1.06 | 1.1 | 1.14 | 1.23 | | | 12 | 7,390 |
| 8557667 | 0.5×R0.05×2 | | | 8.5 | | 11.65° | | | 2.06 | 2.13 | 2.21 | 2.29 | 2.47 | | | 12 | 7,540 |
| 8557668 | 0.5×R0.05×3 | | | 9.5 | | 10.45° | | | 3.1 | 3.2 | 3.32 | 3.44 | 3.72 | | | 10 | 7,700 |
| 8557669 | 0.5×R0.05×4 | | | 10.5 | | 9.48° | | | 4.13 | 4.27 | 4.43 | 4.59 | 4.96 | | | 10 | 7,840 |
| 8557670 | 0.5×R0.05×5 | | | 11.5 | | 8.67° | | | 5.16 | 5.34 | 5.53 | 5.74 | 6.2 | | | 10 | 7,970 |
| 8557671 | 0.5×R0.1 ×1 | | | 7.5 | | 13.23° | | | 1.03 | 1.06 | 1.1 | 1.13 | 1.22 | | | 12 | 7,390 |
| 8557672 | 0.5×R0.1 ×2 | | | 8.5 | | 11.71° | | | 2.06 | 2.13 | 2.2 | 2.28 | 2.46 | | | 11 | 7,540 |
| 8557673 | 0.5×R0.1 ×3 | | | 9.5 | | 10.5° | | | 3.1 | 3.2 | 3.31 | 3.43 | 3.7 | | | 10 | 7,700 |
| 8557674 | 0.5×R0.1 ×4 | | | 10.5 | | 9.52° | | | 4.13 | 4.27 | 4.42 | 4.58 | 4.95 | | | 10 | 7,840 |
| 8557675 | 0.5×R0.1 ×5 | | | 11.5 | | 8.7° | | | 5.16 | 5.34 | 5.53 | 5.73 | 6.19 | | | 10 | 7,970 |
| 8557676 | 0.6×R0.05×1.2 | | 0.6 | 7.5 | 0.55 | 12.77° | | | 1.24 | 1.28 | 1.32 | 1.37 | 1.48 | | | 11 | 7,970 |
| 8557677 | 0.6×R0.05×2 | | | 8.3 | | 11.58° | | | 2.06 | 2.13 | 2.21 | 2.29 | 2.47 | | | 11 | 8,130 |
| 8557678 | 0.6×R0.05×4 | | | 10.3 | | 9.38° | | | 4.13 | 4.27 | 4.43 | 4.59 | 4.96 | | | 10 | 8,480 |
| 8557679 | 0.6×R0.05×6 | | | 12.3 | | 7.87° | | | 6.2 | 6.41 | 6.64 | 6.89 | 7.45 | | | 10 | 8,770 |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

高精度仕上げ用2刃ロングネックボールタイプ（AE-LNBD-N）はP.357をご覧下さい。
See page 357 for AE-LNBD-N.

次ページへ
外径 DC 0.6〜1.5 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-CPR-N | | | | | | | | | ◎ | ○ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

NEW

# 銅電極・高能率仕上げ用DLCコート超硬ロングネックラジアスエンドミル

**DLC Coated High-efficiency Finishing Long Neck Carbide End Mill with Corner Radius for Copper Electrodes**

A The A Brand

## AE-CPR-N

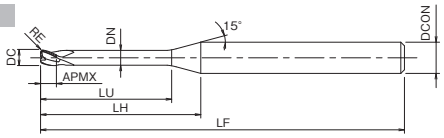
切削条件 Cutting Conditions | P520



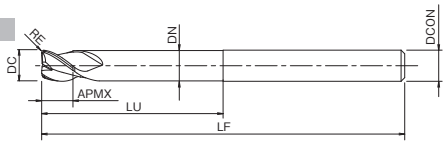
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC-IGUSS | R ±0.004 | DC≦1 0〜-0.006, 1<DC 0〜-0.01 | SHANK h4 | SHRINK FIT | 38°

Type1




Type2




前ページより

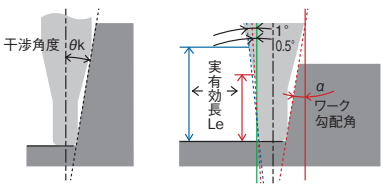
FROM 外径 DC 0.2〜0.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | シャンク径 DCON | 刃数 ZEFP | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557680 | 0.6×R0.1×1.2 | 45 | 0.6 | 7.5 | 0.55 | 12.84° | 4 | 2 | 1.23 | 1.27 | 1.32 | 1.36 | 1.47 | 1 | A | ● | 11 | 7,970 |
| 8557681 | 0.6×R0.1×2 | | | 8.3 | | 11.64° | | | 2.06 | 2.13 | 2.2 | 2.28 | 2.46 | | | ● | 12 | 8,130 |
| 8557682 | 0.6×R0.1×3 | | | 9.3 | | 10.41° | | | 3.1 | 3.2 | 3.31 | 3.43 | 3.7 | | | ● | 11 | 8,340 |
| 8557683 | 0.6×R0.1×4 | | | 10.3 | | 9.42° | | | 4.13 | 4.27 | 4.42 | 4.58 | 4.95 | | | ● | 10 | 8,480 |
| 8557684 | 0.6×R0.1×6 | | | 12.3 | | 7.9° | | | 6.2 | 6.41 | 6.64 | 6.88 | 7.43 | | | ● | 10 | 8,770 |
| 8557685 | 0.6×R0.2×1.2 | | | 7.5 | | 12.99° | | | 1.23 | 1.27 | 1.31 | 1.35 | 1.44 | | | ● | 11 | 7,970 |
| 8557686 | 0.6×R0.2×4 | | | 10.3 | | 9.5° | | | 4.13 | 4.26 | 4.41 | 4.57 | 4.92 | | | ● | 11 | 8,480 |
| 8557687 | 0.8×R0.05×1.6 | | 0.8 | 7.6 | 0.75 | 12° | | | 1.65 | 1.71 | 1.77 | 1.83 | 1.98 | | | ● | 11 | 8,190 |
| 8557688 | 0.8×R0.05×4 | | | 10 | | 9.16° | | | 4.13 | 4.27 | 4.43 | 4.59 | 4.96 | | | ● | 10 | 8,480 |
| 8557689 | 0.8×R0.05×6 | | | 12 | | 7.65° | | | 6.2 | 6.41 | 6.64 | 6.89 | 7.45 | | | ● | 10 | 8,770 |
| 8557690 | 0.8×R0.05×8 | | | 14 | | 6.56° | | | 8.27 | 8.55 | 8.86 | 9.19 | 9.93 | | | ● | 10 | 8,930 |
| 8557691 | 0.8×R0.1×1.6 | | | 7.6 | | 12.07° | | | 1.65 | 1.7 | 1.76 | 1.82 | 1.96 | | | ● | 11 | 8,190 |
| 8557692 | 0.8×R0.1×4 | | | 10 | | 9.2° | | | 4.13 | 4.27 | 4.42 | 4.58 | 4.95 | | | ● | 10 | 8,480 |
| 8557693 | 0.8×R0.1×6 | | | 12 | | 7.67° | | | 6.2 | 6.41 | 6.64 | 6.88 | 7.43 | | | ● | 10 | 8,770 |
| 8557694 | 0.8×R0.1×8 | | | 14 | | 6.58° | | | 8.26 | 8.55 | 8.85 | 9.18 | 9.92 | | | ● | 10 | 8,930 |
| 8557695 | 1×R0.02×2 | | 1 | 7.6 | 0.95 | 11.19° | | 3 | 2.06 | 2.14 | 2.21 | 2.29 | 2.48 | | | ● | 11 | 9,550 |
| 8557696 | 1×R0.02×3 | | | 8.6 | | 9.92° | | | 3.1 | 3.21 | 3.32 | 3.44 | 3.72 | | | ● | 11 | 10,100 |
| 8557697 | 1×R0.1×2 | | | 7.6 | | 11.3° | | | 2.06 | 2.13 | 2.2 | 2.28 | 2.46 | | | ● | 11 | 9,550 |
| 8557698 | 1×R0.1×3 | | | 8.6 | | 10° | | | 3.1 | 3.2 | 3.31 | 3.43 | 3.7 | | | ● | 10 | 9,660 |
| 8557699 | 1×R0.1×4 | | | 9.6 | | 8.97° | | | 4.13 | 4.27 | 4.42 | 4.58 | 4.95 | | | ● | 10 | 9,740 |
| 8557700 | 1×R0.1×5 | | | 10.6 | | 8.13° | | | 5.16 | 5.34 | 5.53 | 5.73 | 6.19 | | | ● | 10 | 10,100 |
| 8557701 | 1×R0.1×6 | | | 11.6 | | 7.43° | | | 6.2 | 6.41 | 6.64 | 6.88 | 7.43 | | | ● | 10 | 10,200 |
| 8557702 | 1×R0.1×8 | | | 13.6 | | 6.34° | | | 8.26 | 8.55 | 8.85 | 9.18 | 9.92 | | | ● | 10 | 10,400 |
| 8557703 | 1×R0.1×10 | | | 15.6 | | 5.53° | | | 10.33 | 10.69 | 11.07 | 11.48 | 12.41 | | | ● | 10 | 10,700 |
| 8557704 | 1×R0.2×2 | | | 7.6 | | 11.43° | | | 2.06 | 2.12 | 2.19 | 2.27 | 2.44 | | | ● | 10 | 9,550 |
| 8557705 | 1×R0.2×3 | | | 8.6 | | 10.11° | | | 3.09 | 3.19 | 3.3 | 3.42 | 3.68 | | | ● | 11 | 9,660 |
| 8557706 | 1×R0.2×4 | | | 9.6 | | 9.06° | | | 4.13 | 4.26 | 4.41 | 4.57 | 4.92 | | | ● | 11 | 9,740 |
| 8557707 | 1×R0.2×5 | | | 10.6 | | 8.2° | | | 5.16 | 5.33 | 5.52 | 5.72 | 6.17 | | | ● | 10 | 10,100 |
| 8557708 | 1×R0.2×6 | | | 11.6 | | 7.49° | | | 6.19 | 6.4 | 6.63 | 6.87 | 7.41 | | | ● | 10 | 10,200 |
| 8557709 | 1×R0.2×8 | | | 13.6 | | 6.39° | | | 8.26 | 8.54 | 8.84 | 9.17 | 9.9 | | | ● | 10 | 10,400 |
| 8557710 | 1×R0.2×10 | | | 15.6 | | 5.56° | | | 10.33 | 10.68 | 11.06 | 11.47 | 12.38 | | | ● | 9 | 10,700 |
| 8557711 | 1×R0.3×2 | | | 7.6 | | 11.57° | | | 2.06 | 2.12 | 2.18 | 2.25 | 2.41 | | | ● | 11 | 9,550 |
| 8557712 | 1×R0.3×3 | | | 8.6 | | 10.22° | | | 3.09 | 3.19 | 3.29 | 3.4 | 3.66 | | | ● | 10 | 9,660 |
| 8557713 | 1.5×R0.3×3 | | 1.5 | 7.8 | 1.45 | 9.48° | | | 3.15 | 3.28 | 3.4 | 3.52 | 3.78 | | | ● | 10 | 10,100 |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

高精度仕上げ用2刃ロングネックボールタイプ（AE-LNBD-N）はP.357をご覧下さい。
See page 357 for AE-LNBD-N.

次ページへ
外径 DC 1.5〜4 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-CPR-N | | | | | | | | | ◎ | ○ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

NEW

# 銅電極・高能率仕上げ用DLCコート超硬ロングネックラジアスエンドミル

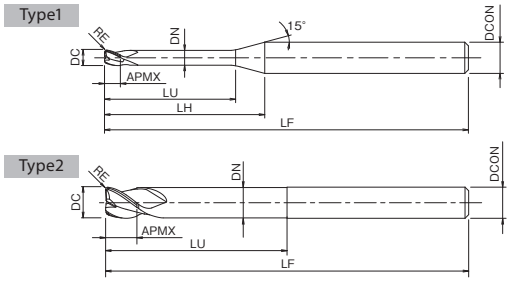
**DLC Coated High-efficiency Finishing Long Neck Carbide End Mill with Corner Radius for Copper Electrodes**

A The A Brand

## AE-CPR-N

切削条件 Cutting Conditions | P520






コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。

End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC-IGUSS | R ± 0.004 | DC≦1 0〜-0.006 1<DC 0〜-0.01 | SHANK h4 | SHRINK FIT | 38°

前ページより FROM 外径 DC 0.6〜1.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | シャンク径 DCON | 刃数 ZEFP | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557714 | 1.5×R0.5× 3 | 45 | 1.5 | 7.8 | 1.45 | 9.71° | 4 | 3 | 3.14 | 3.27 | 3.38 | 3.49 | 3.73 | 1 | A | 11 | 10,100 |
| 8557715 | 1.5×R0.5×10 | | | 14.8 | | 5° | | | 10.42 | 10.77 | 11.14 | 11.54 | 12.43 | | | 10 | 10,200 |
| 8557716 | 1.5×R0.5×12 | 60 | | 16.8 | | 4.39° | | | 12.49 | 12.91 | 13.35 | 13.84 | 14.92 | | | 12 | 10,300 |
| 8557717 | 1.5×R0.5×20 | | | 24.8 | | 2.95° | | | 20.76 | 21.46 | 22.22 | 23.04 | — | | | 11 | 10,500 |
| 8557718 | 2 ×R0.1× 4 | 50 | 2 | 8.2 | 1.95 | 7.07° | | | 4.28 | 4.55 | 4.79 | 5.03 | 5.48 | | | 12 | 9,300 |
| 8557719 | 2 ×R0.1× 6 | | | 10.2 | | 5.68° | | | 6.41 | 6.76 | 7.08 | 7.37 | 7.97 | | | 11 | 9,370 |
| 8557720 | 2 ×R0.1× 8 | | | 12.2 | | 4.74° | | | 8.52 | 8.95 | 9.32 | 9.67 | 10.45 | | | 11 | 9,740 |
| 8557721 | 2 ×R0.1×10 | | | 14.2 | | 4.07° | | | 10.63 | 11.12 | 11.54 | 11.97 | 12.94 | | | 11 | 9,820 |
| 8557722 | 2 ×R0.1×15 | | | 19.2 | | 3.01° | | | 15.87 | 16.49 | 17.09 | 17.72 | 19.15 | | | 10 | 9,900 |
| 8557723 | 2 ×R0.1×16 | 60 | | 20.2 | | 2.86° | | | 16.91 | 17.56 | 18.19 | 18.87 | — | | | 12 | 10,100 |
| 8557724 | 2 ×R0.1×20 | | | 24.2 | | 2.38° | | | 21.08 | 21.84 | 22.63 | 23.47 | — | | | 11 | 10,200 |
| 8557725 | 2 ×R0.2× 4 | 50 | | 8.2 | | 7.15° | | | 4.28 | 4.53 | 4.78 | 5.01 | 5.46 | | | 12 | 9,300 |
| 8557726 | 2 ×R0.2×10 | | | 14.2 | | 4.1° | | | 10.62 | 11.11 | 11.53 | 11.96 | 12.91 | | | 11 | 9,820 |
| 8557727 | 2 ×R0.2×16 | 60 | | 20.2 | | 2.87° | | | 16.91 | 17.56 | 18.18 | 18.86 | — | | | 12 | 10,100 |
| 8557728 | 2 ×R0.2×20 | | | 24.2 | | 2.39° | | | 21.08 | 21.84 | 22.62 | 23.46 | — | | | 11 | 10,200 |
| 8557729 | 2 ×R0.3× 4 | 50 | | 8.2 | | 7.24° | | | 4.27 | 4.52 | 4.76 | 4.99 | 5.43 | | | 12 | 9,300 |
| 8557730 | 2 ×R0.3× 6 | | | 10.2 | | 5.79° | | | 6.39 | 6.74 | 7.05 | 7.34 | 7.92 | | | 11 | 9,370 |
| 8557731 | 2 ×R0.3× 8 | | | 12.2 | | 4.82° | | | 8.51 | 8.93 | 9.3 | 9.64 | 10.4 | | | 10 | 9,740 |
| 8557732 | 2 ×R0.3×10 | | | 14.2 | | 4.13° | | | 10.62 | 11.1 | 11.52 | 11.94 | 12.89 | | | 11 | 9,820 |
| 8557733 | 2 ×R0.3×15 | | | 19.2 | | 3.04° | | | 15.86 | 16.48 | 17.06 | 17.69 | 19.11 | | | 10 | 9,900 |
| 8557734 | 2 ×R0.3×16 | 60 | | 20.2 | | 2.89° | | | 16.9 | 17.55 | 18.17 | 18.84 | — | | | 12 | 10,100 |
| 8557735 | 2 ×R0.3×20 | | | 24.2 | | 2.4° | | | 21.07 | 21.83 | 22.61 | 23.44 | — | | | 12 | 10,200 |
| 8557736 | 2.5×R0.5× 5 | 55 | 2.5 | 8.1 | 2.4 | 5.61° | | | 5.28 | 5.54 | 5.79 | 6.03 | 6.49 | | | 13 | 9,660 |
| 8557737 | 2.5×R0.5×20 | | | 23.1 | | 1.9° | | | 20.97 | 21.7 | 22.46 | — | — | | | 11 | 10,200 |
| 8557738 | 3 ×R0.2× 6 | | 3 | 11.8 | 2.85 | 7.34° | 6 | | 6.31 | 6.6 | 6.88 | 7.14 | 7.7 | | | 23 | 10,400 |
| 8557739 | 3 ×R0.2×12 | | | 17.8 | | 4.86° | | | 12.59 | 13.07 | 13.54 | 14.04 | 15.16 | | | 21 | 10,700 |
| 8557740 | 3 ×R0.2×18 | | | 23.8 | | 3.64° | | | 18.83 | 19.49 | 20.19 | 20.94 | 22.62 | | | 19 | 11,000 |
| 8557741 | 3 ×R0.2×21 | 70 | | 26.8 | | 3.23° | | | 21.94 | 22.7 | 23.51 | 24.39 | 26.35 | | | 26 | 11,300 |
| 8557742 | 3 ×R0.2×24 | | | 29.8 | | 2.9° | | | 25.04 | 25.91 | 26.84 | 27.84 | — | | | 24 | 11,600 |
| 8557743 | 3 ×R0.3× 6 | 55 | | 11.8 | | 7.4° | | | 6.31 | 6.6 | 6.87 | 7.12 | 7.68 | | | 23 | 10,400 |
| 8557744 | 3 ×R0.3× 8 | | | 13.8 | | 6.32° | | | 8.4 | 8.77 | 9.09 | 9.42 | 10.17 | | | 23 | 10,500 |
| 8557745 | 3 ×R0.3×12 | | | 17.8 | | 4.89° | | | 12.58 | 13.07 | 13.53 | 14.02 | 15.14 | | | 21 | 10,700 |
| 8557746 | 3 ×R0.3×20 | | | 25.8 | | 3.37° | | | 20.9 | 21.62 | 22.39 | 23.22 | 25.08 | | | 19 | 11,100 |
| 8557747 | 3 ×R0.5× 6 | 55 | | 11.8 | | 7.52° | | | 6.3 | 6.58 | 6.84 | 7.1 | 7.63 | | | 23 | 10,400 |
| 8557748 | 3 ×R0.5×12 | | | 17.8 | | 4.94° | | | 12.57 | 13.05 | 13.51 | 13.99 | 15.09 | | | 21 | 10,700 |
| 8557749 | 3 ×R0.5×15 | | | 20.8 | | 4.22° | | | 15.7 | 16.26 | 16.83 | 17.44 | 18.82 | | | 20 | 10,900 |
| 8557750 | 3 ×R0.5×18 | | | 23.8 | | 3.68° | | | 18.82 | 19.47 | 20.16 | 20.89 | 22.55 | | | 19 | 11,000 |
| 8557751 | 3 ×R0.5×21 | 70 | | 26.8 | | 3.26° | | | 21.93 | 22.68 | 23.48 | 24.34 | 26.28 | | | 25 | 12,100 |
| 8557752 | 3 ×R0.5×25 | | | 30.8 | | 2.83° | | | 26.07 | 26.96 | 27.91 | 28.94 | — | | | 24 | 12,200 |
| 8557753 | 3 ×R0.5×30 | | | 35.8 | | 2.43° | | | 31.24 | 32.31 | 33.46 | 34.69 | — | | | 22 | 12,700 |
| 8557754 | 4 ×R0.2× 8 | 60 | 4 | 12 | 3.85 | 4.86° | | | 8.41 | 8.77 | 9.11 | 9.44 | 10.19 | | | 25 | 10,400 |
| 8557755 | 4 ×R0.2×16 | | | 20 | | 2.9° | | | 16.75 | 17.35 | 17.97 | 18.64 | — | | | 23 | 10,700 |
| 8557756 | 4 ×R0.2×20 | | | 24 | | 2.41° | | | 20.9 | 21.63 | 22.4 | 23.24 | — | | | 22 | 10,900 |
| 8557757 | 4 ×R0.2×24 | | | 28 | | 2.07° | | | 25.04 | 25.91 | 26.84 | 27.84 | — | | | 22 | 11,000 |

次ページへ 外径 DC 4〜6 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-CPR-N | | | | | | | | | ◎ | ○ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

NEW

# 銅電極・高能率仕上げ用DLCコート超硬ロングネックラジアスエンドミル

**DLC Coated High-efficiency Finishing Long Neck Carbide End Mill with Corner Radius for Copper Electrodes**

A The A Brand

## AE-CPR-N

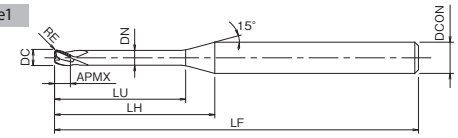
切削条件 Cutting Conditions | P520



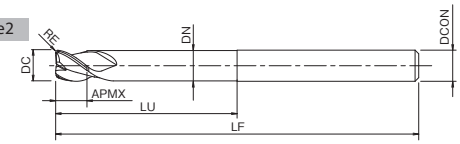
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC-IGUSS | R ±0.004 | DC≦1 0〜-0.006, 1<DC 0〜-0.01 | SHANK h4 | SHRINK FIT | 38°

Type1




Type2




前ページより FROM 外径 DC 1.5〜4

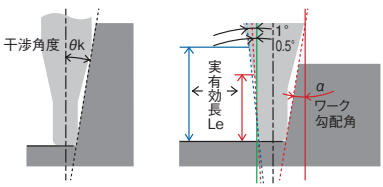
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | 首径 DN | 干渉角度 θk | シャンク径 DCON | 刃数 ZEFP | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557758 | 4×R0.2×28 | 75 | 4 | 32 | 3.85 | 1.81° | 6 | 3 | 29.18 | 30.19 | 31.27 | — | — | 1 | A | ● | 27 | 11,300 |
| 8557759 | 4×R0.2×32 | | | 36 | | 1.61° | | | 33.31 | 34.47 | 35.7 | — | — | | | ● | 27 | 11,600 |
| 8557760 | 4×R0.3× 8 | 60 | | 12 | | 4.9° | | | 8.4 | 8.77 | 9.09 | 9.42 | 10.17 | | | ● | 25 | 10,400 |
| 8557761 | 4×R0.3×20 | | | 24 | | 2.42° | | | 20.9 | 21.62 | 22.39 | 23.22 | — | | | ● | 22 | 10,900 |
| 8557762 | 4×R0.5× 8 | | | 12 | | 4.98° | | | 8.39 | 8.75 | 9.07 | 9.4 | 10.12 | | | ● | 25 | 10,400 |
| 8557763 | 4×R0.5×12 | | | 16 | | 3.7° | | | 12.57 | 13.05 | 13.51 | 13.99 | 15.09 | | | ● | 24 | 10,600 |
| 8557764 | 4×R0.5×16 | | | 20 | | 2.94° | | | 16.74 | 17.33 | 17.94 | 18.59 | — | | | ● | 23 | 10,700 |
| 8557765 | 4×R0.5×20 | | | 24 | | 2.44° | | | 20.89 | 21.61 | 22.37 | 23.19 | — | | | ● | 22 | 10,900 |
| 8557766 | 4×R0.5×24 | | | 28 | | 2.09° | | | 25.03 | 25.89 | 26.81 | 27.79 | — | | | ● | 21 | 11,000 |
| 8557767 | 4×R0.5×25 | | | 29 | | 2.02° | | | 26.07 | 26.96 | 27.91 | 28.94 | — | | | ● | 22 | 11,100 |
| 8557768 | 4×R0.5×28 | 75 | | 32 | | 1.82° | | | 29.17 | 30.17 | 31.24 | — | — | | | ● | 28 | 11,300 |
| 8557769 | 4×R0.5×32 | | | 36 | | 1.62° | | | 33.3 | 34.45 | 35.67 | — | — | | | ● | 27 | 12,200 |
| 8557770 | 4×R1 × 8 | 60 | | 12 | | 5.19° | | | 8.37 | 8.71 | 9.02 | 9.32 | 10 | | | ● | 26 | 10,400 |
| 8557771 | 4×R1 ×16 | | | 20 | | 3.02° | | | 16.72 | 17.3 | 17.89 | 18.52 | 19.95 | | | ● | 23 | 10,700 |
| 8557772 | 4×R1 ×24 | | | 28 | | 2.13° | | | 25.02 | 25.85 | 26.75 | 27.72 | — | | | ● | 22 | 11,000 |
| 8557773 | 4×R1 ×28 | 75 | | 32 | | 1.85° | | | 29.15 | 30.13 | 31.19 | — | — | | | ● | 30 | 11,300 |
| 8557774 | 4×R1 ×32 | | | 36 | | 1.64° | | | 33.29 | 34.41 | 35.62 | — | — | | | ● | 27 | 12,200 |
| 8557775 | 6×R0.1×12 | 60 | 6 | — | 5.85 | — | | | — | — | — | — | — | 2 | | ● | 28 | 11,900 |
| 8557776 | 6×R0.1×24 | | | — | | — | | | — | — | — | — | — | | | ● | 27 | 12,200 |
| 8557777 | 6×R0.2×12 | | | — | | — | | | — | — | — | — | — | | | ● | 27 | 11,900 |
| 8557778 | 6×R0.2×24 | | | — | | — | | | — | — | — | — | — | | | ● | 26 | 12,200 |
| 8557779 | 6×R0.2×32 | 80 | | — | | — | | | — | — | — | — | — | | | ● | 33 | 18,800 |
| 8557780 | 6×R0.2×48 | | | — | | — | | | — | — | — | — | — | | | ● | 32 | 19,200 |
| 8557781 | 6×R0.5×12 | 60 | | — | | — | | | — | — | — | — | — | | | ● | 27 | 11,100 |
| 8557782 | 6×R0.5×24 | | | — | | — | | | — | — | — | — | — | | | ● | 26 | 12,200 |
| 8557783 | 6×R0.5×30 | | | — | | — | | | — | — | — | — | — | | | ● | 26 | 12,900 |
| 8557784 | 6×R0.5×32 | 80 | | — | | — | | | — | — | — | — | — | | | ● | 33 | 17,900 |
| 8557785 | 6×R0.5×48 | | | — | | — | | | — | — | — | — | — | | | ● | 33 | 19,200 |
| 8557786 | 6×R1 ×12 | 60 | | — | | — | | | — | — | — | — | — | | | ● | 27 | 11,100 |
| 8557787 | 6×R1 ×24 | | | — | | — | | | — | — | — | — | — | | | ● | 26 | 12,200 |
| 8557788 | 6×R1 ×32 | 80 | | — | | — | | | — | — | — | — | — | | | ● | 33 | 17,900 |
| 8557789 | 6×R1 ×48 | | | — | | — | | | — | — | — | — | — | | | ● | 32 | 19,200 |

高精度仕上げ用2刃ロングネックボールタイプ(AE-LNBD-N)はP.357をご覧下さい。
See page 357 for AE-LNBD-N.

### ■ワーク勾配角αに対する実有効長 (Le)

Effective Neck length (Le) depending on Inclined Angle (α) of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-CPR-N | | | | | | | | | ◎ | ○ | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 銅・アルミ合金用3枚刃超硬ラジアスエンドミル 多機能強力型

**3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type for Copper and Aluminum Alloys**

# CA-PKE

切削条件 Cutting Conditions | P679



高剛性のショート刃、首逃がしタイプにより、荒から仕上げ加工まで多彩なカッタパスで対応します。

Thanks to a high rigid short type and reduced neck type, wide range application from rough to finish milling is possible.

CARBIDE | SHRINK FIT | 約40° ABOUT 40°

0～-0.02

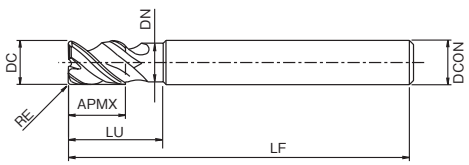
CAD

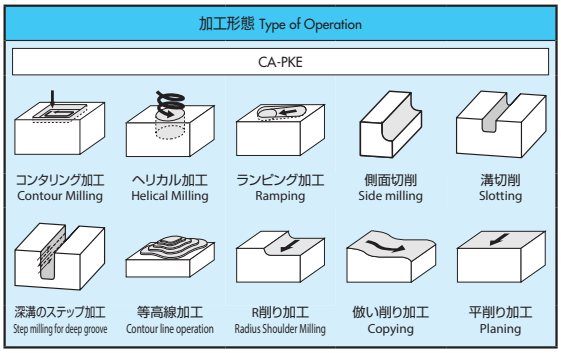
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8533033 | 3 × R0.5 | 50 | 4.5 | 6 | 9 | 2.7 | B | ▲ | 19 | 10,700 |
| 8533043 | 4 × R0.5 | | 6 | | 12 | 3.6 | | ▲ | 19 | 11,200 |
| 8533053 | 5 × R0.5 | 60 | 7.5 | | 15 | 4.5 | | ▲ | 24 | 13,100 |
| 8533063 | 6 × R0.5 | | 9 | | | 5.4 | | ▲ | 26 | 14,300 |
| 8533065 | 6 × R1 | | | | | | | ▲ | 25 | 14,300 |
| 8533083 | 8 × R0.5 | 70 | 12 | 8 | 20 | 7.2 | | ▲ | 49 | 17,800 |
| 8533085 | 8 × R1 | | | | | | | ▲ | 49 | 17,800 |
| 8533103 | 10 × R0.5 | 80 | 15 | 10 | 25 | 9 | | ▲ | 85 | 21,300 |
| 8533105 | 10 × R1 | | | | | | | ▲ | 85 | 21,300 |
| 8533123 | 12 × R0.5 | 90 | 18 | 12 | 30 | 11 | | ▲ | 138 | 26,500 |
| 8533125 | 12 × R1 | | | | | | | ▲ | 138 | 26,500 |
| 8533163 | 16 × R0.5 | 115 | 24 | 16 | 40 | 15 | | ▲ | 316 | 52,700 |
| 8533165 | 16 × R1 | | | | | | | ▲ | 317 | 52,700 |
| 8533169 | 16 × R3 | | | | | | | ▲ | 316 | 52,700 |
| 8533203 | 20 × R0.5 | 125 | 30 | 20 | 50 | 19 | | ▲ | 516 | 78,100 |
| 8533205 | 20 × R1 | | | | | | | ▲ | 516 | 78,100 |
| 8533209 | 20 × R3 | | | | | | | ▲ | 516 | 78,100 |

▲＝この製品は、DLC-PKE(P.403)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by DLC-PKE(p.403)




## DIAコート2枚刃超硬ラジアスエンドミル ロングシャンク

**Diamond Coated 2-flute Carbide End Mill with Corner Radius, Long Shank**

# DIA-LS-CRED

切削条件 Cutting Conditions | P692



グラファイト電極の薄肉立ち壁加工対応工具です。ステップ加工対応によりびびりやコバ欠けを防止します。シャンク側サイドにもR刃付けが施してあります。

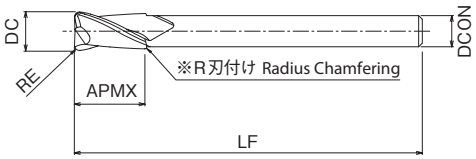
Specially designed for thin wall Graphite electrode. Eliminates chatter and small chipping with step milling. Radius teeth on shank side also.

CARBIDE | DIA | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8504751 | 5 × R0.3 | 100 | 10 | 4 | D | ● | 25 | 38,500 |
| 8504753 | 5 × R0.5 | | | | | ● | 24 | 38,500 |
| 8504755 | 5 × R1 | | | | | ● | 24 | 38,500 |
| 8504771 | 7 × R0.3 | 160 | 14 | 6 | | ● | 74 | 51,300 |
| 8504773 | 7 × R0.5 | | | | | ● | 74 | 51,300 |
| 8504775 | 7 × R1 | | | | | ● | 74 | 51,300 |
| 8504793 | 9 × R0.5 | 180 | 18 | 8 | | ● | 137 | 70,900 |
| 8504795 | 9 × R1 | | | | | ● | 139 | 70,900 |
| 8504813 | 11 × R0.5 | | 22 | 10 | | ● | 210 | 80,700 |
| 8504815 | 11 × R1 | | | | | ● | 210 | 80,700 |




※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

Since radius chamfering is also provided on the end faces of the shank side, no line is marked on the boundary section during step milling. This is partial radius.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CA-PKE | | | | | | | | | ◎ | ◎ | | | | ○ |
| DIA-LS-CRED | | | | | | | | | | | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## DLCコート3枚刃超硬ラジアスエンドミル 多機能強力型

**DLC Coated 3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type**

**DLC-PKE** 切削条件 Cutting Conditions | P690



独自の超平滑DLCコーティングが、アルミの高速加工はもちろん、セミドライ加工も可能とします。
Unique DLC coating with ultra lubrication makes high speed Aluminum machining, as well as dry milling.

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約40° ABOUT 40°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×全長 DC × RE × LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8528533 | 3 × R0.5 × 50 | 4.5 | 6 | 9 | 2.7 | D | ● | 19 | 13,600 |
| 8528543 | 4 × R0.5 × 50 | 6 | | 12 | 3.6 | | ● | 20 | 14,100 |
| 8528553 | 5 × R0.5 × 60 | 7.5 | | 15 | 4.5 | | ● | 24 | 15,900 |
| 8528563 | 6 × R0.5 × 60 | 9 | | | 5.4 | | ● | 25 | 17,200 |
| 8528565 | 6 × R1 × 60 | | | | | | ● | 25 | 17,200 |
| 8528583 | 8 × R0.5 × 70 | 12 | 8 | 20 | 7.2 | | ● | 50 | 21,100 |
| 8528585 | 8 × R1 × 70 | | | | | | ● | 50 | 21,100 |
| 8528603 | 10 × R0.5 × 80 | 15 | 10 | 25 | 9 | | ● | 85 | 24,700 |
| 8528605 | 10 × R1 × 80 | | | | | | ● | 85 | 24,700 |
| 8528623 | 12 × R0.5 × 90 | 18 | 12 | 30 | 11 | | ● | 139 | 30,200 |
| 8528625 | 12 × R1 × 90 | | | | | | ● | 139 | 30,200 |
| 8528663 | 16 × R0.5 × 115 | 24 | 16 | 40 | 15 | | ● | 315 | 59,600 |
| 8528665 | 16 × R1 × 115 | | | | | | ● | 315 | 59,600 |
| 8528669 | 16 × R3 × 115 | | | | | | ● | 316 | 59,600 |
| 8528703 | 20 × R0.5 × 125 | 30 | 20 | 50 | 19 | | ● | 516 | 87,500 |
| 8528705 | 20 × R1 × 125 | | | | | | ● | 515 | 87,500 |
| 8528709 | 20 × R3 × 125 | | | | | | ● | 517 | 87,500 |

## 底面仕上げ用FXコート4枚刃サーメットラジアスエンドミル

**FX Coated 4-flute Cermet End Mill with Corner Radius for Bottom Finishing**

**FX-MCF** 切削条件 Cutting Conditions | P699



サーメット母材＋FXコーティングを採用した底面仕上げ専用エンドミルです。驚異の高速・鏡面仕上げ加工を実現します。
Cermet end mills FX coated for finishing the bottom surface realize mirror finihsing at high speed.

CERMET | FX | SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | サーメット層 L3 | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8524906 | 6 × R0.1 | 90 | 0.9 | 6 | 9 | 4.5 | 5.5 | B | △ | 40 | 18,500 |
| 8524908 | 8 × R0.1 | 100 | 1.2 | 8 | 12 | | 7.5 | | △ | 78 | 24,600 |
| 8524910 | 10 × R0.1 | | 1.6 | 10 | 15 | | 9.5 | | △ | 121 | 33,200 |
| 8524912 | 12 × R0.1 | 110 | 2 | 12 | 18 | | 11.5 | | △ | 170 | 39,500 |
| 8524916 | 16 × R0.4 | 140 | 2.5 | 16 | 24 | 6 | 15 | | △ | 400 | 66,300 |
| 8524920 | 20 × R0.4 | 160 | 3.2 | 20 | 30 | 7 | 19 | | △ | 720 | 96,300 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能
※詳細は▶P.1170 を参照下さい。
See p.1170 for details

**デジタルカタログで最新情報を公開中** ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DLC-PKE | | | | | | | | | ○ | ※◎ | | | | ◎ |
| FX-MCF | ◎ | | ○ | | | | ○ | | | | | | | |

※高Si（13%以上）鋳物、ダイキャストには、超微結晶ダイヤモンドコーティングエンドミルを推奨いたします。
※Ultra fine Diamond coating end mill is recommended for the applications as high Silicon content (over 13%) castings, Die-casting.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## GXコート2枚刃超硬ラジアスエンドミルショート形（焼きばめ対応）

**GX Coated 2-flute Carbide End Mill Short Length with Corner Radius (Shrink Fit Type)**

# GX-CR-EDS-SF



シュリンクフィット用に開発された、きのこ形超硬コーナR付エンドミルです。

These mushroom shaped carbide corner radius end mills have been specially developed for the Shrink Tooling System.

CARBIDE　GX　0〜-0.03　SHRINK FIT　CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3001103 | 10 × R0.5 | 32 | 10 | 6 | B | △ | 21 | 10,000 |
| 3001105 | 10 × R1 | | | | | △ | 21 | 10,000 |
| 3001123 | 12 × R0.5 | 34 | 12 | | | △ | 28 | 12,100 |
| 3001125 | 12 × R1 | | | | | △ | 27 | 12,100 |
| 3001163 | 16 × R0.5 | 49 | 16 | 10 | | △ | 80 | 23,600 |
| 3001165 | 16 × R1 | | | | | △ | 80 | 23,600 |
| 3001203 | 20 × R0.5 | 58 | 20 | 12 | | △ | 135 | 34,000 |
| 3001205 | 20 × R1 | | | | | △ | 136 | 34,000 |

## 銅・アルミ合金用3枚刃超硬ラジアスエンドミル立ち壁対応型（焼きばめ対応）

**3-flute Carbide End Mill with Corner Radius for Deep Side Milling in Copper and Aluminum Alloys (Shrink Fit Type)**

# CA-MFE-SF



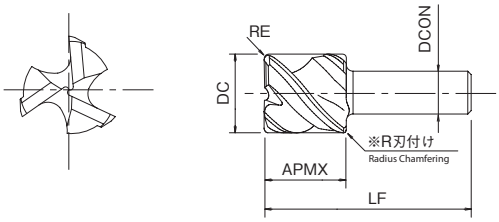
シャンク側端面のRにより、筋発生を抑制します。

The corner radius on shank side prevents cutting marks between steps.

CARBIDE　0〜-0.03　SHRINK FIT　CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 3000685 | 18 × R1 | 51 | 18 | 10 | B | △ | 91 | 30,000 |
| 3000725 | 22 × R1 | 60 | 22 | 12 | | △ | 150 | 41,500 |




※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

Since radius chamfering is also provided on the end faces of shank side, no line is marked on the boundary section during step milling. This is partial radius.


OSGのPSシリーズ　**商品シリーズ** Parts & Supply series

※詳細は▶P.1167を参照下さい。 See p.1167 for details

標準サイズ在庫完備!タングが無し!タングレスインサートあります



OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| GX-CR-EDS-SF | ◎ | | ◎ | | | | ◎ | ◎ | ○ | ○ | | | | |
| CA-MFE-SF | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 高硬度鋼用DUROREYコート多刃超硬エンドミルショート形

**DUROREY Coated Multi-flute Carbide End Mill Short Length for High-hardness Steels**

A The A Brand

## AE-MS-H

切削条件 Cutting Conditions | P524



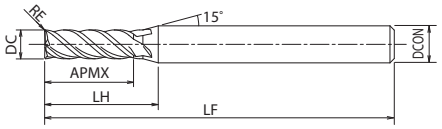
CARBIDE | DUROREY | R ± 0.02 | 0 ~ -0.02 | SHRINK FIT | 43°

CAD

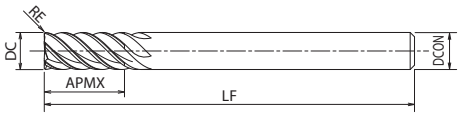
4刃 4-flute

6刃 6-flute

Type1




Type2




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8549842 | **3×R0.2** | 60 | 7.5 | 15.4 | 6 | 4 | 1 | A | ● | 24 | 9,040 |
| 8549845 | **3×R0.5** | | | | | | | D | ○ | 27 | 9,040 |
| 8549852 | **4×R0.2** | | 10 | 16.1 | | | | A | ● | 26 | 9,780 |
| 8549855 | **4×R0.5** | | | | | | | D | ○ | 24 | 9,780 |
| 8549856 | **4×R1** | | | | | | | | ○ | 24 | 9,780 |
| 8549862 | **5×R0.2** | | 12.5 | 16.7 | | | | A | ● | 26 | 10,400 |
| 8549865 | **5×R0.5** | | | | | | | D | ○ | 24 | 10,400 |
| 8549866 | **5×R1** | | | | | | | | ○ | 24 | 10,400 |
| 8549873 | **6×R0.3** | | 15 | – | | 6 | 2 | A | ● | 26 | 11,400 |
| 8549875 | **6×R0.5** | | | – | | | | | ● | 28 | 11,400 |
| 8549876 | **6×R1** | | | – | | | | | ● | 26 | 11,400 |
| 8549883 | **8×R0.3** | 70 | 20 | – | 8 | | | | ● | 52 | 14,000 |
| 8549885 | **8×R0.5** | | | – | | | | | ● | 52 | 14,000 |
| 8549886 | **8×R1** | | | – | | | | | ● | 52 | 14,000 |
| 8549887 | **8×R1.5** | | | – | | | | D | ○ | 52 | 14,000 |
| 8549888 | **8×R2** | | | – | | | | | ○ | 53 | 14,000 |
| 8549893 | **10×R0.3** | 80 | 25 | – | 10 | | | A | ● | 92 | 18,800 |
| 8549895 | **10×R0.5** | | | – | | | | | ● | 90 | 18,800 |
| 8549896 | **10×R1** | | | – | | | | | ● | 91 | 18,800 |
| 8549897 | **10×R1.5** | | | – | | | | D | ○ | 92 | 18,800 |
| 8549898 | **10×R2** | | | – | | | | | ○ | 90 | 18,800 |
| 8549899 | **10×R3** | | | – | | | | | ○ | 72 | 18,800 |
| 8549903 | **12×R0.3** | 90 | 30 | – | 12 | | | A | ● | 148 | 23,800 |
| 8549905 | **12×R0.5** | | | – | | | | | ● | 148 | 23,800 |
| 8549906 | **12×R1** | | | – | | | | | ● | 146 | 23,800 |
| 8549907 | **12×R1.5** | | | – | | | | D | ○ | 146 | 23,800 |
| 8549908 | **12×R2** | | | – | | | | | ○ | 148 | 23,800 |
| 8549909 | **12×R3** | | | – | | | | | ○ | 148 | 23,800 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AE-MS-H** | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |

**在庫記号について** Inventory symbols

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○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。） Discontinued item

NEW

# 高硬度鋼用DUROREYコート2枚刃 超硬ロングネックラジアスエンドミル

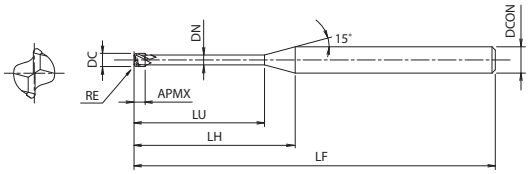
**DUROREY Coated 2-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels**

A The A Brand

## AE-CPR2-H

切削条件 Cutting Conditions | P542






CARBIDE | DURUREY | R ±0.002 (RE≦0.02) | R ±0.005 (0.02<RE) | DC<0.5 0~-0.01, 0.5≦DC 0~-0.015 | SHANK h4 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8545245 | 0.2×R0.02× 0.5 | 45 | 0.15 | 7.7 | 4 | 0.18 | 13.88° | 0.53 | 0.57 | 0.61 | 0.65 | 0.73 | A | ● | 11 | 9,580 |
| 8545246 | 0.2×R0.02× 1 | | | 8.2 | | | 13.07° | 1.06 | 1.13 | 1.2 | 1.26 | 1.38 | | ● | 10 | 9,580 |
| 8545247 | 0.2×R0.02× 1.5 | | | 8.7 | | | 12.34° | 1.6 | 1.69 | 1.77 | 1.85 | 2 | | ● | 10 | 11,400 |
| 8545248 | 0.2×R0.02× 2 | | | 9.2 | | | 11.69° | 2.12 | 2.24 | 2.33 | 2.43 | 2.62 | | ● | 10 | 12,400 |
| 8545249 | 0.2×R0.05× 0.5 | | | 7.7 | | | 13.93° | 0.53 | 0.56 | 0.6 | 0.64 | 0.72 | | ● | 11 | 9,580 |
| 8545250 | 0.2×R0.05× 1 | | | 8.2 | | | 13.11° | 1.06 | 1.13 | 1.19 | 1.25 | 1.37 | | ● | 10 | 9,580 |
| 8545251 | 0.2×R0.05× 1.5 | | | 8.7 | | | 12.37° | 1.59 | 1.68 | 1.77 | 1.84 | 1.99 | | ● | 10 | 11,400 |
| 8545252 | 0.2×R0.05× 2 | | | 9.2 | | | 11.72° | 2.12 | 2.23 | 2.33 | 2.42 | 2.61 | | ● | 10 | 12,400 |
| 8545253 | 0.3×R0.02× 1 | | 0.25 | 8 | | 0.28 | 13.02° | 1.06 | 1.13 | 1.2 | 1.26 | 1.38 | | ● | 10 | 9,300 |
| 8545254 | 0.3×R0.02× 1.5 | | | 8.5 | | | 12.28° | 1.6 | 1.69 | 1.77 | 1.85 | 2 | | ● | 10 | 9,300 |
| 8545255 | 0.3×R0.02× 2 | | | 9 | | | 11.62° | 2.12 | 2.24 | 2.33 | 2.43 | 2.62 | | ● | 10 | 9,300 |
| 8545256 | 0.3×R0.02× 2.5 | | | 9.5 | | | 11.02° | 2.65 | 2.78 | 2.89 | 3 | 3.24 | | ● | 10 | 11,700 |
| 8545257 | 0.3×R0.02× 3 | | | 10 | | | 10.48° | 3.18 | 3.32 | 3.45 | 3.58 | 3.87 | | ● | 10 | 11,700 |
| 8545258 | 0.3×R0.05× 1 | | | 8 | | | 13.06° | 1.06 | 1.13 | 1.19 | 1.25 | 1.37 | | ● | 11 | 9,300 |
| 8545259 | 0.3×R0.05× 1.5 | | | 8.5 | | | 12.32° | 1.59 | 1.68 | 1.77 | 1.84 | 1.99 | | ● | 10 | 9,300 |
| 8545260 | 0.3×R0.05× 2 | | | 9 | | | 11.65° | 2.12 | 2.23 | 2.33 | 2.42 | 2.61 | | ● | 10 | 9,300 |
| 8545261 | 0.3×R0.05× 2.5 | | | 9.5 | | | 11.05° | 2.65 | 2.78 | 2.89 | 3 | 3.24 | | ● | 10 | 11,700 |
| 8545262 | 0.3×R0.05× 3 | | | 10 | | | 10.51° | 3.18 | 3.32 | 3.44 | 3.57 | 3.86 | | ● | 10 | 11,700 |
| 8545263 | 0.4×R0.02× 1 | | 0.3 | 8.2 | | 0.37 | 12.41° | 1.08 | 1.17 | 1.28 | 1.38 | 1.62 | | ● | 10 | 6,210 |
| 8545264 | 0.4×R0.02× 1.5 | | | 8.7 | | | 11.71° | 1.62 | 1.76 | 1.89 | 2.03 | 2.32 | | ● | 10 | 6,210 |
| 8545265 | 0.4×R0.02× 2 | | | 9.2 | | | 11.09° | 2.16 | 2.33 | 2.5 | 2.67 | 3 | | ● | 10 | 6,210 |
| 8545266 | 0.4×R0.02× 2.5 | | | 9.7 | | | 10.53° | 2.7 | 2.9 | 3.1 | 3.29 | 3.66 | | ● | 10 | 6,210 |
| 8545267 | 0.4×R0.02× 3 | | | 10.2 | | | 10.03° | 3.24 | 3.47 | 3.69 | 3.9 | 4.31 | | ● | 10 | 6,210 |
| 8545268 | 0.4×R0.02× 4 | | | 11.2 | | | 9.15° | 4.31 | 4.59 | 4.85 | 5.1 | 5.57 | | ● | 10 | 6,210 |
| 8545269 | 0.4×R0.05× 1 | | | 8.2 | | | 12.45° | 1.08 | 1.17 | 1.27 | 1.37 | 1.6 | | ● | 10 | 6,210 |
| 8545270 | 0.4×R0.05× 1.5 | | | 8.7 | | | 11.75° | 1.62 | 1.75 | 1.89 | 2.03 | 2.31 | | ● | 10 | 6,210 |
| 8545271 | 0.4×R0.05× 2 | | | 9.2 | | | 11.12° | 2.16 | 2.33 | 2.49 | 2.66 | 2.99 | | ● | – | 6,210 |
| 8545272 | 0.4×R0.05× 3 | | | 10.2 | | | 10.05° | 3.24 | 3.46 | 3.68 | 3.89 | 4.3 | | ● | 10 | 6,210 |
| 8545273 | 0.4×R0.05× 4 | | | 11.2 | | | 9.17° | 4.31 | 4.59 | 4.85 | 5.1 | 5.56 | | ● | 10 | 6,210 |
| 8545274 | 0.4×R0.1 × 1 | | | 8.2 | | | 12.51° | 1.07 | 1.16 | 1.26 | 1.36 | 1.58 | | ● | 11 | 6,210 |
| 8545275 | 0.4×R0.1 × 2 | | | 9.2 | | | 11.18° | 2.16 | 2.32 | 2.48 | 2.65 | 2.98 | | ● | 10 | 6,210 |
| 8545276 | 0.4×R0.1 × 3 | | | 10.2 | | | 10.1° | 3.23 | 3.46 | 3.67 | 3.88 | 4.29 | | ● | 10 | 6,210 |
| 8545277 | 0.4×R0.1 × 4 | | | 11.2 | | | 9.21° | 4.3 | 4.58 | 4.84 | 5.09 | 5.55 | | ● | 9 | 6,210 |
| 8545278 | 0.5×R0.02× 1 | | 0.4 | 8 | | 0.46 | 12.39° | 1.08 | 1.17 | 1.26 | 1.37 | 1.59 | | ● | 10 | 5,110 |
| 8545279 | 0.5×R0.02× 2 | | | 9 | | | 11.04° | 2.16 | 2.32 | 2.48 | 2.64 | 2.97 | | ● | 10 | 5,110 |
| 8545280 | 0.5×R0.02× 3 | | | 10 | | | 9.96° | 3.23 | 3.45 | 3.67 | 3.87 | 4.27 | | ● | 10 | 5,110 |
| 8545281 | 0.5×R0.02× 4 | | | 11 | | | 9.07° | 4.3 | 4.57 | 4.83 | 5.07 | 5.53 | | ● | 10 | 5,110 |

ワーク勾配角αに対する実有効長（Le）：P. 408 を参照下さい。 Please see p.408 for effective neck length (Le) based on the inclination angle (α) of workpiece.

次ページへ 外径 DC 0.5～1 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-CPR2-H | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

NEW

# 高硬度鋼用DUROREYコート2枚刃 超硬ロングネックラジアスエンドミル

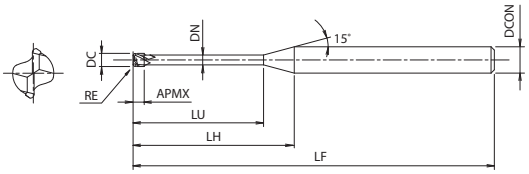
DUROREY Coated 2-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels

The A Brand

## AE-CPR2-H

切削条件 Cutting Conditions | P542






CARBIDE | DUROREY | R ±0.002 (RE≦0.02) | R ±0.005 (0.02<RE) | DC<0.5 0~-0.01, 0.5≦DC 0~-0.015 | SHANK h4 | SHRINK FIT | 30°

前ページより FROM 外径 DC 0.2～0.5

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θ k | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8545282 | 0.5×R0.02× 5 | 45 | 0.4 | 12 | 4 | 0.46 | 8.32° | 5.36 | 5.68 | 5.98 | 6.25 | 6.77 | | ● | 10 | 5,110 |
| 8545283 | 0.5×R0.02× 6 | | | 13 | | | 7.69° | 6.42 | 6.79 | 7.11 | 7.41 | 8.02 | | ● | 10 | 5,110 |
| 8545284 | 0.5×R0.05× 1 | | | 8 | | | 12.43° | 1.08 | 1.16 | 1.26 | 1.36 | 1.58 | | ● | 10 | 5,110 |
| 8545285 | 0.5×R0.05× 2 | | | 9 | | | 11.08° | 2.15 | 2.31 | 2.47 | 2.64 | 2.96 | | ● | 10 | 5,110 |
| 8545286 | 0.5×R0.05× 3 | | | 10 | | | 9.99° | 3.23 | 3.45 | 3.66 | 3.87 | 4.27 | | ● | 10 | 5,110 |
| 8545287 | 0.5×R0.05× 4 | | | 11 | | | 9.09° | 4.3 | 4.57 | 4.82 | 5.07 | 5.52 | | ● | 10 | 5,110 |
| 8545288 | 0.5×R0.05× 5 | | | 12 | | | 8.34° | 5.36 | 5.68 | 5.97 | 6.25 | 6.77 | | ● | 10 | 5,110 |
| 8545289 | 0.5×R0.05× 6 | | | 13 | | | 7.71° | 6.42 | 6.79 | 7.11 | 7.41 | 8.01 | | ● | 10 | 5,110 |
| 8545290 | 0.5×R0.1 × 1 | | | 8 | | | 12.5° | 1.07 | 1.15 | 1.24 | 1.34 | 1.55 | | ● | 11 | 5,110 |
| 8545291 | 0.5×R0.1 × 2 | | | 9 | | | 11.13° | 2.15 | 2.31 | 2.46 | 2.62 | 2.95 | | ● | 10 | 5,110 |
| 8545292 | 0.5×R0.1 × 3 | | | 10 | | | 10.03° | 3.22 | 3.44 | 3.65 | 3.86 | 4.25 | | ● | 10 | 5,110 |
| 8545293 | 0.5×R0.1 × 4 | | | 11 | | | 9.13° | 4.29 | 4.56 | 4.82 | 5.06 | 5.51 | | ● | 10 | 5,110 |
| 8545294 | 0.5×R0.1 × 5 | | | 12 | | | 8.37° | 5.36 | 5.68 | 5.97 | 6.24 | 6.76 | | ● | 10 | 5,110 |
| 8545295 | 0.5×R0.1 × 6 | | | 13 | | | 7.73° | 6.42 | 6.78 | 7.1 | 7.4 | 8 | | ● | 10 | 5,110 |
| 8545296 | 0.6×R0.05× 2 | | 0.48 | 8.8 | | 0.55 | 11.02° | 2.15 | 2.3 | 2.46 | 2.62 | 2.93 | | ● | 5 | 5,110 |
| 8545297 | 0.6×R0.05× 4 | | | 10.8 | | | 9.01° | 4.28 | 4.55 | 4.8 | 5.04 | 5.49 | | ● | 10 | 5,110 |
| 8545298 | 0.6×R0.05× 6 | | | 12.8 | | | 7.61° | 6.41 | 6.76 | 7.08 | 7.38 | 7.98 | | ● | 10 | 5,110 |
| 8545299 | 0.6×R0.1 × 1 | | | 7.8 | | | 12.48° | 1.07 | 1.15 | 1.23 | 1.33 | 1.53 | | ● | 10 | 5,110 |
| 8545300 | 0.6×R0.1 × 2 | | | 8.8 | | | 11.08° | 2.14 | 2.29 | 2.45 | 2.6 | 2.92 | | ● | 10 | 5,110 |
| 8545301 | 0.6×R0.1 × 4 | | | 10.8 | | | 9.05° | 4.28 | 4.55 | 4.79 | 5.03 | 5.48 | | ● | 10 | 5,110 |
| 8545302 | 0.6×R0.1 × 6 | | | 12.8 | | | 7.64° | 6.41 | 6.76 | 7.08 | 7.37 | 7.97 | A | ● | 10 | 5,110 |
| 8545303 | 0.8×R0.05× 2 | | 0.65 | 8.4 | | 0.75 | 10.84° | 2.15 | 2.3 | 2.46 | 2.62 | 2.93 | | ● | 10 | 5,720 |
| 8545304 | 0.8×R0.05× 4 | | | 10.4 | | | 8.79° | 4.28 | 4.55 | 4.8 | 5.04 | 5.49 | | ● | 10 | 5,720 |
| 8545305 | 0.8×R0.05× 6 | | | 12.4 | | | 7.38° | 6.41 | 6.76 | 7.08 | 7.38 | 7.98 | | ● | 10 | 5,720 |
| 8545306 | 0.8×R0.1 × 2 | | | 8.4 | | | 10.9° | 2.14 | 2.29 | 2.45 | 2.6 | 2.92 | | ● | 10 | 5,720 |
| 8545307 | 0.8×R0.1 × 4 | | | 10.4 | | | 8.83° | 4.28 | 4.55 | 4.79 | 5.03 | 5.48 | | ● | 10 | 5,720 |
| 8545308 | 0.8×R0.1 × 6 | | | 12.4 | | | 7.41° | 6.41 | 6.76 | 7.08 | 7.37 | 7.97 | | ● | 10 | 5,720 |
| 8545309 | 0.8×R0.2 × 2 | | | 8.4 | | | 11.02° | 2.14 | 2.28 | 2.43 | 2.58 | 2.88 | | ● | 10 | 5,720 |
| 8545310 | 0.8×R0.2 × 4 | | | 10.4 | | | 8.9° | 4.28 | 4.53 | 4.78 | 5.01 | 5.46 | | ● | 10 | 5,720 |
| 8545311 | 0.8×R0.2 × 6 | | | 12.4 | | | 7.47° | 6.4 | 6.75 | 7.06 | 7.36 | 7.94 | | ● | 10 | 5,720 |
| 8545312 | 0.8×R0.2 × 8 | | | 14.4 | | | 6.43° | 8.52 | 8.94 | 9.31 | 9.66 | 10.43 | | ● | 10 | 5,910 |
| 8545313 | 1 ×R0.05× 2 | | 0.8 | 8 | | 0.94 | 10.68° | 2.14 | 2.29 | 2.44 | 2.6 | 2.91 | | ● | 10 | 4,630 |
| 8545314 | 1 ×R0.05× 3 | | | 9 | | | 9.51° | 3.21 | 3.42 | 3.62 | 3.82 | 4.21 | | ● | 10 | 4,630 |
| 8545315 | 1 ×R0.05× 4 | | | 10 | | | 8.57° | 4.28 | 4.54 | 4.78 | 5.02 | 5.46 | | ● | 5 | 4,630 |
| 8545316 | 1 ×R0.05× 6 | | | 12 | | | 7.16° | 6.4 | 6.75 | 7.06 | 7.35 | 7.95 | | ● | 10 | 5,080 |
| 8545317 | 1 ×R0.05× 8 | | | 14 | | | 6.14° | 8.51 | 8.93 | 9.3 | 9.65 | 10.43 | | ● | 5 | 5,080 |
| 8545318 | 1 ×R0.05×10 | | | 16 | | | 5.38° | 10.61 | 11.1 | 11.52 | 11.95 | 12.92 | | ● | 9 | 5,080 |
| 8545319 | 1 ×R0.05×12 | | | 18 | | | 4.78° | 12.71 | 13.26 | 13.74 | 14.25 | 15.41 | | ● | 9 | 5,080 |
| 8545320 | 1 ×R0.1 × 2 | | | 8 | | | 10.74° | 2.14 | 2.28 | 2.43 | 2.58 | 2.89 | | ● | 10 | 4,630 |
| 8545321 | 1 ×R0.1 × 3 | | | 9 | | | 9.56° | 3.21 | 3.41 | 3.61 | 3.81 | 4.19 | | ● | 10 | 4,630 |
| 8545322 | 1 ×R0.1 × 4 | | | 10 | | | 8.61° | 4.27 | 4.53 | 4.77 | 5.01 | 5.45 | | ● | 10 | 4,630 |

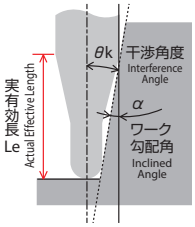
次ページへ 外径 DC 1～1.5 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより FROM 外径 DC 0.5～1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8545323 | 1 ×R0.1 × 6 | 45 | 0.8 | 12 | 4 | 0.94 | 7.18° | 6.39 | 6.74 | 7.05 | 7.34 | 7.93 | | ● | 10 | 5,080 |
| 8545324 | 1 ×R0.1 × 8 | | | 14 | | | 6.16° | 8.51 | 8.93 | 9.3 | 9.65 | 10.42 | | ● | 10 | 5,080 |
| 8545325 | 1 ×R0.1 ×10 | | | 16 | | | 5.39° | 10.61 | 11.1 | 11.52 | 11.95 | 12.91 | | ● | 4 | 5,080 |
| 8545326 | 1 ×R0.1 ×12 | | | 18 | | | 4.79° | 12.71 | 13.25 | 13.73 | 14.25 | 15.39 | | ● | 10 | 5,080 |
| 8545327 | 1 ×R0.2 × 2 | | | 8 | | | 10.86° | 2.13 | 2.27 | 2.41 | 2.56 | 2.86 | | ● | 11 | 4,630 |
| 8545328 | 1 ×R0.2 × 3 | | | 9 | | | 9.66° | 3.2 | 3.4 | 3.6 | 3.79 | 4.17 | | ● | 10 | 4,630 |
| 8545329 | 1 ×R0.2 × 4 | | | 10 | | | 8.69° | 4.27 | 4.52 | 4.76 | 4.99 | 5.42 | | ● | 10 | 4,630 |
| 8545330 | 1 ×R0.2 × 6 | | | 12 | | | 7.24° | 6.39 | 6.73 | 7.04 | 7.33 | 7.91 | | ● | 10 | 5,080 |
| 8545331 | 1 ×R0.2 × 8 | | | 14 | | | 6.2° | 8.5 | 8.92 | 9.29 | 9.63 | 10.4 | | ● | 10 | 5,080 |
| 8545332 | 1 ×R0.2 ×10 | | | 16 | | | 5.42° | 10.61 | 11.09 | 11.51 | 11.93 | 12.88 | | ● | 10 | 5,080 |
| 8545333 | 1 ×R0.2 ×12 | | | 18 | | | 4.82° | 12.7 | 13.24 | 13.72 | 14.23 | 15.37 | | ● | 10 | 5,080 |
| 8545334 | 1 ×R0.2 ×16 | 55 | | 22 | | | 3.94° | 16.89 | 17.53 | 18.16 | 18.83 | 20.34 | | ● | 10 | 5,080 |
| 8545335 | 1 ×R0.2 ×20 | | | 26 | | | 3.33° | 21.05 | 21.81 | 22.59 | 23.43 | 25.32 | | ● | 9 | 5,080 |
| 8545336 | 1 ×R0.3 × 2 | 45 | | 8 | | | 10.98° | 2.12 | 2.26 | 2.39 | 2.54 | 2.83 | | ● | 10 | 4,630 |
| 8545337 | 1 ×R0.3 × 3 | | | 9 | | | 9.75° | 3.19 | 3.39 | 3.58 | 3.77 | 4.14 | | ● | 10 | 4,630 |
| 8545338 | 1 ×R0.3 × 4 | | | 10 | | | 8.77° | 4.26 | 4.51 | 4.74 | 4.97 | 5.4 | | ● | 10 | 4,630 |
| 8545339 | 1 ×R0.3 × 6 | | | 12 | | | 7.3° | 6.38 | 6.72 | 7.03 | 7.31 | 7.89 | | ● | 10 | 5,080 |
| 8545340 | 1 ×R0.3 × 8 | | | 14 | | | 6.24° | 8.5 | 8.91 | 9.27 | 9.62 | 10.37 | | ● | 8 | 5,080 |
| 8545341 | 1 ×R0.3 ×10 | | | 16 | | | 5.46° | 10.6 | 11.08 | 11.5 | 11.92 | 12.86 | | ● | 9 | 5,080 |
| 8545342 | 1 ×R0.3 ×12 | | | 18 | | | 4.84° | 12.7 | 13.24 | 13.71 | 14.22 | 15.35 | | ● | 9 | 5,180 |
| 8545343 | 1.2×R0.2 × 6 | | 1 | 11.6 | | 1.14 | 6.98° | 6.39 | 6.73 | 7.04 | 7.33 | 7.91 | A | ● | 10 | 5,080 |
| 8545344 | 1.2×R0.2 × 8 | | | 13.6 | | | 5.95° | 8.5 | 8.92 | 9.29 | 9.63 | 10.4 | | ● | 10 | 5,080 |
| 8545345 | 1.2×R0.2 ×10 | | | 15.6 | | | 5.19° | 10.61 | 11.09 | 11.51 | 11.93 | 12.88 | | ● | 9 | 5,180 |
| 8545346 | 1.2×R0.3 × 6 | | | 11.6 | | | 7.04° | 6.38 | 6.72 | 7.03 | 7.31 | 7.89 | | ● | 10 | 5,180 |
| 8545347 | 1.2×R0.3 × 8 | | | 13.6 | | | 5.99° | 8.5 | 8.91 | 9.27 | 9.62 | 10.37 | | ● | 10 | 5,180 |
| 8545348 | 1.2×R0.3 ×10 | | | 15.6 | | | 5.22° | 10.6 | 11.08 | 11.5 | 11.92 | 12.86 | | ● | 9 | 5,180 |
| 8545349 | 1.5×R0.05× 3 | 45 | 1.2 | 8 | | 1.43 | 8.88° | 3.2 | 3.41 | 3.6 | 3.8 | 4.18 | | ● | 11 | 4,920 |
| 8545350 | 1.5×R0.05× 4 | | | 9 | | | 7.91° | 4.27 | 4.52 | 4.76 | 4.99 | 5.43 | | ● | 10 | 4,920 |
| 8545351 | 1.5×R0.05× 6 | | | 11 | | | 6.49° | 6.39 | 6.73 | 7.04 | 7.33 | 7.92 | | ● | 10 | 4,920 |
| 8545352 | 1.5×R0.05× 8 | | | 13 | | | 5.5° | 8.5 | 8.91 | 9.28 | 9.63 | 10.4 | | ● | 10 | 5,180 |
| 8545353 | 1.5×R0.05×10 | | | 15 | | | 4.77° | 10.6 | 11.08 | 11.5 | 11.93 | 12.89 | | ● | 10 | 5,180 |
| 8545354 | 1.5×R0.05×12 | | | 17 | | | 4.21° | 12.7 | 13.23 | 13.71 | 14.23 | 15.38 | | ● | 10 | 5,180 |
| 8545355 | 1.5×R0.1 × 3 | | | 8 | | | 8.93° | 3.2 | 3.4 | 3.6 | 3.79 | 4.16 | | ● | 10 | 4,920 |
| 8545356 | 1.5×R0.1 × 4 | | | 9 | | | 7.95° | 4.26 | 4.52 | 4.75 | 4.98 | 5.42 | | ● | 10 | 4,920 |
| 8545357 | 1.5×R0.1 × 6 | | | 11 | | | 6.52° | 6.38 | 6.72 | 7.03 | 7.32 | 7.91 | | ● | 10 | 4,920 |
| 8545358 | 1.5×R0.1 × 8 | | | 13 | | | 5.52° | 8.49 | 8.91 | 9.27 | 9.62 | 10.39 | | ● | 10 | 5,180 |
| 8545359 | 1.5×R0.1 ×10 | | | 15 | | | 4.78° | 10.6 | 11.07 | 11.49 | 11.92 | 12.88 | | ● | 10 | 5,180 |
| 8545360 | 1.5×R0.1 ×12 | | | 17 | | | 4.22° | 12.69 | 13.23 | 13.71 | 14.22 | 15.36 | | ● | 10 | 5,180 |
| 8545361 | 1.5×R0.2 × 3 | | | 8 | | | 9.04° | 3.19 | 3.39 | 3.58 | 3.77 | 4.14 | | ● | 11 | 4,920 |
| 8545362 | 1.5×R0.2 × 4 | | | 9 | | | 8.03° | 4.26 | 4.5 | 4.74 | 4.97 | 5.4 | | ● | 10 | 4,920 |
| 8545363 | 1.5×R0.2 × 6 | | | 11 | | | 6.57° | 6.38 | 6.71 | 7.02 | 7.3 | 7.88 | | ● | 10 | 4,920 |

次ページへ 外径 DC 1.5～2 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-CPR2-H | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

NEW

# 高硬度鋼用DUROREYコート2枚刃 超硬ロングネックラジアスエンドミル

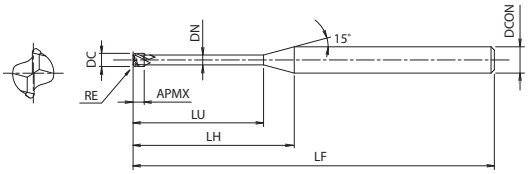
DUROREY Coated 2-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels

A The A Brand

## AE-CPR2-H

切削条件 Cutting Conditions | P542






CARBIDE | DUROREY | R ±0.002 (RE≦0.02) | R ±0.005 (0.02<RE) | DC<0.5 0~-0.01, 0.5≦DC 0~-0.015 | SHANK h4 | SHRINK FIT | 30°

前ページより FROM 外径 DC 1~1.5

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8545364 | 1.5×R0.2 × 8 | 45 | 1.2 | 13 | 4 | 1.43 | 5.56° | 8.49 | 8.9 | 9.26 | 9.6 | 10.37 | A | ● | 10 | 5,180 |
| 8545365 | 1.5×R0.2 ×10 | | | 15 | | | 4.81° | 10.59 | 11.07 | 11.48 | 11.9 | 12.85 | | ● | 9 | 5,180 |
| 8545366 | 1.5×R0.2 ×12 | | | 17 | | | 4.25° | 12.69 | 13.22 | 13.7 | 14.2 | 15.34 | | ● | 9 | 5,180 |
| 8545367 | 1.5×R0.2 ×16 | 50 | | 21 | | | 3.44° | 16.87 | 17.51 | 18.13 | 18.8 | 20.31 | | ● | 10 | 5,180 |
| 8545368 | 1.5×R0.3 × 3 | 45 | | 8 | | | 9.14° | 3.19 | 3.38 | 3.56 | 3.75 | 4.11 | | ● | 10 | 4,920 |
| 8545369 | 1.5×R0.3 × 4 | | | 9 | | | 8.12° | 4.25 | 4.49 | 4.72 | 4.95 | 5.37 | | ● | 10 | 4,920 |
| 8545370 | 1.5×R0.3 × 6 | | | 11 | | | 6.63° | 6.37 | 6.7 | 7.01 | 7.29 | 7.86 | | ● | 10 | 4,920 |
| 8545371 | 1.5×R0.3 × 8 | | | 13 | | | 5.6° | 8.48 | 8.89 | 9.25 | 9.59 | 10.34 | | ● | 10 | 5,180 |
| 8545372 | 1.5×R0.3 ×10 | | | 15 | | | 4.85° | 10.59 | 11.06 | 11.47 | 11.89 | 12.83 | | ● | – | 5,180 |
| 8545373 | 1.5×R0.3 ×12 | | | 17 | | | 4.27° | 12.68 | 13.21 | 13.69 | 14.19 | 15.32 | | ● | 10 | 5,180 |
| 8545374 | 1.5×R0.3 ×16 | 50 | | 21 | | | 3.45° | 16.86 | 17.5 | 18.12 | 18.79 | 20.29 | | ● | 10 | 5,180 |
| 8545375 | 1.5×R0.5 × 3 | 45 | | 8 | | | 9.36° | 3.17 | 3.35 | 3.53 | 3.71 | 4.06 | | ● | 10 | 4,920 |
| 8545376 | 1.5×R0.5 × 4 | | | 9 | | | 8.29° | 4.24 | 4.47 | 4.69 | 4.91 | 5.32 | | ● | 10 | 4,920 |
| 8545377 | 1.5×R0.5 × 6 | | | 11 | | | 6.74° | 6.36 | 6.68 | 6.98 | 7.26 | 7.81 | | ● | 10 | 4,920 |
| 8545378 | 1.5×R0.5 × 8 | | | 13 | | | 5.68° | 8.47 | 8.87 | 9.23 | 9.56 | 10.3 | | ● | – | 5,180 |
| 8545379 | 1.5×R0.5 ×10 | | | 15 | | | 4.91° | 10.58 | 11.04 | 11.45 | 11.86 | 12.78 | | ● | 10 | 5,180 |
| 8545380 | 1.5×R0.5 ×12 | | | 17 | | | 4.32° | 12.67 | 13.2 | 13.67 | 14.16 | 15.27 | | ● | 10 | 5,180 |
| 8545381 | 1.5×R0.5 ×16 | 50 | | 21 | | | 3.48° | 16.85 | 17.48 | 18.1 | 18.76 | 20.24 | | ● | 10 | 5,180 |
| 8545382 | 2 ×R0.05× 4 | 50 | 1.6 | 8.1 | | 1.92 | 7.09° | 4.26 | 4.51 | 4.74 | 4.97 | 5.4 | | ● | 11 | 4,920 |
| 8545383 | 2 ×R0.05× 6 | | | 10.1 | | | 5.69° | 6.38 | 6.71 | 7.02 | 7.3 | 7.89 | | ● | 12 | 4,920 |
| 8545384 | 2 ×R0.05× 8 | | | 12.1 | | | 4.75° | 8.48 | 8.89 | 9.25 | 9.6 | 10.38 | | ● | 11 | 5,180 |
| 8545385 | 2 ×R0.05×10 | | | 14.1 | | | 4.08° | 10.58 | 11.06 | 11.47 | 11.9 | 12.86 | | ● | 11 | 5,180 |
| 8545386 | 2 ×R0.05×12 | | | 16.1 | | | 3.57° | 12.68 | 13.21 | 13.69 | 14.2 | 15.35 | | ● | 10 | 5,180 |
| 8545387 | 2 ×R0.05×16 | | | 20.1 | | | 2.86° | 16.86 | 17.49 | 18.12 | 18.8 | – | | ● | 10 | 5,180 |
| 8545388 | 2 ×R0.05×20 | 60 | | 24.1 | | | 2.39° | 21.02 | 21.77 | 22.56 | 23.4 | – | | ● | 11 | 5,180 |
| 8545389 | 2 ×R0.1 × 4 | 50 | | 8.1 | | | 7.13° | 4.26 | 4.5 | 4.74 | 4.96 | 5.39 | | ● | 11 | 4,920 |
| 8545390 | 2 ×R0.1 × 6 | | | 10.1 | | | 5.72° | 6.37 | 6.71 | 7.01 | 7.29 | 7.88 | | ● | 11 | 4,920 |
| 8545391 | 2 ×R0.1 × 8 | | | 12.1 | | | 4.77° | 8.48 | 8.89 | 9.25 | 9.59 | 10.37 | | ● | 10 | 5,180 |
| 8545392 | 2 ×R0.1 ×10 | | | 14.1 | | | 4.09° | 10.58 | 11.05 | 11.47 | 11.89 | 12.85 | | ● | 10 | 5,180 |
| 8545393 | 2 ×R0.1 ×12 | | | 16.1 | | | 3.58° | 12.68 | 13.21 | 13.68 | 14.19 | 15.34 | | ● | 10 | 5,180 |
| 8545394 | 2 ×R0.1 ×16 | | | 20.1 | | | 2.87° | 16.85 | 17.49 | 18.12 | 18.79 | – | | ● | 10 | 5,180 |
| 8545395 | 2 ×R0.1 ×20 | 60 | | 24.1 | | | 2.39° | 21.02 | 21.77 | 22.55 | 23.39 | – | | ● | 11 | 5,180 |
| 8545396 | 2 ×R0.1 ×25 | | | 29.1 | | | 1.98° | 26.2 | 27.12 | 28.09 | – | – | | ● | 10 | 5,180 |
| 8545397 | 2 ×R0.2 × 4 | 50 | | 8.1 | | | 7.21° | 4.25 | 4.49 | 4.72 | 4.94 | 5.37 | | ● | 11 | 4,920 |
| 8545398 | 2 ×R0.2 × 6 | | | 10.1 | | | 5.77° | 6.37 | 6.7 | 7 | 7.28 | 7.86 | | ● | 12 | 4,920 |
| 8545399 | 2 ×R0.2 × 8 | | | 12.1 | | | 4.81° | 8.48 | 8.88 | 9.24 | 9.58 | 10.34 | | ● | 12 | 5,180 |
| 8545400 | 2 ×R0.2 ×10 | | | 14.1 | | | 4.12° | 10.58 | 11.05 | 11.46 | 11.88 | 12.83 | | ● | 10 | 5,180 |
| 8545401 | 2 ×R0.2 ×12 | | | 16.1 | | | 3.6° | 12.67 | 13.2 | 13.67 | 14.18 | 15.31 | | ● | 10 | 5,180 |
| 8545402 | 2 ×R0.2 ×16 | | | 20.1 | | | 2.88° | 16.85 | 17.48 | 18.11 | 18.78 | – | | ● | 10 | 5,180 |
| 8545403 | 2 ×R0.2 ×20 | 60 | | 24.1 | | | 2.4° | 21.01 | 21.76 | 22.54 | 23.38 | – | | ● | 12 | 5,180 |
| 8545404 | 2 ×R0.2 ×25 | | | 29.1 | | | 1.99° | 26.2 | 27.11 | 28.08 | – | – | | ● | 10 | 5,180 |

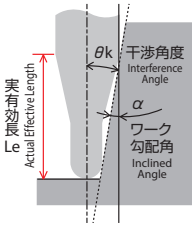
次ページへ 外径 DC 2 ~ 3 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより FROM 外径 DC 1.5～2

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8545405 | 2 ×R0.3 × 4 | 50 | 1.6 | 8.1 | 4 | 1.92 | 7.3° | 4.24 | 4.48 | 4.71 | 4.93 | 5.35 | | ● | 11 | 4,920 |
| 8545406 | 2 ×R0.3 × 6 | | | 10.1 | | | 5.83° | 6.36 | 6.69 | 6.98 | 7.26 | 7.83 | | ● | 10 | 4,920 |
| 8545407 | 2 ×R0.3 × 8 | | | 12.1 | | | 4.85° | 8.47 | 8.87 | 9.23 | 9.56 | 10.32 | | ● | – | 5,180 |
| 8545408 | 2 ×R0.3 ×10 | | | 14.1 | | | 4.15° | 10.57 | 11.04 | 11.45 | 11.86 | 12.8 | | ● | – | 5,180 |
| 8545409 | 2 ×R0.3 ×12 | | | 16.1 | | | 3.63° | 12.67 | 13.19 | 13.66 | 14.16 | 15.29 | | ● | – | 5,180 |
| 8545410 | 2 ×R0.3 ×16 | | | 20.1 | | | 2.9° | 16.85 | 17.48 | 18.1 | 18.76 | – | | ● | – | 5,180 |
| 8545411 | 2 ×R0.3 ×20 | 60 | | 24.1 | | | 2.41° | 21.01 | 21.75 | 22.53 | 23.36 | – | | ● | – | 5,180 |
| 8545412 | 2 ×R0.3 ×25 | | | 29.1 | | | 1.99° | 26.2 | 27.1 | 28.07 | – | – | | ● | – | 5,180 |
| 8545413 | 2 ×R0.5 × 4 | 50 | | 8.1 | | | 7.48° | 4.23 | 4.46 | 4.68 | 4.89 | 5.3 | | ● | 11 | 4,920 |
| 8545414 | 2 ×R0.5 × 6 | | | 10.1 | | | 5.94° | 6.35 | 6.67 | 6.96 | 7.23 | 7.78 | | ● | 11 | 4,920 |
| 8545415 | 2 ×R0.5 × 8 | | | 12.1 | | | 4.93° | 8.46 | 8.85 | 9.2 | 9.54 | 10.27 | | ● | 12 | 5,180 |
| 8545416 | 2 ×R0.5 ×10 | | | 14.1 | | | 4.21° | 10.56 | 11.02 | 11.42 | 11.83 | 12.76 | | ● | 10 | 5,180 |
| 8545417 | 2 ×R0.5 ×12 | | | 16.1 | | | 3.67° | 12.66 | 13.18 | 13.64 | 14.13 | 15.24 | | ● | 10 | 5,180 |
| 8545418 | 2 ×R0.5 ×16 | | | 20.1 | | | 2.92° | 16.84 | 17.46 | 18.07 | 18.73 | – | | ● | 10 | 5,180 |
| 8545419 | 2 ×R0.5 ×20 | 60 | | 24.1 | | | 2.43° | 21 | 21.74 | 22.51 | 23.33 | – | | ● | 12 | 5,180 |
| 8545420 | 2 ×R0.5 ×25 | | | 29.1 | | | 2.01° | 26.19 | 27.09 | 28.05 | 29.08 | – | | ● | 10 | 5,180 |
| 8545421 | 2.5×R0.2 ×10 | 55 | 2 | 13.1 | | 2.4 | 3.33° | 10.55 | 11.01 | 11.41 | 11.83 | 12.78 | | ● | 12 | 5,400 |
| 8545422 | 2.5×R0.2 ×20 | | | 23.1 | | | 1.88° | 20.98 | 21.72 | 22.5 | – | – | | ● | 11 | 5,560 |
| 8545423 | 2.5×R0.2 ×30 | 70 | | 33.1 | | | 1.31° | 31.33 | 32.42 | – | – | – | | ● | 13 | 5,770 |
| 8545424 | 2.5×R0.5 ×10 | 55 | | 13.1 | | | 3.4° | 10.54 | 10.98 | 11.38 | 11.79 | 12.71 | | ● | 12 | 5,400 |
| 8545425 | 2.5×R0.5 ×20 | | | 23.1 | | | 1.9° | 20.97 | 21.7 | 22.46 | – | – | A | ● | 10 | 5,560 |
| 8545426 | 2.5×R0.5 ×30 | 70 | | 33.1 | | | 1.32° | 31.32 | 32.39 | – | – | – | | ● | 14 | 5,770 |
| 8545427 | 3 ×R0.2 × 8 | 55 | 2.5 | 13.8 | 6 | 2.85 | 6.28° | 8.41 | 8.77 | 9.11 | 9.44 | 10.19 | | ● | 22 | 4,450 |
| 8545428 | 3 ×R0.2 ×12 | | | 17.8 | | | 4.86° | 12.59 | 13.07 | 13.54 | 14.04 | 15.16 | | ● | 21 | 5,400 |
| 8545429 | 3 ×R0.2 ×16 | | | 21.8 | | | 3.97° | 16.75 | 17.35 | 17.97 | 18.64 | 20.14 | | ● | 20 | 6,710 |
| 8545430 | 3 ×R0.2 ×20 | | | 25.8 | | | 3.35° | 20.9 | 21.63 | 22.4 | 23.24 | 25.11 | | ● | 20 | 6,710 |
| 8545431 | 3 ×R0.2 ×25 | 70 | | 30.8 | | | 2.81° | 26.08 | 26.98 | 27.95 | 28.99 | – | | ● | 24 | 6,710 |
| 8545432 | 3 ×R0.2 ×30 | | | 35.8 | | | 2.41° | 31.25 | 32.33 | 33.49 | 34.74 | – | | ● | 22 | 7,520 |
| 8545433 | 3 ×R0.2 ×35 | | | 40.8 | | | 2.12° | 36.41 | 37.68 | 39.03 | 40.49 | – | | ● | 16 | 8,450 |
| 8545434 | 3 ×R0.3 ×12 | 55 | | 17.8 | | | 4.89° | 12.58 | 13.07 | 13.53 | 14.02 | 15.14 | | ● | 21 | 5,400 |
| 8545435 | 3 ×R0.3 ×16 | | | 21.8 | | | 3.99° | 16.75 | 17.34 | 17.96 | 18.62 | 20.11 | | ● | 20 | 6,710 |
| 8545436 | 3 ×R0.3 ×20 | | | 25.8 | | | 3.37° | 20.9 | 21.62 | 22.39 | 23.22 | 25.08 | | ● | 20 | 6,710 |
| 8545437 | 3 ×R0.3 ×25 | 70 | | 30.8 | | | 2.82° | 26.07 | 26.97 | 27.94 | 28.97 | – | | ● | 24 | 6,710 |
| 8545438 | 3 ×R0.3 ×30 | | | 35.8 | | | 2.42° | 31.24 | 32.32 | 33.48 | 34.72 | – | | ● | 22 | 7,520 |
| 8545439 | 3 ×R0.3 ×35 | | | 40.8 | | | 2.12° | 36.41 | 37.67 | 39.02 | 40.47 | – | | ● | 16 | 8,450 |
| 8545440 | 3 ×R0.5 ×12 | 55 | | 17.8 | | | 4.94° | 12.57 | 13.05 | 13.51 | 13.99 | 15.09 | | ● | 20 | 5,400 |
| 8545441 | 3 ×R0.5 ×16 | | | 21.8 | | | 4.02° | 16.74 | 17.33 | 17.94 | 18.59 | 20.06 | | ● | 19 | 6,710 |
| 8545442 | 3 ×R0.5 ×20 | | | 25.8 | | | 3.39° | 20.89 | 21.61 | 22.37 | 23.19 | 25.04 | | ● | 20 | 6,710 |
| 8545443 | 3 ×R0.5 ×25 | 70 | | 30.8 | | | 2.83° | 26.07 | 26.96 | 27.91 | 28.94 | – | | ● | 24 | 6,710 |
| 8545444 | 3 ×R0.5 ×30 | | | 35.8 | | | 2.43° | 31.24 | 32.31 | 33.46 | 34.69 | – | | ● | 22 | 7,520 |
| 8545445 | 3 ×R0.5 ×35 | | | 40.8 | | | 2.13° | 36.4 | 37.66 | 39 | 40.44 | – | | ● | 21 | 8,450 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE-CPR2-H | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

NEW SIZES

# 高硬度鋼用DUROREYコート4枚刃 超硬ロングネックラジアスエンドミル

DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels

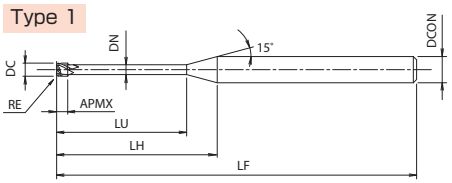
A The A Brand

## AE-CPR4-H

切削条件 Cutting Conditions | P554

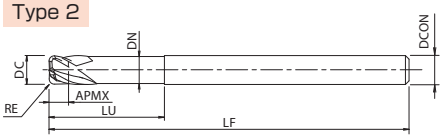


Type 1




中心刃：無 Non-center cut DC<0.5

Type 2




中心刃：有 Center cut 0.5≦DC

CARBIDE | DUROREY | R ±0.002 (RE≦0.02) | R ±0.005 (0.02<RE) | DC≦0.4 0~-0.01, 0.4<DC 0~-0.015 | SHANK h4 | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557470 | 0.2×R0.02× 0.5 | 45 | 0.15 | 7.7 | 4 | 0.18 | 13.88° | 0.53 | 0.57 | 0.61 | 0.65 | 0.73 | 1 | A | ● | 10 | 10,700 |
| 8557471 | 0.2×R0.02× 1 | | | 8.2 | | | 13.07° | 1.06 | 1.13 | 1.2 | 1.26 | 1.38 | | | ● | 10 | 10,700 |
| 8557472 | 0.2×R0.02× 1.5 | | | 8.7 | | | 12.34° | 1.6 | 1.69 | 1.77 | 1.85 | 2 | | | ● | 10 | 12,600 |
| 8557473 | 0.2×R0.02× 2 | | | 9.2 | | | 11.69° | 2.12 | 2.24 | 2.33 | 2.43 | 2.62 | | | ● | 10 | 13,700 |
| 8557474 | 0.2×R0.05× 0.5 | | | 7.7 | | | 13.93° | 0.53 | 0.56 | 0.6 | 0.64 | 0.72 | | | ● | 10 | 10,700 |
| 8557475 | 0.2×R0.05× 1 | | | 8.2 | | | 13.11° | 1.06 | 1.13 | 1.19 | 1.25 | 1.37 | | | ● | 10 | 10,700 |
| 8557476 | 0.2×R0.05× 1.5 | | | 8.7 | | | 12.37° | 1.59 | 1.68 | 1.77 | 1.84 | 1.99 | | | ● | 10 | 12,600 |
| 8557477 | 0.2×R0.05× 2 | | | 9.2 | | | 11.72° | 2.12 | 2.23 | 2.33 | 2.42 | 2.61 | | | ● | 10 | 13,700 |
| 8557478 | 0.3×R0.02× 1 | | 0.25 | 8 | | 0.28 | 13.02° | 1.06 | 1.13 | 1.2 | 1.26 | 1.38 | | | ● | 10 | 10,400 |
| 8557479 | 0.3×R0.02× 1.5 | | | 8.5 | | | 12.28° | 1.6 | 1.69 | 1.77 | 1.85 | 2 | | | ● | 10 | 10,400 |
| 8557480 | 0.3×R0.02× 2 | | | 9 | | | 11.62° | 2.12 | 2.24 | 2.33 | 2.43 | 2.62 | | | ● | 10 | 10,400 |
| 8557481 | 0.3×R0.02× 2.5 | | | 9.5 | | | 11.02° | 2.65 | 2.78 | 2.89 | 3 | 3.24 | | | ● | 10 | 13,000 |
| 8557482 | 0.3×R0.02× 3 | | | 10 | | | 10.48° | 3.18 | 3.32 | 3.45 | 3.58 | 3.87 | | | ● | 10 | 13,000 |
| 8557483 | 0.3×R0.05× 1 | | | 8 | | | 13.06° | 1.06 | 1.13 | 1.19 | 1.25 | 1.37 | | | ● | 10 | 10,400 |
| 8557484 | 0.3×R0.05× 1.5 | | | 8.5 | | | 12.32° | 1.59 | 1.68 | 1.77 | 1.84 | 1.99 | | | ● | 10 | 10,400 |
| 8557485 | 0.3×R0.05× 2 | | | 9 | | | 11.65° | 2.12 | 2.23 | 2.33 | 2.42 | 2.61 | | | ● | 10 | 10,400 |
| 8557486 | 0.3×R0.05× 2.5 | | | 9.5 | | | 11.05° | 2.65 | 2.78 | 2.89 | 3 | 3.24 | | D | ○ | 10 | 13,000 |
| 8557487 | 0.3×R0.05× 3 | | | 10 | | | 10.51° | 3.18 | 3.32 | 3.44 | 3.57 | 3.86 | | | ● | 10 | 13,000 |
| 8557488 | 0.4×R0.02× 1 | | 0.3 | 8.2 | | 0.37 | 12.41° | 1.08 | 1.17 | 1.28 | 1.38 | 1.62 | | | ● | 10 | 6,900 |
| 8557489 | 0.4×R0.02× 1.5 | | | 8.7 | | | 11.71° | 1.62 | 1.76 | 1.89 | 2.03 | 2.32 | | | ● | 10 | 6,900 |
| 8557490 | 0.4×R0.02× 2 | | | 9.2 | | | 11.09° | 2.16 | 2.33 | 2.5 | 2.67 | 3 | | | ● | 10 | 6,900 |
| 8557491 | 0.4×R0.02× 2.5 | | | 9.7 | | | 10.53° | 2.7 | 2.9 | 3.1 | 3.29 | 3.66 | | | ● | 10 | 6,900 |
| 8557492 | 0.4×R0.02× 3 | | | 10.2 | | | 10.03° | 3.24 | 3.47 | 3.69 | 3.9 | 4.31 | | | ● | 10 | 6,900 |
| 8557493 | 0.4×R0.02× 4 | | | 11.2 | | | 9.15° | 4.31 | 4.59 | 4.85 | 5.1 | 5.57 | | | ● | 10 | 6,900 |
| 8557494 | 0.4×R0.05× 1 | | | 8.2 | | | 12.45° | 1.08 | 1.17 | 1.27 | 1.37 | 1.6 | | | ● | 10 | 6,900 |
| 8557495 | 0.4×R0.05× 1.5 | | | 8.7 | | | 11.75° | 1.62 | 1.75 | 1.89 | 2.03 | 2.31 | | D | ○ | 10 | 6,900 |
| 8557496 | 0.4×R0.05× 2 | | | 9.2 | | | 11.12° | 2.16 | 2.33 | 2.49 | 2.66 | 2.99 | | A | ● | 10 | 6,900 |
| 8557497 | 0.4×R0.05× 2.5 | | | 9.7 | | | 10.56° | 2.7 | 2.9 | 3.09 | 3.28 | 3.65 | | D | ○ | 10 | 6,900 |
| 8557498 | 0.4×R0.05× 3 | | | 10.2 | | | 10.05° | 3.24 | 3.46 | 3.68 | 3.89 | 4.3 | | | ○ | 10 | 6,900 |
| 8557499 | 0.4×R0.05× 4 | | | 11.2 | | | 9.17° | 4.31 | 4.59 | 4.85 | 5.1 | 5.56 | | | ● | 10 | 6,900 |
| 8557500 | 0.4×R0.1 × 1 | | | 8.2 | | | 12.51° | 1.07 | 1.16 | 1.26 | 1.36 | 1.58 | | A | ● | 10 | 6,900 |
| 8557501 | 0.4×R0.1 × 2 | | | 9.2 | | | 11.18° | 2.16 | 2.32 | 2.48 | 2.65 | 2.98 | | | ● | 10 | 6,900 |
| 8557502 | 0.4×R0.1 × 3 | | | 10.2 | | | 10.1° | 3.23 | 3.46 | 3.67 | 3.88 | 4.29 | | D | ○ | 10 | 6,900 |
| 8557503 | 0.4×R0.1 × 4 | | | 11.2 | | | 9.21° | 4.3 | 4.58 | 4.84 | 5.09 | 5.55 | | | ○ | 10 | 6,900 |

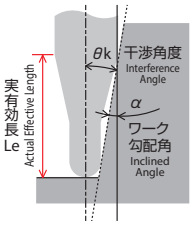
次ページへ
外径 DC 0.5~0.8 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより FROM 外径 DC 0.2～0.4

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557504 | 0.5×R0.02×1 | 45 | 0.4 | 8 | 4 | 0.46 | 12.39° | 1.08 | 1.17 | 1.26 | 1.37 | 1.59 | 1 | | ● | 10 | 5,670 |
| 8557505 | 0.5×R0.02×2 | | | 9 | | | 11.04° | 2.16 | 2.32 | 2.48 | 2.64 | 2.97 | | | ● | 10 | 5,670 |
| 8557506 | 0.5×R0.02×3 | | | 10 | | | 9.96° | 3.23 | 3.45 | 3.67 | 3.87 | 4.27 | | A | ● | 10 | 5,670 |
| 8557507 | 0.5×R0.02×4 | | | 11 | | | 9.07° | 4.3 | 4.57 | 4.83 | 5.07 | 5.53 | | | ● | 10 | 5,670 |
| 8557508 | 0.5×R0.02×5 | | | 12 | | | 8.32° | 5.36 | 5.68 | 5.98 | 6.25 | 6.77 | | | ● | 10 | 5,670 |
| 8557509 | 0.5×R0.02×6 | | | 13 | | | 7.69° | 6.42 | 6.79 | 7.11 | 7.41 | 8.02 | | D | ○ | 10 | 5,670 |
| 8557510 | 0.5×R0.05×1 | | | 8 | | | 12.43° | 1.08 | 1.16 | 1.26 | 1.36 | 1.58 | | | ● | 10 | 5,670 |
| 8557511 | 0.5×R0.05×2 | | | 9 | | | 11.08° | 2.15 | 2.31 | 2.47 | 2.64 | 2.96 | | A | ● | 10 | 5,670 |
| 8557512 | 0.5×R0.05×3 | | | 10 | | | 9.99° | 3.23 | 3.45 | 3.66 | 3.87 | 4.27 | | | ● | 10 | 5,670 |
| 8557513 | 0.5×R0.05×4 | | | 11 | | | 9.09° | 4.3 | 4.57 | 4.82 | 5.07 | 5.52 | | | ● | 10 | 5,670 |
| 8557514 | 0.5×R0.05×5 | | | 12 | | | 8.34° | 5.36 | 5.68 | 5.97 | 6.25 | 6.77 | | D | ○ | 10 | 5,670 |
| 8557515 | 0.5×R0.05×6 | | | 13 | | | 7.71° | 6.42 | 6.79 | 7.11 | 7.41 | 8.01 | | | ● | 10 | 5,670 |
| 8557516 | 0.5×R0.1×1 | | | 8 | | | 12.5° | 1.07 | 1.15 | 1.24 | 1.34 | 1.55 | | | ● | 10 | 5,670 |
| 8557517 | 0.5×R0.1×2 | | | 9 | | | 11.13° | 2.15 | 2.31 | 2.46 | 2.62 | 2.95 | | A | ● | 10 | 5,670 |
| 8557518 | 0.5×R0.1×3 | | | 10 | | | 10.03° | 3.22 | 3.44 | 3.65 | 3.86 | 4.25 | | | ● | 10 | 5,670 |
| 8557519 | 0.5×R0.1×4 | | | 11 | | | 9.13° | 4.29 | 4.56 | 4.82 | 5.06 | 5.51 | | | ● | 10 | 5,670 |
| 8557520 | 0.5×R0.1×5 | | | 12 | | | 8.37° | 5.36 | 5.68 | 5.97 | 6.24 | 6.76 | | D | ○ | 10 | 5,670 |
| 8557521 | 0.5×R0.1×6 | | | 13 | | | 7.73° | 6.42 | 6.78 | 7.1 | 7.4 | 8 | | | ○ | 10 | 5,670 |
| ※ 8544824 | 0.6×R0.05×1 | | 0.48 | 7.8 | | 0.55 | 12.41° | 1.07 | 1.16 | 1.25 | 1.34 | 1.55 | | | ● | 10 | 5,670 |
| ※ 8544825 | 0.6×R0.05×2 | | | 8.8 | | | 11.02° | 2.15 | 2.3 | 2.46 | 2.62 | 2.93 | | | ● | 10 | 5,670 |
| ※ 8544826 | 0.6×R0.05×4 | | | 10.8 | | | 9.01° | 4.28 | 4.55 | 4.8 | 5.04 | 5.49 | | | ● | 14 | 5,670 |
| ※ 8544827 | 0.6×R0.05×6 | | | 12.8 | | | 7.61° | 6.41 | 6.76 | 7.08 | 7.38 | 7.98 | | | ● | 9 | 5,670 |
| ※ 8544821 | 0.6×R0.1×1 | | | 7.8 | | | 12.48° | 1.07 | 1.15 | 1.23 | 1.33 | 1.53 | | | ● | 10 | 5,670 |
| 8557522 | 0.6×R0.1×2 | | | 8.8 | | | 11.08° | 2.14 | 2.29 | 2.45 | 2.6 | 2.92 | | A | ● | 10 | 5,670 |
| 8557523 | 0.6×R0.1×4 | | | 10.8 | | | 9.05° | 4.28 | 4.55 | 4.79 | 5.03 | 5.48 | | | ● | 10 | 5,670 |
| 8557524 | 0.6×R0.1×6 | | | 12.8 | | | 7.64° | 6.41 | 6.76 | 7.08 | 7.37 | 7.97 | | | ● | 10 | 5,670 |
| ※ 8544828 | 0.7×R0.02×1.5 | | 0.55 | 8.1 | | 0.65 | 11.56° | 1.61 | 1.74 | 1.86 | 1.99 | 2.27 | | | ● | 10 | 6,340 |
| 8557525 | 0.7×R0.02×2 | | | 8.6 | | | 10.9° | 2.15 | 2.31 | 2.46 | 2.62 | 2.94 | | | ● | 10 | 6,340 |
| 8557526 | 0.7×R0.02×4 | | | 10.6 | | | 8.88° | 4.29 | 4.55 | 4.81 | 5.05 | 5.5 | | | ● | 10 | 6,340 |
| 8557527 | 0.7×R0.02×6 | | | 12.6 | | | 7.48° | 6.41 | 6.77 | 7.09 | 7.38 | 7.98 | | D | ○ | 10 | 6,340 |
| ※ 8544829 | 0.7×R0.05×1.5 | | | 8.1 | | | 11.6° | 1.61 | 1.73 | 1.86 | 1.99 | 2.26 | | | ● | 10 | 6,340 |
| 8557528 | 0.7×R0.05×2 | | | 8.6 | | | 10.94° | 2.15 | 2.3 | 2.46 | 2.62 | 2.93 | | A | ● | 10 | 6,340 |
| 8557529 | 0.7×R0.05×4 | | | 10.6 | | | 8.9° | 4.28 | 4.55 | 4.8 | 5.04 | 5.49 | | | ● | 10 | 6,340 |
| 8557530 | 0.7×R0.05×6 | | | 12.6 | | | 7.5° | 6.41 | 6.76 | 7.08 | 7.38 | 7.98 | | D | ○ | 10 | 6,340 |
| 8557531 | 0.7×R0.1×2 | | | 8.6 | | | 10.99° | 2.14 | 2.29 | 2.45 | 2.6 | 2.92 | | A | ● | 10 | 6,340 |
| 8557532 | 0.7×R0.1×4 | | | 10.6 | | | 8.94° | 4.28 | 4.55 | 4.79 | 5.03 | 5.48 | | | ● | 10 | 6,340 |
| 8557533 | 0.7×R0.1×6 | | | 12.6 | | | 7.53° | 6.41 | 6.76 | 7.08 | 7.37 | 7.97 | | D | ○ | 10 | 6,340 |
| ※ 8544830 | 0.8×R0.05×2 | | 0.65 | 8.4 | | 0.75 | 10.84° | 2.15 | 2.3 | 2.46 | 2.62 | 2.93 | | | ● | 10 | 6,340 |
| ※ 8544832 | 0.8×R0.05×4 | | | 10.4 | | | 8.79° | 4.28 | 4.55 | 4.8 | 5.04 | 5.49 | | | ● | 10 | 6,340 |
| ※ 8544833 | 0.8×R0.05×6 | | | 12.4 | | | 7.38° | 6.41 | 6.76 | 7.08 | 7.38 | 7.98 | | | ● | 9 | 6,340 |
| ※ 8544822 | 0.8×R0.1×2 | | | 8.4 | | | 10.9° | 2.14 | 2.29 | 2.45 | 2.6 | 2.92 | | | ● | 10 | 6,340 |
| 8557534 | 0.8×R0.1×4 | | | 10.4 | | | 8.83° | 4.28 | 4.55 | 4.79 | 5.03 | 5.48 | | | ● | 10 | 6,340 |
| 8557535 | 0.8×R0.1×6 | | | 12.4 | | | 7.41° | 6.41 | 6.76 | 7.08 | 7.37 | 7.97 | | | ● | 10 | 6,340 |

※＝NEW SIZES

次ページへ 外径 DC 0.8～1 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-CPR4-H | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

NEW SIZES

# 高硬度鋼用DUROREYコート4枚刃 超硬ロングネックラジアスエンドミル

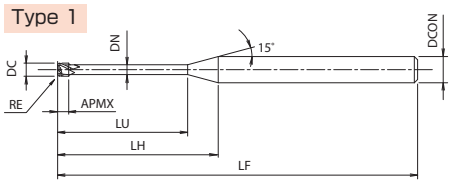
DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels

The A Brand

## AE-CPR4-H

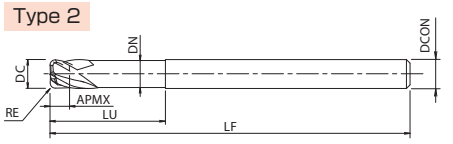
切削条件 Cutting Conditions | P554








中心刃：無 Non-center cut DC<0.5






中心刃：有 Center cut 0.5≦DC

CARBIDE | DUROREY | R ±0.002 (RE≦0.02) | R ±0.005 (0.02<RE) | DC≦0.4 0~-0.01, 0.4<DC 0~-0.015 | SHANK h4 | SHRINK FIT | 30°

CAD

前ページより FROM 外径 DC 0.5～0.8

（単位:mm）(Unit:mm)

| | ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ※ | 8544823 | 0.8×R0.2×2 | 45 | 0.65 | 8.4 | 4 | 0.75 | 11.02° | 2.14 | 2.28 | 2.43 | 2.58 | 2.88 | 1 | A | ● | 10 | 6,340 |
| | 8557536 | 0.8×R0.2×4 | | | 10.4 | | | 8.9° | 4.28 | 4.53 | 4.78 | 5.01 | 5.46 | | | ● | 10 | 6,340 |
| | 8557537 | 0.8×R0.2×6 | | | 12.4 | | | 7.47° | 6.4 | 6.75 | 7.06 | 7.36 | 7.94 | | | ● | 10 | 6,340 |
| | 8557538 | 0.8×R0.2×8 | | | 14.4 | | | 6.43° | 8.52 | 8.94 | 9.31 | 9.66 | 10.43 | | | ● | 10 | 6,570 |
| | 8557539 | 0.9×R0.1×4 | | 0.7 | 10.2 | | 0.85 | 8.71° | 4.28 | 4.55 | 4.79 | 5.03 | 5.48 | | | ● | 10 | 7,200 |
| | 8557540 | 0.9×R0.1×8 | | | 14.2 | | | 6.27° | 8.52 | 8.95 | 9.32 | 9.67 | 10.45 | | | ● | 10 | 7,200 |
| ※ | 8544835 | 1×R0.02×2 | | 0.8 | 8 | | 0.94 | 10.64° | 2.14 | 2.3 | 2.45 | 2.6 | 2.92 | | | ● | 10 | 4,860 |
| ※ | 8544836 | 1×R0.02×3 | | | 9 | | | 9.48° | 3.21 | 3.42 | 3.63 | 3.83 | 4.21 | | | ● | 10 | 4,860 |
| ※ | 8544838 | 1×R0.02×4 | | | 10 | | | 8.55° | 4.28 | 4.54 | 4.79 | 5.02 | 5.47 | | | ● | – | 4,860 |
| ※ | 8544839 | 1×R0.02×6 | | | 12 | | | 7.14° | 6.4 | 6.75 | 7.06 | 7.36 | 7.95 | | | ● | 10 | 5,300 |
| ※ | 8544841 | 1×R0.02×8 | | | 14 | | | 6.13° | 8.51 | 8.93 | 9.31 | 9.66 | 10.44 | | | ● | 10 | 5,300 |
| ※ | 8544842 | 1×R0.02×10 | | | 16 | | | 5.37° | 10.62 | 11.1 | 11.53 | 11.96 | 12.93 | | | ● | 10 | 5,300 |
| ※ | 8544831 | 1×R0.05×2 | | | 8 | | | 10.68° | 2.14 | 2.29 | 2.44 | 2.6 | 2.91 | | | ● | 10 | 4,860 |
| ※ | 8544843 | 1×R0.05×3 | | | 9 | | | 9.51° | 3.21 | 3.42 | 3.62 | 3.82 | 4.21 | | | ● | 10 | 4,860 |
| | 8557541 | 1×R0.05×4 | | | 10 | | | 8.57° | 4.28 | 4.54 | 4.78 | 5.02 | 5.46 | | | ● | 10 | 4,860 |
| | 8557542 | 1×R0.05×6 | | | 12 | | | 7.16° | 6.4 | 6.75 | 7.06 | 7.35 | 7.95 | | | ● | 10 | 5,300 |
| | 8557543 | 1×R0.05×8 | | | 14 | | | 6.14° | 8.51 | 8.93 | 9.3 | 9.65 | 10.43 | | | ● | 10 | 5,300 |
| | 8557544 | 1×R0.05×10 | | | 16 | | | 5.38° | 10.61 | 11.1 | 11.52 | 11.95 | 12.92 | | | ● | 10 | 5,300 |
| | 8557545 | 1×R0.05×12 | | | 18 | | | 4.78° | 12.71 | 13.26 | 13.74 | 14.25 | 15.41 | | D | ○ | 10 | 5,300 |
| ※ | 8544834 | 1×R0.1×2 | | | 8 | | | 10.74° | 2.14 | 2.28 | 2.43 | 2.58 | 2.89 | | | ● | 10 | 4,860 |
| ※ | 8544844 | 1×R0.1×3 | | | 9 | | | 9.56° | 3.21 | 3.41 | 3.61 | 3.81 | 4.19 | | | ● | 10 | 4,860 |
| | 8557546 | 1×R0.1×4 | | | 10 | | | 8.61° | 4.27 | 4.53 | 4.77 | 5.01 | 5.45 | | | ● | 10 | 4,860 |
| | 8557547 | 1×R0.1×6 | | | 12 | | | 7.18° | 6.39 | 6.74 | 7.05 | 7.34 | 7.93 | | | ● | 10 | 5,300 |
| | 8557548 | 1×R0.1×8 | | | 14 | | | 6.16° | 8.51 | 8.93 | 9.3 | 9.65 | 10.42 | | | ● | 10 | 5,300 |
| | 8557549 | 1×R0.1×10 | | | 16 | | | 5.39° | 10.61 | 11.1 | 11.52 | 11.95 | 12.91 | | | ● | 10 | 5,300 |
| | 8557550 | 1×R0.1×12 | | | 18 | | | 4.79° | 12.71 | 13.25 | 13.73 | 14.25 | 15.39 | | | ● | 10 | 5,300 |
| ※ | 8544845 | 1×R0.1×16 | 55 | | 22 | | | 3.92° | 16.89 | 17.54 | 18.17 | 18.84 | 20.37 | | | ● | – | 5,300 |
| ※ | 8544846 | 1×R0.1×20 | | | 26 | | | 3.32° | 21.06 | 21.82 | 22.6 | 23.44 | 25.34 | | | ● | 10 | 5,300 |
| ※ | 8544837 | 1×R0.2×2 | 45 | | 8 | | | 10.86° | 2.13 | 2.27 | 2.41 | 2.56 | 2.86 | | | ● | 10 | 4,860 |
| ※ | 8544847 | 1×R0.2×3 | | | 9 | | | 9.66° | 3.2 | 3.4 | 3.6 | 3.79 | 4.17 | | | ● | 10 | 4,860 |
| | 8557551 | 1×R0.2×4 | | | 10 | | | 8.69° | 4.27 | 4.52 | 4.76 | 4.99 | 5.42 | | | ● | 10 | 4,860 |
| | 8557552 | 1×R0.2×6 | | | 12 | | | 7.24° | 6.39 | 6.73 | 7.04 | 7.33 | 7.91 | | | ● | 10 | 5,300 |
| | 8557553 | 1×R0.2×8 | | | 14 | | | 6.2° | 8.5 | 8.92 | 9.29 | 9.63 | 10.4 | | A | ● | 10 | 5,300 |
| | 8557554 | 1×R0.2×10 | | | 16 | | | 5.42° | 10.61 | 11.09 | 11.51 | 11.93 | 12.88 | | | ● | 10 | 5,300 |
| | 8557555 | 1×R0.2×12 | | | 18 | | | 4.82° | 12.7 | 13.24 | 13.72 | 14.23 | 15.37 | | | ● | 10 | 5,300 |
| | 8557556 | 1×R0.2×16 | 55 | | 22 | | | 3.94° | 16.89 | 17.53 | 18.16 | 18.83 | 20.34 | | | ● | 11 | 5,300 |
| | 8557557 | 1×R0.2×20 | | | 26 | | | 3.33° | 21.05 | 21.81 | 22.59 | 23.43 | 25.32 | | | ● | 11 | 5,300 |
| ※ | 8544840 | 1×R0.3×2 | 45 | | 8 | | | 10.98° | 2.12 | 2.26 | 2.39 | 2.54 | 2.83 | | | ● | 11 | 4,860 |
| ※ | 8544848 | 1×R0.3×3 | | | 9 | | | 9.75° | 3.19 | 3.39 | 3.58 | 3.77 | 4.14 | | | ● | 10 | 4,860 |
| | 8557558 | 1×R0.3×4 | | | 10 | | | 8.77° | 4.26 | 4.51 | 4.74 | 4.97 | 5.4 | | | ● | 10 | 4,860 |
| | 8557559 | 1×R0.3×6 | | | 12 | | | 7.3° | 6.38 | 6.72 | 7.03 | 7.31 | 7.89 | | | ● | 10 | 5,300 |
| | 8557560 | 1×R0.3×8 | | | 14 | | | 6.24° | 8.5 | 8.91 | 9.27 | 9.62 | 10.37 | | | ● | 10 | 5,300 |
| | 8557561 | 1×R0.3×10 | | | 16 | | | 5.46° | 10.6 | 11.08 | 11.5 | 11.92 | 12.86 | | | ● | 10 | 5,300 |
| | 8557562 | 1×R0.3×12 | | | 18 | | | 4.84° | 12.7 | 13.24 | 13.71 | 14.22 | 15.35 | | | ● | 10 | 5,460 |
| ※ | 8544849 | 1×R0.3×16 | 55 | | 22 | | | 3.96° | 16.88 | 17.52 | 18.15 | 18.82 | 20.32 | | | ● | 10 | 5,460 |
| ※ | 8544850 | 1×R0.3×20 | | | 26 | | | 3.34° | 21.05 | 21.8 | 22.58 | 23.41 | 25.29 | | | ● | 9 | 5,460 |

※＝NEW SIZES

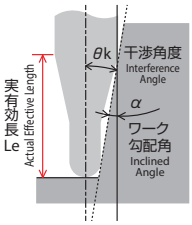
次ページへ 外径 DC 1.2～1.5 NEXT

**在庫記号について** Inventory symbols

- ● ＝ 標準在庫品 Standard stock item
- ○ ＝ 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ ＝ 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ ＝ 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ ＝ 生産中止品（在庫をご確認下さい。） Discontinued item

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより
FROM 外径 DC 0.8～1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8557563 | 1.2×R0.2×6 | 45 | 1 | 11.6 | 4 | 1.14 | 6.98° | 6.39 | 6.73 | 7.04 | 7.33 | 7.91 | 1 | A | ● | 10 | 5,300 |
| 8557564 | 1.2×R0.2×8 | | | 13.6 | | | 5.95° | 8.5 | 8.92 | 9.29 | 9.63 | 10.4 | | | ● | 10 | 5,300 |
| 8557565 | 1.2×R0.2×10 | | | 15.6 | | | 5.19° | 10.61 | 11.09 | 11.51 | 11.93 | 12.88 | | | ● | 10 | 5,460 |
| 8557566 | 1.2×R0.3×6 | | | 11.6 | | | 7.04° | 6.38 | 6.72 | 7.03 | 7.31 | 7.89 | | | ● | 10 | 5,460 |
| 8557567 | 1.2×R0.3×8 | | | 13.6 | | | 5.99° | 8.5 | 8.91 | 9.27 | 9.62 | 10.37 | | D | ○ | 10 | 5,460 |
| 8557568 | 1.2×R0.3×10 | | | 15.6 | | | 5.22° | 10.6 | 11.08 | 11.5 | 11.92 | 12.86 | | | ○ | 10 | 5,460 |
| ※ 8544851 | 1.5×R0.05×3 | | 1.2 | 8 | | 1.43 | 8.88° | 3.2 | 3.41 | 3.6 | 3.8 | 4.18 | | A | ● | 10 | 5,180 |
| ※ 8544852 | 1.5×R0.05×4 | | | 9 | | | 7.91° | 4.27 | 4.52 | 4.76 | 4.99 | 5.43 | | | ● | 10 | 5,180 |
| ※ 8544853 | 1.5×R0.05×6 | | | 11 | | | 6.49° | 6.39 | 6.73 | 7.04 | 7.33 | 7.92 | | | ● | 11 | 5,180 |
| ※ 8544854 | 1.5×R0.05×8 | | | 13 | | | 5.5° | 8.5 | 8.91 | 9.28 | 9.63 | 10.4 | | | ● | 11 | 5,460 |
| ※ 8544855 | 1.5×R0.05×10 | | | 15 | | | 4.77° | 10.6 | 11.08 | 11.5 | 11.93 | 12.89 | | | ● | 11 | 5,460 |
| ※ 8544856 | 1.5×R0.05×12 | | | 17 | | | 4.21° | 12.7 | 13.23 | 13.71 | 14.23 | 15.38 | | | ● | 11 | 5,460 |
| ※ 8544857 | 1.5×R0.05×16 | 50 | | 21 | | | 3.41° | 16.87 | 17.52 | 18.15 | 18.83 | 20.35 | | | ● | 11 | 5,460 |
| ※ 8544864 | 1.5×R0.1×3 | 45 | | 8 | | | 8.93° | 3.2 | 3.4 | 3.6 | 3.79 | 4.16 | | | ● | 11 | 5,180 |
| ※ 8544858 | 1.5×R0.1×4 | | | 9 | | | 7.95° | 4.26 | 4.52 | 4.75 | 4.98 | 5.42 | | | ● | 11 | 5,180 |
| ※ 8544859 | 1.5×R0.1×6 | | | 11 | | | 6.52° | 6.38 | 6.72 | 7.03 | 7.32 | 7.91 | | | ● | 11 | 5,180 |
| ※ 8544860 | 1.5×R0.1×8 | | | 13 | | | 5.52° | 8.49 | 8.91 | 9.27 | 9.62 | 10.39 | | | ● | 10 | 5,460 |
| ※ 8544861 | 1.5×R0.1×10 | | | 15 | | | 4.78° | 10.6 | 11.07 | 11.49 | 11.92 | 12.88 | | | ● | 9 | 5,460 |
| ※ 8544862 | 1.5×R0.1×12 | | | 17 | | | 4.22° | 12.69 | 13.23 | 13.71 | 14.22 | 15.36 | | | ● | 9 | 5,460 |
| ※ 8544863 | 1.5×R0.1×16 | 50 | | 21 | | | 3.42° | 16.87 | 17.51 | 18.14 | 18.82 | 20.34 | | | ● | 9 | 5,460 |
| ※ 8544866 | 1.5×R0.2×3 | 45 | | 8 | 4 | | 9.04° | 3.19 | 3.39 | 3.58 | 3.77 | 4.14 | 1 | | ● | – | 5,180 |
| ※ 8544865 | 1.5×R0.2×4 | | | 9 | | | 8.03° | 4.26 | 4.5 | 4.74 | 4.97 | 5.4 | | | ● | 10 | 5,180 |
| 8557569 | 1.5×R0.2×6 | | | 11 | | | 6.57° | 6.38 | 6.71 | 7.02 | 7.3 | 7.88 | | | ● | 10 | 5,180 |
| 8557570 | 1.5×R0.2×8 | | | 13 | | | 5.56° | 8.49 | 8.9 | 9.26 | 9.6 | 10.37 | | A | ● | 10 | 5,460 |
| 8557571 | 1.5×R0.2×10 | | | 15 | | | 4.81° | 10.59 | 11.07 | 11.48 | 11.9 | 12.85 | | | ● | 10 | 5,460 |
| 8557572 | 1.5×R0.2×12 | | | 17 | | | 4.25° | 12.69 | 13.22 | 13.7 | 14.2 | 15.34 | | | ● | 10 | 5,460 |
| 8557573 | 1.5×R0.2×16 | 50 | | 21 | | | 3.44° | 16.87 | 17.51 | 18.13 | 18.8 | 20.31 | | | ● | 10 | 5,460 |
| ※ 8544868 | 1.5×R0.3×3 | 45 | | 8 | | | 9.14° | 3.19 | 3.38 | 3.56 | 3.75 | 4.11 | | | ● | 11 | 5,180 |
| ※ 8544867 | 1.5×R0.3×4 | | | 9 | | | 8.12° | 4.25 | 4.49 | 4.72 | 4.95 | 5.37 | | | ● | 10 | 5,180 |
| 8557574 | 1.5×R0.3×6 | | | 11 | | | 6.63° | 6.37 | 6.7 | 7.01 | 7.29 | 7.86 | | | ● | 10 | 5,180 |
| 8557575 | 1.5×R0.3×8 | | | 13 | | | 5.6° | 8.48 | 8.89 | 9.25 | 9.59 | 10.34 | | | ● | 10 | 5,460 |
| 8557576 | 1.5×R0.3×10 | | | 15 | | | 4.85° | 10.59 | 11.06 | 11.47 | 11.89 | 12.83 | | | ● | 10 | 5,460 |
| 8557577 | 1.5×R0.3×12 | | | 17 | | | 4.27° | 12.68 | 13.21 | 13.69 | 14.19 | 15.32 | | | ● | 10 | 5,460 |
| 8557578 | 1.5×R0.3×16 | 50 | | 21 | | | 3.45° | 16.86 | 17.5 | 18.12 | 18.79 | 20.29 | | | ● | 10 | 5,460 |
| ※ 8544869 | 1.5×R0.5×3 | 45 | | 8 | | | 9.36° | 3.17 | 3.35 | 3.53 | 3.71 | 4.06 | | | ● | 10 | 5,180 |
| ※ 8544870 | 1.5×R0.5×4 | | | 9 | | | 8.29° | 4.24 | 4.47 | 4.69 | 4.91 | 5.32 | | | ● | 10 | 5,180 |
| ※ 8544871 | 1.5×R0.5×6 | | | 11 | | | 6.74° | 6.36 | 6.68 | 6.98 | 7.26 | 7.81 | | | ● | 10 | 5,180 |
| ※ 8544872 | 1.5×R0.5×8 | | | 13 | | | 5.68° | 8.47 | 8.87 | 9.23 | 9.56 | 10.3 | | | ● | 10 | 5,460 |
| ※ 8544873 | 1.5×R0.5×10 | | | 15 | | | 4.91° | 10.58 | 11.04 | 11.45 | 11.86 | 12.78 | | | ● | 9 | 5,460 |
| ※ 8544874 | 1.5×R0.5×12 | | | 17 | | | 4.32° | 12.67 | 13.2 | 13.67 | 14.16 | 15.27 | | | ● | 9 | 5,460 |
| ※ 8544875 | 1.5×R0.5×16 | 50 | | 21 | | | 3.48° | 16.85 | 17.48 | 18.1 | 18.76 | 20.24 | | | ● | 9 | 5,460 |

※＝NEW SIZES

次ページへ
外径 DC 2～2.5 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-CPR4-H | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

NEW SIZES

# 高硬度鋼用DUROREYコート4枚刃 超硬ロングネックラジアスエンドミル

DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels

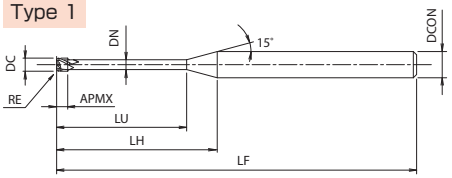
A The A Brand

## AE-CPR4-H

切削条件 Cutting Conditions | P554

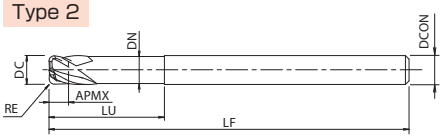


Type 1




中心刃：無 Non-center cut DC<0.5

Type 2




中心刃：有 Center cut 0.5≦DC

CARBIDE | DUROREY | R ±0.002 (RE≦0.02) | R ±0.005 (0.02<RE) | DC≦0.4 0~-0.01, 0.4<DC 0~-0.015 | SHANK h4 | SHRINK FIT | 30°

CAD

前ページより FROM 外径 DC 1.2~1.5

(単位:mm) (Unit:mm)

| | ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ※ | 8544876 | 2 × R0.05 × 4 | 50 | 1.6 | 8.1 | 4 | 1.92 | 7.09° | 4.26 | 4.51 | 4.74 | 4.97 | 5.4 | 1 | A | 11 | 5,180 |
| ※ | 8544877 | 2 × R0.05 × 6 | | | 10.1 | | | 5.69° | 6.38 | 6.71 | 7.02 | 7.3 | 7.89 | | | 12 | 5,180 |
| ※ | 8544878 | 2 × R0.05 × 8 | | | 12.1 | | | 4.75° | 8.48 | 8.89 | 9.25 | 9.6 | 10.38 | | | 11 | 5,460 |
| ※ | 8544879 | 2 × R0.05 × 10 | | | 14.1 | | | 4.08° | 10.58 | 11.06 | 11.47 | 11.9 | 12.86 | | | 10 | 5,460 |
| ※ | 8544880 | 2 × R0.05 × 12 | | | 16.1 | | | 3.57° | 12.68 | 13.21 | 13.69 | 14.2 | 15.35 | | | – | 5,460 |
| ※ | 8544881 | 2 × R0.05 × 16 | | | 20.1 | | | 2.86° | 16.86 | 17.49 | 18.12 | 18.8 | – | | | – | 5,460 |
| ※ | 8544882 | 2 × R0.05 × 20 | 60 | | 24.1 | | | 2.39° | 21.02 | 21.77 | 22.56 | 23.4 | – | | | – | 5,460 |
| ※ | 8544889 | 2 × R0.1 × 4 | 50 | | 8.1 | | | 7.13° | 4.26 | 4.5 | 4.74 | 4.96 | 5.39 | | | 12 | 5,180 |
| ※ | 8544883 | 2 × R0.1 × 6 | | | 10.1 | | | 5.72° | 6.37 | 6.71 | 7.01 | 7.29 | 7.88 | | | 12 | 5,180 |
| | 8557579 | 2 × R0.1 × 8 | | | 12.1 | | | 4.77° | 8.48 | 8.89 | 9.25 | 9.59 | 10.37 | | | 11 | 5,460 |
| | 8557580 | 2 × R0.1 × 10 | | | 14.1 | | | 4.09° | 10.58 | 11.05 | 11.47 | 11.89 | 12.85 | | | 11 | 5,460 |
| | 8557581 | 2 × R0.1 × 12 | | | 16.1 | | | 3.58° | 12.68 | 13.21 | 13.68 | 14.19 | 15.34 | | | 11 | 5,460 |
| | 8557582 | 2 × R0.1 × 16 | | | 20.1 | | | 2.87° | 16.85 | 17.49 | 18.12 | 18.79 | – | | | 11 | 5,460 |
| | 8557583 | 2 × R0.1 × 20 | 60 | | 24.1 | | | 2.39° | 21.02 | 21.77 | 22.55 | 23.39 | – | | | 12 | 5,460 |
| | 8557584 | 2 × R0.1 × 25 | | | 29.1 | | | 1.98° | 26.2 | 27.12 | 28.09 | – | – | | | 12 | 5,460 |
| ※ | 8544891 | 2 × R0.2 × 4 | 50 | | 8.1 | | | 7.21° | 4.25 | 4.49 | 4.72 | 4.94 | 5.37 | | | 12 | 5,180 |
| ※ | 8544884 | 2 × R0.2 × 6 | | | 10.1 | | | 5.77° | 6.37 | 6.7 | 7 | 7.28 | 7.86 | | | 12 | 5,180 |
| | 8557585 | 2 × R0.2 × 8 | | | 12.1 | | | 4.81° | 8.48 | 8.88 | 9.24 | 9.58 | 10.34 | | | 11 | 5,460 |
| | 8557586 | 2 × R0.2 × 10 | | | 14.1 | | | 4.12° | 10.58 | 11.05 | 11.46 | 11.88 | 12.83 | | | 11 | 5,460 |
| | 8557587 | 2 × R0.2 × 12 | | | 16.1 | | | 3.6° | 12.67 | 13.2 | 13.67 | 14.18 | 15.31 | | | 11 | 5,460 |
| | 8557588 | 2 × R0.2 × 16 | | | 20.1 | | | 2.88° | 16.85 | 17.48 | 18.11 | 18.78 | – | | | 11 | 5,460 |
| | 8557589 | 2 × R0.2 × 20 | 60 | | 24.1 | | | 2.4° | 21.01 | 21.76 | 22.54 | 23.38 | – | | | 12 | 5,460 |
| | 8557590 | 2 × R0.2 × 25 | | | 29.1 | | | 1.99° | 26.2 | 27.11 | 28.08 | – | – | | | 12 | 5,460 |
| ※ | 8544893 | 2 × R0.3 × 4 | 50 | | 8.1 | | | 7.3° | 4.24 | 4.48 | 4.71 | 4.93 | 5.35 | | | 11 | 5,180 |
| ※ | 8544885 | 2 × R0.3 × 6 | | | 10.1 | | | 5.83° | 6.36 | 6.69 | 6.98 | 7.26 | 7.83 | | | 10 | 5,180 |
| | 8557591 | 2 × R0.3 × 8 | | | 12.1 | | | 4.85° | 8.47 | 8.87 | 9.23 | 9.56 | 10.32 | | | 11 | 5,460 |
| | 8557592 | 2 × R0.3 × 10 | | | 14.1 | | | 4.15° | 10.57 | 11.04 | 11.45 | 11.86 | 12.8 | | | 11 | 5,460 |
| | 8557593 | 2 × R0.3 × 12 | | | 16.1 | | | 3.63° | 12.67 | 13.19 | 13.66 | 14.16 | 15.29 | | | 11 | 5,460 |
| | 8557594 | 2 × R0.3 × 16 | | | 20.1 | | | 2.9° | 16.85 | 17.48 | 18.1 | 18.76 | – | | | 11 | 5,460 |
| | 8557595 | 2 × R0.3 × 20 | 60 | | 24.1 | | | 2.41° | 21.01 | 21.75 | 22.53 | 23.36 | – | | | 12 | 5,460 |
| ※ | 8544895 | 2 × R0.5 × 4 | 50 | | 8.1 | | | 7.48° | 4.23 | 4.46 | 4.68 | 4.89 | 5.3 | | | 12 | 5,180 |
| ※ | 8544886 | 2 × R0.5 × 6 | | | 10.1 | | | 5.94° | 6.35 | 6.67 | 6.96 | 7.23 | 7.78 | | | 11 | 5,180 |
| | 8557596 | 2 × R0.5 × 8 | | | 12.1 | | | 4.93° | 8.46 | 8.85 | 9.2 | 9.54 | 10.27 | | | 11 | 5,460 |
| | 8557597 | 2 × R0.5 × 10 | | | 14.1 | | | 4.21° | 10.56 | 11.02 | 11.42 | 11.83 | 12.76 | | | 11 | 5,460 |
| | 8557598 | 2 × R0.5 × 12 | | | 16.1 | | | 3.67° | 12.66 | 13.18 | 13.64 | 14.13 | 15.24 | | | 11 | 5,460 |
| | 8557599 | 2 × R0.5 × 16 | | | 20.1 | | | 2.92° | 16.84 | 17.46 | 18.07 | 18.73 | – | | | 11 | 5,460 |
| | 8557600 | 2 × R0.5 × 20 | 60 | | 24.1 | | | 2.43° | 21 | 21.74 | 22.51 | 23.33 | – | | | 12 | 5,460 |
| | 8557601 | 2 × R0.5 × 25 | | | 29.1 | | | 2.01° | 26.19 | 27.09 | 28.05 | 29.08 | – | | | 12 | 5,460 |
| ※ | 8544887 | 2.5 × R0.1 × 10 | 55 | 2 | 13.1 | | 2.4 | 3.3° | 10.56 | 11.02 | 11.42 | 11.85 | 12.8 | | | 12 | 5,670 |
| ※ | 8544888 | 2.5 × R0.1 × 20 | | | 23.1 | | | 1.87° | 20.98 | 21.73 | 22.51 | – | – | | | 10 | 5,860 |
| ※ | 8544890 | 2.5 × R0.1 × 30 | 70 | | 33.1 | | | 1.31° | 31.33 | 32.42 | – | – | – | | | 12 | 6,050 |
| | 8557602 | 2.5 × R0.2 × 10 | 55 | | 13.1 | | | 3.33° | 10.55 | 11.01 | 11.41 | 11.83 | 12.78 | | | 12 | 5,670 |
| | 8557603 | 2.5 × R0.2 × 20 | | | 23.1 | | | 1.88° | 20.98 | 21.72 | 22.5 | – | – | | | 12 | 5,860 |
| ※ | 8544892 | 2.5 × R0.2 × 30 | 70 | | 33.1 | | | 1.31° | 31.33 | 32.42 | – | – | – | | | 14 | 6,050 |
| ※ | 8544894 | 2.5 × R0.3 × 10 | 55 | | 13.1 | | | 3.35° | 10.55 | 11 | 11.4 | 11.82 | 12.75 | | | 12 | 5,670 |
| ※ | 8544896 | 2.5 × R0.3 × 20 | | | 23.1 | | | 1.89° | 20.97 | 21.71 | 22.48 | – | – | | | 11 | 5,860 |
| ※ | 8544897 | 2.5 × R0.3 × 30 | 70 | | 33.1 | | | 1.31° | 31.33 | 32.41 | – | – | – | | | 14 | 6,050 |
| | 8557604 | 2.5 × R0.5 × 10 | 55 | | 13.1 | | | 3.4° | 10.54 | 10.98 | 11.38 | 11.79 | 12.71 | | | 12 | 5,670 |
| | 8557605 | 2.5 × R0.5 × 20 | | | 23.1 | | | 1.9° | 20.97 | 21.7 | 22.46 | – | – | | | 12 | 5,860 |
| ※ | 8544898 | 2.5 × R0.5 × 30 | 70 | | 33.1 | | | 1.32° | 31.32 | 32.39 | – | – | – | | | 13 | 6,050 |

※=NEW SIZES

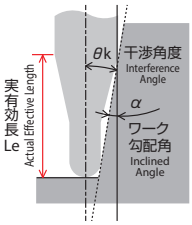
次ページへ 外径 DC 3 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより
FROM 外径 DC 2～2.5

（単位:mm）(Unit:mm)

| | ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ※ | 8544899 | 3 × R0.1 × 4 | | | 9.8 | | | 8.76° | 4.22 | 4.43 | 4.64 | 4.84 | 5.24 | | | ● | 24 | 4,700 |
| ※ | 8544900 | 3 × R0.1 × 6 | | | 11.8 | | | 7.28° | 6.32 | 6.61 | 6.89 | 7.15 | 7.73 | | | ● | 23 | 4,700 |
| ※ | 8544901 | 3 × R0.1 × 8 | | | 13.8 | | | 6.23° | 8.41 | 8.78 | 9.12 | 9.45 | 10.21 | | | ● | 22 | 4,700 |
| ※ | 8544902 | 3 × R0.1 × 10 | 55 | | 15.8 | | | 5.45° | 10.5 | 10.94 | 11.33 | 11.75 | 12.7 | | | ● | 22 | 4,700 |
| ※ | 8544903 | 3 × R0.1 × 12 | | | 17.8 | | | 4.84° | 12.59 | 13.08 | 13.55 | 14.05 | 15.19 | | | ● | 16 | 5,670 |
| ※ | 8544904 | 3 × R0.1 × 16 | | | 21.8 | | | 3.95° | 16.75 | 17.36 | 17.98 | 18.65 | 20.16 | | | ● | 20 | 7,060 |
| ※ | 8544905 | 3 × R0.1 × 20 | | | 25.8 | | | 3.34° | 20.91 | 21.64 | 22.42 | 23.25 | 25.13 | | | ● | 18 | 7,060 |
| ※ | 8544906 | 3 × R0.1 × 25 | 70 | | 30.8 | | | 2.8° | 26.08 | 26.99 | 27.96 | 29 | — | | | ● | 24 | 7,060 |
| ※ | 8544907 | 3 × R0.2 × 4 | | | 9.8 | | | 8.84° | 4.21 | 4.42 | 4.62 | 4.82 | 5.22 | | A | ● | 23 | 4,700 |
| ※ | 8544921 | 3 × R0.2 × 6 | | | 11.8 | | | 7.34° | 6.31 | 6.6 | 6.88 | 7.14 | 7.7 | | | ● | 23 | 4,700 |
| | 8557606 | 3 × R0.2 × 8 | | | 13.8 | | | 6.28° | 8.41 | 8.77 | 9.11 | 9.44 | 10.19 | | | ● | 23 | 4,700 |
| ※ | 8544908 | 3 × R0.2 × 10 | 55 | | 15.8 | | | 5.48° | 10.5 | 10.93 | 11.32 | 11.74 | 12.68 | | | ● | 22 | 4,700 |
| | 8557607 | 3 × R0.2 × 12 | | | 17.8 | | | 4.86° | 12.59 | 13.07 | 13.54 | 14.04 | 15.16 | | | ● | 21 | 5,670 |
| | 8557608 | 3 × R0.2 × 16 | | | 21.8 | | | 3.97° | 16.75 | 17.35 | 17.97 | 18.64 | 20.14 | | | ● | 20 | 7,060 |
| | 8557609 | 3 × R0.2 × 20 | | | 25.8 | | | 3.35° | 20.9 | 21.63 | 22.4 | 23.24 | 25.11 | | | ● | 19 | 7,060 |
| | 8557610 | 3 × R0.2 × 25 | | | 30.8 | | | 2.81° | 26.08 | 26.98 | 27.95 | 28.99 | — | | | ● | 23 | 7,060 |
| | 8557611 | 3 × R0.2 × 30 | 70 | | 35.8 | | | 2.41° | 31.25 | 32.33 | 33.49 | 34.74 | — | | | ● | 23 | 7,910 |
| | 8557612 | 3 × R0.2 × 35 | | | 40.8 | | | 2.12° | 36.41 | 37.68 | 39.03 | 40.49 | — | | D | ○ | 21 | 8,890 |
| ※ | 8544909 | 3 × R0.3 × 4 | | | 9.8 | | | 8.92° | 4.2 | 4.41 | 4.61 | 4.81 | 5.19 | | | ● | 6 | 4,700 |
| ※ | 8544924 | 3 × R0.3 × 6 | | | 11.8 | | | 7.4° | 6.31 | 6.6 | 6.87 | 7.12 | 7.68 | | | ● | 23 | 4,700 |
| ※ | 8544910 | 3 × R0.3 × 8 | | | 13.8 | | | 6.32° | 8.4 | 8.77 | 9.09 | 9.42 | 10.17 | | | ● | 22 | 4,700 |
| ※ | 8544911 | 3 × R0.3 × 10 | 55 | | 15.8 | | | 5.51° | 10.5 | 10.92 | 11.31 | 11.72 | 12.65 | | | ● | 21 | 4,700 |
| | 8557613 | 3 × R0.3 × 12 | | | 17.8 | | | 4.89° | 12.58 | 13.07 | 13.53 | 14.02 | 15.14 | | A | ● | 21 | 5,670 |
| | 8557614 | 3 × R0.3 × 16 | | | 21.8 | | | 3.99° | 16.75 | 17.34 | 17.96 | 18.62 | 20.11 | | | ● | 21 | 7,060 |
| | 8557615 | 3 × R0.3 × 20 | | | 25.8 | | | 3.37° | 20.9 | 21.62 | 22.39 | 23.22 | 25.08 | | | ● | 19 | 7,060 |
| | 8557616 | 3 × R0.3 × 25 | | | 30.8 | | | 2.82° | 26.07 | 26.97 | 27.94 | 28.97 | — | | | ● | 24 | 7,060 |
| | 8557617 | 3 × R0.3 × 30 | 70 | | 35.8 | | | 2.42° | 31.24 | 32.32 | 33.48 | 34.72 | — | | | ● | 22 | 7,910 |
| | 8557618 | 3 × R0.3 × 35 | | | 40.8 | | | 2.12° | 36.41 | 37.67 | 39.02 | 40.47 | — | | D | ○ | 21 | 8,890 |
| ※ | 8544912 | 3 × R0.5 × 4 | | | 9.8 | | | 9.09° | 4.19 | 4.39 | 4.58 | 4.77 | 5.15 | | | ● | 24 | 4,700 |
| ※ | 8544928 | 3 × R0.5 × 6 | | | 11.8 | | | 7.52° | 6.3 | 6.58 | 6.84 | 7.1 | 7.63 | | | ● | 23 | 4,700 |
| ※ | 8544913 | 3 × R0.5 × 8 | | | 13.8 | | | 6.41° | 8.39 | 8.75 | 9.07 | 9.4 | 10.12 | | | ● | 20 | 4,700 |
| ※ | 8544914 | 3 × R0.5 × 10 | 55 | | 15.8 | | | 5.58° | 10.49 | 10.91 | 11.29 | 11.69 | 12.61 | | | ● | 22 | 4,700 |
| | 8557619 | 3 × R0.5 × 12 | | | 17.8 | | | 4.94° | 12.57 | 13.05 | 13.51 | 13.99 | 15.09 | | A | ● | 21 | 5,670 |
| | 8557620 | 3 × R0.5 × 16 | | | 21.8 | | | 4.02° | 16.74 | 17.33 | 17.94 | 18.59 | 20.06 | | | ● | 20 | 7,060 |
| | 8557621 | 3 × R0.5 × 20 | | | 25.8 | | | 3.39° | 20.89 | 21.61 | 22.37 | 23.19 | 25.04 | | | ● | 19 | 7,060 |
| | 8557622 | 3 × R0.5 × 25 | | | 30.8 | | | 2.83° | 26.07 | 26.96 | 27.91 | 28.94 | — | | | ● | 24 | 7,060 |
| | 8557623 | 3 × R0.5 × 30 | 70 | | 35.8 | | | 2.43° | 31.24 | 32.31 | 33.46 | 34.69 | — | | | ● | 23 | 7,910 |
| | 8557624 | 3 × R0.5 × 35 | | | 40.8 | | | 2.13° | 36.4 | 37.66 | 39 | 40.44 | — | | D | ○ | 21 | 8,890 |

※＝NEW SIZES

次ページへ
外径 DC 4 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-CPR4-H | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

NEW SIZES

# 高硬度鋼用DUROREYコート4枚刃 超硬ロングネックラジアスエンドミル

DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels

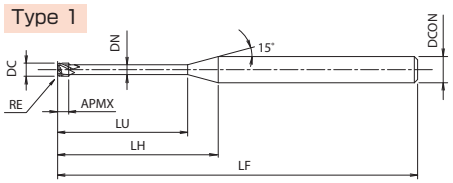
A The A Brand

## AE-CPR4-H

切削条件 Cutting Conditions | P554

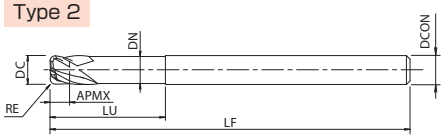


Type 1




中心刃：無 Non-center cut DC<0.5

Type 2




中心刃：有 Center cut 0.5≦DC

CARBIDE | DUROREY | R ±0.002 (RE≦0.02) | R ±0.005 (0.02<RE) | DC≦0.4 0~-0.01, 0.4<DC 0~-0.015 | SHANK h4 | SHRINK FIT | 30°

CAD

前ページより FROM 外径 DC 3

（単位:mm）(Unit:mm)

| | ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ※ | 8544915 | 4 × R0.1 × 8 | 60 | 3.2 | 12 | 6 | 3.84 | 4.82° | 8.41 | 8.77 | 9.1 | 9.44 | 10.2 | 1 | A | ● | 26 | 5,670 |
| ※ | 8544916 | 4 × R0.1 × 12 | | | 16 | | | 3.61° | 12.58 | 13.07 | 13.53 | 14.04 | 15.17 | | | ● | 24 | 5,670 |
| ※ | 8544917 | 4 × R0.1 × 16 | | | 20 | | | 2.89° | 16.74 | 17.34 | 17.97 | 18.64 | – | | | ● | 23 | 7,060 |
| ※ | 8544918 | 4 × R0.1 × 20 | | | 24 | | | 2.41° | 20.89 | 21.62 | 22.4 | 23.24 | – | | | ● | 22 | 7,060 |
| ※ | 8544919 | 4 × R0.1 × 25 | | | 29 | | | 1.99° | 26.07 | 26.97 | 27.94 | – | – | | | ● | 21 | 7,060 |
| ※ | 8544920 | 4 × R0.1 × 30 | 75 | | 34 | | | 1.7° | 31.23 | 32.32 | 33.48 | – | – | | | ● | 27 | 7,910 |
| ※ | 8544943 | 4 × R0.2 × 8 | 60 | | 12 | | | 4.86° | 8.4 | 8.76 | 9.09 | 9.42 | 10.17 | | | ● | 25 | 5,670 |
| ※ | 8544944 | 4 × R0.2 × 12 | | | 16 | | | 3.63° | 12.58 | 13.06 | 13.52 | 14.02 | 15.15 | | | ● | 26 | 5,670 |
| | 8557625 | 4 × R0.2 × 16 | | | 20 | | | 2.9° | 16.74 | 17.34 | 17.96 | 18.62 | – | | | ● | 23 | 7,060 |
| | 8557626 | 4 × R0.2 × 20 | | | 24 | | | 2.41° | 20.89 | 21.62 | 22.39 | 23.22 | – | | | ● | 23 | 7,060 |
| | 8557627 | 4 × R0.2 × 25 | | | 29 | | | 2° | 26.06 | 26.96 | 27.93 | – | – | | | ● | 21 | 7,060 |
| | 8557628 | 4 × R0.2 × 30 | 75 | | 34 | | | 1.7° | 31.23 | 32.31 | 33.47 | – | – | | | ● | 27 | 7,910 |
| | 8557629 | 4 × R0.2 × 40 | | | 44 | | | 1.31° | 41.57 | 43.01 | – | – | – | | | ● | 25 | 8,890 |
| ※ | 8544945 | 4 × R0.3 × 8 | 60 | | 12 | | | 4.9° | 8.4 | 8.75 | 9.08 | 9.41 | 10.15 | | | ● | 25 | 5,670 |
| ※ | 8544946 | 4 × R0.3 × 12 | | | 16 | | | 3.66° | 12.57 | 13.05 | 13.51 | 14.01 | 15.12 | | | ● | 24 | 5,670 |
| | 8557630 | 4 × R0.3 × 16 | | | 20 | | | 2.92° | 16.74 | 17.33 | 17.95 | 18.61 | – | | | ● | 24 | 7,060 |
| | 8557631 | 4 × R0.3 × 20 | | | 24 | | | 2.42° | 20.89 | 21.61 | 22.38 | 23.21 | – | | | ● | 24 | 7,060 |
| | 8557632 | 4 × R0.3 × 25 | | | 29 | | | 2° | 26.06 | 26.96 | 27.92 | – | – | | | ● | 22 | 7,060 |
| | 8557633 | 4 × R0.3 × 30 | 75 | | 34 | | | 1.71° | 31.23 | 32.31 | 33.46 | – | – | | | ● | 27 | 7,910 |
| | 8557634 | 4 × R0.3 × 40 | | | 44 | | | 1.32° | 41.56 | 43 | – | – | – | | D | ○ | 25 | 8,890 |
| ※ | 8544947 | 4 × R0.5 × 8 | 60 | | 12 | | | 4.98° | 8.39 | 8.74 | 9.06 | 9.38 | 10.1 | | A | ● | 24 | 5,670 |
| ※ | 8544948 | 4 × R0.5 × 12 | | | 16 | | | 3.7° | 12.56 | 13.04 | 13.49 | 13.98 | 15.07 | | | ● | 24 | 5,670 |
| | 8557635 | 4 × R0.5 × 16 | | | 20 | | | 2.95° | 16.73 | 17.32 | 17.92 | 18.58 | – | | | ● | 24 | 7,060 |
| | 8557636 | 4 × R0.5 × 20 | | | 24 | | | 2.44° | 20.88 | 21.59 | 22.36 | 23.18 | – | | | ● | 22 | 7,060 |
| | 8557637 | 4 × R0.5 × 25 | | | 29 | | | 2.02° | 26.05 | 26.94 | 27.9 | 28.93 | – | | | ● | 22 | 7,060 |
| | 8557638 | 4 × R0.5 × 30 | 75 | | 34 | | | 1.72° | 31.22 | 32.29 | 33.44 | – | – | | | ● | 27 | 7,910 |
| | 8557639 | 4 × R0.5 × 40 | | | 44 | | | 1.32° | 41.56 | 42.99 | – | – | – | | D | ○ | 25 | 8,890 |
| | 8557640 | 4 × R0.5 × 50 | 90 | | 54 | | | 1.08° | 51.89 | 53.69 | – | – | – | | | ● | 26 | 9,950 |
| ※ | 8544949 | 4 × R1 × 8 | 60 | | 12 | | | 5.2° | 8.36 | 8.7 | 9 | 9.31 | 9.98 | | A | ● | 25 | 5,670 |
| ※ | 8544950 | 4 × R1 × 12 | | | 16 | | | 3.82° | 12.54 | 13 | 13.44 | 13.9 | 14.96 | | | ● | 24 | 5,670 |
| | 8557641 | 4 × R1 × 16 | | | 20 | | | 3.02° | 16.71 | 17.28 | 17.87 | 18.5 | 19.93 | | | ● | 24 | 7,060 |
| | 8557642 | 4 × R1 × 20 | | | 24 | | | 2.5° | 20.86 | 21.56 | 22.3 | 23.1 | – | | | ● | 23 | 7,060 |
| | 8557643 | 4 × R1 × 25 | | | 29 | | | 2.05° | 26.04 | 26.91 | 27.85 | 28.85 | – | | | ● | 21 | 7,060 |
| | 8557644 | 4 × R1 × 30 | 75 | | 34 | | | 1.74° | 31.2 | 32.26 | 33.39 | – | – | | | ● | 26 | 7,910 |
| | 8557645 | 4 × R1 × 40 | | | 44 | | | 1.34° | 41.54 | 42.95 | – | – | – | | | ● | 25 | 8,890 |

※＝NEW SIZES

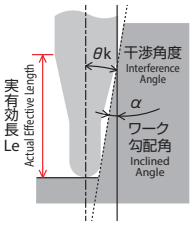
次ページへ 外径 DC 6 NEXT

**在庫記号について** Inventory symbols

- ● ＝ 標準在庫品 Standard stock item
- ○ ＝ 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ ＝ 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ ＝ 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ ＝ 生産中止品（在庫をご確認下さい。） Discontinued item

## ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

前ページより FROM 外径 DC 4

（単位:mm）(Unit:mm)

| | ツール No. EDP No. | 外径×コーナ半径×首下長 DC×RE×LU | 全長 LF | 刃長 APMX | LH | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ※ | 8544922 | 6 × R0.1 × 12 | 70 | | – | | | – | – | – | – | – | – | | | ● | 32 | 11,000 |
| ※ | 8544923 | 6 × R0.1 × 18 | | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544925 | 6 × R0.1 × 24 | 90 | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544926 | 6 × R0.1 × 30 | | | – | | | – | – | – | – | – | – | | | ● | 37 | 14,000 |
| ※ | 8544927 | 6 × R0.1 × 48 | 120 | | – | | | – | – | – | – | – | – | | | ● | 51 | 17,000 |
| ※ | 8544929 | 6 × R0.2 × 12 | 70 | | – | | | – | – | – | – | – | – | | | ● | 32 | 11,000 |
| ※ | 8544930 | 6 × R0.2 × 18 | | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544931 | 6 × R0.2 × 24 | 90 | | – | | | – | – | – | – | – | – | | | ● | – | 14,000 |
| ※ | 8544932 | 6 × R0.2 × 30 | | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544933 | 6 × R0.2 × 48 | 120 | | – | | | – | – | – | – | – | – | | | ● | 50 | 17,000 |
| ※ | 8544934 | 6 × R0.3 × 12 | 70 | | – | | | – | – | – | – | – | – | | | ● | 32 | 11,000 |
| ※ | 8544935 | 6 × R0.3 × 18 | | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544936 | 6 × R0.3 × 24 | 90 | 4.8 | – | 6 | 5.85 | – | – | – | – | – | – | 2 | A | ● | 37 | 14,000 |
| ※ | 8544937 | 6 × R0.3 × 30 | | | – | | | – | – | – | – | – | – | | | ● | 37 | 14,000 |
| ※ | 8544938 | 6 × R0.3 × 48 | 120 | | – | | | – | – | – | – | – | – | | | ● | 50 | 17,000 |
| ※ | 8544939 | 6 × R0.5 × 12 | 70 | | – | | | – | – | – | – | – | – | | | ● | 32 | 11,000 |
| ※ | 8544940 | 6 × R0.5 × 18 | | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544941 | 6 × R0.5 × 24 | 90 | | – | | | – | – | – | – | – | – | | | ● | 37 | 14,000 |
| ※ | 8544942 | 6 × R0.5 × 30 | | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544951 | 6 × R0.5 × 48 | 120 | | – | | | – | – | – | – | – | – | | | ● | 50 | 17,000 |
| ※ | 8544952 | 6 × R1 × 12 | 70 | | – | | | – | – | – | – | – | – | | | ● | 30 | 11,000 |
| ※ | 8544953 | 6 × R1 × 18 | | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544954 | 6 × R1 × 24 | 90 | | – | | | – | – | – | – | – | – | | | ● | 38 | 14,000 |
| ※ | 8544955 | 6 × R1 × 30 | | | – | | | – | – | – | – | – | – | | | ● | 37 | 14,000 |
| ※ | 8544956 | 6 × R1 × 48 | 120 | | – | | | – | – | – | – | – | – | | | ● | 50 | 17,000 |

※＝NEW SIZES

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| AE-CPR4-H | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

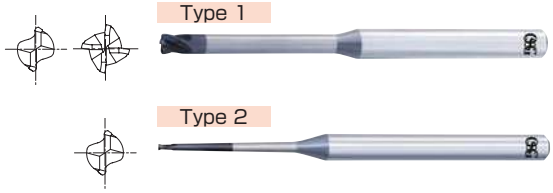
**在庫記号について** Inventory symbols

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# WXSコート超硬ラジアスエンドミル高精度タイプ
**WXS Coated High-precision Carbide End Mill with Corner Radius**

## WXS-CPR

切削条件 Cutting Conditions | **P615**




金型の形状加工専用高精度ブルノーズ（ラジアス）エンドミルです。耐熱性に優れるWXSコーティングにより焼入れ鋼の高速切削も可能としました。

Radius nose end mill specially designed for precision Mold milling. WXS coating with heat resistant character makes high speed milling on heat treated steels.

CAD




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC×RE×θn×LU | 全長 LF | 刃長 APMX | 首径 $D_1$ | 首元径 DN | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3100201 | 0.2 × R0.05 × 0° × 0.5 | 50 | 0.15 | 0.18 | – | 7.6 | 4 | 2 | 1 | A | ▲ | 13 | 13,600 |
| 3100202 | 0.2 × R0.05 × 0° × 1 | | | | – | 8.1 | | | | | ▲ | 14 | 13,600 |
| 3100203 | 0.2 × R0.05 × 1° × 1 | | | | 0.22 | 8.2 | | | 2 | | △ | 14 | 16,200 |
| 3100204 | 0.2 × R0.05 × 1° × 2 | | | | 0.26 | 9.1 | | | | | △ | 14 | 16,200 |
| 3100205 | 0.2 × R0.05 × 3° × 1 | | | | 0.28 | 8 | | | | | △ | 14 | 16,200 |
| 3100206 | 0.2 × R0.05 × 3° × 2 | | | | 0.38 | 8.8 | | | | | △ | 14 | 16,200 |
| 3100207 | 0.2 × R0.05 × 5° × 1 | | | | 0.34 | 7.8 | | | | B | △ | 13 | 16,200 |
| 3100208 | 0.2 × R0.05 × 5° × 2 | | | | 0.51 | 8.5 | | | | | △ | 13 | 16,200 |
| 3100301 | 0.3 × R0.05 × 0° × 1 | | 0.25 | 0.28 | – | 7.9 | | | 1 | A | ▲ | 14 | 13,100 |
| 3100302 | 0.3 × R0.05 × 0° × 2 | | | | – | 8.9 | | | | | ▲ | 14 | 13,100 |
| 3100303 | 0.3 × R0.05 × 1° × 2 | | | | 0.35 | 9 | | | 2 | | △ | 14 | 16,200 |
| 3100305 | 0.3 × R0.05 × 3° × 2 | | | | 0.47 | 8.7 | | | | | △ | 14 | 16,200 |
| 3100306 | 0.3 × R0.05 × 3° × 3 | | | | 0.58 | 9.5 | | | | | △ | 14 | 16,200 |
| 3100307 | 0.3 × R0.05 × 5° × 2 | | | | 0.6 | 8.3 | | | | B | △ | 13 | 16,200 |
| 3100308 | 0.3 × R0.05 × 5° × 3 | | | | 0.77 | 9 | | | | | △ | 13 | 16,200 |
| 3100401 | 0.4 × R0.05 × 0° × 1 | | 0.3 | 0.37 | – | 8.1 | | | 1 | A | ▲ | 14 | 8,690 |
| 3100402 | 0.4 × R0.05 × 0° × 1.5 | | | | – | 8.6 | | | | | ▲ | 14 | 8,690 |
| 3100403 | 0.4 × R0.05 × 0° × 2 | | | | – | 9.1 | | | | | ▲ | 14 | 8,690 |
| 3100404 | 0.4 × R0.05 × 0° × 3 | | | | – | 10.1 | | | | | ▲ | 14 | 8,690 |
| 3100405 | 0.4 × R0.05 × 0° × 4 | | | | – | 11.1 | | | | | ▲ | 14 | 8,690 |
| 3100409 | 0.4 × R0.05 × 1° × 3 | | | | 0.48 | 9.7 | | | 2 | | △ | 14 | 12,100 |
| 3100410 | 0.4 × R0.05 × 1° × 4 | | | | 0.51 | 10.7 | | | | | △ | 14 | 12,100 |
| 3100411 | 0.4 × R0.05 × 3° × 3 | | | | 0.67 | 9.3 | | | | | △ | 14 | 12,100 |
| 3100412 | 0.4 × R0.05 × 3° × 4 | | | | 0.77 | 10.1 | | | | | △ | 14 | 12,100 |
| 3100413 | 0.4 × R0.05 × 5° × 3 | | | | 0.86 | 8.9 | | | | B | △ | 13 | 12,100 |
| 3100414 | 0.4 × R0.05 × 5° × 4 | | | | 1.03 | 9.5 | | | | | △ | 13 | 12,100 |
| 3100406 | 0.4 × R0.1 × 0° × 2 | | | | – | 9.1 | | | 1 | A | ▲ | 14 | 8,690 |
| 3100407 | 0.4 × R0.1 × 0° × 3 | | | | – | 10.1 | | | | | ▲ | 14 | 8,690 |
| 3100408 | 0.4 × R0.1 × 0° × 4 | | | | – | 11.1 | | | | | ▲ | 14 | 8,690 |
| 3100415 | 0.4 × R0.1 × 1° × 3 | | | | 0.48 | 9.7 | | | 2 | | △ | 14 | 12,100 |
| 3100416 | 0.4 × R0.1 × 1° × 4 | | | | 0.51 | 10.7 | | | | | △ | 14 | 12,100 |
| 3100417 | 0.4 × R0.1 × 3° × 3 | | | | 0.67 | 9.3 | | | | | △ | 14 | 12,100 |
| 3100418 | 0.4 × R0.1 × 3° × 4 | | | | 0.77 | 10.1 | | | | | △ | 14 | 12,100 |
| 3100419 | 0.4 × R0.1 × 5° × 3 | | | | 0.86 | 8.9 | | | | B | △ | 13 | 12,100 |
| 3100420 | 0.4 × R0.1 × 5° × 4 | | | | 1.03 | 9.5 | | | | | △ | 13 | 12,100 |
| 3100501 | 0.5 × R0.05 × 0° × 1 | | 0.4 | 0.46 | – | 8.1 | | | 1 | B | ▲ | 14 | 7,090 |
| 3100502 | 0.5 × R0.05 × 0° × 2 | | | | – | 9.1 | | | | | ▲ | 14 | 7,090 |
| 3100503 | 0.5 × R0.05 × 0° × 3 | | | | – | 10.1 | | | | | ▲ | 14 | 7,090 |
| 3100504 | 0.5 × R0.05 × 0° × 4 | | | | – | 11.1 | | | | | ▲ | 14 | 7,090 |
| 3100505 | 0.5 × R0.05 × 0° × 5 | | | | – | 12.1 | | | | | ▲ | 14 | 7,090 |
| 3100506 | 0.5 × R0.05 × 0° × 6 | | | | – | 13.1 | | | | | ▲ | 14 | 7,090 |
| 3100513 | 0.5 × R0.05 × 1° × 3 | | | | 0.58 | 9.5 | | | 2 | | △ | 14 | 11,200 |

▲＝この製品は、AE-CPR2-H(P.406)、AE-CPR4-H(P.411)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-CPR2-H (p.406), AE-CPR4-H (p.411)

次ページへ
外径 DC 0.5～0.8 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WXS-CPR | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

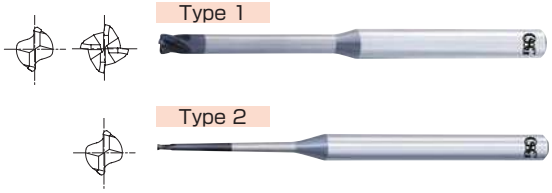
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# WXSコート超硬ラジアスエンドミル高精度タイプ
**WXS Coated High-precision Carbide End Mill with Corner Radius**

## WXS-CPR

切削条件 Cutting Conditions | P615




金型の形状加工専用高精度ブルノーズ(ラジアス)エンドミルです。耐熱性に優れるWXSコーティングにより焼入れ鋼の高速切削も可能としました。

Radius nose end mill specially designed for precision Mold milling. WXS coating with heat resistant character makes high speed milling on heat treated steels.

CAD

CARBIDE | WXS | R ± 0.005 | DC<0.5 0~-0.01, 0.5≦DC 0~-0.015 | SHRINK FIT | 30°

前ページより FROM 外径 DC 0.2~0.5

(単位:mm) (Unit:mm)

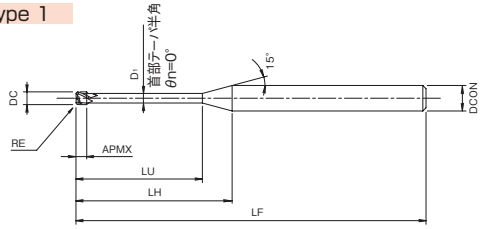
| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | 全長 LF | 刃長 APMX | 首径 $D_1$ | 首元径 DN | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3100515 | 0.5 × R0.05 × 1° × 8 | | | | 0.75 | 14.2 | | | | | △ | 12 | 12,000 |
| 3100516 | 0.5 × R0.05 × 1° × 10 | | | | 0.81 | 16.1 | | | | | △ | 12 | 13,200 |
| 3100517 | 0.5 × R0.05 × 1° × 12 | | | | 0.88 | 18 | | | | | △ | 12 | 13,200 |
| 3100518 | 0.5 × R0.05 × 3° × 3 | | | | 0.76 | 9.1 | | | | | △ | 13 | 12,000 |
| 3100519 | 0.5 × R0.05 × 3° × 5 | | | | 0.96 | 10.8 | | | | | △ | 13 | 12,000 |
| 3100520 | 0.5 × R0.05 × 3° × 8 | | | | 1.28 | 13.2 | | | | | △ | 12 | 13,200 |
| 3100521 | 0.5 × R0.05 × 3° × 10 | | | | 1.48 | 14.8 | | | 2 | B | △ | 12 | 13,200 |
| 3100522 | 0.5 × R0.05 × 3° × 12 | | | | 1.69 | 16.4 | | | | | △ | 12 | 13,200 |
| 3100523 | 0.5 × R0.05 × 5° × 3 | | | | 0.95 | 8.7 | | | | | △ | 13 | 12,000 |
| 3100524 | 0.5 × R0.05 × 5° × 5 | | | | 1.29 | 10.1 | | | | | △ | 12 | 12,000 |
| 3100525 | 0.5 × R0.05 × 5° × 8 | | | | 1.81 | 12.1 | | | | | △ | 12 | 13,200 |
| 3100526 | 0.5 × R0.05 × 5° × 10 | | | | 2.15 | 13.5 | | | | | △ | 12 | 13,200 |
| 3100507 | 0.5 × R0.1 × 0° × 1 | | | | – | 8.1 | | | | | ▲ | 14 | 7,090 |
| 3100508 | 0.5 × R0.1 × 0° × 2 | | | | – | 9.1 | | | | | ▲ | 14 | 7,090 |
| 3100509 | 0.5 × R0.1 × 0° × 3 | | | | – | 10.1 | | | | | ▲ | 14 | 7,090 |
| 3100510 | 0.5 × R0.1 × 0° × 4 | | 0.4 | 0.46 | – | 11.1 | | | 1 | | ▲ | 14 | 7,090 |
| 3100511 | 0.5 × R0.1 × 0° × 5 | | | | – | 12.1 | | | | | ▲ | 14 | 7,090 |
| 3100512 | 0.5 × R0.1 × 0° × 6 | | | | – | 13.1 | | | | | ▲ | 14 | 7,090 |
| 3100527 | 0.5 × R0.1 × 1° × 3 | 50 | | | 0.58 | 9.5 | 4 | 2 | | | △ | 14 | 11,200 |
| 3100528 | 0.5 × R0.1 × 1° × 5 | | | | 0.64 | 11.4 | | | | | △ | 14 | 11,600 |
| 3100529 | 0.5 × R0.1 × 1° × 8 | | | | 0.75 | 14.2 | | | | | △ | 14 | 12,000 |
| 3100530 | 0.5 × R0.1 × 1° × 10 | | | | 0.81 | 16.1 | | | | | △ | 14 | 13,200 |
| 3100531 | 0.5 × R0.1 × 1° × 12 | | | | 0.88 | 18 | | | | A | △ | 14 | 13,200 |
| 3100532 | 0.5 × R0.1 × 3° × 3 | | | | 0.76 | 9.1 | | | | | △ | 14 | 12,000 |
| 3100533 | 0.5 × R0.1 × 3° × 5 | | | | 0.96 | 10.8 | | | | | △ | 14 | 12,000 |
| 3100534 | 0.5 × R0.1 × 3° × 8 | | | | 1.28 | 13.2 | | | 2 | | △ | 14 | 13,200 |
| 3100535 | 0.5 × R0.1 × 3° × 10 | | | | 1.48 | 14.8 | | | | | △ | 14 | 13,200 |
| 3100536 | 0.5 × R0.1 × 3° × 12 | | | | 1.69 | 16.4 | | | | | △ | 14 | 13,200 |
| 3100537 | 0.5 × R0.1 × 5° × 3 | | | | 0.95 | 8.7 | | | | | △ | 14 | 12,000 |
| 3100538 | 0.5 × R0.1 × 5° × 5 | | | | 1.29 | 10.1 | | | | | △ | 14 | 12,000 |
| 3100539 | 0.5 × R0.1 × 5° × 8 | | | | 1.81 | 12.1 | | | | | △ | 14 | 13,200 |
| 3100540 | 0.5 × R0.1 × 5° × 10 | | | | 2.15 | 13.5 | | | | | △ | 14 | 13,200 |
| 3100601 | 0.6 × R0.1 × 0° × 2 | | | | – | 8.9 | | | | | ▲ | 14 | 7,090 |
| 3100602 | 0.6 × R0.1 × 0° × 4 | | 0.48 | 0.55 | – | 10.9 | | | 1 | | ▲ | 13 | 7,090 |
| 3100603 | 0.6 × R0.1 × 0° × 6 | | | | – | 12.9 | | | | B | ▲ | 13 | 7,090 |
| 3100807 | 0.8 × R0.05 × 1° × 8 | | | | 1.04 | 14 | | | | | △ | 12 | 12,000 |
| 3100808 | 0.8 × R0.05 × 3° × 5 | | 0.65 | 0.75 | 1.24 | 10.4 | | | 2 | | △ | 12 | 12,500 |

▲=この製品は、AE-CPR2-H(P.406)、AE-CPR4-H(P.411)へ切り替え生産させていただいております。(在庫をご確認下さい。)

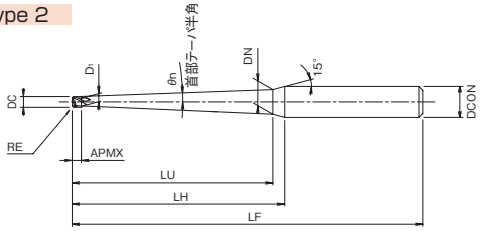
▲=These products have been stopped producing and replaced by AE-CPR2-H (p.406), AE-CPR4-H (p.411)

次ページへ 外径 DC 0.8~1 NEXT

Type 1




Type 2



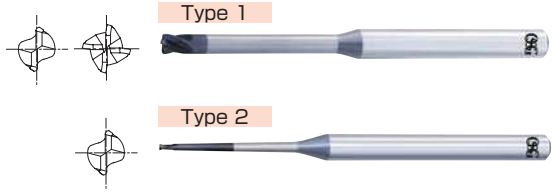

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- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
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**WXS Coated High-precision Carbide End Mill with Corner Radius**

## WXS-CPR

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Radius nose end mill specially designed for precision Mold milling. WXS coating with heat resistant character makes high speed milling on heat treated steels.

CAD

CARBIDE | WXS | R ±0.005 | DC<0.5 0～-0.01 / 0.5≦DC 0～-0.015 | SHRINK FIT | 30°

前ページより FROM 外径 DC 0.5～0.8

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | 全長 LF | 刃長 APMX | 首径 $D_1$ | 首元径 DN | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3100809 | 0.8 × R0.05 × 3° × 8 | 50 | 0.65 | 0.75 | 1.55 | 12.9 | 4 | 2 | 2 | B | △ | 12 | 13,000 |
| 3100801 | 0.8 × R0.1 × 0° × 4 | | | | – | 10.5 | | | 1 | A | ▲ | 14 | 8,070 |
| 3100802 | 0.8 × R0.1 × 0° × 6 | | | | – | 12.5 | | | | | ▲ | 14 | 8,070 |
| 3100810 | 0.8 × R0.1 × 1° × 5 | | | | 0.93 | 11.2 | | | 2 | | △ | 14 | 11,500 |
| 3100811 | 0.8 × R0.1 × 1° × 8 | | | | 1.04 | 14 | | | | | △ | 14 | 12,000 |
| 3100812 | 0.8 × R0.1 × 3° × 5 | | | | 1.24 | 10.4 | | | | | △ | 14 | 12,500 |
| 3100813 | 0.8 × R0.1 × 3° × 8 | | | | 1.55 | 12.9 | | | | | △ | 14 | 13,000 |
| 3100803 | 0.8 × R0.2 × 0° × 4 | | | | – | 10.5 | | | 1 | | ▲ | 14 | 8,070 |
| 3100804 | 0.8 × R0.2 × 0° × 6 | | | | – | 12.5 | | | | | ▲ | 14 | 8,070 |
| 3100805 | 0.8 × R0.2 × 0° × 8 | | | | – | 14.5 | | | | | ▲ | 14 | 8,070 |
| 3100815 | 0.8 × R0.2 × 1° × 8 | | | | 1.04 | 14 | | | 2 | | △ | 14 | 12,000 |
| 3100816 | 0.8 × R0.2 × 3° × 5 | | | | 1.24 | 10.4 | | | | | △ | 14 | 12,500 |
| 3100817 | 0.8 × R0.2 × 3° × 8 | | | | 1.55 | 12.9 | | | | | △ | 14 | 13,000 |
| 3101001 | 1 × R0.05 × 0° × 4 | | 0.8 | 0.94 | – | 10.1 | | | 1 | B | ▲ | 13 | 7,430 |
| 3101002 | 1 × R0.05 × 0° × 6 | | | | – | 12.1 | | | | | ▲ | 14 | 7,430 |
| 3101003 | 1 × R0.05 × 0° × 8 | | | | – | 14.1 | | | | | ▲ | 13 | 7,430 |
| 3101004 | 1 × R0.05 × 0° × 10 | | | | – | 16.1 | | | | | ▲ | 12 | 7,430 |
| 3101005 | 1 × R0.05 × 0° × 12 | | | | – | 18.1 | | | | | ▲ | 12 | 7,430 |
| 3101023 | 1 × R0.05 × 1° × 6 | | | | 1.16 | 11.8 | | | 2 | | △ | 13 | 9,900 |
| 3101024 | 1 × R0.05 × 1° × 10 | 60 | | | 1.29 | 15.5 | | | | | △ | 14 | 9,900 |
| 3101025 | 1 × R0.05 × 1° × 15 | | | | 1.46 | 20.2 | | | | | △ | 13 | 10,500 |
| 3101026 | 1 × R0.05 × 1° × 20 | | | | 1.61 | 24.9 | | | | | △ | 12 | 11,900 |
| 3101027 | 1 × R0.05 × 1° × 25 | 70 | | | 1.79 | 29.6 | | | | | △ | 14 | 14,000 |
| 3101028 | 1 × R0.05 × 1° × 30 | 80 | | | 1.96 | 34.3 | | | | | △ | 17 | 14,500 |
| 3101029 | 1 × R0.05 × 1° × 35 | | | | 2.13 | 39 | | | | | △ | 16 | 17,200 |
| 3101030 | 1 × R0.05 × 3° × 6 | 50 | | | 1.53 | 10.9 | | | | | △ | 13 | 9,900 |
| 3101031 | 1 × R0.05 × 3° × 10 | 60 | | | 1.93 | 14.2 | | | | | △ | 14 | 9,900 |
| 3101006 | 1 × R0.1 × 0° × 4 | 50 | | | – | 10.1 | | | 1 | | ▲ | 13 | 7,430 |
| 3101007 | 1 × R0.1 × 0° × 6 | | | | – | 12.1 | | | | | ▲ | 14 | 7,430 |
| 3101008 | 1 × R0.1 × 0° × 8 | | | | – | 14.1 | | | | | ▲ | 13 | 7,430 |
| 3101009 | 1 × R0.1 × 0° × 10 | | | | – | 16.1 | | | | | ▲ | 13 | 7,430 |
| 3101010 | 1 × R0.1 × 0° × 12 | | | | – | 18.1 | | | | | ▲ | 13 | 7,430 |
| 3101032 | 1 × R0.1 × 1° × 6 | | | | 1.16 | 11.8 | | | 2 | A | △ | 14 | 9,900 |
| 3101033 | 1 × R0.1 × 1° × 10 | 60 | | | 1.29 | 15.5 | | | | | △ | 14 | 9,900 |
| 3101035 | 1 × R0.1 × 1° × 20 | | | | 1.61 | 24.9 | | | | | △ | 14 | 11,900 |
| 3101037 | 1 × R0.1 × 1° × 30 | 80 | | | 1.96 | 34.3 | | | | | △ | 16 | 14,500 |
| 3101038 | 1 × R0.1 × 1° × 35 | | | | 2.13 | 39 | | | | | △ | 15 | 17,200 |
| 3101039 | 1 × R0.1 × 3° × 6 | 50 | | | 1.53 | 10.9 | | | | | △ | 13 | 9,900 |
| 3101040 | 1 × R0.1 × 3° × 10 | 60 | | | 1.93 | 14.2 | | | | | △ | 14 | 9,900 |

▲＝この製品は、AE-CPR2-H(P.406)、AE-CPR4-H(P.411)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-CPR2-H (p.406), AE-CPR4-H (p.411)

次ページへ 外径 DC 1～1.5 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WXS-CPR | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXSコート超硬ラジアスエンドミル高精度タイプ
**WXS Coated High-precision Carbide End Mill with Corner Radius**

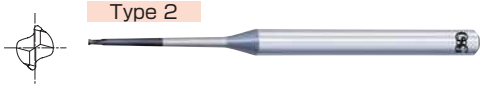
## WXS-CPR

切削条件 Cutting Conditions | **P615**

Type 1



Type 2



金型の形状加工専用高精度ブルノーズ(ラジアス)エンドミルです。耐熱性に優れるWXSコーティングにより焼入れ鋼の高速切削も可能としました。

Radius nose end mill specially designed for precision Mold milling. WXS coating with heat resistant character makes high speed milling on heat treated steels.

CAD

CARBIDE | WXS | R ± 0.005 | DC<0.5 0~-0.01 / 0.5≦DC 0~-0.015 | SHRINK FIT | 30°

前ページより FROM 外径 DC 0.8~1

(単位:mm) (Unit:mm)

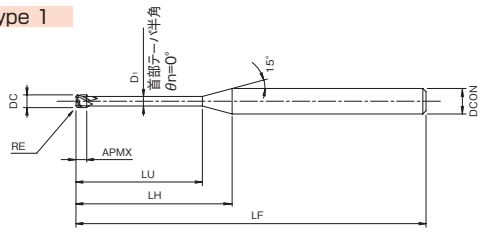
| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | 全長 LF | 刃長 APMX | 首径 $D_1$ | 首元径 DN | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3101011 | 1 × R0.2 × 0° × 4 | 50 | 0.8 | 0.94 | – | 10.1 | 4 | 2 | 1 | A | ▲ | 14 | 7,430 |
| 3101012 | 1 × R0.2 × 0° × 6 | | | | – | 12.1 | | | | | ▲ | 14 | 7,430 |
| 3101013 | 1 × R0.2 × 0° × 8 | | | | – | 14.1 | | | | | ▲ | 14 | 7,430 |
| 3101014 | 1 × R0.2 × 0° × 10 | | | | – | 16.1 | | | | | ▲ | 14 | 7,430 |
| 3101015 | 1 × R0.2 × 0° × 12 | | | | – | 18.1 | | | | | ▲ | 14 | 7,430 |
| 3101016 | 1 × R0.2 × 0° × 16 | 60 | | | – | 22.1 | | | | | ▲ | 14 | 11,400 |
| 3101017 | 1 × R0.2 × 0° × 20 | | | | – | 26.1 | | | | | ▲ | 14 | 11,400 |
| 3101044 | 1 × R0.2 × 1° × 20 | | | | 1.61 | 24.9 | | | 2 | | △ | 13 | 11,900 |
| 3101046 | 1 × R0.2 × 1° × 30 | 80 | | | 1.96 | 34.3 | | | | | △ | 16 | 14,500 |
| 3101047 | 1 × R0.2 × 1° × 35 | | | | 2.13 | 39 | | | | | △ | 15 | 17,200 |
| 3101048 | 1 × R0.2 × 3° × 6 | 50 | | | 1.53 | 10.9 | | | | | △ | 13 | 9,900 |
| 3101049 | 1 × R0.2 × 3° × 10 | 60 | | | 1.93 | 14.2 | | | | | △ | 14 | 9,900 |
| 3101018 | 1 × R0.3 × 0° × 4 | 50 | | | – | 10.1 | | | 1 | | ▲ | 14 | 7,430 |
| 3101019 | 1 × R0.3 × 0° × 6 | | | | – | 12.1 | | | | | ▲ | 14 | 7,430 |
| 3101020 | 1 × R0.3 × 0° × 8 | | | | – | 14.1 | | | | | ▲ | 14 | 7,430 |
| 3101021 | 1 × R0.3 × 0° × 10 | | | | – | 16.1 | | | | | ▲ | 14 | 7,430 |
| 3101022 | 1 × R0.3 × 0° × 12 | | | | – | 18.1 | | | | | ▲ | 14 | 7,430 |
| 3101052 | 1 × R0.3 × 1° × 15 | 60 | | | 1.46 | 20.2 | | | 2 | | △ | 14 | 10,500 |
| 3101055 | 1 × R0.3 × 1° × 30 | 80 | | | 1.96 | 34.3 | | | | | △ | 16 | 14,500 |
| 3101056 | 1 × R0.3 × 1° × 35 | | | | 2.13 | 39 | | | | | △ | 16 | 17,200 |
| 3101057 | 1 × R0.3 × 3° × 6 | 50 | | | 1.53 | 10.9 | | | | | △ | 13 | 9,900 |
| 3101058 | 1 × R0.3 × 3° × 10 | 60 | | | 1.93 | 14.2 | | | | | △ | 16 | 9,900 |
| 3101201 | 1.2 × R0.2 × 0° × 6 | 50 | 1 | 1.14 | – | 11.7 | | | 1 | B | ▲ | 14 | 7,700 |
| 3101202 | 1.2 × R0.2 × 0° × 8 | | | | – | 13.7 | | | | | ▲ | 14 | 7,700 |
| 3101203 | 1.2 × R0.2 × 0° × 10 | | | | – | 15.7 | | | | | ▲ | 13 | 7,700 |
| 3101204 | 1.2 × R0.3 × 0° × 6 | | | | – | 11.7 | | | | | ▲ | 13 | 7,700 |
| 3101205 | 1.2 × R0.3 × 0° × 8 | | | | – | 13.7 | | | | | ▲ | 13 | 7,700 |
| 3101206 | 1.2 × R0.3 × 0° × 10 | | | | – | 15.7 | | | | | ▲ | 13 | 7,700 |
| 3101512 | 1.5 × R0.1 × 1° × 15 | 60 | 1.2 | 1.43 | 1.94 | 19.3 | | | 2 | | △ | 13 | 11,700 |
| 3101513 | 1.5 × R0.1 × 1° × 20 | | | | 2.1 | 24 | | | | | △ | 13 | 12,900 |
| 3101514 | 1.5 × R0.1 × 1° × 25 | 70 | | | 2.27 | 28.7 | | | | | △ | 14 | 13,500 |

▲=この製品は、AE-CPR2-H(P.406)、AE-CPR4-H(P.411)へ切り替え生産させていただいております。(在庫をご確認下さい。)

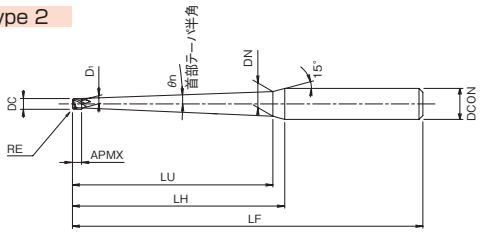
▲=These products have been stopped producing and replaced by AE-CPR2-H (p.406), AE-CPR4-H (p.411)

次ページへ 外径 DC 1.5~2 NEXT

Type 1




Type 2

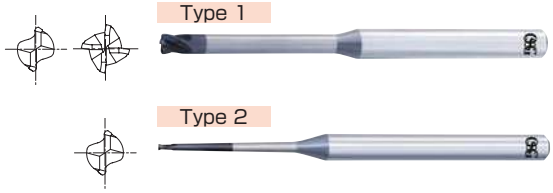



**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
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# WXSコート超硬ラジアスエンドミル高精度タイプ
**WXS Coated High-precision Carbide End Mill with Corner Radius**

## WXS-CPR
切削条件 Cutting Conditions | **P615**




金型の形状加工専用高精度ブルノーズ（ラジアス）エンドミルです。耐熱性に優れるWXSコーティングにより焼入れ鋼の高速切削も可能としました。

Radius nose end mill specially designed for precision Mold milling. WXS coating with heat resistant character makes high speed milling on heat treated steels.

CAD

CARBIDE | WXS | R ±0.005 | DC<0.5 0～-0.01 / 0.5≦DC 0～-0.015 | SHRINK FIT | 30°

前ページより FROM 外径 DC 1～1.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | 全長 LF | 刃長 APMX | 首径 $D_1$ | 首元径 DN | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3101515 | 1.5 × R0.1 × 1° × 30 | 80 | 1.2 | 1.43 | 2.45 | 33.4 | 4 | 2 | 2 | B | △ | 17 | 16,200 |
| 3101516 | 1.5 × R0.1 × 3° × 10 | 60 | | | 2.39 | 13.3 | | | | | △ | 15 | 10,700 |
| 3101517 | 1.5 × R0.1 × 3° × 15 | | | | 2.91 | 17.3 | | | | | △ | 14 | 11,700 |
| 3101501 | 1.5 × R0.2 × 0° × 6 | 50 | | | – | 11.1 | | | 1 | A | ▲ | 13 | 7,700 |
| 3101502 | 1.5 × R0.2 × 0° × 8 | | | | – | 13.1 | | | | | ▲ | 13 | 7,700 |
| 3101503 | 1.5 × R0.2 × 0° × 10 | | | | – | 15.1 | | | | | ▲ | 13 | 7,700 |
| 3101504 | 1.5 × R0.2 × 0° × 12 | | | | – | 17.1 | | | | | ▲ | 13 | 7,700 |
| 3101505 | 1.5 × R0.2 × 0° × 16 | | | | – | 21.1 | | | | | ▲ | 12 | 7,700 |
| 3101522 | 1.5 × R0.2 × 1° × 30 | 80 | | | 2.45 | 33.4 | | | 2 | | △ | 17 | 16,200 |
| 3101523 | 1.5 × R0.2 × 3° × 10 | 60 | | | 2.39 | 13.3 | | | | | △ | 14 | 10,700 |
| 3101524 | 1.5 × R0.2 × 3° × 15 | | | | 2.91 | 17.3 | | | | | △ | 14 | 11,700 |
| 3101506 | 1.5 × R0.3 × 0° × 6 | 50 | | | – | 11.1 | | | 1 | | ▲ | 14 | 7,700 |
| 3101507 | 1.5 × R0.3 × 0° × 8 | | | | – | 13.1 | | | | | ▲ | 13 | 7,700 |
| 3101508 | 1.5 × R0.3 × 0° × 10 | | | | – | 15.1 | | | | | ▲ | 13 | 7,700 |
| 3101509 | 1.5 × R0.3 × 0° × 12 | | | | – | 17.1 | | | | | ▲ | 13 | 7,700 |
| 3101510 | 1.5 × R0.3 × 0° × 16 | | | | – | 21.1 | | | | | ▲ | 13 | 7,700 |
| 3101526 | 1.5 × R0.3 × 1° × 15 | 60 | | | 1.94 | 19.3 | | | 2 | | △ | 14 | 11,700 |
| 3101528 | 1.5 × R0.3 × 1° × 25 | 70 | | | 2.27 | 28.7 | | | | | △ | 14 | 13,500 |
| 3101529 | 1.5 × R0.3 × 1° × 30 | 80 | | | 2.45 | 33.4 | | | | | △ | 17 | 16,200 |
| 3101530 | 1.5 × R0.3 × 3° × 10 | 60 | | | 2.39 | 13.3 | | | | | △ | 14 | 10,700 |
| 3101531 | 1.5 × R0.3 × 3° × 15 | | | | 2.91 | 17.3 | | | | | △ | 14 | 11,700 |
| 3102001 | 2 × R0.1 × 0° × 8 | 50 | 1.6 | 1.92 | – | 12.2 | | | 1 | B | ▲ | 13 | 7,820 |
| 3102002 | 2 × R0.1 × 0° × 10 | | | | – | 14.2 | | | | | ▲ | 13 | 7,820 |
| 3102003 | 2 × R0.1 × 0° × 12 | | | | – | 16.2 | | | | | ▲ | 13 | 7,820 |
| 3102004 | 2 × R0.1 × 0° × 16 | 60 | | | – | 20.2 | | | | | ▲ | 15 | 7,820 |
| 3102005 | 2 × R0.1 × 0° × 20 | | | | – | 24.2 | | | | | ▲ | 14 | 7,820 |
| 3102006 | 2 × R0.1 × 0° × 25 | 70 | | | – | 29.2 | | | | | ▲ | 17 | 7,820 |
| 3102025 | 2 × R0.1 × 1° × 15 | 60 | | | 2.43 | 18.4 | | | 2 | | △ | 14 | 10,700 |
| 3102026 | 2 × R0.1 × 1° × 20 | | | | 2.58 | 23.1 | | | | | △ | 13 | 10,700 |
| 3102027 | 2 × R0.1 × 1° × 25 | 70 | | | 2.76 | 27.8 | | | | | △ | 15 | 12,700 |
| 3102028 | 2 × R0.1 × 1° × 30 | 80 | | | 2.93 | 32.5 | | | | | △ | 18 | 14,400 |
| 3102029 | 2 × R0.1 × 1° × 40 | | | | 3.27 | 41.8 | | | | | △ | 18 | 19,200 |
| 3102030 | 2 × R0.1 × 1° × 50 | 100 | | | 3.62 | 51.1 | | | | | △ | 20 | 21,300 |
| 3102031 | 2 × R0.1 × 3° × 15 | 60 | | | 3.37 | 16.5 | | | | | △ | 14 | 10,700 |
| 3102032 | 2 × R0.1 × 3° × 20 | | | | 3.87 | 20.4 | | | | | △ | 14 | 10,700 |
| 3102007 | 2 × R0.2 × 0° × 8 | 50 | | | – | 12.2 | | | 1 | A | ▲ | 14 | 7,820 |
| 3102008 | 2 × R0.2 × 0° × 10 | | | | – | 14.2 | | | | | ▲ | 14 | 7,820 |
| 3102009 | 2 × R0.2 × 0° × 12 | | | | – | 16.2 | | | | | ▲ | 13 | 7,820 |
| 3102010 | 2 × R0.2 × 0° × 16 | 60 | | | – | 20.2 | | | | | ▲ | 14 | 7,820 |

▲＝この製品は、AE-CPR2-H(P.406)、AE-CPR4-H(P.411)へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲=These products have been stopped producing and replaced by AE-CPR2-H (p.406), AE-CPR4-H (p.411)

次ページへ 外径 DC 2～2.5 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WXS-CPR | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

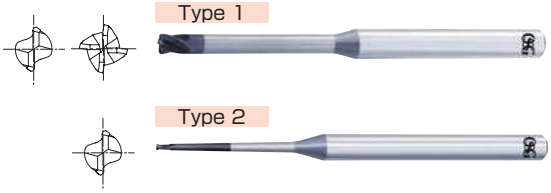
**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
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# WXSコート超硬ラジアスエンドミル高精度タイプ
**WXS Coated High-precision Carbide End Mill with Corner Radius**

## WXS-CPR

切削条件 Cutting Conditions | **P615**




金型の形状加工専用高精度ブルノーズ(ラジアス)エンドミルです。耐熱性に優れるWXSコーティングにより焼入れ鋼の高速切削も可能としました。

Radius nose end mill specially designed for precision Mold milling. WXS coating with heat resistant character makes high speed milling on heat treated steels.

CAD

CARBIDE | WXS | R ± 0.005 | DC<0.5 0~-0.01, 0.5≦DC 0~-0.015 | SHRINK FIT | 30°

前ページより FROM 外径 DC 1.5~2

(単位:mm) (Unit:mm)

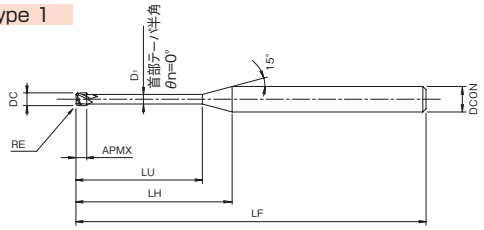
| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | 全長 LF | 刃長 APMX | 首径 $D_1$ | 首元径 DN | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3102011 | 2 × R0.2 × 0° × 20 | 60 | 1.6 | 1.92 | – | 24.2 | 4 | 2 | 1 | A | ▲ | 14 | 7,820 |
| 3102012 | 2 × R0.2 × 0° × 25 | 70 | | | – | 29.2 | | | | | ▲ | 17 | 7,820 |
| 3102037 | 2 × R0.2 × 1° × 40 | 80 | | | 3.27 | 41.8 | | | 2 | | △ | 17 | 19,200 |
| 3102038 | 2 × R0.2 × 1° × 50 | 100 | | | 3.62 | 51.1 | | | | | △ | 21 | 21,300 |
| 3102039 | 2 × R0.2 × 3° × 15 | 60 | | | 3.37 | 16.5 | | | | | △ | 15 | 10,700 |
| 3102040 | 2 × R0.2 × 3° × 20 | | | | 3.87 | 20.4 | | | | | △ | 14 | 10,700 |
| 3102013 | 2 × R0.3 × 0° × 8 | 50 | | | – | 12.2 | | | 1 | | ▲ | 14 | 7,820 |
| 3102014 | 2 × R0.3 × 0° × 10 | | | | – | 14.2 | | | | | ▲ | 14 | 7,820 |
| 3102015 | 2 × R0.3 × 0° × 12 | | | | – | 16.2 | | | | | ▲ | 13 | 7,820 |
| 3102016 | 2 × R0.3 × 0° × 16 | 60 | | | – | 20.2 | | | | | ▲ | 14 | 7,820 |
| 3102017 | 2 × R0.3 × 0° × 20 | | | | – | 24.2 | | | | | ▲ | 14 | 7,820 |
| 3102018 | 2 × R0.3 × 0° × 25 | 70 | | | – | 29.2 | | | | | ▲ | 17 | 7,820 |
| 3102041 | 2 × R0.3 × 1° × 15 | 60 | | | 2.43 | 18.4 | | | 2 | | △ | 14 | 10,700 |
| 3102042 | 2 × R0.3 × 1° × 20 | | | | 2.58 | 23.1 | | | | | △ | 13 | 10,700 |
| 3102043 | 2 × R0.3 × 1° × 25 | 70 | | | 2.76 | 27.8 | | | | | △ | 15 | 12,700 |
| 3102048 | 2 × R0.3 × 3° × 20 | 60 | | | 3.87 | 20.4 | | | | | △ | 14 | 10,700 |
| 3102019 | 2 × R0.5 × 0° × 8 | 50 | | | – | 12.2 | | | 1 | | ▲ | 14 | 7,820 |
| 3102020 | 2 × R0.5 × 0° × 10 | | | | – | 14.2 | | | | | ▲ | 14 | 7,820 |
| 3102021 | 2 × R0.5 × 0° × 12 | | | | – | 16.2 | | | | | ▲ | 13 | 7,820 |
| 3102022 | 2 × R0.5 × 0° × 16 | 60 | | | – | 20.2 | | | | | ▲ | 13 | 7,820 |
| 3102023 | 2 × R0.5 × 0° × 20 | | | | – | 24.2 | | | | | ▲ | 13 | 7,820 |
| 3102024 | 2 × R0.5 × 0° × 25 | 70 | | | – | 29.2 | | | | | ▲ | 16 | 7,820 |
| 3102050 | 2 × R0.5 × 1° × 20 | 60 | | | 2.58 | 23.1 | | | 2 | | △ | 15 | 10,700 |
| 3102052 | 2 × R0.5 × 1° × 30 | 80 | | | 2.93 | 32.5 | | | | | △ | 18 | 14,400 |
| 3102053 | 2 × R0.5 × 1° × 40 | | | | 3.27 | 41.8 | | | | | △ | 17 | 19,200 |
| 3102054 | 2 × R0.5 × 1° × 50 | 100 | | | 3.62 | 51.1 | | | | | △ | 20 | 21,300 |
| 3102055 | 2 × R0.5 × 3° × 15 | 60 | | | 3.37 | 16.5 | | | | | △ | 14 | 10,700 |
| 3102056 | 2 × R0.5 × 3° × 20 | | | | 3.87 | 20.4 | | | | | △ | 14 | 10,700 |
| 3102501 | 2.5 × R0.2 × 0° × 10 | 50 | 2.2 | 2.4 | – | 13.2 | | | 1 | B | ▲ | 14 | 8,070 |
| 3102502 | 2.5 × R0.2 × 0° × 20 | 60 | | | – | 23.2 | | | | | ▲ | 14 | 8,340 |

▲=この製品は、AE-CPR2-H(P.406)、AE-CPR4-H(P.411)へ切り替え生産させていただいております。(在庫をご確認下さい。)

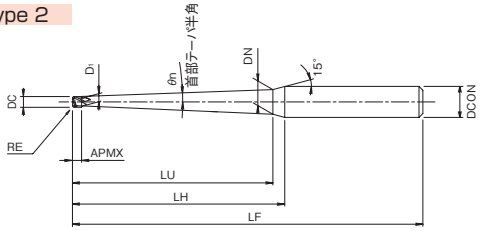
▲=These products have been stopped producing and replaced by AE-CPR2-H (p.406), AE-CPR4-H (p.411)

次ページへ 外径 DC 2.5~4 NEXT

Type 1




Type 2



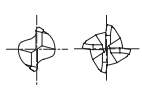

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# WXSコート超硬ラジアスエンドミル高精度タイプ
**WXS Coated High-precision Carbide End Mill with Corner Radius**

## WXS-CPR

切削条件 Cutting Conditions | **P615**



Type 1



Type 2





金型の形状加工専用高精度ブルノーズ（ラジアス）エンドミルです。耐熱性に優れるWXSコーティングにより焼入れ鋼の高速切削も可能としました。

Radius nose end mill specially designed for precision Mold milling. WXS coating with heat resistant character makes high speed milling on heat treated steels.

CAD

CARBIDE | WXS | R ±0.005 | DC<0.5 0～-0.01 / 0.5≦DC 0～-0.015 | SHRINK FIT | 30°

前ページより FROM 外径 DC 2～2.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | 全長 LF | 刃長 APMX | 首径 $D_1$ | 首元径 DN | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3102503 | 2.5 × R0.2 × 0° × 30 | 70 | 2.2 | 2.4 | – | 33.2 | 4 | 2 | 1 | B | ▲ | 14 | 8,560 |
| 3102504 | 2.5 × R0.5 × 0° × 10 | 50 | | | – | 13.2 | | | | | ▲ | 14 | 8,070 |
| 3102505 | 2.5 × R0.5 × 0° × 20 | 60 | | | – | 23.2 | | | | | ▲ | 14 | 8,340 |
| 3102506 | 2.5 × R0.5 × 0° × 30 | 70 | | | – | 33.2 | | | | | ▲ | 17 | 8,560 |
| 3103001 | 3 × R0.2 × 0° × 8 | 60 | 2.5 | 2.85 | – | 13.9 | 6 | | 1 | A | ▲ | 24 | 10,700 |
| 3103002 | 3 × R0.2 × 0° × 12 | | | | – | 17.9 | | | | | ▲ | 23 | 10,700 |
| 3103003 | 3 × R0.2 × 0° × 16 | | | | – | 21.9 | | | | | ▲ | 21 | 11,000 |
| 3103004 | 3 × R0.2 × 0° × 20 | 70 | | | – | 25.9 | | | | | ▲ | 24 | 11,000 |
| 3103005 | 3 × R0.2 × 0° × 25 | | | | – | 30.9 | | | | | ▲ | 23 | 11,400 |
| 3103006 | 3 × R0.2 × 0° × 30 | | | | – | 35.9 | | | | | ▲ | 21 | 11,900 |
| 3103007 | 3 × R0.2 × 0° × 35 | 80 | | | – | 40.9 | | | | | ▲ | 23 | 11,900 |
| 3103020 | 3 × R0.2 × 1° × 15 | 60 | | | 3.4 | 20.3 | | | 2 | | △ | 22 | 16,000 |
| 3103021 | 3 × R0.2 × 1° × 20 | | | | 3.55 | 25 | | | | | △ | 21 | 16,000 |
| 3103022 | 3 × R0.2 × 1° × 30 | 80 | | | 3.9 | 34.4 | | | | | △ | 27 | 16,000 |
| 3103023 | 3 × R0.2 × 1° × 40 | | | | 4.24 | 43.8 | | | | | △ | 24 | 17,200 |
| 3103024 | 3 × R0.2 × 1° × 50 | 100 | | | 4.59 | 53.1 | | | | | △ | 34 | 19,800 |
| 3103025 | 3 × R0.2 × 1° × 60 | 110 | | | 4.94 | 62.5 | | | | | △ | 36 | 21,300 |
| 3103008 | 3 × R0.3 × 0° × 12 | 60 | | | – | 17.9 | | | 1 | | ▲ | 23 | 10,700 |
| 3103009 | 3 × R0.3 × 0° × 16 | | | | – | 21.9 | | | | | ▲ | 21 | 11,000 |
| 3103010 | 3 × R0.3 × 0° × 20 | 70 | | | – | 25.9 | | | | | ▲ | 24 | 11,000 |
| 3103011 | 3 × R0.3 × 0° × 25 | | | | – | 30.9 | | | | | ▲ | 23 | 11,400 |
| 3103012 | 3 × R0.3 × 0° × 30 | | | | – | 35.9 | | | | | ▲ | 21 | 11,900 |
| 3103013 | 3 × R0.3 × 0° × 35 | 80 | | | – | 40.9 | | | | | ▲ | 24 | 11,900 |
| 3103014 | 3 × R0.5 × 0° × 12 | 60 | | | – | 17.9 | | | | | ▲ | 23 | 10,700 |
| 3103015 | 3 × R0.5 × 0° × 16 | | | | – | 21.9 | | | | | ▲ | 22 | 11,000 |
| 3103016 | 3 × R0.5 × 0° × 20 | 70 | | | – | 25.9 | | | | | ▲ | 23 | 11,000 |
| 3103017 | 3 × R0.5 × 0° × 25 | | | | – | 30.9 | | | | | ▲ | 23 | 11,400 |
| 3103018 | 3 × R0.5 × 0° × 30 | | | | – | 35.9 | | | | | ▲ | 23 | 11,900 |
| 3103019 | 3 × R0.5 × 0° × 35 | 80 | | | – | 40.9 | | | | | ▲ | 23 | 11,900 |
| 3103026 | 3 × R0.5 × 1° × 15 | 60 | | | 3.4 | 20.3 | | | 2 | | △ | 22 | 16,000 |
| 3103027 | 3 × R0.5 × 1° × 20 | | | | 3.55 | 25 | | | | | △ | 21 | 16,000 |
| 3103029 | 3 × R0.5 × 1° × 40 | 80 | | | 4.24 | 43.8 | | | | | △ | 24 | 17,200 |
| 3103030 | 3 × R0.5 × 1° × 50 | 100 | 2.5 | 2.85 | 4.59 | 53.1 | | | | | △ | 34 | 19,800 |
| 3103031 | 3 × R0.5 × 1° × 60 | 110 | | | 4.94 | 62.5 | | | | | △ | 36 | 21,300 |
| 3104007 | 4 × R0.3 × 0° × 16 | 60 | 4 | 3.84 | – | 20.1 | 4 | 4 | 1 | B | ▲ | 23 | 13,000 |

▲＝この製品は、AE-CPR2-H(P.406)、AE-CPR4-H(P.411)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-CPR2-H (p.406), AE-CPR4-H (p.411)

次ページへ 外径 DC 4 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| WXS-CPR | ◎ | | ◎ | ◎ | ◎ | ◎ | ◎ | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXSコート超硬ラジアスエンドミル高精度タイプ
**WXS Coated High-precision Carbide End Mill with Corner Radius**

## WXS-CPR

切削条件 Cutting Conditions | P615

Type 1



Type 2



金型の形状加工専用高精度ブルノーズ(ラジアス)エンドミルです。耐熱性に優れるWXSコーティングにより焼入れ鋼の高速切削も可能としました。

Radius nose end mill specially designed for precision Mold milling. WXS coating with heat resistant character makes high speed milling on heat treated steels.

CAD

CARBIDE | WXS | R ± 0.005 | DC<0.5 0~-0.01, 0.5≦DC 0~-0.015 | SHRINK FIT | 30°

前ページより FROM 外径 DC 2.5~4

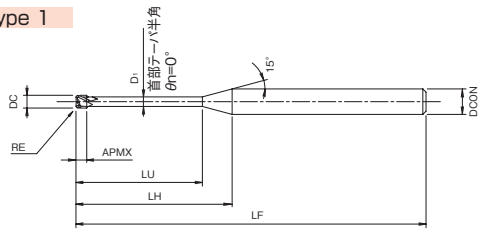
(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | 全長 LF | 刃長 APMX | 首径 $D_1$ | 首元径 DN | LH | シャンク径 DCON | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3104008 | 4 × R0.3 × 0° × 20 | 60 | 4 | 3.84 | – | 24.1 | 6 | 4 | 1 | B | ▲ | 24 | 13,000 |
| 3104010 | 4 × R0.3 × 0° × 30 | 70 | | | – | 34.1 | | | | | ▲ | 24 | 13,000 |
| 3104015 | 4 × R0.5 × 0° × 25 | | | | – | 29.1 | | | | | ▲ | 25 | 13,000 |
| 3104017 | 4 × R0.5 × 0° × 40 | 90 | | | – | 44.1 | | | | | ▲ | 33 | 18,700 |
| 3104021 | 4 × R1 × 0° × 25 | 70 | | | – | 29.1 | | | | | ▲ | 25 | 13,000 |
| 3104024 | 4 × R1 × 0° × 50 | 100 | | | – | 54.1 | | | | | △ | 34 | 20,800 |

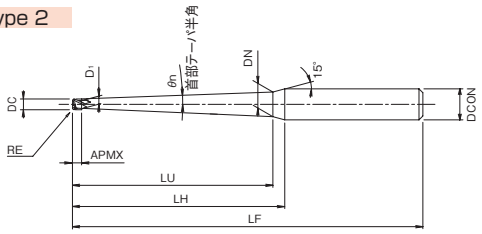
▲=この製品は、AE-CPR2-H(P.406)、AE-CPR4-H(P.411)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲=These products have been stopped producing and replaced by AE-CPR2-H (p.406), AE-CPR4-H (p.411)

Type 1




Type 2




**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# WXSコート3枚刃超硬ペンシルネックラジアスエンドミル

**WXS Coated 3-flute Pencil Neck Carbide End Mill with Corner Radius**

## PHX-PC-DFR

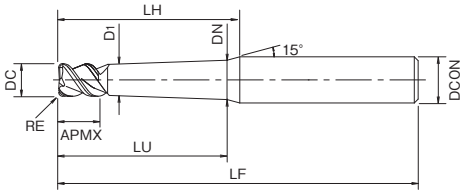
切削条件 Cutting Conditions | P575

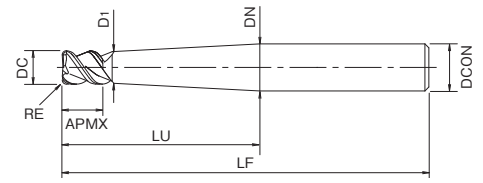
Type 1



Type 2






CARBIDE | WXS | R ±0.03 | 0〜-0.015 | SHRINK FIT | 55°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 有効勾配角 α | 外径×コーナ半径×首部テーパ(半角)×首下長 DC × RE × θn × LU | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 D1 | 首元径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長 (Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3097222 | 0.29° | 2 × R0.5 × 0.5° × 15 | 22.9 | 60 | 3 | 6 | 1.95 | 2.15 | 5.16° | 15.21 | 15.74 | 16.31 | 16.92 | 18.29 | 3 | 1 | B | 21 | 17,500 |
| 3097223 | 0.36° | 2 × R0.5 × 0.5° × 20 | 27.7 | | | | | 2.25 | 4.24° | 20.19 | 20.89 | 21.64 | 22.46 | 24.28 | | | | 22 | 17,900 |
| 3097224 | 0.39° | 2 × R0.5 × 0.5° × 25 | 32.6 | 70 | | | | 2.33 | 3.6° | 25.2 | 26.08 | 27.02 | 28.03 | 30.31 | | | | 25 | 18,200 |
| 3097225 | 0.41° | 2 × R0.5 × 0.5° × 30 | 37.4 | | | | | 2.42 | 3.13° | 30.19 | 31.25 | 32.38 | 33.59 | 36.32 | | | | 25 | 18,700 |
| 3097226 | 0.42° | 2 × R0.5 × 0.5° × 35 | 42.2 | 80 | | | | 2.51 | 2.76° | 35.19 | 36.42 | 37.73 | 39.15 | — | | | | 25 | 20,300 |
| 3097227 | 0.43° | 2 × R0.5 × 0.5° × 40 | 47.1 | | | | | 2.6 | 2.48° | 40.18 | 41.58 | 43.09 | 44.7 | — | | | | 25 | 20,800 |
| 3097241 | 0.59° | 2 × R0.5 × 1° × 10 | 17.8 | | | | | 2.19 | 6.67° | 9.08 | 10.31 | 10.69 | 11.09 | 11.99 | | | | 25 | 17,200 |
| 3097242 | 0.73° | 2 × R0.5 × 1° × 15 | 22.5 | 60 | | | | 2.37 | 5.25° | 8.83 | 15.3 | 15.85 | 16.45 | 17.78 | | | | 23 | 17,500 |
| 3097243 | 0.8° | 2 × R0.5 × 1° × 20 | 27.1 | | | | | 2.54 | 4.33° | 8.93 | 20.31 | 21.04 | 21.83 | 23.61 | | | | 22 | 17,900 |
| 3097244 | 0.84° | 2 × R0.5 × 1° × 25 | 31.8 | 70 | | | | 2.72 | 3.68° | 8.83 | 25.3 | 26.21 | 27.2 | 29.4 | | | | 26 | 18,200 |
| 3097245 | 0.87° | 2 × R0.5 × 1° × 30 | 36.5 | | | | | 2.89 | 3.2° | 8.9 | 30.31 | 31.4 | 32.58 | 35.22 | | | | 27 | 18,700 |
| 3097246 | 0.89° | 2 × R0.5 × 1° × 35 | 41.2 | 80 | | | | 3.07 | 2.83° | 8.83 | 35.3 | 36.57 | 37.94 | — | | | | 26 | 20,300 |
| 3097247 | 0.9° | 2 × R0.5 × 1° × 40 | 45.8 | | | | | 3.24 | 2.54° | 8.88 | 40.31 | 41.76 | 43.33 | — | | | | 25 | 20,800 |
| 3097248 | 0.91° | 2 × R0.5 × 1° × 45 | 50.5 | 100 | | | | 3.42 | 2.3° | 8.83 | 45.3 | 46.93 | 48.69 | — | | | | 32 | 22,400 |
| 3097249 | 0.92° | 2 × R0.5 × 1° × 50 | 55.2 | | | | | 3.59 | 2.11° | 8.87 | 50.31 | 52.12 | 54.08 | — | | | | 30 | 22,700 |
| 3097250 | 0.92° | 2 × R0.5 × 1° × 60 | 64.6 | 110 | | | | 3.92 | 1.8° | 8.98 | 60.34 | 62.52 | — | — | | | | 33 | 25,100 |
| 3097251 | 1.37° | 2 × R0.5 × 1.5° × 40 | 44.6 | 80 | | | | 3.89 | 2.61° | 5.93 | 11.83 | 40.42 | 41.93 | — | | | | 26 | 20,800 |
| 3097252 | 1.4° | 2 × R0.5 × 1.5° × 60 | 62.8 | 110 | | | | 4.91 | 1.85° | 5.97 | 12.09 | 60.48 | — | — | | | | 35 | 25,100 |
| 3097253 | 1.41° | 2 × R0.5 × 1.5° × 81.6 | — | 120 | | | | 6 | 1.41° | 6 | 12.31 | — | — | — | | 2 | | 40 | 30,000 |
| 3097262 | 1.92° | 2 × R0.5 × 2° × 60.3 | — | 100 | | | | | 1.9° | 4.92 | 7.33 | 14.31 | — | — | | | | 26 | 23,600 |
| 3097263 | 1.91° | 2 × R0.5 × 2° × 80 | 82.1 | 120 | | 8 | | 7.29 | 2.12° | 4.97 | 7.49 | 15.2 | 80.63 | — | | 1 | | 55 | 30,000 |
| 3097273 | 2.81° | 2 × R0.5 × 3° × 41.2 | — | 100 | | 6 | | 6 | 2.78° | 4.16 | 5.18 | 6.86 | 10.17 | — | | 2 | | 26 | 22,200 |
| 3097281 | 0.46° | 2.5 × R0.8 × 0.75° × 16 | 22.8 | | 3.8 | | 2.45 | 2.74 | 4.54° | 16.07 | 16.63 | 17.23 | 17.88 | 19.33 | | | | 26 | 18,500 |
| 3097282 | 0.52° | 2.5 × R0.8 × 0.75° × 20 | 26.6 | 70 | | | | 2.85 | 3.87° | 19.87 | 20.69 | 21.44 | 22.24 | 24.05 | | | | 24 | 18,800 |
| 3097283 | 0.56° | 2.5 × R0.8 × 0.75° × 24 | 30.4 | | | | | 2.95 | 3.38° | 19.74 | 24.77 | 25.66 | 26.63 | 28.79 | | | | 23 | 19,000 |
| 3097284 | 0.6° | 2.5 × R0.8 × 0.75° × 30 | 36.1 | 80 | | | | 3.11 | 2.84° | 18.83 | 30.87 | 31.98 | 33.18 | — | | | | 29 | 19,700 |
| 3097285 | 0.64° | 2.5 × R0.8 × 0.75° × 40 | 45.6 | | | | | 3.37 | 2.24° | 18.41 | 41.05 | 42.53 | 44.12 | — | | | | 26 | 20,300 |
| 3097286 | 0.66° | 2.5 × R0.8 × 0.75° × 50 | 55.1 | 100 | | | | 3.63 | 1.85° | 18.18 | 51.22 | 53.07 | — | — | | | | 31 | 21,900 |
| 3097291 | 1.01° | 2.5 × R0.8 × 1.5° × 16 | 22.3 | | | | | 3.04 | 4.65° | 7.56 | 16.03 | 16.61 | 17.23 | 18.63 | | | | 26 | 18,500 |
| 3097292 | 1.11° | 2.5 × R0.8 × 1.5° × 20 | 25.9 | 70 | | | | 3.25 | 3.99° | 7.44 | 16.42 | 20.61 | 21.38 | 23.12 | | | | 25 | 18,800 |
| 3097293 | 1.18° | 2.5 × R0.8 × 1.5° × 24 | 29.5 | | | | | 3.46 | 3.49° | 7.37 | 15.9 | 24.61 | 25.53 | 27.6 | | | | 24 | 19,000 |
| 3097294 | 1.25° | 2.5 × R0.8 × 1.5° × 30 | 34.9 | 80 | | | | 3.77 | 2.94° | 7.33 | 15.61 | 30.62 | 31.77 | — | | | | 30 | 19,700 |
| 3097295 | 1.31° | 2.5 × R0.8 × 1.5° × 40 | 43.9 | | | | | 4.3 | 2.33° | 7.26 | 15.08 | 40.6 | 42.13 | — | | | | 36 | 20,300 |
| 3097296 | 1.35° | 2.5 × R0.8 × 1.5° × 50 | 52.9 | 100 | | 6 | | 4.82 | 1.93° | 7.24 | 14.95 | 50.61 | — | — | | | | 34 | 21,900 |
| 3097297 | 1.38° | 2.5 × R0.8 × 1.5° × 60 | 62 | | | | | 5.34 | 1.64° | 7.22 | 14.86 | 60.62 | — | — | | 1 | | 33 | 22,500 |
| 3097314 | 0.79° | 3 × R0.5 × 1° × 40 | 44.3 | 80 | 4.5 | | 2.9 | 4.09 | 1.98° | 15.61 | 40.61 | 42.07 | — | — | | | | 24 | 18,700 |
| 3097316 | 0.86° | 3 × R0.5 × 1° × 60 | 63 | 100 | | | | 4.79 | 1.39° | 15.26 | 60.6 | — | — | — | | | | 31 | 20,800 |
| 3097321 | 0.25° | 3 × R0.8 × 0.5° × 20 | 26 | | | | | 3.17 | 3.4° | 20.34 | 21.05 | 21.81 | 22.63 | 24.46 | | | | 28 | 17,700 |
| 3097324 | 0.36° | 3 × R0.8 × 0.5° × 40 | 45.4 | | | | | 3.5 | 1.93° | 40.38 | 41.78 | 43.29 | — | — | | | | 23 | 18,700 |
| 3097341 | 0.66° | 3 × R0.8 × 1° × 20 | 25.5 | 80 | | | | 3.44 | 3.47° | 14.77 | 20.51 | 21.25 | 22.05 | 23.84 | | | | 28 | 17,700 |
| 3097342 | 0.73° | 3 × R0.8 × 1° × 25 | 30.1 | | | | | 3.62 | 2.92° | 14.61 | 25.5 | 26.42 | 27.41 | — | | | | 27 | 17,900 |
| 3097343 | 0.78° | 3 × R0.8 × 1° × 30 | 34.8 | | | | | 3.79 | 2.52° | 14.73 | 30.51 | 31.61 | 32.8 | — | | | | 27 | 18,100 |
| 3097344 | 0.83° | 3 × R0.8 × 1° × 40 | 44.2 | | | | | 4.14 | 1.98° | 14.72 | 40.51 | 41.97 | — | — | | | | 24 | 18,700 |
| 3097345 | 0.87° | 3 × R0.8 × 1° × 50 | 53.5 | 100 | | | | 4.49 | 1.63° | 14.71 | 50.51 | 52.33 | — | — | | | | 33 | 20,300 |
| 3097346 | 0.89° | 3 × R0.8 × 1° × 60 | 62.9 | | | | | 4.84 | 1.39° | 14.7 | 60.5 | — | — | — | | | | 35 | 20,800 |
| 3097347 | 0.9° | 3 × R0.8 × 1° × 80 | 81.4 | 120 | | | | 5.48 | 1.07° | 15.18 | 80.62 | — | — | — | | | | 38 | 21,700 |
| 3097348 | 0.92° | 3 × R0.8 × 1° × 100 | 104.1 | 150 | | 8 | | 6.19 | 1.39° | 15 | 100.6 | — | — | — | | | | 72 | 30,200 |
| 3097356 | 1.43° | 3 × R0.8 × 1.5° × 60.8 | — | 100 | | 6 | | 6 | 1.42° | 9.25 | 17.26 | — | — | — | | 2 | | 35 | 20,900 |

次ページへ
外径 DC 3〜6 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXSコート3枚刃超硬ペンシルネックラジアスエンドミル

**WXS Coated 3-flute Pencil Neck Carbide End Mill with Corner Radius**

## PHX-PC-DFR

切削条件 Cutting Conditions | P575

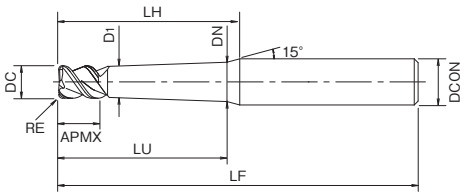
Type 1



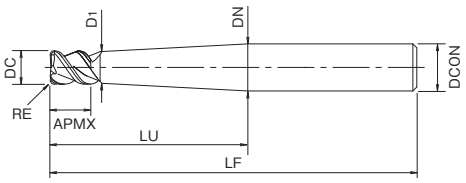
Type 2



Type 1




Type 2




CAD

CARBIDE | WXS | R ±0.03 | 0〜-0.015 | SHRINK FIT | 55°

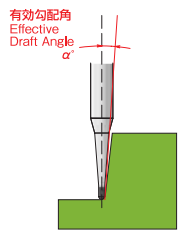
前ページより FROM 外径 DC 2〜3

（単位:mm）(Unit:mm)

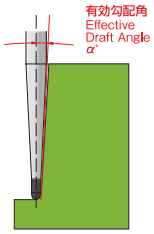
| ツール No. EDP No. | 有効勾配角 α | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 D1 | 首元径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長 (Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3097365 | 1.88° | 3×R0.8×2°×46.5 | — | 100 | 4.5 | 6 | 2.9 | 6 | 1.85° | 7.67 | 11.11 | 20.16 | — | — | 3 | 2 | B | ● | 37 | 20,100 |
| 3097368 | 1.81° | 3×R0.8×2°×80 | — | 150 | | 8 | | 8 | 1.79° | 8.06 | 12.38 | 26.62 | — | — | | | | ● | 90 | 30,200 |
| 3097374 | 2.74° | 3×R0.8×3°×32.1 | — | 100 | | | | 6 | 2.68° | 6.38 | 7.82 | 10.1 | 14.25 | — | | | | ● | 40 | 19,500 |
| 3097401 | 0.67° | 4×R0.5×1°×30 | 33.1 | 80 | 6 | 6 | 3.9 | 4.69 | 1.77° | 19.24 | 30.71 | 31.82 | — | — | | 1 | | ● | 29 | 18,500 |
| 3097402 | 0.83° | 4×R0.5×1°×60 | 60.9 | 100 | | | | 5.73 | 0.95° | 18.46 | — | — | — | — | | | | ● | 37 | 20,900 |
| 3097421 | 0.28° | 4×R1×0.5°×25 | 29 | 80 | | | | 4.23 | 2.03° | 25.39 | 26.28 | 27.23 | 28.25 | — | | | | ● | 29 | 18,200 |
| 3097422 | 0.31° | 4×R1×0.5°×30 | 33.9 | | | | | 4.32 | 1.73° | 30.39 | 31.45 | 32.58 | — | — | | | | ● | 28 | 18,500 |
| 3097423 | 0.34° | 4×R1×0.5°×35 | 38.7 | | | | | 4.41 | 1.51° | 35.38 | 36.62 | 37.94 | — | — | | | | ● | 27 | 18,700 |
| 3097424 | 0.36° | 4×R1×0.5°×40 | 43.5 | | | | | 4.49 | 1.34° | 40.4 | 41.8 | — | — | — | | | | ● | 26 | 18,800 |
| 3097425 | 0.38° | 4×R1×0.5°×45 | 48.4 | | | | | 4.58 | 1.21° | 45.39 | 46.97 | — | — | — | | | | ● | 25 | 19,000 |
| 3097426 | 0.39° | 4×R1×0.5°×50 | 53.2 | 100 | | | | 4.67 | 1.1° | 50.39 | 52.14 | — | — | — | | | | ● | 35 | 20,400 |
| 3097441 | 0.73° | 4×R1×1°×30 | 33 | 80 | | | | 4.74 | 1.78° | 17.67 | 30.61 | 31.71 | — | — | | | | ● | 27 | 18,500 |
| 3097442 | 0.8° | 4×R1×1°×40 | 42.4 | | | | | 5.09 | 1.38° | 17.67 | 40.61 | — | — | — | | | | ● | 27 | 18,800 |
| 3097443 | 0.84° | 4×R1×1°×50 | 51.8 | 100 | | | | 5.44 | 1.13° | 17.67 | 50.6 | — | — | — | | | | ● | 37 | 20,400 |
| 3097444 | 0.95° | 4×R1×1°×61.3 | — | | | | | 6 | 0.94° | 15.98 | — | — | — | — | | 2 | | ● | 37 | 20,900 |
| 3097445 | 0.88° | 4×R1×1°×80 | 83.6 | 120 | | 8 | | 6.44 | 1.39° | 18.13 | 80.7 | — | — | — | | 1 | | ● | 58 | 30,200 |
| 3097453 | 1.39° | 4×R1×1.5°×42.2 | — | 80 | | 6 | | 6 | 1.36° | 11.05 | 19.4 | — | — | — | | 2 | | ● | 29 | 18,800 |
| 3097454 | 1.44° | 4×R1×1.5°×80.4 | — | 120 | | 8 | | 8 | 1.43° | 11.44 | 21.32 | — | — | — | | | | ● | 70 | 30,200 |
| 3097455 | 1.38° | 4×R1×1.5°×100 | 103 | 150 | | 10 | | 8.76 | 1.68° | 11.98 | 24.43 | 100.98 | — | — | | 1 | | ● | 113 | 36,400 |
| 3097456 | 1.39° | 4×R1×1.5°×120 | 120.8 | 160 | | | | 9.78 | 1.43° | 12 | 24.57 | — | — | — | | | | ● | 122 | 43,900 |
| 3097461 | 1.81° | 4×R1×2°×32.6 | — | 80 | | 6 | | 6 | 1.76° | 9.33 | 13.03 | 21.59 | — | — | | 2 | | ● | 30 | 18,500 |
| 3097462 | 1.9° | 4×R1×2°×61.3 | — | 120 | | 8 | | 8 | 1.87° | 9.61 | 13.89 | 25.03 | — | — | | | | ● | 71 | 28,100 |
| 3097472 | 2.78° | 4×R1×3°×42.2 | — | 100 | | | | | 2.72° | 8.14 | 9.95 | 12.8 | 17.95 | — | | | | ● | 62 | 24,700 |
| 3097602 | 0.93° | 6×R0.8×1°×62.3 | — | 130 | 9 | | 5.9 | | 0.92° | 20.71 | — | — | — | — | | | | ● | 87 | 27,500 |
| 3097603 | 0.89° | 6×R0.8×1°×120 | 120.9 | 160 | | 10 | | 9.72 | 0.96° | 24.16 | — | — | — | — | | 1 | | ● | 138 | 39,000 |
| 3097627 | 0.39° | 6×R1.5×0.5°×60 | 63 | 130 | | 8 | | 6.79 | 0.93° | 60.49 | — | — | — | — | | | | ● | 81 | 27,500 |
| 3097641 | 0.73° | 6×R1.5×1°×40 | 42.6 | 100 | | | | 6.98 | 1.37° | 23.79 | 40.83 | — | — | — | | | | ● | 65 | 23,600 |

次ページへ 外径 DC 6〜12 NEXT

Type 1

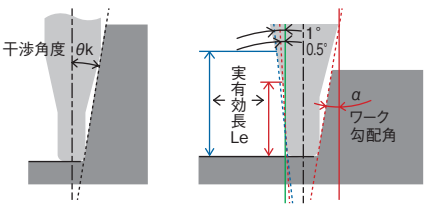



Type 2




### ■ワーク勾配角αに対する実有効長 (Le)

Effective Neck length (Le) depending on Inclined Angle (α) of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| PHX-PC-DFR | ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXSコート3枚刃超硬ペンシルネックラジアスエンドミル

**WXS Coated 3-flute Pencil Neck Carbide End Mill with Corner Radius**

## PHX-PC-DFR

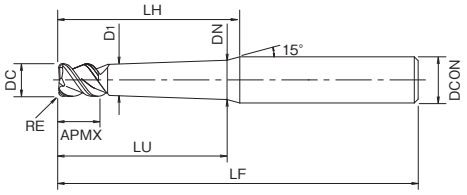
切削条件 Cutting Conditions **P575**

Type 1

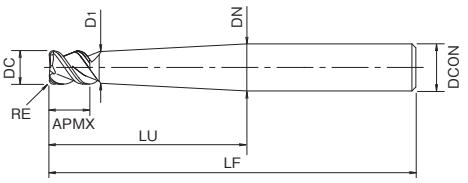


Type 2






Type 2




CARBIDE | WXS | R ±0.03 | 0〜-0.015 | SHRINK FIT | 55°

CAD

前ページより FROM 外径 DC 3〜6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 有効勾配角 α | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 D1 | 首元径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長 (Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3097642 | 0.79° | 6 × R1.5 × 1° × 50 | 51.9 | 100 | 9 | 8 | 5.9 | 7.33 | 1.12° | 23.75 | 50.82 | — | — | — | 3 | 1 | ● | 64 | 24,600 |
| 3097643 | 0.94° | 6 × R1.5 × 1° × 62.3 | — | 130 | | | | 8 | 0.92° | 20.71 | — | — | — | — | | 2 | ● | 86 | 27,500 |
| 3097644 | 0.85° | 6 × R1.5 × 1° × 80 | 83.8 | 120 | | 10 | | 8.33 | 1.38° | 24.33 | 80.92 | — | — | — | | 1 | ● | 96 | 31,000 |
| 3097645 | 0.88° | 6 × R1.5 × 1° × 100 | 102.5 | 150 | | | | 9.03 | 1.13° | 24.17 | 100.92 | — | — | — | | | ● | 129 | 34,800 |
| 3097646 | 0.9° | 6 × R1.5 × 1° × 120 | 120.9 | 160 | | | | 9.72 | 0.96° | 24.16 | — | — | — | — | | | ● | 138 | 39,000 |
| 3097651 | 1.37° | 6 × R1.5 × 1.5° × 43.2 | — | 100 | | 8 | | 8 | 1.33° | 14.85 | 24.63 | — | — | — | | 2 | ● | 68 | 23,800 |
| 3097653 | 1.43° | 6 × R1.5 × 1.5° × 81.4 | — | 130 | | 10 | | 10 | 1.41° | 15.56 | 28.07 | — | — | — | | | ● | 117 | 35,400 |
| 3097654 | 1.36° | 6 × R1.5 × 1.5° × 120 | 121.1 | 160 | | 12 | | 11.63 | 1.43° | 16.52 | 33.78 | — | — | — | | 1 | ● | 179 | 43,900 |
| 3097661 | 1.78° | 6 × R1.5 × 2° × 33.6 | — | 100 | | 8 | | 8 | 1.71° | 12.79 | 17.21 | 26.32 | — | — | | 2 | ● | 70 | 23,500 |
| 3097662 | 1.88° | 6 × R1.5 × 2° × 62.3 | — | 130 | | 10 | | 10 | 1.84° | 13.32 | 18.86 | 32.27 | — | — | | | ● | 125 | 33,600 |
| 3097814 | 0.92° | 8 × R1 × 1° × 63.3 | — | 120 | 12 | | 7.9 | | 0.91° | 25.18 | — | — | — | — | | | ● | 125 | 35,900 |
| 3097817 | 0.96° | 8 × R1 × 1° × 120.6 | — | 180 | | 12 | | 12 | 0.96° | 27.24 | — | — | — | — | | | ● | 256 | 55,400 |
| 3097826 | 0.4° | 8 × R2 × 0.5° × 80 | 82.6 | 150 | | 10 | | 9.09 | 0.71° | 80.59 | — | — | — | — | | 1 | ● | 151 | 36,400 |
| 3097841 | 0.73° | 8 × R2 × 1° × 50 | 52.3 | 120 | | | | 9.23 | 1.12° | 29.64 | 51.02 | — | — | — | | | ● | 123 | 31,600 |
| 3097842 | 0.93° | 8 × R2 × 1° × 63.3 | — | 150 | | | | 10 | 0.91° | 25.18 | — | — | — | — | | 2 | ● | 161 | 35,900 |
| 3097844 | 0.97° | 8 × R2 × 1° × 120.6 | — | 180 | | 12 | | 12 | 0.96° | 27.24 | — | — | — | — | | | ● | 253 | 55,400 |
| 3097851 | 1.36° | 8 × R2 × 1.5° × 44.2 | — | 120 | | 10 | | 10 | 1.3° | 18.48 | 29.12 | — | — | — | | | ● | 128 | 31,300 |
| 3097853 | 1.42° | 8 × R2 × 1.5° × 82.4 | — | 150 | | 12 | | 12 | 1.4° | 19.59 | 34.24 | — | — | — | | | ● | 206 | 46,600 |
| 3097855 | 1.33° | 8 × R2 × 1.5° × 120 | 125.4 | 160 | | 16 | | 13.49 | 1.84° | 21.02 | 42.8 | 121.64 | — | — | | 1 | ● | 284 | 81,800 |
| 3097856 | 1.37° | 8 × R2 × 1.5° × 160 | 161.3 | 200 | | | | 15.57 | 1.43° | 21 | 42.68 | — | — | — | | | ● | 396 | 98,900 |
| 3097861 | 1.76° | 8 × R2 × 2° × 34.6 | — | 120 | | 10 | | 10 | 1.66° | 16.1 | 20.95 | 29.97 | — | — | | 2 | ● | 131 | 30,800 |
| 3097862 | 1.87° | 8 × R2 × 2° × 63.3 | — | | | 12 | | 12 | 1.81° | 16.95 | 23.53 | 38.44 | — | — | | | ● | 167 | 40,100 |
| 3098026 | 0.4° | 10 × R2 × 0.5° × 100 | 102 | 150 | 15 | 12 | 9.9 | 11.38 | 0.57° | 100.7 | — | — | — | — | | 1 | ● | 220 | 46,300 |
| 3098041 | 0.92° | 10 × R2 × 1° × 64.3 | — | 120 | | | | 12 | 0.9° | 29.39 | — | — | — | — | | 2 | ● | 178 | 39,100 |
| 3098042 | 0.8° | 10 × R2 × 1° × 80 | 88 | 160 | | 16 | | 12.17 | 1.98° | 35.71 | 81.24 | 84.17 | — | — | | 1 | ● | 349 | 69,500 |
| 3098043 | 0.84° | 10 × R2 × 1° × 100 | 106.7 | | | | | 12.87 | 1.63° | 35.69 | 101.23 | 104.89 | — | — | | | ● | 327 | 73,300 |
| 3098044 | 0.87° | 10 × R2 × 1° × 120 | 125.4 | 180 | | | | 13.57 | 1.38° | 35.68 | 121.23 | — | — | — | | | ● | 372 | 81,800 |
| 3098045 | 0.88° | 10 × R2 × 1° × 140 | 144.1 | 200 | | | | 14.26 | 1.2° | 35.76 | 141.25 | — | — | — | | | ● | 426 | 90,500 |
| 3098046 | 0.9° | 10 × R2 × 1° × 160 | 162.7 | 220 | | | | 14.96 | 1.07° | 35.74 | 161.24 | — | — | — | | | ● | 478 | 98,900 |
| 3098051 | 1.33° | 10 × R2 × 1.5° × 45.2 | — | 120 | | 12 | | 12 | 1.27° | 21.95 | 33.01 | — | — | — | | 2 | ● | 183 | 37,700 |
| 3098052 | 1.19° | 10 × R2 × 1.5° × 80 | 85.9 | 140 | | 16 | | 13.24 | 2.02° | 25.66 | 52.86 | 81.96 | 85.03 | — | | 1 | ● | 304 | 69,300 |
| 3098053 | 1.44° | 10 × R2 × 1.5° × 121.6 | — | 180 | | | | 16 | 1.42° | 24.1 | 42.95 | — | — | — | | | ● | 413 | 82,300 |
| 3098061 | 1.7° | 10 × R2 × 2° × 35.6 | — | 120 | | 12 | | 12 | 1.61° | 19.28 | 24.3 | 32.87 | — | — | | 2 | ● | 186 | 37,200 |
| 3098064 | 1.89° | 10 × R2 × 2° × 92.9 | — | 220 | | 16 | | 16 | 1.85° | 20.95 | 29.37 | 49.15 | — | — | | | ● | 574 | 86,400 |
| 3098224 | 0.41° | 12 × R2 × 0.5° × 120 | 125.2 | 180 | 18 | | 11.9 | 13.68 | 0.93° | 120.79 | — | — | — | — | | 1 | ● | 405 | 82,100 |
| 3098241 | 0.67° | 12 × R2 × 1° × 60 | 65.8 | 120 | | | | 13.37 | 1.77° | 41.6 | 61.44 | 63.66 | — | — | | | ● | 282 | 59,600 |
| 3098242 | 0.81° | 12 × R2 × 1° × 100 | 103.2 | 180 | | | | 14.76 | 1.12° | 41.77 | 101.45 | — | — | — | | | ● | 443 | 79,100 |
| 3098243 | 0.95° | 12 × R2 × 1° × 122.6 | — | | | | | 16 | 0.94° | 37.05 | — | — | — | — | | 2 | ● | 447 | 82,400 |
| 3098244 | 0.88° | 12 × R2 × 1° × 160 | 166.7 | 220 | | 20 | | 16.86 | 1.39° | 41.7 | 161.44 | — | — | — | | 1 | ● | 662 | 135,000 |
| 3098254 | 1.44° | 12 × R2 × 1.5° × 160.8 | — | | | | | 20 | 1.43° | 28.55 | 51.39 | — | — | — | | 2 | ● | 665 | 135,000 |

ワーク勾配角αに対する実有効長 (Le) : P. 430 を参照下さい。 Please see p.430 for effective neck length (Le) based on the inclination angle (α) of workpiece.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| PHX-PC-DFR | ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXSコート4枚刃小径超硬ロングネックラジアスエンドミル

**WXS Coated 4-flute Long Neck Small Size Carbide End Mill with Corner Radius**

## PHX-LN-CRE

切削条件 Cutting Conditions | P574




CARBIDE | WXS | R ± 0.007 | 0～-0.015 | SHRINK FIT | 54° DC=0.8 | 30° 1≦DC

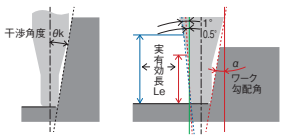
CAD

（単位:mm）(Unit:mm)

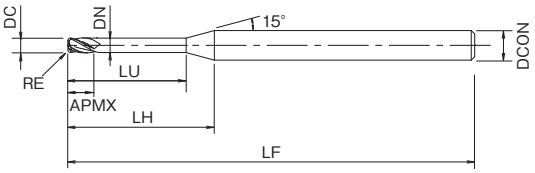
| ツール No. EDP No. | 外径×コーナ半径×首下長 DC × RE × LU | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3190800 | 0.8 × R0.1 × 2 | 8.1 | 50 | 0.32 | 4 | 0.72 | 11.15° | 2.22 | 2.29 | 2.38 | 2.47 | 2.67 | 4 | A | 13 | 8,770 |
| 3190801 | 0.8 × R0.1 × 4 | 10.1 | | | | | 8.99° | 4.28 | 4.43 | 4.59 | 4.77 | 5.15 | | | 13 | 8,510 |
| 3190802 | 0.8 × R0.1 × 6 | 12.1 | | | | | 7.52° | 6.35 | 6.57 | 6.81 | 7.07 | 7.64 | | | 13 | 8,510 |
| 3190803 | 0.8 × R0.1 × 8 | 14.1 | | | | | 6.47° | 8.42 | 8.71 | 9.03 | 9.37 | 10.13 | | | 13 | 8,510 |
| 3191006 | 1 × R0.1 × 4 | 9.7 | | 0.4 | | 0.93 | 8.77° | 4.26 | 4.41 | 4.57 | 4.74 | 5.13 | | | 13 | 7,330 |
| 3191007 | 1 × R0.1 × 6 | 11.7 | | | | | 7.29° | 6.33 | 6.55 | 6.79 | 7.04 | 7.62 | | | 13 | 8,030 |
| 3191008 | 1 × R0.1 × 8 | 13.7 | | | | | 6.24° | 8.4 | 8.69 | 9.01 | 9.34 | 10.1 | | | 13 | 8,030 |
| 3191009 | 1 × R0.1 × 10 | 15.7 | | | | | 5.45° | 10.47 | 10.83 | 11.22 | 11.64 | 12.59 | | | 13 | 8,030 |
| 3191010 | 1 × R0.1 × 12 | 17.7 | | | | | 4.84° | 12.53 | 12.97 | 13.44 | 13.94 | 15.08 | | | 13 | 8,030 |
| 3191011 | 1 × R0.2 × 4 | 9.7 | | | | | 8.77° | 4.26 | 4.41 | 4.57 | 4.74 | 5.13 | | | 13 | 7,330 |
| 3191012 | 1 × R0.2 × 6 | 11.7 | | | | | 7.29° | 6.33 | 6.55 | 6.79 | 7.04 | 7.62 | | | 13 | 8,030 |
| 3191013 | 1 × R0.2 × 8 | 13.7 | | | | | 6.24° | 8.4 | 8.69 | 9.01 | 9.34 | 10.1 | | | 13 | 8,030 |
| 3191014 | 1 × R0.2 × 10 | 15.7 | | | | | 5.45° | 10.47 | 10.83 | 11.22 | 11.64 | 12.59 | | | 13 | 8,030 |
| 3191015 | 1 × R0.2 × 12 | 17.7 | | | | | 4.84° | 12.53 | 12.97 | 13.44 | 13.94 | 15.08 | | | 13 | 8,030 |
| 3191018 | 1 × R0.3 × 4 | 9.7 | | | | | 8.77° | 4.26 | 4.41 | 4.57 | 4.74 | 5.13 | | | 13 | 7,330 |
| 3191019 | 1 × R0.3 × 6 | 11.7 | | | | | 7.29° | 6.33 | 6.55 | 6.79 | 7.04 | 7.62 | | | 13 | 8,030 |
| 3191501 | 1.5 × R0.1 × 4 | 8.8 | | 0.6 | | 1.41 | 8.06° | 4.3 | 4.45 | 4.61 | 4.79 | 5.18 | | | 13 | 7,820 |
| 3191503 | 1.5 × R0.1 × 8 | 12.8 | | | | | 5.57° | 8.44 | 8.73 | 9.05 | 9.39 | 10.15 | | | 13 | 8,240 |
| 3191505 | 1.5 × R0.1 × 12 | 16.8 | | | | | 4.25° | 12.57 | 13.01 | 13.48 | 13.99 | 15.12 | | | 13 | 8,240 |
| 3191506 | 1.5 × R0.2 × 4 | 8.8 | | | | | 8.06° | 4.3 | 4.45 | 4.61 | 4.79 | 5.18 | | | 13 | 7,820 |
| 3191507 | 1.5 × R0.2 × 6 | 10.8 | | | | | 6.59° | 6.37 | 6.59 | 6.83 | 7.09 | 7.66 | | | 13 | 7,820 |
| 3191508 | 1.5 × R0.2 × 8 | 12.8 | | | | | 5.57° | 8.44 | 8.73 | 9.05 | 9.39 | 10.15 | | | 13 | 8,240 |
| 3192001 | 2 × R0.1 × 8 | 12.1 | | 0.8 | | 1.89 | 4.79° | 8.48 | 8.77 | 9.09 | 9.43 | 10.2 | | | 13 | 8,240 |
| 3192002 | 2 × R0.1 × 10 | 14.1 | | | | | 4.11° | 10.54 | 10.91 | 11.31 | 11.73 | 12.68 | | | 13 | 8,240 |
| 3192003 | 2 × R0.1 × 12 | 16.1 | | | | | 3.6° | 12.61 | 13.05 | 13.52 | 14.03 | 15.17 | | | 13 | 8,240 |
| 3192004 | 2 × R0.1 × 16 | 20.1 | | | | | 2.88° | 16.75 | 17.33 | 17.96 | 18.63 | — | | | 13 | 8,240 |
| 3192013 | 2 × R0.3 × 8 | 12.1 | | | | | 4.79° | 8.48 | 8.77 | 9.09 | 9.43 | 10.2 | | | 13 | 8,240 |
| 3192015 | 2 × R0.3 × 12 | 16.1 | | | | | 3.6° | 12.61 | 13.05 | 13.52 | 14.03 | 15.17 | | | 13 | 8,240 |
| 3192019 | 2 × R0.5 × 6 | 10.1 | | | | | 5.75° | 6.41 | 6.63 | 6.87 | 7.13 | 7.71 | | | 13 | 7,820 |
| 3192020 | 2 × R0.5 × 8 | 12.1 | | | | | 4.79° | 8.48 | 8.77 | 9.09 | 9.43 | 10.2 | | | 13 | 8,240 |
| 3192021 | 2 × R0.5 × 10 | 14.1 | | | | | 4.11° | 10.54 | 10.91 | 11.31 | 11.73 | 12.68 | | | 13 | 8,240 |
| 3192022 | 2 × R0.5 × 12 | 16.1 | | | | | 3.6° | 12.61 | 13.05 | 13.52 | 14.03 | 15.17 | | | 13 | 8,240 |
| 3193008 | 3 × R0.3 × 12 | 14.2 | | 1.2 | | 2.85 | 2.03° | 12.69 | 13.13 | 13.6 | 14.12 | — | | | 13 | 8,510 |

### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.




| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| PHX-LN-CRE | ○ | | ◎ | ◎ | ○ | | | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXSコート3枚刃超硬ロングネックラジアスエンドミル
## WXS Coated 3-flute Long Neck Carbide End Mill with Corner Radius

## PHX-LN-DFR

切削条件 Cutting Conditions | P575



CARBIDE | WXS | R ± 0.03 | ±0.01 | SHRINK FIT | 55°

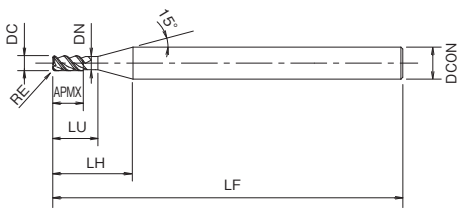
CAD

（単位:mm）(Unit:mm)

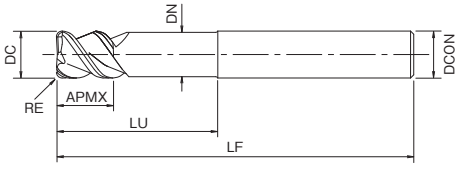
| ツール No. EDP No. | 外径×コーナ半径×首下長×シャンク径 DC × RE × LU-DCON | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3091021 | 2 × R0.5 × 16 | 24 | 50 | 3 | 6 | 1.89 | 4.83° | 16.75 | 17.33 | 17.96 | 18.63 | 20.14 | 3 | 1 | B | ● | 16 | 16,600 |
| 3091022 | 2 × R0.5 × 20 | 28 | 60 | | | | 4.14° | 20.88 | 21.61 | 22.39 | 23.23 | 25.11 | | | | ● | 18 | 17,000 |
| 3091023 | 2 × R0.5 × 24 | 32 | | | | | 3.62° | 25.02 | 25.89 | 26.82 | 27.83 | 30.09 | | | | ● | 17 | 17,400 |
| 3091031 | 3 × R0.8 × 16 | 22 | 50 | 4 | | 2.85 | 3.93° | 16.82 | 17.41 | 18.04 | 18.71 | 20.23 | | | | ● | 17 | 16,600 |
| 3091032 | 3 × R0.8 × 20 | 26 | 60 | | | | 3.32° | 20.96 | 21.69 | 22.47 | 23.31 | 25.21 | | | | ● | 20 | 17,000 |
| 3091033 | 3 × R0.8 × 24 | 30 | 70 | | | | 2.88° | 25.09 | 25.97 | 26.9 | 27.91 | — | | | | ● | 23 | 17,400 |
| 3091034 | 3 × R0.8 × 28 | 34 | | | | | 2.54° | 29.23 | 30.25 | 31.34 | 32.51 | — | | | | ● | 22 | 17,700 |
| 3091035 | 3 × R0.8 × 32 | 38 | | | | | 3.44° | 33.36 | 34.52 | 35.77 | 37.11 | 40.12 | | | | ● | 21 | 18,100 |
| 3091040 | 4 × R1 × 16 | 20.1 | 50 | 6 | | 3.8 | 4.8° | 16.92 | 17.51 | 18.14 | 18.82 | 20.35 | | | | ● | 19 | 16,600 |
| 3092041 | 4 × R1 × 20 | — | 70 | | 4 | | — | — | — | — | — | — | | 2 | | ● | 15 | 16,300 |
| 3091043 | 4 × R1 × 20 - 6 | 24.1 | | | 6 | | 5.43° | 21.05 | 21.79 | 22.57 | 23.42 | 25.32 | | 1 | | ● | 27 | 17,000 |
| 3091044 | 4 × R1 × 24 | 28.1 | | | | | 4.83° | 25.19 | 26.07 | 27.01 | 28.02 | 30.29 | | | | ● | 25 | 17,400 |
| 3092042 | 4 × R1 × 28 | — | | | 4 | | — | — | — | — | — | — | | 2 | | ● | 15 | 16,500 |
| 3091045 | 4 × R1 × 28 - 6 | 32.1 | | | 6 | | 4.34° | 29.32 | 30.35 | 31.44 | 32.62 | 35.27 | | 1 | | ● | 24 | 17,700 |
| 3091046 | 4 × R1 × 32 | 36.1 | | | | | 3.94° | 33.46 | 34.62 | 35.87 | 37.22 | 40.24 | | | | ● | 24 | 18,100 |
| 3091047 | 4 × R1 × 36 | 40.1 | 90 | | | | 3.61° | 37.59 | 38.9 | 40.31 | 41.82 | 45.21 | | | | ● | 33 | 18,800 |
| 3091048 | 4 × R1 × 40 | 44.1 | | | | | 3.33° | 41.73 | 43.18 | 44.74 | 46.42 | 50.18 | | | | ● | 32 | 19,200 |
| 3091051 | 5 × R1 × 20 | 22.2 | 70 | 7.5 | | 4.8 | 1.29° | 21.05 | 21.79 | — | — | — | | | | ● | 28 | 17,900 |
| 3091052 | 5 × R1 × 30 | 32.2 | | | | | 0.89° | 31.39 | — | — | — | — | | | | ● | 27 | 18,200 |
| 3091053 | 5 × R1 × 40 | 42.2 | 90 | | | | 0.68° | 41.73 | — | — | — | — | | | | ● | 36 | 19,200 |
| 3091064 | 6 × R1 × 20 | — | 70 | 9 | | 5.8 | — | — | — | — | — | — | | 2 | | ● | 30 | 17,700 |
| 3091065 | 6 × R1 × 40 | | 90 | | | | — | — | — | — | — | — | | | | ● | 40 | 19,800 |
| 3091066 | 6 × R1.5 × 20 | | 70 | | | | — | — | — | — | — | — | | | | ● | 31 | 17,700 |
| 3092061 | 6 × R1.5 × 30 | | 80 | | | | — | — | — | — | — | — | | | | ● | 34 | 18,800 |
| 3092062 | 6 × R1.5 × 42 | | 90 | | | | — | — | — | — | — | — | | | | ● | 41 | 19,800 |
| 3092063 | 6 × R1.5 × 54 | | 100 | | | | — | — | — | — | — | — | | | | ● | 44 | 20,900 |
| 3091067 | 6 × R1.5 × 66 | | 110 | | | | — | — | — | — | — | — | | | | ● | 48 | 21,900 |
| 3092081 | 8 × R2 × 40 | | 85 | 12 | 8 | 7.7 | — | — | — | — | — | — | | | | ● | 62 | 23,600 |
| 3092082 | 8 × R2 × 56 | | 100 | | | | — | — | — | — | — | — | | | | ● | 73 | 25,600 |
| 3092083 | 8 × R2 × 72 | | 120 | | | | — | — | — | — | — | — | | | | ● | 89 | 27,900 |

次ページへ
外径 DC 10～16 NEXT

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| PHX-LN-DFR | ◎ | | ◎ | ◎ | ○ | | ○ | ○ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXSコート3枚刃超硬ロングネックラジアスエンドミル
**WXS Coated 3-flute Long Neck Carbide End Mill with Corner Radius**

## PHX-LN-DFR

切削条件 Cutting Conditions | P575



CARBIDE | WXS | R ±0.03 | ±0.01 | SHRINK FIT | 55°

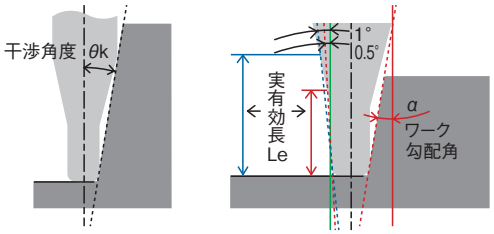
CAD

前ページより FROM 外径 DC 2～8

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長-シャンク径 DC × RE × LU-DCON | LH | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 干渉角度 θk | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 3° | 刃数 ZEFP | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3091100 | 10 × R2 × 30 | – | 80 | 15 | 10 | 9.7 | – | – | – | – | – | – | 3 | 2 | B | 90 | 24,000 |
| 3091104 | 10 × R2 × 40 | | 90 | | | | – | – | – | – | – | – | | | | 103 | 26,800 |
| 3092101 | 10 × R2 × 50 | | 100 | | | | – | – | – | – | – | – | | | | 112 | 29,700 |
| 3091105 | 10 × R2 × 60 | | 110 | | | | – | – | – | – | – | – | | | | 124 | 31,000 |
| 3092102 | 10 × R2 × 70 | | 120 | | | | – | – | – | – | – | – | | | | 134 | 32,900 |
| 3091106 | 10 × R2 × 80 | | 130 | | | | – | – | – | – | – | – | | | | 145 | 34,300 |
| 3092103 | 10 × R2 × 90 | | 140 | | | | – | – | – | – | – | – | | | | 155 | 35,900 |
| 3091107 | 10 × R2 × 100 | | 150 | | | | – | – | – | – | – | – | | | | 172 | 37,500 |
| 3091120 | 12 × R2 × 40 | | 90 | 18 | 12 | 11.7 | – | – | – | – | – | – | | | | 145 | 36,100 |
| 3092121 | 12 × R2 × 60 | | 110 | | | | – | – | – | – | – | – | | | | 174 | 41,100 |
| 3092122 | 12 × R2 × 84 | | 135 | | | | – | – | – | – | – | – | | | | 216 | 46,100 |
| 3092123 | 12 × R2 × 108 | | 160 | | | | – | – | – | – | – | – | | | | 253 | 51,100 |
| 3091126 | 12 × R2 × 120 | | 170 | | | | – | – | – | – | – | – | | | | 283 | 56,100 |
| 3092161 | 16 × R3 × 80 | | 140 | 24 | 16 | 15.5 | – | – | – | – | – | – | | | | 392 | 82,100 |
| 3092162 | 16 × R3 × 120 | | 175 | | | | – | – | – | – | – | – | | | | 450 | 93,100 |

### ■ワーク勾配角αに対する実有効長（Le）
Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。
No numerical value means no interference with workpiece.

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃小径CBNロングネックラジアスエンドミル
**2-flute Long Neck Small Size CBN End Mill with Corner Radius**

## CBN-LN-SXR

切削条件 Cutting Conditions | P652



CBN | R ±0.005 | SHRINK FIT | 30°

DC≦1 0~-0.010
1<DC 0~-0.015

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首下長 DC × RE × LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8526410 | 0.5 × R0.05 × 2.5 | 45 | 0.3 | 4 | C | ● | 13 | 28,800 |
| 8526411 | 0.5 × R0.1 × 2.5 | | | | | ● | 12 | 28,800 |
| 8526420 | 1 × R0.05 × 5 | | 0.6 | | | ● | 12 | 27,300 |
| 8526421 | 1 × R0.1 × 5 | | | | | ● | 12 | 27,300 |
| 8526422 | 1 × R0.2 × 5 | | | | | ● | 12 | 27,300 |
| 8526423 | 1 × R0.3 × 5 | | | | | ● | 13 | 27,300 |
| 8526431 | 1.5 × R0.1 × 7.5 | 50 | 0.9 | 6 | | ● | 20 | 32,100 |
| 8526432 | 1.5 × R0.2 × 7.5 | | | | | ● | 22 | 32,100 |
| 8526433 | 1.5 × R0.3 × 7.5 | | | | | ● | 22 | 32,100 |
| 8526441 | 2 × R0.1 × 10 | | 1.2 | | | ● | 21 | 34,300 |
| 8526442 | 2 × R0.2 × 10 | | | | | ● | 20 | 34,300 |
| 8526443 | 2 × R0.3 × 10 | | | | | ● | 20 | 34,300 |
| 8526445 | 2 × R0.5 × 10 | | | | | ● | 20 | 34,300 |
| 8526461 | 3 × R0.1 × 12 | | 1.8 | | | ● | 17 | 42,800 |
| 8526462 | 3 × R0.2 × 12 | | | | | ● | 17 | 42,800 |
| 8526463 | 3 × R0.3 × 12 | | | | | ● | 17 | 42,800 |
| 8526465 | 3 × R0.5 × 12 | | | | | ● | 17 | 42,800 |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175 を参照下さい。
See p.1175 for details



OSGアプリから製品ラベルの二次元コードを読み込んで検査成績表をダウンロード(一部製品に限る) ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CBN-LN-SXR | ○ | | ◎ | ◎ | ◎ | ◎ | | | | | | | | |

**在庫記号について** Inventory symbols

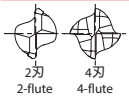
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# グラファイト用DGコート超硬ロングネック ラジアスエンドミル

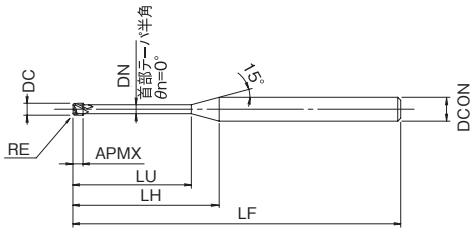
**DG Coated Long Neck Carbide End Mills with Corner Radius for Graphite**

## DG-CPR

切削条件 Cutting Conditions | P698






CARBIDE | DG | ±0.01 | SHRINK FIT | 30°

DC<1 0~-0.02
1≦DC 0~-0.027

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×首部テーパ半角×首下長 DC × RE × θn × LU | 外径 DC | コーナ半径 RE | 首下長 LU | 刃長 APMX | 首径 DN | LH | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8554511 | 0.5 × R0.1 × 0° × 4 | 0.5 | 0.1 | 4 | 0.9 | 0.44 | 10.98 | 2 | 4 | 50 | B | ● | 14 | 21,400 |
| 8554512 | 0.5 × R0.1 × 0° × 6 | | | 6 | | | 12.98 | | | | | ● | 14 | 21,400 |
| 8554513 | 0.5 × R0.1 × 0° × 8 | | | 8 | | | 14.98 | | | | | ● | 14 | 21,400 |
| 8554514 | 0.5 × R0.1 × 0° × 10 | | | 10 | | | 16.98 | | | | | ● | 14 | 21,400 |
| 8554515 | 0.5 × R0.1 × 0° × 15 | | | 15 | | | 21.98 | | | 60 | | ● | 14 | 21,700 |
| 8554516 | 0.5 × R0.1 × 0° × 20 | | | 20 | | | 26.98 | | | | | ● | 14 | 21,700 |
| 8554521 | 1 × R0.2 × 0° × 6 | 1 | | 6 | 1.5 | 0.93 | 12.05 | | | 50 | | ● | 14 | 21,400 |
| 8554522 | 1 × R0.2 × 0° × 10 | | | 10 | | | 16.05 | | | | | ● | 14 | 21,400 |
| 8554523 | 1 × R0.2 × 0° × 16 | | | 16 | | | 22.05 | | | 60 | | ● | 14 | 21,700 |
| 8554524 | 1 × R0.2 × 0° × 20 | | | 20 | | | 26.05 | | | | | ● | 14 | 21,700 |
| 8554525 | 1 × R0.2 × 0° × 30 | | | 30 | | | 36.05 | | | 80 | | ● | 16 | 22,200 |
| 8554526 | 1 × R0.2 × 0° × 40 | | | 40 | | | 46.05 | | | | | ● | 14 | 22,200 |
| 8554531 | 1.5 × R0.2 × 0° × 6 | 1.5 | | 6 | 2.3 | 1.41 | 11.07 | | | 50 | | ● | 14 | 21,400 |
| 8554532 | 1.5 × R0.2 × 0° × 10 | | | 10 | | | 15.07 | | | | | ● | 14 | 21,400 |
| 8554533 | 1.5 × R0.2 × 0° × 20 | | | 20 | | | 25.07 | | | 60 | | ● | 14 | 21,700 |
| 8554534 | 1.5 × R0.2 × 0° × 30 | | | 30 | | | 35.07 | | | 80 | | ● | 17 | 22,200 |
| 8554535 | 1.5 × R0.2 × 0° × 40 | | | 40 | | | 45.07 | | | | | ● | 17 | 22,200 |
| 8554541 | 2 × R0.2 × 0° × 6 | 2 | 0.2 | 6 | 3 | 1.87 | 10.35 | | | 60 | | ● | 18 | 21,700 |
| 8554542 | 2 × R0.2 × 0° × 10 | | | 10 | | | 14.35 | | | | | ● | 18 | 21,700 |
| 8554543 | 2 × R0.2 × 0° × 16 | | | 16 | | | 20.35 | | | 70 | | ● | 18 | 21,700 |
| 8554544 | 2 × R0.2 × 0° × 20 | | | 20 | | | 24.35 | | | | | ● | 18 | 21,700 |
| 8554545 | 2 × R0.2 × 0° × 40 | | | 40 | | | 44.35 | | | 100 | | ● | 19 | 22,500 |
| 8554546 | 2 × R0.2 × 0° × 60 | | | 60 | | | 64.35 | | | | | ● | 16 | 22,500 |
| 8554561 | 3 × R0.2 × 0° × 10 | 3 | | 10 | 4.5 | 2.87 | 12.48 | | | 60 | | ● | 12 | 28,100 |
| 8554562 | 3 × R0.2 × 0° × 16 | | | 16 | | | 18.48 | | | | | ● | 12 | 28,100 |
| 8554563 | 3 × R0.2 × 0° × 20 | | | 20 | | | 22.48 | | | | | ● | 12 | 28,100 |
| 8554564 | 3 × R0.2 × 0° × 40 | | | 40 | | | 42.48 | | | 80 | | ● | 14 | 28,400 |
| 8554581 | 4 × R0.2 × 0° × 40 | 4 | | 40 | 6 | 3.87 | — | 4 | | 80 | | ● | 17 | 29,200 |
| 8554582 | 4 × R0.2 × 0° × 60 | | | 60 | | | — | | | 120 | | ● | 27 | 29,700 |
| 8554621 | 6 × R0.5 × 0° × 30 | 6 | 0.5 | 30 | | 5.67 | — | | 6 | 100 | | ● | 45 | 39,300 |
| 8554622 | 6 × R1 × 0° × 30 | | 1 | | | | — | | | | | ● | 45 | 39,300 |
| 8554661 | 8 × R0.5 × 0° × 32 | 8 | 0.5 | 32 | 8 | 7.57 | — | | 8 | | | ● | 76 | 48,700 |
| 8554662 | 8 × R1 × 0° × 32 | | 1 | | | | — | | | | | ● | 76 | 48,700 |
| 8554701 | 10 × R0.5 × 0° × 40 | 10 | 0.5 | 40 | 10 | 9.47 | — | | 10 | 125 | | ● | 145 | 57,800 |
| 8554702 | 10 × R1 × 0° × 40 | | 1 | | | | — | | | | | ● | 145 | 57,800 |
| 8554721 | 12 × R0.5 × 0° × 48 | 12 | 0.5 | 48 | 12 | 11.37 | — | | 12 | 150 | | ● | 248 | 78,200 |
| 8554722 | 12 × R1 × 0° × 48 | | 1 | | | | — | | | | | ● | 249 | 78,200 |

OSGアプリならお気に入りのカタログをメールで送信 ▶▶▶ P. 6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DG-CPR | | | | | | | | | | ○ | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
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- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# セラミックラジアスエンドミル外周刃タイプ
**Ceramic End Mill with Corner Radius Outer Cutting Edge Type**

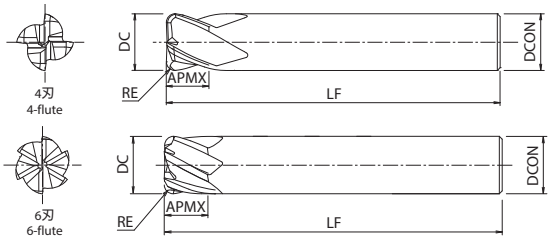
## CM-RMS

切削条件 Cutting Conditions | **P704**



CERAMIC | R ± 0.03 | 0～ -0.05 | SHANK h6 | 30°

CAD




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃数 DC×RE×ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8557100 | 6 × R0.75 × 4Z | 60 | 4.5 | 6 | 4 | B | ● | 9 | 34,300 |
| 8557110 | 8 × R1.0 × 4Z | | 6 | 8 | | | ● | 13 | 43,900 |
| 8557120 | 10 × R1.25 × 4Z | 65 | 7.5 | 10 | | | ● | 21 | 53,000 |
| 8557130 | 12 × R1.5 × 4Z | 70 | 9 | 12 | | | ● | 32 | 63,200 |
| 8557200 | 6 × R0.75 × 6Z | 60 | 4.5 | 6 | 6 | | ● | 9 | 37,900 |
| 8557210 | 8 × R1.0 × 6Z | | 6 | 8 | | | ● | 13 | 48,400 |
| 8557220 | 10 × R1.25 × 6Z | 65 | 7.5 | 10 | | | ● | 21 | 58,300 |
| 8557230 | 12 × R1.5 × 6Z | 70 | 9 | 12 | | | ● | 32 | 69,800 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CM-RMS | | | | | | | | | | | | | ◎ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# セラミックラジアスエンドミル底刃タイプ
**Ceramic End Mill with Corner Radius Bottom Cutting Edge Type**

## CM-CRE

切削条件 Cutting Conditions | P704








CERAMIC | R ±0.03 | 0〜-0.05 | SHANK h6

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC×RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFF | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8557016 | **16** × **R4** | 120 | 5 | 16 | 5 | B | ● | 100 | 85,300 |
| 8557020 | **20** × **R4** | | | 20 | 6 | | ● | 151 | 95,000 |
| 8557025 | **25** × **R4** | | | 25 | 7 | | ● | 219 | 113,000 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜55HRC | 〜60HRC | 〜65HRC | 〜35HRC | 〜350HB | | | | | | |
| **CM-CRE** | | | | | | | | | | | | | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ラジアスエンドミルショート形（φ6シャンク）

**FX Coated 2-flute Carbide End Mill Short Length with Corner Radius (φ6 Shank)**

## FX-CR-EDS-6

切削条件 Cutting Conditions | P667-8



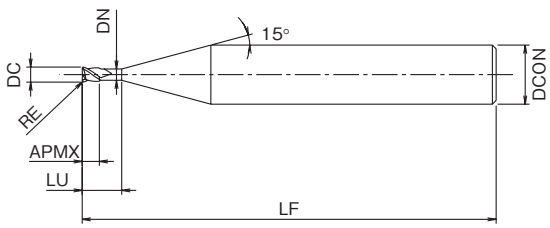
高速高精度型マシニングセンタの性能を十分に引き出す高速加工用コーナR付きエンドミルです。

This is a corner radius end mill for high speed operations. It enhances the performance of the latest high speed & high precision machining centers.

CARBIDE | FX | 0〜-0.015 | SHRINK FIT | 30°

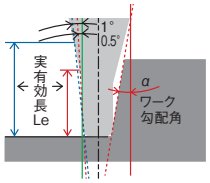
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長×コーナ半径 DC×LU×RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | ■ワーク勾配角αに対する実有効長(Le) 0.5° | 1° | 1.5° | 2° | 2.5° | 3° | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8545705 | 0.5 × 1.5 × R0.1 | 50 | 0.7 | 6 | 0.45 | 1.61 | 1.74 | 1.87 | 2 | 2.14 | 2.28 | — | — | — |
| 8545706 | 0.6 × 1.8 × R0.1 | | 0.9 | | 0.55 | 1.86 | 1.92 | 1.99 | 2.07 | 2.15 | 2.23 | | — | — |
| 8545708 | 0.8 × 2.4 × R0.1 | | 1.2 | | 0.75 | 2.48 | 2.56 | 2.66 | 2.76 | 2.86 | 2.98 | | — | — |
| 8545710 | 1 × 2.5 × R0.1 | | 1.5 | | 0.95 | 2.58 | 2.67 | 2.77 | 2.85 | 2.98 | 3.1 | | — | — |
| | 1 × 2.5 × R0.2 | | | | | | | | | | | | — | — |
| 8545712 | 1.2 × 3 × R0.1 | | 1.8 | | 1.15 | 3.1 | 3.2 | 3.32 | 3.45 | 3.58 | 3.72 | | — | — |
| | 1.2 × 3 × R0.2 | | | | | | | | | | | | — | — |
| 8545714 | 1.4 × 3.5 × R0.1 | | 2.1 | | 1.35 | 3.61 | 3.74 | 3.87 | 4.02 | 4.18 | 4.35 | | — | — |
| | 1.4 × 3.5 × R0.2 | | | | | | | | | | | | — | — |
| 8545715 | 1.5 × 3.8 × R0.1 | | 2.3 | | 1.45 | 3.92 | 4.06 | 4.21 | 4.36 | 4.54 | 4.72 | | — | — |
| | 1.5 × 3.8 × R0.2 | | | | | | | | | | | | — | — |
| 8545716 | 1.6 × 4 × R0.1 | | 2.4 | | 1.55 | 4.13 | 4.27 | 4.43 | 4.59 | 4.77 | 4.97 | | — | — |
| | 1.6 × 4 × R0.2 | | | | | | | | | | | | — | — |
| 8545718 | 1.8 × 4.5 × R0.1 | | 2.7 | | 1.75 | 4.65 | 4.81 | 4.98 | 5.17 | 5.37 | 5.59 | | — | — |
| | 1.8 × 4.5 × R0.2 | | | | | | | | | | | | — | — |
| 8545720 | 2 × 5 × R0.1 | | 3 | | 1.95 | 5.16 | 5.34 | 5.54 | 5.74 | 5.97 | 6.21 | | — | — |
| | 2 × 5 × R0.2 | | | | | | | | | | | | — | — |
| 8545725 | 2.5 × 5 × R0.1 | | 3.7 | | 2.4 | | | | | | | | — | — |
| | 2.5 × 5 × R0.2 | | | | | | | | | | | | — | — |




### ■ワーク勾配角αに対する実有効長（Le）

Effective Neck length (Le) depending on Inclined Angle（α）of workpiece




実有効長欄に数値のないものは干渉なしを表します。

No numerical value means no interference with workpiece.

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-CR-EDS-6 | ◎ | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃超硬ラジアスエンドミルショート形
TiN Coated 2-flute Carbide End Mill Short Length with Corner Radius

## TIN-MG-CR-EDS



CARBIDE | TiN | 0〜-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × R0.3 | 40 | 6 | 4 | | □ | — | — |
| | 2 × R0.5 | | | | | □ | — | — |
| | 3 × R0.3 | 45 | 8 | 6 | | □ | — | — |
| | 3 × R0.5 | | | | | □ | — | — |
| | 3 × R0.75 | | | | | □ | — | — |
| | 4 × R0.5 | | 11 | | | □ | — | — |
| | 4 × R0.75 | | | | | □ | — | — |
| | 4 × R1 | | | | | □ | — | — |
| | 5 × R0.5 | 50 | 13 | | | □ | — | — |
| | 5 × R0.75 | | | | | □ | — | — |
| | 5 × R1 | | | | | □ | — | — |
| | 6 × R0.5 | | | | | □ | — | — |
| | 6 × R1 | | | | | □ | — | — |
| | 6 × R1.5 | | | | | □ | — | — |
| | 6 × R2 | | | | | □ | — | — |
| | 8 × R0.5 | 60 | 19 | 8 | — | □ | — | — |
| | 8 × R1 | | | | | □ | — | — |
| | 8 × R1.5 | | | | | □ | — | — |
| | 8 × R2 | | | | | □ | — | — |
| | 8 × R2.5 | | | | | □ | — | — |
| | 8 × R3 | | | | | □ | — | — |
| | 10 × R0.5 | 70 | 22 | 10 | | □ | — | — |
| | 10 × R1 | | | | | □ | — | — |
| | 10 × R1.5 | | | | | □ | — | — |
| | 10 × R2 | | | | | □ | — | — |
| | 10 × R2.5 | | | | | □ | — | — |
| | 10 × R3 | | | | | □ | — | — |
| | 12 × R0.5 | 75 | 26 | 12 | | □ | — | — |
| | 12 × R1 | | | | | □ | — | — |
| | 12 × R1.5 | | | | | □ | — | — |
| | 12 × R2 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12 × R2.5 | 75 | 26 | 12 | | □ | — | — |
| | 12 × R3 | | | | | □ | — | — |
| | 12 × R4 | | | | | □ | — | — |
| | 15 × R2 | 90 | | 16 | | □ | — | — |
| | 15 × R2.5 | | | | | □ | — | — |
| | 15 × R3 | | | | | □ | — | — |
| | 15 × R4 | | | | | □ | — | — |
| | 15 × R5 | | | | | □ | — | — |
| | 16 × R2 | 100 | 32 | | | □ | — | — |
| | 16 × R2.5 | | | | | □ | — | — |
| | 16 × R3 | | | | | □ | — | — |
| | 16 × R4 | | | | | □ | — | — |
| | 16 × R5 | | | | | □ | — | — |
| | 16 × R6 | | | | | □ | — | — |
| | 18 × R2 | | | | — | □ | — | — |
| | 18 × R2.5 | | | | | □ | — | — |
| | 18 × R3 | | | | | □ | — | — |
| | 18 × R4 | | | | | □ | — | — |
| | 18 × R5 | | | | | □ | — | — |
| | 18 × R6 | | | | | □ | — | — |
| | 20 × R2 | 105 | 38 | 20 | | □ | — | — |
| | 20 × R3 | | | | | □ | — | — |
| | 20 × R4 | | | | | □ | — | — |
| | 20 × R5 | | | | | □ | — | — |
| | 20 × R6 | | | | | □ | — | — |
| | 25 × R3 | 120 | 45 | 25 | | □ | — | — |
| | 25 × R4 | | | | | □ | — | — |
| | 25 × R5 | | | | | □ | — | — |
| | 25 × R6 | | | | | □ | — | — |
| | 25 × R8 | | | | | □ | — | — |

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| TIN-MG-CR-EDS | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃超硬ラジアスエンドミルショート形
**2-flute Carbide End Mill Short Length with Corner Radius**

## MG-CR-EDS



CARBIDE　SHRINK FIT　30°

0～-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2 × R0.3** | 40 | 6 | 4 | | □ | – | – |
| | **2 × R0.4** | | | | | □ | – | – |
| | **2 × R0.5** | | | | | □ | – | – |
| | **3 × R0.3** | 45 | 8 | 6 | | □ | – | – |
| | **3 × R0.4** | | | | | □ | – | – |
| | **3 × R0.5** | | | | | □ | – | – |
| | **3 × R0.75** | | | | | □ | – | – |
| | **3 × R0.8** | | | | | □ | – | – |
| | **4 × R0.4** | | 11 | | | □ | – | – |
| | **4 × R0.5** | | | | | □ | – | – |
| | **4 × R0.75** | | | | | □ | – | – |
| | **4 × R0.8** | | | | | □ | – | – |
| | **4 × R1** | | | | | □ | – | – |
| | **5 × R0.4** | 50 | 13 | | | □ | – | – |
| | **5 × R0.5** | | | | | □ | – | – |
| | **5 × R0.8** | | | | | □ | – | – |
| | **5 × R1** | | | | | □ | – | – |
| | **5 × R1.5** | | | | | □ | – | – |
| | **6 × R0.4** | | | | | □ | – | – |
| | **6 × R0.5** | | | | | □ | – | – |
| | **6 × R0.8** | | | | – | □ | – | – |
| | **6 × R1** | | | | | □ | – | – |
| | **6 × R1.5** | | | | | □ | – | – |
| | **6 × R2** | | | | | □ | – | – |
| | **8 × R0.4** | 60 | 19 | 8 | | □ | – | – |
| | **8 × R0.5** | | | | | □ | – | – |
| | **8 × R0.8** | | | | | □ | – | – |
| | **8 × R1** | | | | | □ | – | – |
| | **8 × R1.5** | | | | | □ | – | – |
| | **8 × R2** | | | | | □ | – | – |
| | **8 × R2.5** | | | | | □ | – | – |
| | **8 × R3** | | | | | □ | – | – |
| | **10 × R0.4** | 70 | 22 | 10 | | □ | – | – |
| | **10 × R0.5** | | | | | □ | – | – |
| | **10 × R0.8** | | | | | □ | – | – |
| | **10 × R1** | | | | | □ | – | – |
| | **10 × R1.5** | | | | | □ | – | – |
| | **10 × R2** | | | | | □ | – | – |
| | **10 × R2.5** | | | | | □ | – | – |
| | **10 × R3** | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **12 × R0.4** | 75 | 26 | 12 | | □ | – | – |
| | **12 × R0.5** | | | | | □ | – | – |
| | **12 × R0.8** | | | | | □ | – | – |
| | **12 × R1** | | | | | □ | – | – |
| | **12 × R1.5** | | | | | □ | – | – |
| | **12 × R2** | | | | | □ | – | – |
| | **12 × R2.5** | | | | | □ | – | – |
| | **12 × R3** | | | | | □ | – | – |
| | **12 × R4** | | | | | □ | – | – |
| | **16 × R1** | 100 | 32 | 16 | – | □ | – | – |
| | **16 × R1.5** | | | | | □ | – | – |
| | **16 × R2** | | | | | □ | – | – |
| | **16 × R2.5** | | | | | □ | – | – |
| | **16 × R3** | | | | | □ | – | – |
| | **16 × R4** | | | | | □ | – | – |
| | **20 × R1** | 105 | 38 | 20 | | □ | – | – |
| | **20 × R1.5** | | | | | □ | – | – |
| | **20 × R2** | | | | | □ | – | – |
| | **20 × R2.5** | | | | | □ | – | – |
| | **20 × R3** | | | | | □ | – | – |
| | **20 × R4** | | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **MG-CR-EDS** | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# DIAコート2枚刃超硬ラジアスエンドミルショート形
**Diamond Coated 2-flute Carbide End Mill Short Length with Corner Radius**

## DIA-CR-EDS



CARBIDE | DIA | SHRINK FIT | 35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2 × R0.2** | 40 | 6 | 4 | | □ | — | — |
| | **3 × R0.2** | 45 | 8 | 6 | | □ | — | — |
| | **3 × R0.5** | | | | | □ | — | — |
| | **4 × R0.2** | | 11 | | | □ | — | — |
| | **4 × R0.5** | | | | | □ | — | — |
| | **4 × R1** | | | | | □ | — | — |
| | **5 × R0.2** | 50 | 13 | | | □ | — | — |
| | **5 × R0.5** | | | | | □ | — | — |
| | **5 × R1** | | | | | □ | — | — |
| | **6 × R0.3** | | | | | □ | — | — |
| | **6 × R0.5** | | | | | □ | — | — |
| | **6 × R1** | | | | | □ | — | — |
| | **6 × R1.5** | | | | | □ | — | — |
| | **6 × R2** | | | | | □ | — | — |
| | **7 × R0.3** | 60 | 16 | 8 | — | □ | — | — |
| | **7 × R0.5** | | | | | □ | — | — |
| | **7 × R1** | | | | | □ | — | — |
| | **8 × R0.3** | | 19 | | | □ | — | — |
| | **8 × R0.5** | | | | | □ | — | — |
| | **8 × R1** | | | | | □ | — | — |
| | **8 × R1.5** | | | | | □ | — | — |
| | **8 × R2** | | | | | □ | — | — |
| | **10 × R0.3** | 70 | 22 | 10 | | □ | — | — |
| | **10 × R0.5** | | | | | □ | — | — |
| | **10 × R1** | | | | | □ | — | — |
| | **10 × R1.5** | | | | | □ | — | — |
| | **10 × R2** | | | | | □ | — | — |
| | **10 × R3** | | | | | □ | — | — |
| | **12 × R0.5** | 75 | 26 | 12 | | □ | — | — |
| | **12 × R1** | | | | | □ | — | — |
| | **12 × R2** | | | | | □ | — | — |
| | **12 × R3** | | | | | □ | — | — |
| | **16 × R0.5** | 90 | 32 | 16 | | □ | — | — |
| | **16 × R1** | | | | | □ | — | — |
| | **16 × R2** | | | | | □ | — | — |
| | **16 × R3** | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **20 × R0.5** | 100 | 38 | 20 | — | □ | — | — |
| | **20 × R1** | | | | | □ | — | — |
| | **20 × R1.5** | | | | | □ | — | — |
| | **20 × R2** | | | | | □ | — | — |
| | **20 × R3** | | | | | □ | — | — |

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DIA-CR-EDS** | | | | | | | | | ○ | ◎ | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート4枚刃超硬ラジアスエンドミルショート形
**FX Coated 4-flute Carbide End Mill Short Length with Corner Radius**

## FX-CR-MG-EMS



CARBIDE | FX | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **4 × R0.5** | 45 | 11 | 6 | – | □ | – | – |
| | **4 × R1** | | | | | □ | – | – |
| | **5 × R0.5** | 50 | 13 | | | □ | – | – |
| | **5 × R1** | | | | | □ | – | – |
| | **5 × R1.5** | | | | | □ | – | – |
| | **6 × R0.5** | | | | | □ | – | – |
| | **6 × R1** | | | | | □ | – | – |
| | **6 × R1.5** | | | | | □ | – | – |
| | **6 × R2** | | | | | □ | – | – |
| | **8 × R0.5** | 60 | 19 | 8 | | □ | – | – |
| | **8 × R1** | | | | | □ | – | – |
| | **8 × R1.5** | | | | | □ | – | – |
| | **8 × R2** | | | | | □ | – | – |
| | **8 × R2.5** | | | | | □ | – | – |
| | **10 × R0.5** | 70 | 22 | 10 | | □ | – | – |
| | **10 × R1** | | | | | □ | – | – |
| | **10 × R1.5** | | | | | □ | – | – |
| | **10 × R2** | | | | | □ | – | – |
| | **10 × R2.5** | | | | | □ | – | – |
| | **10 × R3** | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **12 × R0.5** | 75 | 26 | 12 | – | □ | – | – |
| | **12 × R1** | | | | | □ | – | – |
| | **12 × R1.5** | | | | | □ | – | – |
| | **12 × R2** | | | | | □ | – | – |
| | **12 × R2.5** | | | | | □ | – | – |
| | **12 × R3** | | | | | □ | – | – |
| | **12 × R4** | | | | | □ | – | – |
| | **16 × R1** | 100 | 32 | 16 | | □ | – | – |
| | **16 × R1.5** | | | | | □ | – | – |
| | **16 × R2** | | | | | □ | – | – |
| | **16 × R2.5** | | | | | □ | – | – |
| | **16 × R3** | | | | | □ | – | – |
| | **16 × R4** | | | | | □ | – | – |
| | **20 × R1** | 105 | 38 | 20 | | □ | – | – |
| | **20 × R1.5** | | | | | □ | – | – |
| | **20 × R2** | | | | | □ | – | – |
| | **20 × R2.5** | | | | | □ | – | – |
| | **20 × R3** | | | | | □ | – | – |
| | **20 × R4** | | | | | □ | – | – |

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-CR-MG-EMS** | ◎ | | ◎ | ◎ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## WXSコート多刃超硬ラジアスエンドミル ショート形高剛性タイプ
**WXS Coated Multi-flute Carbide End Mill Short Length with Corner Radius (Highly Rigid Type)**

# FXS-CR-EMS

切削条件 Cutting Conditions | P667-12



剛性の高い高速加工用ラジアスエンドミルです。焼き入れ鋼の高速加工も可能としました。
Rigid radius end mill for high speed operations. Applicable for quenched steels.

CARBIDE | WXS | DC≦12 0~-0.02, 12<DC 0~-0.03 | SHRINK FIT | 45°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8545509 | 6 × R0.2 | 90 | 15 | 6 | 6 | – | □ | – | – |
| 8545511 | 6 × R0.5 | | | | | | □ | – | – |
| 8545512 | 6 × R1 | | | | | | □ | – | – |
| 8545514 | 8 × R0.2 | 100 | 20 | 8 | | | □ | – | – |
| 8545516 | 8 × R0.5 | | | | | | □ | – | – |
| 8545517 | 8 × R1 | | | | | | □ | – | – |
| 8545518 | 8 × R2 | | | | | | □ | – | – |
| 8545519 | 10 × R0.2 | | 25 | 10 | | | □ | – | – |
| 8545521 | 10 × R0.5 | | | | | | □ | – | – |
| 8545522 | 10 × R1 | | | | | | □ | – | – |
| 8545523 | 10 × R2 | | | | | | □ | – | – |
| 8545524 | 12 × R0.2 | 110 | 30 | 12 | | | □ | – | – |
| 8545526 | 12 × R0.5 | | | | | | □ | – | – |
| 8545527 | 12 × R1 | | | | | | □ | – | – |
| 8545528 | 12 × R2 | | | | | | □ | – | – |
| 8545529 | 12 × R3 | | | | | | □ | – | – |
| 8545531 | 16 × R0.5 | 140 | 40 | 16 | | | □ | – | – |
| 8545532 | 16 × R1 | | | | | | □ | – | – |
| 8545533 | 16 × R2 | | | | | | □ | – | – |
| 8545534 | 16 × R3 | | | | | | □ | – | – |
| 8545536 | 20 × R0.5 | 160 | 45 | 20 | | | □ | – | – |
| 8545537 | 20 × R1 | | | | | | □ | – | – |
| 8545538 | 20 × R2 | | | | | | □ | – | – |
| 8545539 | 20 × R3 | | | | | | □ | – | – |
| 8545541 | 25 × R0.5 | 180 | 50 | 25 | 8 | | □ | – | – |
| 8545542 | 25 × R1 | | | | | | □ | – | – |
| 8545543 | 25 × R2 | | | | | | □ | – | – |
| 8545544 | 25 × R3 | | | | | | □ | – | – |

## 4枚刃超硬ラジアスエンドミルショート形
**4-flute Carbide End Mill Short Length with Corner Radius**

# MG-CR-EMS



CARBIDE | 0~-0.03 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 4 × R0.5 | 45 | 11 | 6 | – | □ | – | – |
| | 4 × R1 | | | | | □ | – | – |
| | 5 × R0.5 | 50 | 13 | | | □ | – | – |
| | 5 × R1 | | | | | □ | – | – |
| | 5 × R1.5 | | | | | □ | – | – |
| | 6 × R0.5 | | | | | □ | – | – |
| | 6 × R1 | | | | | □ | – | – |
| | 6 × R1.5 | | | | | □ | – | – |
| | 6 × R2 | | | | | □ | – | – |
| | 8 × R0.5 | 60 | 19 | 8 | | □ | – | – |
| | 8 × R1 | | | | | □ | – | – |
| | 8 × R1.5 | | | | | □ | – | – |
| | 8 × R2 | | | | | □ | – | – |
| | 8 × R2.5 | | | | | □ | – | – |
| | 10 × R0.5 | 70 | 22 | 10 | | □ | – | – |
| | 10 × R1 | | | | | □ | – | – |
| | 10 × R1.5 | | | | | □ | – | – |
| | 10 × R2 | | | | | □ | – | – |
| | 10 × R2.5 | | | | | □ | – | – |
| | 10 × R3 | | | | – | □ | – | – |
| | 12 × R0.5 | 75 | 26 | 12 | | □ | – | – |
| | 12 × R1 | | | | | □ | – | – |
| | 12 × R1.5 | | | | | □ | – | – |
| | 12 × R2 | | | | | □ | – | – |
| | 12 × R2.5 | | | | | □ | – | – |
| | 12 × R3 | | | | | □ | – | – |
| | 12 × R4 | | | | | □ | – | – |
| | 16 × R1 | 100 | 32 | 16 | | □ | – | – |
| | 16 × R1.5 | | | | | □ | – | – |
| | 16 × R2 | | | | | □ | – | – |
| | 16 × R2.5 | | | | | □ | – | – |
| | 16 × R3 | | | | | □ | – | – |
| | 16 × R4 | | | | | □ | – | – |
| | 20 × R1 | 105 | 38 | 20 | | □ | – | – |
| | 20 × R1.5 | | | | | □ | – | – |
| | 20 × R2 | | | | | □ | – | – |
| | 20 × R2.5 | | | | | □ | – | – |
| | 20 × R3 | | | | | □ | – | – |
| | 20 × R4 | | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~40HRC | | ~45HRC | ~55HRC | ~60HRC | ~65HRC | ~35HRC | ~350HB | | | | | | |
| FXS-CR-EMS | ◎ | | ◎ | ◎ | ◎ | ○ | ○ | ◎ | | | | ○ | ○ | |
| MG-CR-EMS | ○ | | ○ | | | | ○ | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

## SXLコート4枚刃超硬ラジアスエンドミル ハイヘリックスショート形

**SXL Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius**

**SXL-CR-MG-EHS** 切削条件 Cutting Conditions | **P646**

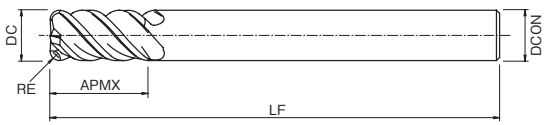


CARBIDE / SXL / SHRINK FIT / 50°

DC≦12 0〜-0.02
12<DC 0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 6 × R0.2 | 90 | 13 | 6 | □ | — | — |
| | 6 × R0.5 | | | | □ | — | — |
| | 6 × R1 | | | | □ | — | — |
| | 8 × R0.2 | 100 | 19 | 8 | □ | — | — |
| | 8 × R0.5 | | | | □ | — | — |
| | 8 × R1 | | | | □ | — | — |
| | 8 × R2 | | | | □ | — | — |
| | 10 × R0.2 | | 22 | 10 | □ | — | — |
| | 10 × R0.5 | | | | □ | — | — |
| | 10 × R1 | | | | □ | — | — |
| | 10 × R2 | | | | □ | — | — |
| | 12 × R0.2 | 110 | 26 | 12 | □ | — | — |
| | 12 × R0.5 | | | | □ | — | — |
| | 12 × R1 | | | | □ | — | — |
| | 12 × R2 | | | | □ | — | — |
| | 12 × R3 | | | | □ | — | — |
| | 16 × R0.5 | 140 | 32 | 16 | □ | — | — |
| | 16 × R1 | | | | □ | — | — |
| | 16 × R2 | | | | □ | — | — |
| | 16 × R3 | | | | □ | — | — |
| | 20 × R0.5 | 160 | 38 | 20 | □ | — | — |
| | 20 × R1 | | | | □ | — | — |
| | 20 × R2 | | | | □ | — | — |
| | 20 × R3 | | | | □ | — | — |
| | 25 × R0.5 | 180 | 45 | 25 | □ | — | — |
| | 25 × R1 | | | | □ | — | — |
| | 25 × R2 | | | | □ | — | — |
| | 25 × R3 | | | | □ | — | — |




## WXSコート多刃超硬ラジアスエンドミル ロング形高剛性タイプ

**WXS Coated Multi-flute Carbide End Mill Long Length with Corner Radius (Highly Rigid Type)**

**FXS-CR-EML**



CARBIDE / WXS / SHRINK FIT / 45°

0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.2 | 80 | 15 | 6 | 4 | □ | — | — |
| | 3 × R0.5 | | | | | □ | — | — |
| | 4 × R0.2 | | 20 | | | □ | — | — |
| | 4 × R0.5 | | | | | □ | — | — |
| | 4 × R1 | | | | | □ | — | — |
| | 5 × R0.2 | | 25 | | | □ | — | — |
| | 5 × R0.5 | | | | | □ | — | — |
| | 5 × R1 | | | | | □ | — | — |
| | 6 × R0.3 | 90 | | | 6 | □ | — | — |
| | 6 × R0.5 | | | | | □ | — | — |
| | 6 × R1 | | | | | □ | — | — |
| | 8 × R0.3 | 100 | 35 | 8 | | □ | — | — |
| | 8 × R0.5 | | | | | □ | — | — |
| | 8 × R1 | | | | | □ | — | — |
| | 8 × R2 | | | | | □ | — | — |
| | 10 × R0.5 | | 45 | 10 | | □ | — | — |
| | 10 × R1 | | | | | □ | — | — |
| | 10 × R1.5 | | | | | □ | — | — |
| | 10 × R2 | | | | | □ | — | — |
| | 12 × R0.5 | 110 | 55 | 12 | | □ | — | — |
| | 12 × R1 | | | | | □ | — | — |
| | 12 × R1.5 | | | | | □ | — | — |
| | 12 × R2 | | | | | □ | — | — |
| | 12 × R3 | | | | | □ | — | — |
| | 16 × R0.5 | 140 | 65 | 16 | | □ | — | — |
| | 16 × R1 | | | | | □ | — | — |
| | 16 × R1.5 | | | | | □ | — | — |
| | 16 × R2 | | | | | □ | — | — |
| | 16 × R3 | | | | | □ | — | — |
| | 20 × R0.5 | 160 | 75 | 20 | | □ | — | — |
| | 20 × R1 | | | | | □ | — | — |
| | 20 × R1.5 | | | | 8 | □ | — | — |
| | 20 × R2 | | | | 6 | □ | — | — |
| | 20 × R3 | | | | | □ | — | — |
| | 25 × R0.5 | 180 | 90 | 25 | 8 | □ | — | — |
| | 25 × R1 | | | | | □ | — | — |
| | 25 × R1.5 | | | | | □ | — | — |
| | 25 × R2 | | | | | □ | — | — |
| | 25 × R3 | | | | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| SXL-CR-MG-EHS | ◎ | | ◎ | ○ | ○ | | ◎ | ◎ | ○ | ○ | | ◎ | ◎ | |
| FXS-CR-EML | ◎ | | ◎ | ◎ | | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート4枚刃超硬ラジアスエンドミルレギュラ形 多機能強力型

**FX Coated 4-flute Carbide End Mill Regular Length with Corner Radius High Speed Pocket Operation Type**

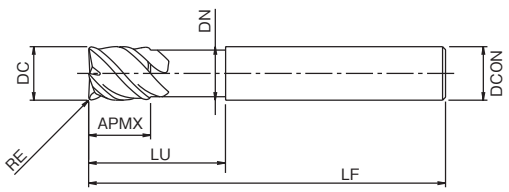
## FXS-PKER

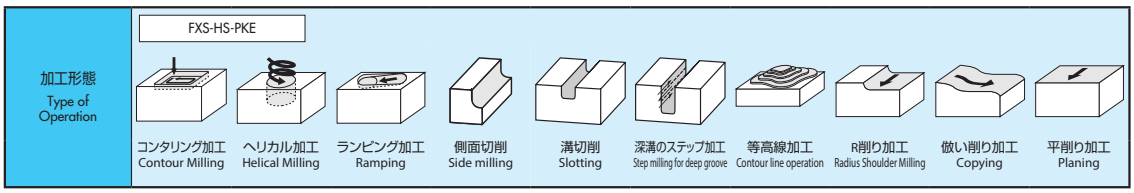


CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約45° ABOUT 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.2 | 60 | 8 | 6 | | □ | — | — |
| | 3 × R0.5 | | | | | □ | — | — |
| | 4 × R0.2 | 70 | 11 | | | □ | — | — |
| | 4 × R0.5 | | | | | □ | — | — |
| | 5 × R0.2 | 80 | 13 | | | □ | — | — |
| | 5 × R0.5 | | | | | □ | — | — |
| | 6 × R0.2 | 90 | | | | □ | — | — |
| | 6 × R0.5 | | | | | □ | — | — |
| | 6 × R1 | | | | | □ | — | — |
| | 6 × R1.5 | | | | | □ | — | — |
| | 8 × R0.2 | 100 | 19 | 8 | | □ | — | — |
| | 8 × R0.5 | | | | | □ | — | — |
| | 8 × R1 | | | | | □ | — | — |
| | 8 × R2 | | | | | □ | — | — |
| | 10 × R0.2 | | 22 | 10 | | □ | — | — |
| | 10 × R0.5 | | | | | □ | — | — |
| | 10 × R1 | | | | | □ | — | — |
| | 10 × R2 | | | | | □ | — | — |
| | 12 × R0.2 | 110 | 26 | 12 | | □ | — | — |
| | 12 × R0.5 | | | | | □ | — | — |
| | 12 × R1 | | | | | □ | — | — |
| | 12 × R2 | | | | | □ | — | — |
| | 12 × R3 | | | | | □ | — | — |
| | 16 × R0.5 | 140 | 32 | 16 | | □ | — | — |
| | 16 × R1 | | | | | □ | — | — |
| | 16 × R2 | | | | | □ | — | — |
| | 16 × R3 | | | | | □ | — | — |
| | 20 × R0.5 | 160 | 38 | 20 | | □ | — | — |
| | 20 × R1 | | | | | □ | — | — |
| | 20 × R2 | | | | | □ | — | — |
| | 20 × R3 | | | | | □ | — | — |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-PKER | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬エンドミルコーナC面付きショート形
**FX Coated 2-flute Carbide End Mill Short Length with Corner Chamfering**

## FX-CS-EDS



CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 × C0.2 | 40 | 2.5 | 4 | | □ | — | — |
| | 2 × C0.2 | | 6 | | | □ | — | — |
| | 2 × C0.3 | | | | | □ | — | — |
| | 2 × C0.5 | | | | | □ | — | — |
| | 3 × C0.2 | 45 | 8 | 6 | | □ | — | — |
| | 3 × C0.3 | | | | | □ | — | — |
| | 3 × C0.5 | | | | | □ | — | — |
| | 3 × C1 | | | | | □ | — | — |
| | 4 × C0.2 | | 11 | | | □ | — | — |
| | 4 × C0.3 | | | | | □ | — | — |
| | 4 × C0.5 | | | | | □ | — | — |
| | 4 × C1 | | | | | □ | — | — |
| | 4 × C1.5 | | | | | □ | — | — |
| | 5 × C0.2 | 50 | 13 | | — | □ | — | — |
| | 5 × C0.3 | | | | | □ | — | — |
| | 5 × C0.5 | | | | | □ | — | — |
| | 5 × C1 | | | | | □ | — | — |
| | 5 × C1.5 | | | | | □ | — | — |
| | 6 × C0.2 | | | | | □ | — | — |
| | 6 × C0.3 | | | | | □ | — | — |
| | 6 × C0.5 | | | | | □ | — | — |
| | 6 × C1 | | | | | □ | — | — |
| | 6 × C1.5 | | | | | □ | — | — |
| | 6 × C2 | | | | | □ | — | — |
| | 8 × C0.2 | 60 | 19 | 8 | | □ | — | — |
| | 8 × C0.3 | | | | | □ | — | — |
| | 8 × C0.5 | | | | | □ | — | — |
| | 8 × C1 | | | | | □ | — | — |
| | 8 × C1.5 | | | | | □ | — | — |
| | 8 × C2 | | | | | □ | — | — |
| | 8 × C3 | | | | | □ | — | — |
| | 10 × C0.2 | 70 | 22 | 10 | | □ | — | — |
| | 10 × C0.3 | | | | | □ | — | — |
| | 10 × C0.5 | | | | | □ | — | — |
| | 10 × C1 | | | | | □ | — | — |
| | 10 × C1.5 | | | | | □ | — | — |
| | 10 × C2 | | | | | □ | — | — |
| | 10 × C3 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12 × C0.2 | 75 | 26 | 12 | — | □ | — | — |
| | 12 × C0.3 | | | | | □ | — | — |
| | 12 × C0.5 | | | | | □ | — | — |
| | 12 × C1 | | | | | □ | — | — |
| | 12 × C1.5 | | | | | □ | — | — |
| | 12 × C2 | | | | | □ | — | — |
| | 12 × C3 | | | | | □ | — | — |

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃超硬エンドミルコーナC面付きショート形
**2-flute Carbide End Mill Short Length with Corner Chamfering**

## MG-CS-EDS



CARBIDE　SHRINK FIT　30°

0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 × C0.2 | 40 | 2.5 | 4 | – | □ | – | – |
| | 2 × C0.2 | | 6 | | | □ | – | – |
| | 2 × C0.3 | | | | | □ | – | – |
| | 2 × C0.5 | | | | | □ | – | – |
| | 3 × C0.2 | 45 | 8 | 6 | | □ | – | – |
| | 3 × C0.3 | | | | | □ | – | – |
| | 3 × C0.5 | | | | | □ | – | – |
| | 3 × C1 | | | | | □ | – | – |
| | 4 × C0.2 | | 11 | | | □ | – | – |
| | 4 × C0.3 | | | | | □ | – | – |
| | 4 × C0.5 | | | | | □ | – | – |
| | 4 × C1 | | | | | □ | – | – |
| | 4 × C1.5 | | | | | □ | – | – |
| | 5 × C0.2 | 50 | 13 | | | □ | – | – |
| | 5 × C0.3 | | | | | □ | – | – |
| | 5 × C0.5 | | | | | □ | – | – |
| | 5 × C1 | | | | | □ | – | – |
| | 5 × C1.5 | | | | | □ | – | – |
| | 6 × C0.2 | | | | | □ | – | – |
| | 6 × C0.3 | | | | | □ | – | – |
| | 6 × C0.5 | | | | | □ | – | – |
| | 6 × C1 | | | | | □ | – | – |
| | 6 × C1.5 | | | | | □ | – | – |
| | 6 × C2 | | | | | □ | – | – |
| | 8 × C0.2 | 60 | 19 | 8 | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 8 × C0.3 | 60 | 19 | 8 | – | □ | – | – |
| | 8 × C0.5 | | | | | □ | – | – |
| | 8 × C1 | | | | | □ | – | – |
| | 8 × C1.5 | | | | | □ | – | – |
| | 8 × C2 | | | | | □ | – | – |
| | 8 × C3 | | | | | □ | – | – |
| | 10 × C0.2 | 70 | 22 | 10 | | □ | – | – |
| | 10 × C0.3 | | | | | □ | – | – |
| | 10 × C0.5 | | | | | □ | – | – |
| | 10 × C1 | | | | | □ | – | – |
| | 10 × C1.5 | | | | | □ | – | – |
| | 10 × C2 | | | | | □ | – | – |
| | 10 × C3 | | | | | □ | – | – |
| | 12 × C0.2 | 75 | 26 | 12 | | □ | – | – |
| | 12 × C0.3 | | | | | □ | – | – |
| | 12 × C0.5 | | | | | □ | – | – |
| | 12 × C1 | | | | | □ | – | – |
| | 12 × C1.5 | | | | | □ | – | – |
| | 12 × C2 | | | | | □ | – | – |
| | 12 × C3 | | | | | □ | – | – |
| | 16 × C2 | 100 | 32 | 16 | | □ | – | – |
| | 16 × C3 | | | | | □ | – | – |
| | 20 × C2 | 105 | 38 | 20 | | □ | – | – |
| | 20 × C3 | | | | | □ | – | – |

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬ロングネックラジアスエンドミルショート形（φ6シャンク）

**FX Coated 2-flute Long Neck Carbide End Mill with Corner Radius (φ6 Shank)**

## FX-LN-CR-EDS-6



CARBIDE | FX | 0〜-0.015 | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×首下長×コーナ半径 DC×LU×RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 1 × 5 × R0.1 | 60 | 1.5 | 6 | 0.95 | – | □ | – | – |
| | 1 × 5 × R0.2 | | | | | | □ | – | – |
| | 1.2 × 6 × R0.1 | | 1.8 | | 1.15 | | □ | – | – |
| | 1.2 × 6 × R0.2 | | | | | | □ | – | – |
| | 1.4 × 7 × R0.1 | | 2.1 | | 1.35 | | □ | – | – |
| | 1.4 × 7 × R0.2 | | | | | | □ | – | – |
| | 1.5 × 7.5 × R0.1 | | 2.3 | | 1.45 | | □ | – | – |
| | 1.5 × 7.5 × R0.2 | | | | | | □ | – | – |
| | 1.6 × 8 × R0.1 | | 2.4 | | 1.55 | | □ | – | – |
| | 1.6 × 8 × R0.2 | | | | | | □ | – | – |
| | 1.8 × 9 × R0.1 | | 2.7 | | 1.75 | | □ | – | – |
| | 1.8 × 9 × R0.2 | | | | | | □ | – | – |
| | 2 × 10 × R0.1 | | 3 | | 1.95 | | □ | – | – |
| | 2 × 10 × R0.2 | | | | | | □ | – | – |
| | 2.5 × 12.5 × R0.1 | | 3.7 | | 2.4 | | □ | – | – |
| | 2.5 × 12.5 × R0.2 | | | | | | □ | – | – |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は ▶P.1176 を参照下さい。 See p.1176 for details
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、水・油・ヘドロをスピード吸入・スピード吐出



**CADデータ（DXF・STEP）ダウンロードサービス公開中** ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## SXLコート4枚刃超硬ラジアスエンドミル多機能強力型

**SXL Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type**

# SXL-PKE

切削条件 Cutting Conditions | P654

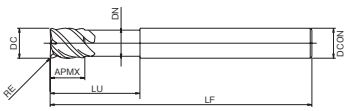


CARBIDE | SXL | SHRINK FIT | 約45°

0〜-0.02　　ABOUT 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×全長 DC × RE × LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.2 × 60 | 4.5 | 6 | 9 | 2.85 | □ | — | — |
| | 3 × R0.2 × 70 | | | 15 | | □ | — | — |
| | 3 × R0.5 × 60 | | | 9 | | □ | — | — |
| | 3 × R0.5 × 70 | | | 15 | | □ | — | — |
| | 4 × R0.2 × 70 | 6 | | 12 | 3.8 | □ | — | — |
| | 4 × R0.2 × 80 | | | 20 | | □ | — | — |
| | 4 × R0.5 × 70 | | | 12 | | □ | — | — |
| | 4 × R0.5 × 80 | | | 20 | | □ | — | — |
| | 5 × R0.2 × 80 | 7.5 | | 15 | 4.8 | □ | — | — |
| | 5 × R0.2 × 90 | | | 25 | | □ | — | — |
| | 5 × R0.5 × 80 | | | 15 | | □ | — | — |
| | 5 × R0.5 × 90 | | | 25 | | □ | — | — |
| | 6 × R0.5 × 90 | 9 | | 18 | 5.8 | □ | — | — |
| | 6 × R0.5 × 100 | | | 30 | | □ | — | — |
| | 6 × R1 × 90 | | | 18 | | □ | — | — |
| | 6 × R1 × 100 | | | 30 | | □ | — | — |
| | 8 × R0.5 × 100 | 12 | 8 | 24 | 7.7 | □ | — | — |
| | 8 × R0.5 × 110 | | | 40 | | □ | — | — |
| | 8 × R1 × 100 | | | 24 | | □ | — | — |
| | 8 × R1 × 110 | | | 40 | | □ | — | — |
| | 10 × R0.5 × 100 | 15 | 10 | 30 | 9.7 | □ | — | — |
| | 10 × R0.5 × 120 | | | 50 | | □ | — | — |
| | 10 × R1 × 100 | | | 30 | | □ | — | — |
| | 10 × R1 × 120 | | | 50 | | □ | — | — |
| | 10 × R2 × 100 | | | 30 | | □ | — | — |
| | 10 × R2 × 120 | | | 50 | | □ | — | — |
| | 12 × R0.5 × 110 | 18 | 12 | 36 | 11.7 | □ | — | — |
| | 12 × R0.5 × 130 | | | 60 | | □ | — | — |
| | 12 × R1 × 110 | | | 36 | | □ | — | — |
| | 12 × R1 × 130 | | | 60 | | □ | — | — |
| | 12 × R2 × 110 | | | 36 | | □ | — | — |
| | 12 × R2 × 130 | | | 60 | | □ | — | — |
| | 16 × R1 × 140 | 24 | 16 | 48 | 15.5 | □ | — | — |
| | 16 × R2 × 140 | | | | | □ | — | — |
| | 16 × R3 × 140 | | | | | □ | — | — |
| | 20 × R1 × 160 | 30 | 20 | 60 | 19.4 | □ | — | — |
| | 20 × R2 × 160 | | | | | □ | — | — |
| | 20 × R3 × 160 | | | | | □ | — | — |




## DLCコート3枚刃超硬ラジアスエンドミル立ち壁対応型（焼きばめ対応）

**DLC Coated 3-Flute Carbide End Mill with Corner Radius for Deep Side Milling (Shrink Fit Type)**

# DLC-MFE-SF



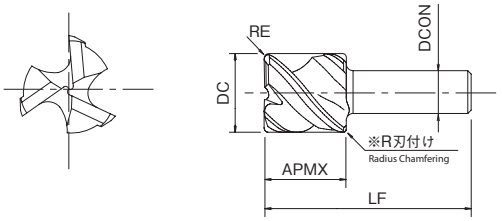
コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

CARBIDE | DLC | SHRINK FIT

0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 18×R1 | 51 | 18 | 10 | — □ | — | — |
| | 22×R1 | 60 | 22 | 12 | — □ | — | — |




※シャンク側端面のRは、ステップ加工時の筋発生を防止するもので、完全Rではありません。

Since radius chamfering is also provided on the end faces of shank side, no line is marked on the boundary section during step milling. This is partial radius.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| SXL-PKE | ◎ | | ◎ | ◎ | ○ | | ◎ | ◎ | | | | ◎ | ◎ | |
| DLC-MFE-SF | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# WXコートファインピッチ超硬ラフィングエンドミル ショート形

**WX Coated Carbide Roughing End Mill Fine Pitch Short Length**

## WX-RESF

切削条件 Cutting Conditions | P634



## 標準タイプ Standard Type

波状の刃形状が切削動力を低減するため、大きな切込みが可能です。びびり振動にも強く荒加工の高能率化を可能とします。

Large depths of cut are possible thanks to the reduction in cutting force provided by the wavelike flute form. Even during heavy chatter rough milling, high efficiency can be achieved.

CARBIDE | WX | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **7** | 60 | 16 | 8 | 4 | 0.5 | – | □ | – | – |
| | **9** | 70 | 19 | 10 | | | | □ | – | – |
| | **11** | 75 | 22 | 12 | | | | □ | – | – |
| | **13** | 90 | 26 | | | | | □ | – | – |
| 3016914 | **14** | 85 | | | | | B | ● | 147 | 30,000 |
| | **15** | 100 | | 16 | | | – | □ | – | – |
| 3016916 | **16** | | 32 | | | 0.6 | B | ● | 265 | 37,400 |
| 3016918 | **18** | | | | | | | ● | 283 | 46,500 |
| 3016920 | **20** | 105 | 38 | 20 | | | | ● | 423 | 55,400 |
| 3016922 | **22** | | | | | | | ● | 450 | 61,800 |
| 3016925 | **25** | 120 | 45 | 25 | | | | ● | 739 | 68,500 |

## 強ねじれタイプ High Helix Type

強ねじれタイプのラフィングエンドミルです。軟質材、ステンレス鋼、Ti合金などで大きな効果を発揮します。

High spiral roughing end mill. Works on soft steel, Stainless steel, Titanium alloys.

CARBIDE | WX | 43°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC × ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **7H** | 60 | 16 | 8 | 4 | 0.5 | – | □ | – | – |
| 3016808 | **8H** | | 19 | | | | D | ▲ | 42 | 17,500 |
| | **9H** | 70 | | 10 | | | – | □ | – | – |
| 3016810 | **10H** | | 22 | | | | D | ▲ | 73 | 19,700 |
| | **11H** | 75 | | 12 | | | – | □ | – | – |
| | **13H** | 90 | 26 | | | | | □ | – | – |
| | **15H** | 100 | | 16 | | | | □ | – | – |
| 3016816 | **16H×4F** | | 32 | | | 0.6 | D | ● | 261 | 37,400 |
| 3016866 | **16H×6F** | | | | 6 | | | ● | 270 | 39,000 |
| | **18H×4F** | | | | 4 | | – | □ | – | – |
| | **18H×6F** | | | | 6 | | | □ | – | – |
| 3016820 | **20H×4F** | 105 | 38 | 20 | 4 | | D | ● | 418 | 55,400 |
| 3016870 | **20H×6F** | | | | 6 | | | ● | 435 | 57,800 |

▲＝この製品は、SI-WC-RESF(P.438)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲＝These products have been stopped producing and replaced by SI-WC-RESF(p.438)

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1177 を参照下さい。 See p.1177 for details
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 一般構造用鋼・炭素鋼 Mild Steel Carbon Steel (~750N/mm²) | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~40HRC | | ~45HRC | ~55HRC | ~60HRC | ~65HRC | ~35HRC | ~350HB | | | | | | |
| WX-RESF (標準タイプ) | ○ | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | ○ | | |
| WX-RESF (強ねじれタイプ) | ◎ | ○ | | | | | | ◎ | ○ | ○ | ○ | | ◎ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

# WXLコートファインピッチ超硬ラフィング エンドミルショート形サイレントタイプ

**WXL Coated Carbide Roughing End Mill Fine Pitch Short Length and Silent Type**

## SI-WC-RESF

切削条件 Cutting Conditions | P633





### 弱ねじれタイプ
Low Helix Type

底刃の不等分割形状、外周刃の不等リード形状で“静かなる重切削”を実現します。

Introducing unequal spacing of end teeth and variable-lead of peripheral cutting edge, allowing for 'silent heavy duty'.

CARBIDE | WXL | 17.5°~22.5°

DC≦12 0~-0.05
12<DC 0~-0.06

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **5** | 60 | 13 | 6 | 3 | 0.3 | – | □ | – | – |
| 3017406 | **6** | | | | 4 | | B | ● | 25 | 16,800 |
| | **7** | 80 | 16 | 8 | | 0.5 | – | □ | – | – |
| 3017408 | **8** | | 19 | | | | B | ● | 57 | 19,500 |
| | **9** | | | 10 | | | – | □ | – | – |
| 3017410 | **10** | | 22 | | | | B | ● | 84 | 22,200 |
| | **11** | | | 12 | | | – | □ | – | – |
| 3017412 | **12** | | 26 | | | | B | ● | 120 | 25,600 |
| | **13** | 85 | | | | 0.6 | – | □ | – | – |
| | **14** | | | | | | | □ | – | – |
| | **15** | 90 | | 16 | | | | □ | – | – |
| | **16** | 100 | 32 | | | | | □ | – | – |
| | **17** | | | | | | | □ | – | – |
| | **18** | | | | | | | □ | – | – |
| | **19** | | | 20 | | | | □ | – | – |
| | **20** | 105 | 38 | | | | | □ | – | – |

### 強ねじれタイプ
High Helix Type

底刃の不等分割形状、外周刃の不等リード形状で“静かなる重切削”を実現します。

Introducing unequal spacing of end teeth and variable-lead of peripheralcutting edge, allowing for 'silent heavy duty'.

CAD

CARBIDE | WXL | 40°~42°

DC≦12 0~-0.05
12<DC 0~-0.06

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **5H** | 60 | 13 | 6 | 3 | 0.3 | – | □ | – | – |
| 3017456 | **6H** | | | | 4 | | B | ● | 25 | 16,800 |
| | **7H** | 80 | 16 | 8 | | 0.5 | – | □ | – | – |
| 3017458 | **8H** | | 19 | | | | B | ● | 57 | 19,500 |
| | **9H** | | | 10 | | | – | □ | – | – |
| 3017460 | **10H** | | 22 | | | | B | ● | 84 | 22,200 |
| | **11H** | | | 12 | | | – | □ | – | – |
| 3017462 | **12H** | | 26 | | | | B | ● | 120 | 25,600 |
| | **13H** | 85 | | | | 0.6 | – | □ | – | – |
| | **14H** | | | | | | | □ | – | – |
| | **15H** | 90 | | 16 | | | | □ | – | – |
| | **16H** | 100 | 32 | | | | | □ | – | – |
| | **17H** | | | | | | | □ | – | – |
| | **18H** | | | | | | | □ | – | – |
| | **19H** | | | 20 | | | | □ | – | – |
| | **20H** | 105 | 38 | | | | | □ | – | – |


OSGのPSシリーズ

**商品シリーズ** Parts & Supply series

※詳細は▶P.1176を参照下さい。
See p.1176 for details

圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、
水・油・ヘドロをスピード吸入・スピード吐出





形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 一般構造用鋼・炭素鋼 Mild Steel Carbon Steel (~750N/mm²) | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~40HRC | | ~45HRC | ~55HRC | ~60HRC | ~65HRC | ~35HRC | ~350HB | | | | | | |
| 弱ねじれタイプ (Low Helix Type) | ◎ | ○ | | | | | | ○ | ◎ | ○ | ○ | | ○ | | |
| 強ねじれタイプ (High Helix Type) | ○ | ○ | | | | | | ◎ | ○ | ○ | ○ | | ◎ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# SXLコートファインピッチ超硬ラフィングエンドミル ショート形

**SXL Coated Carbide Roughing End Mill Fine Pitch Short Length**

## SXL-RESF

切削条件 Cutting Conditions | **P634**



CARBIDE | SXL | DC≦6 ±0.06, 6<DC≦10 ±0.075, 10<DC≦18 ±0.09, 18<DC≦30 ±0.105 | SHRINK FIT | 30°

CARBIDE | SXL | DC≦6 ±0.06, 6<DC≦10 ±0.075, 10<DC≦18 ±0.09, 18<DC≦30 ±0.105 | SHRINK FIT | 43°

### 標準タイプ Standard Type

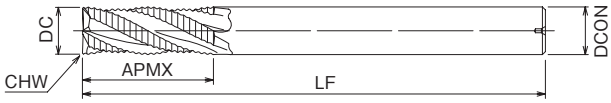
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 50 | 11 | 6 | 4 | 0.5 | – | □ | – | – |
| | 6 | | 13 | | | | | □ | – | – |
| | 7 | 60 | 16 | 8 | | | | □ | – | – |
| | 8 | | 19 | | | | | □ | – | – |
| | 9 | 70 | | 10 | | | | □ | – | – |
| | 10 | | 22 | | | | | □ | – | – |
| | 11 | 75 | | 12 | | | | □ | – | – |
| | 12 | | | | | | | □ | – | – |
| | 13 | 90 | 26 | | | | | □ | – | – |
| | 14 | 85 | | | | | | □ | – | – |
| | 15 | 100 | | 16 | | | | □ | – | – |
| | 16 | | 32 | | | | | □ | – | – |
| | 18 | | | | | 0.6 | | □ | – | – |
| | 20 | 105 | 38 | 20 | | | | □ | – | – |
| | 22 | | | | | | | □ | – | – |
| | 25 | 120 | 45 | 25 | | | | □ | – | – |

### 強ねじれタイプ High Helix Type

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC × ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5H | 50 | 11 | 6 | 4 | 0.5 | – | □ | – | – |
| | 6H | | 13 | | | | | □ | – | – |
| | 7H | 60 | 16 | 8 | | | | □ | – | – |
| | 8H | | 19 | | | | | □ | – | – |
| | 9H | 70 | | 10 | | | | □ | – | – |
| | 10H | | 22 | | | | | □ | – | – |
| | 11H | 75 | | 12 | | | | □ | – | – |
| | 12H | | | | | | | □ | – | – |
| | 13H | 90 | 26 | | | | | □ | – | – |
| | 15H | 100 | 32 | 16 | | | | □ | – | – |
| | 16H×4F | | | | 6 | 0.6 | | □ | – | – |
| | 16H×6F | | | | 4 | | | □ | – | – |
| | 18H×4F | | | | 6 | | | □ | – | – |
| | 18H×6F | | | | 4 | | | □ | – | – |
| | 20H×4F | 105 | 38 | 20 | 6 | | | □ | – | – |
| | 20H×6F | | | | | | | □ | – | – |




| 被削材質 Work Material / 製品記号 Abbreviation | 一般構造用鋼・炭素鋼 Mild Steel Carbon Steel (~750N/mm²) | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ~45HRC | ~55HRC | ~60HRC | ~65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SXL-RESF（標準タイプ） | ○ | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | ○ | | |
| SXL-RESF（強ねじれタイプ） | ◎ | ○ | | | | | | ◎ | ○ | ○ | ○ | | ◎ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXコートファインピッチ超硬ラフィングエンドミル ロングシャンク
**WX Coated Carbide Roughing End Mill Fine Pitch with Long Shank**

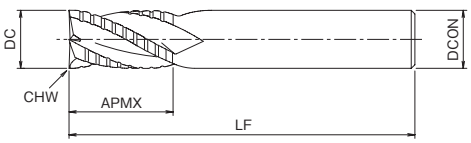
## WX-LS-RESF



CARBIDE | WX | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **8** | 140 | 19 | 6 | 4 | 0.5 | – | □ | – | – |
| | **10** | 160 | 22 | 8 | | | | □ | – | – |
| | **12** | 180 | 26 | 10 | | | | □ | – | – |
| | **15** | 200 | 26 | 12 | | | | □ | – | – |
| | **20** | 220 | 38 | 16 | | 0.6 | | □ | – | – |
| | **25** | 250 | 45 | 20 | | | | □ | – | – |




OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## NC旋盤用WXLコートファインピッチ超硬ラフィングエンドミル
**WXL Coated Carbide Roughing End Mill for Lathes**

**WXL-MG-NC-RESF** 切削条件 Cutting Conditions | **P634**


(6≦DC)



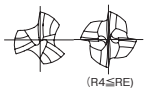
CARBIDE | WXL | R ±0.1 | DC≦6 ±0.06, 6<DC≦10 ±0.075, 10<DC≦18 ±0.09, DC=20 ±0.105 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 3×R0.5 | 60 | 6 | 6 | 3 | – | □ | – | – |
| | 4×R0.5 | | | | | | □ | – | – |
| | 5×R0.5 | | | | | | □ | – | – |
| | 6×R0.5 | | | | 4 | | □ | – | – |
| | 8×R0.5 | | | | | | □ | – | – |
| | 10×R0.5 | 70 | 8 | 10 | | | □ | – | – |
| | 12×R0.5 | | | | | | □ | – | – |
| | 14×R1 | | | | | | □ | – | – |
| | 15×R1 | | | | | | □ | – | – |
| | 16×R1 | | | | | | □ | – | – |
| | 18×R1 | | | | | | □ | – | – |
| | 20×R1 | | | | | | □ | – | – |

## WXLコート超硬ラフィングボールエンドミル
**WXL Coated Carbide Roughing Ball End Mill**

**WXL-REBM** 切削条件 Cutting Conditions | **P614-1**

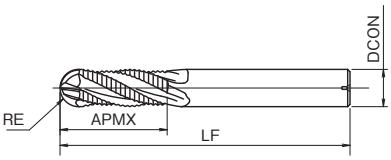

(R4≦RE)



CARBIDE | WXL | R ±0.02 | SHRINK FIT | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R3 × 6 | 50 | 13 | 6 | 3 | – | □ | – | – |
| | R4 × 8 | 60 | 19 | 8 | 4 | | □ | – | – |
| | R5 × 10 | 70 | 22 | 10 | | | □ | – | – |
| | R6 × 12 | 75 | 26 | 12 | | | □ | – | – |
| | R8 × 16 | 100 | 32 | 16 | | | □ | – | – |
| | R10 × 20 | 105 | 38 | 20 | | | □ | – | – |




OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1176 を参照下さい。 See p.1176 for details
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、水・油・ヘドロをスピード吸入・スピード吐出



**製品検索サイトから見積依頼書・注文書を作成できます** ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 一般構造用鋼・炭素鋼 Mild Steel Carbon Steel (~750N/mm²) | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~40HRC | | ~45HRC | ~55HRC | ~60HRC | ~65HRC | ~35HRC | ~350HB | | | | | | |
| WXL-MG-NC-RESF | ○ | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | ○ | | |
| WXL-REBM | | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | ○ | | |

**在庫記号について** Inventory symbols
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- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item




## デジタルカタログ

カタログ

最新の総合カタログや製品カタログを時間・場所問わず閲覧できます。しおりを挟んだり、メールでカタログを共有することも可能です。




### 総合カタログ

いつでもどこでもカタログを。

### 製品カタログ

最新カタログをいち早く。




## コードスキャン

コードスキャン

アプリ限定

バーコード・二次元コードに対応したスキャン機能です。工具のスペック情報や切削条件、検査成績表などの各種データを取得することができます。



※二次元コードは一部製品に限ります

## CADデータダウンロード

CADデータダウンロード

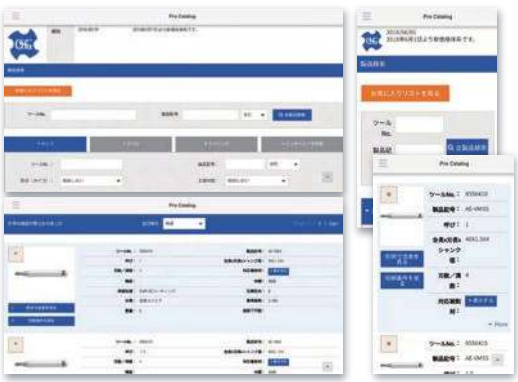
工具のDXFファイル・STEPファイルをパソコンやスマートフォンからいつでもダウンロードできます。



## 製品検索

製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



アプリの使い方・ダウンロードはこちら

**さらに、製品動画やFAQサイトなどOSG情報が満載！**

**最新情報を掲載中　今すぐダウンロード！**

# FXコート2枚刃超硬テーパエンドミルショート形
**FX Coated 2-flute Carbide Taper End Mill Short Length**

## FX-MG-TPDS

切削条件 Cutting Conditions | P653



FXコーティングにより高能率、長寿命を実現しました。一般材から焼き入れ鋼まで幅広い対応が可能です。
FX coating improves productivity and tool life. Applicable for materials such as general and quenched steels.

CAD

CARBIDE | FX | ±5′ | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **0.2 × 0.25°** | 40 | 0.8 | 3 | 0.21 | – | □ | – | – |
| 8536802 | **0.2 × 0.5°** | | | | 0.21 | D | △ | 6 | 20,300 |
| | **0.2 × 0.75°** | | | | 0.22 | – | □ | – | – |
| 8536812 | **0.2 × 1°** | | | | 0.23 | | △ | 7 | 20,300 |
| 8536822 | **0.2 × 1.5°** | | | | 0.24 | | △ | 6 | 20,300 |
| 8536832 | **0.2 × 2°** | | | | 0.26 | | △ | 6 | 20,300 |
| 8536842 | **0.2 × 2.5°** | | | | 0.27 | D | △ | 6 | 20,300 |
| 8536852 | **0.2 × 3°** | | | | 0.28 | | △ | 6 | 20,300 |
| 8536862 | **0.2 × 4°** | | | | 0.31 | | △ | 6 | 21,400 |
| 8536892 | **0.2 × 7°** | | | | 0.4 | | △ | 9 | 26,200 |
| | **0.3 × 0.25°** | | 1.2 | | 0.31 | – | □ | – | – |
| 8536803 | **0.3 × 0.5°** | | | | 0.32 | D | △ | 6 | 17,200 |
| | **0.3 × 0.75°** | | | | 0.33 | – | □ | – | – |
| 8536813 | **0.3 × 1°** | | | | 0.34 | | △ | 9 | 17,200 |
| 8536823 | **0.3 × 1.5°** | | | | 0.36 | | △ | 6 | 17,200 |
| 8536833 | **0.3 × 2°** | | | | 0.38 | | △ | 6 | 17,200 |
| 8536843 | **0.3 × 2.5°** | | | | 0.4 | | △ | 6 | 17,200 |
| 8536853 | **0.3 × 3°** | | | | 0.43 | D | △ | 6 | 17,200 |
| 8536863 | **0.3 × 4°** | | | | 0.47 | | △ | 6 | 18,500 |
| 8536883 | **0.3 × 5°** | | | | 0.51 | | △ | 9 | 19,500 |
| 8536893 | **0.3 × 7°** | | | | 0.59 | | △ | 9 | 21,900 |
| 8536913 | **0.3 × 10°** | | | | 0.72 | | △ | 9 | 24,600 |
| | **0.4 × 0.25°** | | 1.6 | | 0.41 | – | □ | – | – |
| 8536804 | **0.4 × 0.5°** | | | | 0.43 | D | △ | 6 | 17,200 |
| | **0.4 × 0.75°** | | | | 0.44 | – | □ | – | – |
| 8536814 | **0.4 × 1°** | | | | 0.46 | | △ | 6 | 17,200 |
| 8536824 | **0.4 × 1.5°** | | | | 0.48 | | △ | 6 | 17,200 |
| 8536834 | **0.4 × 2°** | | | | 0.51 | | △ | 6 | 17,200 |
| 8536844 | **0.4 × 2.5°** | | | | 0.54 | | △ | 6 | 17,200 |
| 8536854 | **0.4 × 3°** | | | | 0.57 | D | △ | 6 | 17,200 |
| 8536864 | **0.4 × 4°** | | | | 0.62 | | △ | 6 | 18,500 |
| 8536884 | **0.4 × 5°** | | | | 0.68 | | △ | 9 | 19,500 |
| 8536894 | **0.4 × 7°** | | | | 0.79 | | △ | 9 | 21,900 |
| 8536914 | **0.4 × 10°** | | | | 0.96 | | △ | 9 | 24,600 |
| | **0.5 × 0.25°** | | 2 | | 0.52 | – | □ | – | – |
| 8536805 | **0.5 × 0.5°** | | | | 0.53 | D | ● | 6 | 17,200 |
| | **0.5 × 0.75°** | | | | 0.55 | – | □ | – | – |
| 8536815 | **0.5 × 1°** | | | | 0.57 | | ● | 9 | 17,200 |
| 8536825 | **0.5 × 1.5°** | | | | 0.6 | | ● | 6 | 17,200 |
| 8536835 | **0.5 × 2°** | | | | 0.64 | | ● | 6 | 17,200 |
| 8536845 | **0.5 × 2.5°** | | | | 0.67 | | △ | 6 | 17,200 |
| 8536855 | **0.5 × 3°** | | | | 0.71 | D | ● | 6 | 17,200 |
| 8536865 | **0.5 × 4°** | | | | 0.78 | | △ | 6 | 18,500 |
| 8536885 | **0.5 × 5°** | | | | 0.85 | | ● | 9 | 19,500 |
| 8536035 | **0.5 × 6°** | | | | 0.92 | | △ | 7 | 20,800 |
| 8536895 | **0.5 × 7°** | | | | 0.99 | | ● | 9 | 21,900 |
| 8536915 | **0.5 × 10°** | | | | 1.21 | | ● | 9 | 24,600 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8536935 | **0.5 × 12°** | 40 | 2 | 3 | 1.35 | | ● | 9 | 25,100 |
| 8536955 | **0.5 × 15°** | | | | 1.57 | D | ● | 7 | 26,200 |
| 8536165 | **0.5 × 20°** | 45 | | 4 | 1.96 | | ● | 10 | 28,800 |
| | **0.6 × 0.25°** | 40 | | 3 | 0.62 | – | □ | – | – |
| 8536806 | **0.6 × 0.5°** | | | | 0.63 | D | △ | 6 | 16,100 |
| | **0.6 × 0.75°** | | | | 0.65 | – | □ | – | – |
| 8536816 | **0.6 × 1°** | | | | 0.67 | | △ | 9 | 16,100 |
| 8536826 | **0.6 × 1.5°** | | | | 0.7 | | △ | 6 | 16,100 |
| 8536836 | **0.6 × 2°** | | | | 0.74 | | △ | 6 | 16,100 |
| 8536846 | **0.6 × 2.5°** | | | | 0.77 | | △ | 6 | 16,100 |
| 8536856 | **0.6 × 3°** | | | | 0.81 | D | △ | 6 | 16,100 |
| 8536866 | **0.6 × 4°** | | | | 0.88 | | △ | 6 | 17,500 |
| 8536036 | **0.6 × 6°** | | | | 1.02 | | △ | 7 | 20,300 |
| 8536896 | **0.6 × 7°** | | | | 1.09 | | △ | 9 | 21,900 |
| 8536936 | **0.6 × 12°** | | | | 1.45 | | △ | 9 | 24,000 |
| 8536956 | **0.6 × 15°** | | | | 1.67 | | △ | 7 | 24,900 |
| | **0.7 × 0.25°** | | | | 0.72 | – | □ | – | – |
| 8536807 | **0.7 × 0.5°** | | | | 0.73 | D | △ | 6 | 16,100 |
| | **0.7 × 0.75°** | | | | 0.75 | – | □ | – | – |
| 8536817 | **0.7 × 1°** | | | | 0.77 | | △ | 6 | 16,100 |
| 8536827 | **0.7 × 1.5°** | | | | 0.8 | | △ | 6 | 16,100 |
| 8536837 | **0.7 × 2°** | | | | 0.84 | | △ | 6 | 16,100 |
| 8536847 | **0.7 × 2.5°** | | | | 0.87 | | △ | 6 | 16,100 |
| 8536857 | **0.7 × 3°** | | | | 0.91 | | △ | 6 | 16,100 |
| 8536867 | **0.7 × 4°** | | | | 0.98 | D | △ | 6 | 17,500 |
| 8536887 | **0.7 × 5°** | | | | 1.05 | | △ | 9 | 19,000 |
| 8536037 | **0.7 × 6°** | | | | 1.12 | | △ | 7 | 20,300 |
| 8536897 | **0.7 × 7°** | | | | 1.19 | | △ | 9 | 21,900 |
| 8536937 | **0.7 × 12°** | | | | 1.55 | | △ | 9 | 24,000 |
| 8536957 | **0.7 × 15°** | | | | 1.77 | | △ | 7 | 24,900 |
| 8536167 | **0.7 × 20°** | 45 | | 4 | 2.16 | | △ | 14 | 26,200 |
| | **0.8 × 0.25°** | 40 | 2 | 3 | 0.83 | – | □ | – | – |
| 8536808 | **0.8 × 0.5°** | | | | 0.83 | D | ● | 6 | 16,100 |
| | **0.8 × 0.75°** | | | | 0.88 | – | □ | – | – |
| 8536818 | **0.8 × 1°** | | | | 0.87 | | ● | 6 | 16,100 |
| 8536828 | **0.8 × 1.5°** | | | | 0.9 | | ● | 6 | 16,100 |
| 8536838 | **0.8 × 2°** | | | | 0.94 | | ● | 6 | 16,100 |
| 8536848 | **0.8 × 2.5°** | | | | 1.06 | | △ | 6 | 16,100 |
| 8536858 | **0.8 × 3°** | | | | 1.01 | | ● | 6 | 16,100 |
| 8536868 | **0.8 × 4°** | | | | 1.08 | D | △ | 6 | 17,500 |
| 8536888 | **0.8 × 5°** | | | | 1.15 | | ● | 9 | 19,000 |
| 8536038 | **0.8 × 6°** | | | | 1.22 | | △ | 7 | 20,300 |
| 8536898 | **0.8 × 7°** | | | | 1.29 | | ● | 9 | 21,900 |
| 8536918 | **0.8 × 10°** | | | | 1.51 | | ● | 9 | 23,100 |
| 8536938 | **0.8 × 12°** | | | | 1.65 | | ● | 9 | 24,000 |

次ページへ
外径 DC 0.8～2.5 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬テーパエンドミルショート形
**FX Coated 2-flute Carbide Taper End Mill Short Length**

## FX-MG-TPDS

切削条件 Cutting Conditions | P653



FXコーティングにより高能率、長寿命を実現しました。一般材から焼き入れ鋼まで幅広い対応が可能です。
FX coating improves productivity and tool life. Applicable for materials such as general and quenched steels.

CAD

CARBIDE | FX | ±5′ | SHRINK FIT | 30°

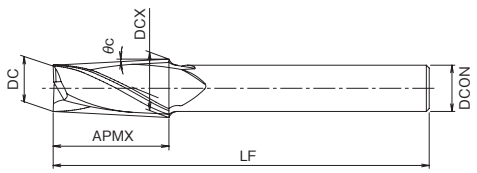
前ページより FROM 外径 DC 0.2～0.8

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8536958 | 0.8 × 15° | 40 | 2 | 3 | 1.87 | D | ● | 7 | 24,900 |
| 8536168 | 0.8 × 20° | 50 | | 4 | 2.26 | | ● | 14 | 26,200 |
| | 0.9 × 0.25° | 40 | 3 | 3 | 0.93 | – | □ | – | – |
| 8536809 | 0.9 × 0.5° | | 2 | | 0.93 | D | △ | 6 | 16,100 |
| | 0.9 × 0.75° | | 3 | | 0.98 | – | □ | – | – |
| 8536819 | 0.9 × 1° | | 2 | | 0.97 | | △ | 6 | 16,100 |
| 8536829 | 0.9 × 1.5° | | | | 1 | | △ | 6 | 16,100 |
| 8536839 | 0.9 × 2° | | | | 1.04 | | △ | 6 | 16,100 |
| 8536849 | 0.9 × 2.5° | | 3 | | 1.16 | | △ | 6 | 16,100 |
| 8536859 | 0.9 × 3° | | 2 | | 1.11 | | △ | 6 | 16,100 |
| 8536869 | 0.9 × 4° | | | | 1.18 | | △ | 6 | 17,500 |
| 8536889 | 0.9 × 5° | | | | 1.25 | D | △ | 9 | 19,000 |
| 8536039 | 0.9 × 6° | | | | 1.32 | | △ | 7 | 20,300 |
| 8536899 | 0.9 × 7° | | | | 1.39 | | △ | 9 | 21,900 |
| 8536919 | 0.9 × 10° | | | | 1.61 | | △ | 9 | 23,100 |
| 8536939 | 0.9 × 12° | | | | 1.75 | | △ | 9 | 24,000 |
| 8536959 | 0.9 × 15° | | | | 1.97 | | △ | 7 | 24,900 |
| 8536169 | 0.9 × 20° | 50 | 4 | 4 | 2.36 | | △ | 14 | 26,200 |
| 8536772 | 1 × 15′ | | | | 1.03 | | △ | 10 | 15,600 |
| 8537202 | 1 × 0.5° | | | | 1.07 | B | ● | 14 | 15,600 |
| | 1 × 0.75° | | | | 1.1 | – | □ | – | – |
| 8537252 | 1 × 1° | | | | 1.14 | | ● | 14 | 15,600 |
| 8537302 | 1 × 1.5° | | | | 1.21 | B | ● | 14 | 15,600 |
| 8537352 | 1 × 2° | | | | 1.28 | | ● | 14 | 15,600 |
| 8537402 | 1 × 2.5° | | | | 1.35 | D | △ | 13 | 16,400 |
| 8537452 | 1 × 3° | | | | 1.42 | | ● | 14 | 16,400 |
| 8536870 | 1 × 4° | | | | 1.56 | B | △ | 14 | 16,400 |
| 8537482 | 1 × 5° | | | | 1.7 | | ● | 14 | 19,300 |
| 8536042 | 1 × 6° | | | | 1.84 | D | △ | 14 | 20,100 |
| 8536900 | 1 × 7° | | | | 1.98 | | ● | 14 | 20,900 |
| 8536920 | 1 × 10° | | | | 2.41 | B | ● | 14 | 22,200 |
| 8536940 | 1 × 12° | | | | 2.7 | | ● | 14 | 24,000 |
| 8536960 | 1 × 15° | | | | 3.14 | | ● | 14 | 24,900 |
| 8536172 | 1 × 20° | | | | 3.91 | D | ● | 14 | 26,200 |
| 8536773 | 1.5 × 15′ | | 5 | | 1.54 | | △ | 10 | 15,000 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8537203 | 1.5 × 0.5° | 50 | 5 | 4 | 1.59 | B | ● | 14 | 15,000 |
| | 1.5 × 0.75° | | | | 1.63 | – | □ | – | – |
| 8537253 | 1.5 × 1° | | | | 1.68 | B | ● | 14 | 15,000 |
| 8537303 | 1.5 × 1.5° | | | | 1.76 | | ● | 14 | 15,000 |
| 8537353 | 1.5 × 2° | | | | 1.85 | | ● | 14 | 15,000 |
| 8537453 | 1.5 × 3° | | | | 2.02 | | ● | 14 | 15,500 |
| 8536875 | 1.5 × 4° | | | | 2.2 | | △ | 14 | 15,600 |
| 8537483 | 1.5 × 5° | | | | 2.38 | | ● | 14 | 18,700 |
| 8536043 | 1.5 × 6° | | | | 2.55 | D | △ | 14 | 19,700 |
| 8536905 | 1.5 × 7° | | | | 2.73 | B | ● | 14 | 20,900 |
| 8536925 | 1.5 × 10° | | | | 3.26 | | ● | 14 | 22,200 |
| 8536945 | 1.5 × 12° | | | | 3.63 | | ● | 14 | 24,000 |
| 8536965 | 1.5 × 15° | | | | 4.18 | | ● | 15 | 24,900 |
| 8536173 | 1.5 × 20° | 60 | 6 | 6 | 5.14 | D | ● | 31 | 27,300 |
| 8536774 | 2 × 15′ | 50 | 6 | 4 | 2.05 | B | △ | 10 | 15,000 |
| 8537204 | 2 × 0.5° | | | | 2.11 | | ● | 14 | 15,000 |
| | 2 × 0.75° | | | | 2.16 | – | □ | – | – |
| 8537254 | 2 × 1° | | | | 2.21 | B | ● | 14 | 15,000 |
| 8537304 | 2 × 1.5° | | | | 2.31 | | ● | 14 | 15,000 |
| 8537354 | 2 × 2° | | | | 2.42 | | ● | 14 | 15,000 |
| 8537454 | 2 × 3° | | | | 2.63 | | ● | 14 | 15,500 |
| 8537484 | 2 × 5° | | | | 3.05 | | ● | 14 | 18,700 |
| 8536044 | 2 × 6° | | | | 3.26 | | △ | 14 | 18,800 |
| 8536064 | 2 × 7° | | | | 3.47 | | ● | 14 | 21,400 |
| 8536094 | 2 × 10° | | | | 4.12 | | ● | 11 | 25,400 |
| 8536124 | 2 × 12° | | | | 4.55 | D | ● | 14 | 27,000 |
| 8536144 | 2 × 15° | | | | 5.22 | | ● | 13 | 28,100 |
| 8536174 | 2 × 20° | 60 | 6 | 6 | 6.37 | | ● | 28 | 30,800 |
| 8536775 | 2.5 × 15′ | 50 | 8 | 4 | 2.57 | | △ | 10 | 15,800 |
| 8537205 | 2.5 × 0.5° | | | | 2.64 | B | ● | 14 | 15,800 |
| | 2.5 × 0.75° | | | | 2.71 | – | □ | – | – |
| 8537255 | 2.5 × 1° | | | | 2.78 | B | ● | 14 | 15,800 |




刃部テーパ半角早見表
Convertion Table

| | | |
|---|---|---|
| 0.25° | → | 15′ |
| 0.75° | → | 45′ |

次ページへ 外径 DC 2.5～6 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 焼き入れ鋼 Hardened Steel | | | | | | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-MG-TPDS | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬テーパエンドミルショート形
**FX Coated 2-flute Carbide Taper End Mill Short Length**

## FX-MG-TPDS

切削条件 Cutting Conditions | P653



FXコーティングにより高能率、長寿命を実現しました。一般材から焼き入れ鋼まで幅広い対応が可能です。
FX coating improves productivity and tool life. Applicable for materials such as general and quenched steels.

CAD

CARBIDE | FX | ±5′ | SHRINK FIT | 30°

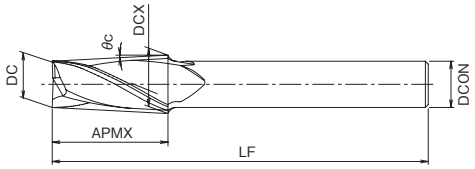
前ページより FROM 外径 DC 0.8～2.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8537305 | 2.5 × 1.5° | 50 | 8 | 4 | 2.92 | B | ● | 14 | 15,800 |
| 8537355 | 2.5 × 2° | | | | 3.06 | | ● | 14 | 15,800 |
| 8537405 | 2.5 × 2.5° | | | | 3.2 | D | △ | 13 | 16,200 |
| 8537455 | 2.5 × 3° | | | | 3.34 | B | ● | 14 | 16,200 |
| 8536015 | 2.5 × 4° | | | | 3.62 | D | △ | 10 | 17,400 |
| 8537485 | 2.5 × 5° | | | | 3.9 | B | ● | 14 | 18,700 |
| 8536045 | 2.5 × 6° | | | | 4.18 | | △ | 11 | 18,800 |
| 8536065 | 2.5 × 7° | | | | 4.46 | | ● | 11 | 23,100 |
| 8536095 | 2.5 × 10° | | | | 5.32 | | ● | 11 | 28,100 |
| 8536125 | 2.5 × 12° | | | | 5.9 | D | ● | 14 | 29,700 |
| 8536145 | 2.5 × 15° | 60 | | 6 | 6.79 | | ● | 27 | 31,000 |
| 8536175 | 2.5 × 20° | 70 | | 8 | 8.32 | | ● | 51 | 36,300 |
| 8536776 | 3 × 15′ | 60 | 10 | 6 | 3.09 | | △ | 22 | 16,500 |
| 8537206 | 3 × 0.5° | | | | 3.18 | B | ● | 22 | 16,500 |
| | 3 × 0.75° | | | | 3.26 | – | □ | – | – |
| 8537256 | 3 × 1° | | | | 3.35 | | ● | 22 | 16,500 |
| 8537306 | 3 × 1.5° | | | | 3.52 | B | ● | 23 | 16,500 |
| 8537356 | 3 × 2° | | | | 3.7 | | ● | 23 | 16,500 |
| 8537406 | 3 × 2.5° | | | | 3.87 | D | △ | 23 | 17,200 |
| 8537456 | 3 × 3° | | | | 4.05 | B | ● | 23 | 17,200 |
| 8537486 | 3 × 5° | | | | 4.75 | | ● | 23 | 19,300 |
| 8536066 | 3 × 7° | | | | 5.46 | | ● | 24 | 27,000 |
| 8536096 | 3 × 10° | 50 | | | 6.53 | | ● | 22 | 30,800 |
| 8536126 | 3 × 12° | 60 | | | 7.25 | D | ● | 26 | 33,600 |
| 8536146 | 3 × 15° | 70 | | 8 | 8.36 | | ● | 51 | 36,300 |
| 8536176 | 3 × 20° | 80 | | 10 | 10.28 | | ● | 88 | 40,200 |
| 8537208 | 4 × 0.5° | 60 | 15 | 6 | 4.26 | B | ● | 22 | 17,400 |
| 8537258 | 4 × 1° | | | | 4.52 | | ● | 22 | 17,400 |
| 8537308 | 4 × 1.5° | | | | 4.79 | | ● | 23 | 17,400 |
| 8537358 | 4 × 2° | | | | 5.05 | | ● | 23 | 17,400 |
| 8537458 | 4 × 3° | | | | 5.57 | | ● | 23 | 19,000 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8536018 | 4 × 4° | 60 | 15 | 6 | 6.1 | D | △ | 25 | 21,400 |
| 8537488 | 4 × 5° | | | | 6.63 | B | ● | 25 | 22,500 |
| 8536068 | 4 × 7° | | | | 7.68 | | ● | 27 | 29,400 |
| 8536098 | 4 × 10° | | | | 9.29 | | ● | 27 | 36,300 |
| 8536128 | 4 × 12° | 80 | | 10 | 10.38 | D | ● | 85 | 38,200 |
| 8536148 | 4 × 15° | 90 | | 12 | 12.04 | | ● | 151 | 40,200 |
| 8536178 | 4 × 20° | | | | 14.92 | | ● | 151 | 46,800 |
| 8536780 | 5 × 15′ | 60 | 20 | 6 | 5.17 | | △ | 22 | 20,100 |
| 8537210 | 5 × 0.5° | | | | 5.35 | B | ● | 22 | 20,100 |
| 8537260 | 5 × 1° | | | | 5.7 | | ● | 23 | 20,100 |
| 8537310 | 5 × 1.5° | | | | 6.05 | | ● | 24 | 20,100 |
| 8537360 | 5 × 2° | | | | 6.4 | | ● | 25 | 20,400 |
| 8537410 | 5 × 2.5° | | | | 6.75 | D | △ | 25 | 21,900 |
| 8537460 | 5 × 3° | | | | 7.1 | B | ● | 26 | 21,900 |
| 8537490 | 5 × 5° | 70 | | 8 | 8.5 | | ● | 46 | 30,000 |
| 8536070 | 5 × 7° | 60 | | 6 | 9.91 | | ● | 31 | 31,600 |
| 8536100 | 5 × 10° | | | | 12.05 | | ● | 35 | 37,700 |
| 8536130 | 5 × 12° | 90 | | 12 | 13.5 | D | ● | 145 | 46,800 |
| 8536150 | 5 × 15° | | | | 15.72 | | ● | 150 | 53,800 |
| 8536180 | 5 × 20° | 100 | | 16 | 19.56 | | ● | 276 | 60,400 |
| 8537212 | 6 × 0.5° | 60 | | 6 | 6.35 | B | ● | 25 | 22,400 |
| 8537262 | 6 × 1° | | | | 6.7 | | ● | 26 | 22,400 |
| 8537312 | 6 × 1.5° | | | | 7.05 | | ● | 26 | 22,400 |
| 8537362 | 6 × 2° | | | | 7.4 | | ● | 27 | 22,400 |
| 8537412 | 6 × 2.5° | 70 | | 8 | 7.75 | D | △ | 46 | 23,600 |
| 8537462 | 6 × 3° | | | | 8.1 | B | ● | 47 | 23,600 |
| 8537492 | 6 × 5° | | | | 9.5 | | ● | 50 | 32,400 |
| 8536072 | 6 × 7° | | | | 10.91 | D | ● | 54 | 37,500 |
| 8536102 | 6 × 10° | 90 | | 12 | 13.05 | | ● | 145 | 43,300 |




刃部テーパ半角早見表
Convertion Table

| | | |
|---|---|---|
| 0.25° | → | 15′ |
| 0.75° | → | 45′ |

次ページへ 外径 DC 6～12 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-MG-TPDS | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
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- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート2枚刃超硬テーパエンドミルショート形
**FX Coated 2-flute Carbide Taper End Mill Short Length**

## FX-MG-TPDS

切削条件 Cutting Conditions | P653



FXコーティングにより高能率、長寿命を実現しました。一般材から焼き入れ鋼まで幅広い対応が可能です。
FX coating improves productivity and tool life. Applicable for materials such as general and quenched steels.

CAD

CARBIDE | FX | ±5′ | SHRINK FIT | 30°

前ページより FROM 外径 DC 2.5～6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8536132 | 6 × 12° | 90 | 20 | 12 | 14.5 | D | ● | 148 | 49,800 |
| 8536152 | 6 × 15° | 100 | | 16 | 16.72 | | ● | 280 | 56,400 |
| 8536182 | 6 × 20° | 120 | | 20 | 20.56 | | ● | 512 | 63,100 |
| 8536786 | 8 × 15′ | 80 | 25 | 8 | 8.22 | | △ | 57 | 29,500 |
| 8537216 | 8 × 0.5° | 70 | | | 8.44 | B | ● | 47 | 29,500 |
| 8537266 | 8 × 1° | | | | 8.87 | | ● | 50 | 29,500 |
| 8537316 | 8 × 1.5° | | | | 9.31 | | ● | 51 | 29,500 |
| 8537366 | 8 × 2° | | | | 9.75 | | ● | 52 | 29,500 |
| 8537416 | 8 × 2.5° | 80 | | 10 | 10.18 | D | △ | 95 | 33,100 |
| 8537466 | 8 × 3° | 90 | | | 10.62 | B | ● | 96 | 33,100 |
| 8537496 | 8 × 5° | | | 12 | 12.37 | | ● | 132 | 50,800 |
| 8536076 | 8 × 7° | 80 | | 10 | 14.14 | D | ● | 104 | 66,300 |
| 8536106 | 8 × 10° | | | | 16.82 | | ● | 111 | 95,300 |
| 8537220 | 10 × 0.5° | 90 | 35 | | 10.61 | B | ● | 94 | 39,900 |
| 8537270 | 10 × 1° | | | | 11.22 | | ● | 97 | 39,900 |
| 8537320 | 10 × 1.5° | | | | 11.83 | | ● | 99 | 42,500 |
| 8537370 | 10 × 2° | | | 12 | 12.44 | | ● | 128 | 52,700 |
| 8537420 | 10 × 2.5° | | | | 13.06 | D | △ | 131 | 55,400 |
| 8537470 | 10 × 3° | | | | 13.67 | B | ● | 143 | 55,400 |
| 8537500 | 10 × 5° | 100 | | 16 | 16.12 | D | ● | 244 | 87,800 |
| 8536080 | 10 × 7° | | | | 18.59 | | ● | 261 | 97,400 |
| 8536110 | 10 × 10° | | | | 22.34 | | ● | 286 | 131,000 |
| 8537224 | 12 × 0.5° | 90 | 40 | 12 | 12.7 | | ● | 133 | 51,100 |
| 8537274 | 12 × 1° | | | | 13.4 | | ● | 144 | 57,300 |
| 8537324 | 12 × 1.5° | | | | 14.09 | | ● | 148 | 71,100 |
| 8537374 | 12 × 2° | | | | 14.79 | | ● | 151 | 71,600 |
| 8537474 | 12 × 3° | 110 | | 16 | 16.19 | | ● | 275 | 97,400 |
| 8537504 | 12 × 5° | | | | 19 | | ● | 280 | 107,000 |
| 8536084 | 12 × 7° | 120 | | 20 | 21.82 | | ● | 476 | 116,000 |
| 8536114 | 12 × 10° | | | | 26.11 | | ● | 527 | 185,000 |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-MG-TPDS | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 台形ランナ用2枚刃超硬テーパエンドミル
**2-flute Carbide Taper End Mill for Trapezoidal Runner**

## MG-TRC

切削条件 Cutting Conditions | P673



台形ランナ加工用としてご使用いただけるテーパ刃エンドミルです。高じん性超硬合金を採用しています。
Taper-edged end mill for trapezoidal runner applications. Made with tough carbide metal body.

CARBIDE | ±5′ | SHRINK FIT | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8539001 | 2 × 7° | 45 | 4 | 4 | D | ● | 13 | 16,800 |
| 8539021 | 2 × 10° | | | | | ● | 13 | 17,600 |
| 8539041 | 2 × 12° | | | | | ● | 13 | 18,100 |
| 8539061 | 2 × 15° | 50 | | 6 | | ● | 25 | 19,300 |
| 8539002 | 2.5 × 7° | 45 | 5 | 4 | | ● | 13 | 16,800 |
| 8539022 | 2.5 × 10° | 50 | | 6 | | ● | 23 | 19,300 |
| 8539042 | 2.5 × 12° | | | | | ● | 24 | 20,100 |
| 8539062 | 2.5 × 15° | | | | | ● | 25 | 19,300 |
| 8539003 | 3 × 7° | | 6 | | | ● | 20 | 17,900 |
| 8539023 | 3 × 10° | | | | | ● | 20 | 19,300 |
| 8539043 | 3 × 12° | | | | | ● | 20 | 20,100 |
| 8539063 | 3 × 15° | 60 | | 8 | | ● | 43 | 21,700 |
| 8539004 | 3.5 × 7° | 50 | 7 | 6 | | ● | 20 | 17,900 |
| 8539024 | 3.5 × 10° | | | | | ● | 20 | 19,300 |
| 8539044 | 3.5 × 12° | 60 | | 8 | | ● | 42 | 24,600 |
| 8539064 | 3.5 × 15° | | | | | ● | 43 | 25,100 |
| 8539005 | 4 × 7° | 50 | 8 | 6 | | ● | 20 | 18,100 |
| 8539025 | 4 × 10° | 60 | | 8 | | ● | 42 | 23,600 |
| 8539045 | 4 × 12° | | | | | ● | 43 | 24,600 |
| 8539065 | 4 × 15° | 70 | | 10 | | ● | 76 | 27,200 |
| 8539006 | 4.5 × 7° | 60 | 9 | 8 | | ● | 42 | 22,700 |
| 8539026 | 4.5 × 10° | | | | | ● | 42 | 23,600 |
| 8539046 | 4.5 × 12° | 70 | | 10 | | ● | 78 | 24,600 |
| 8539066 | 4.5 × 15° | | | | | ● | 79 | 37,400 |
| 8539007 | 5 × 7° | 60 | 10 | 8 | | ● | 42 | 23,600 |
| 8539027 | 5 × 10° | 70 | | 10 | | ● | 78 | 33,100 |
| 8539047 | 5 × 12° | | | | | ● | 78 | 35,300 |
| 8539067 | 5 × 15° | 75 | | 12 | | ● | 115 | 38,600 |
| 8539008 | 6 × 7° | 70 | 12 | 10 | | ● | 78 | 31,300 |
| 8539028 | 6 × 10° | 75 | | 12 | | ● | 112 | 36,100 |
| 8539048 | 6 × 12° | | | | | ● | 114 | 38,600 |
| 8539068 | 6 × 15° | | | | | ● | 116 | 43,800 |

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| MG-TRC | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃超硬テーパエンドミルショート形
**2-flute Carbide Taper End Mill Short Length**

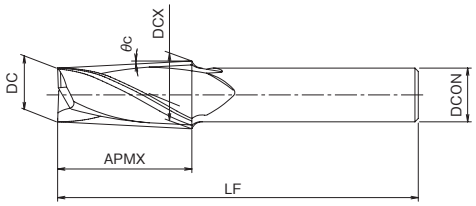
## MG-TPDS

切削条件 Cutting Conditions | P673-1



高じん性超硬合金を採用しており中低速域での長寿命化を実現します。
Uses tough carbide metal for longer tool life during medium and low speed operations.

CARBIDE | ±5′ | SHRINK FIT | 30°




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 89451 | 1 × 0.5° | 45 | 5 | 4 | 1.09 | | □ | — | — |
| 89452 | 1 × 1° | | 7 | | 1.24 | | □ | — | — |
| 89453 | 1 × 1.5° | | | | 1.37 | | □ | — | — |
| 89454 | 1 × 2° | | 9 | | 1.63 | | □ | — | — |
| 89455 | 1 × 2.5° | | | | 1.79 | | □ | — | — |
| 89456 | 1 × 3° | | | | 1.94 | | □ | — | — |
| 89500 | 1.5 × 0.5° | | 6 | | 1.61 | | □ | — | — |
| 89510 | 1.5 × 1° | | 8 | | 1.78 | | □ | — | — |
| 89520 | 1.5 × 1.5° | | | | 1.92 | | □ | — | — |
| 89530 | 1.5 × 2° | | 11 | | 2.27 | | □ | — | — |
| 89540 | 1.5 × 2.5° | | | | 2.46 | | □ | — | — |
| 89550 | 1.5 × 3° | | | | 2.65 | | □ | — | — |
| 89501 | 2 × 0.5° | | 8 | | 2.14 | | □ | — | — |
| 89511 | 2 × 1° | | 11 | | 2.38 | | □ | — | — |
| 89521 | 2 × 1.5° | | | | 2.58 | | □ | — | — |
| 89531 | 2 × 2° | | 15 | | 3.05 | | □ | — | — |
| 89541 | 2 × 2.5° | | | | 3.31 | | □ | — | — |
| 89551 | 2 × 3° | | | | 3.57 | | □ | — | — |
| 89571 | 2 × 5° | 50 | | 6 | 4.63 | | □ | — | — |
| 89581 | 2 × 7° | 70 | 20 | 8 | 6.91 | | □ | — | — |
| 89502 | 2.5 × 0.5° | 45 | 8 | 4 | 2.64 | — | □ | — | — |
| 89512 | 2.5 × 1° | | 11 | | 2.88 | | □ | — | — |
| 89522 | 2.5 × 1.5° | | | | 3.08 | | □ | — | — |
| 89532 | 2.5 × 2° | | 15 | | 3.55 | | □ | — | — |
| 89542 | 2.5 × 2.5° | | | | 3.81 | | □ | — | — |
| 89552 | 2.5 × 3° | | | 6 | 4.07 | | □ | — | — |
| 89572 | 2.5 × 5° | 50 | | | 5.13 | | □ | — | — |
| 89582 | 2.5 × 7° | 70 | 20 | 8 | 7.41 | | □ | — | — |
| 89503 | 3 × 0.5° | 45 | 8 | 4 | 3.14 | | □ | — | — |
| 89513 | 3 × 1° | | 11 | | 3.38 | | □ | — | — |
| 89523 | 3 × 1.5° | | | | 3.58 | | □ | — | — |
| 89533 | 3 × 2° | 50 | 15 | 6 | 4.05 | | □ | — | — |
| 89543 | 3 × 2.5° | | | | 4.31 | | □ | — | — |
| 89553 | 3 × 3° | | | | 4.57 | | □ | — | — |
| 89573 | 3 × 5° | | | | 5.63 | | □ | — | — |
| 89583 | 3 × 7° | 70 | 20 | 8 | 7.91 | | □ | — | — |
| 89504 | 4 × 0.5° | 50 | 10 | 6 | 4.17 | | □ | — | — |
| 89514 | 4 × 1° | | 13 | | 4.45 | | □ | — | — |
| 89524 | 4 × 1.5° | | | | 4.68 | | □ | — | — |
| 89534 | 4 × 2° | 60 | 18 | | 5.26 | | □ | — | — |
| 89544 | 4 × 2.5° | | | | 5.57 | | □ | — | — |
| 89554 | 4 × 3° | | | | 5.89 | | □ | — | — |
| 89574 | 4 × 5° | | | 8 | 7.15 | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 89584 | 4 × 7° | 70 | 24 | 10 | 9.9 | | □ | — | — |
| 89505 | 5 × 0.5° | 50 | 12 | 6 | 5.21 | | □ | — | — |
| 89515 | 5 × 1° | | 16 | | 5.56 | | □ | — | — |
| 89525 | 5 × 1.5° | | | | 5.84 | | □ | — | — |
| 89535 | 5 × 2° | 70 | 21 | 8 | 6.47 | | □ | — | — |
| 89545 | 5 × 2.5° | | | | 6.83 | | □ | — | — |
| 89555 | 5 × 3° | | | | 7.2 | | □ | — | — |
| 89575 | 5 × 5° | | | 10 | 8.68 | | □ | — | — |
| 89585 | 5 × 7° | 90 | 28 | 12 | 11.88 | | □ | — | — |
| 89506 | 6 × 0.5° | 60 | 12 | 8 | 6.21 | | □ | — | — |
| 89516 | 6 × 1° | | 16 | | 6.56 | | □ | — | — |
| 89526 | 6 × 1.5° | | | | 6.84 | | □ | — | — |
| 89536 | 6 × 2° | 70 | 21 | | 7.47 | | □ | — | — |
| 89546 | 6 × 2.5° | | | | 7.83 | | □ | — | — |
| 89556 | 6 × 3° | | | 10 | 8.2 | | □ | — | — |
| 89576 | 6 × 5° | | | | 9.68 | | □ | — | — |
| 89586 | 6 × 7° | 90 | 28 | 12 | 12.88 | | □ | — | — |
| 89507 | 8 × 0.5° | 70 | 14 | 10 | 8.24 | | □ | — | — |
| 89517 | 8 × 1° | | 19 | | 8.66 | | □ | — | — |
| 89527 | 8 × 1.5° | | | | 9 | | □ | — | — |
| 89537 | 8 × 2° | | 25 | | 9.75 | — | □ | — | — |
| 89547 | 8 × 2.5° | 75 | | 12 | 10.18 | | □ | — | — |
| 89557 | 8 × 3° | | | | 10.62 | | □ | — | — |
| 89577 | 8 × 5° | | | | 12.37 | | □ | — | — |
| 89587 | 8 × 7° | 100 | 33 | 16 | 16.1 | | □ | — | — |
| 89508 | 10 × 0.5° | 75 | 14 | 12 | 10.24 | | □ | — | — |
| 89518 | 10 × 1° | | 19 | | 10.66 | | □ | — | — |
| 89528 | 10 × 1.5° | | | | 11 | | □ | — | — |
| 89538 | 10 × 2° | | 25 | | 11.75 | | □ | — | — |
| 89548 | 10 × 2.5° | | | | 12.18 | | □ | — | — |
| 89558 | 10 × 3° | | | | 12.62 | | □ | — | — |
| 89578 | 10 × 5° | | | | 14.37 | | □ | — | — |
| 89588 | 10 × 7° | 100 | 33 | 16 | 18.1 | | □ | — | — |
| 89509 | 12 × 0.5° | 75 | 17 | 12 | 12.3 | | □ | — | — |
| 89519 | 12 × 1° | | 22 | | 12.77 | | □ | — | — |
| 89529 | 12 × 1.5° | | | | 13.15 | | □ | — | — |
| 89539 | 12 × 2° | 90 | 30 | | 14.1 | | □ | — | — |
| 89549 | 12 × 2.5° | | | | 14.62 | | □ | — | — |
| 89559 | 12 × 3° | | | | 15.14 | | □ | — | — |
| 89579 | 12 × 5° | | | 16 | 17.25 | | □ | — | — |
| 89589 | 12 × 7° | 110 | 40 | 20 | 21.82 | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MG-TPDS | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃超硬テーパエンドミルショート形
**4-flute Carbide Taper End Mill Short Length**

## MG-TPMS

切削条件 Cutting Conditions | **P673-1**



高じん性超硬合金を採用しており中低速域での長寿命化を実現します。
Uses tough carbide metal for longer tool life during medium and low speed operations.

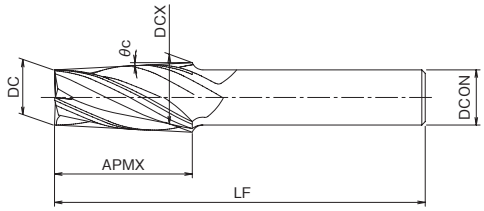
CARBIDE | ±5′ | SHRINK FIT | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89601 | 2 × 0.5° | 45 | 8 | 4 | 2.14 | □ | — | — |
| 89611 | 2 × 1° | | 11 | | 2.38 | □ | — | — |
| 89621 | 2 × 1.5° | | | | 2.58 | □ | — | — |
| 89631 | 2 × 2° | | 15 | | 3.05 | □ | — | — |
| 89641 | 2 × 2.5° | | | | 3.31 | □ | — | — |
| 89651 | 2 × 3° | | | | 3.57 | □ | — | — |
| 89602 | 2.5 × 0.5° | | 8 | | 2.64 | □ | — | — |
| 89612 | 2.5 × 1° | | 11 | | 2.88 | □ | — | — |
| 89622 | 2.5 × 1.5° | | | | 3.08 | □ | — | — |
| 89632 | 2.5 × 2° | | 15 | | 3.55 | □ | — | — |
| 89642 | 2.5 × 2.5° | | | | 3.81 | □ | — | — |
| 89652 | 2.5 × 3° | 50 | | 6 | 4.07 | □ | — | — |
| 89603 | 3 × 0.5° | 45 | 8 | 4 | 3.14 | □ | — | — |
| 89613 | 3 × 1° | | 11 | | 3.38 | □ | — | — |
| 89623 | 3 × 1.5° | | | | 3.58 | □ | — | — |
| 89633 | 3 × 2° | 50 | 15 | 6 | 4.05 | □ | — | — |
| 89643 | 3 × 2.5° | | | | 4.31 | □ | — | — |
| 89653 | 3 × 3° | | | | 4.57 | □ | — | — |
| 89604 | 4 × 0.5° | | 10 | | 4.17 | □ | — | — |
| 89614 | 4 × 1° | | 13 | | 4.45 | □ | — | — |
| 89624 | 4 × 1.5° | | | | 4.68 | □ | — | — |
| 89634 | 4 × 2° | 60 | 18 | | 5.26 | □ | — | — |
| 89644 | 4 × 2.5° | | | | 5.57 | □ | — | — |
| 89654 | 4 × 3° | | | | 5.89 | □ | — | — |
| 89605 | 5 × 0.5° | 50 | 12 | | 5.21 | □ | — | — |
| 89615 | 5 × 1° | | 16 | | 5.56 | □ | — | — |
| 89625 | 5 × 1.5° | | | | 5.84 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89635 | 5 × 2° | 70 | 21 | 8 | 6.47 | □ | — | — |
| 89645 | 5 × 2.5° | | | | 6.83 | □ | — | — |
| 89655 | 5 × 3° | | | | 7.2 | □ | — | — |
| 89606 | 6 × 0.5° | 60 | 12 | | 6.21 | □ | — | — |
| 89616 | 6 × 1° | | 16 | | 6.56 | □ | — | — |
| 89626 | 6 × 1.5° | | | | 6.84 | □ | — | — |
| 89636 | 6 × 2° | 70 | 21 | | 7.47 | □ | — | — |
| 89646 | 6 × 2.5° | | | | 7.83 | □ | — | — |
| 89656 | 6 × 3° | | | 10 | 8.2 | □ | — | — |
| 89607 | 8 × 0.5° | | 14 | | 8.24 | □ | — | — |
| 89617 | 8 × 1° | | 19 | | 8.66 | □ | — | — |
| 89627 | 8 × 1.5° | | | | 9 | □ | — | — |
| 89637 | 8 × 2° | | | | 9.75 | □ | — | — |
| 89647 | 8 × 2.5° | 75 | 25 | 12 | 10.18 | □ | — | — |
| 89657 | 8 × 3° | | | | 10.62 | □ | — | — |
| 89608 | 10 × 0.5° | | 14 | | 10.24 | □ | — | — |
| 89618 | 10 × 1° | | 19 | | 10.66 | □ | — | — |
| 89628 | 10 × 1.5° | | | | 11 | □ | — | — |
| 89638 | 10 × 2° | | 25 | | 11.75 | □ | — | — |
| 89648 | 10 × 2.5° | | | | 12.18 | □ | — | — |
| 89658 | 10 × 3° | | | | 12.62 | □ | — | — |
| 89609 | 12 × 0.5° | | 17 | | 12.3 | □ | — | — |
| 89619 | 12 × 1° | | 22 | | 12.77 | □ | — | — |
| 89629 | 12 × 1.5° | | | | 13.15 | □ | — | — |
| 89639 | 12 × 2° | 90 | 30 | | 14.1 | □ | — | — |
| 89649 | 12 × 2.5° | | | | 14.62 | □ | — | — |
| 89659 | 12 × 3° | | | | 15.14 | □ | — | — |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| MG-TPMS | ○ | | ○ | | | | | ○ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 台形ランナ用FXコート2枚刃超硬テーパエンドミル
**FX Coated 2-flute Carbide Taper End Mill for Trapezoidal Runner**

## FX-MG-TRC



CARBIDE | FX | ±5′ | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × 7° | 45 | 4 | 4 | | □ | – | – |
| | 2.5 × 7° | | 5 | | | □ | – | – |
| | 3 × 7° | 50 | 6 | 6 | | □ | – | – |
| | 3.5 × 7° | | 7 | | | □ | – | – |
| | 4 × 7° | | 8 | | | □ | – | – |
| | 4.5 × 7° | 60 | 9 | 8 | | □ | – | – |
| | 5 × 7° | | 10 | | | □ | – | – |
| | 6 × 7° | 70 | 12 | 10 | | □ | – | – |
| | 2 × 10° | 45 | 4 | 4 | | □ | – | – |
| | 2.5 × 10° | 50 | 5 | 6 | | □ | – | – |
| | 3 × 10° | | 6 | | | □ | – | – |
| | 3.5 × 10° | | 7 | | | □ | – | – |
| | 4 × 10° | 60 | 8 | 8 | | □ | – | – |
| | 4.5 × 10° | | 9 | | | □ | – | – |
| | 5 × 10° | 70 | 10 | 10 | | □ | – | – |
| | 6 × 10° | 75 | 12 | 12 | | □ | – | – |
| | 2 × 12° | 45 | 4 | 4 | – | □ | – | – |
| | 2.5 × 12° | 50 | 5 | 6 | | □ | – | – |
| | 3 × 12° | | 6 | | | □ | – | – |
| | 3.5 × 12° | 60 | 7 | 8 | | □ | – | – |
| | 4 × 12° | | 8 | | | □ | – | – |
| | 4.5 × 12° | 70 | 9 | 10 | | □ | – | – |
| | 5 × 12° | | 10 | | | □ | – | – |
| | 6 × 12° | 75 | 12 | 12 | | □ | – | – |
| | 2 × 15° | 50 | 4 | 6 | | □ | – | – |
| | 2.5 × 15° | | 5 | | | □ | – | – |
| | 3 × 15° | 60 | 6 | 8 | | □ | – | – |
| | 3.5 × 15° | | 7 | | | □ | – | – |
| | 4 × 15° | 70 | 8 | 10 | | □ | – | – |
| | 4.5 × 15° | | 9 | | | □ | – | – |
| | 5 × 15° | 75 | 10 | 12 | | □ | – | – |
| | 6 × 15° | | 12 | | | □ | – | – |

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能 ▶▶▶ P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパエンドミル（深リブ形）
**FX Coated Multi-flute Carbide Taper End Mill for Rib Processing**

## FXS-RB-TPE

切削条件 Cutting Conditions | P667-17



リブ溝の高能率加工を可能とした高剛性テーパエンドミルです。
溝以外に側面加工にもご使用いただけます。
Rigid taper end mill for highly productive rib processing. Can also be used for side milling operations.

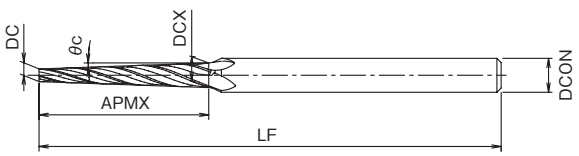
CARBIDE | FX | ±5′ | SHRINK FIT | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC×θc×APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8505691 | 0.4 × 45° × 2 | 35 | 3 | 0.45 | □ | – | – |
| 8505692 | 0.4 × 45° × 3 | | | 0.48 | □ | – | – |
| 8505693 | 0.4 × 45° × 4 | | | 0.5 | □ | – | – |
| 8507391 | 0.4 × 30° × 2 | | | 0.43 | □ | – | – |
| 8507392 | 0.4 × 30° × 3 | | | 0.45 | □ | – | – |
| 8507393 | 0.4 × 30° × 4 | | | 0.47 | □ | – | – |
| 8507491 | 0.4 × 1° × 2 | | | 0.47 | □ | – | – |
| 8507492 | 0.4 × 1° × 3 | | | 0.5 | □ | – | – |
| 8507493 | 0.4 × 1° × 4 | | | 0.54 | □ | – | – |
| 8507901 | 0.4 × 1° 30′ × 2 | | | 0.5 | □ | – | – |
| 8507902 | 0.4 × 1° 30′ × 3 | | | 0.56 | □ | – | – |
| 8507903 | 0.4 × 1° 30′ × 4 | | | 0.61 | □ | – | – |
| 8507931 | 0.4 × 2° × 2 | | | 0.54 | □ | – | – |
| 8507932 | 0.4 × 2° × 3 | | | 0.61 | □ | – | – |
| 8507933 | 0.4 × 2° × 4 | | | 0.68 | □ | – | – |
| 8507394 | 0.5 × 30° × 2 | | | 0.54 | □ | – | – |
| 8507395 | 0.5 × 30° × 4 | | | 0.57 | □ | – | – |
| 8507396 | 0.5 × 30° × 6 | | | 0.6 | □ | – | – |
| 8505695 | 0.5 × 45° × 4 | | | 0.61 | □ | – | – |
| 8505696 | 0.5 × 45° × 6 | | | 0.66 | □ | – | – |
| 8507494 | 0.5 × 1° × 2 | | | 0.57 | □ | – | – |
| 8507495 | 0.5 × 1° × 4 | | | 0.64 | □ | – | – |
| 8507496 | 0.5 × 1° × 6 | | | 0.71 | □ | – | – |
| 8507905 | 0.5 × 1° 30′ × 4 | | | 0.71 | □ | – | – |
| 8507906 | 0.5 × 1° 30′ × 6 | | | 0.81 | □ | – | – |
| 8507935 | 0.5 × 2° × 4 | | | 0.78 | □ | – | – |
| 8507936 | 0.5 × 2° × 6 | | | 0.92 | □ | – | – |
| 8507820 | 0.5 × 3° × 4 | | | 0.92 | □ | – | – |
| 8507400 | 0.6 × 30° × 4 | | | 0.67 | □ | – | – |
| 8507401 | 0.6 × 30° × 6 | | | 0.71 | □ | – | – |
| 8505700 | 0.6 × 45° × 4 | | | 0.71 | □ | – | – |
| 8505701 | 0.6 × 45° × 6 | | | 0.76 | □ | – | – |
| 8507500 | 0.6 × 1° × 4 | | | 0.74 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC×θc×APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8507501 | 0.6 × 1° × 6 | 35 | 3 | 0.81 | □ | – | – |
| 8507600 | 0.6 × 1° 30′ × 4 | | | 0.81 | □ | – | – |
| 8507601 | 0.6 × 1° 30′ × 6 | | | 0.91 | □ | – | – |
| 8507700 | 0.6 × 2° × 4 | | | 0.88 | □ | – | – |
| 8507701 | 0.6 × 2° × 6 | | | 1.02 | □ | – | – |
| 8507825 | 0.6 × 3° × 4 | | | 1.02 | □ | – | – |
| 8507405 | 0.7 × 30° × 6 | | | 0.8 | □ | – | – |
| 8507406 | 0.7 × 30° × 8 | 45 | 4 | 0.84 | □ | – | – |
| 8505705 | 0.7 × 45° × 6 | 35 | 3 | 0.86 | □ | – | – |
| 8505706 | 0.7 × 45° × 8 | 45 | 4 | 0.91 | □ | – | – |
| 8507505 | 0.7 × 1° × 6 | 35 | 3 | 0.91 | □ | – | – |
| 8507506 | 0.7 × 1° × 8 | 45 | 4 | 0.98 | □ | – | – |
| 8507605 | 0.7 × 1° 30′ × 6 | 35 | 3 | 1.01 | □ | – | – |
| 8507606 | 0.7 × 1° 30′ × 8 | 45 | 4 | 1.12 | □ | – | – |
| 8507705 | 0.7 × 2° × 6 | 35 | 3 | 1.12 | □ | – | – |
| 8507706 | 0.7 × 2° × 8 | 45 | 4 | 1.26 | □ | – | – |
| 8507830 | 0.7 × 3° × 6 | 35 | 3 | 1.33 | □ | – | – |
| 8507411 | 0.8 × 30° × 6 | | | 0.91 | □ | – | – |
| 8507412 | 0.8 × 30° × 8 | 45 | 4 | 0.94 | □ | – | – |
| 8507413 | 0.8 × 30° × 10 | | | 0.98 | □ | – | – |
| 8505711 | 0.8 × 45° × 6 | 35 | 3 | 0.96 | □ | – | – |
| 8505712 | 0.8 × 45° × 8 | 45 | 4 | 1.01 | □ | – | – |
| 8505713 | 0.8 × 45° × 10 | | | 1.06 | □ | – | – |
| 8507511 | 0.8 × 1° × 6 | 35 | 3 | 1.01 | □ | – | – |
| 8507512 | 0.8 × 1° × 8 | 45 | 4 | 1.08 | □ | – | – |
| 8507513 | 0.8 × 1° × 10 | | | 1.15 | □ | – | – |
| 8507611 | 0.8 × 1° 30′ × 6 | 35 | 3 | 1.11 | □ | – | – |
| 8507612 | 0.8 × 1° 30′ × 8 | 45 | 4 | 1.22 | □ | – | – |
| 8507613 | 0.8 × 1° 30′ × 10 | | | 1.32 | □ | – | – |
| 8507711 | 0.8 × 2° × 6 | 35 | 3 | 1.22 | □ | – | – |
| 8507712 | 0.8 × 2° × 8 | 45 | 4 | 1.34 | □ | – | – |
| 8507713 | 0.8 × 2° × 10 | | | 1.5 | □ | – | – |
| 8507835 | 0.8 × 3° × 6 | 35 | 3 | 1.43 | □ | – | – |




次ページへ
外径 DC 0.8～1.4 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-RB-TPE | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパエンドミル（深リブ形）
**FX Coated Multi-flute Carbide Taper End Mill for Rib Processing**

## FXS-RB-TPE

切削条件 Cutting Conditions | P667-17



リブ溝の高能率加工を可能とした高剛性テーパエンドミルです。
溝以外に側面加工にもご使用いただけます。
Rigid taper end mill for highly productive rib processing. Can also be used for side milling operations.

CARBIDE | FX | ±5′ | SHRINK FIT | 25°

前ページより FROM 外径 DC 0.4～0.8

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8507837 | 0.8 × 3° × 10 | 45 | 4 | 1.85 | □ | – | – |
| 8507415 | 0.9 × 30′ × 6 | 35 | 3 | 1 | □ | – | – |
| 8507416 | 0.9 × 30′ × 8 | 45 | 4 | 1.04 | □ | – | – |
| 8507417 | 0.9 × 30′ × 10 | | | 1.07 | □ | – | – |
| 8505715 | 0.9 × 45′ × 6 | 35 | 3 | 1.06 | □ | – | – |
| 8505716 | 0.9 × 45′ × 8 | 45 | 4 | 1.11 | □ | – | – |
| 8505717 | 0.9 × 45′ × 10 | | | 1.16 | □ | – | – |
| 8507515 | 0.9 × 1° × 6 | 35 | 3 | 1.11 | □ | – | – |
| 8507516 | 0.9 × 1° × 8 | 45 | 4 | 1.18 | □ | – | – |
| 8507517 | 0.9 × 1° × 10 | | | 1.25 | □ | – | – |
| 8507615 | 0.9 × 1° 30′ × 6 | 35 | 3 | 1.21 | □ | – | – |
| 8507616 | 0.9 × 1° 30′ × 8 | 45 | 4 | 1.32 | □ | – | – |
| 8507617 | 0.9 × 1° 30′ × 10 | | | 1.42 | □ | – | – |
| 8507715 | 0.9 × 2° × 6 | 35 | 3 | 1.32 | □ | – | – |
| 8507716 | 0.9 × 2° × 8 | 45 | 4 | 1.46 | □ | – | – |
| 8507717 | 0.9 × 2° × 10 | | | 1.6 | □ | – | – |
| 8507840 | 0.9 × 3° × 8 | | | 1.74 | □ | – | – |
| 8507421 | 1 × 30′ × 6 | 45 | | 1.11 | □ | – | – |
| 8507422 | 1 × 30′ × 8 | | | 1.14 | □ | – | – |
| 8507423 | 1 × 30′ × 10 | | | 1.18 | □ | – | – |
| 8507424 | 1 × 30′ × 12 | | | 1.21 | □ | – | – |
| 8507425 | 1 × 30′ × 16 | 50 | | 1.28 | □ | – | – |
| 8505722 | 1 × 45′ × 8 | 45 | | 1.21 | □ | – | – |
| 8505723 | 1 × 45′ × 10 | | | 1.26 | □ | – | – |
| 8505724 | 1 × 45′ × 12 | | | 1.31 | □ | – | – |
| 8507521 | 1 × 1° × 6 | 45 | | 1.21 | □ | – | – |
| 8507522 | 1 × 1° × 8 | | | 1.28 | □ | – | – |
| 8507523 | 1 × 1° × 10 | | | 1.35 | □ | – | – |
| 8507524 | 1 × 1° × 12 | | | 1.42 | □ | – | – |
| 8507525 | 1 × 1° × 16 | 50 | | 1.56 | □ | – | – |
| 8507621 | 1 × 1° 30′ × 6 | 45 | | 1.31 | □ | – | – |
| 8507622 | 1 × 1° 30′ × 8 | | | 1.42 | □ | – | – |
| 8507623 | 1 × 1° 30′ × 10 | | | 1.52 | □ | – | – |
| 8507624 | 1 × 1° 30′ × 12 | | | 1.63 | □ | – | – |
| 8507625 | 1 × 1° 30′ × 16 | 50 | | 1.84 | □ | – | – |
| 8507721 | 1 × 2° × 6 | 45 | | 1.42 | □ | – | – |
| 8507722 | 1 × 2° × 8 | | | 1.6 | □ | – | – |
| 8507723 | 1 × 2° × 10 | | | 1.7 | □ | – | – |
| 8507724 | 1 × 2° × 12 | | | 1.84 | □ | – | – |
| 8507725 | 1 × 2° × 16 | 50 | | 2.12 | □ | – | – |
| 8507845 | 1 × 3° × 8 | 45 | | 1.84 | □ | – | – |
| 8507847 | 1 × 3° × 12 | | | 2.26 | □ | – | – |
| | 1.1 × 30′ × 8 | | | 1.24 | □ | – | – |
| | 1.1 × 30′ × 12 | | | 1.31 | □ | – | – |
| | 1.1 × 1° × 8 | | | 1.38 | □ | – | – |
| | 1.1 × 1° × 12 | | | 1.52 | □ | – | – |
| | 1.1 × 1° 30′ × 8 | | | 1.52 | □ | – | – |
| | 1.1 × 1° 30′ × 12 | | | 1.73 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 1.1 × 2° × 8 | 45 | 4 | 1.66 | □ | – | – |
| | 1.1 × 2° × 12 | | | 1.94 | □ | – | – |
| 8507431 | 1.2 × 30′ × 6 | | | 1.31 | □ | – | – |
| 8507432 | 1.2 × 30′ × 8 | | | 1.34 | □ | – | – |
| 8507433 | 1.2 × 30′ × 10 | | | 1.38 | □ | – | – |
| 8507434 | 1.2 × 30′ × 12 | | | 1.41 | □ | – | – |
| 8507435 | 1.2 × 30′ × 16 | 50 | | 1.48 | □ | – | – |
| 8507532 | 1.2 × 45′ × 8 | 45 | | 1.41 | □ | – | – |
| 8505733 | 1.2 × 45′ × 10 | | | 1.46 | □ | – | – |
| 8505734 | 1.2 × 45′ × 12 | | | 1.51 | □ | – | – |
| 8505735 | 1.2 × 45′ × 16 | 50 | | 1.62 | □ | – | – |
| 8507531 | 1.2 × 1° × 6 | 45 | | 1.41 | □ | – | – |
| 8507532 | 1.2 × 1° × 8 | | | 1.48 | □ | – | – |
| 8507533 | 1.2 × 1° × 10 | | | 1.55 | □ | – | – |
| 8507534 | 1.2 × 1° × 12 | | | 1.62 | □ | – | – |
| 8507535 | 1.2 × 1° × 16 | 50 | | 1.76 | □ | – | – |
| 8507631 | 1.2 × 1° 30′ × 6 | 45 | | 1.51 | □ | – | – |
| 8507632 | 1.2 × 1° 30′ × 8 | | | 1.62 | □ | – | – |
| 8507633 | 1.2 × 1° 30′ × 10 | | | 1.72 | □ | – | – |
| 8507634 | 1.2 × 1° 30′ × 12 | | | 1.83 | □ | – | – |
| 8507635 | 1.2 × 1° 30′ × 16 | 50 | | 2.04 | □ | – | – |
| 8507731 | 1.2 × 2° × 6 | 45 | | 1.62 | □ | – | – |
| 8507732 | 1.2 × 2° × 8 | | | 1.76 | □ | – | – |
| 8507733 | 1.2 × 2° × 10 | | | 1.9 | □ | – | – |
| 8507734 | 1.2 × 2° × 12 | | | 2.04 | □ | – | – |
| 8507735 | 1.2 × 2° × 16 | 50 | | 2.32 | □ | – | – |
| 8507850 | 1.2 × 3° × 10 | 45 | | 2.25 | □ | – | – |
| 8507852 | 1.2 × 3° × 16 | 50 | | 2.88 | □ | – | – |
| | 1.3 × 30′ × 8 | 45 | | 1.44 | □ | – | – |
| | 1.3 × 30′ × 12 | | | 1.51 | □ | – | – |
| | 1.3 × 1° × 8 | | | 1.58 | □ | – | – |
| | 1.3 × 1° × 12 | | | 1.72 | □ | – | – |
| | 1.3 × 1° 30′ × 8 | | | 1.72 | □ | – | – |
| | 1.3 × 1° 30′ × 12 | | | 1.93 | □ | – | – |
| | 1.3 × 2° × 8 | | | 1.86 | □ | – | – |
| | 1.3 × 2° × 12 | | | 2.14 | □ | – | – |
| | 1.4 × 30′ × 8 | | | 1.54 | □ | – | – |
| | 1.4 × 30′ × 12 | | | 1.61 | □ | – | – |
| | 1.4 × 30′ × 16 | 50 | | 1.68 | □ | – | – |
| | 1.4 × 1° × 8 | 45 | | 1.68 | □ | – | – |
| | 1.4 × 1° × 12 | | | 1.82 | □ | – | – |
| | 1.4 × 1° × 16 | 50 | | 1.96 | □ | – | – |
| | 1.4 × 1° 30′ × 8 | 45 | | 1.82 | □ | – | – |
| | 1.4 × 1° 30′ × 12 | | | 2.03 | □ | – | – |
| | 1.4 × 1° 30′ × 16 | 50 | | 2.24 | □ | – | – |
| | 1.4 × 2° × 8 | 45 | | 1.96 | □ | – | – |
| | 1.4 × 2° × 12 | | | 2.24 | □ | – | – |
| | 1.4 × 2° × 16 | 50 | | 2.52 | □ | – | – |

次ページへ 外径 DC 1.5～1.7 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパエンドミル（深リブ形）
**FX Coated Multi-flute Carbide Taper End Mill for Rib Processing**

## FXS-RB-TPE

切削条件 Cutting Conditions | P667-17



リブ溝の高能率加工を可能とした高剛性テーパエンドミルです。
溝以外に側面加工にもご使用いただけます。
Rigid taper end mill for highly productive rib processing. Can also be used for side milling operations.

CARBIDE | FX | ±5′ | SHRINK FIT | 25°

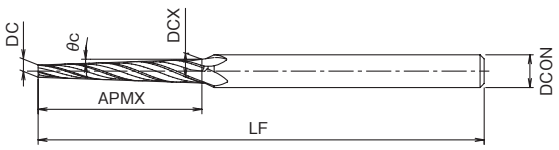
前ページより FROM 外径 DC 0.8～1.4

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC×θc×APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8507442 | 1.5× 30′× 8 | 45 | 4 | 1.64 | — | □ | — | — |
| 8507443 | 1.5× 30′× 10 | | | 1.68 | | □ | — | — |
| 8507444 | 1.5× 30′× 12 | | | 1.71 | | □ | — | — |
| 8507445 | 1.5× 30′× 16 | 50 | | 1.78 | | □ | — | — |
| 8507446 | 1.5× 30′× 20 | 55 | | 1.85 | | □ | — | — |
| 8505742 | 1.5× 45′× 8 | 45 | | 1.71 | | □ | — | — |
| 8505743 | 1.5× 45′× 10 | | | 1.76 | | □ | — | — |
| 8505744 | 1.5× 45′× 12 | | | 1.81 | | □ | — | — |
| 8505745 | 1.5× 45′× 16 | 50 | | 1.92 | | □ | — | — |
| 8505746 | 1.5× 45′× 20 | 55 | | 2.02 | | □ | — | — |
| 8507542 | 1.5×1° × 8 | 45 | | 1.78 | | □ | — | — |
| 8507543 | 1.5×1° ×10 | | | 1.85 | | □ | — | — |
| 8507544 | 1.5×1° ×12 | | | 1.92 | | □ | — | — |
| 8507545 | 1.5×1° ×16 | 50 | | 2.06 | | □ | — | — |
| 8507546 | 1.5×1° ×20 | 55 | | 2.2 | | □ | — | — |
| 8507642 | 1.5×1° 30′× 8 | 45 | | 1.92 | | □ | — | — |
| 8507643 | 1.5×1° 30′×10 | | | 2.02 | — | □ | — | — |
| 8507644 | 1.5×1° 30′×12 | | | 2.13 | | □ | — | — |
| 8507645 | 1.5×1° 30′×16 | 50 | | 2.34 | | □ | — | — |
| 8507646 | 1.5×1° 30′×20 | 55 | | 2.55 | | □ | — | — |
| 8507742 | 1.5×2° × 8 | 45 | | 2.06 | | □ | — | — |
| 8507743 | 1.5×2° ×10 | | | 2.2 | | □ | — | — |
| 8507744 | 1.5×2° ×12 | | | 2.34 | | □ | — | — |
| 8507745 | 1.5×2° ×16 | 50 | | 2.62 | | □ | — | — |
| 8507746 | 1.5×2° ×20 | 55 | | 2.9 | | □ | — | — |
| 8507855 | 1.5×3° ×12 | 45 | | 2.76 | | □ | — | — |
| 8507857 | 1.5×3° ×20 | 55 | | 3.6 | | □ | — | — |
| 8507452 | 1.6× 30′× 8 | 45 | | 1.74 | | □ | — | — |
| 8507453 | 1.6× 30′× 10 | | | 1.78 | | □ | — | — |
| 8507454 | 1.6× 30′× 12 | | | 1.81 | | □ | — | — |
| 8507455 | 1.6× 30′× 16 | 50 | | 1.88 | | □ | — | — |
| 8507456 | 1.6× 30′× 20 | 55 | | 1.95 | | □ | — | — |
| 8505752 | 1.6× 45′× 8 | 45 | | 1.81 | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC×θc×APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8505753 | 1.6× 45′× 10 | 45 | 4 | 1.86 | — | □ | — | — |
| 8505754 | 1.6× 45′× 12 | | | 1.91 | | □ | — | — |
| 8505755 | 1.6× 45′× 16 | 50 | | 2.02 | | □ | — | — |
| 8505756 | 1.6× 45′× 20 | 55 | | 2.12 | | □ | — | — |
| 8507552 | 1.6×1° × 8 | 45 | | 1.88 | | □ | — | — |
| 8507553 | 1.6×1° ×10 | | | 1.95 | | □ | — | — |
| 8507554 | 1.6×1° ×12 | | | 2.02 | | □ | — | — |
| 8507555 | 1.6×1° ×16 | 50 | | 2.16 | | □ | — | — |
| 8507556 | 1.6×1° ×20 | 55 | | 2.3 | | □ | — | — |
| 8507652 | 1.6×1° 30′× 8 | 45 | | 2.02 | | □ | — | — |
| 8507653 | 1.6×1° 30′×10 | | | 2.12 | | □ | — | — |
| 8507654 | 1.6×1° 30′×12 | | | 2.23 | | □ | — | — |
| 8507655 | 1.6×1° 30′×16 | 50 | | 2.44 | | □ | — | — |
| 8507656 | 1.6×1° 30′×20 | 55 | | 2.65 | | □ | — | — |
| 8507752 | 1.6×2° × 8 | 45 | | 2.16 | | □ | — | — |
| 8507753 | 1.6×2° ×10 | | | 2.3 | | □ | — | — |
| 8507754 | 1.6×2° ×12 | | | 2.44 | — | □ | — | — |
| 8507755 | 1.6×2° ×16 | 50 | | 2.72 | | □ | — | — |
| 8507756 | 1.6×2° ×20 | 55 | | 3 | | □ | — | — |
| 8507860 | 1.6×3° ×12 | 45 | | 2.86 | | □ | — | — |
| 8507862 | 1.6×3° ×20 | 55 | | 3.7 | | □ | — | — |
| | 1.7× 30′× 8 | 45 | | 1.84 | | □ | — | — |
| | 1.7× 30′×12 | | | 1.91 | | □ | — | — |
| | 1.7× 30′×16 | 50 | | 1.98 | | □ | — | — |
| | 1.7× 30′×20 | 55 | | 2.05 | | □ | — | — |
| | 1.7×1° × 8 | 45 | | 1.98 | | □ | — | — |
| | 1.7×1° ×12 | | | 2.12 | | □ | — | — |
| | 1.7×1° ×16 | 50 | | 2.26 | | □ | — | — |
| | 1.7×1° ×20 | 55 | | 2.4 | | □ | — | — |
| | 1.7×1° 30′× 8 | 45 | | 2.12 | | □ | — | — |
| | 1.7×1° 30′×12 | | | 2.33 | | □ | — | — |
| | 1.7×1° 30′×16 | 50 | | 2.54 | | □ | — | — |
| | 1.7×1° 30′×20 | 55 | | 2.75 | | □ | — | — |




次ページへ 外径 DC 1.7～2 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-RB-TPE | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパエンドミル（深リブ形）
**FX Coated Multi-flute Carbide Taper End Mill for Rib Processing**

## FXS-RB-TPE

切削条件 Cutting Conditions | P667-17



リブ溝の高能率加工を可能とした高剛性テーパエンドミルです。
溝以外に側面加工にもご使用いただけます。
Rigid taper end mill for highly productive rib processing. Can also be used for side milling operations.

CARBIDE | FX | ±5′ | SHRINK FIT | 25°

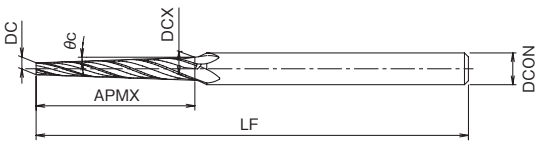
前ページより
FROM 外径 DC 1.5～1.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC×θc×APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 1.7×2°×8 | 45 | | 2.26 | □ | — | — |
| | 1.7×2°×12 | | | 2.54 | □ | — | — |
| | 1.7×2°×16 | 50 | | 2.82 | □ | — | — |
| | 1.7×2°×20 | 55 | | 3.1 | □ | — | — |
| 8507462 | 1.8×30′×8 | 45 | | 1.94 | □ | — | — |
| 8507463 | 1.8×30′×10 | | | 1.98 | □ | — | — |
| 8507464 | 1.8×30′×12 | | | 2.01 | □ | — | — |
| 8507465 | 1.8×30′×16 | 50 | | 2.08 | □ | — | — |
| 8507466 | 1.8×30′×20 | 55 | | 2.15 | □ | — | — |
| 8505762 | 1.8×45′×8 | 45 | | 2.01 | □ | — | — |
| 8505763 | 1.8×45′×10 | | | 2.06 | □ | — | — |
| 8505764 | 1.8×45′×12 | | | 2.11 | □ | — | — |
| 8505765 | 1.8×45′×16 | 50 | | 2.22 | □ | — | — |
| 8505766 | 1.8×45′×20 | 55 | | 2.32 | □ | — | — |
| 8507562 | 1.8×1°×8 | 45 | | 2.08 | □ | — | — |
| 8507563 | 1.8×1°×10 | | | 2.15 | □ | — | — |
| 8507564 | 1.8×1°×12 | | 4 | 2.22 | — □ | — | — |
| 8507565 | 1.8×1°×16 | 50 | | 2.36 | □ | — | — |
| 8507566 | 1.8×1°×20 | 55 | | 2.5 | □ | — | — |
| 8507662 | 1.8×1°30′×8 | 45 | | 2.22 | □ | — | — |
| 8507663 | 1.8×1°30′×10 | | | 2.32 | □ | — | — |
| 8507664 | 1.8×1°30′×12 | | | 2.43 | □ | — | — |
| 8507665 | 1.8×1°30′×16 | 50 | | 2.64 | □ | — | — |
| 8507666 | 1.8×1°30′×20 | 55 | | 2.85 | □ | — | — |
| 8507762 | 1.8×2°×8 | 45 | | 2.36 | □ | — | — |
| 8507763 | 1.8×2°×10 | | | 2.5 | □ | — | — |
| 8507764 | 1.8×2°×12 | | | 2.64 | □ | — | — |
| 8507765 | 1.8×2°×16 | 50 | | 2.92 | □ | — | — |
| 8507766 | 1.8×2°×20 | 55 | | 3.2 | □ | — | — |
| 8507865 | 1.8×3°×12 | 45 | | 3.06 | □ | — | — |
| 8507867 | 1.8×3°×20 | 55 | | 3.9 | □ | — | — |
| | 1.9×30′×8 | 45 | | 2.04 | □ | — | — |
| | 1.9×30′×12 | | | 2.11 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC×θc×APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 1.9×30′×16 | 50 | | 2.18 | □ | — | — |
| | 1.9×30′×20 | 55 | | 2.25 | □ | — | — |
| | 1.9×1°×8 | 45 | | 2.18 | □ | — | — |
| | 1.9×1°×12 | | | 2.32 | □ | — | — |
| | 1.9×1°×16 | 50 | | 2.46 | □ | — | — |
| | 1.9×1°×20 | 55 | | 2.6 | □ | — | — |
| | 1.9×1°30′×8 | 45 | | 2.32 | □ | — | — |
| | 1.9×1°30′×12 | | | 2.53 | □ | — | — |
| | 1.9×1°30′×16 | 50 | | 2.74 | □ | — | — |
| | 1.9×1°30′×20 | 55 | | 2.95 | □ | — | — |
| | 1.9×2°×8 | 45 | | 2.46 | □ | — | — |
| | 1.9×2°×12 | | | 2.74 | □ | — | — |
| | 1.9×2°×16 | 50 | | 3.02 | □ | — | — |
| | 1.9×2°×20 | 55 | | 3.3 | □ | — | — |
| 8507473 | 2×30′×10 | 45 | | 2.18 | □ | — | — |
| 8507474 | 2×30′×12 | | | 2.21 | □ | — | — |
| 8507475 | 2×30′×16 | 50 | 4 | 2.28 | — □ | — | — |
| 8507476 | 2×30′×20 | 55 | | 2.35 | □ | — | — |
| 8507477 | 2×30′×25 | | | 2.44 | □ | — | — |
| 8505773 | 2×45′×10 | 45 | | 2.26 | □ | — | — |
| 8505774 | 2×45′×12 | | | 2.31 | □ | — | — |
| 8505775 | 2×45′×16 | 50 | | 2.42 | □ | — | — |
| 8505776 | 2×45′×20 | 55 | | 2.52 | □ | — | — |
| 8505777 | 2×45′×25 | | | 2.66 | □ | — | — |
| 8507573 | 2×1°×10 | 45 | | 2.35 | □ | — | — |
| 8507574 | 2×1°×12 | | | 2.42 | □ | — | — |
| 8507575 | 2×1°×16 | 50 | | 2.56 | □ | — | — |
| 8507576 | 2×1°×20 | 55 | | 2.7 | □ | — | — |
| 8507577 | 2×1°×25 | | | 2.87 | □ | — | — |
| 8507673 | 2×1°30′×10 | 45 | | 2.52 | □ | — | — |
| 8507674 | 2×1°30′×12 | | | 2.63 | □ | — | — |
| 8507675 | 2×1°30′×16 | 50 | | 2.84 | □ | — | — |
| 8507676 | 2×1°30′×20 | 55 | | 3.05 | □ | — | — |




次ページへ
外径 DC 2～3 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | |
| FXS-RB-TPE | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパエンドミル（深リブ形）
**FX Coated Multi-flute Carbide Taper End Mill for Rib Processing**

## FXS-RB-TPE

切削条件 Cutting Conditions | P667-17



リブ溝の高能率加工を可能とした高剛性テーパエンドミルです。
溝以外に側面加工にもご使用いただけます。
Rigid taper end mill for highly productive rib processing. Can also be used for side milling operations.

CARBIDE | FX | ±5′ | SHRINK FIT | 25°

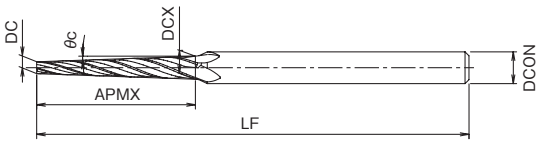
前ページより FROM 外径 DC 1.7～2

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8507677 | 2 × 1° 30′ × 25 | 55 | | 3.31 | □ | – | – |
| 8507773 | 2 × 2° × 10 | 45 | | 2.7 | □ | – | – |
| 8507774 | 2 × 2° × 12 | | | 2.84 | □ | – | – |
| 8507775 | 2 × 2° × 16 | 50 | 4 | 3.12 | □ | – | – |
| 8507776 | 2 × 2° × 20 | 55 | | 3.4 | □ | – | – |
| 8507777 | 2 × 2° × 25 | | | 3.75 | □ | – | – |
| 8507870 | 2 × 3° × 16 | 50 | | 3.68 | □ | – | – |
| 8507872 | 2 × 3° × 25 | 60 | 6 | 4.62 | □ | – | – |
| 8507483 | 2.5 × 30′ × 10 | 45 | | 2.68 | □ | – | – |
| 8507484 | 2.5 × 30′ × 12 | | | 2.71 | □ | – | – |
| 8507485 | 2.5 × 30′ × 16 | 50 | | 2.78 | □ | – | – |
| 8507486 | 2.5 × 30′ × 20 | 55 | | 2.85 | □ | – | – |
| 8507487 | 2.5 × 30′ × 25 | | | 2.94 | □ | – | – |
| 8507488 | 2.5 × 30′ × 30 | 60 | | 3.02 | □ | – | – |
| 8505783 | 2.5 × 45′ × 10 | 45 | | 2.76 | □ | – | – |
| 8505784 | 2.5 × 45′ × 12 | | | 2.81 | □ | – | – |
| 8505785 | 2.5 × 45′ × 16 | 50 | | 2.92 | □ | – | – |
| 8505786 | 2.5 × 45′ × 20 | 55 | | 3.02 | □ | – | – |
| 8505787 | 2.5 × 45′ × 25 | | | 3.16 | □ | – | – |
| 8505788 | 2.5 × 45′ × 30 | 60 | 4 | 3.29 | □ | – | – |
| 8507583 | 2.5 × 1° × 10 | 45 | | 2.85 | □ | – | – |
| 8507584 | 2.5 × 1° × 12 | | | 2.92 | □ | – | – |
| 8507585 | 2.5 × 1° × 16 | 50 | | 3.06 | □ | – | – |
| 8507586 | 2.5 × 1° × 20 | 55 | | 3.2 | □ | – | – |
| 8507587 | 2.5 × 1° × 25 | | | 3.38 | □ | – | – |
| 8507588 | 2.5 × 1° × 30 | 60 | | 3.55 | □ | – | – |
| 8507683 | 2.5 × 1° 30′ × 10 | 45 | | 3.02 | □ | – | – |
| 8507684 | 2.5 × 1° 30′ × 12 | | | 3.13 | □ | – | – |
| 8507685 | 2.5 × 1° 30′ × 16 | 50 | | 3.34 | □ | – | – |
| 8507686 | 2.5 × 1° 30′ × 20 | 55 | | 3.55 | □ | – | – |
| 8507687 | 2.5 × 1° 30′ × 25 | | | 3.81 | □ | – | – |
| 8507688 | 2.5 × 1° 30′ × 30 | 65 | 6 | 4.07 | □ | – | – |
| 8507783 | 2.5 × 2° × 10 | 45 | 4 | 3.2 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8507784 | 2.5 × 2° × 12 | 45 | | 3.34 | □ | – | – |
| 8507785 | 2.5 × 2° × 16 | 50 | 4 | 3.62 | □ | – | – |
| 8507786 | 2.5 × 2° × 20 | 55 | | 3.9 | □ | – | – |
| 8507787 | 2.5 × 2° × 25 | 60 | | 4.25 | □ | – | – |
| 8507788 | 2.5 × 2° × 30 | 65 | 6 | 4.6 | □ | – | – |
| 8507875 | 2.5 × 3° × 20 | 60 | | 4.6 | □ | – | – |
| 8507877 | 2.5 × 3° × 30 | 65 | | 5.64 | □ | – | – |
| 8505797 | 3 × 45′ × 25 | 55 | 4 | 3.66 | □ | – | – |
| 8505799 | 3 × 45′ × 40 | 80 | 6 | 4.05 | □ | – | – |
| 8507597 | 3 × 1° × 25 | 55 | 4 | 3.87 | □ | – | – |
| 8507599 | 3 × 1° × 40 | 80 | | 4.4 | □ | – | – |
| 8507697 | 3 × 1° 30′ × 25 | 60 | | 4.31 | □ | – | – |
| 8507699 | 3 × 1° 30′ × 40 | 80 | 6 | 5.09 | □ | – | – |
| 8507797 | 3 × 2° × 25 | 60 | | 4.75 | □ | – | – |
| 8507799 | 3 × 2° × 40 | 80 | | 5.79 | □ | – | – |
| 8507807 | 3 × 3° × 25 | 60 | | 5.62 | □ | – | – |
| 8507809 | 3 × 3° × 40 | 80 | 8 | 7.19 | □ | – | – |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-RB-TPE | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃超硬テーパエンドミル（深リブ形）
**2-flute Carbide Taper End Mill for Rib Processing**

## RB-MG-TPE



CARBIDE | ±5′ | SHRINK FIT | 40°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.5 × 30′ | | 4 | | 0.57 | □ | — | — |
| | 0.5 × 30′ | | 6 | | 0.6 | □ | — | — |
| | 0.5 × 45′ | | 4 | | 0.6 | □ | — | — |
| | 0.5 × 45′ | | 6 | | 0.66 | □ | — | — |
| | 0.5 × 1° | | 4 | | 0.64 | □ | — | — |
| | 0.5 × 1° | | 6 | | 0.71 | □ | — | — |
| | 0.5 × 1°30′ | | 4 | | 0.71 | □ | — | — |
| | 0.5 × 1°30′ | | 6 | | 0.81 | □ | — | — |
| | 0.5 × 2° | | 4 | | 0.78 | □ | — | — |
| | 0.5 × 2° | | 6 | | 0.92 | □ | — | — |
| | 0.6 × 30′ | | 4 | | 0.67 | □ | — | — |
| | 0.6 × 30′ | | 6 | | 0.7 | □ | — | — |
| | 0.6 × 45′ | | 4 | | 0.7 | □ | — | — |
| | 0.6 × 45′ | | 6 | | 0.76 | □ | — | — |
| | 0.6 × 1° | | 4 | | 0.74 | □ | — | — |
| | 0.6 × 1° | 35 | 6 | 3 | 0.81 | □ | — | — |
| | 0.6 × 1°30′ | | 4 | | 0.81 | □ | — | — |
| | 0.6 × 1°30′ | | 6 | | 0.91 | □ | — | — |
| | 0.6 × 2° | | 4 | | 0.88 | □ | — | — |
| | 0.6 × 2° | | 6 | | 1.02 | □ | — | — |
| | 0.7 × 30′ | | 4 | | 0.77 | □ | — | — |
| | 0.7 × 30′ | | 6 | | 0.8 | □ | — | — |
| | 0.7 × 45′ | | 4 | | 0.8 | □ | — | — |
| | 0.7 × 45′ | | 6 | | 0.86 | □ | — | — |
| | 0.7 × 1° | | 4 | | 0.84 | □ | — | — |
| | 0.7 × 1° | | 6 | | 0.91 | □ | — | — |
| | 0.7 × 1°30′ | | 4 | | 0.91 | □ | — | — |
| | 0.7 × 1°30′ | | 6 | | 1.01 | □ | — | — |
| | 0.7 × 2° | | 4 | | 0.98 | □ | — | — |
| | 0.7 × 2° | | 6 | | 1.12 | □ | — | — |
| | 0.8 × 15′ | | 6 | | 0.85 | □ | — | — |
| | 0.8 × 15′ | 45 | 10 | 4 | 0.89 | □ | — | — |
| | 0.8 × 30′ | 35 | 6 | 3 | 0.9 | □ | — | — |
| | 0.8 × 30′ | 45 | 10 | 4 | 0.97 | □ | — | — |
| | 0.8 × 45′ | 35 | 6 | 3 | 0.96 | □ | — | — |
| | 0.8 × 45′ | 45 | 10 | 4 | 1.06 | □ | — | — |
| | 0.8 × 1° | 35 | 6 | 3 | 1.01 | □ | — | — |
| | 0.8 × 1° | 45 | 10 | 4 | 1.15 | □ | — | — |
| | 0.8 × 1°30′ | 35 | 6 | 3 | 1.11 | □ | — | — |
| | 0.8 × 1°30′ | 45 | 10 | 4 | 1.32 | □ | — | — |
| | 0.8 × 2° | 35 | 6 | 3 | 1.22 | □ | — | — |
| | 0.8 × 2° | 45 | 10 | 4 | 1.5 | □ | — | — |
| | 0.9 × 15′ | 35 | 6 | 3 | 0.95 | □ | — | — |
| | 0.9 × 15′ | 45 | 10 | 4 | 0.99 | □ | — | — |
| | 0.9 × 30′ | 35 | 6 | 3 | 1 | □ | — | — |
| | 0.9 × 30′ | 45 | 10 | 4 | 1.07 | □ | — | — |
| | 0.9 × 45′ | 35 | 6 | 3 | 1.06 | □ | — | — |
| | 0.9 × 45′ | 45 | 10 | 4 | 1.16 | □ | — | — |

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.9× 1° | 35 | 6 | 3 | 1.11 | □ | — | — |
| | 0.9× 1° | 45 | 10 | 4 | 1.25 | □ | — | — |
| | 0.9× 1° 30′ | 35 | 6 | 3 | 1.21 | □ | — | — |
| | 0.9× 1° 30′ | 45 | 10 | 4 | 1.42 | □ | — | — |
| | 0.9× 2° | 35 | 6 | 3 | 1.32 | □ | — | — |
| | 0.9× 2° | | 10 | | 1.6 | □ | — | — |
| | 1 × 15′ | | 8 | | 1.07 | □ | — | — |
| | 1 × 15′ | | 12 | | 1.1 | □ | — | — |
| | 1 × 30′ | | 8 | | 1.14 | □ | — | — |
| | 1 × 30′ | | 12 | | 1.21 | □ | — | — |
| | 1 × 45′ | | 8 | | 1.21 | □ | — | — |
| | 1 × 45′ | | 12 | | 1.31 | □ | — | — |
| | 1 × 1° | | 8 | | 1.28 | □ | — | — |
| | 1 × 1° | | 12 | | 1.42 | □ | — | — |
| | 1 × 1° 30′ | | 8 | | 1.42 | □ | — | — |
| | 1 × 1° 30′ | | 12 | | 1.63 | □ | — | — |
| | 1 × 2° | | 8 | | 1.56 | □ | — | — |
| | 1 × 2° | | 12 | | 1.84 | □ | — | — |
| | 1.1× 15′ | | 8 | | 1.17 | □ | — | — |
| | 1.1× 15′ | | 12 | | 1.2 | □ | — | — |
| | 1.1× 30′ | | 8 | | 1.24 | □ | — | — |
| | 1.1× 30′ | | 12 | | 1.31 | □ | — | — |
| | 1.1× 45′ | | 8 | | 1.31 | □ | — | — |
| | 1.1× 45′ | | 12 | | 1.41 | □ | — | — |
| | 1.1× 1° | | 8 | | 1.38 | □ | — | — |
| | 1.1× 1° | | 12 | | 1.52 | □ | — | — |
| | 1.1× 1° 30′ | 45 | 8 | 4 | 1.52 | □ | — | — |
| | 1.1× 1° 30′ | | 12 | | 1.73 | □ | — | — |
| | 1.1× 2° | | 8 | | 1.66 | □ | — | — |
| | 1.1× 2° | | 12 | | 1.94 | □ | — | — |
| | 1.2× 15′ | | 8 | | 1.27 | □ | — | — |
| | 1.2× 15′ | | 12 | | 1.3 | □ | — | — |
| | 1.2× 30′ | | 8 | | 1.34 | □ | — | — |
| | 1.2× 30′ | | 12 | | 1.41 | □ | — | — |
| | 1.2× 45′ | | 8 | | 1.41 | □ | — | — |
| | 1.2× 45′ | | 12 | | 1.51 | □ | — | — |
| | 1.2× 1° | | 8 | | 1.48 | □ | — | — |
| | 1.2× 1° | | 12 | | 1.62 | □ | — | — |
| | 1.2× 1° 30′ | | 8 | | 1.62 | □ | — | — |
| | 1.2× 1° 30′ | | 12 | | 1.83 | □ | — | — |
| | 1.2× 2° | | 8 | | 1.76 | □ | — | — |
| | 1.2× 2° | | 12 | | 2.04 | □ | — | — |
| | 1.3× 15′ | | 8 | | 1.37 | □ | — | — |
| | 1.3× 15′ | | 12 | | 1.4 | □ | — | — |
| | 1.3× 30′ | | 8 | | 1.44 | □ | — | — |
| | 1.3× 30′ | | 12 | | 1.51 | □ | — | — |
| | 1.3× 45′ | | 8 | | 1.51 | □ | — | — |
| | 1.3× 45′ | | 12 | | 1.61 | □ | — | — |

次ページへ
外径 DC 1.3～1.7 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃超硬テーパエンドミル（深リブ形）
**2-flute Carbide Taper End Mill for Rib Processing**

## RB-MG-TPE



CARBIDE | ±5′ | SHRINK FIT | 40°

前ページより FROM 外径 DC 0.5～1.3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1.3 × 1° | 45 | 8 | 4 | 1.58 | □ | – | – |
| | 1.3 × 1° | | 12 | | 1.72 | □ | – | – |
| | 1.3 × 1°30′ | | 8 | | 1.72 | □ | – | – |
| | 1.3 × 1°30′ | | 12 | | 1.93 | □ | – | – |
| | 1.3 × 2° | | 8 | | 1.86 | □ | – | – |
| | 1.3 × 2° | | 12 | | 2.14 | □ | – | – |
| | 1.4 × 15′ | | 8 | | 1.47 | □ | – | – |
| | 1.4 × 15′ | | 12 | | 1.5 | □ | – | – |
| | 1.4 × 15′ | 50 | 16 | | 1.54 | □ | – | – |
| | 1.4 × 30′ | 45 | 8 | | 1.54 | □ | – | – |
| | 1.4 × 30′ | | 12 | | 1.61 | □ | – | – |
| | 1.4 × 30′ | 50 | 16 | | 1.68 | □ | – | – |
| | 1.4 × 45′ | 45 | 8 | | 1.61 | □ | – | – |
| | 1.4 × 45′ | | 12 | | 1.71 | □ | – | – |
| | 1.4 × 45′ | 50 | 16 | | 1.82 | □ | – | – |
| | 1.4 × 1° | 45 | 8 | | 1.68 | □ | – | – |
| | 1.4 × 1° | | 12 | | 1.82 | □ | – | – |
| | 1.4 × 1° | 50 | 16 | | 1.96 | □ | – | – |
| | 1.4 × 1°30′ | 45 | 8 | | 1.82 | □ | – | – |
| | 1.4 × 1°30′ | | 12 | | 2.03 | □ | – | – |
| | 1.4 × 1°30′ | 50 | 16 | | 2.24 | □ | – | – |
| | 1.4 × 2° | 45 | 8 | | 1.96 | □ | – | – |
| | 1.4 × 2° | | 12 | | 2.24 | □ | – | – |
| | 1.4 × 2° | 50 | 16 | | 2.52 | □ | – | – |
| | 1.5 × 15′ | 45 | 8 | | 1.57 | □ | – | – |
| | 1.5 × 15′ | | 12 | | 1.6 | □ | – | – |
| | 1.5 × 15′ | 50 | 16 | | 1.64 | □ | – | – |
| | 1.5 × 15′ | 55 | 20 | | 1.67 | □ | – | – |
| | 1.5 × 30′ | 45 | 8 | | 1.64 | □ | – | – |
| | 1.5 × 30′ | | 12 | | 1.71 | □ | – | – |
| | 1.5 × 30′ | 50 | 16 | | 1.78 | □ | – | – |
| | 1.5 × 30′ | 55 | 20 | | 1.85 | □ | – | – |
| | 1.5 × 45′ | 45 | 8 | | 1.71 | □ | – | – |
| | 1.5 × 45′ | | 12 | | 1.81 | □ | – | – |
| | 1.5 × 45′ | 50 | 16 | | 1.92 | □ | – | – |
| | 1.5 × 45′ | 55 | 20 | | 2.02 | □ | – | – |
| | 1.5 × 1° | 45 | 8 | | 1.78 | □ | – | – |
| | 1.5 × 1° | | 12 | | 1.92 | □ | – | – |
| | 1.5 × 1° | 50 | 16 | | 2.06 | □ | – | – |
| | 1.5 × 1° | 55 | 20 | | 2.2 | □ | – | – |
| | 1.5 × 1°30′ | 45 | 8 | | 1.92 | □ | – | – |
| | 1.5 × 1°30′ | | 12 | | 2.13 | □ | – | – |
| | 1.5 × 1°30′ | 50 | 16 | | 2.34 | □ | – | – |
| | 1.5 × 1°30′ | 55 | 20 | | 2.55 | □ | – | – |
| | 1.5 × 2° | 45 | 8 | | 2.06 | □ | – | – |
| | 1.5 × 2° | | 12 | | 2.34 | □ | – | – |
| | 1.5 × 2° | 50 | 16 | | 2.62 | □ | – | – |
| | 1.5 × 2° | 55 | 20 | | 2.9 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1.6 × 15′ | 45 | 8 | 4 | 1.67 | □ | – | – |
| | 1.6 × 15′ | | 12 | | 1.7 | □ | – | – |
| | 1.6 × 15′ | 50 | 16 | | 1.74 | □ | – | – |
| | 1.6 × 15′ | 55 | 20 | | 1.77 | □ | – | – |
| | 1.6 × 30′ | 45 | 8 | | 1.74 | □ | – | – |
| | 1.6 × 30′ | | 12 | | 1.81 | □ | – | – |
| | 1.6 × 30′ | 50 | 16 | | 1.88 | □ | – | – |
| | 1.6 × 30′ | 55 | 20 | | 1.95 | □ | – | – |
| | 1.6 × 45′ | 45 | 8 | | 1.81 | □ | – | – |
| | 1.6 × 45′ | | 12 | | 1.91 | □ | – | – |
| | 1.6 × 45′ | 50 | 16 | | 2.02 | □ | – | – |
| | 1.6 × 45′ | 55 | 20 | | 2.12 | □ | – | – |
| | 1.6 × 1° | 45 | 8 | | 1.88 | □ | – | – |
| | 1.6 × 1° | | 12 | | 2.02 | □ | – | – |
| | 1.6 × 1° | 50 | 16 | | 2.16 | □ | – | – |
| | 1.6 × 1° | 55 | 20 | | 2.3 | □ | – | – |
| | 1.6 × 1°30′ | 45 | 8 | | 2.02 | □ | – | – |
| | 1.6 × 1°30′ | | 12 | | 2.23 | □ | – | – |
| | 1.6 × 1°30′ | 50 | 16 | | 2.44 | □ | – | – |
| | 1.6 × 1°30′ | 55 | 20 | | 2.65 | □ | – | – |
| | 1.6 × 2° | 45 | 8 | | 2.16 | □ | – | – |
| | 1.6 × 2° | | 12 | | 2.44 | □ | – | – |
| | 1.6 × 2° | 50 | 16 | | 2.72 | □ | – | – |
| | 1.6 × 2° | 55 | 20 | | 3 | □ | – | – |
| | 1.7 × 15′ | 45 | 8 | | 1.77 | □ | – | – |
| | 1.7 × 15′ | | 12 | | 1.8 | □ | – | – |
| | 1.7 × 15′ | 50 | 16 | | 1.84 | □ | – | – |
| | 1.7 × 15′ | 55 | 20 | | 1.87 | □ | – | – |
| | 1.7 × 30′ | 45 | 8 | | 1.84 | □ | – | – |
| | 1.7 × 30′ | | 12 | | 1.91 | □ | – | – |
| | 1.7 × 30′ | 50 | 16 | | 1.98 | □ | – | – |
| | 1.7 × 30′ | 55 | 20 | | 2.05 | □ | – | – |
| | 1.7 × 45′ | 45 | 8 | | 1.91 | □ | – | – |
| | 1.7 × 45′ | | 12 | | 2.01 | □ | – | – |
| | 1.7 × 45′ | 50 | 16 | | 2.12 | □ | – | – |
| | 1.7 × 45′ | 55 | 20 | | 2.22 | □ | – | – |
| | 1.7 × 1° | 45 | 8 | | 1.98 | □ | – | – |
| | 1.7 × 1° | | 12 | | 2.12 | □ | – | – |
| | 1.7 × 1° | 50 | 16 | | 2.26 | □ | – | – |
| | 1.7 × 1° | 55 | 20 | | 2.4 | □ | – | – |
| | 1.7 × 1°30′ | 45 | 8 | | 2.12 | □ | – | – |
| | 1.7 × 1°30′ | | 12 | | 2.33 | □ | – | – |
| | 1.7 × 1°30′ | 50 | 16 | | 2.54 | □ | – | – |
| | 1.7 × 1°30′ | 55 | 20 | | 2.75 | □ | – | – |
| | 1.7 × 2° | 45 | 8 | | 2.26 | □ | – | – |
| | 1.7 × 2° | | 12 | | 2.54 | □ | – | – |
| | 1.7 × 2° | 50 | 16 | | 2.82 | □ | – | – |
| | 1.7 × 2° | 55 | 20 | | 3.1 | □ | – | – |

次ページへ 外径 DC 1.8～2 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃超硬テーパエンドミル（深リブ形）
**2-flute Carbide Taper End Mill for Rib Processing**

## RB-MG-TPE



CARBIDE | ±5′ | SHRINK FIT | 40°

前ページより FROM 外径 DC 1.3～1.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1.8 × 15′ | 45 | 8 | 4 | 1.87 | □ | — | — |
| | 1.8 × 15′ | | 12 | | 1.9 | □ | — | — |
| | 1.8 × 15′ | 50 | 16 | | 1.94 | □ | — | — |
| | 1.8 × 15′ | 55 | 20 | | 1.97 | □ | — | — |
| | 1.8 × 30′ | 45 | 8 | | 1.94 | □ | — | — |
| | 1.8 × 30′ | | 12 | | 2.01 | □ | — | — |
| | 1.8 × 30′ | 50 | 16 | | 2.08 | □ | — | — |
| | 1.8 × 30′ | 55 | 20 | | 2.15 | □ | — | — |
| | 1.8 × 45′ | 45 | 8 | | 2.01 | □ | — | — |
| | 1.8 × 45′ | | 12 | | 2.11 | □ | — | — |
| | 1.8 × 45′ | 50 | 16 | | 2.22 | □ | — | — |
| | 1.8 × 45′ | 55 | 20 | | 2.32 | □ | — | — |
| | 1.8 × 1° | 45 | 8 | | 2.08 | □ | — | — |
| | 1.8 × 1° | | 12 | | 2.22 | □ | — | — |
| | 1.8 × 1° | 50 | 16 | | 2.36 | □ | — | — |
| | 1.8 × 1° | 55 | 20 | | 2.5 | □ | — | — |
| | 1.8 × 1° 30′ | 45 | 8 | | 2.22 | □ | — | — |
| | 1.8 × 1° 30′ | | 12 | | 2.43 | □ | — | — |
| | 1.8 × 1° 30′ | 50 | 16 | | 2.64 | □ | — | — |
| | 1.8 × 1° 30′ | 55 | 20 | | 2.85 | □ | — | — |
| | 1.8 × 2° | 45 | 8 | | 2.36 | □ | — | — |
| | 1.8 × 2° | | 12 | | 2.64 | □ | — | — |
| | 1.8 × 2° | 50 | 16 | | 2.92 | □ | — | — |
| | 1.8 × 2° | 55 | 20 | | 3.2 | □ | — | — |
| | 1.9 × 15′ | 45 | 8 | | 1.97 | □ | — | — |
| | 1.9 × 15′ | | 12 | | 2 | □ | — | — |
| | 1.9 × 15′ | 50 | 16 | | 2.04 | □ | — | — |
| | 1.9 × 15′ | 55 | 20 | | 2.07 | □ | — | — |
| | 1.9 × 30′ | 45 | 8 | | 2.04 | □ | — | — |
| | 1.9 × 30′ | | 12 | | 2.11 | □ | — | — |
| | 1.9 × 30′ | 50 | 16 | | 2.18 | □ | — | — |
| | 1.9 × 30′ | 55 | 20 | | 2.25 | □ | — | — |
| | 1.9 × 45′ | 45 | 8 | | 2.11 | □ | — | — |
| | 1.9 × 45′ | | 12 | | 2.21 | □ | — | — |
| | 1.9 × 45′ | 50 | 16 | | 2.32 | □ | — | — |
| | 1.9 × 45′ | 55 | 20 | | 2.42 | □ | — | — |
| | 1.9 × 1° | 45 | 8 | | 2.18 | □ | — | — |
| | 1.9 × 1° | | 12 | | 2.32 | □ | — | — |
| | 1.9 × 1° | 50 | 16 | | 2.46 | □ | — | — |
| | 1.9 × 1° | 55 | 20 | | 2.6 | □ | — | — |
| | 1.9 × 1° 30′ | 45 | 8 | | 2.32 | □ | — | — |
| | 1.9 × 1° 30′ | | 12 | | 2.53 | □ | — | — |
| | 1.9 × 1° 30′ | 50 | 16 | | 2.74 | □ | — | — |
| | 1.9 × 1° 30′ | 55 | 20 | | 2.95 | □ | — | — |
| | 1.9 × 2° | 45 | 8 | | 2.46 | □ | — | — |
| | 1.9 × 2° | | 12 | | 2.74 | □ | — | — |
| | 1.9 × 2° | 50 | 16 | | 3.02 | □ | — | — |
| | 1.9 × 2° | 55 | 20 | | 3.3 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × 15′ | 45 | 8 | 4 | 2.07 | □ | — | — |
| | 2 × 15′ | | 12 | | 2.1 | □ | — | — |
| | 2 × 15′ | 50 | 16 | | 2.14 | □ | — | — |
| | 2 × 15′ | 55 | 20 | | 2.17 | □ | — | — |
| | 2 × 30′ | 45 | 8 | | 2.14 | □ | — | — |
| | 2 × 30′ | | 12 | | 2.21 | □ | — | — |
| | 2 × 30′ | 50 | 16 | | 2.28 | □ | — | — |
| | 2 × 30′ | 55 | 20 | | 2.35 | □ | — | — |
| | 2 × 45′ | 45 | 8 | | 2.21 | □ | — | — |
| | 2 × 45′ | | 12 | | 2.31 | □ | — | — |
| | 2 × 45′ | 50 | 16 | | 2.42 | □ | — | — |
| | 2 × 45′ | 55 | 20 | | 2.52 | □ | — | — |
| | 2 × 1° | 45 | 8 | | 2.28 | □ | — | — |
| | 2 × 1° | | 12 | | 2.42 | □ | — | — |
| | 2 × 1° | 50 | 16 | | 2.56 | □ | — | — |
| | 2 × 1° | 55 | 20 | | 2.7 | □ | — | — |
| | 2 × 1° 30′ | 45 | 8 | | 2.42 | □ | — | — |
| | 2 × 1° 30′ | | 12 | | 2.63 | □ | — | — |
| | 2 × 1° 30′ | 50 | 16 | | 2.84 | □ | — | — |
| | 2 × 1° 30′ | 55 | 20 | | 3.05 | □ | — | — |
| | 2 × 2° | 45 | 8 | | 2.56 | □ | — | — |
| | 2 × 2° | | 12 | | 2.84 | □ | — | — |
| | 2 × 2° | 50 | 16 | | 3.12 | □ | — | — |
| | 2 × 2° | 55 | 20 | | 3.4 | □ | — | — |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 非鉄用DLCコート2枚刃超硬テーパエンドミル（深リブ形）

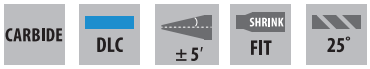
**DLC Coated 2-flute Carbide Taper End Mill for Non-ferrous Materials and Rib Processing**

# DLC-RB-TPE



ZAS（亜鉛合金）やアルミ合金金型のリブ溝加工に最適です。溶着防止に極めて優れるDLCコーティングと切れ味の良い刃形の効果によりばりの発生を抑えます。

Best of Zinc alloys, aluminum alloys. DLC coating eliminated welding and sharp edge minimize burrs.




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC×θc×APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.5 ×0.5° × 4 | | | 0.57 | | □ | – | – |
| | 0.5 ×0.5° × 6 | | | 0.6 | | □ | – | – |
| | 0.5 ×1° × 4 | | | 0.64 | | □ | – | – |
| | 0.5 ×1° × 6 | | | 0.71 | | □ | – | – |
| | 0.5 ×1.5° × 4 | | | 0.71 | | □ | – | – |
| | 0.5 ×1.5° × 6 | | | 0.81 | | □ | – | – |
| | 0.5 ×2° × 4 | | | 0.78 | | □ | – | – |
| | 0.5 ×2° × 6 | | | 0.92 | | □ | – | – |
| | 0.6 ×0.5° × 4 | | | 0.67 | | □ | – | – |
| | 0.6 ×0.5° × 6 | | | 0.71 | | □ | – | – |
| | 0.6 ×1° × 4 | | | 0.74 | | □ | – | – |
| | 0.6 ×1° × 6 | | | 0.81 | | □ | – | – |
| | 0.6 ×1.5° × 4 | 35 | 3 | 0.81 | | □ | – | – |
| | 0.6 ×1.5° × 6 | | | 0.91 | | □ | – | – |
| | 0.6 ×2° × 4 | | | 0.88 | | □ | – | – |
| | 0.6 ×2° × 6 | | | 1.02 | | □ | – | – |
| | 0.7 ×0.5° × 4 | | | 0.77 | | □ | – | – |
| | 0.7 ×0.5° × 6 | | | 0.8 | | □ | – | – |
| | 0.7 ×1° × 4 | | | 0.84 | – | □ | – | – |
| | 0.7 ×1° × 6 | | | 0.91 | | □ | – | – |
| | 0.7 ×1.5° × 4 | | | 0.91 | | □ | – | – |
| | 0.7 ×1.5° × 6 | | | 1.01 | | □ | – | – |
| | 0.7 ×2° × 4 | | | 0.98 | | □ | – | – |
| | 0.7 ×2° × 6 | | | 1.12 | | □ | – | – |
| | 0.8 ×0.5° × 6 | | | 0.91 | | □ | – | – |
| | 0.8 ×0.5° ×10 | 45 | 4 | 0.98 | | □ | – | – |
| | 0.8 ×1° × 6 | 35 | 3 | 1.01 | | □ | – | – |
| | 0.8 ×1° ×10 | 45 | 4 | 1.15 | | □ | – | – |
| | 0.8 ×1.5° × 6 | 35 | 3 | 1.11 | | □ | – | – |
| | 0.8 ×1.5° ×10 | 45 | 4 | 1.32 | | □ | – | – |
| | 0.8 ×2° × 6 | 35 | 3 | 1.22 | | □ | – | – |
| | 0.8 ×2° ×10 | | | 1.5 | | □ | – | – |
| | 1 ×0.5° × 8 | | | 1.14 | | □ | – | – |
| | 1 ×0.5° ×12 | 45 | 4 | 1.21 | | □ | – | – |
| | 1 ×1° × 8 | | | 1.28 | | □ | – | – |
| | 1 ×1° ×12 | | | 1.42 | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×刃長 DC×θc×APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 × 1.5° × 8 | | | 1.42 | | □ | – | – |
| | 1 × 1.5° × 12 | | | 1.63 | | □ | – | – |
| | 1 × 2° × 8 | | | 1.6 | | □ | – | – |
| | 1 × 2° × 12 | | | 1.84 | | □ | – | – |
| | 1.2 × 0.5° × 8 | | | 1.34 | | □ | – | – |
| | 1.2 × 0.5° × 12 | | | 1.41 | | □ | – | – |
| | 1.2 × 1° × 8 | 45 | | 1.48 | | □ | – | – |
| | 1.2 × 1° × 12 | | | 1.62 | | □ | – | – |
| | 1.2 × 1.5° × 8 | | | 1.62 | | □ | – | – |
| | 1.2 × 1.5° × 12 | | | 1.83 | | □ | – | – |
| | 1.2 × 2° × 8 | | | 1.76 | | □ | – | – |
| | 1.2 × 2° × 12 | | | 2.04 | | □ | – | – |
| | 1.5 × 0.5° × 8 | | | 1.64 | | □ | – | – |
| | 1.5 × 0.5° × 12 | | | 1.71 | | □ | – | – |
| | 1.5 × 0.5° × 16 | 50 | | 1.78 | | □ | – | – |
| | 1.5 × 1° × 8 | 45 | | 1.78 | | □ | – | – |
| | 1.5 × 1° × 12 | | | 1.92 | | □ | – | – |
| | 1.5 × 1° × 16 | 50 | | 2.06 | | □ | – | – |
| | 1.5 × 1.5° × 8 | 45 | 4 | 1.92 | – | □ | – | – |
| | 1.5 × 1.5° × 12 | | | 2.13 | | □ | – | – |
| | 1.5 × 1.5° × 16 | 50 | | 2.34 | | □ | – | – |
| | 1.5 × 2° × 8 | 45 | | 2.06 | | □ | – | – |
| | 1.5 × 2° × 12 | | | 2.34 | | □ | – | – |
| | 1.5 × 2° × 16 | 50 | | 2.62 | | □ | – | – |
| | 2 × 0.5° × 8 | 45 | | 2.14 | | □ | – | – |
| | 2 × 0.5° × 12 | | | 2.21 | | □ | – | – |
| | 2 × 0.5° × 16 | 50 | | 2.28 | | □ | – | – |
| | 2 × 1° × 8 | 45 | | 2.28 | | □ | – | – |
| | 2 × 1° × 12 | | | 2.42 | | □ | – | – |
| | 2 × 1° × 16 | 50 | | 2.56 | | □ | – | – |
| | 2 × 1.5° × 8 | 45 | | 2.42 | | □ | – | – |
| | 2 × 1.5° × 12 | | | 2.63 | | □ | – | – |
| | 2 × 1.5° × 16 | 50 | | 2.84 | | □ | – | – |
| | 2 × 2° × 8 | 45 | | 2.56 | | □ | – | – |
| | 2 × 2° × 12 | | | 2.84 | | □ | – | – |
| | 2 × 2° × 16 | 50 | | 3.12 | | □ | – | – |

デジタルカタログで最新情報を公開中 ▶▶▶P.6

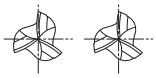
**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# インペラ·タービンブレード用コーティング3枚刃超硬テーパボールエンドミル
**Coated 3-flute Carbide Taper Ball End Mill for Impellers and Turbine Blades**

## IB-TPBT

切削条件 Cutting Conditions | P708



Type 1　Type 2



CARBIDE　WXL　or　FX　or　DUROREY　±5′　SHRINK FIT　38°

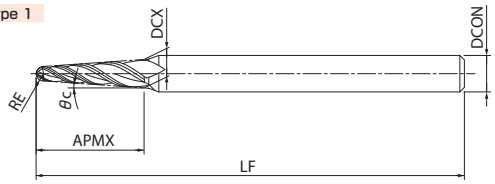
CAD

（単位:mm）(Unit:mm)

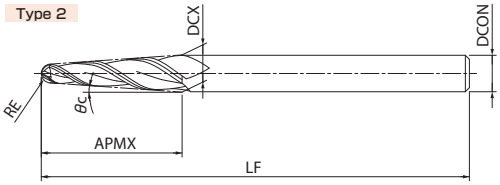
| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | コーティング Coating | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| W1990111 | R0.5 × 4° | 65 | 20 | 6 | 3.73 | WXL | 1 | ※ | — | 17,600 |
| W1990112 | | | | | | FX | | | — | 17,600 |
| W1990113 | | | | | | DUROREY | | | — | 17,600 |
| W1990121 | R1 × 4° | 65 | 20 | 6 | 4.66 | WXL | 1 | | — | 17,600 |
| W1990122 | | | | | | FX | | | — | 17,600 |
| W1990123 | | | | | | DUROREY | | | — | 17,600 |
| W1990131 | R1.5 × 4° | 65 | 22.9 | 6 | 6 | WXL | 2 | | — | 17,600 |
| W1990132 | | | | | | FX | | | — | 17,600 |
| W1990133 | | | | | | DUROREY | | | — | 17,600 |
| W1990141 | R2 × 4° | 75 | 30.5 | 8 | 8 | WXL | 2 | | — | 20,600 |
| W1990142 | | | | | | FX | | | — | 20,600 |
| W1990143 | | | | | | DUROREY | | | — | 20,600 |
| W1990151 | R3 × 4° | 80 | 31.5 | 10 | 10 | WXL | 2 | | — | 26,100 |
| W1990152 | | | | | | FX | | | — | 26,100 |
| W1990153 | | | | | | DUROREY | | | — | 26,100 |

※＝納期は当社営業まで問合せ下さい。※=Please contact our sales department for lead time.

Type 1




Type 2




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| IB-TPBT | ○ | | ○ | | | | ◎ | ○ | ○ | ○ | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

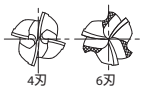
□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

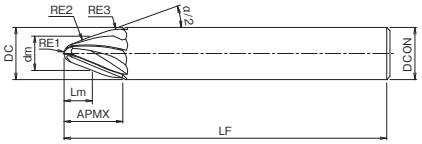
# 仕上げ用WXLコート超硬エンドミルテーパバレル型
**WXL Coated Taper Barrel Type End Mill for Finishing**

## VU-TBR

切削条件 Cutting Conditions | **P613**


4刃 4-flute　6刃 6-flute






CARBIDE | WXL | ± 10 μm | SHANK h5 | SHRINK FIT | 15°

CAD

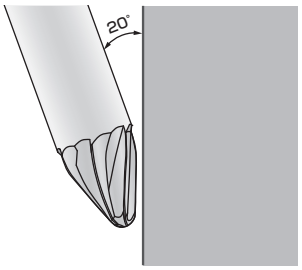
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び RE1×RE2×α／2 | チルト角 α／2 | 外径 DC | 先端R RE1 | 外周R RE2 | ツナギR RE3 | 外周R中間位置 Lm | 外周R中間位置外径 dm | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8549544 | **R0.5× R150 × 20°** | 20° | 6 | 0.5 | 150 | 5 | 3.43 | 3.27 | 50 | 8.2 | 6 | 4 | B | ● | 21 | 19,200 |
| 8549545 | **R1 × R150 × 20°** | | 8 | 1 | | | 4.48 | 4.78 | 60 | 9.9 | 8 | | | ● | 42 | 24,900 |
| 8549546 | **R1.5× R300 × 20°** | | 10 | 1.5 | 300 | | 5.52 | 6.2 | 70 | 11.7 | 10 | | | ● | 75 | 32,100 |
| 8549547 | **R2 × R300 × 20°** | | 12 | 2 | | | 6.57 | 7.7 | 80 | 13.5 | 12 | 6 | | ● | 124 | 39,100 |
| 8549548 | **R2.5× R500 × 20°** | | 16 | 2.5 | 500 | | 8.99 | 10.18 | 100 | 18 | 16 | | | ● | 266 | 58,600 |
| 8549549 | **R3 × R500 × 20°** | | | 3 | | | 8.67 | 10.62 | | 17.1 | | | | ● | 269 | 58,600 |

CADデータは、ホームページよりダウンロードできます。
The CAD data can be downloaded from OSG's website.

**https://www.osg.co.jp/media_dl/vu-r_dl/**

外周R（RE2）を使用する際は
チルト角（α/2）を20°に設定下さい。
When using the peripheral edge R (RE2),
set the tilt angle (α/2) to 20°.




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VU-TBR** | ◎ | | ◎ | ◎ | | | ◎ | ◎ | | ○ | | ○ | ○ | |

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパボールエンドミル（深リブ形）

**FX Coated Multi-flute Taper Ball End Mill for Rib Processing**

## FXS-RB-TPB

切削条件 Cutting Conditions | P667-17



リブ溝の高能率加工を可能とした高剛性テーパエンドミルです。
自由曲面加工用としてもご使用いただけます。

Rigid taper end mill for highly productive rib processing. Can also be used as a surface milling tool.

CARBIDE | FX | ±5′ | SHRINK FIT | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角×刃長 RE × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8509200 | R0.3 × 30′ × 4 | | | 0.67 | | □ | — | — |
| 8509201 | R0.3 × 30′ × 6 | | | 0.7 | | □ | — | — |
| 8509600 | R0.3 × 45′ × 4 | | | 0.7 | | □ | — | — |
| 8509601 | R0.3 × 45′ × 6 | | | 0.75 | | □ | — | — |
| 8509300 | R0.3 ×1° × 4 | | | 0.73 | | □ | — | — |
| 8509301 | R0.3 ×1° × 6 | 35 | 3 | 0.8 | | □ | — | — |
| 8509400 | R0.3 ×1° 30′ × 4 | | | 0.79 | | □ | — | — |
| 8509401 | R0.3 ×1° 30′ × 6 | | | 0.9 | | □ | — | — |
| 8509500 | R0.3 ×2° × 4 | | | 0.86 | | □ | — | — |
| 8509501 | R0.3 ×2° × 6 | | | 1 | | □ | — | — |
| 8509211 | R0.4 × 30′ × 6 | | | 0.9 | | □ | — | — |
| 8509212 | R0.4 × 30′ × 8 | 45 | 4 | 0.93 | | □ | — | — |
| 8509213 | R0.4 × 30′ × 10 | | | 0.97 | | □ | — | — |
| 8509611 | R0.4 × 45′ × 6 | 35 | 3 | 0.95 | | □ | — | — |
| 8509612 | R0.4 × 45′ × 8 | 45 | 4 | 1 | | □ | — | — |
| 8509613 | R0.4 × 45′ × 10 | | | 1.05 | | □ | — | — |
| 8509311 | R0.4 ×1° × 6 | 35 | 3 | 1 | | □ | — | — |
| 8509312 | R0.4 ×1° × 8 | 45 | 4 | 1.07 | | □ | — | — |
| 8509313 | R0.4 ×1° × 10 | | | 1.14 | | □ | — | — |
| 8509411 | R0.4 ×1° 30′ × 6 | 35 | 3 | 1.09 | | □ | — | — |
| 8509412 | R0.4 ×1° 30′ × 8 | 45 | 4 | 1.2 | — | □ | — | — |
| 8509413 | R0.4 ×1° 30′ × 10 | | | 1.3 | | □ | — | — |
| 8509511 | R0.4 ×2° × 6 | 35 | 3 | 1.19 | | □ | — | — |
| 8509512 | R0.4 ×2° × 8 | 45 | 4 | 1.33 | | □ | — | — |
| 8509513 | R0.4 ×2° × 10 | | | 1.47 | | □ | — | — |
| 8509221 | R0.5 × 30′ × 6 | | | 1.1 | | □ | — | — |
| 8509222 | R0.5 × 30′ × 8 | | | 1.13 | | □ | — | — |
| 8509223 | R0.5 × 30′ × 10 | | | 1.17 | | □ | — | — |
| 8509224 | R0.5 × 30′ × 12 | | | 1.2 | | □ | — | — |
| 8509225 | R0.5 × 30′ × 16 | 50 | | 1.27 | | □ | — | — |
| 8509622 | R0.5 × 45′ × 8 | | | 1.2 | | □ | — | — |
| 8509623 | R0.5 × 45′ × 10 | | | 1.25 | | □ | — | — |
| 8509624 | R0.5 × 45′ × 12 | | | 1.3 | | □ | — | — |
| 8509321 | R0.5 ×1° × 6 | 45 | 4 | 1.19 | | □ | — | — |
| 8509322 | R0.5 ×1° × 8 | | | 1.26 | | □ | — | — |
| 8509323 | R0.5 ×1° × 10 | | | 1.33 | | □ | — | — |
| 8509324 | R0.5 ×1° × 12 | | | 1.4 | | □ | — | — |
| 8509325 | R0.5 ×1° × 16 | 50 | | 1.54 | | □ | — | — |
| 8509421 | R0.5 ×1° 30′ × 6 | 45 | | 1.29 | | □ | — | — |
| 8509422 | R0.5 ×1° 30′ × 8 | | | 1.39 | | □ | — | — |
| 8509423 | R0.5 ×1° 30′ × 10 | | | 1.5 | | □ | — | — |
| 8509424 | R0.5 ×1° 30′ × 12 | | | 1.6 | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角×刃長 RE × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8509425 | R0.5 ×1° 30′ ×16 | 50 | | 1.81 | | □ | — | — |
| 8509521 | R0.5 ×2° × 6 | 45 | | 1.39 | | □ | — | — |
| 8509522 | R0.5 ×2° × 8 | | | 1.53 | | □ | — | — |
| 8509523 | R0.5 ×2° ×10 | | | 1.66 | | □ | — | — |
| 8509524 | R0.5 ×2° ×12 | | | 1.8 | | □ | — | — |
| 8509525 | R0.5 ×2° ×16 | 50 | | 2.08 | | □ | — | — |
| 8509231 | R0.6 × 30′ × 6 | 45 | | 1.3 | | □ | — | — |
| 8509232 | R0.6 × 30′ × 8 | | | 1.33 | | □ | — | — |
| 8509233 | R0.6 × 30′ ×10 | | | 1.37 | | □ | — | — |
| 8509234 | R0.6 × 30′ ×12 | | | 1.4 | | □ | — | — |
| 8509235 | R0.6 × 30′ ×16 | 50 | | 1.47 | | □ | — | — |
| 8509632 | R0.6 × 45′ × 8 | 45 | | 1.39 | | □ | — | — |
| 8509633 | R0.6 × 45′ ×10 | | | 1.45 | | □ | — | — |
| 8509634 | R0.6 × 45′ ×12 | | | 1.5 | | □ | — | — |
| 8509635 | R0.6 × 45′ ×16 | 50 | | 1.6 | | □ | — | — |
| 8509331 | R0.6 ×1° × 6 | 45 | 4 | 1.39 | — | □ | — | — |
| 8509332 | R0.6 ×1° × 8 | | | 1.46 | | □ | — | — |
| 8509333 | R0.6 ×1° ×10 | | | 1.53 | | □ | — | — |
| 8509334 | R0.6 ×1° ×12 | | | 1.6 | | □ | — | — |
| 8509335 | R0.6 ×1° ×16 | 50 | | 1.74 | | □ | — | — |
| 8509431 | R0.6 ×1° 30′ × 6 | 45 | | 1.48 | | □ | — | — |
| 8509432 | R0.6 ×1° 30′ × 8 | | | 1.59 | | □ | — | — |
| 8509433 | R0.6 ×1° 30′ ×10 | | | 1.69 | | □ | — | — |
| 8509434 | R0.6 ×1° 30′ ×12 | | | 1.8 | | □ | — | — |
| 8509435 | R0.6 ×1° 30′ ×16 | 50 | | 2.01 | | □ | — | — |
| 8509531 | R0.6 ×2° × 6 | 45 | | 1.58 | | □ | — | — |
| 8509532 | R0.6 ×2° × 8 | | | 1.72 | | □ | — | — |
| 8509533 | R0.6 ×2° ×10 | | | 1.86 | | □ | — | — |
| 8509534 | R0.6 ×2° ×12 | | | 2 | | □ | — | — |
| 8509535 | R0.6 ×2° ×16 | 50 | | 2.28 | | □ | — | — |
| 8509242 | R0.75× 30′ × 8 | 45 | | 1.63 | | □ | — | — |
| 8509243 | R0.75× 30′ ×10 | | | 1.66 | | □ | — | — |
| 8509244 | R0.75× 30′ ×12 | | | 1.7 | | □ | — | — |

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ボール半径 RE 0.75〜0.9 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-RB-TPB | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパボールエンドミル（深リブ形）

**FX Coated Multi-flute Taper Ball End Mill for Rib Processing**

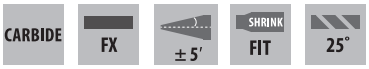
## FXS-RB-TPB

切削条件 Cutting Conditions | P667-17



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自由曲面加工用としてもご使用いただけます。

Rigid taper end mill for highly productive rib processing. Can also be used as a surface milling tool.



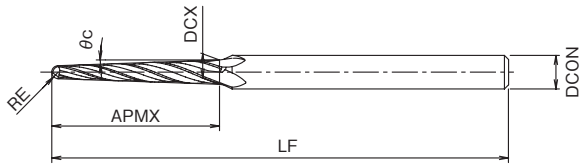

前ページより FROM ボール半径 RE 0.3～0.75

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角×刃長 RE × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8509245 | R0.75× 30°×16 | 50 | | 1.77 | □ | – | – |
| 8509246 | R0.75× 30°×20 | 55 | | 1.84 | □ | – | – |
| 8509642 | R0.75× 45°× 8 | | | 1.69 | □ | – | – |
| 8509643 | R0.75× 45°×10 | 45 | | 1.74 | □ | – | – |
| 8509644 | R0.75× 45°×12 | | | 1.8 | □ | – | – |
| 8509645 | R0.75× 45°×16 | 50 | | 1.9 | □ | – | – |
| 8509646 | R0.75× 45°×20 | 55 | | 2 | □ | – | – |
| 8509342 | R0.75×1° × 8 | | | 1.75 | □ | – | – |
| 8509343 | R0.75×1° ×10 | 45 | | 1.82 | □ | – | – |
| 8509344 | R0.75×1° ×12 | | | 1.9 | □ | – | – |
| 8509345 | R0.75×1° ×16 | 50 | | 2.03 | □ | – | – |
| 8509346 | R0.75×1° ×20 | 55 | | 2.17 | □ | – | – |
| 8509442 | R0.75×1° 30′× 8 | | | 1.88 | □ | – | – |
| 8509443 | R0.75×1° 30′×10 | 45 | | 1.99 | □ | – | – |
| 8509444 | R0.75×1° 30′×12 | | | 2.09 | □ | – | – |
| 8509445 | R0.75×1° 30′×16 | 50 | | 2.3 | □ | – | – |
| 8509446 | R0.75×1° 30′×20 | 55 | 4 | 2.51 | □ | – | – |
| 8509542 | R0.75×2° × 8 | | | 2.01 | □ | – | – |
| 8509543 | R0.75×2° ×10 | 45 | | 2.15 | □ | – | – |
| 8509544 | R0.75×2° ×12 | | | 2.29 | □ | – | – |
| 8509545 | R0.75×2° ×16 | 50 | | 2.57 | □ | – | – |
| 8509546 | R0.75×2° ×20 | 55 | | 2.85 | □ | – | – |
| 8509252 | R0.8 × 30°× 8 | | | 1.73 | □ | – | – |
| 8509253 | R0.8 × 30°×10 | 45 | | 1.76 | □ | – | – |
| 8509254 | R0.8 × 30°×12 | | | 1.8 | □ | – | – |
| 8509255 | R0.8 × 30°×16 | 50 | | 1.87 | □ | – | – |
| 8509256 | R0.8 × 30°×20 | 55 | | 1.94 | □ | – | – |
| 8509652 | R0.8 × 45°× 8 | | | 1.79 | □ | – | – |
| 8509653 | R0.8 × 45°×10 | 45 | | 1.84 | □ | – | – |
| 8509654 | R0.8 × 45°×12 | | | 1.89 | □ | – | – |
| 8509655 | R0.8 × 45°×16 | 50 | | 2 | □ | – | – |
| 8509656 | R0.8 × 45°×20 | 55 | | 2.1 | □ | – | – |
| 8509352 | R0.8 ×1° × 8 | 45 | | 1.85 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角×刃長 RE × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| 8509353 | R0.8×1° × 10 | 45 | | 1.92 | □ | – | – |
| 8509354 | R0.8×1° × 12 | | | 1.99 | □ | – | – |
| 8509355 | R0.8×1° × 16 | 50 | | 2.13 | □ | – | – |
| 8509356 | R0.8×1° × 20 | 55 | | 2.27 | □ | – | – |
| 8509452 | R0.8×1° 30′× 8 | | | 1.98 | □ | – | – |
| 8509453 | R0.8×1° 30′×10 | 45 | | 2.08 | □ | – | – |
| 8509454 | R0.8×1° 30′×12 | | | 2.19 | □ | – | – |
| 8509455 | R0.8×1° 30′×16 | 50 | | 2.4 | □ | – | – |
| 8509456 | R0.8×1° 30′×20 | 55 | | 2.61 | □ | – | – |
| 8509552 | R0.8×2° × 8 | | | 2.1 | □ | – | – |
| 8509553 | R0.8×2° ×10 | 45 | | 2.24 | □ | – | – |
| 8509554 | R0.8×2° ×12 | | | 2.38 | □ | – | – |
| 8509555 | R0.8×2° ×16 | 50 | | 2.66 | □ | – | – |
| 8509556 | R0.8×2° ×20 | 55 | | 2.94 | □ | – | – |
| 8509262 | R0.9× 30°× 8 | | | 1.92 | □ | – | – |
| 8509263 | R0.9× 30°×10 | 45 | | 1.96 | □ | – | – |
| 8509264 | R0.9× 30°×12 | | 4 | 1.99 | □ | – | – |
| 8509265 | R0.9× 30°×16 | 50 | | 2.06 | □ | – | – |
| 8509266 | R0.9× 30°×20 | 55 | | 2.13 | □ | – | – |
| 8509662 | R0.9× 45°× 8 | | | 1.99 | □ | – | – |
| 8509663 | R0.9× 45°×10 | 45 | | 2.04 | □ | – | – |
| 8509664 | R0.9× 45°×12 | | | 2.09 | □ | – | – |
| 8509665 | R0.9× 45°×16 | 50 | | 2.2 | □ | – | – |
| 8509666 | R0.9× 45°×20 | 55 | | 2.3 | □ | – | – |
| 8509362 | R0.9×1° × 8 | | | 2.05 | □ | – | – |
| 8509363 | R0.9×1° ×10 | 45 | | 2.12 | □ | – | – |
| 8509364 | R0.9×1° ×12 | | | 2.19 | □ | – | – |
| 8509365 | R0.9×1° ×16 | 50 | | 2.34 | □ | – | – |
| 8509366 | R0.9×1° ×20 | 55 | | 2.47 | □ | – | – |
| 8509462 | R0.9×1° 30′× 8 | | | 2.17 | □ | – | – |
| 8509463 | R0.9×1° 30′×10 | 45 | | 2.28 | □ | – | – |
| 8509464 | R0.9×1° 30′×12 | | | 2.38 | □ | – | – |
| 8509465 | R0.9×1° 30′×16 | 50 | | 2.59 | □ | – | – |




次ページへ ボール半径 RE 0.9～1.25 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～45HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FXS-RB-TPB | ◎ | ◎ | ○ | ○ | | ○ | ◎ | ○ | | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパボールエンドミル（深リブ形）

**FX Coated Multi-flute Taper Ball End Mill for Rib Processing**

## FXS-RB-TPB

切削条件 Cutting Conditions | P667-17



リブ溝の高能率加工を可能とした高剛性テーパエンドミルです。
自由曲面加工用としてもご使用いただけます。
Rigid taper end mill for highly productive rib processing. Can also be used as a surface milling tool.

CARBIDE | FX | ±5′ | SHRINK FIT | 25°

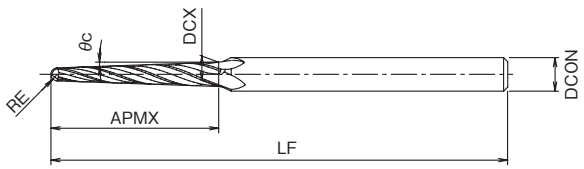
前ページより FROM ボール半径 RE 0.75～0.9

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角×刃長 RE × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8509466 | R0.9 × 1° 30′ × 20 | 55 | 4 | 2.8 | | □ | — | — |
| 8509562 | R0.9 × 2° × 8 | 45 | | 2.3 | | □ | — | — |
| 8509563 | R0.9 × 2° × 10 | | | 2.44 | | □ | — | — |
| 8509564 | R0.9 × 2° × 12 | | | 2.58 | | □ | — | — |
| 8509565 | R0.9 × 2° × 16 | 50 | | 2.86 | | □ | — | — |
| 8509566 | R0.9 × 2° × 20 | 55 | | 3.14 | | □ | — | — |
| 8509273 | R1 × 30′ × 10 | 45 | | 2.16 | | □ | — | — |
| 8509274 | R1 × 30′ × 12 | | | 2.19 | | □ | — | — |
| 8509275 | R1 × 30′ × 16 | 50 | | 2.26 | | □ | — | — |
| 8509276 | R1 × 30′ × 20 | 55 | | 2.33 | | □ | — | — |
| 8509277 | R1 × 30′ × 25 | | | 2.42 | | □ | — | — |
| 8509673 | R1 × 45′ × 10 | 45 | | 2.24 | | □ | — | — |
| 8509674 | R1 × 45′ × 12 | | | 2.29 | | □ | — | — |
| 8509675 | R1 × 45′ × 16 | 50 | | 2.39 | | □ | — | — |
| 8509676 | R1 × 45′ × 20 | 55 | | 2.5 | | □ | — | — |
| 8509677 | R1 × 45′ × 25 | | | 2.63 | | □ | — | — |
| 8509373 | R1 × 1° × 10 | 45 | | 2.31 | — | □ | — | — |
| 8509374 | R1 × 1° × 12 | | | 2.38 | | □ | — | — |
| 8509375 | R1 × 1° × 16 | 50 | | 2.52 | | □ | — | — |
| 8509376 | R1 × 1° × 20 | 55 | | 2.66 | | □ | — | — |
| 8509377 | R1 × 1° × 25 | | | 2.84 | | □ | — | — |
| 8509473 | R1 × 1° 30′ × 10 | 45 | | 2.47 | | □ | — | — |
| 8509474 | R1 × 1° 30′ × 12 | | | 2.58 | | □ | — | — |
| 8509475 | R1 × 1° 30′ × 16 | 50 | | 2.79 | | □ | — | — |
| 8509476 | R1 × 1° 30′ × 20 | 55 | | 3 | | □ | — | — |
| 8509477 | R1 × 1° 30′ × 25 | | | 3.26 | | □ | — | — |
| | R1 × 1° 30′ × 30 | 60 | | 3.52 | | □ | — | — |
| 8509573 | R1 × 2° × 10 | 45 | | 2.63 | | □ | — | — |
| 8509574 | R1 × 2° × 12 | | | 2.77 | | □ | — | — |
| 8509575 | R1 × 2° × 16 | 50 | | 3.05 | | □ | — | — |
| 8509576 | R1 × 2° × 20 | 55 | | 3.33 | | □ | — | — |
| 8509577 | R1 × 2° × 25 | | | 3.68 | | □ | — | — |
| | R1 × 2° × 30 | 60 | 6 | 4.03 | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角×刃長 RE × θc × APMX | 全長 LF | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8509283 | R1.25 × 30′ × 10 | 45 | 4 | 2.65 | | □ | — | — |
| 8509284 | R1.25 × 30′ × 12 | | | 2.69 | | □ | — | — |
| 8509285 | R1.25 × 30′ × 16 | 50 | | 2.76 | | □ | — | — |
| 8509286 | R1.25 × 30′ × 20 | 55 | | 2.83 | | □ | — | — |
| 8509287 | R1.25 × 30′ × 25 | | | 2.91 | | □ | — | — |
| 8509683 | R1.25 × 45′ × 10 | 45 | | 2.73 | | □ | — | — |
| 8509684 | R1.25 × 45′ × 12 | | | 2.78 | | □ | — | — |
| 8509685 | R1.25 × 45′ × 16 | 50 | | 2.89 | | □ | — | — |
| 8509686 | R1.25 × 45′ × 20 | 55 | | 2.99 | | □ | — | — |
| 8509687 | R1.25 × 45′ × 25 | | | 3.12 | | □ | — | — |
| 8509383 | R1.25 × 1° × 10 | 45 | | 2.81 | | □ | — | — |
| 8509384 | R1.25 × 1° × 12 | | | 2.88 | | □ | — | — |
| 8509385 | R1.25 × 1° × 16 | 50 | | 3.02 | | □ | — | — |
| 8509386 | R1.25 × 1° × 20 | 55 | | 3.16 | — | □ | — | — |
| 8509387 | R1.25 × 1° × 25 | | | 3.33 | | □ | — | — |
| 8509483 | R1.25 × 1° 30′ × 10 | 45 | | 2.96 | | □ | — | — |
| 8509484 | R1.25 × 1° 30′ × 12 | | | 3.06 | | □ | — | — |
| 8509485 | R1.25 × 1° 30′ × 16 | 50 | | 3.27 | | □ | — | — |
| 8509486 | R1.25 × 1° 30′ × 20 | 55 | | 3.48 | | □ | — | — |
| 8509487 | R1.25 × 1° 30′ × 25 | | | 3.74 | | □ | — | — |
| | R1.25 × 1° 30′ × 30 | 60 | 6 | 4.01 | | □ | — | — |
| 8509583 | R1.25 × 2° × 10 | 45 | 4 | 3.11 | | □ | — | — |
| 8509584 | R1.25 × 2° × 12 | | | 3.25 | | □ | — | — |
| 8509585 | R1.25 × 2° × 16 | 50 | | 3.53 | | □ | — | — |
| 8509586 | R1.25 × 2° × 20 | 55 | | 3.81 | | □ | — | — |
| 8509587 | R1.25 × 2° × 25 | 60 | 6 | 4.16 | | □ | — | — |
| | R1.25 × 2° × 30 | | | 4.51 | | □ | — | — |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FXS-RB-TPB | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート2枚刃超硬テーパボールエンドミル ショート形

**TiN Coated 2-flute Carbide Taper Ball End Mill Short Length**

## TIN-MG-TPBDS



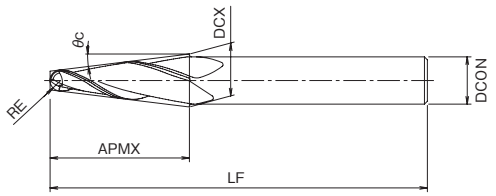
CARBIDE | TiN | ±5′ | SHRINK FIT | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R1 × 0.5° | 45 | 8 | 4 | 2.12 | | □ | – | – |
| | R1 × 1° | | 11 | | 2.35 | | □ | – | – |
| | R1 × 1.5° | | | | 2.52 | | □ | – | – |
| | R1 × 2° | | 15 | | 2.98 | | □ | – | – |
| | R1 × 2.5° | | | | 3.22 | | □ | – | – |
| | R1 × 3° | | | | 3.47 | | □ | – | – |
| | R1 × 4° | 50 | | 6 | 3.96 | | □ | – | – |
| | R1 × 5° | | | | 4.46 | | □ | – | – |
| | R1 × 7° | 70 | 20 | 8 | 6.68 | | □ | – | – |
| | R1.25 × 0.5° | 45 | 8 | 4 | 2.62 | | □ | – | – |
| | R1.25 × 1° | | 11 | | 2.84 | | □ | – | – |
| | R1.25 × 1.5° | | | | 3.01 | | □ | – | – |
| | R1.25 × 2° | | 15 | | 3.46 | | □ | – | – |
| | R1.25 × 2.5° | | | | 3.7 | | □ | – | – |
| | R1.25 × 3° | 50 | | 6 | 3.94 | | □ | – | – |
| | R1.25 × 4° | | | | 4.43 | | □ | – | – |
| | R1.25 × 5° | | | | 4.92 | | □ | – | – |
| | R1.25 × 7° | 70 | 20 | 8 | 7.12 | | □ | – | – |
| | R1.5 × 0.5° | 45 | 8 | 4 | 3.11 | | □ | – | – |
| | R1.5 × 1° | | 11 | | 3.33 | | □ | – | – |
| | R1.5 × 1.5° | | | | 3.5 | – | □ | – | – |
| | R1.5 × 2° | 50 | 15 | 6 | 3.94 | | □ | – | – |
| | R1.5 × 2.5° | | | | 4.18 | | □ | – | – |
| | R1.5 × 3° | | | | 4.42 | | □ | – | – |
| | R1.5 × 4° | | | | 4.9 | | □ | – | – |
| | R1.5 × 5° | | | | 5.37 | | □ | – | – |
| | R1.5 × 7° | 70 | 20 | 8 | 7.57 | | □ | – | – |
| | R2 × 0.5° | 50 | 10 | 6 | 4.14 | | □ | – | – |
| | R2 × 1° | | 13 | | 4.38 | | □ | – | – |
| | R2 × 1.5° | | | | 4.58 | | □ | – | – |
| | R2 × 2° | 60 | 18 | | 5.12 | | □ | – | – |
| | R2 × 2.5° | | | | 5.4 | | □ | – | – |
| | R2 × 3° | | | | 5.68 | | □ | – | – |
| | R2 × 4° | | | 8 | 6.25 | | □ | – | – |
| | R2 × 5° | | | | 6.81 | | □ | – | – |
| | R2 × 7° | 70 | 24 | 10 | 9.43 | | □ | – | – |
| | R2.5 × 0.5° | 50 | 12 | 6 | 5.17 | | □ | – | – |
| | R2.5 × 1° | | 16 | | 5.47 | | □ | – | – |
| | R2.5 × 1.5° | | | | 5.71 | | □ | – | – |
| | R2.5 × 2° | 70 | 21 | 8 | 6.3 | | □ | – | – |
| | R2.5 × 2.5° | | | | 6.62 | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R2.5 × 3° | 70 | 21 | 8 | 6.95 | | □ | – | – |
| | R2.5 × 4° | | | | 7.6 | | □ | – | – |
| | R2.5 × 5° | | | 10 | 8.26 | | □ | – | – |
| | R2.5 × 7° | 90 | 28 | 12 | 11.3 | | □ | – | – |
| | R3 × 0.5° | 60 | 12 | 8 | 6.16 | | □ | – | – |
| | R3 × 1° | | 16 | | 6.45 | | □ | – | – |
| | R3 × 1.5° | | | | 6.68 | | □ | – | – |
| | R3 × 2° | 70 | 21 | | 7.26 | | □ | – | – |
| | R3 × 2.5° | | | | 7.58 | | □ | – | – |
| | R3 × 3° | | | 10 | 7.89 | | □ | – | – |
| | R3 × 4° | | | | 8.53 | | □ | – | – |
| | R3 × 5° | | | | 9.17 | | □ | – | – |
| | R3 × 7° | 90 | 28 | 12 | 12.18 | | □ | – | – |
| | R4 × 0.5° | 70 | 14 | 10 | 8.17 | | □ | – | – |
| | R4 × 1° | | 19 | | 8.52 | | □ | – | – |
| | R4 × 1.5° | | | | 8.79 | | □ | – | – |
| | R4 × 2° | | 25 | | 9.47 | | □ | – | – |
| | R4 × 2.5° | 75 | | 12 | 9.84 | | □ | – | – |
| | R4 × 3° | | | | 10.21 | | □ | – | – |
| | R4 × 4° | | | | 10.96 | | □ | – | – |
| | R4 × 5° | | | | 11.71 | – | □ | – | – |
| | R4 × 7° | 100 | 33 | 16 | 15.18 | | □ | – | – |
| | R5 × 0.5° | 75 | 14 | 12 | 10.16 | | □ | – | – |
| | R5 × 1° | | 19 | | 10.49 | | □ | – | – |
| | R5 × 1.5° | | | | 10.74 | | □ | – | – |
| | R5 × 2° | | 25 | | 11.4 | | □ | – | – |
| | R5 × 2.5° | | | | 11.76 | | □ | – | – |
| | R5 × 3° | | | | 12.11 | | □ | – | – |
| | R5 × 4° | | | | 12.82 | | □ | – | – |
| | R5 × 5° | | | | 13.54 | | □ | – | – |
| | R5 × 7° | 100 | 33 | 16 | 16.95 | | □ | – | – |
| | R6 × 0.5° | 75 | 17 | 12 | 12.19 | | □ | – | – |
| | R6 × 1° | | 22 | | 12.56 | | □ | – | – |
| | R6 × 1.5° | | | | 12.84 | | □ | – | – |
| | R6 × 2° | 90 | 30 | | 13.68 | | □ | – | – |
| | R6 × 2.5° | | | | 14.11 | | □ | – | – |
| | R6 × 3° | | | | 14.53 | | □ | – | – |
| | R6 × 4° | | | 16 | 15.39 | | □ | – | – |
| | R6 × 5° | | | | 16.25 | | □ | – | – |
| | R6 × 7° | 110 | 40 | 20 | 20.44 | | □ | – | – |




**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート2枚刃超硬テーパボールエンドミル レギュラ形
**TiN Coated 2-flute Carbide Taper Ball End Mill Regular Length**

## TIN-MG-TPBDR



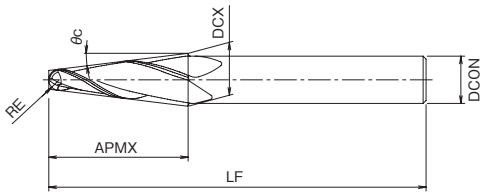
CARBIDE | TiN | ±5′ | SHRINK FIT | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE ×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R1 × 0.5° | 50 | 17 | 4 | 2.28 | | □ | — | — |
| | R1 × 1° | 55 | 22 | | 2.73 | | □ | — | — |
| | R1 × 1.5° | | | | 3.1 | | □ | — | — |
| | R1 × 2° | 80 | 30 | 6 | 4.03 | | □ | — | — |
| | R1 × 3° | | | | 5.04 | | □ | — | — |
| | R1 × 4° | | | 8 | 6.06 | | □ | — | — |
| | R1 × 5° | | | | 7.08 | | □ | — | — |
| | R1 × 7° | 110 | 40 | 12 | 11.59 | | □ | — | — |
| | R1.25 × 0.5° | 50 | 17 | 4 | 2.77 | | □ | — | — |
| | R1.25 × 1° | 55 | 22 | | 3.22 | | □ | — | — |
| | R1.25 × 1.5° | | | | 3.59 | | □ | — | — |
| | R1.25 × 2° | 80 | 30 | 6 | 4.51 | | □ | — | — |
| | R1.25 × 3° | | | | 5.52 | | □ | — | — |
| | R1.25 × 4° | | | 8 | 6.53 | | □ | — | — |
| | R1.25 × 5° | | | | 7.54 | | □ | — | — |
| | R1.25 × 7° | 110 | 40 | 12 | 12.03 | | □ | — | — |
| | R1.5 × 0.5° | 50 | 17 | 4 | 3.27 | | □ | — | — |
| | R1.5 × 1° | 55 | 22 | | 3.72 | | □ | — | — |
| | R1.5 × 1.5° | 70 | | 6 | 4.07 | — | □ | — | — |
| | R1.5 × 2° | 80 | 30 | | 4.99 | | □ | — | — |
| | R1.5 × 3° | | | | 5.99 | | □ | — | — |
| | R1.5 × 4° | | | 8 | 6.99 | | □ | — | — |
| | R1.5 × 5° | | | | 8 | | □ | — | — |
| | R1.5 × 7° | 110 | 40 | 12 | 12.48 | | □ | — | — |
| | R2 × 0.5° | 70 | 20 | 6 | 4.31 | | □ | — | — |
| | R2 × 1° | | 26 | | 4.84 | | □ | — | — |
| | R2 × 1.5° | | | | 5.26 | | □ | — | — |
| | R2 × 2° | 80 | 36 | 8 | 6.38 | | □ | — | — |
| | R2 × 3° | | | | 7.57 | | □ | — | — |
| | R2 × 4° | 100 | | 10 | 8.76 | | □ | — | — |
| | R2 × 5° | | | | 9.96 | | □ | — | — |
| | R2 × 7° | 110 | 48 | 16 | 15.33 | | □ | — | — |
| | R2.5 × 0.5° | 70 | 24 | 6 | 5.38 | | □ | — | — |
| | R2.5 × 1° | 80 | 32 | 8 | 6.03 | | □ | — | — |
| | R2.5 × 1.5° | | | | 6.55 | | □ | — | — |
| | R2.5 × 2° | 100 | 42 | | 7.76 | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE ×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R2.5 × 3° | 100 | 42 | 10 | 9.15 | | □ | — | — |
| | R2.5 × 4° | 110 | | 12 | 10.54 | | □ | — | — |
| | R2.5 × 5° | | | | 11.93 | | □ | — | — |
| | R2.5 × 7° | 120 | 56 | 16 | 18.18 | | □ | — | — |
| | R3 × 0.5° | 70 | 24 | 8 | 6.37 | | □ | — | — |
| | R3 × 1° | 80 | 32 | | 7.01 | | □ | — | — |
| | R3 × 1.5° | | | | 7.52 | | □ | — | — |
| | R3 × 2° | 100 | 42 | 10 | 8.73 | | □ | — | — |
| | R3 × 3° | 110 | | 12 | 10.1 | | □ | — | — |
| | R3 × 4° | | | | 11.47 | | □ | — | — |
| | R3 × 5° | | | | 12.85 | | □ | — | — |
| | R3 × 7° | 125 | 56 | 20 | 19.06 | | □ | — | — |
| | R4 × 0.5° | 80 | 28 | 10 | 8.42 | | □ | — | — |
| | R4 × 1° | 100 | 38 | | 9.19 | | □ | — | — |
| | R4 × 1.5° | | | | 9.78 | | □ | — | — |
| | R4 × 2° | 110 | 50 | 12 | 11.22 | | □ | — | — |
| | R4 × 3° | | | | 12.83 | | □ | — | — |
| | R4 × 4° | | | | 14.45 | | □ | — | — |
| | R4 × 5° | | | 16 | 16.08 | — | □ | — | — |
| | R4 × 7° | 135 | 67 | 20 | 23.53 | | □ | — | — |
| | R5 × 0.5° | 90 | 28 | 12 | 10.4 | | □ | — | — |
| | R5 × 1° | 110 | 38 | | 11.15 | | □ | — | — |
| | R5 × 1.5° | | | | 11.73 | | □ | — | — |
| | R5 × 2° | | 50 | | 13.15 | | □ | — | — |
| | R5 × 3° | | | | 14.73 | | □ | — | — |
| | R5 × 4° | | | 16 | 16.32 | | □ | — | — |
| | R5 × 5° | | | | 17.91 | | □ | — | — |
| | R5 × 7° | 145 | 67 | 25 | 25.3 | | □ | — | — |
| | R6 × 0.5° | 90 | 34 | 12 | 12.49 | | □ | — | — |
| | R6 × 1° | 110 | 45 | | 13.36 | | □ | — | — |
| | R6 × 1.5° | | | | 14.05 | | □ | — | — |
| | R6 × 2° | 120 | 60 | 16 | 15.78 | | □ | — | — |
| | R6 × 3° | | | | 17.68 | | □ | — | — |
| | R6 × 4° | 130 | | 20 | 19.58 | | □ | — | — |
| | R6 × 5° | | | | 21.49 | | □ | — | — |
| | R6 × 7° | 160 | 80 | 32 | 30.26 | | □ | — | — |




**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃超硬テーパボールエンドミルショート形
**2-flute Carbide Taper Ball End Mill Short Length**

## MG-TPBDS



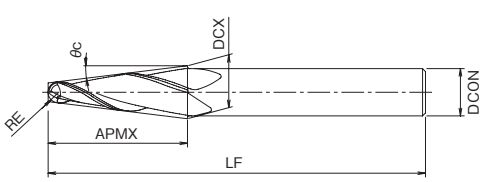
CARBIDE | ±5′ | SHRINK FIT | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.5 × 0.5° | 40 | 4 | 4 | 1.06 | □ | — | — |
| | R0.5 × 1° | | | | 1.12 | □ | — | — |
| | R0.5 × 1.5° | | | | 1.18 | □ | — | — |
| | R0.5 × 2° | | | | 1.25 | □ | — | — |
| | R0.5 × 3° | | | | 1.37 | □ | — | — |
| | R0.5 × 5° | | | | 1.62 | □ | — | — |
| | R0.5 × 10° | | | | 2.25 | □ | — | — |
| | R0.75 × 0.5° | | 6 | | 1.59 | □ | — | — |
| | R0.75 × 1° | | | | 1.68 | □ | — | — |
| | R0.75 × 1.5° | | | | 1.78 | □ | — | — |
| | R0.75 × 2° | | | | 1.87 | □ | — | — |
| | R0.75 × 3° | | | | 2.05 | □ | — | — |
| | R0.75 × 5° | | | | 2.42 | □ | — | — |
| | R0.75 × 7° | | | | 2.8 | □ | — | — |
| | R1 × 0.5° | | 8 | | 2.12 | □ | — | — |
| | R1 × 1° | | | | 2.24 | □ | — | — |
| | R1 × 1.5° | | | | 2.37 | □ | — | — |
| | R1 × 2° | | | | 2.49 | □ | — | — |
| | R1 × 3° | | | | 2.74 | □ | — | — |
| | R1 × 4° | | | | 2.98 | □ | — | — |
| | R1 × 5° | | | | 3.23 | □ | — | — |
| | R1 × 7° | | | | 3.73 | □ | — | — |
| | R1 × 10° | | | | 4.5 | □ | — | — |
| | R1.25 × 0.5° | 45 | 10 | | 2.65 | □ | — | — |
| | R1.25 × 1° | | | | 2.81 | □ | — | — |
| | R1.25 × 1.5° | | | | 2.96 | □ | — | — |
| | R1.25 × 2° | | | | 3.11 | □ | — | — |
| | R1.25 × 3° | | | | 3.42 | □ | — | — |
| | R1.25 × 4° | | | | 3.73 | □ | — | — |
| | R1.25 × 5° | | | 6 | 4.04 | □ | — | — |
| | R1.25 × 7° | | | | 4.67 | □ | — | — |
| | R1.5 × 0.5° | | 12 | | 3.18 | □ | — | — |
| | R1.5 × 1° | | | | 3.37 | □ | — | — |
| | R1.5 × 1.5° | | | | 3.55 | □ | — | — |
| | R1.5 × 2° | | | | 3.74 | □ | — | — |
| | R1.5 × 3° | | | | 4.1 | □ | — | — |
| | R1.5 × 4° | | | | 4.48 | □ | — | — |
| | R1.5 × 5° | | | | 4.85 | □ | — | — |
| | R1.5 × 7° | | | | 5.6 | □ | — | — |
| | R1.5 × 10° | | | | 6.75 | □ | — | — |
| | R2 × 0.5° | 50 | 15 | | 4.23 | □ | — | — |
| | R2 × 1° | | | | 4.45 | □ | — | — |
| | R2 × 1.5° | | | | 4.68 | □ | — | — |
| | R2 × 2° | | | | 4.91 | □ | — | — |
| | R2 × 3° | | | | 5.37 | □ | — | — |
| | R2 × 4° | | | | 5.83 | □ | — | — |
| | R2 × 5° | | | | 6.29 | □ | — | — |
| | R2 × 7° | | | | 7.22 | □ | — | — |
| | R2 × 10° | | | 8 | 8.65 | □ | — | — |
| | R2.5 × 0.5° | 55 | 18 | 6 | 5.27 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R2.5 × 1° | 55 | 18 | 6 | 5.54 | □ | — | — |
| | R2.5 × 1.5° | | | | 5.81 | □ | — | — |
| | R2.5 × 2° | | | | 6.09 | □ | — | — |
| | R2.5 × 3° | | | | 6.63 | □ | — | — |
| | R2.5 × 4° | | | | 7.18 | □ | — | — |
| | R2.5 × 5° | | | 8 | 7.73 | □ | — | — |
| | R2.5 × 7° | | | | 8.84 | □ | — | — |
| | R2.5 × 10° | | | 10 | 10.54 | □ | — | — |
| | R3 × 0.5° | 60 | 22 | 6 | 6.33 | □ | — | — |
| | R3 × 1° | | | | 6.66 | □ | — | — |
| | R3 × 1.5° | | | | 7 | □ | — | — |
| | R3 × 2° | | | | 7.33 | □ | — | — |
| | R3 × 3° | | | | 8 | □ | — | — |
| | R3 × 4° | | | 8 | 8.67 | □ | — | — |
| | R3 × 5° | | | | 9.35 | □ | — | — |
| | R3 × 7° | | | 10 | 10.71 | □ | — | — |
| | R3 × 10° | | | 12 | 12.79 | □ | — | — |
| | R4 × 0.5° | 70 | 26 | 8 | 8.38 | □ | — | — |
| | R4 × 1° | | | | 8.77 | □ | — | — |
| | R4 × 1.5° | | | | 9.15 | □ | — | — |
| | R4 × 2° | | | | 9.54 | □ — | — | — |
| | R4 × 3° | | | 10 | 10.32 | □ | — | — |
| | R4 × 4° | | | | 11.1 | □ | — | — |
| | R4 × 5° | | | 12 | 11.88 | □ | — | — |
| | R4 × 7° | | | | 13.46 | □ | — | — |
| | R5 × 0.5° | 75 | 30 | 10 | 10.44 | □ | — | — |
| | R5 × 1° | | | | 10.87 | □ | — | — |
| | R5 × 1.5° | | | | 11.31 | □ | — | — |
| | R5 × 2° | | | | 11.75 | □ | — | — |
| | R5 × 3° | | | 12 | 12.63 | □ | — | — |
| | R5 × 4° | | | | 13.52 | □ | — | — |
| | R5 × 5° | | | | 14.41 | □ | — | — |
| | R5 × 7° | | | 16 | 16.21 | □ | — | — |
| | R6 × 0.5° | 90 | 36 | 12 | 12.52 | □ | — | — |
| | R6 × 1° | | | | 13.05 | □ | — | — |
| | R6 × 1.5° | | | | 13.58 | □ | — | — |
| | R6 × 2° | | | | 14.1 | □ | — | — |
| | R6 × 3° | | | | 15.16 | □ | — | — |
| | R6 × 4° | | | 16 | 16.22 | □ | — | — |
| | R6 × 5° | | | | 17.3 | □ | — | — |
| | R6 × 7° | | | | 19.46 | □ | — | — |




**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート多刃超硬テーパラジアスエンドミル（深リブ形）

**FX Coated Multi-flute Carbide Taper End Mill with Corner Radius for Rib Processing**

## FXS-RB-TPCR

切削条件 Cutting Conditions | P667-17



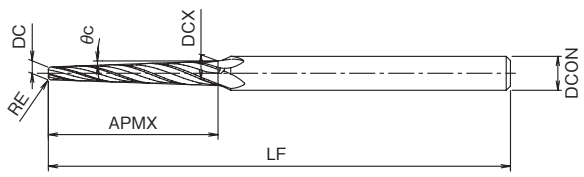
リブ溝の高能率加工を可能とした高剛性テーパエンドミルのラジアスエンドタイプです。

Rigid taper end mill for productive rib processing. Made with radius end edges.

CARBIDE | FX | ±5′ | SHRINK FIT | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角×コーナ半径 DC×θc×RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8545022 | 1 × 30′ × R0.2 | 45 | 8 | 4 | 1.14 | □ | – | – |
| 8545024 | 1 × 30′ × R0.2 | | 12 | | 1.21 | □ | – | – |
| 8545122 | 1 × 1° × R0.2 | | 8 | | 1.28 | □ | – | – |
| 8545124 | 1 × 1° × R0.2 | | 12 | | 1.42 | □ | – | – |
| 8545222 | 1 × 1°30′ × R0.2 | | 8 | | | □ | – | – |
| 8545224 | 1 × 1°30′ × R0.2 | | 12 | | 1.63 | □ | – | – |
| 8545032 | 1.2 × 30′ × R0.2 | | 8 | | 1.34 | □ | – | – |
| 8545034 | 1.2 × 30′ × R0.2 | | 12 | | 1.41 | □ | – | – |
| 8545132 | 1.2 × 1° × R0.2 | | 8 | | 1.48 | □ | – | – |
| 8545134 | 1.2 × 1° × R0.2 | | 12 | | 1.62 | □ | – | – |
| 8545232 | 1.2 × 1°30′ × R0.2 | | 8 | | | □ | – | – |
| 8545234 | 1.2 × 1°30′ × R0.2 | | 12 | | 1.83 | □ | – | – |
| 8545042 | 1.5 × 30′ × R0.2 | | 8 | | 1.64 | □ | – | – |
| 8545044 | 1.5 × 30′ × R0.2 | | 12 | | 1.71 | □ | – | – |
| 8545142 | 1.5 × 1° × R0.2 | | 8 | | 1.78 | □ | – | – |
| 8545144 | 1.5 × 1° × R0.2 | | 12 | | 1.92 | □ | – | – |
| 8545242 | 1.5 × 1°30′ × R0.2 | | 8 | | | □ | – | – |
| 8545244 | 1.5 × 1°30′ × R0.2 | | 12 | | 2.13 | □ | – | – |
| | 2 × 30′ × R0.5 | | | | 2.21 | □ | – | – |
| | 2 × 30′ × R0.5 | 55 | 20 | | 2.35 | □ | – | – |
| | 2 × 1° × R0.5 | 45 | 12 | | 2.42 | □ | – | – |
| | 2 × 1° × R0.5 | 55 | 20 | | 2.7 | □ | – | – |
| | 2 × 1°30′ × R0.5 | 45 | 12 | | 2.63 | □ | – | – |
| | 2 × 1°30′ × R0.5 | 55 | 20 | | 3.05 | □ | – | – |
| | 2 × 2° × R0.5 | 45 | 12 | | 2.84 | □ | – | – |
| | 2 × 2° × R0.5 | 55 | 20 | | 3.4 | □ | – | – |
| | 2.5 × 30′ × R0.5 | 50 | 16 | | 2.78 | □ | – | – |
| | 2.5 × 30′ × R0.5 | 55 | 25 | | 2.94 | □ | – | – |
| | 2.5 × 1° × R0.5 | 50 | 16 | | 3.06 | □ | – | – |
| | 2.5 × 1° × R0.5 | 55 | 25 | | 3.37 | □ | – | – |
| | 2.5 × 1°30′ × R0.5 | 50 | 16 | | 3.34 | □ | – | – |
| | 2.5 × 1°30′ × R0.5 | 55 | 25 | | 3.81 | □ | – | – |
| | 2.5 × 2° × R0.5 | 50 | 16 | | 3.62 | □ | – | – |
| | 2.5 × 2° × R0.5 | 55 | 25 | 6 | 4.25 | □ | – | – |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | |
| FXS-RB-TPCR | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | | | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.

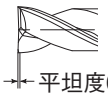


# 座ぐり用FXコート2枚刃超硬エンドミルショート形
**FX Coated 2-flute Carbide End Mill Short Length for Counterboring**

## FX-ZDS

切削条件 Cutting Conditions | P665



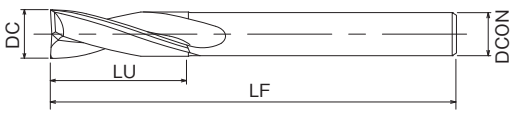


平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

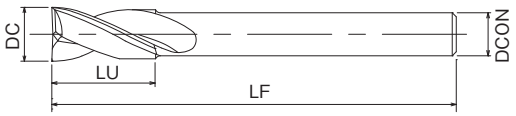
CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

CAD

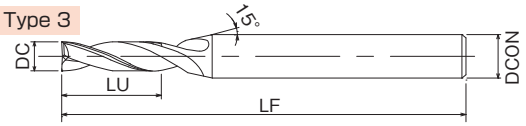
Type 1




Type 2




Type 3




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **0.5** | 40 | 1 | 4 | 3 | | □ | — | — |
| | **0.6** | | 1.2 | | 3 | | □ | — | — |
| | **0.7** | | 1.4 | | 3 | | □ | — | — |
| | **0.8** | | 1.6 | | 3 | | □ | — | — |
| | **0.9** | | 2 | | 3 | | □ | — | — |
| | **1** | 45 | 2.5 | | 3 | | □ | — | — |
| | **1.1** | | | | 3 | | □ | — | — |
| | **1.2** | | 4 | | 3 | | □ | — | — |
| | **1.3** | | | | 3 | | □ | — | — |
| | **1.4** | | | | 3 | | □ | — | — |
| | **1.5** | | | | 3 | | □ | — | — |
| | **1.6** | | 5 | | 3 | | □ | — | — |
| | **1.7** | | | | 3 | — | □ | — | — |
| | **1.8** | | | | 3 | | □ | — | — |
| | **1.9** | | | | 3 | | □ | — | — |
| | **2** | | 6 | | 3 | | □ | — | — |
| | **2.1** | | | | 3 | | □ | — | — |
| | **2.2** | | | | 3 | | □ | — | — |
| | **2.3** | | | | 3 | | □ | — | — |
| | **2.4** | | 8 | | 3 | | □ | — | — |
| | **2.5** | | | | 3 | | □ | — | — |
| | **2.6** | | | | 3 | | □ | — | — |
| | **2.7** | | | | 3 | | □ | — | — |
| | **2.8** | | | | 3 | | □ | — | — |
| | **2.9** | | | | 3 | | □ | — | — |
| 8530630 | **3** | 50 | 10 | 6 | 3 | D | ● | 18 | 9,890 |
| | **3.1** | | | | 3 | — | □ | — | — |
| | **3.2** | | | | 3 | | □ | — | — |
| 8530633 | **3.3** | | | | 3 | D | ● | 18 | 10,400 |
| | **3.4** | | | | 3 | — | □ | — | — |
| 8530635 | **3.5** | | | | 3 | D | ● | 18 | 10,400 |
| | **3.6** | | | | 3 | | □ | — | — |
| | **3.7** | | | | 3 | — | □ | — | — |
| | **3.8** | | 11 | | 3 | | □ | — | — |
| | **3.9** | | | | 3 | | □ | — | — |
| 8530640 | **4** | | | | 3 | D | ● | 18 | 10,400 |
| | **4.1** | | | | 3 | — | □ | — | — |
| 8530642 | **4.2** | | | | 3 | D | ● | 18 | 10,400 |
| | **4.3** | | | | 3 | — | □ | — | — |
| | **4.4** | | | | 3 | | □ | — | — |
| 8530645 | **4.5** | | | | 3 | D | ● | 19 | 10,400 |
| | **4.6** | | | | 3 | — | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **4.7** | 50 | 11 | 6 | 3 | | □ | — | — |
| | **4.8** | 60 | 13 | | 3 | — | □ | — | — |
| | **4.9** | | | | 3 | | □ | — | — |
| 8530650 | **5** | | | | 3 | D | ● | 23 | 11,200 |
| | **5.1** | | | | 3 | | □ | — | — |
| | **5.2** | | | | 3 | — | □ | — | — |
| | **5.3** | | | | 3 | | □ | — | — |
| | **5.4** | | | | 3 | | □ | — | — |
| 8530655 | **5.5** | | | | 3 | D | ● | 23 | 11,600 |
| | **5.6** | | | | 3 | | □ | — | — |
| | **5.7** | | | | 3 | — | □ | — | — |
| | **5.8** | | | | 3 | | □ | — | — |
| | **5.9** | | | | 3 | | □ | — | — |
| 8530660 | **6** | | | | 1 | D | ● | 23 | 11,600 |
| | **6.1** | 70 | 16 | | 2 | | □ | — | — |
| | **6.2** | | | | 2 | — | □ | — | — |
| | **6.3** | | | | 2 | | □ | — | — |
| | **6.4** | | | | 2 | | □ | — | — |
| 8530665 | **6.5** | | | | 2 | D | ● | 29 | 15,100 |
| | **6.6** | | | | 2 | | □ | — | — |
| | **6.7** | | | | 2 | — | □ | — | — |
| 8530668 | **6.8** | | | | 2 | D | ● | 29 | 15,100 |
| | **6.9** | | | | 2 | — | □ | — | — |
| 8530670 | **7** | | | | 2 | D | ● | 29 | 15,100 |
| | **7.1** | | | | 2 | | □ | — | — |
| | **7.2** | | | | 2 | | □ | — | — |
| | **7.3** | | | | 2 | — | □ | — | — |
| | **7.4** | | | | 2 | | □ | — | — |
| 8530675 | **7.5** | | | | 2 | D | ● | 30 | 15,100 |
| | **7.6** | | 19 | | 2 | | □ | — | — |
| | **7.7** | | | | 2 | — | □ | — | — |
| | **7.8** | | | | 2 | | □ | — | — |
| | **7.9** | | | | 2 | | □ | — | — |
| 8530680 | **8** | | | 8 | 1 | D | ● | 45 | 17,300 |
| | **8.1** | 80 | | | 2 | | □ | — | — |
| | **8.2** | | | | 2 | — | □ | — | — |
| | **8.3** | | | | 2 | | □ | — | — |
| | **8.4** | | | | 2 | | □ | — | — |
| 8530685 | **8.5** | | | | 2 | D | ● | 55 | 19,800 |
| | **8.6** | | | | 2 | | □ | — | — |
| | **8.7** | | | | 2 | — | □ | — | — |
| | **8.8** | | | | 2 | | □ | — | — |

※横引き不可です。※Specialized for plunging.

次ページへ
外径 DC 8.9〜17.2 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-ZDS** | ◎ | | ○ | | | | ◎ | ◎ | | ○ | | | | |

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- ● = 標準在庫品 Standard stock item
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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用FXコート2枚刃超硬エンドミルショート形
**FX Coated 2-flute Carbide End Mill Short Length for Counterboring**

## FX-ZDS

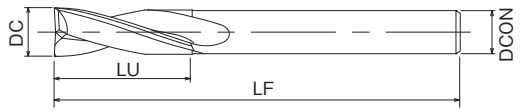
切削条件 Cutting Conditions | **P665**



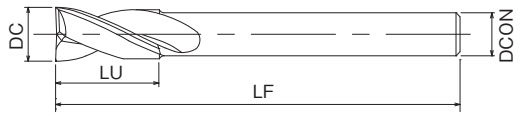
平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

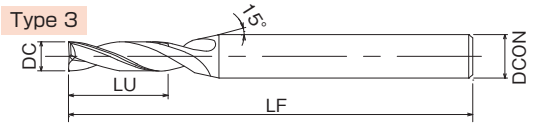
Type 1




Type 2




Type 3




前ページより FROM 外径 DC 0.5〜8.8

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **8.9** | 80 | 19 | 8 | 2 | – | □ | – | – |
| 8530690 | **9** | | | | | D | ● | 55 | 19,800 |
| | **9.1** | | | | | – | □ | – | – |
| | **9.2** | | | | | | □ | – | – |
| | **9.3** | | | | | | □ | – | – |
| | **9.4** | | | | | | □ | – | – |
| 8530695 | **9.5** | | 22 | | | D | ● | 55 | 20,800 |
| | **9.6** | | | | | – | □ | – | – |
| | **9.7** | | | | | | □ | – | – |
| | **9.8** | | | | | | □ | – | – |
| | **9.9** | | | | | | □ | – | – |
| 8530700 | **10** | 90 | | 10 | 1 | D | ● | 77 | 19,800 |
| | **10.1** | | | | 2 | – | □ | – | – |
| | **10.2** | | | | | | □ | – | – |
| 8530703 | **10.3** | | | | | D | ● | 93 | 24,900 |
| | **10.4** | | | | | – | □ | – | – |
| 8530705 | **10.5** | | | | | D | ● | 94 | 24,900 |
| | **10.6** | | | | | – | □ | – | – |
| | **10.7** | | | | | | □ | – | – |
| | **10.8** | | | | | | □ | – | – |
| | **10.9** | | | | | | □ | – | – |
| 8530710 | **11** | | | | | D | ● | 94 | 24,900 |
| | **11.1** | | | | | – | □ | – | – |
| | **11.2** | | | | | | □ | – | – |
| | **11.3** | | | | | | □ | – | – |
| | **11.4** | | | | | | □ | – | – |
| 8530715 | **11.5** | | | | | D | ● | 96 | 25,100 |
| | **11.6** | | | | | – | □ | – | – |
| | **11.7** | | | | | | □ | – | – |
| | **11.8** | | | | | | □ | – | – |
| | **11.9** | | 26 | | | | □ | – | – |
| 8530720 | **12** | | | 12 | 1 | D | ● | 125 | 29,400 |
| | **12.1** | | | | 2 | – | □ | – | – |
| | **12.2** | | | | | | □ | – | – |
| | **12.3** | | | | | | □ | – | – |
| | **12.4** | | | | | | □ | – | – |
| 8530725 | **12.5** | 100 | | | | D | ● | 142 | 34,300 |
| | **12.6** | | | | | – | □ | – | – |
| | **12.7** | | | | | | □ | – | – |
| | **12.8** | | | | | | □ | – | – |
| | **12.9** | | | | | | □ | – | – |
| 8530730 | **13** | | | | | D | ● | 145 | 34,300 |

※横引き不可です。 ※Specialized for plunging.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **13.1** | 100 | 26 | 12 | 2 | – | □ | – | – |
| | **13.2** | | | | | | □ | – | – |
| | **13.3** | | | | | | □ | – | – |
| | **13.4** | | | | | | □ | – | – |
| 8530735 | **13.5** | | | | | D | ● | 156 | 41,700 |
| | **13.6** | | | | | – | □ | – | – |
| | **13.7** | | | | | | □ | – | – |
| | **13.8** | | | | | | □ | – | – |
| | **13.9** | | | | | | □ | – | – |
| 8530740 | **14** | | | | | D | ● | 158 | 41,700 |
| | **14.1** | | | | | – | □ | – | – |
| | **14.2** | | | | | | □ | – | – |
| | **14.3** | | | | | | □ | – | – |
| | **14.4** | | | | | | □ | – | – |
| 8530745 | **14.5** | 105 | | | | D | ● | 170 | 48,200 |
| | **14.6** | | | | | – | □ | – | – |
| | **14.7** | | | | | | □ | – | – |
| | **14.8** | | | | | | □ | – | – |
| | **14.9** | | | | | | □ | – | – |
| 8530750 | **15** | | | | | D | ● | 170 | 48,200 |
| | **15.1** | 115 | 32 | | | – | □ | – | – |
| | **15.2** | | | | | | □ | – | – |
| | **15.3** | | | | | | □ | – | – |
| | **15.4** | | | | | | □ | – | – |
| 8530755 | **15.5** | | | | | D | ● | 188 | 48,700 |
| | **15.6** | | | | | – | □ | – | – |
| | **15.7** | | | | | | □ | – | – |
| | **15.8** | | | | | | □ | – | – |
| | **15.9** | | | | | | □ | – | – |
| 8530760 | **16** | | | 16 | 1 | D | ● | 287 | 49,200 |
| | **16.1** | | | | 2 | – | □ | – | – |
| | **16.2** | | | | | | □ | – | – |
| | **16.3** | | | | | | □ | – | – |
| | **16.4** | | | | | | □ | – | – |
| 8530765 | **16.5** | | | | | D | ● | 289 | 81,600 |
| | **16.6** | | | | | – | □ | – | – |
| | **16.7** | | | | | | □ | – | – |
| | **16.8** | | | | | | □ | – | – |
| | **16.9** | | | | | | □ | – | – |
| 8530770 | **17** | | | | | D | ● | 292 | 81,600 |
| | **17.1** | | | | | – | □ | – | – |
| | **17.2** | | | | | | □ | – | – |

次ページへ 外径 DC 17.3〜20 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-ZDS** | ◎ | | ○ | | | | ◎ | ◎ | | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

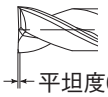
△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 座ぐり用FXコート2枚刃超硬エンドミルショート形
**FX Coated 2-flute Carbide End Mill Short Length for Counterboring**

## FX-ZDS

切削条件 Cutting Conditions | P665





平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

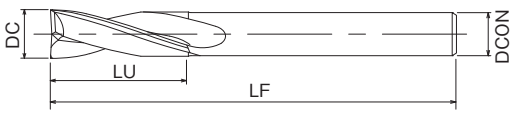
前ページより FROM 外径 DC 8.9〜17.2

（単位:mm）(Unit:mm)

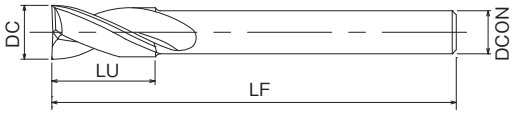
| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 17.3 | 115 | 32 | 16 | 2 | – | □ | – | – |
| | 17.4 | | | | | | □ | – | – |
| 8530775 | 17.5 | | | | | D | ● | 295 | 81,600 |
| | 17.6 | | | | | – | □ | – | – |
| | 17.7 | | | | | | □ | – | – |
| | 17.8 | | | | | | □ | – | – |
| | 17.9 | | | | | | □ | – | – |
| 8530780 | 18 | | | | | D | ● | 304 | 81,600 |
| | 18.1 | | | | | – | □ | – | – |
| | 18.2 | | | | | | □ | – | – |
| | 18.3 | | | | | | □ | – | – |
| | 18.4 | | | | | | □ | – | – |
| 8530785 | 18.5 | | | | | D | ● | 307 | 81,600 |
| | 18.6 | | | | | – | □ | – | – |
| | 18.7 | | | | | | □ | – | – |
| | 18.8 | | | | | | □ | – | – |
| | 18.9 | | | | | | □ | – | – |
| 8530790 | 19 | | | | | D | ● | 307 | 81,600 |
| | 19.1 | 125 | 38 | | | – | □ | – | – |
| | 19.2 | | | | | | □ | – | – |
| | 19.3 | | | | | | □ | – | – |
| | 19.4 | | | | | | □ | – | – |
| 8530795 | 19.5 | | | | | D | ● | 330 | 82,400 |
| | 19.6 | | | | | – | □ | – | – |
| | 19.7 | | | | | | □ | – | – |
| | 19.8 | | | | | | □ | – | – |
| | 19.9 | | | | | | □ | – | – |
| 8530800 | 20 | | | 20 | 1 | D | ● | 467 | 82,400 |

※横引き不可です。 ※Specialized for plunging.

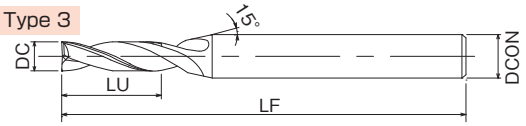
Type 1




Type 2




Type 3




デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-ZDS | ◎ | | ○ | | | | ◎ | ◎ | | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

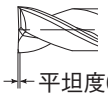
# 座ぐり用FXコート2枚刃油穴付き超硬エンドミル ミディアム形

**FX Coated 2-flute Carbide End Mill Medium Length with Internal Coolant Supply for Counterboring**

## FX-HO-ZDN

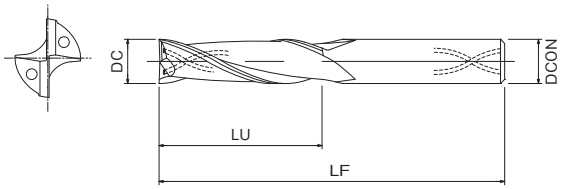
切削条件 Cutting Conditions | P665



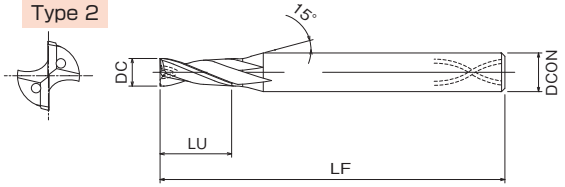


平坦度0.02mm以下
Flatness ≦ 0.02mm

Type 1




Type 2




CARBIDE | FX | SHRINK FIT | 約20°~30° ABOUT 20°~30°

0~-0.02

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 60 | 11 | 6 | 2 | – | – | – |
| | 3.1 | | 13 | | | | – | – |
| | 3.2 | | | | | | – | – |
| | 3.3 | | | | | | – | – |
| | 3.4 | | | | | | – | – |
| | 3.5 | | | | | | – | – |
| | 3.6 | | | | | | – | – |
| | 3.7 | | | | | | – | – |
| | 3.8 | 65 | 16 | | | | – | – |
| | 3.9 | | | | | | – | – |
| | 4 | | | | | | – | – |
| | 4.1 | | | | | | – | – |
| | 4.2 | | | | | | – | – |
| | 4.3 | | | | | | – | – |
| | 4.4 | | | | | | – | – |
| | 4.5 | | | | | | – | – |
| | 4.6 | | | | | | – | – |
| | 4.7 | | | | | | – | – |
| | 4.8 | 70 | 19 | | | | – | – |
| | 4.9 | | | | | | – | – |
| | 5 | | | | | | – | – |
| | 5.1 | | | | | | – | – |
| | 5.2 | | | | | | – | – |
| | 5.3 | | | | | | – | – |
| | 5.4 | | | | | | – | – |
| | 5.5 | | | | | | – | – |
| | 5.6 | | | | | | – | – |
| | 5.7 | | | | | | – | – |
| | 5.8 | | | | | | – | – |
| | 5.9 | | | | | | – | – |
| | 6 | | | | 1 | | – | – |
| | 6.1 | 75 | 22 | 8 | 2 | | – | – |
| | 6.2 | | | | | | – | – |
| | 6.3 | | | | | | – | – |
| | 6.4 | | | | | | – | – |
| | 6.5 | | | | | | – | – |
| | 6.6 | | | | | | – | – |
| | 6.7 | | | | | | – | – |
| | 6.8 | | | | | | – | – |
| | 6.9 | | | | | | – | – |
| | 7 | | | | | | – | – |
| | 7.1 | | | | | | – | – |
| | 7.2 | | | | | | – | – |
| | 7.3 | | | | | | – | – |
| | 7.4 | | | | | | – | – |
| | 7.5 | | | | | | – | – |

※横引き不可です。※Specialized for plunging.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.6 | 80 | 26 | 8 | 2 | – | – | – |
| | 7.7 | | | | | | – | – |
| | 7.8 | | | | | | – | – |
| | 7.9 | | | | | | – | – |
| | 8 | | | | 1 | | – | – |
| | 8.1 | 85 | | 10 | 2 | | – | – |
| | 8.2 | | | | | | – | – |
| | 8.3 | | | | | | – | – |
| | 8.4 | | | | | | – | – |
| | 8.5 | | | | | | – | – |
| | 8.6 | | | | | | – | – |
| | 8.7 | | | | | | – | – |
| | 8.8 | | | | | | – | – |
| | 8.9 | | | | | | – | – |
| | 9 | | | | | | – | – |
| | 9.1 | | | | | | – | – |
| | 9.2 | | | | | | – | – |
| | 9.3 | | | | | | – | – |
| | 9.4 | | | | | | – | – |
| | 9.5 | | | | | | – | – |
| | 9.6 | 90 | | | | | – | – |
| | 9.7 | | | | | | – | – |
| | 9.8 | | | | | | – | – |
| | 9.9 | | | | | | – | – |
| | 10 | | | | 1 | | – | – |
| | 10.1 | 95 | 32 | 12 | 2 | | – | – |
| | 10.2 | | | | | | – | – |
| | 10.3 | | | | | | – | – |
| | 10.4 | | | | | | – | – |
| | 10.5 | | | | | | – | – |
| | 10.6 | | | | | | – | – |
| | 10.7 | | | | | | – | – |
| | 10.8 | | | | | | – | – |
| | 10.9 | | | | | | – | – |
| | 11 | | | | | | – | – |
| | 11.1 | 100 | | | | | – | – |
| | 11.2 | | | | | | – | – |
| | 11.3 | | | | | | – | – |
| | 11.4 | | | | | | – | – |
| | 11.5 | | | | | | – | – |
| | 11.6 | | | | | | – | – |
| | 11.7 | | | | | | – | – |
| | 11.8 | | | | | | – | – |
| | 11.9 | 105 | 38 | | | | – | – |
| | 12 | | | | 1 | | – | – |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用FXコート2枚刃超硬エンドミル ロングシャンクショート形

**FX Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring**

## FX-LS-ZDS

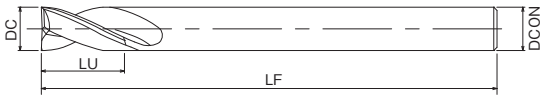
切削条件 Cutting Conditions | P665



平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

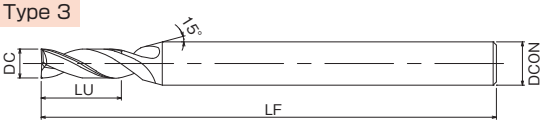
Type 1




Type 2




Type 3




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 100 | 8 | 6 | 3 | □ | — | — |
| | 3.1 | | 10 | | | □ | — | — |
| | 3.2 | | | | | □ | — | — |
| | 3.3 | | | | | □ | — | — |
| | 3.4 | | | | | □ | — | — |
| | 3.5 | | | | | □ | — | — |
| | 3.6 | | | | | □ | — | — |
| | 3.7 | | | | | □ | — | — |
| | 3.8 | | 11 | | | □ | — | — |
| | 3.9 | | | | | □ | — | — |
| | 4 | | | | | □ | — | — |
| | 4.1 | | | | | □ | — | — |
| | 4.2 | | | | | □ | — | — |
| | 4.3 | | | | | □ | — | — |
| | 4.4 | | | | | □ | — | — |
| | 4.5 | | | | | □ | — | — |
| | 4.6 | | | | | □ | — | — |
| | 4.7 | | | | | □ | — | — |
| | 4.8 | 110 | 13 | | | □ | — | — |
| | 4.9 | | | | | □ | — | — |
| | 5 | | | | | □ | — | — |
| | 5.1 | | | | | □ | — | — |
| | 5.2 | | | | | □ | — | — |
| | 5.3 | | | | | □ | — | — |
| | 5.4 | | | | | □ | — | — |
| | 5.5 | | | | | □ | — | — |
| | 5.6 | | | | | □ | — | — |
| | 5.7 | | | | | □ | — | — |
| | 5.8 | | | | | □ | — | — |
| | 5.9 | | | | | □ | — | — |
| | 6 | 120 | 16 | | 1 | □ | — | — |
| | 6.1 | | | | 2 | □ | — | — |
| | 6.2 | | | | | □ | — | — |
| | 6.3 | | | | | □ | — | — |
| | 6.4 | | | | | □ | — | — |
| | 6.5 | | | | | □ | — | — |
| | 6.6 | | | | | □ | — | — |
| | 6.7 | | | | | □ | — | — |
| | 6.8 | | | | | □ | — | — |
| | 6.9 | | | | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 7.1 | | | | | □ | — | — |
| | 7.2 | | | | | □ | — | — |
| | 7.3 | | | | | □ | — | — |
| | 7.4 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 7.6 | | 19 | | | □ | — | — |
| | 7.7 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.8 | 120 | 19 | 6 | 2 | □ | — | — |
| | 7.9 | | | | | □ | — | — |
| | 8 | 130 | | 8 | 1 | □ | — | — |
| | 8.1 | | | | 2 | □ | — | — |
| | 8.2 | | | | | □ | — | — |
| | 8.3 | | | | | □ | — | — |
| | 8.4 | | | | | □ | — | — |
| | 8.5 | | | | | □ | — | — |
| | 8.6 | | | | | □ | — | — |
| | 8.7 | | | | | □ | — | — |
| | 8.8 | | | | | □ | — | — |
| | 8.9 | | | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.1 | | | | | □ | — | — |
| | 9.2 | | | | | □ | — | — |
| | 9.3 | | | | | □ | — | — |
| | 9.4 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 9.6 | | 22 | | | □ | — | — |
| | 9.7 | | | | | □ | — | — |
| | 9.8 | | | | | □ | — | — |
| | 9.9 | | | | | □ | — | — |
| | 10 | 150 | | 10 | 1 | □ | — | — |
| | 10.1 | | | | 2 | □ | — | — |
| | 10.2 | | | | | □ | — | — |
| | 10.3 | | | | | □ | — | — |
| | 10.4 | | | | | □ | — | — |
| | 10.5 | | | | | □ | — | — |
| | 10.6 | | | | | □ | — | — |
| | 10.7 | | | | | □ | — | — |
| | 10.8 | | | | | □ | — | — |
| | 10.9 | | | | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 11.1 | | | | | □ | — | — |
| | 11.2 | | | | | □ | — | — |
| | 11.3 | | | | | □ | — | — |
| | 11.4 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 11.6 | | | | | □ | — | — |
| | 11.7 | | | | | □ | — | — |
| | 11.8 | | | | | □ | — | — |
| | 11.9 | | 26 | | | □ | — | — |
| | 12 | 180 | | 12 | 1 | □ | — | — |
| | 12.1 | | | | 2 | □ | — | — |
| | 12.2 | | | | | □ | — | — |
| | 12.3 | | | | | □ | — | — |
| | 12.4 | | | | | □ | — | — |
| | 12.5 | | | | | □ | — | — |

※横引き不可です。 ※Specialized for plunging.

次ページへ
外径 DC 12.6〜20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用FXコート2枚刃超硬エンドミルロングシャンクショート形

**FX Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring**

## FX-LS-ZDS

切削条件 Cutting Conditions | P665



平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | FX | 0～-0.02 | SHRINK FIT | 約20° ABOUT 20°

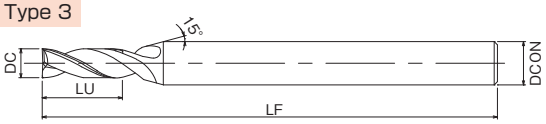
Type 1




Type 2




Type 3




前ページより FROM 外径 DC 3～12.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12.6 | 180 | 26 | 12 | 2 | – | – | – |
| | 12.7 | | | | | | – | – |
| | 12.8 | | | | | | – | – |
| | 12.9 | | | | | | – | – |
| | 13 | | | | | | – | – |
| | 13.1 | | | | | | – | – |
| | 13.2 | | | | | | – | – |
| | 13.3 | | | | | | – | – |
| | 13.4 | | | | | | – | – |
| | 13.5 | | | | | | – | – |
| | 13.6 | | | | | | – | – |
| | 13.7 | | | | | | – | – |
| | 13.8 | | | | | | – | – |
| | 13.9 | | | | | | – | – |
| | 14 | | | | | | – | – |
| | 14.1 | | | | | | – | – |
| | 14.2 | | | | | | – | – |
| | 14.3 | | | | | | – | – |
| | 14.4 | | | | | | – | – |
| | 14.5 | | | | | | – | – |
| | 14.6 | | | | | | – | – |
| | 14.7 | | | | | | – | – |
| | 14.8 | | | | | | – | – |
| | 14.9 | | | | | | – | – |
| | 15 | | | | | | – | – |
| | 15.1 | | 32 | | | | – | – |
| | 15.2 | | | | | | – | – |
| | 15.3 | | | | | | – | – |
| | 15.4 | | | | | | – | – |
| | 15.5 | | | | | | – | – |
| | 15.6 | | | | | | – | – |
| | 15.7 | | | | | | – | – |
| | 15.8 | | | | | | – | – |
| | 15.9 | | | | | | – | – |
| | 16 | 200 | | 16 | 1 | | – | – |
| | 16.1 | | | | 2 | | – | – |
| | 16.2 | | | | | | – | – |
| | 16.3 | | | | | | – | – |
| | 16.4 | | | | | | – | – |
| | 16.5 | | | | | | – | – |

※横引き不可です。 ※Specialized for plunging.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 16.6 | 200 | 32 | 16 | 2 | – | – | – |
| | 16.7 | | | | | | – | – |
| | 16.8 | | | | | | – | – |
| | 16.9 | | | | | | – | – |
| | 17 | | | | | | – | – |
| | 17.1 | | | | | | – | – |
| | 17.2 | | | | | | – | – |
| | 17.3 | | | | | | – | – |
| | 17.4 | | | | | | – | – |
| | 17.5 | | | | | | – | – |
| | 17.6 | | | | | | – | – |
| | 17.7 | | | | | | – | – |
| | 17.8 | | | | | | – | – |
| | 17.9 | | | | | | – | – |
| | 18 | | | | | | – | – |
| | 18.1 | | | | | | – | – |
| | 18.2 | | | | | | – | – |
| | 18.3 | | | | | | – | – |
| | 18.4 | | | | | | – | – |
| | 18.5 | | | | | | – | – |
| | 18.6 | | | | | | – | – |
| | 18.7 | | | | | | – | – |
| | 18.8 | | | | | | – | – |
| | 18.9 | | | | | | – | – |
| | 19 | | | | | | – | – |
| | 19.1 | | 38 | | | | – | – |
| | 19.2 | | | | | | – | – |
| | 19.3 | | | | | | – | – |
| | 19.4 | | | | | | – | – |
| | 19.5 | | | | | | – | – |
| | 19.6 | | | | | | – | – |
| | 19.7 | | | | | | – | – |
| | 19.8 | | | | | | – | – |
| | 19.9 | | | | | | – | – |
| | 20 | 220 | | 20 | 1 | | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-LS-ZDS | ◎ | | ○ | | | | ◎ | ◎ | | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用FXコート2枚刃超硬エンドミルミディアム形
**FX Coated 2-flute Carbide End Mill Medium Length for Counterboring**

## FX-ZDN

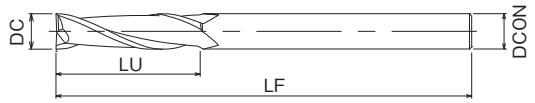
切削条件 Cutting Conditions | P665



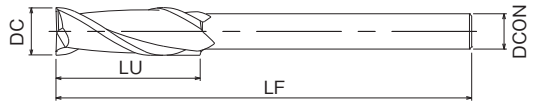
平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

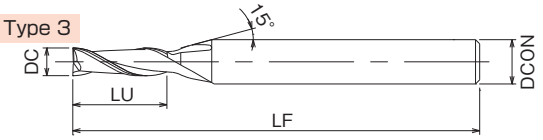
Type 1




Type 2




Type 3




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 55 | 11 | 6 | 3 | □ | — | — |
| | 3.1 | | 13 | | | □ | — | — |
| | 3.2 | | | | | □ | — | — |
| | 3.3 | | | | | □ | — | — |
| | 3.4 | | | | | □ | — | — |
| | 3.5 | | | | | □ | — | — |
| | 3.6 | | | | | □ | — | — |
| | 3.7 | | | | | □ | — | — |
| | 3.8 | 60 | 16 | | | □ | — | — |
| | 3.9 | | | | | □ | — | — |
| | 4 | | | | | □ | — | — |
| | 4.1 | | | | | □ | — | — |
| | 4.2 | | | | | □ | — | — |
| | 4.3 | | | | | □ | — | — |
| | 4.4 | | | | | □ | — | — |
| | 4.5 | | | | | □ | — | — |
| | 4.6 | | | | | □ | — | — |
| | 4.7 | | | | | □ | — | — |
| | 4.8 | 65 | 19 | | | □ | — | — |
| | 4.9 | | | | | □ | — | — |
| | 5 | | | | | □ | — | — |
| | 5.1 | | | | | □ | — | — |
| | 5.2 | | | | | □ | — | — |
| | 5.3 | | | | | □ | — | — |
| | 5.4 | | | | | □ | — | — |
| | 5.5 | | | | | □ | — | — |
| | 5.6 | | | | | □ | — | — |
| | 5.7 | | | | | □ | — | — |
| | 5.8 | | | | | □ | — | — |
| | 5.9 | | | | | □ | — | — |
| | 6 | | | | 1 | □ | — | — |
| | 6.1 | 70 | 22 | | 2 | □ | — | — |
| | 6.2 | | | | | □ | — | — |
| | 6.3 | | | | | □ | — | — |
| | 6.4 | | | | | □ | — | — |
| | 6.5 | | | | | □ | — | — |
| | 6.6 | | | | | □ | — | — |
| | 6.7 | | | | | □ | — | — |
| | 6.8 | | | | | □ | — | — |
| | 6.9 | | | | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 7.1 | | | | | □ | — | — |
| | 7.2 | | | | | □ | — | — |
| | 7.3 | | | | | □ | — | — |
| | 7.4 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 7.6 | | 26 | | | □ | — | — |
| | 7.7 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.8 | 70 | 26 | 6 | 2 | □ | — | — |
| | 7.9 | | | | | □ | — | — |
| | 8 | | | 8 | 1 | □ | — | — |
| | 8.1 | 80 | | | 2 | □ | — | — |
| | 8.2 | | | | | □ | — | — |
| | 8.3 | | | | | □ | — | — |
| | 8.4 | | | | | □ | — | — |
| | 8.5 | | | | | □ | — | — |
| | 8.6 | | | | | □ | — | — |
| | 8.7 | | | | | □ | — | — |
| | 8.8 | | | | | □ | — | — |
| | 8.9 | | | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.1 | | | | | □ | — | — |
| | 9.2 | | | | | □ | — | — |
| | 9.3 | | | | | □ | — | — |
| | 9.4 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 9.6 | | 32 | | | □ | — | — |
| | 9.7 | | | | | □ | — | — |
| | 9.8 | | | | | □ | — | — |
| | 9.9 | | | | | □ | — | — |
| | 10 | | | 10 | 1 | □ | — | — |
| | 10.1 | 90 | | | 2 | □ | — | — |
| | 10.2 | | | | | □ | — | — |
| | 10.3 | | | | | □ | — | — |
| | 10.4 | | | | | □ | — | — |
| | 10.5 | | | | | □ | — | — |
| | 10.6 | | | | | □ | — | — |
| | 10.7 | | | | | □ | — | — |
| | 10.8 | | | | | □ | — | — |
| | 10.9 | | | | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 11.1 | | | | | □ | — | — |
| | 11.2 | | | | | □ | — | — |
| | 11.3 | | | | | □ | — | — |
| | 11.4 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 11.6 | | | | | □ | — | — |
| | 11.7 | | | | | □ | — | — |
| | 11.8 | | | | | □ | — | — |
| | 11.9 | | 38 | | | □ | — | — |
| | 12 | 100 | | 12 | 1 | □ | — | — |
| | 12.5 | | | | 2 | □ | — | — |
| | 13 | | | | | □ | — | — |
| | 13.5 | | | | | □ | — | — |
| | 14 | | | | | □ | — | — |
| | 14.5 | 105 | | | | □ | — | — |

※横引き不可です。※Specialized for plunging.

次ページへ
外径 DC 15〜20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
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# 座ぐり用FXコート2枚刃超硬エンドミルミディアム形
**FX Coated 2-flute Carbide End Mill Medium Length for Counterboring**

## FX-ZDN

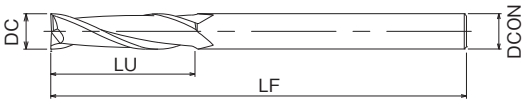
切削条件 Cutting Conditions | **P665**



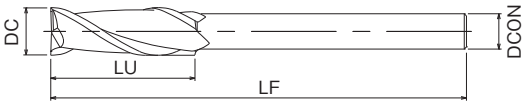
平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | FX | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

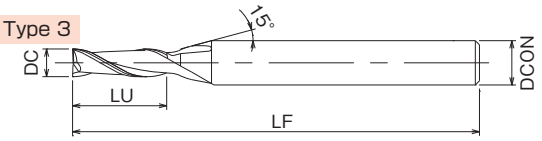
Type 1




Type 2




Type 3




前ページより
FROM 外径 DC 3〜14.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **15** | 105 | 38 | 12 | 2 | – | □ | – | – |
| | **15.5** | 115 | 45 | | | | □ | – | – |
| | **16** | | | 16 | 1 | | □ | – | – |
| | **16.5** | | | | 2 | | □ | – | – |
| | **17** | | | | | | □ | – | – |
| | **17.5** | | | | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **18.5** | | | | | | □ | – | – |
| | **19** | | | | | | □ | – | – |
| | **19.5** | 125 | 53 | | | | □ | – | – |
| | **20** | | | 20 | 1 | | □ | – | – |

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OSGのPSシリーズ
商品シリーズ Parts & Supply series
吹き飛ばし・吸込・搬送1台で三役!
※詳細は▶P.1178 を参照下さい。
See p.1178 for details



最新の加工動画を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-ZDN** | ◎ | | ○ | | | | ◎ | ◎ | | ○ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 座ぐり用DIAコート2枚刃超硬エンドミルショート形
**Diamond Coated 2-flute Carbide End Mill Short Length for Counterboring**

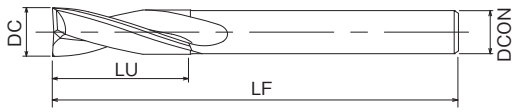
## DIA-ZDS

切削条件 Cutting Conditions | P694

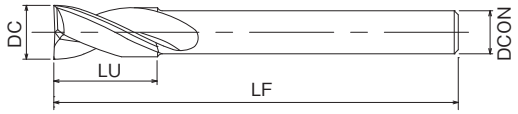



CARBIDE | DIA | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

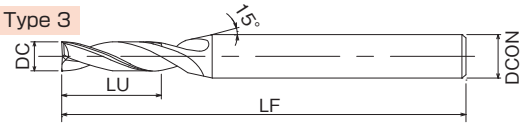
Type 1




Type 2




Type 3




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **0.5** | 40 | 1 | 4 | 3 | – | □ | – | – |
| | **0.6** | | 1.2 | | | | □ | – | – |
| | **0.7** | | 1.4 | | | | □ | – | – |
| | **0.8** | | 1.6 | | | | □ | – | – |
| | **0.9** | | 2 | | | | □ | – | – |
| | **1** | 45 | 2.5 | | | | □ | – | – |
| | **1.1** | | | | | | □ | – | – |
| | **1.2** | | 4 | | | | □ | – | – |
| | **1.3** | | | | | | □ | – | – |
| | **1.4** | | | | | | □ | – | – |
| | **1.5** | | | | | | □ | – | – |
| | **1.6** | | 5 | | | | □ | – | – |
| | **1.7** | | | | | | □ | – | – |
| | **1.8** | | | | | | □ | – | – |
| | **1.9** | | | | | | □ | – | – |
| | **2** | | 6 | | | | □ | – | – |
| | **2.1** | | | | | | □ | – | – |
| | **2.2** | | | | | | □ | – | – |
| | **2.3** | | | | | | □ | – | – |
| | **2.4** | | 8 | | | | □ | – | – |
| | **2.5** | | | | | | □ | – | – |
| | **2.6** | | | | | | □ | – | – |
| | **2.7** | | | | | | □ | – | – |
| | **2.8** | | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **2.9** | 45 | 8 | 4 | 3 | – | □ | – | – |
| | **3** | 50 | | 6 | | | □ | – | – |
| | **3.3** | | 10 | | | | □ | – | – |
| | **3.5** | | | | | | □ | – | – |
| | **4** | | 11 | | | | □ | – | – |
| | **4.2** | | | | | | □ | – | – |
| | **4.5** | | | | | | □ | – | – |
| | **5** | | 13 | | | | □ | – | – |
| | **5.5** | 60 | | | | | □ | – | – |
| | **6** | | | | 1 | | □ | – | – |
| | **6.5** | 70 | 16 | | 2 | | □ | – | – |
| | **6.8** | | | | | | □ | – | – |
| | **7** | | | | | | □ | – | – |
| | **7.5** | | | | | | □ | – | – |
| | **8** | | 19 | 8 | 1 | | □ | – | – |
| | **8.5** | 80 | | | 2 | | □ | – | – |
| | **9** | | | | | | □ | – | – |
| | **9.5** | | | | | | □ | – | – |
| | **10** | | 22 | 10 | 1 | | □ | – | – |
| | **10.3** | 90 | | | 2 | | □ | – | – |
| | **10.5** | | | | | | □ | – | – |
| | **11** | | | | | | □ | – | – |
| | **11.5** | | | | | | □ | – | – |
| | **12** | | 26 | 12 | 1 | | □ | – | – |

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製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DIA-ZDS** | | | | | | | | | | ◎ | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅･アルミ合金座ぐり用2枚刃超硬エンドミル ショート形

**2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys for Counterboring**

## CA-ZDS

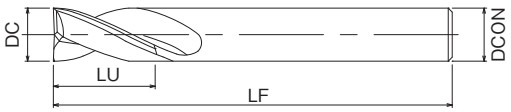
切削条件 Cutting Conditions | P680



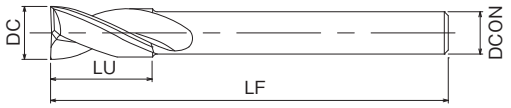
平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | 0～-0.02 | SHRINK FIT | 約20° ABOUT 20°

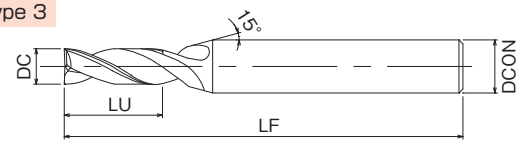
Type 1




Type 2




Type 3




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.5 | 40 | 1 | 4 | 3 | □ | — | — |
| | 0.6 | | 1.2 | | | □ | — | — |
| | 0.7 | | 1.4 | | | □ | — | — |
| | 0.8 | | 1.6 | | | □ | — | — |
| | 0.9 | | 2 | | | □ | — | — |
| | 1 | 45 | 2.5 | | | □ | — | — |
| | 1.1 | | | | | □ | — | — |
| | 1.2 | | 4 | | | □ | — | — |
| | 1.3 | | | | | □ | — | — |
| | 1.4 | | | | | □ | — | — |
| | 1.5 | | | | | □ | — | — |
| | 1.6 | | 5 | | | □ | — | — |
| | 1.7 | | | | | □ | — | — |
| | 1.8 | | | | | □ | — | — |
| | 1.9 | | | | | □ | — | — |
| | 2 | | 6 | | | □ | — | — |
| | 2.1 | | | | | □ | — | — |
| | 2.2 | | | | | □ | — | — |
| | 2.3 | | | | | □ | — | — |
| | 2.4 | | 8 | | | □ | — | — |
| | 2.5 | | | | | □ | — | — |
| | 2.6 | | | | | □ | — | — |
| | 2.7 | | | | | □ | — | — |
| | 2.8 | | | | | □ | — | — |
| | 2.9 | | | | | □ | — | — |
| | 3 | 50 | | 6 | | □ | — | — |
| | 3.1 | | 10 | | | □ | — | — |
| | 3.2 | | | | | □ | — | — |
| | 3.3 | | | | | □ | — | — |
| | 3.4 | | | | | □ | — | — |
| | 3.5 | | | | | □ | — | — |
| | 3.6 | | | | | □ | — | — |
| | 3.7 | | | | | □ | — | — |
| | 3.8 | | 11 | | | □ | — | — |
| | 3.9 | | | | | □ | — | — |
| | 4 | | | | | □ | — | — |
| | 4.1 | | | | | □ | — | — |
| | 4.2 | | | | | □ | — | — |
| | 4.3 | | | | | □ | — | — |
| | 4.4 | | | | | □ | — | — |
| | 4.5 | | | | | □ | — | — |
| | 4.6 | | | | | □ | — | — |
| | 4.7 | | | | | □ | — | — |
| | 4.8 | 60 | 13 | | | □ | — | — |
| | 4.9 | | | | | □ | — | — |
| | 5 | | | | | □ | — | — |
| | 5.1 | | | | | □ | — | — |
| | 5.2 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 5.3 | 60 | 13 | 6 | 3 | □ | — | — |
| | 5.4 | | | | | □ | — | — |
| | 5.5 | | | | | □ | — | — |
| | 5.6 | | | | | □ | — | — |
| | 5.7 | | | | | □ | — | — |
| | 5.8 | | | | | □ | — | — |
| | 5.9 | | | | | □ | — | — |
| | 6 | | | | 1 | □ | — | — |
| | 6.1 | 70 | 16 | | 2 | □ | — | — |
| | 6.2 | | | | | □ | — | — |
| | 6.3 | | | | | □ | — | — |
| | 6.4 | | | | | □ | — | — |
| | 6.5 | | | | | □ | — | — |
| | 6.6 | | | | | □ | — | — |
| | 6.7 | | | | | □ | — | — |
| | 6.8 | | | | | □ | — | — |
| | 6.9 | | | | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 7.1 | | | | | □ | — | — |
| | 7.2 | | | | | □ | — | — |
| | 7.3 | | | | | □ | — | — |
| | 7.4 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 7.6 | | 19 | | | □ | — | — |
| | 7.7 | | | | | □ | — | — |
| | 7.8 | | | | | □ | — | — |
| | 7.9 | | | | | □ | — | — |
| | 8 | | | 8 | 1 | □ | — | — |
| | 8.1 | 80 | | | 2 | □ | — | — |
| | 8.2 | | | | | □ | — | — |
| | 8.3 | | | | | □ | — | — |
| | 8.4 | | | | | □ | — | — |
| | 8.5 | | | | | □ | — | — |
| | 8.6 | | | | | □ | — | — |
| | 8.7 | | | | | □ | — | — |
| | 8.8 | | | | | □ | — | — |
| | 8.9 | | | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.1 | | | | | □ | — | — |
| | 9.2 | | | | | □ | — | — |
| | 9.3 | | | | | □ | — | — |
| | 9.4 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 9.6 | | 22 | | | □ | — | — |
| | 9.7 | | | | | □ | — | — |
| | 9.8 | | | | | □ | — | — |
| | 9.9 | | | | | □ | — | — |
| | 10 | | | 10 | 1 | □ | — | — |

※横引き不可です。※Specialized for plunging.

次ページへ 外径 DC 10.1～20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅･アルミ合金座ぐり用2枚刃超硬エンドミル ショート形

**2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys for Counterboring**

## CA-ZDS

切削条件 Cutting Conditions | P680



平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | SHRINK FIT | 0〜-0.02 | 約20° ABOUT 20°

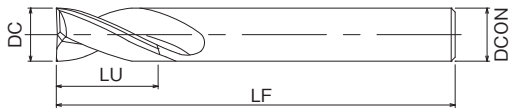
前ページより FROM 外径 DC 0.5〜10

（単位:mm）(Unit:mm)

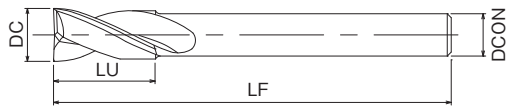
| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 10.1 | 90 | 22 | 10 | 2 | – | □ | — | — |
| | 10.2 | | | | | | □ | — | — |
| | 10.3 | | | | | | □ | — | — |
| | 10.4 | | | | | | □ | — | — |
| | 10.5 | | | | | | □ | — | — |
| | 10.6 | | | | | | □ | — | — |
| | 10.7 | | | | | | □ | — | — |
| | 10.8 | | | | | | □ | — | — |
| | 10.9 | | | | | | □ | — | — |
| | 11 | | | | | | □ | — | — |
| | 11.1 | | | | | | □ | — | — |
| | 11.2 | | | | | | □ | — | — |
| | 11.3 | | | | | | □ | — | — |
| | 11.4 | | | | | | □ | — | — |
| | 11.5 | | | | | | □ | — | — |
| | 11.6 | | | | | | □ | — | — |
| | 11.7 | | | | | | □ | — | — |
| | 11.8 | | | | | | □ | — | — |
| | 11.9 | | 26 | | | | □ | — | — |
| | 12 | | | 12 | 1 | | □ | — | — |
| | 12.5 | 100 | | | 2 | | □ | — | — |
| | 13 | | | | | | □ | — | — |
| | 13.5 | | | | | | □ | — | — |
| | 14 | | | | | | □ | — | — |
| | 14.5 | 105 | | | | | □ | — | — |
| | 15 | | | | | | □ | — | — |
| | 15.5 | 115 | 32 | 16 | 1 | | □ | — | — |
| | 16 | | | | | | □ | — | — |
| | 16.5 | | | | 2 | | □ | — | — |
| | 17 | | | | | | □ | — | — |
| | 17.5 | | | | | | □ | — | — |
| | 18 | | | | | | □ | — | — |
| | 18.5 | | | | | | □ | — | — |
| | 19 | | | | | | □ | — | — |
| | 19.5 | 125 | 38 | 20 | 1 | | □ | — | — |
| | 20 | | | | | | □ | — | — |

※横引き不可です。 ※Specialized for plunging.

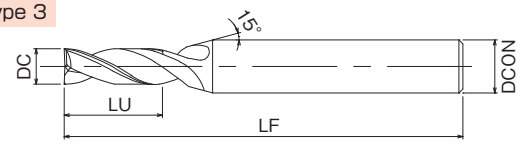
Type 1




Type 2




Type 3




デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CA-ZDS | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅･アルミ合金座ぐり用2枚刃超硬エンドミル ロングシャンクショート形

**2-flute Carbide End Mill Short Length with Long Shank for Copper and Aluminum Alloys for Counterboring**

## CA-LS-ZDS

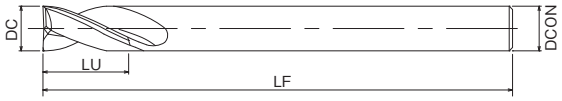
切削条件 Cutting Conditions | **P680**



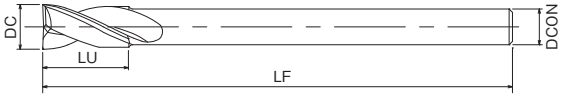
平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | 0～-0.02 | SHRINK FIT | 約20° ABOUT 20°

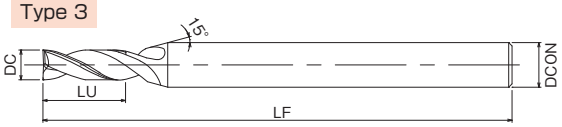
Type 1




Type 2




Type 3




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 100 | 8 | 6 | 3 | □ | — | — |
| | 3.1 | | 10 | | | □ | — | — |
| | 3.2 | | | | | □ | — | — |
| | 3.3 | | | | | □ | — | — |
| | 3.4 | | | | | □ | — | — |
| | 3.5 | | | | | □ | — | — |
| | 3.6 | | | | | □ | — | — |
| | 3.7 | | | | | □ | — | — |
| | 3.8 | | 11 | | | □ | — | — |
| | 3.9 | | | | | □ | — | — |
| | 4 | | | | | □ | — | — |
| | 4.1 | | | | | □ | — | — |
| | 4.2 | | | | | □ | — | — |
| | 4.3 | | | | | □ | — | — |
| | 4.4 | | | | | □ | — | — |
| | 4.5 | | | | | □ | — | — |
| | 4.6 | | | | | □ | — | — |
| | 4.7 | | | | | □ | — | — |
| | 4.8 | 110 | 13 | | | □ | — | — |
| | 4.9 | | | | | □ | — | — |
| | 5 | | | | | □ | — | — |
| | 5.1 | | | | | □ | — | — |
| | 5.2 | | | | | □ | — | — |
| | 5.3 | | | | | □ | — | — |
| | 5.4 | | | | | □ | — | — |
| | 5.5 | | | | | □ | — | — |
| | 5.6 | | | | | □ | — | — |
| | 5.7 | | | | | □ | — | — |
| | 5.8 | | | | | □ | — | — |
| | 5.9 | | | | | □ | — | — |
| | 6 | 120 | 16 | | 1 | □ | — | — |
| | 6.1 | | | | 2 | □ | — | — |
| | 6.2 | | | | | □ | — | — |
| | 6.3 | | | | | □ | — | — |
| | 6.4 | | | | | □ | — | — |
| | 6.5 | | | | | □ | — | — |
| | 6.6 | | | | | □ | — | — |
| | 6.7 | | | | | □ | — | — |
| | 6.8 | | | | | □ | — | — |
| | 6.9 | | | | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 7.1 | | | | | □ | — | — |
| | 7.2 | | | | | □ | — | — |
| | 7.3 | | | | | □ | — | — |
| | 7.4 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 7.6 | | 19 | | | □ | — | — |
| | 7.7 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.8 | 120 | 19 | 6 | 2 | □ | — | — |
| | 7.9 | | | | | □ | — | — |
| | 8 | 130 | | 8 | 1 | □ | — | — |
| | 8.1 | | | | 2 | □ | — | — |
| | 8.2 | | | | | □ | — | — |
| | 8.3 | | | | | □ | — | — |
| | 8.4 | | | | | □ | — | — |
| | 8.5 | | | | | □ | — | — |
| | 8.6 | | | | | □ | — | — |
| | 8.7 | | | | | □ | — | — |
| | 8.8 | | | | | □ | — | — |
| | 8.9 | | | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.1 | | | | | □ | — | — |
| | 9.2 | | | | | □ | — | — |
| | 9.3 | | | | | □ | — | — |
| | 9.4 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 9.6 | | 22 | | | □ | — | — |
| | 9.7 | | | | | □ | — | — |
| | 9.8 | | | | | □ | — | — |
| | 9.9 | | | | | □ | — | — |
| | 10 | 150 | | 10 | 1 | □ | — | — |
| | 10.1 | | | | 2 | □ | — | — |
| | 10.2 | | | | | □ | — | — |
| | 10.3 | | | | | □ | — | — |
| | 10.4 | | | | | □ | — | — |
| | 10.5 | | | | | □ | — | — |
| | 10.6 | | | | | □ | — | — |
| | 10.7 | | | | | □ | — | — |
| | 10.8 | | | | | □ | — | — |
| | 10.9 | | | | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 11.1 | | | | | □ | — | — |
| | 11.2 | | | | | □ | — | — |
| | 11.3 | | | | | □ | — | — |
| | 11.4 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 11.6 | | | | | □ | — | — |
| | 11.7 | | | | | □ | — | — |
| | 11.8 | | | | | □ | — | — |
| | 11.9 | | 26 | | | □ | — | — |
| | 12 | 180 | | 12 | 1 | □ | — | — |
| | 12.5 | | | | 2 | □ | — | — |
| | 13 | | | | | □ | — | — |
| | 13.5 | | | | | □ | — | — |
| | 14 | | | | | □ | — | — |
| | 14.5 | | | | | □ | — | — |

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次ページへ
外径 DC 15～20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅･アルミ合金座ぐり用2枚刃超硬エンドミル ロングシャンクショート形

**2-flute Carbide End Mill Short Length with Long Shank for Copper and Aluminum Alloys for Counterboring**

## CA-LS-ZDS

切削条件 Cutting Conditions | P680



平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

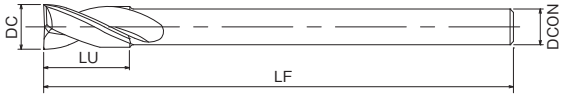
CARBIDE | SHRINK FIT | 約20° ABOUT 20°

0〜-0.02

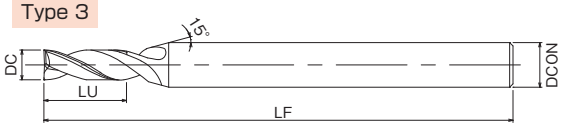
Type 1




Type 2




Type 3




前ページより

FROM 外径 DC 3〜14.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **15** | 180 | 26 | 12 | 2 | | □ | — | — |
| | **15.5** | | 32 | | | | □ | — | — |
| | **16** | 200 | | 16 | 1 | | □ | — | — |
| | **16.5** | | | | 2 | | □ | — | — |
| | **17** | | | | | | □ | — | — |
| | **17.5** | | | | | — | □ | — | — |
| | **18** | | | | | | □ | — | — |
| | **18.5** | | | | | | □ | — | — |
| | **19** | | | | | | □ | — | — |
| | **19.5** | | 38 | | | | □ | — | — |
| | **20** | 220 | | 20 | 1 | | □ | — | — |

※横引き不可です。 ※Specialized for plunging.

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **CA-LS-ZDS** | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

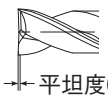
△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 座ぐり用DLCコート2枚刃超硬エンドミル ショート形
**DLC Coated 2-flute Carbide End Mill Short Length for Counterboring**

## DLC-ZDS

切削条件 Cutting Conditions | **P680**

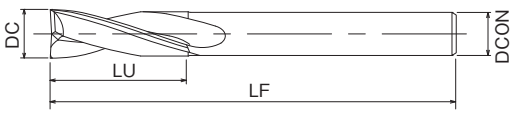




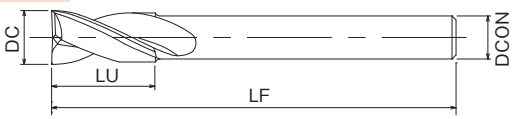
平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

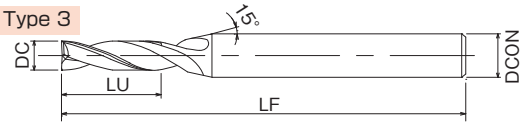
Type 1




Type 2




Type 3




コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
End mills may have some discoloration,
but it does not cause any performance problems.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.45 | 40 | 0.9 | 4 | 3 | – | – | – |
| | 0.5 | | 1 | | | | – | – |
| | 0.55 | | 1.1 | | | | – | – |
| | 0.6 | | 1.2 | | | | – | – |
| | 0.65 | | 1.3 | | | | – | – |
| | 0.7 | | 1.4 | | | | – | – |
| | 0.75 | | 1.5 | | | | – | – |
| | 0.8 | | 1.6 | | | | – | – |
| | 0.85 | | 1.7 | | | | – | – |
| | 0.9 | | 2 | | | | – | – |
| | 0.95 | | 2.1 | | | | – | – |
| | 1 | 45 | 2.5 | | | | – | – |
| | 1.05 | | | | | | – | – |
| | 1.1 | | | | | | – | – |
| | 1.15 | | | | | | – | – |
| | 1.2 | | 4 | | | | – | – |
| | 1.25 | | | | | | – | – |
| | 1.3 | | | | | | – | – |
| | 1.35 | | | | | | – | – |
| | 1.4 | | | | | | – | – |
| | 1.45 | | | | | | – | – |
| | 1.5 | | | | | | – | – |
| | 1.55 | | | | | | – | – |
| | 1.6 | | 5 | | | | – | – |
| | 1.65 | | | | | | – | – |
| | 1.7 | | | | | | – | – |
| | 1.75 | | | | | | – | – |
| | 1.8 | | | | | | – | – |
| | 1.85 | | | | | | – | – |
| | 1.9 | | | | | | – | – |
| | 1.95 | | | | | | – | – |
| | 2 | | 6 | | | | – | – |
| | 2.05 | | | | | | – | – |
| | 2.1 | | | | | | – | – |
| | 2.15 | | | | | | – | – |
| | 2.2 | | | | | | – | – |
| | 2.25 | | | | | | – | – |
| | 2.3 | | | | | | – | – |
| | 2.35 | | | | | | – | – |
| | 2.4 | | 8 | | | | – | – |
| | 2.45 | | | | | | – | – |
| | 2.5 | | | | | | – | – |
| | 2.55 | | | | | | – | – |
| | 2.6 | | | | | | – | – |
| | 2.65 | | | | | | – | – |
| | 2.7 | | | | | | – | – |
| | 2.75 | | | | | | – | – |
| | 2.8 | | | | | | – | – |
| | 2.85 | | | | | | – | – |
| | 2.9 | | | | | | – | – |
| | 2.95 | | | | | | – | – |
| | 3 | 50 | 6 | 6 | | | – | – |
| | 3.05 | | 10 | | | | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3.1 | 50 | 10 | 6 | 3 | – | – | – |
| | 3.15 | | | | | | – | – |
| | 3.2 | | | | | | – | – |
| | 3.25 | | | | | | – | – |
| | 3.3 | | | | | | – | – |
| | 3.35 | | | | | | – | – |
| | 3.4 | | | | | | – | – |
| | 3.45 | | | | | | – | – |
| | 3.5 | | | | | | – | – |
| | 3.55 | | | | | | – | – |
| | 3.6 | | | | | | – | – |
| | 3.65 | | | | | | – | – |
| | 3.7 | | | | | | – | – |
| | 3.75 | | | | | | – | – |
| | 3.8 | | 11 | | | | – | – |
| | 3.85 | | | | | | – | – |
| | 3.9 | | | | | | – | – |
| | 3.95 | | | | | | – | – |
| | 4 | | | | | | – | – |
| | 4.05 | | | | | | – | – |
| | 4.1 | | | | | | – | – |
| | 4.15 | | | | | | – | – |
| | 4.2 | | | | | | – | – |
| | 4.25 | | | | | | – | – |
| | 4.3 | | | | | | – | – |
| | 4.35 | | | | | | – | – |
| | 4.4 | | | | | | – | – |
| | 4.45 | | | | | | – | – |
| | 4.5 | | | | | | – | – |
| | 4.55 | | | | | | – | – |
| | 4.6 | | | | | | – | – |
| | 4.65 | | | | | | – | – |
| | 4.7 | | | | | | – | – |
| | 4.75 | | | | | | – | – |
| | 4.8 | 60 | 13 | | | | – | – |
| | 4.85 | | | | | | – | – |
| | 4.9 | | | | | | – | – |
| | 4.95 | | | | | | – | – |
| | 5 | | | | | | – | – |
| | 5.05 | | | | | | – | – |
| | 5.1 | | | | | | – | – |
| | 5.15 | | | | | | – | – |
| | 5.2 | | | | | | – | – |
| | 5.25 | | | | | | – | – |
| | 5.3 | | | | | | – | – |
| | 5.35 | | | | | | – | – |
| | 5.4 | | | | | | – | – |
| | 5.45 | | | | | | – | – |
| | 5.5 | | | | | | – | – |
| | 5.55 | | | | | | – | – |
| | 5.6 | | | | | | – | – |
| | 5.65 | | | | | | – | – |
| | 5.7 | | | | | | – | – |

横引き不可です。Specialized for plunging.

次ページへ
外径 DC 5.75〜20 NEXT

前ページより

FROM 外径 DC 0.45～5.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 5.75 | 60 | 13 | 6 | 3 | □ | — | — |
| | 5.8 | | | | | □ | — | — |
| | 5.85 | | | | | □ | — | — |
| | 5.9 | | | | | □ | — | — |
| | 5.95 | | | | | □ | — | — |
| | 6 | | | | 1 | □ | — | — |
| | 6.05 | 70 | 16 | | 2 | □ | — | — |
| | 6.1 | | | | | □ | — | — |
| | 6.15 | | | | | □ | — | — |
| | 6.2 | | | | | □ | — | — |
| | 6.25 | | | | | □ | — | — |
| | 6.3 | | | | | □ | — | — |
| | 6.35 | | | | | □ | — | — |
| | 6.4 | | | | | □ | — | — |
| | 6.45 | | | | | □ | — | — |
| | 6.5 | | | | | □ | — | — |
| | 6.55 | | | | | □ | — | — |
| | 6.6 | | | | | □ | — | — |
| | 6.65 | | | | | □ | — | — |
| | 6.7 | | | | | □ | — | — |
| | 6.75 | | | | | □ | — | — |
| | 6.8 | | | | | □ | — | — |
| | 6.85 | | | | | □ | — | — |
| | 6.9 | | | | | □ | — | — |
| | 6.95 | | | | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 7.05 | | | | | □ | — | — |
| | 7.1 | | | | | □ | — | — |
| | 7.15 | | | | | □ | — | — |
| | 7.2 | | | | | □ | — | — |
| | 7.25 | | | | | □ | — | — |
| | 7.3 | | | | | □ | — | — |
| | 7.35 | | | | | □ | — | — |
| | 7.4 | | | | | □ | — | — |
| | 7.45 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 7.55 | | | | | □ | — | — |
| | 7.6 | | 19 | | | □ | — | — |
| | 7.65 | | | | | □ | — | — |
| | 7.7 | | | | | □ | — | — |
| | 7.75 | | | | | □ | — | — |
| | 7.8 | | | | | □ | — | — |
| | 7.85 | | | | | □ | — | — |
| | 7.9 | | | | | □ | — | — |
| | 7.95 | | | | | □ | — | — |
| | 8 | | | 8 | 1 | □ | — | — |
| | 8.05 | 80 | | | 2 | □ | — | — |
| | 8.1 | | | | | □ | — | — |
| | 8.15 | | | | | □ | — | — |
| | 8.2 | | | | | □ | — | — |
| | 8.25 | | | | | □ | — | — |
| | 8.3 | | | | | □ | — | — |
| | 8.35 | | | | | □ | — | — |
| | 8.4 | | | | | □ | — | — |
| | 8.45 | | | | | □ | — | — |
| | 8.5 | | | | | □ | — | — |
| | 8.55 | | | | | □ | — | — |
| | 8.6 | | | | | □ | — | — |
| | 8.65 | | | | | □ | — | — |
| | 8.7 | | | | | □ | — | — |
| | 8.75 | | | | | □ | — | — |
| | 8.8 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 8.85 | 80 | 19 | 8 | 2 | □ | — | — |
| | 8.9 | | | | | □ | — | — |
| | 8.95 | | | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.05 | | | | | □ | — | — |
| | 9.1 | | | | | □ | — | — |
| | 9.15 | | | | | □ | — | — |
| | 9.2 | | | | | □ | — | — |
| | 9.25 | | | | | □ | — | — |
| | 9.3 | | | | | □ | — | — |
| | 9.35 | | | | | □ | — | — |
| | 9.4 | | | | | □ | — | — |
| | 9.45 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 9.55 | | | | | □ | — | — |
| | 9.6 | | | | | □ | — | — |
| | 9.65 | | | | | □ | — | — |
| | 9.7 | | | | | □ | — | — |
| | 9.75 | | | | | □ | — | — |
| | 9.8 | | | | | □ | — | — |
| | 9.85 | | | | | □ | — | — |
| | 9.9 | | | | | □ | — | — |
| | 9.95 | | | | | □ | — | — |
| | 10 | | | 10 | 1 | □ | — | — |
| | 10.05 | 90 | 22 | | 2 | □ | — | — |
| | 10.1 | | | | | □ | — | — |
| | 10.2 | | | | | □ | — | — |
| | 10.3 | | | | | □ | — | — |
| | 10.4 | | | | | □ | — | — |
| | 10.5 | | | | | □ | — | — |
| | 10.6 | | | | | □ | — | — |
| | 10.7 | | | | | □ | — | — |
| | 10.8 | | | | | □ | — | — |
| | 10.9 | | | | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 11.1 | | | | | □ | — | — |
| | 11.2 | | | | | □ | — | — |
| | 11.3 | | | | | □ | — | — |
| | 11.4 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 11.6 | | | | | □ | — | — |
| | 11.7 | | | | | □ | — | — |
| | 11.8 | | | | | □ | — | — |
| | 11.9 | | | | | □ | — | — |
| | 12 | | | 12 | 1 | □ | — | — |
| | 12.5 | 100 | 26 | | 2 | □ | — | — |
| | 13 | | | | | □ | — | — |
| | 13.5 | | | | | □ | — | — |
| | 14 | | | | | □ | — | — |
| | 14.5 | 105 | | | | □ | — | — |
| | 15 | | | | | □ | — | — |
| | 15.5 | 115 | 32 | 16 | 1 | □ | — | — |
| | 16 | | | | | □ | — | — |
| | 16.5 | | | | 2 | □ | — | — |
| | 17 | | | | | □ | — | — |
| | 17.5 | | | | | □ | — | — |
| | 18 | | | | | □ | — | — |
| | 18.5 | | | | | □ | — | — |
| | 19 | | | | | □ | — | — |
| | 19.5 | 125 | 38 | 20 | 1 | □ | — | — |
| | 20 | | | | | □ | — | — |

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| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DLC-ZDS** | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用DLCコート2枚刃超硬エンドミルロングシャンクショート形

**DLC Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring**

## DLC-LS-ZDS

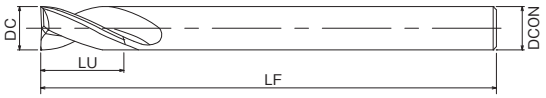
切削条件 Cutting Conditions | **P680**



平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

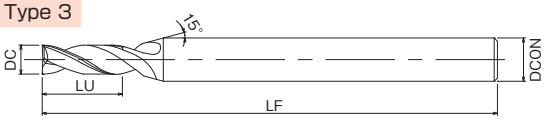
Type 1




Type 2




Type 3




コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
End mills may have some discoloration,
but it does not cause any performance problems.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 100 | 8 | 6 | 3 | — | — | — |
| | 3.1 | | 10 | | | | — | — |
| | 3.2 | | | | | | — | — |
| | 3.3 | | | | | | — | — |
| | 3.4 | | | | | | — | — |
| | 3.5 | | | | | | — | — |
| | 3.6 | | | | | | — | — |
| | 3.7 | | | | | | — | — |
| | 3.8 | | 11 | | | | — | — |
| | 3.9 | | | | | | — | — |
| | 4 | | | | | | — | — |
| | 4.1 | | | | | | — | — |
| | 4.2 | | | | | | — | — |
| | 4.3 | | | | | | — | — |
| | 4.4 | | | | | | — | — |
| | 4.5 | | | | | | — | — |
| | 4.6 | | | | | | — | — |
| | 4.7 | | | | | | — | — |
| | 4.8 | 110 | 13 | | | | — | — |
| | 4.9 | | | | | | — | — |
| | 5 | | | | | | — | — |
| | 5.1 | | | | | | — | — |
| | 5.2 | | | | | | — | — |
| | 5.3 | | | | | | — | — |
| | 5.4 | | | | | | — | — |
| | 5.5 | | | | | | — | — |
| | 5.6 | | | | | | — | — |
| | 5.7 | | | | | | — | — |
| | 5.8 | | | | | | — | — |
| | 5.9 | | | | | | — | — |
| | 6 | 120 | 16 | | 1 | | — | — |
| | 6.1 | | | | 2 | | — | — |
| | 6.2 | | | | | | — | — |
| | 6.3 | | | | | | — | — |
| | 6.4 | | | | | | — | — |
| | 6.5 | | | | | | — | — |
| | 6.6 | | | | | | — | — |
| | 6.7 | | | | | | — | — |
| | 6.8 | | | | | | — | — |
| | 6.9 | | | | | | — | — |
| | 7 | | | | | | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.1 | 120 | 16 | 6 | 2 | — | — | — |
| | 7.2 | | | | | | — | — |
| | 7.3 | | | | | | — | — |
| | 7.4 | | | | | | — | — |
| | 7.5 | | | | | | — | — |
| | 7.6 | | 19 | | | | — | — |
| | 7.7 | | | | | | — | — |
| | 7.8 | | | | | | — | — |
| | 7.9 | | | | | | — | — |
| | 8 | 130 | | 8 | 1 | — | — | — |
| | 8.1 | | | | 2 | | — | — |
| | 8.2 | | | | | | — | — |
| | 8.3 | | | | | | — | — |
| | 8.4 | | | | | | — | — |
| | 8.5 | | | | | | — | — |
| | 8.6 | | | | | | — | — |
| | 8.7 | | | | | | — | — |
| | 8.8 | | | | | | — | — |
| | 8.9 | | | | | | — | — |
| | 9 | | | | | | — | — |
| | 9.1 | | | | | | — | — |
| | 9.2 | | | | | | — | — |
| | 9.3 | | | | | | — | — |
| | 9.4 | | | | | | — | — |
| | 9.5 | | | | | | — | — |
| | 9.6 | | 22 | | | | — | — |
| | 9.7 | | | | | | — | — |
| | 9.8 | | | | | | — | — |
| | 9.9 | | | | | | — | — |
| | 10 | 150 | | 10 | 1 | | — | — |
| | 10.1 | | | | 2 | | — | — |
| | 10.2 | | | | | | — | — |
| | 10.3 | | | | | | — | — |
| | 10.4 | | | | | | — | — |
| | 10.5 | | | | | | — | — |
| | 10.6 | | | | | | — | — |
| | 10.7 | | | | | | — | — |
| | 10.8 | | | | | | — | — |
| | 10.9 | | | | | | — | — |
| | 11 | | | | | | — | — |
| | 11.1 | | | | | | — | — |

※横引き不可です。※Specialized for plunging.

次ページへ
外径 DC 11.2〜20 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DLC-LS-ZDS | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用DLCコート2枚刃超硬エンドミルロングシャンクショート形

**DLC Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring**

## DLC-LS-ZDS

切削条件 Cutting Conditions | **P680**



平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | DLC | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

前ページより FROM 外径 DC 3〜11.1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **11.2** | 150 | 22 | 10 | 2 | □ | — | — |
| | **11.3** | | | | | □ | — | — |
| | **11.4** | | | | | □ | — | — |
| | **11.5** | | | | | □ | — | — |
| | **11.6** | | | | | □ | — | — |
| | **11.7** | | | | | □ | — | — |
| | **11.8** | | | | | □ | — | — |
| | **11.9** | | 26 | | | □ | — | — |
| | **12** | 180 | | 12 | 1 | □ | — | — |
| | **12.5** | | | | 2 | □ | — | — |
| | **13** | | | | | □ | — | — |
| | **13.5** | | | | | □ | — | — |
| | **14** | | | | | □ | — | — |

※横引き不可です。 ※Specialized for plunging.

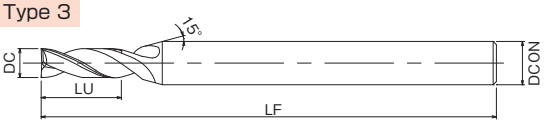
### Type 1




### Type 2




### Type 3




コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
End mills may have some discoloration,
but it does not cause any performance problems.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **14.5** | 180 | 26 | 12 | 2 | □ | — | — |
| | **15** | | | | | □ | — | — |
| | **15.5** | | 32 | | | □ | — | — |
| | **16** | 200 | | 16 | 1 | □ | — | — |
| | **16.5** | | | | 2 | □ | — | — |
| | **17** | | | | | □ | — | — |
| | **17.5** | | | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **18.5** | | | | | □ | — | — |
| | **19** | | | | | □ | — | — |
| | **19.5** | | 38 | | | □ | — | — |
| | **20** | 220 | | 20 | 1 | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 焼き入れ鋼 Hardened Steel | | | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | | ～55HRC | | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DLC-LS-ZDS** | | | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 座ぐり用DLCコート2枚刃超硬ラジアスエンドミル ショート形

**DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring**

## DLC-CR-ZDS

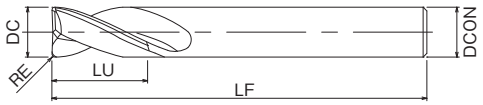
切削条件 Cutting Conditions | **P680**



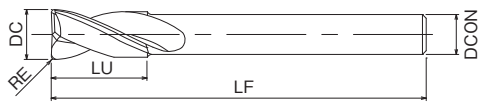
平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | DLC | R ±0.05 RE=0.2 | R ±0.1 RE=0.5 | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

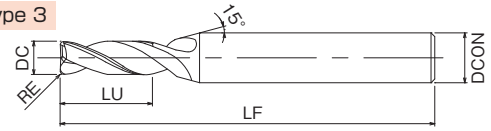
Type 1




Type 2




Type 3




コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 ×R0.2 | 45 | 6 | 4 | 3 | – | – | – |
| | 2.5 ×R0.2 | | 8 | 6 | | | – | – |
| | 3 ×R0.2 | 50 | | | | | – | – |
| | 3.5 ×R0.2 | | 10 | | | | – | – |
| | 4 ×R0.2 | | 11 | | | | – | – |
| | 4.5 ×R0.2 | | | | | | – | – |
| | 5 ×R0.2 | 60 | 13 | | | | – | – |
| | 5 ×R0.5 | | | | | | – | – |
| | 5.5 ×R0.2 | | | | | | – | – |
| | 5.5 ×R0.5 | | | | | | – | – |
| | 6 ×R0.2 | | | | 1 | | – | – |
| | 6 ×R0.5 | | | | | | – | – |
| | 6.5 ×R0.2 | 70 | 16 | | 2 | | – | – |
| | 6.5 ×R0.5 | | | | | | – | – |
| | 7 ×R0.2 | | | | | | – | – |
| | 7 ×R0.5 | | | | | | – | – |
| | 7.5 ×R0.2 | | | | | | – | – |
| | 7.5 ×R0.5 | | | | | | – | – |
| | 8 ×R0.2 | | 19 | 8 | 1 | | – | – |
| | 8 ×R0.5 | | | | | | – | – |
| | 8.5 ×R0.2 | 80 | | | 2 | | – | – |
| | 8.5 ×R0.5 | | | | | | – | – |
| | 9 ×R0.2 | | | | | | – | – |
| | 9 ×R0.5 | | | | | | – | – |
| | 9.5 ×R0.2 | | | | | | – | – |
| | 9.5 ×R0.5 | | | | | | – | – |
| | 10 ×R0.2 | 90 | 22 | 10 | 1 | | – | – |
| | 10 ×R0.5 | | | | | | – | – |
| | 10.5 ×R0.2 | | | | 2 | | – | – |
| | 10.5 ×R0.5 | | | | | | – | – |
| | 11 ×R0.2 | | | | | | – | – |
| | 11 ×R0.5 | | | | | | – | – |
| | 11.5 ×R0.2 | | | | | | – | – |
| | 11.5 ×R0.5 | | | | | | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12 ×R0.2 | 90 | 26 | 12 | 1 | – | – | – |
| | 12 ×R0.5 | | | | | | – | – |
| | 12.5 ×R0.2 | 100 | | | 2 | | – | – |
| | 12.5 ×R0.5 | | | | | | – | – |
| | 13 ×R0.2 | | | | | | – | – |
| | 13 ×R0.5 | | | | | | – | – |
| | 13.5 ×R0.2 | | | | | | – | – |
| | 13.5 ×R0.5 | | | | | | – | – |
| | 14 ×R0.2 | | | | | | – | – |
| | 14 ×R0.5 | | | | | | – | – |
| | 14.5 ×R0.2 | 105 | | | | | – | – |
| | 14.5 ×R0.5 | | | | | | – | – |
| | 15 ×R0.2 | | | | | | – | – |
| | 15 ×R0.5 | | | | | | – | – |
| | 15.5 ×R0.2 | 115 | 32 | | | | – | – |
| | 15.5 ×R0.5 | | | | | | – | – |
| | 16 ×R0.2 | | | 16 | 1 | | – | – |
| | 16 ×R0.5 | | | | | | – | – |
| | 16.5 ×R0.2 | | | | 2 | | – | – |
| | 16.5 ×R0.5 | | | | | | – | – |
| | 17 ×R0.2 | | | | | | – | – |
| | 17 ×R0.5 | | | | | | – | – |
| | 17.5 ×R0.2 | | | | | | – | – |
| | 17.5 ×R0.5 | | | | | | – | – |
| | 18 ×R0.2 | | | | | | – | – |
| | 18 ×R0.5 | | | | | | – | – |
| | 18.5 ×R0.2 | | | | | | – | – |
| | 18.5 ×R0.5 | | | | | | – | – |
| | 19 ×R0.2 | | | | | | – | – |
| | 19 ×R0.5 | | | | | | – | – |
| | 19.5 ×R0.2 | 125 | 38 | | | | – | – |
| | 19.5 ×R0.5 | | | | | | – | – |
| | 20 ×R0.2 | | | 20 | 1 | | – | – |
| | 20 ×R0.5 | | | | | | – | – |

※横引き不可です。※Specialized for plunging.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DLC-CR-ZDS | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用DLCコート2枚刃超硬ラジアスエンドミル ロングシャンクショート形

**DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius and Long Shank for Counterboring**

## DLC-CR-LS-ZDS

切削条件 Cutting Conditions | P680



平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | DLC | R ±0.05 RE=0.2 | R ±0.1 RE=0.5 | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

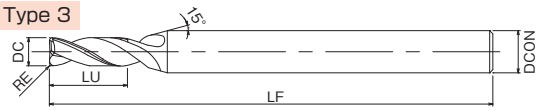
Type 1




Type 2




Type 3




コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 ×R0.2 | 100 | 8 | 6 | 3 | □ | — | — |
| | 3.5 ×R0.2 | | 10 | | | □ | — | — |
| | 4 ×R0.2 | | 11 | | | □ | — | — |
| | 4.5 ×R0.2 | | | | | □ | — | — |
| | 5 ×R0.2 | 110 | 13 | | | □ | — | — |
| | 5 ×R0.5 | | | | | □ | — | — |
| | 5.5 ×R0.2 | | | | | □ | — | — |
| | 5.5 ×R0.5 | | | | | □ | — | — |
| | 6 ×R0.2 | 120 | 16 | | 1 | □ | — | — |
| | 6 ×R0.5 | | | | | □ | — | — |
| | 6.5 ×R0.2 | | | | 2 | □ | — | — |
| | 6.5 ×R0.5 | | | | | □ | — | — |
| | 7 ×R0.2 | | | | | □ | — | — |
| | 7 ×R0.5 | | | | | □ | — | — |
| | 7.5 ×R0.2 | | | | | □ | — | — |
| | 7.5 ×R0.5 | | | | | □ | — | — |
| | 8 ×R0.2 | 130 | 19 | 8 | 1 | □ | — | — |
| | 8 ×R0.5 | | | | | □ | — | — |
| | 8.5 ×R0.2 | | | | 2 | □ | — | — |
| | 8.5 ×R0.5 | | | | | □ | — | — |
| | 9 ×R0.2 | | | | | □ | — | — |
| | 9 ×R0.5 | | | | | □ | — | — |
| | 9.5 ×R0.2 | | | | | □ | — | — |
| | 9.5 ×R0.5 | | | | | □ | — | — |
| | 10 ×R0.2 | 150 | 22 | 10 | 1 | □ | — | — |
| | 10 ×R0.5 | | | | | □ | — | — |
| | 10.5 ×R0.2 | | | | 2 | □ | — | — |
| | 10.5 ×R0.5 | | | | | □ | — | — |
| | 11 ×R0.2 | | | | | □ | — | — |
| | 11 ×R0.5 | | | | | □ | — | — |
| | 11.5 ×R0.2 | | | | | □ | — | — |
| | 11.5 ×R0.5 | | | | | □ | — | — |
| | 12 ×R0.2 | 180 | 26 | 12 | 1 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12 ×R0.5 | 180 | 26 | 12 | 1 | □ | — | — |
| | 12.5 ×R0.2 | | | | 2 | □ | — | — |
| | 12.5 ×R0.5 | | | | | □ | — | — |
| | 13 ×R0.2 | | | | | □ | — | — |
| | 13 ×R0.5 | | | | | □ | — | — |
| | 13.5 ×R0.2 | | | | | □ | — | — |
| | 13.5 ×R0.5 | | | | | □ | — | — |
| | 14 ×R0.2 | | | | | □ | — | — |
| | 14 ×R0.5 | | | | | □ | — | — |
| | 14.5 ×R0.2 | | | | | □ | — | — |
| | 14.5 ×R0.5 | | | | | □ | — | — |
| | 15 ×R0.2 | | | | | □ | — | — |
| | 15 ×R0.5 | | | | | □ | — | — |
| | 15.5 ×R0.2 | | 32 | | | □ | — | — |
| | 15.5 ×R0.5 | | | | | □ | — | — |
| | 16 ×R0.2 | 200 | | 16 | 1 | □ | — | — |
| | 16 ×R0.5 | | | | | □ | — | — |
| | 16.5 ×R0.2 | | | | 2 | □ | — | — |
| | 16.5 ×R0.5 | | | | | □ | — | — |
| | 17 ×R0.2 | | | | | □ | — | — |
| | 17 ×R0.5 | | | | | □ | — | — |
| | 17.5 ×R0.2 | | | | | □ | — | — |
| | 17.5 ×R0.5 | | | | | □ | — | — |
| | 18 ×R0.2 | | | | | □ | — | — |
| | 18 ×R0.5 | | | | | □ | — | — |
| | 18.5 ×R0.2 | | | | | □ | — | — |
| | 18.5 ×R0.5 | | | | | □ | — | — |
| | 19 ×R0.2 | | | | | □ | — | — |
| | 19 ×R0.5 | | | | | □ | — | — |
| | 19.5 ×R0.2 | | 38 | | | □ | — | — |
| | 19.5 ×R0.5 | | | | | □ | — | — |
| | 20 ×R0.2 | 220 | | 20 | 1 | □ | — | — |
| | 20 ×R0.5 | | | | | □ | — | — |

※横引き不可です。※Specialized for plunging.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DLC-CR-LS-ZDS | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用SXLコート2枚刃超硬ラジアスエンドミル ショート形

**SXL Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring**

## SXL-CR-ZDS

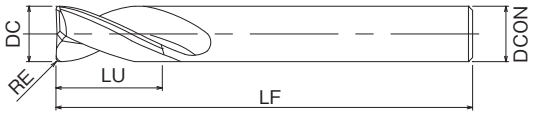
切削条件 Cutting Conditions | P665



平坦度0.02mm以下（φ12以下）
平坦度0.03mm以下（φ12超え）
Flatness ≦ 0.02mm(DC ≦ 12)
Flatness ≦ 0.03mm(12<DC)

CARBIDE | SXL | R ±0.05 RE=0.2 | R ±0.1 0.4≦RE | 0〜-0.02 | SHRINK FIT | 約20° ABOUT 20°

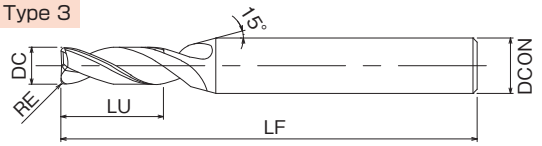
Type 1




Type 2




Type 3




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × R0.2 | 45 | 6 | 4 | 3 | — | — | — |
| | 2 × R0.4 | | | | | | — | — |
| | 2.5 × R0.2 | | 8 | | | | — | — |
| | 2.5 × R0.4 | | | | | | — | — |
| | 2.8 × R0.2 | | | | | | — | — |
| | 2.8 × R0.4 | | | | | | — | — |
| | 3 × R0.2 | 50 | | 6 | | | — | — |
| | 3 × R0.4 | | | | | | — | — |
| | 3 × R0.8 | | | | | | — | — |
| | 3.3 × R0.2 | | 10 | | | | — | — |
| | 3.3 × R0.4 | | | | | | — | — |
| | 3.3 × R0.8 | | | | | | — | — |
| | 3.7 × R0.2 | | | | | | — | — |
| | 3.7 × R0.4 | | | | | | — | — |
| | 3.7 × R0.8 | | | | | | — | — |
| | 4 × R0.2 | | 11 | | | | — | — |
| | 4 × R0.4 | | | | | | — | — |
| | 4 × R0.5 | | | | | | — | — |
| | 4 × R0.8 | | | | | | — | — |
| | 4.2 × R0.2 | | | | | | — | — |
| | 4.2 × R0.4 | | | | | | — | — |
| | 4.2 × R0.8 | | | | | | — | — |
| | 4.65 × R0.2 | | | | | | — | — |
| | 4.65 × R0.4 | | | | | | — | — |
| | 4.65 × R0.8 | | | | | | — | — |
| | 5 × R0.2 | 60 | 13 | | | | — | — |
| | 5 × R0.4 | | | | | | — | — |
| | 5 × R0.8 | | | | | | — | — |
| | 5.55 × R0.2 | | | | | | — | — |
| | 5.55 × R0.4 | | | | | | — | — |
| | 5.55 × R0.8 | | | | | | — | — |
| | 6 × R0.2 | | | | 1 | | — | — |
| | 6 × R0.4 | | | | | | — | — |
| | 6 × R0.5 | | | | | | — | — |
| | 6 × R0.8 | | | | | | — | — |
| | 6.75 × R0.2 | 70 | 16 | | 2 | | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6.75 × R0.4 | 70 | 16 | 6 | 2 | — | — | — |
| | 6.75 × R0.8 | | | | | | — | — |
| | 7.4 × R0.2 | | | | | | — | — |
| | 7.4 × R0.4 | | | | | | — | — |
| | 7.4 × R0.8 | | | | | | — | — |
| | 8 × R0.2 | 80 | 19 | 8 | 1 | | — | — |
| | 8 × R0.4 | | | | | | — | — |
| | 8 × R0.5 | | | | | | — | — |
| | 8 × R0.8 | | | | | | — | — |
| | 8.5 × R0.2 | | | | 2 | | — | — |
| | 8.5 × R0.4 | | | | | | — | — |
| | 8.5 × R0.8 | | | | | | — | — |
| | 9.3 × R0.2 | | | | | | — | — |
| | 9.3 × R0.4 | | | | | | — | — |
| | 9.3 × R0.8 | | | | | | — | — |
| | 10 × R0.2 | 90 | 22 | 10 | 1 | — | — | — |
| | 10 × R0.4 | | | | | | — | — |
| | 10 × R0.5 | | | | | | — | — |
| | 10 × R0.8 | | | | | | — | — |
| | 10.25 × R0.2 | | | | 2 | | — | — |
| | 10.25 × R0.4 | | | | | | — | — |
| | 10.25 × R0.8 | | | | | | — | — |
| | 11.1 × R0.2 | | | | | | — | — |
| | 11.1 × R0.4 | | | | | | — | — |
| | 11.1 × R0.8 | | | | | | — | — |
| | 12 × R0.2 | | 26 | 12 | 1 | | — | — |
| | 12 × R0.4 | | | | | | — | — |
| | 12 × R0.5 | | | | | | — | — |
| | 12 × R0.8 | | | | | | — | — |
| | 16 × R0.2 | 115 | 32 | 16 | | | — | — |
| | 16 × R0.4 | | | | | | — | — |
| | 16 × R0.8 | | | | | | — | — |
| | 20 × R0.2 | 125 | 38 | 20 | | | — | — |
| | 20 × R0.4 | | | | | | — | — |
| | 20 × R0.8 | | | | | | — | — |

※横引き不可です。 ※Specialized for plunging.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SXL-CR-ZDS | ◎ | | ○ | | | | ◎ | ◎ | | ○ | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



## 面取り用WXLコート3枚刃超硬エンドミルポジタイプ
**WXL Coated 3-flute Carbide End Mill for Chamfering (Positive)**

**W-HSCT-P** 切削条件 Cutting Conditions | **P700**



CARBIDE | WXL | ±30′ | SHRINK FIT | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 9200106 | 1 × 45° × 6 | 50 | 2.5 | 6 | C | ● | 22 | 13,100 |
| 9200108 | 1 × 45° × 8 | 60 | 3.5 | 8 | | ● | 45 | 15,800 |
| 9200110 | 2 × 45° × 10 | 70 | 4 | 10 | | ● | 81 | 20,300 |
| 9200112 | 2 × 45° × 12 | 75 | 5 | 12 | | ● | 121 | 26,200 |
| 9200116 | 2 × 45° × 16 | 100 | 7 | 16 | | ● | 286 | 41,800 |

## 面取り用WXLコート3枚刃超硬エンドミル ロングシャンクポジタイプ
**WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Positive)**

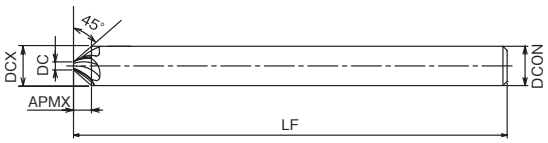
**WLS-HSCT-P** 切削条件 Cutting Conditions | **P700**



CARBIDE | WXL | ±30′ | SHRINK FIT | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 9200126 | 1 × 45° × 6 | 100 | 2.5 | 6 | C | ● | 46 | 14,000 |
| 9200128 | 1 × 45° × 8 | | 3.5 | 8 | | ● | 76 | 17,600 |
| 9200130 | 2 × 45° × 10 | | 4 | 10 | | ● | 117 | 22,400 |
| 9200132 | 2 × 45° × 12 | 105 | 5 | 12 | | ● | 172 | 28,400 |
| 9200136 | 2 × 45° × 16 | 140 | 7 | 16 | | ● | 406 | 50,200 |




デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **W-HSCT-P** | ○ | | | | | | ◎ | | | ◎ | | ◎ | ◎ | |
| **WLS-HSCT-P** | ○ | | | | | | ◎ | | | ◎ | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 面取り用WXLコート3枚刃超硬エンドミルネガタイプ
**WXL Coated 3-flute Carbide End Mill for Chamfering (Negative)**

## W-HSCT-N

切削条件 Cutting Conditions | P700



CARBIDE | WXL | ±30′ | SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 9200156 | **1 × 45° × 6** | 50 | 2.5 | 6 | C | ● | 22 | 13,100 |
| 9200158 | **1 × 45° × 8** | 60 | 3.5 | 8 | | ● | 45 | 15,800 |
| 9200160 | **2 × 45° × 10** | 70 | 4 | 10 | | ● | 80 | 20,300 |
| 9200162 | **2 × 45° × 12** | 75 | 5 | 12 | | ● | 120 | 26,200 |
| 9200166 | **2 × 45° × 16** | 100 | 7 | 16 | | ● | 284 | 41,800 |

## 面取り用WXLコート3枚刃超硬エンドミル ロングシャンクネガタイプ
**WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Negative)**

## WLS-HSCT-N

切削条件 Cutting Conditions | P700

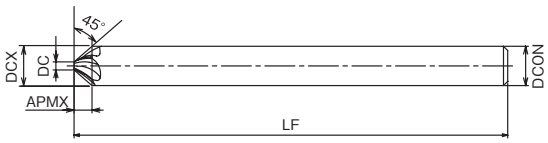


CARBIDE | WXL | ±30′ | SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 9200176 | **1 × 45° × 6** | 100 | 2.5 | 6 | C | ● | 46 | 14,000 |
| 9200178 | **1 × 45° × 8** | | 3.5 | 8 | | ● | 75 | 17,600 |
| 9200180 | **2 × 45° × 10** | | 4 | 10 | | ● | 117 | 22,400 |
| 9200182 | **2 × 45° × 12** | 105 | 5 | 12 | | ● | 171 | 28,400 |
| 9200186 | **2 × 45° × 16** | 140 | 7 | 16 | | ● | 406 | 50,200 |




OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **W-HSCT-N** | ◎ | | ○ | | | | ○ | ○ | | ○ | | ○ | ○ | |
| **WLS-HSCT-N** | ◎ | | ○ | | | | ○ | ○ | | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 面取り用3枚刃超硬エンドミルポジタイプ
**3-flute Carbide End Mill for Chamfering (Positive)**

## HSCT-P

切削条件 Cutting Conditions | P700



CARBIDE ±30′ SHRINK FIT

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 9200006 | 1 × 45° × 6 | 50 | 2.5 | 6 | C | ● | 22 | 11,800 |
| 9200008 | 1 × 45° × 8 | 60 | 3.5 | 8 | | ● | 45 | 14,300 |
| 9200010 | 2 × 45° × 10 | 70 | 4 | 10 | | ● | 81 | 18,800 |
| 9200012 | 2 × 45° × 12 | 75 | 5 | 12 | | ● | 121 | 24,000 |
| 9200016 | 2 × 45° × 16 | 100 | 7 | 16 | | ● | 286 | 38,600 |

## 面取り用3枚刃超硬エンドミルネガタイプ
**3-flute Carbide End Mill for Chamfering (Negative)**

## HSCT-N

切削条件 Cutting Conditions | P700

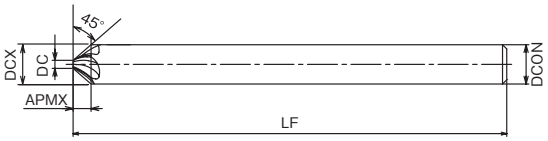


CARBIDE ±30′ SHRINK FIT

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 9200056 | 1 × 45° × 6 | 50 | 2.5 | 6 | C | ● | 22 | 11,800 |
| 9200058 | 1 × 45° × 8 | 60 | 3.5 | 8 | | ● | 45 | 14,300 |
| 9200060 | 2 × 45° × 10 | 70 | 4 | 10 | | ● | 80 | 18,800 |
| 9200062 | 2 × 45° × 12 | 75 | 5 | 12 | | ● | 120 | 24,000 |
| 9200066 | 2 × 45° × 16 | 100 | 7 | 16 | | ● | 284 | 38,600 |




CADデータ (DXF・STEP) ダウンロードサービス公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HSCT-P | ○ | | | | | | ◎ | | | ◎ | | ◎ | ◎ | |
| HSCT-N | ◎ | | ○ | | | | ○ | | | ○ | | ○ | ○ | |

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- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## 面取り用3枚刃超硬エンドミルロングシャンク ポジタイプ
**3-flute Carbide End Mill with Long Shank for Chamfering (Positive)**

## LS-HSCT-P

切削条件 Cutting Conditions | P700



CARBIDE ± 30′ SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 9200026 | 1 × 45° × 6 | 100 | 2.5 | 6 | C | ● | 46 | 12,700 |
| 9200028 | 1 × 45° × 8 | | 3.5 | 8 | | ● | 76 | 16,100 |
| 9200030 | 2 × 45° × 10 | | 4 | 10 | | ● | 117 | 20,800 |
| 9200032 | 2 × 45° × 12 | 105 | 5 | 12 | | ● | 172 | 26,800 |
| 9200036 | 2 × 45° × 16 | 140 | 7 | 16 | | ● | 406 | 46,800 |

## 面取り用3枚刃超硬エンドミルロングシャンク ネガタイプ
**3-flute Carbide End Mill with Long Shank for Chamfering (Negative)**

## LS-HSCT-N

切削条件 Cutting Conditions | P700

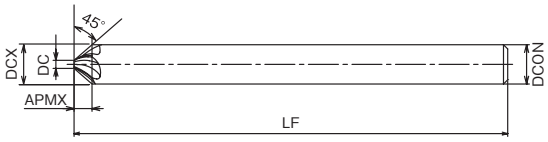


CARBIDE ± 30′ SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 9200076 | 1 × 45° × 6 | 100 | 2.5 | 6 | C | ● | 46 | 12,700 |
| 9200078 | 1 × 45° × 8 | | 3.5 | 8 | | ● | 75 | 16,100 |
| 9200080 | 2 × 45° × 10 | | 4 | 10 | | ● | 117 | 20,800 |
| 9200082 | 2 × 45° × 12 | 105 | 5 | 12 | | ● | 171 | 26,800 |
| 9200086 | 2 × 45° × 16 | 140 | 7 | 16 | | ● | 406 | 46,800 |




OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| LS-HSCT-P | ○ | | | | | | ◎ | | | ◎ | | ◎ | ◎ | |
| LS-HSCT-N | ◎ | | ○ | | | | ○ | | | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 面取り用WXLコート多刃超硬エンドミルポジタイプ
**WXL Coated Multi-flute Carbide End Mill for Chamfering (Positive)**

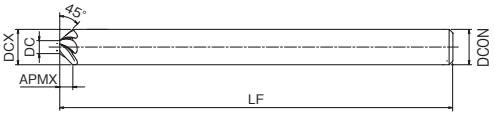
## HY-HSCM-P

**切削条件 Cutting Conditions | P701**


5刃 5-flute


6刃 6-flute






CARBIDE | WXL | ±30′ | SHRINK FIT | 40°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径×刃数 DC × KAPR × DCX × ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 9200246 | **2 × 45° × 6 × 5F** | 50 | 2 | 6 | 5 | C | ● | 28 | 14,500 |
| 9200248 | **3 × 45° × 8 × 6F** | 60 | 2.5 | 8 | 6 | C | ● | 44 | 18,100 |
| 9200250 | **3 × 45° × 10 × 6F** | 70 | 3.5 | 10 | 6 | C | ● | 78 | 23,800 |
| 9200252 | **3 × 45° × 12 × 6F** | 75 | 4.5 | 12 | 6 | C | ● | 120 | 26,300 |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HY-HSCM-P** | ○ | | | | | | ◎ | | | ◎ | | ◎ | ◎ | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 面取り用FXコート2枚刃超硬エンドミル
**FX Coated 2-flute Carbide End Mill for Chamfering**

# FX-SCC

切削条件 Cutting Conditions | P666



切れ味の良いねじれ刃の採用により、バリの少ないきれいな加工面が得られます。
Good surface finish provided by helix sharp cutting edge.

CARBIDE | FX | SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8501483 | **0.8 × 45° × 3** | 50 | 1.1 | 3 | D | ● | 10 | 15,700 |
| 8501484 | **0.8 × 45° × 4** | | 1.6 | 4 | | ● | 16 | 17,000 |
| 8501506 | **1 × 45° × 6** | 60 | 2.5 | 6 | | ● | 31 | 18,100 |
| 8501508 | **1 × 45° × 8** | 70 | 3.5 | 8 | | ● | 53 | 21,100 |
| 8501510 | **1 × 45° × 10** | 80 | 4.5 | 10 | | ● | 95 | 29,700 |
| 8501512 | **1 × 45° × 12** | 90 | 5.5 | 12 | | ● | 150 | 34,800 |

## 面取り用FXコート2枚刃超硬エンドミル ロングシャンク
**FX Coated 2-flute Carbide End Mill with Long Shank for Chamfering**

# FX-LS-SCC

切削条件 Cutting Conditions | P667



深い部分の加工に対応するロングシャンクタイプです。ねじれ刃を採用しているので突き出し量が大きくてもビビリが発生しません。
Long type for deep part milling. Spiral teeth design eliminates vibration with long overhang.

CARBIDE | FX | SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8501683 | **0.8 × 45° × 3** | 80 | 1.1 | 3 | D | ● | 12 | 16,800 |
| 8501684 | **0.8 × 45° × 4** | 100 | 1.6 | 4 | | ● | 25 | 19,200 |
| 8501706 | **1 × 45° × 6** | | 2.5 | 6 | | ● | 47 | 20,100 |
| 8501708 | **1 × 45° × 8** | 130 | 3.5 | 8 | | ● | 98 | 25,200 |
| 8501710 | **1 × 45° × 10** | 150 | 4.5 | 10 | | ● | 176 | 35,300 |
| 8501712 | **1 × 45° × 12** | 160 | 5.5 | 12 | | ● | 267 | 41,800 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、
水・油・ヘドロをスピード吸入・スピード吐出
※詳細は▶P.1176を参照下さい。
See p.1176 for details



製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-SCC | ◎ | | ○ | | | | | | | | | | | |
| FX-LS-SCC | ◎ | | ○ | | | | | | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 面取り用DIAコート2枚刃超硬エンドミルVカット
**Diamond Coated 2-flute Carbide End Mill V Cut Type**

# DIA-VCM



CARBIDE | DIA | DC≦12 0～-0.02, 12<DC 0～-0.03 | ±30′ | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端角 DCX × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 先端径 DC | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 × 90° | 40 | 2 | 4 | (0.1) | □ | — | — |
| | 1.5× 90° | | 3 | | (0.15) | □ | — | — |
| | 2 × 90° | | 4 | | (0.2) | □ | — | — |
| | 2.5× 90° | | 5 | | | □ | — | — |
| | 3 × 60° | 50 | 6 | 6 | | □ | — | — |
| | 4 × 60° | | 8 | | | □ | — | — |
| | 5 × 60° | 55 | 10 | | | □ | — | — |
| | 6 × 60° | 60 | 12 | | | □ | — | — |
| | 8 × 60° | 70 | 16 | 8 | (0.25) | □ | — | — |
| | 10 × 60° | 80 | 20 | 10 | | □ | — | — |
| | 12 × 60° | 90 | 24 | 12 | | □ | — | — |
| | 3 × 90° | 50 | 6 | 6 | (0.2) | □ | — | — |
| | 4 × 90° | | 8 | | | □ | — | — |
| | 5 × 90° | 55 | 10 | | | □ | — | — |
| | 6 × 90° | 60 | 12 | | | □ | — | — |
| | 8 × 90° | 70 | 16 | 8 | (0.25) | □ | — | — |
| | 10 × 90° | 80 | 20 | 10 | | □ | — | — |
| | 12 × 90° | 90 | 24 | 12 | | □ | — | — |
| | 3 × 120° | 50 | 6 | 6 | (0.2) | □ | — | — |
| | 4 × 120° | | 8 | | | □ | — | — |
| | 5 × 120° | 55 | 10 | | | □ | — | — |
| | 6 × 120° | 60 | 12 | | | □ | — | — |
| | 8 × 120° | 70 | 16 | 8 | (0.25) | □ | — | — |
| | 10 × 120° | 80 | 20 | 10 | | □ | — | — |
| | 12 × 120° | 90 | 24 | 12 | | □ | — | — |

## 面取り用FXコート2枚刃超硬エンドミルVカット
**FX Coated 2-flute Carbide End Mill V Cut Type**

# FX-MG-VCM



CARBIDE | FX | DC≦12 0～-0.02, 12<DC 0～-0.03 | ±30′ | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端角 DCX × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 先端径 DC | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 1 × 90° | 40 | 2 | 4 | (0.1) | 2 | □ | — | — |
| | 1.5× 90° | | 3 | | (0.15) | | □ | — | — |
| | 2 × 90° | | 4 | | (0.2) | | □ | — | — |
| | 2.5× 90° | | 5 | | | | □ | — | — |
| | 3 × 60° | 50 | 6 | 6 | | | □ | — | — |
| | 3 × 90° | | | | | | □ | — | — |
| | 3 × 120° | | | | | | □ | — | — |
| | 4 × 60° | | 8 | | | | □ | — | — |
| | 4 × 90° | | | | | | □ | — | — |
| | 4 × 120° | | | | | | □ | — | — |
| | 5 × 60° | 55 | 10 | | | | □ | — | — |
| | 5 × 90° | | | | | | □ | — | — |
| | 5 × 120° | | | | | | □ | — | — |
| | 6 × 60° | 60 | 12 | | | | □ | — | — |
| | 6 × 90° | | | | | | □ | — | — |
| | 6 × 120° | | | | | | □ | — | — |
| | 7 × 90° | 65 | 14 | 8 | (0.25) | | □ | — | — |
| | 8 × 60° | 70 | 16 | | | | □ | — | — |
| | 8 × 90° | | | | | | □ | — | — |
| | 8 × 120° | | | | | | □ | — | — |
| | 9 × 90° | 75 | 18 | 10 | | | □ | — | — |
| | 10 × 60° | 80 | 20 | | | | □ | — | — |
| | 10 × 90° | | | | | | □ | — | — |
| | 10 × 120° | | | | | | □ | — | — |
| | 12 × 60° | 90 | 24 | 12 | | | □ | — | — |
| | 12 × 90° | | | | | | □ | — | — |
| | 12 × 120° | | | | | | □ | — | — |
| | 14 × 90° | 100 | 28 | 16 | | | □ | — | — |
| | 15 × 90° | 120 | 30 | | | | □ | — | — |
| | 16 × 60° | 140 | 32 | | | | □ | — | — |
| | 16 × 90° | | | | | | □ | — | — |
| | 16 × 120° | | | | | | □ | — | — |
| | 18 × 90° | 150 | 36 | 20 | | | □ | — | — |
| | 20 × 60° | 160 | 40 | | | | □ | — | — |
| | 20 × 90° | | | | | | □ | — | — |
| | 20 × 120° | | | | | | □ | — | — |

加工時に先端径が問題となる場合には先端径をご確認の上、ご使用下さい。
When the point diameter of the end mill is critical for the application, please verify the point diameter before use.

最新の加工動画を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 面取り用DLCコート2枚刃超硬エンドミルVカット
**DLC Coated 2-flute Carbide End Mill V Cut Type**

# DLC-VCMP

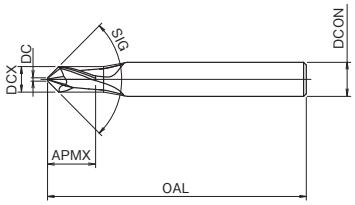


コーティングに色むらが発生する場合がありますが、
性能上は全く問題ありません。
End mills may have some discoloration, but it does not cause any performance problems.

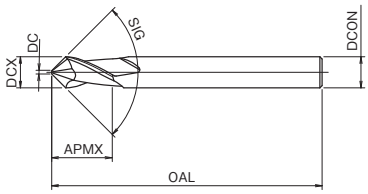
CARBIDE | DLC | ±30′ | SHRINK FIT | 30°

DC≦12 0〜-0.02
12<DC 0〜-0.03

Type 1




Type 2




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端角 DCX × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 先端径 DC | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 3 × 60° | 50 | 6 | 6 | (0.2) | 1 | □ | — | — |
| | 4 × 60° | | 8 | | | | □ | — | — |
| | 5 × 60° | 55 | 10 | | | | □ | — | — |
| | 6 × 60° | 60 | 12 | | | 2 | □ | — | — |
| | 8 × 60° | 70 | 16 | 8 | (0.25) | | □ | — | — |
| | 10 × 60° | 80 | 20 | 10 | | | □ | — | — |
| | 12 × 60° | 90 | 24 | 12 | | | □ | — | — |
| | 16 × 60° | 140 | 32 | 16 | | | □ | — | — |
| | 20 × 60° | 160 | 40 | 20 | | | □ | — | — |
| | 3 × 90° | 50 | 6 | 6 | (0.2) | 1 | □ | — | — |
| | 4 × 90° | | 8 | | | | □ | — | — |
| | 5 × 90° | 55 | 10 | | | | □ | — | — |
| | 6 × 90° | 60 | 12 | | | 2 | □ | — | — |
| | 7 × 90° | 65 | 14 | 8 | (0.25) | 1 | □ | — | — |
| | 8 × 90° | 70 | 16 | | | 2 | □ | — | — |
| | 9 × 90° | 75 | 18 | 10 | | 1 | □ | — | — |
| | 10 × 90° | 80 | 20 | | | 2 | □ | — | — |
| | 12 × 90° | 90 | 24 | 12 | | | □ | — | — |
| | 14 × 90° | 100 | 28 | 16 | | 1 | □ | — | — |
| | 15 × 90° | 120 | 30 | | | | □ | — | — |
| | 16 × 90° | 140 | 32 | | | 2 | □ | — | — |
| | 18 × 90° | 150 | 36 | 20 | | 1 | □ | — | — |
| | 20 × 90° | 160 | 40 | | | 2 | □ | — | — |
| | 3×120° | 50 | 6 | 6 | (0.2) | 1 | □ | — | — |
| | 4×120° | | 8 | | | | □ | — | — |
| | 5×120° | 55 | 10 | | | | □ | — | — |
| | 6×120° | 60 | 12 | | | 2 | □ | — | — |
| | 8×120° | 70 | 16 | 8 | (0.25) | | □ | — | — |
| | 10×120° | 80 | 20 | 10 | | | □ | — | — |
| | 12×120° | 90 | 24 | 12 | | | □ | — | — |
| | 16×120° | 140 | 32 | 16 | | | □ | — | — |
| | 20×120° | 160 | 40 | 20 | | | □ | — | — |

加工時に先端径が問題となる場合には先端径をご確認の上、ご使用下さい。

When the point diameter of the end mill is critical for the application, please verify the point diameter before use.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| DLC-VCMP | | | | | | | | | ◎ | ◎ | | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

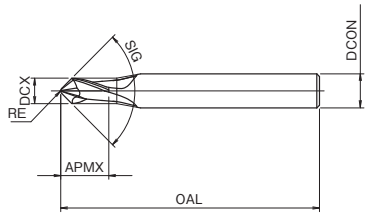
△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 面取り用WXLコート2枚刃超硬エンドミルVカット
**WXL Coated 2-flute Carbide End Mill V Cut Type**

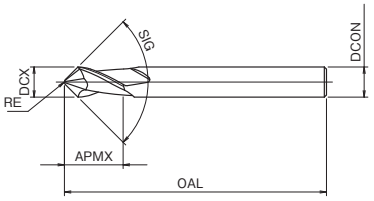
## WXL-MG-VCMR



Type 1




Type 2




CARBIDE | WXL | R 0〜-0.02 | ±0.01 | ±30′ | SHRINK FIT | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端R×先端角 DCX × RE × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 ×R0.1 × 60° | 50 | 6 | 6 | 1 | □ | — | — |
| | 3 ×R0.15 × 60° | | | | | □ | — | — |
| | 3 ×R0.2 × 60° | | | | | □ | — | — |
| | 3 ×R0.25 × 60° | | | | | □ | — | — |
| | 3 ×R0.3 × 60° | | | | | □ | — | — |
| | 3 ×R0.4 × 60° | | | | | □ | — | — |
| | 3 ×R0.5 × 60° | | | | | □ | — | — |
| | 3 ×R0.75 × 60° | | | | | □ | — | — |
| | 3 ×R1 × 60° | | | | | □ | — | — |
| | 6 ×R0.1 × 60° | 60 | 12 | | 2 | □ | — | — |
| | 6 ×R0.15 × 60° | | | | | □ | — | — |
| | 6 ×R0.2 × 60° | | | | | □ | — | — |
| | 6 ×R0.25 × 60° | | | | | □ | — | — |
| | 6 ×R0.3 × 60° | | | | | □ | — | — |
| | 6 ×R0.4 × 60° | | | | | □ | — | — |
| | 6 ×R0.5 × 60° | | | | | □ | — | — |
| | 6 ×R0.75 × 60° | | | | | □ | — | — |
| | 6 ×R1 × 60° | | | | | □ | — | — |
| | 6 ×R1.25 × 60° | | | | | □ | — | — |
| | 6 ×R1.5 × 60° | | | | | □ | — | — |
| | 6 ×R1.75 × 60° | | | | | □ | — | — |
| | 6 ×R2 × 60° | | | | | □ | — | — |
| | 8 ×R0.3 × 60° | 70 | 16 | 8 | | □ | — | — |
| | 8 ×R0.4 × 60° | | | | | □ | — | — |
| | 8 ×R0.5 × 60° | | | | | □ | — | — |
| | 8 ×R0.75 × 60° | | | | | □ | — | — |
| | 8 ×R1 × 60° | | | | | □ | — | — |
| | 8 ×R1.25 × 60° | | | | | □ | — | — |
| | 8 ×R1.5 × 60° | | | | | □ | — | — |
| | 8 ×R1.75 × 60° | | | | | □ | — | — |
| | 8 ×R2 × 60° | | | | | □ | — | — |
| | 10 ×R0.3 × 60° | 80 | 20 | 10 | | □ | — | — |
| | 10 ×R0.4 × 60° | | | | | □ | — | — |
| | 10 ×R0.5 × 60° | | | | | □ | — | — |
| | 10 ×R0.75 × 60° | | | | | □ | — | — |
| | 10 ×R1 × 60° | | | | | □ | — | — |
| | 10 ×R1.25 × 60° | | | | | □ | — | — |
| | 10 ×R1.5 × 60° | | | | | □ | — | — |
| | 10 ×R1.75 × 60° | | | | | □ | — | — |
| | 10 ×R2 × 60° | | | | | □ | — | — |
| | 12 ×R0.3 × 60° | 90 | 24 | 12 | | □ | — | — |
| | 12 ×R0.4 × 60° | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端R×先端角 DCX × RE × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12 ×R0.5 × 60° | 90 | 24 | 12 | 2 | □ | — | — |
| | 12 ×R0.75 × 60° | | | | | □ | — | — |
| | 12 ×R1 × 60° | | | | | □ | — | — |
| | 12 ×R1.25 × 60° | | | | | □ | — | — |
| | 12 ×R1.5 × 60° | | | | | □ | — | — |
| | 12 ×R1.75 × 60° | | | | | □ | — | — |
| | 12 ×R2 × 60° | | | | | □ | — | — |
| | 1 ×R0.1 × 90° | 50 | 2 | 4 | 1 | □ | — | — |
| | 1 ×R0.15 × 90° | | | | | □ | — | — |
| | 1 ×R0.2 × 90° | | | | | □ | — | — |
| | 1 ×R0.25 × 90° | | | | | □ | — | — |
| | 1 ×R0.3 × 90° | | | | | □ | — | — |
| | 1.5 ×R0.1 × 90° | | 3 | | | □ | — | — |
| | 1.5 ×R0.15 × 90° | | | | | □ | — | — |
| | 1.5 ×R0.2 × 90° | | | | | □ | — | — |
| | 1.5 ×R0.25 × 90° | | | | | □ | — | — |
| | 1.5 ×R0.3 × 90° | | | | | □ | — | — |
| | 2 ×R0.1 × 90° | | 4 | | | □ | — | — |
| | 2 ×R0.15 × 90° | | | | | □ | — | — |
| | 2 ×R0.2 × 90° | | | | | □ | — | — |
| | 2 ×R0.25 × 90° | | | | | □ | — | — |
| | 2 ×R0.3 × 90° | | | | | □ | — | — |
| | 2 ×R0.4 × 90° | | | | | □ | — | — |
| | 2 ×R0.5 × 90° | | | | | □ | — | — |
| | 3 ×R0.1 × 90° | | 6 | 6 | | □ | — | — |
| | 3 ×R0.15 × 90° | | | | | □ | — | — |
| | 3 ×R0.2 × 90° | | | | | □ | — | — |
| | 3 ×R0.25 × 90° | | | | | □ | — | — |
| | 3 ×R0.3 × 90° | | | | | □ | — | — |
| | 3 ×R0.4 × 90° | | | | | □ | — | — |
| | 3 ×R0.5 × 90° | | | | | □ | — | — |
| | 3 ×R0.75 × 90° | | | | | □ | — | — |
| | 3 ×R1 × 90° | | | | | □ | — | — |
| | 6 ×R0.1 × 90° | 60 | 12 | | 2 | □ | — | — |
| | 6 ×R0.15 × 90° | | | | | □ | — | — |
| | 6 ×R0.2 × 90° | | | | | □ | — | — |
| | 6 ×R0.25 × 90° | | | | | □ | — | — |
| | 6 ×R0.3 × 90° | | | | | □ | — | — |
| | 6 ×R0.4 × 90° | | | | | □ | — | — |
| | 6 ×R0.5 × 90° | | | | | □ | — | — |
| | 6 ×R0.75 × 90° | | | | | □ | — | — |
| | 6 ×R1 × 90° | | | | | □ | — | — |

次ページへ
外径 DCX × 先端角 SIG 6×90°〜12×120° NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WXL-MG-VCMR | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

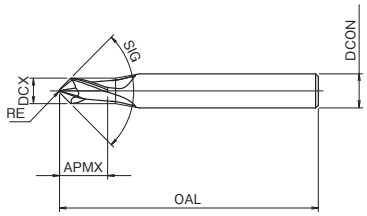
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 面取り用WXLコート2枚刃超硬エンドミルVカット
**WXL Coated 2-flute Carbide End Mill V Cut Type**

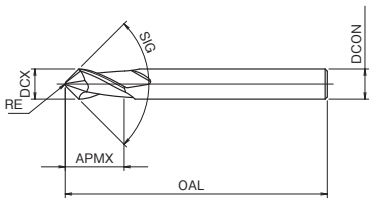
# WXL-MG-VCMR



Type 1




Type 2




CARBIDE | WXL | R ±0.01 (0〜-0.02) | ±30′ | SHRINK FIT | 30°

前ページより

**FROM** 外径 DCX × 先端角 SIG 3×60°〜6×90°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端 R ×先端角 DCX × RE × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 ×R1.25× 90° | 60 | 12 | 6 | 2 | □ | — | — |
| | 6 ×R1.5 × 90° | | | | | □ | — | — |
| | 6 ×R1.75× 90° | | | | | □ | — | — |
| | 6 ×R2 × 90° | | | | | □ | — | — |
| | 8 ×R0.3 × 90° | 70 | 16 | 8 | | □ | — | — |
| | 8 ×R0.4 × 90° | | | | | □ | — | — |
| | 8 ×R0.5 × 90° | | | | | □ | — | — |
| | 8 ×R0.75× 90° | | | | | □ | — | — |
| | 8 ×R1 × 90° | | | | | □ | — | — |
| | 8 ×R1.25× 90° | | | | | □ | — | — |
| | 8 ×R1.5 × 90° | | | | | □ | — | — |
| | 8 ×R1.75× 90° | | | | | □ | — | — |
| | 8 ×R2 × 90° | | | | | □ | — | — |
| | 10 ×R0.3 × 90° | 80 | 20 | 10 | | □ | — | — |
| | 10 ×R0.4 × 90° | | | | | □ | — | — |
| | 10 ×R0.5 × 90° | | | | | □ | — | — |
| | 10 ×R0.75× 90° | | | | | □ | — | — |
| | 10 ×R1 × 90° | | | | | □ | — | — |
| | 10 ×R1.25× 90° | | | | | □ | — | — |
| | 10 ×R1.5 × 90° | | | | | □ | — | — |
| | 10 ×R1.75× 90° | | | | | □ | — | — |
| | 10 ×R2 × 90° | | | | | □ | — | — |
| | 12 ×R0.3 × 90° | 90 | 24 | 12 | | □ | — | — |
| | 12 ×R0.4 × 90° | | | | | □ | — | — |
| | 12 ×R0.5 × 90° | | | | | □ | — | — |
| | 12 ×R0.75× 90° | | | | | □ | — | — |
| | 12 ×R1 × 90° | | | | | □ | — | — |
| | 12 ×R1.25× 90° | | | | | □ | — | — |
| | 12 ×R1.5 × 90° | | | | | □ | — | — |
| | 12 ×R1.75× 90° | | | | | □ | — | — |
| | 12 ×R2 × 90° | | | | | □ | — | — |
| | 3 ×R0.1 ×120° | 50 | 6 | 6 | 1 | □ | — | — |
| | 3 ×R0.15×120° | | | | | □ | — | — |
| | 3 ×R0.2 ×120° | | | | | □ | — | — |
| | 3 ×R0.25×120° | | | | | □ | — | — |
| | 3 ×R0.3 ×120° | | | | | □ | — | — |
| | 3 ×R0.4 ×120° | | | | | □ | — | — |
| | 3 ×R0.5 ×120° | | | | | □ | — | — |
| | 3 ×R0.75×120° | | | | | □ | — | — |
| | 3 ×R1 ×120° | | | | | □ | — | — |
| | 6 ×R0.1 ×120° | 60 | 12 | | 2 | □ | — | — |
| | 6 ×R0.15×120° | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端 R ×先端角 DCX × RE × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 ×R0.2 ×120° | 60 | 12 | 6 | 2 | □ | — | — |
| | 6 ×R0.25×120° | | | | | □ | — | — |
| | 6 ×R0.3 ×120° | | | | | □ | — | — |
| | 6 ×R0.4 ×120° | | | | | □ | — | — |
| | 6 ×R0.5 ×120° | | | | | □ | — | — |
| | 6 ×R0.75×120° | | | | | □ | — | — |
| | 6 ×R1 ×120° | | | | | □ | — | — |
| | 6 ×R1.25×120° | | | | | □ | — | — |
| | 6 ×R1.5 ×120° | | | | | □ | — | — |
| | 6 ×R1.75×120° | | | | | □ | — | — |
| | 6 ×R2 ×120° | | | | | □ | — | — |
| | 8 ×R0.3 ×120° | 70 | 16 | 8 | | □ | — | — |
| | 8 ×R0.4 ×120° | | | | | □ | — | — |
| | 8 ×R0.5 ×120° | | | | | □ | — | — |
| | 8 ×R0.75×120° | | | | | □ | — | — |
| | 8 ×R1 ×120° | | | | | □ | — | — |
| | 8 ×R1.25×120° | | | | | □ | — | — |
| | 8 ×R1.5 ×120° | | | | | □ | — | — |
| | 8 ×R1.75×120° | | | | | □ | — | — |
| | 8 ×R2 ×120° | | | | | □ | — | — |
| | 10 ×R0.3 ×120° | 80 | 20 | 10 | | □ | — | — |
| | 10 ×R0.4 ×120° | | | | | □ | — | — |
| | 10 ×R0.5 ×120° | | | | | □ | — | — |
| | 10 ×R0.75×120° | | | | | □ | — | — |
| | 10 ×R1 ×120° | | | | | □ | — | — |
| | 10 ×R1.25×120° | | | | | □ | — | — |
| | 10 ×R1.5 ×120° | | | | | □ | — | — |
| | 10 ×R1.75×120° | | | | | □ | — | — |
| | 10 ×R2 ×120° | | | | | □ | — | — |
| | 12 ×R0.3 ×120° | 90 | 24 | 12 | | □ | — | — |
| | 12 ×R0.4 ×120° | | | | | □ | — | — |
| | 12 ×R0.5 ×120° | | | | | □ | — | — |
| | 12 ×R0.75×120° | | | | | □ | — | — |
| | 12 ×R1 ×120° | | | | | □ | — | — |
| | 12 ×R1.25×120° | | | | | □ | — | — |
| | 12 ×R1.5 ×120° | | | | | □ | — | — |
| | 12 ×R1.75×120° | | | | | □ | — | — |
| | 12 ×R2 ×120° | | | | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | 〜40HRC | | 〜45HRC | 〜55HRC | 〜60HRC | 〜65HRC | 〜35HRC | 〜350HB | | | | | | |
| WXL-MG-VCMR | ◎ | | ○ | | | | ○ | ◎ | ○ | ○ | | | | |

**在庫記号について** Inventory symbols

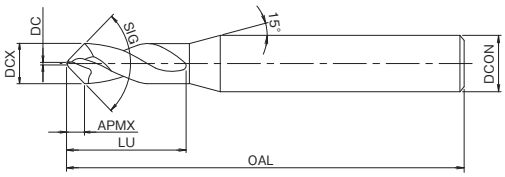
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 面取り用DUROREYコート2枚刃超硬エンドミル Vカット
**DUROREY Coated 2-flute Carbide End Mill V Cut Type**

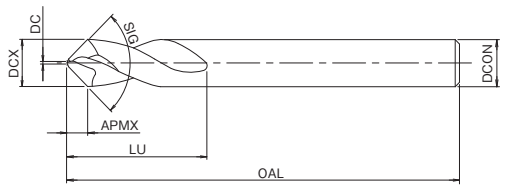
# DUR-MG-VCM



Type 1




Type 2



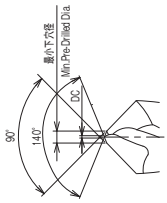

CARBIDE | DUROREY | ±0.02 | ±30′ | SHRINK FIT | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端角 DCX × SIG | 全長 OAL | 刃長 APMX | 有効溝長 LU | シャンク径 DCON | 先端径 DC | 最小下穴径 Min.Pre-Drilled Dia. 注1) | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 × 90° | 40 | 0.4 | 2 | 4 | (0.05) | 0.3 | 1 | | □ | – | – |
| | 1.5 × 90° | | 0.65 | 3 | | | | | | □ | – | – |
| | 2 × 90° | | 0.9 | 4 | | | | | | □ | – | – |
| | 2.5 × 90° | | 1.05 | 5 | | | 0.65 | | | □ | – | – |
| | 3 × 90° | 45 | 1.3 | 7.5 | | | | | | □ | – | – |
| | 4 × 90° | 50 | 1.7 | 10 | | | 0.95 | 2 | | □ | – | – |
| | 5 × 90° | 65 | 2.1 | 12.5 | 6 | | 1.25 | 1 | | □ | – | – |
| | 6 × 90° | | 2.6 | 15 | | | | 2 | | □ | – | – |
| | 7 × 90° | 70 | 3.02 | 17.5 | 8 | | 1.5 | 1 | | □ | – | – |
| | 8 × 90° | 75 | 3.4 | 20 | | | 1.9 | 2 | | □ | – | – |
| | 9 × 90° | | 3.8 | 22.5 | 10 | | 2.2 | 1 | | □ | – | – |
| | 10 × 90° | 85 | 4.3 | 25 | | | | 2 | | □ | – | – |
| | 12 × 90° | 95 | 5.11 | 30 | 12 | | 2.8 | | | □ | – | – |
| | 16 × 90° | 115 | 6.82 | 40 | 16 | | 3.7 | | | □ | – | – |
| | 1 ×120° | 40 | 0.29 | 2 | 4 | | – | 1 | – | □ | – | – |
| | 1.5 ×120° | | 0.43 | 3 | | | | | | □ | – | – |
| | 2 ×120° | | 0.58 | 4 | | | | | | □ | – | – |
| | 2.5 ×120° | | 0.72 | 5 | | | | | | □ | – | – |
| | 3 ×120° | 45 | 0.87 | 7.5 | | | | | | □ | – | – |
| | 4 ×120° | 50 | 1.15 | 10 | | | | 2 | | □ | – | – |
| | 5 ×120° | 65 | 1.44 | 12.5 | 6 | | | 1 | | □ | – | – |
| | 6 ×120° | | 1.73 | 15 | | | | 2 | | □ | – | – |
| | 7 ×120° | 70 | 2.02 | 17.5 | 8 | | | 1 | | □ | – | – |
| | 8 ×120° | 75 | 2.31 | 20 | | | | 2 | | □ | – | – |
| | 9 ×120° | | 2.6 | 22.5 | 10 | | | 1 | | □ | – | – |
| | 10 ×120° | 85 | 2.89 | 25 | | | | 2 | | □ | – | – |
| | 12 ×120° | 95 | 3.46 | 30 | 12 | | | | | □ | – | – |
| | 16 ×120° | 115 | 4.62 | 40 | 16 | | | | | □ | – | – |

注１）面取りを行う場合の下穴の最小値を示します。
These minimum pre-drilled hole sizes are required before chamfering operations.

加工時に先端径が問題となる場合には先端径をご確認の上、ご使用下さい。
When the point diameter of the end mill is critical for the application, please verify the point diameter before use.




先端角90°品は、先端の潰れや欠けを防止するため、
最小下穴径より内側中心部のみ140°になっています。
Items with a point angle of 90° have a 140° point angle within the minimum mill diameter to prevent the chisel edge from crushing and chipping during centering.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DUR-MG-VCM | ○ | | ◎ | ◎ | ◎ | ◎ | | ◎ | | | | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## DUROREYコート2枚刃超硬コーナラウンディング
**DUROREY Coated 2-flute Carbide End Mill with Corner Rounding**

# DUR-ECR

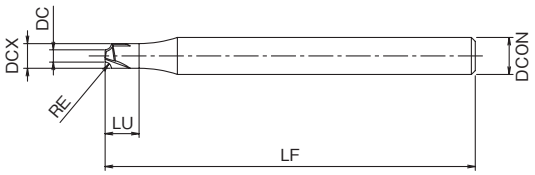
切削条件 Cutting Conditions | P701-1

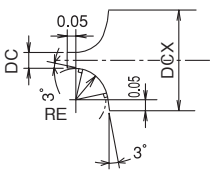


CARBIDE | DUROREY | R ±0.03 | SHRINK FIT

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×コーナ半径 DC × RE | 外径 DCX | 全長 LF | シャンク径 DCON | 首下長 LU | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.5×R0.1** | 0.8 | 45 | 4 | 1.2 | □ | — | — |
| | **0.5×R0.15** | 0.9 | | | 1.4 | □ | — | — |
| | **0.5×R0.2** | 1 | | | 1.5 | □ | — | — |
| | **0.5×R0.25** | 1.1 | | | 1.7 | □ | — | — |
| | **0.5×R0.3** | 1.2 | | | 1.8 | □ | — | — |
| | **0.5×R0.35** | 1.3 | | | 2 | □ | — | — |
| | **0.5×R0.4** | 1.4 | | | 2.1 | □ | — | — |
| | **0.5×R0.45** | 1.5 | | | 2.3 | □ | — | — |
| | **0.5×R0.5** | 1.6 | | | 2.4 | □ | — | — |
| | **0.5×R0.55** | 1.7 | | | 2.6 | □ | — | — |
| | **0.5×R0.6** | 1.8 | | | 2.7 | □ | — | — |
| | **0.5×R0.65** | 1.9 | | | 2.9 | □ | — | — |
| | **0.5×R0.7** | 2 | | | 3 | □ | — | — |
| | **0.5×R0.75** | 2.1 | | | 3.2 | □ | — | — |
| | **0.8×R0.8** | 2.5 | | | 3.8 | □ | — | — |
| | **0.8×R0.85** | 2.6 | | | 3.9 | □ | — | — |
| | **0.8×R0.9** | 2.7 | | | 4.1 | □ | — | — |
| | **0.8×R0.95** | 2.8 | | | 4.2 | □ | — | — |
| | **0.8×R1** | 2.9 | | | 4.4 | □ | — | — |
| | **0.8×R1.25** | 3.4 | | | 5.1 | □ | — | — |
| | **1.5×R1.5** | 4.6 | 50 | 6 | 6.9 | □ | — | — |
| | **1.5×R1.75** | 5.1 | | | 7.6 | □ | — | — |
| | **1.5×R2** | 5.6 | | | 8.4 | □ | — | — |




## SXLコート2枚刃超硬コーナラウンディング
**SXL Coated 2-flute Carbide End Mill with Corner Rounding**

# SXL-ECR

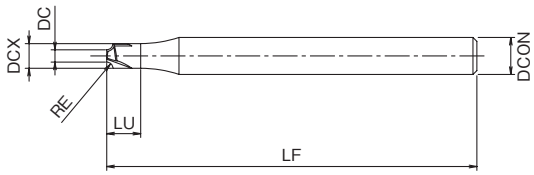
切削条件 Cutting Conditions | P702

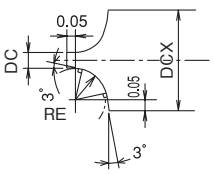


CARBIDE | SXL | R ±0.03 | SHRINK FIT

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×コーナ半径 DC × RE | 外径 DCX | 全長 LF | シャンク径 DCON | 首下長 LU | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.5×R0.15** | 0.9 | 45 | 4 | 1.4 | □ | — | — |
| | **0.5×R0.25** | 1.1 | | | 1.7 | □ | — | — |
| | **0.5×R0.35** | 1.3 | | | 2 | □ | — | — |
| | **0.5×R0.45** | 1.5 | | | 2.3 | □ | — | — |
| | **0.5×R0.55** | 1.7 | | | 2.6 | □ | — | — |
| | **0.5×R0.75** | 2.1 | | | 3.2 | □ | — | — |
| | **0.8×R1.25** | 3.4 | | | 5.1 | □ | — | — |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | |
| **DUR-ECR** | ○ | | ○ | ◎ | ◎ | ◎ | ○ | ○ | | | | ○ | ○ | |
| **SXL-ECR** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# DIAコート2枚刃超硬コーナラウンディング
**Diamond Coated 2-flute Carbide End Mill with Corner Rounding**

## DIA-ECR

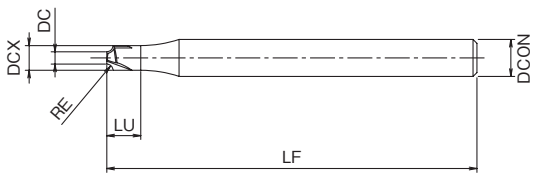
切削条件 Cutting Conditions | **P701-2**

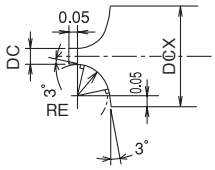


CARBIDE | DIA | R ±0.03 | SHRINK FIT

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 先端径×コーナ半径 DC × RE | 外径 DCX | 全長 LF | シャンク径 DCON | 首下長 LU | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **0.5×R0.3** | 1.2 | 45 | 4 | 1.8 | — | □ | — | — |
| | **0.5×R0.35** | 1.3 | | | 2 | | □ | — | — |
| | **0.5×R0.4** | 1.4 | | | 2.1 | | □ | — | — |
| | **0.5×R0.45** | 1.5 | | | 2.3 | | □ | — | — |
| | **0.5×R0.5** | 1.6 | | | 2.4 | | □ | — | — |
| | **0.5×R0.55** | 1.7 | | | 2.6 | | □ | — | — |
| | **0.5×R0.6** | 1.8 | | | 2.7 | | □ | — | — |
| | **0.5×R0.65** | 1.9 | | | 2.9 | | □ | — | — |
| | **0.5×R0.7** | 2 | | | 3 | | □ | — | — |
| | **0.5×R0.75** | 2.1 | | | 3.2 | | □ | — | — |
| | **0.8×R0.8** | 2.5 | | | 3.8 | | □ | — | — |
| | **0.8×R0.85** | 2.6 | | | 3.9 | | □ | — | — |
| | **0.8×R0.9** | 2.7 | | | 4.1 | | □ | — | — |
| | **0.8×R0.95** | 2.8 | | | 4.2 | | □ | — | — |
| | **0.8×R1** | 2.9 | | | 4.4 | | □ | — | — |
| | **0.8×R1.25** | 3.4 | | | 5.1 | | □ | — | — |
| | **1.5×R1.5** | 4.6 | 50 | 6 | 6.9 | | □ | — | — |
| | **1.5×R1.75** | 5.1 | | | 7.6 | | □ | — | — |
| | **1.5×R2** | 5.6 | | | 8.4 | | □ | — | — |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **DIA-ECR** | | | | | | | | | | ◎ | ◎ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## FXコート2枚刃超硬コーナラウンディング
**FX Coated 2-flute Carbide End Mill with Corner Rounding**

## FX-ECR
切削条件 Cutting Conditions | P702



R面取り専用工具です。高靭性超硬合金を母材に採用しており、幅広い被削材に対応します。
Special tool for corner radius operations. Special Carbon steel with high rigidity works wide range of materials.

CARBIDE | FX | R ±0.03 | SHRINK FIT | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×コーナr DC × RE | 外径 DCX | 全長 LF | シャンク径 DCON | 首下長 LU | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8500602 | **0.5 × R0.1** | 0.8 | 45 | 4 | 1.2 | D | △ | 13 | 17,200 |
| 8500604 | **0.5 × R0.2** | 1 | | | 1.5 | | △ | 13 | 14,800 |
| 8500606 | **0.5 × R0.3** | 1.2 | | | 1.8 | | △ | 13 | 14,800 |
| 8500608 | **0.5 × R0.4** | 1.4 | | | 2.1 | | △ | 13 | 13,500 |
| 8500610 | **0.5 × R0.5** | 1.6 | | | 2.4 | | △ | 13 | 11,800 |
| 8500612 | **0.5 × R0.6** | 1.8 | | | 2.7 | | △ | 13 | 10,900 |
| 8500613 | **0.5 × R0.65** | 1.9 | | | 2.9 | | △ | 13 | 10,900 |
| 8500614 | **0.5 × R0.7** | 2 | | | 3 | | △ | 13 | 10,900 |
| 8500616 | **0.8 × R0.8** | 2.5 | | | 3.8 | | △ | 13 | 10,900 |
| 8500617 | **0.8 × R0.85** | 2.6 | | | 3.9 | | △ | 13 | 10,900 |
| 8500618 | **0.8 × R0.9** | 2.7 | | | 4.1 | | △ | 13 | 10,900 |
| 8500619 | **0.8 × R0.95** | 2.8 | | | 4.2 | | △ | 14 | 10,900 |
| 8500620 | **0.8 × R1** | 2.9 | | | 4.4 | | △ | 14 | 11,800 |
| 8500630 | **1.5 × R1.5** | 4.6 | 50 | 6 | 6.9 | | △ | 24 | 13,500 |
| 8500640 | **1.5 × R2** | 5.6 | | | 8.4 | | △ | 25 | 13,500 |

## 銅·アルミ合金面取り用2枚刃超硬エンドミル
**2-flute Carbide End Mill for Chamfering Copper and Aluminum Alloys**

## CA-SCC
切削条件 Cutting Conditions | P681

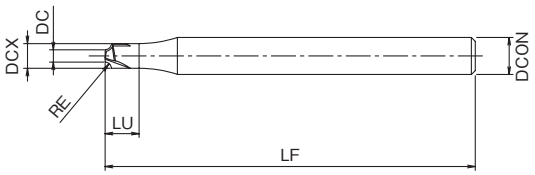


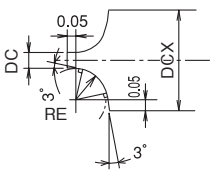
切れ味の良いねじれ刃の採用により、バリが少ないきれいな加工面が得られます。
Good surface finish provided by helix sharp cutting edge.

CARBIDE | SHRINK FIT | CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8501283 | **0.8 × 45° × 3** | 50 | 1.1 | 3 | D | ● | 10 | 14,400 |
| 8501284 | **0.8 × 45° × 4** | | 1.6 | 4 | | ● | 17 | 15,500 |
| 8501306 | **1 × 45° × 6** | 60 | 2.5 | 6 | | ● | 31 | 16,500 |
| 8501308 | **1 × 45° × 8** | 70 | 3.5 | 8 | | ● | 52 | 19,300 |
| 8501310 | **1 × 45° × 10** | 80 | 4.5 | 10 | | ● | 92 | 27,800 |
| 8501312 | **1 × 45° × 12** | 90 | 5.5 | 12 | | ● | 150 | 32,400 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| **FX-ECR** | ◎ | | ◎ | ○ | ○ | | ○ | ◎ | ○ | ○ | | ○ | ○ | |
| **CA-SCC** | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 銅･アルミ合金面取り用2枚刃超硬エンドミル ロングシャンク

**2-flute Carbide End Mill with Long Shank for Chamfering Copper and Aluminum Alloys**

## CA-LS-SCC

切削条件 Cutting Conditions | P682



深い部分の加工に対応するロングシャンクタイプです。ねじれ刃を採用しているので突き出し量が大きくてもビビリが発生しません。

Long type for deep part milling. Spiral teeth design eliminates vibration with long overhang.

CAD

CARBIDE　SHRINK FIT

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8501883 | **0.8 × 45° × 3** | 80 | 1.1 | 3 | D | ● | 12 | 15,600 |
| 8501884 | **0.8 × 45° × 4** | 100 | 1.6 | 4 | | ● | 25 | 17,700 |
| 8501906 | **1 × 45° × 6** | | 2.5 | 6 | | ● | 47 | 18,700 |
| 8501908 | **1 × 45° × 8** | 130 | 3.5 | 8 | | ● | 97 | 23,500 |
| 8501910 | **1 × 45° × 10** | 150 | 4.5 | 10 | | ● | 177 | 33,600 |
| 8501912 | **1 × 45° × 12** | 160 | 5.5 | 12 | | ● | 264 | 39,500 |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1167 を参照下さい。 See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| CA-LS-SCC | | | | | | | | | ◎ | ◎ | | | | ○ |

**在庫記号について** Inventory symbols

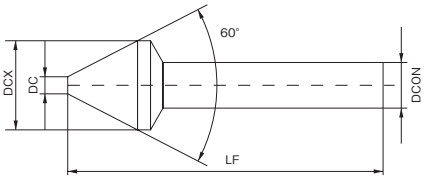
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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# FXコート3枚刃カウンターシンク
**FX Coated 3-flute Countersink**

## FX-MG-CS×60

切削条件 Cutting Conditions | P700






CARBIDE | FX | ±15′

CAD

60°シリーズ 60°Series

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 先端径 DC | 大端径 DCX | 全長 LF | シャンク径 DCON | テーパ部長 Lt | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 9139063 | 6.3 × 6 × 2.0 × 55 | 1 | 6.3 | 55 | 6 | (4.59) | C | ● | 27 | 27,500 |
| 9139083 | 8.3 × 6 × 3.0 × 55 | 2.5 | 8.3 | | | (5.02) | | ● | 29 | 31,000 |
| 9139104 | 10.4 × 8 × 3.0 × 65 | 2.6 | 10.4 | 65 | 8 | (6.75) | | ● | 51 | 39,900 |
| 9139124 | 12.4 × 10 × 4.0 × 65 | 2.5 | 12.4 | | 10 | (8.57) | | ● | 73 | 41,100 |
| 9139165 | 16.5 × 10 × 4.0 × 70 | 3.1 | 16.5 | 70 | | (11.6) | | ● | 95 | 48,600 |
| 9139205 | 20.5 × 12 × 5.0 × 80 | 3.5 | 20.5 | 80 | 12 | (14.72) | | ● | 153 | 55,000 |
| 9139250 | 25 × 12 × 5.0 × 80 | 3.8 | 25 | | | (18.36) | | ● | 181 | 79,800 |




工具自販機 MONOlithbox モノリスボックス

※詳細はこちら▶ Scan for details

「労働人口減少の2030年問題」対策を! 自動化・省人化に貢献します



OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| FX-MG-CS×60 | ◎ | | ○ | | | | | ○ | ◎ | ○ | ○ | | ○ | ○ |

**在庫記号について** Inventory symbols

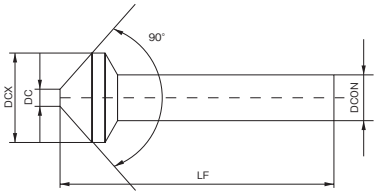
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# FXコート3枚刃カウンターシンク
**FX Coated 3-flute Countersink**

## FX-MG-CS×90

切削条件 Cutting Conditions | P700






CAD

CARBIDE | FX | ±15′

### 90°シリーズ 90°Series

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 先端径 DC | 大端径 DCX | 全長 LF | シャンク径 DCON | テーパ部長 Lt | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 9149063 | 6.3 × 6 × 2.0 × 55 | 1 | 6.3 | 55 | 6 | (2.65) | C | ● | 27 | 27,500 |
| 9149083 | 8.3 × 6 × 2.5 × 55 | 2.5 | 8.3 | | | (2.9) | | ● | 28 | 31,000 |
| 9149104 | 10.4 × 8 × 3.0 × 65 | 2.6 | 10.4 | 65 | 8 | (3.9) | | ● | 52 | 39,900 |
| 9149124 | 12.4 × 10 × 4.0 × 65 | 2.5 | 12.4 | | 10 | (4.95) | | ● | 76 | 41,100 |
| 9149165 | 16.5 × 10 × 4.0 × 70 | 3.1 | 16.5 | 70 | | (6.7) | | ● | 94 | 48,600 |
| 9149205 | 20.5 × 12 × 5.0 × 70 | 3.8 | 20.5 | | 12 | (8.35) | | ● | 138 | 55,000 |
| 9149250 | 25 × 12 × 5.0 × 70 | | 25 | | | (10.6) | | ● | 159 | 79,800 |



工具自販機 MONOlithbox モノリスボックス
※詳細はこちら▶ Scan for details
「労働人口減少の2030年問題」対策を! 自動化・省人化に貢献します

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FX-MG-CS×90 | ◎ | | ○ | | | | | ○ | ◎ | ○ | ○ | | ○ | ○ |

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- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

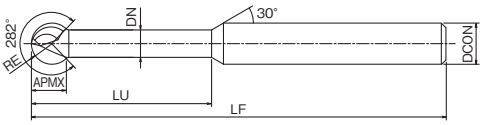
NEW SIZES

# 面取り用WXLコート超硬Qボールエンドミル
**WXL Coated Carbide Q Ball End Mill for Chamfering**

## HY-QCC

切削条件 Cutting Conditions | P701






CARBIDE | WXL | R ±0.02 | SHRINK FIT

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径 RE | 全長 LF | 刃長 APMX | 首下長 LU | シャンク径 DCON | 首径 DN | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ※ 9200213 | **R1.15** | 60 | 2.04 | 12.5 | 3 | 1.4 | 3 | C | ● | — | 10,500 |
| 9200214 | **R1.4** | | 2.49 | 15 | 4 | 1.7 | | | ● | 12 | 10,900 |
| ※ 9200216 | **R1.65** | | 2.93 | 17.5 | | 2 | | | ● | — | 10,900 |
| 9200219 | **R1.9** | | 3.38 | 20 | | 2.4 | | | ● | 11 | 10,900 |
| 9200224 | **R2.4** | 70 | 4.27 | 25 | 6 | 3 | 4 | | ● | 24 | 12,100 |
| ※ 9200229 | **R2.9** | | 5.15 | 30 | | 3.5 | | | ● | — | 12,100 |
| 9200239 | **R3.9** | 100 | 6.93 | 40 | 8 | 4.7 | | | ● | 59 | 18,800 |

※＝NEW SIZES

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | | | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | |
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | |
| HY-QCC | ◎ | | ○ | | | | ○ | ○ | | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

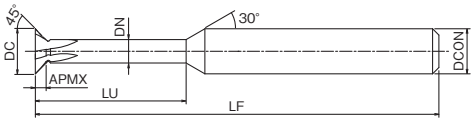
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 裏面取り用WXLコート超硬エンドミル
**WXL Coated Carbide End Mill for Back Chamfering**

## HY-BCC

切削条件 Cutting Conditions | **P701**






CARBIDE | WXL | ±30′ | SHRINK FIT | 30° 先端で At the tip

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×テーパ半角×首径×首下長 DC × KAPR × DN × LU | 全長 LF | 刃長 APMX | 首下長 LU | シャンク径 DCON | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 9200196 | **3.9 × 45° × 2.4 × 16** | 45 | 0.75 | 16 | 4 | 2.4 | C | ● | 9 | 8,640 |
| 9200200 | **4.9 × 45° × 2.8 × 20** | 50 | 1.05 | 20 | 6 | 2.8 | | ● | 17 | 10,400 |
| 9200204 | **5.9 × 45° × 3.4 × 24** | 60 | 1.25 | 24 | | 3.4 | | ● | 21 | 11,600 |
| 9200212 | **7.9 × 45° × 4.5 × 32** | 70 | 1.7 | 32 | 8 | 4.5 | | ● | 39 | 14,500 |

形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HY-BCC | ◎ | | ○ | | | | ○ | ○ | | ○ | | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## DIAコート超硬ルーターファインクロスニック
**Diamond Coated Fine Nicked Carbide Router**

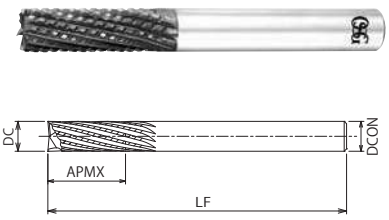
# DIA-BNC

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT

CAD

Type 1 Non End Cutting | Type 2 Bur End | Type 3 End Mill Cut | Type 4 Drill Point




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 刃数 ZEFP | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 タイプ Type | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3.175-2Z** | **1/8** | **3.175** | 10 | 60 | 1/8 | 3.175 | 6 | 2 | 3 | 右 Right | – | □ | – | – |
| 8809001 | **4** | – | **4** | 12 | 62 | – | 4 | | | | | A | ● | 13 | 26,500 |
| 8809002 | **6** | – | **6** | 18 | 68 | – | 6 | 8 | 5 | 2 | | | ● | 29 | 29,200 |
| | **6.35-2Z** | **1/4** | **6.35** | 19 | 69 | 1/4 | 6.35 | | 2 | 3 | | – | □ | – | – |
| | **6.35-7Z** | **1/4** | **6.35** | | | | | | 7 | 2 | | | □ | – | – |
| 8809003 | **8** | – | **8** | 24 | 74 | – | 8 | 10 | | | | A | ● | 53 | 43,600 |
| | **9.525-2Z** | **3/8** | **9.525** | 28 | 78 | 3/8 | 9.525 | 12 | 2 | 3 | | – | □ | – | – |
| | **9.525-7Z** | **3/8** | **9.525** | | | | | | 7 | 2 | | | □ | – | – |
| 8809004 | **10** | – | **10** | 30 | 80 | – | 10 | | | | | A | ● | 95 | 60,500 |
| 8809005 | **12** | – | **12** | 36 | 86 | – | 12 | 14 | | | | | ● | 136 | 93,000 |
| | **12.7-2Z** | **1/2** | **12.7** | 38 | 88 | 1/2 | 12.7 | | 2 | 3 | | – | □ | – | – |
| | **12.7-7Z** | **1/2** | **12.7** | | | | | | 7 | 2 | | | □ | – | – |
| 8809012 | **6-L** | – | **6** | 18 | | – | 6 | 10 | – | 1 | 左 Left | A | ● | 41 | 29,900 |
| 8809013 | **8-L** | – | **8** | 24 | 94 | – | 8 | 14 | – | | | | ● | 73 | 44,500 |

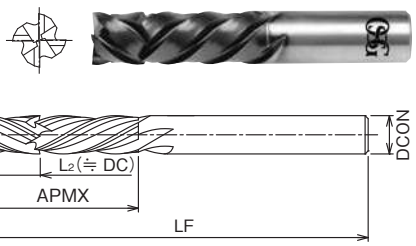
## DIAコート4枚刃超硬ヘリングボーンカッタ
**Diamond Coated Carbide Router for CFRP Herringbone Type**

# DIA-HBC4

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT | 30°

CAD




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 刃数 ZEFP | 底刃 ZEFF | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3.175** | **1/8** | **3.175** | 10 | 60 | 1/8 | 3.175 | 4 | 4 | 左右 Left・Right | – | □ | – | – |
| | **4** | – | **4** | 12 | 62 | – | 4 | | | | | □ | – | – |
| 8809022 | **6** | – | **6** | 15 | 65 | – | 6 | | | | A | ● | 27 | 23,500 |
| | **6** | – | **6** | 18 | 68 | – | | | | | – | □ | – | – |
| | **6.35** | **1/4** | **6.35** | 19 | 69 | 1/4 | 6.35 | | | | | □ | – | – |
| 8809023 | **8** | – | **8** | 20 | 70 | – | 8 | | | | A | ● | 50 | 35,300 |
| | **8** | – | **8** | 24 | 74 | – | | | | | – | □ | – | – |
| | **9.525** | **3/8** | **9.525** | 28 | 78 | 3/8 | 9.525 | | | | | □ | – | – |
| 8809024 | **10** | – | **10** | 25 | 75 | – | 10 | | | | A | ● | 81 | 48,900 |
| | **10** | – | **10** | 30 | 80 | – | | | | | – | □ | – | – |
| | **12** | – | **12** | 36 | 86 | – | 12 | | | | | □ | – | – |
| | **12.7** | **1/2** | **12.7** | 38 | 88 | 1/2 | 12.7 | | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | CFRP |
| **DIA-BNC** | | | | | | | | | | | | | | | | | ◎ |
| **DIA-HBC4** | | | | | | | | | | | | | | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

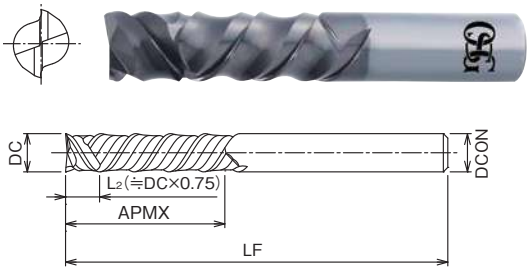
## DIAコート超硬ヘリングボーンカッタ60°
**Diamond Coated Carbide Router Herringbone Type (60°)**

# DIA-HBC60

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT | 60°

CAD




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 刃数 ZEFP | 底刃 ZEFF | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8809191 | **6** | – | **6** | 18 | 68 | – | 6 | 2 | 2 | 左右 Left・Right | A | ● | 30 | 25,600 |
| 8809193 | **8** | – | **8** | 24 | 74 | – | 8 | | | | | ● | 54 | 37,000 |
| 8809195 | **10** | – | **10** | 30 | 80 | – | 10 | | | | | ● | 89 | 50,000 |

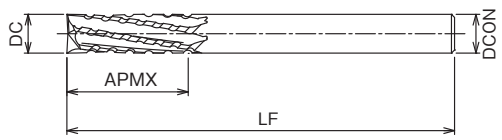
## DIAコート超硬ルーター高能率コースクロスニック
**Diamond Coated Coarse Nicked Carbide Router**

# DIA-CNC

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 刃数 ZEFP | 底刃 ZEFF | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3.175** | **1/8** | **3.175** | 10 | 60 | 1/8 | 3.175 | 4 | 2 | 右 Right | – | □ | – | – |
| | **4** | – | **4** | 12 | 62 | – | 4 | | | | | □ | – | – |
| | **6** | – | **6** | 18 | 68 | – | 6 | 6 | | | | □ | – | – |
| | **6.35** | **1/4** | **6.35** | 19 | 69 | 1/4 | 6.35 | | | | | □ | – | – |
| | **8** | – | **8** | 24 | 74 | – | 8 | | | | | □ | – | – |
| | **9.525** | **3/8** | **9.525** | 28 | 78 | 3/8 | 9.525 | | | | | □ | – | – |
| | **10** | – | **10** | 30 | 80 | – | 10 | | | | | □ | – | – |
| | **12** | – | **12** | 36 | 86 | – | 12 | 8 | | | | □ | – | – |
| | **12.7** | **1/2** | **12.7** | 38 | 88 | 1/2 | 12.7 | | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | CFRP |
| **DIA-HBC60** | | | | | | | | | | | | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## DIAコート超硬綾目ルーター底刃有り
**Diamond Coated Diamond Cut Carbide Router with End Mill Cut**

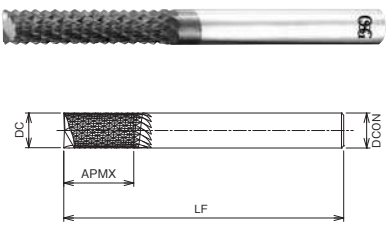
# DIA-DCR

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT

CAD

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON (inch) | シャンク径 DCON (mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8809061 | **3.175** | **1/8** | **3.175** | 11.1 | 38.1 | 1/8 | 3.175 | 2 | 3 | A | ● | 6 | 18,100 |
| | **3.175-BE** | **1/8** | **3.175** | | | | | | 2 | – | □ | – | – |
| 8809062 | **6.35** | **1/4** | **6.35** | 19.1 | 50.8 | 1/4 | 6.35 | | 3 | A | ● | 24 | 19,000 |
| | **6.35-BE** | **1/4** | **6.35** | | | | | 7 | 2 | – | □ | – | – |
| | **9.525** | **3/8** | **9.525** | 25.4 | 63.5 | 3/8 | 9.525 | 2 | 3 | – | □ | – | – |
| | **9.525-BE** | **3/8** | **9.525** | | | | | 7 | 2 | | □ | – | – |
| | **12.7** | **1/2** | **12.7** | | 76.2 | 1/2 | 12.7 | 2 | 3 | | □ | – | – |

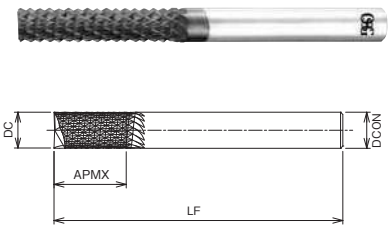
## DIAコート超硬綾目ルーター底刃無し
**Diamond Coated Diamond Cut Carbide Router with No End Cut**

# DIA-DCR-N

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON (inch) | シャンク径 DCON (mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3.175** | **1/8** | **3.175** | 11 | 38.1 | 1/8 | 3.175 | – | 1 | – | □ | – | – |
| | **6.35** | **1/4** | **6.35** | 19 | 50.8 | 1/4 | 6.35 | | | | □ | – | – |
| | **9.525** | **3/8** | **9.525** | 25 | 63.5 | 3/8 | 9.525 | | | | □ | – | – |
| | **12.7** | **1/2** | **12.7** | | 76.2 | 1/2 | 12.7 | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | | CFRP |
| **DIA-DCR** | | | | | | | | | | | | | | | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

## DIAコート超硬綾目ルーター底刃有り
**Diamond Coated Diamond Cut Carbide Router with End Mill Cut**

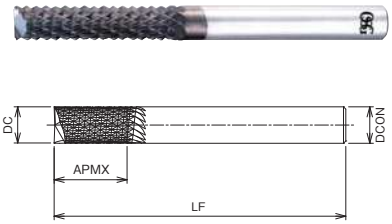
# DIA-DCE

切削条件 Cutting Conditions | **P702**

CARBIDE | DIA | SHRINK FIT

CAD

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON (inch) | シャンク径 DCON (mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 End Cutting Teeth タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 -2Z | – | 2 | 8 | 45 | – | 4 | | | | □ | – | – |
| | 2.5 -2Z | – | 2.5 | 10 | | – | | | | | □ | – | – |
| | 3 -2Z | – | 3 | | 60 | – | 6 | | | | □ | – | – |
| | 3.5 -2Z | – | 3.5 | 12 | | – | | 2 | 3 | – | □ | – | – |
| | 4 -2Z | – | 4 | 16 | | – | | | | | □ | – | – |
| | 4.5 -2Z | – | 4.5 | | | – | | | | | □ | – | – |
| | 5 -2Z | – | 5 | 19 | | – | | | | | □ | – | – |
| | 6 -2Z | – | 6 | | | – | | | | | □ | – | – |
| 8809201 | 6 -BE | – | 6 | | | – | | 7 | 2 | A | ● | 28 | 28,800 |
| | 7 -2Z | – | 7 | 22 | 65 | – | 8 | 2 | 3 | – | □ | – | – |
| | 8 -2Z | – | 8 | 26 | 70 | – | | | | | □ | – | – |
| 8809203 | 8 -BE | – | 8 | | | – | | 7 | 2 | A | ● | 51 | 35,400 |
| | 9 -2Z | – | 9 | | 75 | – | 10 | 2 | 3 | – | □ | – | – |
| | 10 -2Z | – | 10 | 32 | 80 | – | | | | | □ | – | – |
| 8809205 | 10 -BE | – | 10 | | | – | | 7 | 2 | A | ● | 86 | 52,500 |
| | 12 -2Z | – | 12 | 38 | 90 | – | 12 | 2 | 3 | – | □ | – | – |
| | 12 -BE | – | 12 | 36 | | – | | 7 | 2 | | □ | – | – |

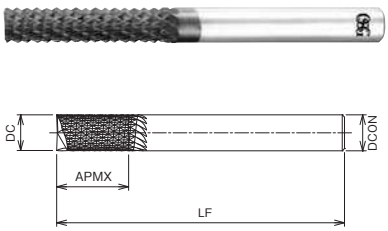
## DIAコート超硬綾目ルーター底刃無し
**Diamond Coated Diamond Cut Carbide Router with No End Cut**

# DIA-DCE-N

切削条件 Cutting Conditions | **P702**

CARBIDE | DIA | SHRINK FIT

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON (inch) | シャンク径 DCON (mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 End Cutting Teeth タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | – | 2 | 8 | 45 | – | 4 | | | | □ | – | – |
| | 2.5 | – | 2.5 | 10 | | – | | | | | □ | – | – |
| | 3 | – | 3 | | 60 | – | 6 | | | | □ | – | – |
| | 3.5 | – | 3.5 | 12 | | – | | | | | □ | – | – |
| | 4 | – | 4 | 16 | | – | | | | | □ | – | – |
| | 4.5 | – | 4.5 | | | – | | | | | □ | – | – |
| | 5 | – | 5 | 19 | | – | | – | 1 | – | □ | – | – |
| | 6 | – | 6 | | | – | | | | | □ | – | – |
| | 7 | – | 7 | 22 | 65 | – | 8 | | | | □ | – | – |
| | 8 | – | 8 | 26 | 70 | – | | | | | □ | – | – |
| | 9 | – | 9 | | 75 | – | 10 | | | | □ | – | – |
| | 10 | – | 10 | 32 | 80 | – | | | | | □ | – | – |
| | 12 | – | 12 | 38 | 90 | – | 12 | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ～55HRC | ～60HRC | ～65HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material CFRP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DIA-DCE** | | | | | | | | | | | | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

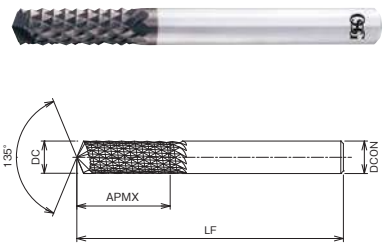
## DIAコート超硬綾目ルーター底刃ドリル仕様
**Diamond Coated Diamond Cut Carbide Router with Drill Point**

# DIA-DCE-D

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 End Cutting Teeth タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2** | – | **2** | 8 | 45 | – | 4 | 2 | 4 | – | □ | – | – |
| | **2.5** | – | **2.5** | 10 | | – | | | | | □ | – | – |
| | **3** | – | **3** | 10 | 60 | – | 6 | | | | □ | – | – |
| | **3.5** | – | **3.5** | 12 | | – | | | | | □ | – | – |
| | **4** | – | **4** | 16 | | – | | | | | □ | – | – |
| | **4.5** | – | **4.5** | | | – | | | | | □ | – | – |
| | **5** | – | **5** | 19 | | – | | | | | □ | – | – |
| | **6** | – | **6** | | | – | | | | | □ | – | – |
| | **7** | – | **7** | 22 | 65 | – | 8 | | | | □ | – | – |
| | **8** | – | **8** | 26 | 70 | – | | | | | □ | – | – |
| | **9** | – | **9** | | 75 | – | 10 | | | | □ | – | – |
| | **10** | – | **10** | 32 | 80 | – | | | | | □ | – | – |
| | **12** | – | **12** | 38 | 90 | – | 12 | | | | □ | – | – |

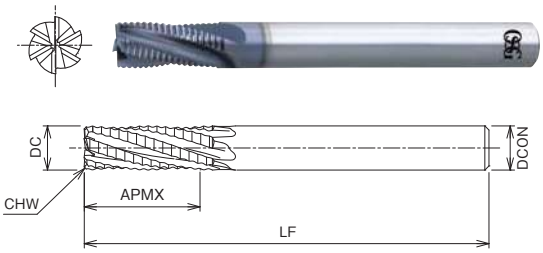
## 荒用DIAコート超硬ルーターラフィングタイプ
**Diamond Coated Carbide Router for Roughing**

# DIA-REC

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT

CAD




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 刃数 ZEFP | 底刃 ZEFF | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3.175 -3F** | **1/8** | **3.175** | 10 | 60 | 1/8 | 3.175 | 3 | 3 | 右 Right | – | □ | – | – |
| | **4 -3F** | – | **4** | 12 | 62 | – | 4 | | | | | □ | – | – |
| 8809161 | **6 -4F** | – | **6** | 18 | 68 | – | 6 | 4 | 4 | | A | ● | 28 | 25,600 |
| | **6.35 -4F** | **1/4** | **6.35** | 19 | 69 | 1/4 | 6.35 | | | | – | □ | – | – |
| | **8 -4F** | – | **8** | 24 | 74 | – | 8 | | | | | □ | – | – |
| 8809163 | **8 -6F** | – | **8** | | | – | 8 | 6 | 6 | | A | ● | 52 | 42,200 |
| | **9.525 -4F** | **3/8** | **9.525** | 28 | 78 | 3/8 | 9.525 | 4 | 4 | | – | □ | – | – |
| | **10 -4F** | – | **10** | 30 | 80 | – | 10 | | | | | □ | – | – |
| 8809165 | **10 -6F** | – | **10** | | | – | 10 | 6 | 6 | | A | ● | 85 | 62,300 |
| | **12 -4F** | – | **12** | 36 | 86 | – | 12 | 4 | 4 | | – | □ | – | – |
| | **12.7 -4F** | **1/2** | **12.7** | 38 | 88 | 1/2 | 12.7 | | | | | □ | – | – |
| | **6 -L** | – | **6** | 18 | 80 | – | 6 | 4 | – | 左 Left | | □ | – | – |
| | **8 -L** | – | **8** | 24 | 90 | – | 8 | | – | | | □ | – | – |
| | **10 -L** | – | **10** | 30 | 100 | – | 10 | | – | | | □ | – | – |
| | **12 -L** | – | **12** | 36 | 110 | – | 12 | | – | | | □ | – | – |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

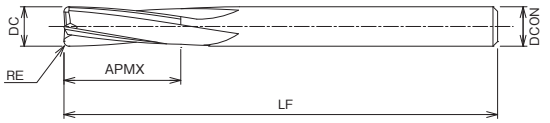
# DIAコート超硬ルーター底刃コーナR付
**Diamond Coated Carbide Router with Corner Radius**

## DIA-MRC

切削条件 Cutting Conditions | **P702**

CARBIDE | DIA | SHRINK FIT






(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 刃数 ZEFP | 底刃 ZEFF | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.175 XR 0.4 | 1/8 | 3.175 | 10 | 60 | 1/8 | 3.175 | 4 | 4 | 右 Right | – | □ | – | – |
| | 4 XR 0.4 | – | 4 | 12 | 62 | – | 4 | | | | | □ | – | – |
| | 4 XR 0.7 | – | 4 | | | – | | | | | | □ | – | – |
| | 6 XR 0.4 | – | 6 | 18 | 68 | – | 6 | | | | | □ | – | – |
| | 6 XR 0.7 | – | 6 | | | – | | | | | | □ | – | – |
| | 6 XR 1 | – | 6 | | | – | | | | | | □ | – | – |
| | 6.35 XR 0.4 | 1/4 | 6.35 | 19 | 69 | 1/4 | 6.35 | | | | | □ | – | – |
| | 6.35 XR 0.7 | 1/4 | 6.35 | | | | | | | | | □ | – | – |
| | 6.35 XR 1 | 1/4 | 6.35 | | | | | | | | | □ | – | – |
| | 8 XR 0.4 | – | 8 | 24 | 74 | – | 8 | | | | | □ | – | – |
| | 8 XR 0.7 | – | 8 | | | – | | | | | | □ | – | – |
| | 8 XR 1 | – | 8 | | | – | | | | | | □ | – | – |
| | 9.525 XR 0.4 | 3/8 | 9.525 | 28 | 78 | 3/8 | 9.525 | | | | | □ | – | – |
| | 9.525 XR 0.7 | 3/8 | 9.525 | | | | | | | | | □ | – | – |
| | 9.525 XR 1 | 3/8 | 9.525 | | | | | | | | | □ | – | – |
| | 10 XR 0.4 | – | 10 | 30 | 80 | – | 10 | | | | | □ | – | – |
| | 10 XR 0.7 | – | 10 | | | – | | | | | | □ | – | – |
| | 10 XR 1 | – | 10 | | | – | | | | | | □ | – | – |
| | 12 XR 0.4 | – | 12 | 36 | 86 | – | 12 | | | | | □ | – | – |
| | 12 XR 0.7 | – | 12 | | | – | | | | | | □ | – | – |
| | 12 XR 1 | – | 12 | | | – | | | | | | □ | – | – |
| | 12.7 XR 0.4 | 1/2 | 12.7 | 38 | 88 | 1/2 | 12.7 | | | | | □ | – | – |
| | 12.7 XR 0.7 | 1/2 | 12.7 | | | | | | | | | □ | – | – |
| | 12.7 XR 1 | 1/2 | 12.7 | | | | | | | | | □ | – | – |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item

○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品 (在庫をご確認下さい。) Discontinued item

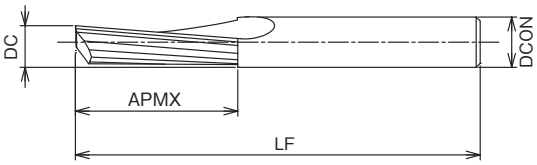
## DIAコート1枚刃超硬ルーター弱ねじれ
**Diamond Coated Single-flute Low Helix Carbide Router**

# DIA-COE

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT






(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON (inch) | シャンク径 DCON (mm) | 刃数 ZEFP | 底刃 ZEFF | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | – | 2 | 8 | 45 | – | 4 | 1 | 1 | 右 Right | – | □ | – | – |
| | 2.5 | – | 2.5 | 10 | | – | | | | | | □ | – | – |
| | 3 | – | 3 | | 60 | – | 6 | | | | | □ | – | – |
| | 3.5 | – | 3.5 | 12 | | – | | | | | | □ | – | – |
| | 4 | – | 4 | 16 | | – | | | | | | □ | – | – |
| | 4.5 | – | 4.5 | | | – | | | | | | □ | – | – |
| | 5 | – | 5 | 19 | | – | | | | | | □ | – | – |
| | 6 | – | 6 | | | – | | | | | | □ | – | – |
| | 7 | – | 7 | 22 | 65 | – | 8 | | | | | □ | – | – |
| | 8 | – | 8 | 26 | 70 | – | | | | | | □ | – | – |
| | 9 | – | 9 | | 75 | – | 10 | | | | | □ | – | – |
| | 10 | – | 10 | 32 | 80 | – | | | | | | □ | – | – |
| | 12 | – | 12 | 38 | 90 | – | 12 | | | | | □ | – | – |

## 仕上げ用DIAコート多刃超硬ルーター
**Diamond Coated Multi-flute Carbide Router for Finishing**

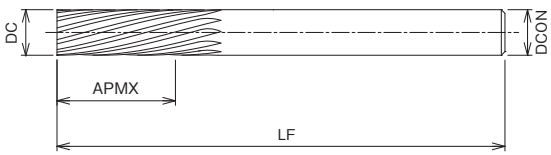
# DIA-MFC

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT

CAD






(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON (inch) | シャンク径 DCON (mm) | 刃数 ZEFP | 底刃 ZEFF | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.175 -R | 1/8 | 3.175 | 10 | 60 | 1/8 | 3.175 | 6 | – | 右 Right | – | □ | – | – |
| | 4 -R | – | 4 | 12 | 62 | – | 4 | | | | | □ | – | – |
| | 6 -R | – | 6 | 18 | 68 | – | 6 | 8 | | | | □ | – | – |
| | 6.35 -R | 1/4 | 6.35 | 19 | 69 | 1/4 | 6.35 | | | | | □ | – | – |
| | 8 -R | – | 8 | 24 | 74 | – | 8 | 10 | | | | □ | – | – |
| | 9.525 -R | 3/8 | 9.525 | 28 | 78 | 3/8 | 9.525 | 12 | | | | □ | – | – |
| | 10 -R | – | 10 | 30 | 80 | – | 10 | | | | | □ | – | – |
| | 12 -R | – | 12 | 36 | 86 | – | 12 | 14 | | | | □ | – | – |
| | 12.7 -R | 1/2 | 12.7 | 38 | 88 | 1/2 | 12.7 | | | | | □ | – | – |
| | 3.175 -L | 1/8 | 3.175 | 10 | 75 | 1/8 | 3.175 | 6 | | 左 Left | | □ | – | – |
| | 4 -L | – | 4 | 12 | | – | 4 | | | | | □ | – | – |
| 8809171 | 6 -L | – | 6 | 18 | 80 | – | 6 | 8 | | | A | ● | 33 | 24,900 |
| | 6.35 -L | 1/4 | 6.35 | 19 | | 1/4 | 6.35 | | | | – | □ | – | – |
| 8809173 | 8 -L | – | 8 | 24 | 90 | – | 8 | 10 | | | A | ● | 67 | 35,000 |
| | 9.525 -L | 3/8 | 9.525 | 28 | 100 | 3/8 | 9.525 | 12 | | | – | □ | – | – |
| 8809175 | 10 -L | – | 10 | 30 | | – | 10 | | | | A | ● | 114 | 46,100 |
| | 12 -L | – | 12 | 36 | 110 | – | 12 | 14 | | | – | □ | – | – |
| | 12.7 -L | 1/2 | 12.7 | 38 | | 1/2 | 12.7 | | | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | CFRP |
| DIA-MFC | | | | | | | | | | | | | | | ◎ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

## 薄板トリミング用DIAコート超硬綾目ルーター 底刃無し

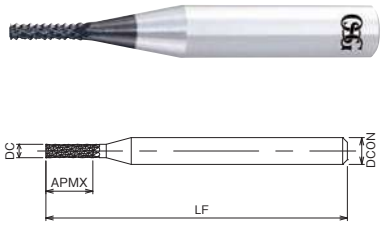
**Diamond Coated Diamond Cut Carbide Router with No End Cut for Trimming Laminates**

# DIA-TRE

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON (inch) | シャンク径 DCON (mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 End Cutting Teeth タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.5 | – | 1.5 | 3 | 45 | – | 4 | – | 1 | – | □ | – | – |
| | 1.8 | – | 1.8 | 3.6 | | – | | | | | □ | – | – |
| | 2 | – | 2 | 4 | | – | | | | | □ | – | – |
| | 2.5 | – | 2.5 | 5 | | – | | | | | □ | – | – |
| | 3 | – | 3 | 6 | | – | | | | | □ | – | – |

## 薄板トリミング用DIAコート超硬綾目ルーター 底刃ドリル仕様

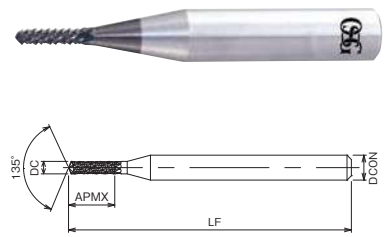
**Diamond Coated Diamond Cut Carbide Router with Drill Point for Trimming Laminates**

# DIA-TRE-D

切削条件 Cutting Conditions | P702

CARBIDE | DIA | SHRINK FIT

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON (inch) | シャンク径 DCON (mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 End Cutting Teeth タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.5 | – | 1.5 | 3 | 45 | – | 4 | 2 | 4 | – | □ | – | – |
| | 1.8 | – | 1.8 | 3.6 | | – | | | | | □ | – | – |
| | 2 | – | 2 | 4 | | – | | | | | □ | – | – |
| | 2.5 | – | 2.5 | 5 | | – | | | | | □ | – | – |
| | 3 | – | 3 | 6 | | – | | | | | □ | – | – |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

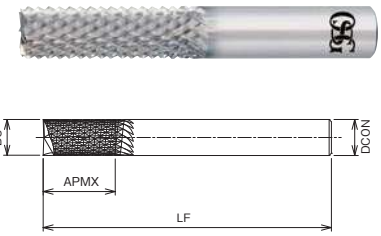
## 超硬綾目ルーター（インチ）
**Diamond Cut Carbide Router**

# DCR

切削条件 Cutting Conditions | **P702**

CARBIDE | SHRINK FIT

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3.175-BE** | **1/8** | **3.175** | 11.1 | 38.1 | 1/8 | 3.175 | 2 | 2 | – | □ | – | – |
| | **6.35 -BE** | **1/4** | **6.35** | 19.1 | 50.8 | 1/4 | 6.35 | 7 | | | □ | – | – |
| | **9.525-BE** | **3/8** | **9.525** | 25.4 | 63.5 | 3/8 | 9.525 | | | | □ | – | – |

## 超硬綾目ルーター（メートル）
**Diamond Cut Carbide Router**

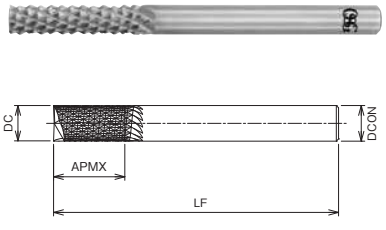
# DCE

切削条件 Cutting Conditions | **P702**

CAD

CARBIDE | SHRINK FIT

Type 1 Non End Cutting　Type 2 Bur End　Type 3 End Mill Cut　Type 4 Drill Point




（単位:mm）(Unit:mm)

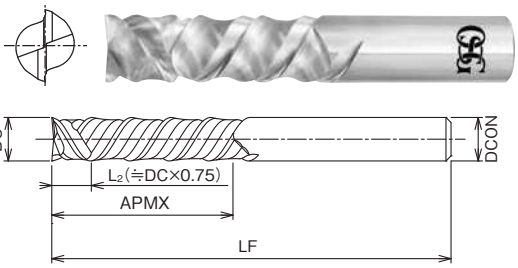
| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 底刃 End Cutting Teeth 刃数 ZEFF | 底刃 タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8809211 | **6-BE** | – | **6** | 19 | 60 | – | 6 | 7 | 2 | A | ● | 27 | 6,660 |
| 8809213 | **8-BE** | – | **8** | 26 | 70 | – | 8 | | | | ● | 48 | 8,830 |
| 8809215 | **10-BE** | – | **10** | 32 | 80 | – | 10 | | | | ● | 83 | 16,100 |
| | **12-BE** | – | **12** | 36 | 90 | – | 12 | | | – | □ | – | – |

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | CFRP |
| **DCE** | | | | | | | | | | | | | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 超硬ヘリングボーンカッタ60°
**Carbide Router Herringbone Type (60°)**




## HBC60
切削条件 Cutting Conditions | P702

CAD

CARBIDE | SHRINK FIT | 60°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 刃数 ZEFP | 底刃 ZEFF | ネジレ Helix | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8809181 | 6 | – | 6 | 18 | 68 | – | 6 | 2 | 2 | 左右 Left・Right | A | ● | 29 | 14,800 |
| 8809183 | 8 | – | 8 | 24 | 74 | – | 8 | | | | | ● | 52 | 19,200 |
| 8809185 | 10 | – | 10 | 30 | 80 | – | 10 | | | | | ● | 86 | 26,800 |
| 8809187 | 12 | – | 12 | 36 | 86 | – | 12 | | | | | ● | 134 | 34,500 |

## 電着ダイヤモンドルーター
**Electroplated Diamond Router for CFRP**



## ED-EM
切削条件 Cutting Conditions | P703

HSS

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | 首下長 LU | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 粒度 Grit Size | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.175 | 1/8 | 3.175 | 10 | 55 | 11 | 1/8 | 3.175 | #60 | – | □ | – | – |
| | 4 | – | 4 | 12 | 57 | 13 | – | 4 | | | □ | – | – |
| 8809042 | 6 | – | 6 | 18 | 63 | 19 | – | 6 | | C | ● | 17 | 5,780 |
| | 6.35 | 1/4 | 6.35 | 19 | 64 | 20 | 1/4 | 6.35 | | – | □ | – | – |
| 8809043 | 8 | – | 8 | 25 | 70 | 26 | – | 8 | | C | ● | 31 | 7,390 |
| | 9.525 | 3/8 | 9.525 | 28 | 73 | 29 | 3/8 | 9.525 | | – | □ | – | – |
| 8809044 | 10 | – | 10 | 30 | 75 | 31 | – | 10 | | C | ● | 51 | 9,710 |
| | 12 | – | 12 | 36 | 81 | 37 | – | 12 | | – | □ | – | – |
| | 12.7 | 1/2 | 12.7 | 38 | 83 | 39 | 1/2 | 12.7 | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel | 焼き入れ鋼 Hardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | ~45HRC | ~55HRC | ~60HRC | ~65HRC | ~35HRC | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | | | |
| | ~40HRC | | | | | | | ~350HB | | | | | | | | | CFRP |
| HBC60 | | | | | | | | | | | | | | | | | ○ |
| ED-EM | | | | | | | | | | | | | | | | | ◎ |

**在庫記号について** Inventory symbols

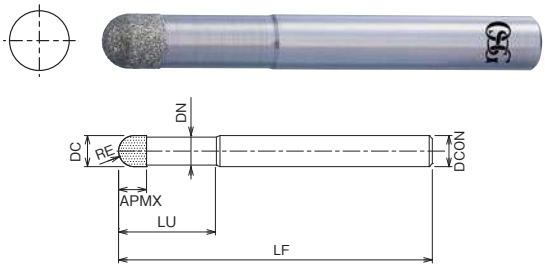
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
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# 電着ダイヤモンドボールエンドミル
**Electroplated Diamond Ball End**

## ED-EB

切削条件 Cutting Conditions | **P703**

CARBIDE




(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC (inch) | 外径 DC (mm) | 刃長 APMX | 全長 LF | 首下長 LU | 首径 DN | シャンク径 DCON(inch) | シャンク径 DCON(mm) | 粒度 Grit Size | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **R0.5** | – | **1** | 1 | 45 | 3 | 0.62 | – | 4 | #100 | – | □ | – | – |
| | **R1** | – | **2** | 2 | | 6 | 1.62 | – | | | | □ | – | – |
| | **R1.5** | – | **3** | 3 | | 9 | 2.62 | – | | | | □ | – | – |
| | **R2** | – | **4** | 4 | 50 | 12 | 3.62 | – | | | | □ | – | – |
| | **R3** | – | **6** | 6 | 60 | 18 | 5.62 | – | 6 | | | □ | – | – |
| | **R4** | – | **8** | 8 | 70 | 24 | 7.62 | – | 8 | | | □ | – | – |
| | **R5** | – | **10** | 10 | 80 | 30 | 9.62 | – | 10 | | | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | グラファイト Graphite | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | 複合材料 Composite Material |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～55HRC | ～60HRC | ～65HRC | ～35HRC | ～350HB | | | | | | | CFRP |
| **ED-EB** | | | | | | | | | | | | | | | ◎ |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 超硬エンドミル 切削条件 目次 INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS


| 製品記号 Abbreviation | 仕様 Specification | 切削条件 Type of process | ページ Page |
|---|---|---|---|
| **AE-VMSS** | DUARISEコート超硬防振型エンドミルスタブ形<br>DUARISE Coated Anti-Vibration Carbide End Mill Stub Length | 溝切削<br>SLOTTING | 495 |
| **AE-VMSS** | DUARISEコート超硬防振型エンドミルスタブ形<br>DUARISE Coated Anti-Vibration Carbide End Mill Stub Length | 側面切削<br>SIDE MILLING | 495 |
| **AE-VMSS** | DUARISEコート超硬防振型エンドミルスタブ形<br>DUARISE Coated Anti-Vibration Carbide End Mill Stub Length | 側面切削<br>SIDE MILLING | 496 |
| **AE-VMS** | DUARISEコート超硬防振型エンドミルショート形<br>DUARISE Coated Anti-Vibration Carbide End Mill Short Length | 溝切削<br>SLOTTING | 497 |
| **AE-VMS** | DUARISEコート超硬防振型エンドミルショート形<br>DUARISE Coated Anti-Vibration Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 497 |
| **AE-VMS** | DUARISEコート超硬防振型エンドミルショート形<br>DUARISE Coated Anti-Vibration Carbide End Mill Short Length | 溝切削<br>SLOTTING | 498 |
| **AE-VMS** | DUARISEコート超硬防振型エンドミルショート形<br>DUARISE Coated Anti-Vibration Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 498 |
| **AE-VML** | DUARISEコート超硬防振型エンドミルロング形<br>DUARISE Coated Anti-Vibration Carbide End Mill Long Length | 標準側面切削（刃長3D）<br>STANDARD SIDE MILLING 3D | 499 |
| **AE-VML** | DUARISEコート超硬防振型エンドミルロング形<br>DUARISE Coated Anti-Vibration Carbide End Mill Long Length | 高能率側面切削（刃長3D）<br>HIGH EFFICIENCY SIDE MILLING 3D | 500 |
| **AE-VML** | DUARISEコート超硬防振型エンドミルロング形<br>DUARISE Coated Anti-Vibration Carbide End Mill Long Length | 標準側面切削（刃長4D）<br>STANDARD SIDE MILLING 4D | 501 |
| **AE-VML** | DUARISEコート超硬防振型エンドミルロング形<br>DUARISE Coated Anti-Vibration Carbide End Mill Long Length | 高能率側面切削（刃長4D）<br>HIGH EFFICIENCY SIDE MILLING 4D | 501 |
| **AE-VMFE** | DUARISEコート超硬防振型エンドミル立ち壁対応型<br>DUARISE Coated Anti-Vibration Carbide End Mill for Deep Side Milling | 側面切削<br>SIDE MILLING | 502 |
| **AE-VTSS** | DUARISEコート超硬防振型エンドミル自動旋盤対応型<br>DUARISE Coated Anti-Vibration Carbide Stub End Mill Compatible with Sliding Head Lathes | 溝切削<br>SLOTTING | 503 |
| **AE-VTSS** | DUARISEコート超硬防振型エンドミル自動旋盤対応型<br>DUARISE Coated Anti-Vibration Carbide Stub End Mill Compatible with Sliding Head Lathes | 側面切削<br>SIDE MILLING | 503 |
| **AE-VTSS** | DUARISEコート超硬防振型エンドミル自動旋盤対応型<br>DUARISE Coated Anti-Vibration Carbide Stub End Mill Compatible with Sliding Head Lathes | 突込み切削<br>PLUNGING | 503 |
| **AE-TS-N** | 非鉄用DLCコート3枚刃超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials | 溝切削<br>SLOTTING | 504 |
| **AE-TS-N** | 非鉄用DLCコート3枚刃超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials | 側面切削<br>SIDE MILLING | 505 |
| **AE-TS-N** | 非鉄用DLCコート3枚刃超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials | 突込み切削<br>PLUNGING | 506 |
| **AE-TL-N** | 非鉄用DLCコート3枚刃超硬エンドミルロング形<br>DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials | 溝切削（刃長3D）<br>SLOTTING 3D | 508 |
| **AE-TL-N** | 非鉄用DLCコート3枚刃超硬エンドミルロング形<br>DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials | 側面切削（刃長3D）<br>SIDE MILLING 3D | 509 |
| **AE-TL-N** | 非鉄用DLCコート3枚刃超硬エンドミルロング形<br>DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials | 突込み切削（刃長3D）<br>PLUNGING 3D | 510 |
| **AE-TL-N** | 非鉄用DLCコート3枚刃超硬エンドミルロング形<br>DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials | 側面切削（刃長5D）<br>SIDE MILLING 5D | 511 |
| **AE-VTS-N** | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプショート形<br>DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials | 溝切削<br>SLOTTING | 512 |
| **AE-VTS-N** | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプショート形<br>DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials | 側面切削<br>SIDE MILLING | 513 |
| **AE-VTS-N** | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプショート形<br>DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials | 突込み切削<br>PLUNGING | 514 |
| **AE-VTFE-N** | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプ立ち壁対応型<br>DLC Coated 3-flute High Performance Carbide End Mill for Deep Side Milling in Non-ferrous Materials | 溝切削<br>SLOTTING | 516 |
| **AE-VTFE-N** | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプ立ち壁対応型<br>DLC Coated 3-flute High Performance Carbide End Mill for Deep Side Milling in Non-ferrous Materials | 側面切削<br>SIDE MILLING | 517 |
| **AE-LNBD-N** | 銅電極・高精度仕上げ用DLCコート2枚刃超硬ロングネックボールエンドミル<br>DLC Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for Copper Electrodes | 標準切削条件<br>REGULAR MILLING | 518 |
| **AE-CPR-N** | 銅電極・高能率仕上げ用DLCコート超硬ロングネックラジアスエンドミル<br>DLC Coated High-efficiency Finishing Long Neck Carbide End Mill with Corner Radius for Copper Electrodes | | 520 |
| **AE-MSS-H** | 高硬度鋼用DUROREYコート多刃超硬エンドミルスタブ形<br>DUROREY Coated Multi-flute Carbide End Mill Stub Length for High-hardness Steels | 側面切削<br>SIDE MILLING | 523 |
| **AE-MSS-H** | 高硬度鋼用DUROREYコート多刃超硬エンドミルスタブ形<br>DUROREY Coated Multi-flute Carbide End Mill Stub Length for High-hardness Steels | 高速側面切削条件<br>HIGH-SPEED SIDE MILLING | 523 |
| **AE-MS-H** | 高硬度鋼用DUROREYコート多刃超硬エンドミルショート形<br>DUROREY Coated Multi-flute Carbide End Mill Short Length for High-hardness Steels | 側面切削<br>SIDE MILLING | 524 |

# INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS 超硬エンドミル 切削条件 目次


| 製品記号 Abbreviation | 仕様 Specification | 切削条件 Type of process | ページ Page |
|---|---|---|---|
| AE-MS-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルショート形<br>DUROREY Coated Multi-flute Carbide End Mill Short Length for High-hardness Steels | 高速側面切削条件<br>HIGH-SPEED SIDE MILLING | 524 |
| AE-ML-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルロング形<br>DUROREY Coated Multi-flute Carbide End Mill Long Length for High-hardness Steels | 側面切削<br>SIDE MILLING | 525 |
| AE-CRE-H | 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高能率型<br>DUROREY Coated Multi-flute High Efficiency Carbide End Mill with Corner Radius for High-hardness Steels | 正面切削<br>FRONTAL MILLING | 526 |
| AE-HFE-H | 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高送り型<br>DUROREY Coated Multi-flute High Feed Carbide End Mill with Corner Radius for High-hardness Steels | 正面切削<br>FRONTAL MILLING | 527 |
| AE-BD-H | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ボールエンドミル<br>DUROREY Coated 2-flute High-precision Finishing Carbide Ball End Mill for High-hardness Steels | 仕上げ加工<br>FINISHING | 529 |
| AE-BD-H | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ボールエンドミル<br>DUROREY Coated 2-flute High-precision Finishing Carbide Ball End Mill for High-hardness Steels | 高速仕上げ加工<br>HIGH-SPEED FINISHING | 529 |
| AE-BM-H | 高硬度鋼用DUROREYコート4枚刃超硬ボールエンドミル高能率型<br>DUROREY Coated 4-flute High-efficiency Carbide Ball End Mill for High-hardness Steels | 荒加工<br>ROUGHING | 530 |
| AE-BM-H | 高硬度鋼用DUROREYコート4枚刃超硬ボールエンドミル高能率型<br>DUROREY Coated 4-flute High-efficiency Carbide Ball End Mill for High-hardness Steels | 仕上げ加工<br>FINISHING | 530 |
| AE-BM-H | 高硬度鋼用DUROREYコート4枚刃超硬ボールエンドミル高能率型<br>DUROREY Coated 4-flute High-efficiency Carbide Ball End Mill for High-hardness Steels | 高速荒加工<br>HIGH-SPEED ROUGHING | 531 |
| AE-BM-H | 高硬度鋼用DUROREYコート4枚刃超硬ボールエンドミル高能率型<br>DUROREY Coated 4-flute High-efficiency Carbide Ball End Mill for High-hardness Steels | 高速仕上げ加工<br>HIGH-SPEED FINISHING | 532 |
| AE-LNBD-H | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ロングネックボールエンドミル<br>DUROREY Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for High-hardness Steels | | 533 |
| AE-CPR2-H | 高硬度鋼用DUROREYコート2枚刃超硬ロングネックラジアスエンドミル<br>DUROREY Coated 2-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels | 標準切削<br>REGULAR MILLING | 542 |
| AE-CPR2-H | 高硬度鋼用DUROREYコート2枚刃超硬ロングネックラジアスエンドミル<br>DUROREY Coated 2-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels | 側面切削（等高線仕上げ加工）<br>SIDE MILLING (CONTOUR LINE FINISH MILLING) | 548 |
| AE-CPR4-H | 高硬度鋼用DUROREYコート4枚刃超硬ロングネックラジアスエンドミル<br>DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels | 標準切削<br>REGULAR MILLING | 554 |
| AE-CPR4-H | 高硬度鋼用DUROREYコート4枚刃超硬ロングネックラジアスエンドミル<br>DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels | 側面切削（等高線仕上げ加工）<br>SIDE MILLING (CONTOUR LINE FINISH MILLING) | 564 |
| PHX-LN-CRE | WXSコート4枚刃小径超硬ロングネックラジアスエンドミル<br>WXS Coated 4-flute Long Neck Small Size Carbide End Mill with Corner Radius | | 574 |
| PHX-CRT | FXコート3枚刃超硬ラジアスエンドミル<br>FX Coated 3-flute Carbide End Mill with Corner Radius | | 575 |
| PHX-DFR | WXSコート3枚刃超硬ラジアスエンドミル<br>WXS Coated 3-flute Carbide End Mill with Corner Radius | | 575 |
| PHX-PC-DFR | WXSコート3枚刃超硬ペンシルネックラジアスエンドミル<br>WXS Coated 3-flute Pencil Neck Carbide End Mill with Corner Radius | | 575 |
| PHX-LN-DFR | WXSコート3枚刃超硬ロングネックラジアスエンドミル<br>WXS Coated 3-flute Long Neck Carbide End Mill with Corner Radius | | 575 |
| PHX-DBT | FXコート3枚刃超硬ボールエンドミル<br>FX Coated 3-flute Carbide Ball End Mill | | 578 |
| PHX-PC-DBT | WXSコート3枚刃超硬ペンシルネックボールエンドミル<br>WXS Coated 3-flute Pencil Neck Carbide Ball End Mill | | 578 |
| PHX-LN-DBT | WXSコート3枚刃超硬ロングネックボールエンドミル<br>WXS Coated 3-flute Long Neck Carbide Ball End Mill | | 581 |
| WXL-1.5D-DE | WXLコート2枚刃超硬スクエアエンドミル1.5D刃長<br>WXL Coated 2-flute Carbide End Mill (1.5D Type) | 溝切削<br>SLOTTING | 582 |
| WXL-2D-DE | WXLコート2枚刃超硬スクエアエンドミル2D刃長<br>WXL Coated 2-flute Carbide End Mill (2D Type) | 溝切削<br>SLOTTING | 583 |
| WXL-3D-DE | WXLコート2枚刃超硬スクエアエンドミル3D刃長<br>WXL Coated 2-flute Carbide End Mill (3D Type) | 溝切削<br>SLOTTING | 584 |
| WXL-4D-DE | WXLコート2枚刃超硬スクエアエンドミル4D刃長<br>WXL Coated 2-flute Carbide End Mill (4D Type) | 側面切削<br>SIDE MILLING | 585 |
| WXL-REBM | WXLコート超硬ラフィングボールエンドミル<br>WXL Coated Carbide Roughing Ball End Mill | 側面切削<br>SIDE MILLING | 614-1<br>WEB |
| WXL-REBM | WXLコート超硬ラフィングボールエンドミル<br>WXL Coated Carbide Roughing Ball End Mill | 溝切削<br>SLOTTING | 614-1<br>WEB |
| WXL-EMS | WXLコート4枚刃超硬スクエアエンドミルショート形<br>WXL Coated 4-flute Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 586 |
| WXL-EMS | WXLコート4枚刃超硬スクエアエンドミルショート形<br>WXL Coated 4-flute Carbide End Mill Short Length | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 586 |
| WXL-LN-EDS | WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）<br>WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing | 溝切削<br>SLOTTING | 587 |

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 超硬エンドミル 切削条件 目次 INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS


| 製品記号 Abbreviation | 仕様 Specification | 切削条件 Type of process | ページ Page |
|---|---|---|---|
| **WXL-LN-EMS** | WXLコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）<br>WXL Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing | 溝切削<br>SLOTTING | 591 |
| **WXL-EBD** | WXLコート2枚刃超硬ボールエンドミル<br>WXL Coated 2-flute Carbide Ball End Mill | 標準切削<br>REGULAR MILLING | 593 |
| **WXL-EBD** | WXLコート2枚刃超硬ボールエンドミル<br>WXL Coated 2-flute Carbide Ball End Mill | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 593 |
| **WXL-LN-EBD** | WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）<br>WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing | 標準切削<br>REGULAR MILLING | 594 |
| **WXL-LN-EBD** | WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形）<br>WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing | 高速切削<br>HIGH-SPEED LIGHT MILLING | 599 |
| **WXL-LN-EBD-3** | WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形、ミニチュア）<br>WXL Coated 2-flute Long Neck Miniature Carbide Ball End Mill for Rib Processing (φ3 Shank) | 標準切削<br>REGULAR MILLING | 594 |
| **WXL-LN-EBD-3** | WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形、ミニチュア）<br>WXL Coated 2-flute Long Neck Miniature Carbide Ball End Mill for Rib Processing (φ3 Shank) | 高速切削<br>HIGH-SPEED LIGHT MILLING | 599 |
| **WXL-HS-EBD** | WXLコート2枚刃超硬ボールエンドミル（HSK対応）<br>WXL Coated 2-flute Carbide Ball End Mill with HS Shank | | 604 |
| **WXL-PC-EBD** | WXLコート2枚刃超硬ペンシルネックボールエンドミル<br>WXL Coated 2-flute Pencil Neck Carbide Ball End Mill | 標準切削<br>REGULAR MILLING | 605 |
| **WXL-PC-EBD** | WXLコート2枚刃超硬ペンシルネックボールエンドミル<br>WXL Coated 2-flute Pencil Neck Carbide Ball End Mill | 高速切削<br>HIGH-SPEED LIGHT MILLING | 609 |
| **VU-TBR** | 仕上げ用WXLコート超硬エンドミルテーパバレル型<br>WXL Coated Taper Barrel Type End Mill for Finishing | | 613 |
| **WXS-CPR** | WXSコート超硬ラジアスエンドミル高精度タイプ<br>WXS Coated High-precision Carbide End Mill with Corner Radius | 標準切削<br>REGULAR MILLING | 615 |
| **WXS-CPR** | WXSコート超硬ラジアスエンドミル高精度タイプ<br>WXS Coated High-precision Carbide End Mill with Corner Radius | 側面切削（等高線仕上げ加工）<br>SIDE MILLING (CONTOUR LINE FINISH MILLING) | 619 |
| **WXS-EMS** | WXSコート多刃超硬スクエアエンドミルショート形<br>WXS Coated Multi-flute Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 623 |
| **WXS-EMS** | WXSコート多刃超硬スクエアエンドミルショート形<br>WXS Coated Multi-flute Carbide End Mill Short Length | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 623 |
| **WXS-EBD** | WXSコート2枚刃超硬ボールエンドミル<br>WXS Coated 2-flute Carbide Ball End Mill | 標準切削<br>REGULAR MILLING | 624 |
| **WXS-EBD** | WXSコート2枚刃超硬ボールエンドミル<br>WXS Coated 2-flute Carbide Ball End Mill | 高速切削<br>HIGH-SPEED LIGHT MILLING | 624 |
| **CBN-SXB** | 2枚刃小径CBNボールエンドミル<br>2-flute Small Size CBN Ball End Mill | | 625 |
| **CBN-LN-SXB** | 2枚刃小径CBNロングネックボールエンドミル<br>2-flute Long Neck Small Size CBN Ball End Mill | | 625 |
| **CBN-CR-EDS** | 2枚刃CBNラジアスエンドミルショート形<br>2-flute CBN End Mill Short Length with Corner Radius | | 626 |
| **CBN-EBD** | 2枚刃CBNボールエンドミル<br>2-flute CBN Ball End Mill | | 626 |
| **WX-G-EDSS** | WXコート2枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 2-flute Carbide End Mill Stub Length | 溝切削<br>SLOTTING | 627 |
| **WX-G-EDSS** | WXコート2枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 2-flute Carbide End Mill Stub Length | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 627 |
| **WX-G-EMSS** | WXコート4枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 4-flute Carbide End Mill Stub Length | 側面切削<br>SIDE MILLING | 628 |
| **WX-G-EMSS** | WXコート4枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 4-flute Carbide End Mill Stub Length | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 628 |
| **UP-PHS** | FXコート4枚刃超硬スクエアエンドミルショート形多機能防振型<br>FX Coated Multi-purpose 4-flute Carbide End Mill Short Length (Vibration-resistant Type) | 側面切削<br>SIDE MILLING | 629 |
| **UP-PHS** | FXコート4枚刃超硬スクエアエンドミルショート形多機能防振型<br>FX Coated Multi-purpose 4-flute Carbide End Mill Short Length (Vibration-resistant Type) | 溝切削<br>SLOTTING | 629 |
| **WX-PHSS** | WXコート4枚刃超硬スクエアエンドミルスタブ形強力重切削型<br>WX Coated 4-flute Carbide End Mill Stub Length (Heavy-duty Operation Type) | 溝切削<br>SLOTTING | 630 |
| **WX-PHSS** | WXコート4枚刃超硬スクエアエンドミルスタブ形強力重切削型<br>WX Coated 4-flute Carbide End Mill Stub Length (Heavy-duty Operation Type) | 側面切削<br>SIDE MILLING | 630 |
| **WX-PHSS** | WXコート4枚刃超硬スクエアエンドミルスタブ形強力重切削型<br>WX Coated 4-flute Carbide End Mill Stub Length (Heavy-duty Operation Type) | 高速溝切削<br>HIGH-SPEED SLOTTING | 631 |
| **WX-PHSS** | WXコート4枚刃超硬スクエアエンドミルスタブ形強力重切削型<br>WX Coated 4-flute Carbide End Mill Stub Length (Heavy-duty Operation Type) | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 631 |
| **WX-PHN** | WXコート4枚刃超硬スクエアエンドミルミディアム形<br>WX Coated 4-flute Carbide End Mill Medium Length | | 632 |

# INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS 超硬エンドミル 切削条件 目次


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|---|---|---|---|
| **WX-PHL** | WXコート4枚刃超硬スクエアエンドミルロング形<br>WX Coated 4-flute Carbide End Mill Long Length | | 632 |
| **SI-WC-RESF** | WXLコートファインピッチ超硬ラフィングエンドミルショート形サイレントタイプ<br>WXL Coated Carbide Roughing End Mill Fine Pitch Short Length and Silent Type | 側面切削<br>SIDE MILLING | 633 |
| **SI-WC-RESF** | WXLコートファインピッチ超硬ラフィングエンドミルショート形サイレントタイプ<br>WXL Coated Carbide Roughing End Mill Fine Pitch Short Length and Silent Type | 溝切削<br>SLOTTING | 633 |
| **WX-RESF** | WXコートファインピッチ超硬ラフィングエンドミルショート形<br>WX Coated Carbide Roughing End Mill Fine Pitch Short Length | 側面切削<br>SIDE MILLING | 634 |
| **WX-RESF** | WXコートファインピッチ超硬ラフィングエンドミルショート形<br>WX Coated Carbide Roughing End Mill Fine Pitch Short Length | 溝切削<br>SLOTTING | 634 |
| **SXL-RESF** | SXLコートファインピッチ超硬ラフィングエンドミルショート形<br>SXL Coated Carbide Roughing End Mill Fine Pitch Short Length | 側面切削<br>SIDE MILLING | 634 |
| **SXL-RESF** | SXLコートファインピッチ超硬ラフィングエンドミルショート形<br>SXL Coated Carbide Roughing End Mill Fine Pitch Short Length | 溝切削<br>SLOTTING | 634 |
| **WXL-MG-NC-RESF** | NC旋盤用WXLコートファインピッチ超硬ラフィングエンドミル<br>WXL Coated Carbide Roughing End Mill for Lathes | 側面切削<br>SIDE MILLING | 634 |
| **WXL-MG-NC-RESF** | NC旋盤用WXLコートファインピッチ超硬ラフィングエンドミル<br>WXL Coated Carbide Roughing End Mill for Lathes | 溝切削<br>SLOTTING | 634 |
| **WX-SHTSS** | スロッティング用WXコート3枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 3-flute Carbide End Mill Stub Length for Slotting | 側面切削<br>SIDE MILLING | 635 |
| **WX-SHTSS** | スロッティング用WXコート3枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 3-flute Carbide End Mill Stub Length for Slotting | 溝切削<br>SLOTTING | 635 |
| **WX-SHTSS** | スロッティング用WXコート3枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 3-flute Carbide End Mill Stub Length for Slotting | 突込み切削<br>PLUNGING | 635 |
| **WX-SHTSS** | スロッティング用WXコート3枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 3-flute Carbide End Mill Stub Length for Slotting | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 636 |
| **WX-SHTSS** | スロッティング用WXコート3枚刃超硬スクエアエンドミルスタブ形<br>WX Coated 3-flute Carbide End Mill Stub Length for Slotting | 高速溝切削<br>HIGH-SPEED SLOTTING | 636 |
| **WX-CRE** | WXコート超硬ラジアスエンドミル<br>WX Coated Carbide End Mill with Corner Radius | 標準条件（低速高送り）<br>REGULAR MILLING (LOW-SPEED, HIGH-FEED MILLING) | 637 |
| **WX-CRE** | WXコート超硬ラジアスエンドミル<br>WX Coated Carbide End Mill with Corner Radius | 高速条件用<br>HIGH-SPEED MILLING | 638 |
| **SXLE-EBD** | SXLコート超硬エキストラボールエンドミル<br>SXL Coated Carbide Ball End Mill (Super High Precision) | 高速仕上切削用<br>HIGH-SPEED FINISHING | 638-1<br>WEB |
| **WX-LN-EDS** | WXコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）<br>WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing | 溝切削<br>SLOTTING | 638-11<br>WEB |
| **WX-LN-EMS** | WXコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形）<br>WX Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing | | 638-19<br>WEB |
| **WX-LN-EBD** | WXコート2枚刃超硬ロングネックボールエンドミル（深リブ形）<br>WX Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing | | 638-3<br>WEB |
| **NEO-EMS** | FXコート6枚刃超硬スクエアエンドミルショート形不等リード<br>FX Coated 6-flute Variable Lead Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 639 |
| **NEO-CR-EMS** | FXコート6枚刃超硬ラジアスエンドミルショート形不等リード<br>FX Coated 6-flute Variable Lead Carbide End Mill Short Length with Corner Radius | 側面切削<br>SIDE MILLING | 639 |
| **NEO-EMS** | FXコート6枚刃超硬スクエアエンドミルショート形不等リード<br>FX Coated 6-flute Variable Lead Carbide End Mill Short Length | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 639 |
| **NEO-CR-EMS** | FXコート6枚刃超硬ラジアスエンドミルショート形不等リード<br>FX Coated 6-flute Variable Lead Carbide End Mill Short Length with Corner Radius | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 639 |
| **NEO-PHS** | FXコート4枚刃超硬スクエアエンドミルショート形強力重切削型不等リード<br>FX Coated 4-flute Variable Lead Carbide End Mill Short Length (Heavy-duty Operation Type) | 溝切削<br>SLOTTING | 640 |
| **NEO-CR-PHS** | FXコート4枚刃超硬ラジアスエンドミルショート形強力重切削型不等リード<br>FX Coated 4-flute Variable Lead Carbide End Mill Short Length with Corner Radius (Heavy-duty Operation Type) | 溝切削<br>SLOTTING | 640 |
| **NEO-PHS** | FXコート4枚刃超硬スクエアエンドミルショート形強力重切削型不等リード<br>FX Coated 4-flute Variable Lead Carbide End Mill Short Length (Heavy-duty Operation Type) | 側面切削<br>SIDE MILLING | 640 |
| **NEO-CR-PHS** | FXコート4枚刃超硬ラジアスエンドミルショート形強力重切削型不等リード<br>FX Coated 4-flute Variable Lead Carbide End Mill Short Length with Corner Radius (Heavy-duty Operation Type) | 側面切削<br>SIDE MILLING | 640 |
| **UVX-TI-4FL** | チタン合金用FXコート4枚刃超硬エンドミル不等リード<br>FX Coated 4-flute Carbide End Mill Variable Lead for Titanium Alloy | | 641 |
| **UVX-TI-5FL** | チタン合金用FXコート5枚刃超硬エンドミル不等リード<br>FX Coated 5-flute Carbide End Mill Variable Lead for Titanium Alloy | | 641 |

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|---|---|---|---|
| **UVXL-TI-5FL** | チタン合金用FXコート5枚刃超硬エンドミルロング形不等リード<br>FX Coated 5-flute Carbide End Mill Long Length Variable Lead for Titanium Alloy | | 642 |
| **HFC-TI** | チタン合金用高送り超硬ラジアスエンドミル<br>High Feed Carbide End Mill with Corner Radius for Titanium Alloy | | 642 |
| **FX-MG-EDS** | FXコート2枚刃超硬スクエアエンドミルショート形<br>FX Coated 2-flute Carbide End Mill Short Length | 溝切削<br>SLOTTING | 643 |
| **FX-MG-EDSS** | FXコート2枚刃超硬スクエアエンドミルスタブ形<br>FX Coated 2-flute Carbide End Mill Stub Length | 溝切削<br>SLOTTING | 643 |
| **FX-CR-MG-EDS** | FXコート2枚刃超硬ラジアスエンドミルショート形<br>FX Coated 2-flute Carbide End Mill Short Length with Corner Radius | 溝切削<br>SLOTTING | 643 |
| **FX-MG-EDL** | FXコート2枚刃超硬スクエアエンドミルロング形<br>FX Coated 2-flute Carbide End Mill Long Length | 側面切削<br>SIDE MILLING | 644 |
| **FX-CR-MG-EDL** | FXコート2枚刃超硬ラジアスエンドミルロング形<br>FX Coated 2-flute Carbide End Mill Long Length with Corner Radius | 側面切削<br>SIDE MILLING | 644 |
| **FX-MG-EXDL** | FXコート2枚刃超硬スクエアエンドミルエキストラロング形<br>FX Coated 2-flute Carbide End Mill Extra Long Length | 側面切削<br>SIDE MILLING | 644 |
| **FX-MG-EMS** | FXコート4枚刃超硬スクエアエンドミルショート形<br>FX Coated 4-flute Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 667-1<br>WEB |
| **FX-MG-EMSS** | FXコート4枚刃超硬スクエアエンドミルスタブ形<br>FX Coated 4-flute Carbide End Mill Stub Length | 側面切削<br>SIDE MILLING | 667-1<br>WEB |
| **FX-MG-EMS** | FXコート4枚刃超硬スクエアエンドミルショート形<br>FX Coated 4-flute Carbide End Mill Short Length | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 667-2<br>WEB |
| **FX-MG-EMSS** | FXコート4枚刃超硬スクエアエンドミルスタブ形<br>FX Coated 4-flute Carbide End Mill Stub Length | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 667-2<br>WEB |
| **FX-MG-EML** | FXコート4枚刃超硬スクエアエンドミルロング形<br>FX Coated 4-flute Carbide End Mill Long Length | 側面切削<br>SIDE MILLING | 645 |
| **FX-CR-MG-EML** | FXコート4枚刃超硬ラジアスエンドミルロング形<br>FX Coated 4-flute Carbide End Mill Long Length with Corner Radius | 側面切削<br>SIDE MILLING | 645 |
| **FX-MG-EXML** | FXコート4枚刃超硬スクエアエンドミルエキストラロング形<br>FX Coated 4-flute Carbide End Mill Extra Long Length | 側面切削<br>SIDE MILLING | 645 |
| **FX-CR-MG-EHS** | FXコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>FX Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | 側面切削<br>SIDE MILLING | 646 |
| **SXL-MG-EHS** | SXLコート超硬スクエアエンドミルハイヘリックスショート形<br>SXL Coated High Helix Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 646 |
| **SXL-CR-MG-EHS** | SXLコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>SXL Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | 側面切削<br>SIDE MILLING | 646 |
| **FX-CR-MG-EHS** | FXコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>FX Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | 溝切削<br>SLOTTING | 647 |
| **SXL-MG-EHS** | SXLコート超硬スクエアエンドミルハイヘリックスショート形<br>SXL Coated High Helix Carbide End Mill Short Length | 溝切削<br>SLOTTING | 647 |
| **SXL-CR-MG-EHS** | SXLコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>SXL Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | 溝切削<br>SLOTTING | 647 |
| **FX-CR-MG-EHS** | FXコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>FX Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 648 |
| **SXL-MG-EHS** | SXLコート超硬スクエアエンドミルハイヘリックスショート形<br>SXL Coated High Helix Carbide End Mill Short Length | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 648 |
| **SXL-CR-MG-EHS** | SXLコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>SXL Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 648 |
| **FX-CR-MG-EHS** | FXコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>FX Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | 高速溝切削<br>HIGH-SPEED SLOTTING | 649 |
| **SXL-MG-EHS** | SXLコート超硬スクエアエンドミルハイヘリックスショート形<br>SXL Coated High Helix Carbide End Mill Short Length | 高速溝切削<br>HIGH-SPEED SLOTTING | 649 |
| **SXL-CR-MG-EHS** | SXLコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形<br>SXL Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius | 高速溝切削<br>HIGH-SPEED SLOTTING | 649 |
| **FX-MG-EHL** | FXコート超硬スクエアエンドミルハイヘリックスロング形<br>FX Coated High Helix Carbide End Mill Long Length | 側面切削<br>SIDE MILLING | 650 |
| **SXL-MG-EHL** | SXLコート超硬スクエアエンドミルハイヘリックスロング形<br>SXL Coated High Helix Carbide End Mill Long Length | 側面切削<br>SIDE MILLING | 650 |
| **FX-MG-EBD** | FXコート2枚刃超硬ボールエンドミル<br>FX Coated 2-flute Carbide Ball End Mill | | 650 |
| **FX-LS-MG-EBD** | FXコート2枚刃超硬ボールエンドミルロングシャンク<br>FX Coated 2-flute Carbide Ball End Mill with Long Shank | | 650 |

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|---|---|---|---|
| **FX-SS-EBD** | FXコート2枚刃超硬ボールエンドミルスリムシャンク<br>FX Coated 2-flute Carbide Ball End Mill with Slim Shank | | 650 |
| **FX-MG-EBD** | FXコート2枚刃超硬ボールエンドミル<br>FX Coated 2-flute Carbide Ball End Mill | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 651 |
| **FX-MG-EBD-3** | FXコート2枚刃超硬ボールエンドミル(ミニチュア)<br>FX Coated 2-flute Miniature Carbide Ball End Mill (φ3 Shank) | | 667-3 WEB |
| **CBN-SXR** | 2枚刃小径CBNラジアスエンドミル<br>2-flute Small Size CBN End Mill with Corner Radius | | 652 |
| **CBN-LN-SXR** | 2枚刃小径CBNロングネックラジアスエンドミル<br>2-flute Long Neck Small Size CBN End Mill with Corner Radius | | 652 |
| **FX-HS-EBDS** | 重切削用FXコート2枚刃超硬ボールエンドミル強力型(HSK対応)<br>FX Coated 2-flute Carbide Ball End Mill with HS Shank (Heavy-duty Operation Type) | 荒加工<br>ROUGHING | 667-4 WEB |
| **FX-HS-EBDS** | 重切削用FXコート2枚刃超硬ボールエンドミル強力型(HSK対応)<br>FX Coated 2-flute Carbide Ball End Mill with HS Shank (Heavy-duty Operation Type) | 仕上げ加工<br>FINISHING | 667-4 WEB |
| **FX-H-EBD** | 仕上げ用FXコート2枚刃超硬ボールエンドミル(HSK対応)<br>FX Coated 2-flute Carbide Ball End Mill with HS Shank | 仕上げ加工<br>FINISHING | 652-1 WEB |
| **FX-HO-MG-EBD** | FXコート2枚刃油穴付き超硬ボールエンドミル<br>FX Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply | | 667-5 WEB |
| **FX-HO-MG-EBD** | FXコート2枚刃油穴付き超硬ボールエンドミル<br>FX Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 667-5 WEB |
| **FX-PC-MG-EBD** | FXコート2枚刃超硬ペンシルネックボールエンドミル<br>FX Coated 2-flute Pencil Neck Carbide Ball End Mill | | 667-6 WEB |
| **FX-PCL-EBD** | FXコート2枚刃超硬ペンシルロングネックボールエンドミル<br>FX Coated 2-flute Pencil Long Neck Carbide Ball End Mill | | 667-7 WEB |
| **FX-MG-TPDS** | FXコート2枚刃超硬テーパエンドミルショート形<br>FX Coated 2-flute Carbide Taper End Mill Short Length | 側面切削<br>SIDE MILLING | 653 |
| **FX-EDS-6** | FXコート2枚刃超硬スクエアエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill Short Length (φ6 Shank) | 溝切削<br>SLOTTING | 667-8 WEB |
| **FX-CR-EDS-6** | FXコート2枚刃超硬ラジアスエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Carbide End Mill Short Length with Corner Radius (φ6 Shank) | 溝切削<br>SLOTTING | 667-8 WEB |
| **FX-LN-EDS-6** | FXコート2枚刃超硬ロングネックスクエアエンドミルショート形(φ6シャンク)<br>FX Coated 2-flute Long Neck Carbide End Mill Short Length (φ6 Shank) | 溝切削<br>SLOTTING | 667-8 WEB |
| **FX-LN-EMS-6** | FXコート4枚刃超硬ロングネックスクエアエンドミルショート形(φ6シャンク)<br>FX Coated 4-flute Long Neck Carbide End Mill Short Length (φ6 Shank) | 溝切削<br>SLOTTING | 667-9 WEB |
| **FX-EBD-6** | FXコート2枚刃超硬ボールエンドミル高精度タイプ(φ6シャンク)<br>FX Coated 2-flute Carbide Ball End Mill High-precision Type (φ6 Shank) | | 667-9 WEB |
| **FX-LN-EBD-6** | FXコート2枚刃超硬ロングネックボールエンドミル高精度タイプ(φ6シャンク)<br>FX Coated 2-flute Long Neck Carbide Ball End Mill High-precision Type (φ6 Shank) | | 667-10 WEB |
| **FX-PCS-EBD-6** | FXコート2枚刃超硬ペンシルショートネックボールエンドミル高精度タイプ(φ6シャンク)<br>FX Coated 2-flute Pencil Short Neck Carbide Ball End Mill High-precision Type (φ6 Shank) | | 667-11 WEB |
| **FXS-EMSS** | WXSコート多刃超硬スクエアエンドミルスタブ形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Stub Length (Highly Rigid Type) | 側面切削<br>SIDE MILLING | 667-12 WEB |
| **FXS-EMS** | WXSコート多刃超硬スクエアエンドミルショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length (Highly Rigid Type) | 側面切削<br>SIDE MILLING | 667-12 WEB |
| **FXS-LS-EMS** | WXSコート多刃超硬スクエアエンドミルロングシャンクショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length with Long Shank (Highly Rigid Type) | 側面切削<br>SIDE MILLING | 667-12 WEB |
| **FXS-CR-EMS** | WXSコート多刃超硬ラジアスエンドミルショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length with Corner Radius (Highly Rigid Type) | 側面切削<br>SIDE MILLING | 667-12 WEB |
| **FXS-EMSS** | WXSコート多刃超硬スクエアエンドミルスタブ形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Stub Length (Highly Rigid Type) | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 667-13 WEB |
| **FXS-EMS** | WXSコート多刃超硬スクエアエンドミルショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length (Highly Rigid Type) | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 667-13 WEB |
| **FXS-CR-EMS** | WXSコート多刃超硬ラジアスエンドミルショート形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Short Length with Corner Radius (Highly Rigid Type) | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 667-13 WEB |
| **FXS-EML** | WXSコート多刃超硬スクエアエンドミルロング形高剛性タイプ<br>WXS Coated Multi-flute Carbide End Mill Long Length (Highly Rigid Type) | 側面切削<br>SIDE MILLING | 667-13 WEB |
| **DUR-SMF** | DUROREYコート超多刃超硬エンドミルショート形<br>DUROREY Coated Super Multi-flute Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 667-14 WEB |
| **FXS-PKE** | FXコート4枚刃超硬ラジアスエンドミル多機能強力型<br>FX Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 側面切削<br>SIDE MILLING | 654 |
| **FXS-PKE** | FXコート4枚刃超硬ラジアスエンドミル多機能強力型<br>FX Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 溝切削<br>SLOTTING | 654 |
| **SXL-PKE** | SXLコート4枚刃超硬ラジアスエンドミル多機能強力型<br>SXL Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 側面切削<br>SIDE MILLING | 654 |

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 超硬エンドミル 切削条件 目次 INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS


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| **SXL-PKE** | SXLコート4枚刃超硬ラジアスエンドミル多機能強力型<br>SXL Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 溝切削<br>SLOTTING | 654 |
| **FXS-PKE** | FXコート4枚刃超硬ラジアスエンドミル多機能強力型<br>FX Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 655 |
| **FXS-PKE** | FXコート4枚刃超硬ラジアスエンドミル多機能強力型<br>FX Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 高速彫込み加工<br>HIGH-SPEED CONTOURING | 655 |
| **SXL-PKE** | SXLコート4枚刃超硬ラジアスエンドミル多機能強力型<br>SXL Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 655 |
| **SXL-PKE** | SXLコート4枚刃超硬ラジアスエンドミル多機能強力型<br>SXL Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 高速彫込み加工<br>HIGH-SPEED CONTOURING | 655 |
| **FXS-HS-PKE** | FXコート4枚刃超硬ラジアスエンドミル多機能強力型(HSK対応)<br>FX Coated 4-flute Carbide End Mill with Corner Radius HS Shank High Speed Pocket Operation Type | 側面切削<br>SIDE MILLING | 656 |
| **FXS-HS-PKE** | FXコート4枚刃超硬ラジアスエンドミル多機能強力型(HSK対応)<br>FX Coated 4-flute Carbide End Mill with Corner Radius HS Shank High Speed Pocket Operation Type | 溝切削<br>SLOTTING | 656 |
| **FXS-HS-PKE** | FXコート4枚刃超硬ラジアスエンドミル多機能強力型(HSK対応)<br>FX Coated 4-flute Carbide End Mill with Corner Radius HS Shank High Speed Pocket Operation Type | 高速側面切削<br>HIGH-SPEED SIDE MILLING | 657 |
| **FXS-HS-PKE** | FXコート4枚刃超硬ラジアスエンドミル多機能強力型(HSK対応)<br>FX Coated 4-flute Carbide End Mill with Corner Radius HS Shank High Speed Pocket Operation Type | 高速彫込み加工<br>HIGH-SPEED CONTOURING | 657 |
| **FXS-HO-EBDS** | WXSコート2枚刃油穴付き超硬ボールエンドミル高剛性タイプ<br>WXS Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply (Highly Rigid Type) | | 667-16 WEB |
| **FXS-HO-EBDS** | WXSコート2枚刃油穴付き超硬ボールエンドミル高剛性タイプ<br>WXS Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply (Highly Rigid Type) | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 667-16 WEB |
| **FXS-EBT** | WXSコート3枚刃超硬ボールエンドミル高能率タイプ<br>WXS Coated 3-flute Carbide Ball End Mill (Highly Efficient Type) | 荒加工<br>ROUGHING | 658 |
| **FXS-EBT** | WXSコート3枚刃超硬ボールエンドミル高能率タイプ<br>WXS Coated 3-flute Carbide Ball End Mill (Highly Efficient Type) | 仕上げ加工<br>FINISHING | 659 |
| **FXS-EBT** | WXSコート3枚刃超硬ボールエンドミル高能率タイプ<br>WXS Coated 3-flute Carbide Ball End Mill (Highly Efficient Type) | 高速荒加工<br>HIGH-SPEED ROUGHING | 660 |
| **FXS-EBT** | WXSコート3枚刃超硬ボールエンドミル高能率タイプ<br>WXS Coated 3-flute Carbide Ball End Mill (Highly Efficient Type) | 高速仕上げ加工<br>HIGH-SPEED FINISHING | 661 |
| **FXS-PC-EBT** | WXSコート3枚刃超硬ペンシルネックボールエンドミル高能率タイプ<br>WXS Coated 3-flute Pencil Neck Carbide Ball End Mill Highly Efficient Type | | 662 |
| **FXS-PC-EBT** | WXSコート3枚刃超硬ペンシルネックボールエンドミル高能率タイプ<br>WXS Coated 3-flute Pencil Neck Carbide Ball End Mill Highly Efficient Type | 高速切削用<br>HIGH-SPEED LIGHT MILLING | 663 |
| **FXS-LS-EBT** | WXSコート3枚刃超硬ボールエンドミルロングシャンク高能率タイプ<br>WXS Coated 3-flute Carbide Ball End Mill with Long Shank (Highly Efficient Type) | | 664 |
| **FXS-EQD** | FXコート2枚刃超硬エンドミル球形<br>FX Coated 2-flute Carbide End Mill Sphere Type | | 664 |
| **FXS-RB-TPE** | FXコート多刃超硬テーパエンドミル(深リブ形)<br>FX Coated Multi-flute Carbide Taper End Mill for Rib Processing | | 667-17 WEB |
| **FXS-RB-TPB** | FXコート多刃超硬テーパボールエンドミル(深リブ形)<br>FX Coated Multi-flute Taper Ball End Mill for Rib Processing | | 667-17 WEB |
| **FXS-RB-TPCR** | FXコート多刃超硬テーパラジアスエンドミル(深リブ形)<br>FX Coated Multi-flute Carbide Taper End Mill with Corner Radius for Rib Processing | | 667-17 WEB |
| **FX-ZDS** | 座ぐり用FXコート2枚刃超硬エンドミルショート形<br>FX Coated 2-flute Carbide End Mill Short Length for Counterboring | | 665 |
| **FX-LS-ZDS** | 座ぐり用FXコート2枚刃超硬エンドミルロングシャンクショート形<br>FX Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring | | 665 |
| **FX-ZDN** | 座ぐり用FXコート2枚刃超硬エンドミルミディアム形<br>FX Coated 2-flute Carbide End Mill Medium Length for Counterboring | | 665 |
| **FX-HO-ZDN** | 座ぐり用FXコート2枚刃油穴付き超硬エンドミルミディアム形<br>FX Coated 2-flute Carbide End Mill Medium Length with Internal Coolant Supply for Counterboring | | 665 |
| **SXL-CR-ZDS** | 座ぐり用SXLコート2枚刃超硬ラジアスエンドミルショート形<br>SXL Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring | | 665 |
| **FX-SCC** | 面取り用FXコート2枚刃超硬エンドミル<br>FX Coated 2-flute Carbide End Mill for Chamfering | 穴面取り(突込み加工)<br>COUNTER SINKING | 666 |
| **FX-SCC** | 面取り用FXコート2枚刃超硬エンドミル<br>FX Coated 2-flute Carbide End Mill for Chamfering | 角面取り(側面切削)<br>CHAMFERING | 666 |
| **FX-LS-SCC** | 面取り用FXコート2枚刃超硬エンドミルロングシャンク<br>FX Coated 2-flute Carbide End Mill with Long Shank for Chamfering | 穴面取り(突込み加工)<br>COUNTER SINKING | 667 |
| **FX-LS-SCC** | 面取り用FXコート2枚刃超硬エンドミルロングシャンク<br>FX Coated 2-flute Carbide End Mill with Long Shank for Chamfering | 角面取り(側面切削)<br>CHAMFERING | 667 |
| **MG-EDS** | 2枚刃超硬スクエアエンドミルショート形<br>2-flute Carbide End Mill Short Length | 溝切削<br>SLOTTING | 668 |

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|---|---|---|---|
| **MG-EDN** | 2枚刃超硬スクエアエンドミルミディアム形<br>2-flute Carbide End Mill Medium Length | 溝切削<br>SLOTTING | 668 |
| **MG-EDS-3** | 2枚刃超硬スクエアエンドミルショート形(ミニチュア)<br>2-flute Miniature Carbide End Mill (φ3 Shank) | 溝切削<br>SLOTTING | 669 |
| **MG-EDL** | 2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length | 側面切削<br>SIDE MILLING | 669 |
| **MG-EXDL** | 2枚刃超硬スクエアエンドミルエキストラロング形<br>2-flute Carbide End Mill Extra Long Length | 側面切削<br>SIDE MILLING | 670 |
| **MG-EMS** | 4枚刃超硬スクエアエンドミルショート形<br>4-flute Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 670 |
| **MG-EML** | 4枚刃超硬スクエアエンドミルロング形<br>4-flute Carbide End Mill Long Length | 側面切削<br>SIDE MILLING | 671 |
| **MG-EXML** | 4枚刃超硬スクエアエンドミルエキストラロング形<br>4-flute Carbide End Mill Extra Long Length | 側面切削<br>SIDE MILLING | 671 |
| **MG-EBD** | 2枚刃超硬ボールエンドミル<br>2-flute Carbide Ball End Mill | | 672 |
| **MG-EBD-3** | 2枚刃超硬ボールエンドミル(ミニチュア)<br>2-flute Miniature Carbide Ball End Mill (φ3 Shank) | | 672 |
| **MG-TPDS** | 2枚刃超硬テーパエンドミルショート形<br>2-flute Carbide Taper End Mill Short Length | 側面切削<br>SIDE MILLING | 673-1<br>WEB |
| **MG-TPMS** | 4枚刃超硬テーパエンドミルショート形<br>4-flute Carbide Taper End Mill Short Length | 側面切削<br>SIDE MILLING | 673-1<br>WEB |
| **MG-TRC** | 台形ランナ用2枚刃超硬テーパエンドミル<br>2-flute Carbide Taper End Mill for Trapezoidal Runner | 溝切削<br>SLOTTING | 673 |
| **MG-EKD** | キー溝用2枚刃超硬スクエアエンドミル(OH1,OL1)<br>2-flute Carbide End Mill for Keyway (OH1,OL1) | 溝切削<br>SLOTTING | 673 |
| **MG-EHS** | 超硬スクエアエンドミルハイヘリックスショート形<br>High Helix Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 673-2<br>WEB |
| **MG-EHS** | 超硬スクエアエンドミルハイヘリックスショート形<br>High Helix Carbide End Mill Short Length | 溝切削<br>SLOTTING | 673-2<br>WEB |
| **MG-STDN** | 成形用2枚刃超硬エンドミル直刃ミディアム形<br>2-flute Carbide Straight Fluted End Mill Medium Length for Reforming | 側面切削<br>SIDE MILLING | 674 |
| **CA-RG-EDS** | 銅・アルミ合金用2枚刃超硬スクエアエンドミルショート形<br>2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys | | 674 |
| **CA-ETS** | 銅・アルミ合金用3枚刃超硬スクエアエンドミルショート形<br>3-flute Carbide End Mill Short Length for Copper and Aluminum Alloys | 側面切削<br>SIDE MILLING | 675 |
| **CA-CR-ETS** | 銅・アルミ合金用3枚刃超硬ラジアスエンドミルショート形<br>3-flute Carbide End Mill Short Length with Corner Radius for Copper and Aluminum Alloys | 側面切削<br>SIDE MILLING | 675 |
| **CA-ETS** | 銅・アルミ合金用3枚刃超硬スクエアエンドミルショート形<br>3-flute Carbide End Mill Short Length for Copper and Aluminum Alloys | 溝切削<br>SLOTTING | 675 |
| **CA-CR-ETS** | 銅・アルミ合金用3枚刃超硬ラジアスエンドミルショート形<br>3-flute Carbide End Mill Short Length with Corner Radius for Copper and Aluminum Alloys | 溝切削<br>SLOTTING | 675 |
| **CA-RG-EDL** | 銅・アルミ合金用2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length for Copper and Aluminum Alloys | 側面切削<br>SIDE MILLING | 676 |
| **CAP-EBD** | 銅・アルミ合金・プラスチック用2枚刃超硬ボールエンドミル<br>2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | 側面切削<br>SIDE MILLING | 677 |
| **CA-MFE** | 銅・アルミ合金用3枚刃超硬エンドミル立ち壁対応型<br>3-flute Carbide End Mill for Deep Side Milling in Copper and Aluminum Alloys | 側面切削<br>SIDE MILLING | 678 |
| **CA-MFE** | 銅・アルミ合金用3枚刃超硬エンドミル立ち壁対応型<br>3-flute Carbide End Mill for Deep Side Milling in Copper and Aluminum Alloys | 溝切削<br>SLOTTING | 678 |
| **CA-PKE** | 銅・アルミ合金用3枚刃超硬ラジアスエンドミル多機能強力型<br>3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type for Copper and Aluminum Alloys | 側面切削<br>SIDE MILLING | 679 |
| **CA-PKE** | 銅・アルミ合金用3枚刃超硬ラジアスエンドミル多機能強力型<br>3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type for Copper and Aluminum Alloys | 溝切削<br>SLOTTING | 679 |
| **CA-ZDS** | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルショート形<br>2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys for Counterboring | | 680 |
| **DLC-ZDS** | 座ぐり用DLCコート2枚刃超硬エンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length for Counterboring | | 680 |
| **DLC-CR-ZDS** | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring | | 680 |
| **CA-LS-ZDS** | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルロングシャンクショート形<br>2-flute Carbide End Mill Short Length with Long Shank for Copper and Aluminum Alloys for Counterboring | | 680 |
| **DLC-LS-ZDS** | 座ぐり用DLCコート2枚刃超硬エンドミルロングシャンクショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring | | 680 |

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 超硬エンドミル 切削条件 目次 INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS


| 製品記号 Abbreviation | 仕様 Specification | 切削条件 Type of process | ページ Page |
|---|---|---|---|
| **DLC-CR-LS-ZDS** | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルロングシャンクショート形<br>DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius and Long Shank for Counterboring | | 680 |
| **CA-SCC** | 銅・アルミ合金面取り用2枚刃超硬エンドミル<br>2-flute Carbide End Mill for Chamfering Copper and Aluminum Alloys | 穴面取り（突込み加工）<br>COUNTER SINKING | 681 |
| **CA-SCC** | 銅・アルミ合金面取り用2枚刃超硬エンドミル<br>2-flute Carbide End Mill for Chamfering Copper and Aluminum Alloys | 角面取り（側面切削）<br>CHAMFERING | 681 |
| **CA-LS-SCC** | 銅・アルミ合金面取り用2枚刃超硬エンドミルロングシャンク<br>2-flute Carbide End Mill with Long Shank for Chamfering Copper and Aluminum Alloys | 穴面取り（突込み加工）<br>COUNTER SINKING | 682 |
| **CA-LS-SCC** | 銅・アルミ合金面取り用2枚刃超硬エンドミルロングシャンク<br>2-flute Carbide End Mill with Long Shank for Chamfering Copper and Aluminum Alloys | 角面取り（側面切削）<br>CHAMFERING | 682 |
| **CRN-EBD-3** | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル（ミニチュア）<br>CrN Coated 2-flute Miniature Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ3 Shank) | | 682-1<br>WEB |
| **CRN-EBD** | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル<br>CrN Coated 2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | 標準・高速・ドライ切削<br>REGULAR / HIGH-SPEED / DRY | 682-1<br>WEB |
| **CRN-LN-EBD** | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックボールエンドミル<br>CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics | 標準・高速・ドライ切削<br>REGULAR / HIGH-SPEED / DRY | 682-2<br>WEB |
| **CRN-LN-EBD-4** | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックボールエンドミル（φ4シャンク）<br>CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ4 Shank) | 標準・高速・ドライ切削<br>REGULAR / HIGH-SPEED / DRY | 682-2<br>WEB |
| **CRN-HS-EBD** | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル（HSK対応）<br>CrN Coated 2-flute Carbide Ball End Mill with HS Shank for Copper, Aluminum Alloys and Plastics | | 682-2<br>WEB |
| **CRN-HS-EDS** | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形（HSK対応）<br>CrN Coated 2-flute Carbide End Mill with HS Shank Short Length for Copper, Aluminum Alloys and Plastics | | 682-3<br>WEB |
| **CRN-LN-EDS** | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックスクエアエンドミルショート形<br>CrN Coated 2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 682-4<br>WEB |
| **CRN-EDS-3** | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形（ミニチュア）<br>CrN Coated 2-flute Miniature Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (φ3 Shank) | | 682-5<br>WEB |
| **CRN-EMS** | 銅・アルミ合金・プラスチック用CrNコート4枚刃超硬スクエアエンドミルショート形<br>CrN Coated 4-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics | 標準・高速・ドライ切削<br>REGULAR / HIGH-SPEED / DRY | 682-5<br>WEB |
| **DLC-AIR-EDS** | アルミ合金用DLCコート2枚刃超硬ラジアスエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill with Corner Radius Short Length for Aluminum Alloys | | 685 |
| **AERO-ETS** | アルミ合金用DLCコート3枚刃超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length for Aluminum Alloys | | 685 |
| **AERO-O-ETS** | アルミ合金用DLCコート3枚刃油穴付き超硬エンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length with Internal Coolant Supply for Aluminum Alloys | | 686 |
| **AERO-ETL** | アルミ合金用DLCコート3枚刃超硬エンドミルロング形<br>DLC Coated 3-flute Carbide End Mill Long Length for Aluminum Alloys | | 686 |
| **AERO-EXTL** | アルミ合金用DLCコート3枚刃超硬エンドミルエキストラロング形<br>DLC Coated 3-flute Carbide End Mill Extra Long Length for Aluminum Alloys | | 686 |
| **DLC-EDS** | DLCコート2枚刃超硬スクエアエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill Short Length | | 687 |
| **DLC-LN-EDS** | DLCコート2枚刃超硬ロングネックスクエアエンドミルショート形<br>DLC Coated 2-flute Long Neck Carbide End Mill Short Length | | 687 |
| **SEP-EL** | スーパーエンプラ用DLCコート超硬エンドミル<br>DLC Coated Carbide End Mill for Super Engineering Plastic | 溝切削（刃長3D）<br>SLOTTING 3D | 683 |
| **SEP-EL** | スーパーエンプラ用DLCコート超硬エンドミル<br>DLC Coated Carbide End Mill for Super Engineering Plastic | 側面切削（刃長3D）<br>SIDE MILLING 3D | 683 |
| **SEP-EL** | スーパーエンプラ用DLCコート超硬エンドミル<br>DLC Coated Carbide End Mill for Super Engineering Plastic | 突込み切削（刃長3D）<br>PLUNGING 3D | 683 |
| **SEP-EL** | スーパーエンプラ用DLCコート超硬エンドミル<br>DLC Coated Carbide End Mill for Super Engineering Plastic | 側面切削（刃長5D）<br>SIDE MILLING 5D | 684 |
| **SEP-EL** | スーパーエンプラ用DLCコート超硬エンドミル<br>DLC Coated Carbide End Mill for Super Engineering Plastic | 突込み切削（刃長5D）<br>PLUNGING 5D | 684 |
| **DLC-MR-EDS** | DLCコート2枚刃超硬スクエアエンドミルショート形左刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill (LH Cut and LH Helix) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-1<br>WEB |
| **DLC-MR-EMS** | DLCコート多刃超硬スクエアエンドミルショート形左刃左ねじれ<br>DLC Coated Multi-flute Carbide End Mill Short Length (LH Cut and LH Helix) | 側面切削<br>SIDE MILLING | 687-1<br>WEB |
| **DLC-E1-3D** | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-2<br>WEB |
| **DLC-E1-5D** | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-2<br>WEB |
| **DLC-E1-3D-L** | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-2<br>WEB |
| **DLC-E1-5D-L** | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ<br>DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-2<br>WEB |

# INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS 超硬エンドミル 切削条件 目次

| 製品記号 Abbreviation | 仕様 Specification | 切削条件 Type of process | ページ Page |
|---|---|---|---|
| **DLC-E2-3D** | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-3<br>WEB |
| **DLC-E2-5D** | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-3<br>WEB |
| **DLC-E2-3D-L** | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-3<br>WEB |
| **DLC-E2-5D-L** | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ<br>DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix) | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 687-3<br>WEB |
| **DLC-EQD** | DLCコート2枚刃超硬エンドミル球形<br>DLC Coated 2-flute Carbide End Mill Sphere Type | | 687-4<br>WEB |
| **DLC-ETS** | DLCコート3枚刃超硬スクエアエンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length | 側面切削<br>SIDE MILLING | 688 |
| **DLC-ETS** | DLCコート3枚刃超硬スクエアエンドミルショート形<br>DLC Coated 3-flute Carbide End Mill Short Length | 溝切削<br>SLOTTING | 688 |
| **DLC-EBD** | DLCコート2枚刃超硬ボールエンドミル<br>DLC Coated 2-flute Carbide Ball End Mill | | 689 |
| **DLC-LN-EBD** | DLCコート2枚刃超硬ロングネックボールエンドミル<br>DLC Coated 2-flute Long Neck Carbide Ball End Mill | | 689 |
| **DLC-PKE** | DLCコート3枚刃超硬ラジアスエンドミル多機能強力型<br>DLC Coated 3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 側面切削<br>SIDE MILLING | 690 |
| **DLC-PKE** | DLCコート3枚刃超硬ラジアスエンドミル多機能強力型<br>DLC Coated 3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type | 溝切削<br>SLOTTING | 690 |
| **DLC-AIR-EDS** | アルミ合金用DLCコート2枚刃超硬ラジアスエンドミルショート形<br>DLC Coated 2-flute Carbide End Mill with Corner Radius Short Length for Aluminum Alloys | | 691 |
| **DIA-EDS** | DIAコート2枚刃超硬スクエアエンドミルショート形<br>Diamond Coated 2-flute Carbide End Mill Short Length | | 691 |
| **DIA-2D-DE** | DIAコート2枚刃超硬スクエアエンドミル2D刃長<br>Diamond Coated 2-flute Carbide End Mill (2D Type) | | 691 |
| **DIA-LS-CRED** | DIAコート2枚刃超硬ラジアスエンドミルロングシャンク<br>Diamond Coated 2-flute Carbide End Mill with Corner Radius, Long Shank | | 692 |
| **DIA-PC-EBD** | DIAコート2枚刃超硬ペンシルネックボールエンドミル<br>Diamond Coated 2-flute Pencil Neck Carbide Ball End Mill | | 692 |
| **DIA-EBD** | DIAコート2枚刃超硬ボールエンドミル<br>Diamond Coated 2-flute Carbide Ball End Mill | 標準・高速・ドライ切削<br>REGULAR / HIGH-SPEED / DRY | 693 |
| **DIA-LN-EBD** | DIAコート2枚刃超硬ロングネックボールエンドミル<br>Diamond Coated 2-flute Long Neck Carbide Ball End Mill | 標準・高速・ドライ切削<br>REGULAR / HIGH-SPEED / DRY | 693 |
| **DIA-ZDS** | 座ぐり用DIAコート2枚刃超硬エンドミルショート形<br>Diamond Coated 2-flute Carbide End Mill Short Length for Counterboring | | 694 |
| **DG-EMS** | グラファイト用DGコート4枚刃超硬スクエアエンドミルショート形<br>DG Coated 4-flute Carbide End Mill Short Length for Graphite | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 695 |
| **DG-LN-EMS** | グラファイト用DGコート4枚刃超硬ロングネックスクエアエンドミルショート形<br>DG Coated 4-flute Long Neck Carbide End Mill Short Length for Graphite | 溝切削・側面切削<br>SLOTTING / SIDE MILLING | 695 |
| **DG-EBD** | グラファイト用DGコート2枚刃超硬ボールエンドミル<br>DG Coated 2-flute Carbide Ball End Mill for Graphite | 荒加工・仕上げ加工<br>ROUGHING / FINISHING | 696 |
| **DG-EBM** | グラファイト用DGコート4枚刃超硬ボールエンドミル<br>DG Coated 4-flute Carbide Ball End Mill for Graphite | 荒加工・仕上げ加工<br>ROUGHING / FINISHING | 696 |
| **DG-LN-EBM** | グラファイト用DGコート4枚刃超硬ロングネックボールエンドミル<br>DG Coated 4-flute Long Neck Carbide Ball End Mill for Graphite | 荒加工・仕上げ加工<br>ROUGHING / FINISHING | 696 |
| **DG-LN-EBD** | グラファイト用DGコート2枚刃超硬ロングネックボールエンドミル<br>DG Coated 2-flute Long Neck Carbide Ball End Mill for Graphite | 荒加工・仕上げ加工<br>ROUGHING / FINISHING | 697 |
| **DG-CPR** | グラファイト用DGコート超硬ロングネックラジアスエンドミル<br>DG Coated Long Neck Carbide End Mills with Corner Radius for Graphite | 荒加工・仕上げ加工<br>ROUGHING / FINISHING | 698 |
| **DIA-GF-EBDR** | グラファイト用DIAコート2枚刃超硬ボールエンドミル<br>Diamond Coated 2-flute Carbide Ball End Mill for Graphite | | 694-1<br>WEB |
| **D-GF-LS-EBDR** | グラファイト用DIAコート2枚刃超硬ボールエンドミルロングシャンク<br>Diamond Coated 2-flute Carbide Ball End Mill with Long Shank for Graphite | | 694-1<br>WEB |
| **GF-EDR** | グラファイト用2枚刃超硬スクエアエンドミルレギュラ形<br>2-flute Carbide End Mill Regular Length for Graphite | 側面切削<br>SIDE MILLING | 694-1<br>WEB |
| **GF-EDL** | グラファイト用2枚刃超硬スクエアエンドミルロング形<br>2-flute Carbide End Mill Long Length for Graphite | 側面切削<br>SIDE MILLING | 694-1<br>WEB |
| **GF-EMR** | グラファイト用4枚刃超硬スクエアエンドミルレギュラ形<br>4-flute Carbide End Mill Regular Length for Graphite | 側面切削<br>SIDE MILLING | 694-1<br>WEB |
| **GF-EML** | グラファイト用4枚刃超硬スクエアエンドミルロング形<br>4-flute Carbide End Mill Long Length for Graphite | 側面切削<br>SIDE MILLING | 694-2<br>WEB |

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 超硬エンドミル 切削条件 目次 INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS


| 製品記号 Abbreviation | 仕様 Specification | 切削条件 Type of process | ページ Page |
|---|---|---|---|
| **GF-LS-EDR** | グラファイト用2枚刃超硬スクエアエンドミルロングシャンクレギュラ形<br>2-flute Carbide End Mill Regular Length with Long Shank for Graphite | 側面切削<br>SIDE MILLING | 694-2<br>WEB |
| **GF-LS-EMR** | グラファイト用4枚刃超硬スクエアエンドミルロングシャンクレギュラ形<br>4-flute Carbide End Mill Regular Length with Long Shank for Graphite | 側面切削<br>SIDE MILLING | 694-2<br>WEB |
| **GF-EBDR** | グラファイト用2枚刃超硬ボールエンドミルレギュラ形<br>2-flute Carbide Ball End Mill Regular Length for Graphite | | 694-2<br>WEB |
| **GF-LS-EBDR** | グラファイト用2枚刃超硬ボールエンドミルロングシャンクレギュラ形<br>2-flute Carbide Ball End Mill Regular Length with Long Shank for Graphite | | 694-2<br>WEB |
| **GF-EBDL** | グラファイト用2枚刃超硬ボールエンドミルロング形<br>2-flute Carbide Ball End Mill Long Length for Graphite | | 694-2<br>WEB |
| **FX-MCF** | 底面仕上げ用FXコート4枚刃サーメットラジアスエンドミル<br>FX Coated 4-flute Cermet End Mill with Corner Radius for Bottom Finishing | | 699 |
| **MDOS** | 1枚刃PCDスクエアエンドミルショート形<br>Single-flute PCD End Mill Short Length | | 699 |
| **MBOS** | 1枚刃CBNスクエアエンドミルショート形<br>Single-flute CBN Brazed End Mill Short Length | 側面切削<br>SIDE MILLING | 699 |
| **MBOS** | 1枚刃CBNスクエアエンドミルショート形<br>Single-flute CBN Brazed End Mill Short Length | 溝切削<br>SLOTTING | 699 |
| **FX-ECR** | FXコート2枚刃超硬コーナラウンディング<br>FX Coated 2-flute Carbide End Mill with Corner Rounding | | 702 |
| **SXL-ECR** | SXLコート2枚刃超硬コーナラウンディング<br>SXL Coated 2-flute Carbide End Mill with Corner Rounding | | 702 |
| **DUR-ECR** | DUROREYコート2枚刃超硬コーナラウンディング<br>DUROREY Coated 2-flute Carbide End Mill with Corner Rounding | | 701-1<br>WEB |
| **DIA-ECR** | DIAコート2枚刃超硬コーナラウンディング<br>Diamond Coated 2-flute Carbide End Mill with Corner Rounding | | 701-2<br>WEB |
| **W-HSCT-P** | 面取り用WXLコート3枚刃超硬エンドミルポジタイプ<br>WXL Coated 3-flute Carbide End Mill for Chamfering (Positive) | | 700 |
| **W-HSCT-N** | 面取り用WXLコート3枚刃超硬エンドミルネガタイプ<br>WXL Coated 3-flute Carbide End Mill for Chamfering (Negative) | | 700 |
| **WLS-HSCT-P** | 面取り用WXLコート3枚刃超硬エンドミルロングシャンクポジタイプ<br>WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Positive) | | 700 |
| **WLS-HSCT-N** | 面取り用WXLコート3枚刃超硬エンドミルロングシャンクネガタイプ<br>WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Negative) | | 700 |
| **HSCT-P** | 面取り用3枚刃超硬エンドミルポジタイプ<br>3-flute Carbide End Mill for Chamfering (Positive) | | 700 |
| **HSCT-N** | 面取り用3枚刃超硬エンドミルネガタイプ<br>3-flute Carbide End Mill for Chamfering (Negative) | | 700 |
| **LS-HSCT-P** | 面取り用3枚刃超硬エンドミルロングシャンクポジタイプ<br>3-flute Carbide End Mill with Long Shank for Chamfering (Positive) | | 700 |
| **LS-HSCT-N** | 面取り用3枚刃超硬エンドミルロングシャンクネガタイプ<br>3-flute Carbide End Mill with Long Shank for Chamfering (Negative) | | 700 |
| **FX-MG-CS** | FXコート3枚刃カウンターシンク<br>FX Coated 3-flute Countersink | | 700 |
| **HY-HSCM-P** | 面取り用WXLコート多刃超硬エンドミルポジタイプ<br>WXL Coated Multi-flute Carbide End Mill for Chamfering(Positive) | | 701 |
| **HY-QCC** | 面取り用WXLコート超硬Qボールエンドミル<br>WXL Coated Carbide Q Ball End Mill for Chamfering | | 701 |
| **HY-BCC** | 裏面取り用WXLコート超硬エンドミル<br>WXL Coated Carbide End Mill for Back Chamfering | | 701 |
| **DIA-BNC** | DIAコート超硬ルーターファインクロスニック<br>Diamond Coated Fine Nicked Carbide Router | | 702 |
| **DIA-HBC4** | DIAコート4枚刃超硬ヘリングボーンカッタ<br>Diamond Coated Carbide Router for CFRP Herringbone Type | | 702 |
| **DIA-HBC60** | DIAコート超硬ヘリングボーンカッタ60°<br>Diamond Coated Carbide Router Herringbone Type (60°) | | 702 |
| **DIA-CNC** | DIAコート超硬ルーター高能率コースクロスニック<br>Diamond Coated Coarse Nicked Carbide Router | | 702 |
| **DIA-DCR** | DIAコート超硬綾目ルーター底刃有り<br>Diamond Coated Diamond Cut Carbide Router with End Mill Cut | | 702 |
| **DIA-DCR-N** | DIAコート超硬綾目ルーター底刃無し<br>Diamond Coated Diamond Cut Carbide Router with No End Cut | | 702 |
| **DIA-DCE** | DIAコート超硬綾目ルーター底刃有り<br>Diamond Coated Diamond Cut Carbide Router with End Mill Cut | | 702 |

# INDEX OF CUTTING CONDITIONS FOR TUNGSTEN CARBIDE END MILLS 超硬エンドミル 切削条件 目次

| 製品記号 Abbreviation | 仕様 Specification | 切削条件 Type of process | ページ Page |
|---|---|---|---|
| **DIA-DCE-N** | DIAコート超硬綾目ルーター底刃無し<br>Diamond Coated Diamond Cut Carbide Router with No End Cut | | 702 |
| **DIA-DCE-D** | DIAコート超硬綾目ルーター底刃ドリル仕様<br>Diamond Coated Diamond Cut Carbide Router with Drill Point | | 702 |
| **DIA-REC** | 荒用DIAコート超硬ルーターラフィングタイプ<br>Diamond Coated Carbide Router for Roughing | | 702 |
| **DIA-MRC** | DIAコート超硬ルーター底刃コーナR付<br>Diamond Coated Carbide Router with Corner Radius | | 702 |
| **DIA-COE** | DIAコート1枚刃超硬ルーター弱ねじれ<br>Diamond Coated Single-flute Low Helix Carbide Router | | 702 |
| **DIA-MFC** | 仕上げ用DIAコート多刃超硬ルーター<br>Diamond Coated Multi-flute Carbide Router for Finishing | | 702 |
| **DIA-TRE** | 薄板トリミング用DIAコート超硬綾目ルーター底刃無し<br>Diamond Coated Diamond Cut Carbide Router with No End Cut for Trimming Laminates | | 702 |
| **DIA-TRE-D** | 薄板トリミング用DIAコート超硬綾目ルーター底刃ドリル仕様<br>Diamond Coated Diamond Cut Carbide Router with Drill Point for Trimming Laminates | | 702 |
| **DCR** | 超硬綾目ルーター(インチ)<br>Diamond Cut Carbide Router | | 702 |
| **DCE** | 超硬綾目ルーター(メートル)<br>Diamond Cut Carbide Router | | 702 |
| **HBC60** | 超硬ヘリングボーンカッタ60°<br>Carbide Router Herringbone Type (60°) | | 702 |
| **ED-EM** | 電着ダイヤモンドルーター<br>Electroplated Diamond Router for CFRP | | 703 |
| **ED-EB** | 電着ダイヤモンドボールエンドミル<br>Electroplated Diamond Ball End | | 703 |
| **CM-RMS** | セラミックラジアスエンドミル外周刃タイプ<br>Ceramic End Mill with Corner Radius Outer Cutting Edge Type | | 704 |
| **CM-CRE** | セラミックエンドミル底刃タイプ<br>Ceramic End Mill with Corner Radius Bottom Cutting Edge Type | | 704 |
| **AM-EBT** | アディティブ・マニュファクチャリング用DUROREYコート3枚刃超硬ボールエンドミル<br>DUROREY Coated 3-flute Carbide Ball End Mill for Additive Manufacturing | | 705 |
| **AM-CRE** | アディティブ・マニュファクチャリング用DUROREYコート多刃超硬ラジアスエンドミル<br>DUROREY Coated Multi-flute Carbide End Mill with Corner Radius for Additive Manufacturing | | 705 |
| **AM-HFC** | アディティブ・マニュファクチャリング用DUROREYコート6枚刃高送り超硬ラジアスエンドミル<br>DUROREY Coated 6-flute High Feed Carbide End Mill with Corner Radius for Additive Manufacturing | 正面切削<br>FRONTAL MILLING | 706 |
| **AM-HFC** | アディティブ・マニュファクチャリング用DUROREYコート6枚刃高送り超硬ラジアスエンドミル<br>DUROREY Coated 6-flute High Feed Carbide End Mill with Corner Radius for Additive Manufacturing | 側面切削<br>SIDE MILLING | 707 |
| **IB-TPBT** | インペラ・タービンブレード用コーティング3枚刃超硬テーパボールエンドミル<br>Coated 3-flute Carbide Taper Ball End Mill for Impellers and Turbine Blades | 側面切削<br>SIDE MILLING | 708 |
| **IB-TPBT** | インペラ・タービンブレード用コーティング3枚刃超硬テーパボールエンドミル<br>Coated 3-flute Carbide Taper Ball End Mill for Impellers and Turbine Blades | 先端(ボール部)標準切削<br>TIP (BALL SECTION) STANDARD CUTTING | 708 |
| **IB-TPBT** | インペラ・タービンブレード用コーティング3枚刃超硬テーパボールエンドミル<br>Coated 3-flute Carbide Taper Ball End Mill for Impellers and Turbine Blades | 先端(ボール部)高速切削<br>TIP (BALL SECTION) HIGH-SPEED CUTTING | 708 |

形状寸法表
SPECIFICATION CHARTS
AE-VMSS▶P296・318

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-VMSS

### スクエアタイプ / ライトアングルタイプ※

※ライトアングルタイプは回転速度と送り速度を下表の70%を目安にご使用下さい。

SQUARE TYPE / RIGHT ANGLE TYPE*

*For right angle type, please use 70% of the speed and feed shown in the table below as reference.

### 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100(80-120) | | 90(70-110) | | 80(60-100) | | 70(50-80) | | 70(60-80) | | 60(50-70) | | 25(20-30) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 28,700 | 570 | 25,500 | 460 | 22,300 | 360 | 19,100 | 340 | 25,620 | 320 | 22,280 | 300 | 9,550 | 120 |
| 1.5 | 19,100 | 610 | 17,000 | 480 | 14,900 | 420 | 12,700 | 360 | 16,980 | 360 | 14,850 | 340 | 6,370 | 130 |
| 2 | 14,300 | 630 | 12,700 | 510 | 11,100 | 440 | 9,600 | 380 | 12,810 | 360 | 11,140 | 350 | 4,770 | 140 |
| 2.5 | 11,500 | 780 | 10,200 | 570 | 8,900 | 460 | 7,600 | 430 | 10,190 | 410 | 8,910 | 390 | 3,820 | 150 |
| 3 | 10,600 | 930 | 9,600 | 690 | 8,500 | 510 | 7,400 | 470 | 8,540 | 430 | 7,430 | 410 | 3,180 | 160 |
| 4 | 8,000 | 960 | 7,200 | 720 | 6,400 | 510 | 5,600 | 490 | 6,410 | 460 | 5,570 | 440 | 2,390 | 170 |
| 5 | 6,400 | 1,020 | 5,700 | 800 | 5,100 | 610 | 4,500 | 560 | 5,120 | 490 | 4,460 | 470 | 1,910 | 180 |
| 6 | 5,300 | 1,060 | 4,800 | 900 | 4,200 | 670 | 3,700 | 370 | 4,270 | 480 | 3,710 | 460 | 1,590 | 180 |
| 8 | 4,000 | 910 | 3,600 | 720 | 3,200 | 640 | 2,800 | 370 | 2,750 | 450 | 2,390 | 430 | 1,190 | 200 |
| 10 | 3,200 | 840 | 2,900 | 700 | 2,500 | 550 | 2,200 | 350 | 2,200 | 420 | 1,910 | 400 | 950 | 180 |
| 12 | 2,700 | 810 | 2,400 | 670 | 2,100 | 550 | 1,900 | 330 | 1,830 | 420 | 1,590 | 400 | 800 | 180 |
| 切込深さ Depth of Cut | ap 1D | | | | | | DC / ap: DC≦6 → 0.5D; DC>6 → 1D | | | | ap 0.25D | | | |

### 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 130(100-150) | | 120(100-150) | | 100(80-120) | | 80(60-100) | | 80(70-90) | | 70(60-80) | | 30(25-40) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 38,200 | 840 | 28,700 | 690 | 25,500 | 510 | 22,300 | 450 | 29,280 | 370 | 25,460 | 350 | 12,730 | 160 |
| 1.5 | 25,500 | 920 | 21,200 | 760 | 17,000 | 540 | 14,900 | 460 | 19,520 | 410 | 16,980 | 400 | 8,490 | 180 |
| 2 | 19,900 | 1,430 | 17,500 | 840 | 14,300 | 630 | 11,100 | 470 | 14,640 | 440 | 12,730 | 420 | 6,370 | 190 |
| 2.5 | 15,900 | 1,590 | 14,000 | 900 | 11,500 | 690 | 8,900 | 480 | 11,710 | 480 | 10,190 | 460 | 5,090 | 210 |
| 3 | 13,800 | 1,660 | 12,700 | 1,070 | 10,600 | 760 | 8,000 | 480 | 9,760 | 510 | 8,490 | 480 | 4,240 | 220 |
| 4 | 10,400 | 1,830 | 9,600 | 1,150 | 8,000 | 800 | 6,000 | 530 | 7,320 | 550 | 6,370 | 530 | 3,180 | 240 |
| 5 | 8,300 | 1,990 | 7,600 | 1,220 | 6,400 | 900 | 4,800 | 560 | 5,860 | 560 | 5,090 | 540 | 2,550 | 250 |
| 6 | 6,900 | 2,070 | 6,400 | 1,540 | 5,300 | 1,060 | 4,200 | 640 | 4,880 | 580 | 4,240 | 550 | 2,120 | 250 |
| 8 | 5,200 | 1,770 | 4,800 | 1,540 | 4,000 | 1,040 | 3,200 | 610 | 3,200 | 450 | 2,790 | 430 | 1,590 | 230 |
| 10 | 4,100 | 1,640 | 3,800 | 1,370 | 3,200 | 900 | 2,500 | 580 | 2,560 | 430 | 2,230 | 410 | 1,270 | 220 |
| 12 | 3,500 | 1,400 | 3,200 | 1,280 | 2,700 | 760 | 2,100 | 530 | 2,140 | 420 | 1,860 | 400 | 1,060 | 210 |
| 切込深さ Depth of Cut | ap 1.5D | | | | | | ae 0.2D | | | | | | | |

1. 上表は、突出し長さが工具径の3倍の場合の目安です。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 回転速度は基準切削速度の中央値より算出したものです。ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
4. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
5. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
6. ステンレス鋼、析出硬化系ステンレス鋼、チタン合金、Ni基合金の加工には、水溶性切削油剤の使用を推奨します。
7. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
8. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し量変化による切削条件調整の目安」を参考に調整下さい (p.496参照)。

1. The above milling condition is a guideline for the overhang length is 3× D.
2. Use a rigid and precise machine and holder.
3. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
6. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
7. Reduce speed and feed as well as depth of cut when high precision is required.
8. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.496).

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## AE-VMSS
### ロングネック タイプ
### 側面切削

LONG NECK TYPE
SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 105(80-120) | | 95(70-110) | | 70(50-90) | | 60(40-80) | | 60(50-70) | | 50(40-60) | | 30(20-35) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 5,520 | 1,660 | 5,120 | 1,230 | 3,710 | 740 | 2,940 | 450 | 3,420 | 410 | 2,970 | 390 | 1,480 | 180 |
| 8 | 4,160 | 1,420 | 3,840 | 1,230 | 2,800 | 730 | 2,240 | 430 | 2,240 | 320 | 1,950 | 300 | 1,110 | 160 |
| 10 | 3,280 | 1,310 | 3,040 | 1,100 | 2,240 | 630 | 1,750 | 410 | 1,790 | 300 | 1,560 | 290 | 890 | 150 |
| 12 | 2,800 | 1,120 | 2,560 | 1,020 | 1,890 | 530 | 1,470 | 370 | 1,500 | 290 | 1,300 | 280 | 740 | 150 |
| 切込深さ Depth of Cut | ap 1.5D | ae 0.2D | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 回転速度は基準切削速度の中央値より算出したものです。ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
5. ステンレス鋼、析出硬化系ステンレス鋼、チタン合金、Ni基合金の加工には、水溶性切削油剤の使用を推奨します。
6. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。

1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
6. Reduce speed and feed as well as depth of cut when high precision is required.

## 突出し長さ変化による切削条件調整の目安（φ6≦DC）

| | 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 突出し長さ L/D | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 溝切削 Slot Milling | 4 | 80% | | 70% | | 70% | | 60% | | 60% | | 50% | | 50% | |
| | 5 | 70% | | 60% | | 60% | | 50% | | 50% | | 50% | | 50% | |
| 側面切削 Side Milling | 4 | 90% | | 90% | | 80% | | 70% | | 70% | | 60% | | 60% | |
| | 5 | 80% | | 80% | | 70% | | 70% | | 70% | | 60% | | 60% | |

形状寸法表
SPECIFICATION CHARTS
AE-VMS▶P300・370

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-VMS

### 低炭素型製品Gtag / スクエアタイプ / ライトアングルタイプ※ LOW CARBON PRODUCTS GTAG / SQUARE TYPE / RIGHT ANGLE TYPE*

※ライトアングルタイプは回転速度と送り速度を下表の70%を目安にご使用下さい。
*For right angle type, please use 70% of the speed and feed shown in the table below as reference.

### 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100(80-120) | | 90(70-110) | | 80(60-100) | | 70(50-80) | | 70(60-80) | | 60(50-70) | | 25(20-30) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 930 | 9,600 | 690 | 8,500 | 510 | 7,400 | 470 | 8,540 | 430 | 7,430 | 410 | 3,180 | 160 |
| 4 | 8,000 | 960 | 7,200 | 720 | 6,400 | 510 | 5,600 | 490 | 6,410 | 460 | 5,570 | 440 | 2,390 | 170 |
| 5 | 6,400 | 1,020 | 5,700 | 800 | 5,100 | 610 | 4,500 | 560 | 5,120 | 490 | 4,460 | 470 | 1,910 | 180 |
| 6 | 5,300 | 1,060 | 4,800 | 900 | 4,200 | 670 | 3,700 | 370 | 4,270 | 480 | 3,710 | 460 | 1,590 | 180 |
| 8 | 4,000 | 910 | 3,600 | 720 | 3,200 | 640 | 2,800 | 370 | 2,750 | 450 | 2,390 | 430 | 1,190 | 200 |
| 10 | 3,200 | 840 | 2,900 | 700 | 2,500 | 550 | 2,200 | 350 | 2,200 | 420 | 1,910 | 400 | 950 | 180 |
| 12 | 2,700 | 810 | 2,400 | 670 | 2,100 | 550 | 1,900 | 330 | 1,830 | 420 | 1,590 | 400 | 800 | 180 |
| 16 | 2,000 | 600 | 1,800 | 500 | 1,600 | 420 | 1,200 | 310 | 1,140 | 260 | 990 | 250 | 500 | 110 |
| 20 | 1,600 | 480 | 1,400 | 390 | 1,300 | 340 | 900 | 250 | 920 | 270 | 800 | 260 | 400 | 120 |
| 25 | 1,300 | 390 | 1,100 | 310 | 1,000 | 260 | 600 | 170 | 730 | 250 | 640 | 240 | 250 | 90 |
| 切込深さ Depth of Cut | ap 1D | | | | | | DC: ap; DC≦6: 0.5D; DC>6: 1D | | | | ap 0.25D | | | |

### 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 130(100-150) | | 120(100-150) | | 100(80-120) | | 80(60-100) | | 80(70-90) | | 70(60-80) | | 30(25-40) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 13,800 | 1,660 | 12,700 | 1,070 | 10,600 | 760 | 8,000 | 480 | 9,760 | 510 | 8,490 | 480 | 4,240 | 220 |
| 4 | 10,400 | 1,830 | 9,600 | 1,150 | 8,000 | 800 | 6,000 | 530 | 7,320 | 550 | 6,370 | 530 | 3,180 | 240 |
| 5 | 8,300 | 1,990 | 7,600 | 1,220 | 6,400 | 900 | 4,800 | 560 | 5,860 | 560 | 5,090 | 540 | 2,550 | 250 |
| 6 | 6,900 | 2,070 | 6,400 | 1,540 | 5,300 | 1,060 | 4,200 | 640 | 4,880 | 580 | 4,240 | 550 | 2,120 | 250 |
| 8 | 5,200 | 1,770 | 4,800 | 1,540 | 4,000 | 1,040 | 3,200 | 610 | 3,200 | 450 | 2,790 | 430 | 1,590 | 230 |
| 10 | 4,100 | 1,640 | 3,800 | 1,370 | 3,200 | 900 | 2,500 | 580 | 2,560 | 430 | 2,230 | 410 | 1,270 | 220 |
| 12 | 3,500 | 1,400 | 3,200 | 1,280 | 2,700 | 760 | 2,100 | 530 | 2,140 | 420 | 1,860 | 400 | 1,060 | 210 |
| 16 | 2,600 | 1,250 | 2,400 | 1,060 | 2,000 | 640 | 1,400 | 450 | 1,370 | 410 | 1,190 | 400 | 700 | 210 |
| 20 | 2,100 | 1,010 | 1,900 | 840 | 1,600 | 510 | 1,100 | 370 | 1,100 | 390 | 950 | 380 | 560 | 200 |
| 25 | 1,700 | 820 | 1,500 | 660 | 1,300 | 420 | 900 | 310 | 880 | 510 | 760 | 490 | 320 | 190 |
| 切込深さ Depth of Cut | ap 1.5D; ae 0.2D | | | | | | | | | | | | | |

1. 上表は、突出し長さが工具径の3倍の場合の目安です。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 回転速度は基準切削速度の中央値より算出したものです。ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
4. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
5. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
6. ステンレス鋼、析出硬化系ステンレス鋼、チタン合金、Ni基合金の加工には、水溶性切削油剤の使用を推奨します。
7. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
8. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し量変化による切削条件調整の目安」を参考に調整下さい（下表参照）。

1. The above milling condition is a guideline for the overhang length is 3× D.
2. Use a rigid and precise machine and holder.
3. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
6. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
7. Reduce speed and feed as well as depth of cut when high precision is required.
8. Adjust the speed and feed accordingly when the overhang length is longer than specified (see table below).

### 突出し量変化による切削条件調整の目安（φ6≦DC） FIX RATE FOR CUTTING CONDITION

| | 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 突出し量 L/D | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 溝切削 Slot Milling | 4 | 80% | | 70% | | 70% | | 60% | | 60% | | 50% | | 50% | |
| | 5 | 70% | | 60% | | 60% | | 50% | | 50% | | 50% | | 50% | |
| 側面切削 Side Milling | 4 | 90% | | 90% | | 80% | | 70% | | 70% | | 60% | | 60% | |
| | 5 | 80% | | 80% | | 70% | | 70% | | 70% | | 60% | | 60% | |

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## AE-VMS

### ラジアス タイプ 溝切削

RADIUS TYPE SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100(80-120) | | 90(70-110) | | 80(60-100) | | 70(50-80) | | 70(60-80) | | 60(50-70) | | 25(20-30) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 790 | 9,600 | 590 | 8,500 | 410 | 7,400 | 380 | 8,540 | 430 | 7,430 | 410 | 3,180 | 160 |
| 4 | 8,000 | 820 | 7,200 | 610 | 6,400 | 410 | 5,600 | 390 | 6,410 | 460 | 5,570 | 440 | 2,390 | 170 |
| 5 | 6,400 | 870 | 5,700 | 680 | 5,100 | 490 | 4,500 | 450 | 5,120 | 490 | 4,460 | 470 | 1,910 | 180 |
| 6 | 5,300 | 1,010 | 4,800 | 860 | 4,200 | 600 | 3,700 | 330 | 4,270 | 480 | 3,710 | 460 | 1,590 | 180 |
| 8 | 4,000 | 870 | 3,600 | 680 | 3,200 | 580 | 2,800 | 330 | 2,750 | 450 | 2,390 | 430 | 1,190 | 200 |
| 10 | 3,200 | 800 | 2,900 | 660 | 2,500 | 500 | 2,200 | 320 | 2,200 | 420 | 1,910 | 400 | 950 | 180 |
| 12 | 2,700 | 770 | 2,400 | 640 | 2,100 | 490 | 1,900 | 300 | 1,830 | 420 | 1,590 | 400 | 800 | 180 |
| 切込深さ Depth of Cut | ap 1D | | | | | | DC / ap<br>DC≦6 / 0.5D<br>DC>6 / 1D | | | | ap 0.25D | | | |

### 側面切削

SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 130(100-150) | | 120(100-150) | | 100(80-120) | | 80(60-100) | | 80(70-90) | | 70(60-80) | | 30(25-40) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 13,800 | 1,410 | 12,700 | 910 | 10,600 | 610 | 8,000 | 380 | 9,760 | 510 | 8,490 | 480 | 4,240 | 220 |
| 4 | 10,400 | 1,560 | 9,600 | 980 | 8,000 | 640 | 6,000 | 480 | 7,320 | 550 | 6,370 | 530 | 3,180 | 240 |
| 5 | 8,300 | 1,690 | 7,600 | 1,030 | 6,400 | 720 | 4,800 | 450 | 5,860 | 560 | 5,090 | 540 | 2,550 | 250 |
| 6 | 6,900 | 1,970 | 6,400 | 1,460 | 5,300 | 950 | 4,200 | 570 | 4,880 | 580 | 4,240 | 550 | 2,120 | 250 |
| 8 | 5,200 | 1,680 | 4,800 | 1,460 | 4,000 | 940 | 3,200 | 550 | 3,200 | 450 | 2,790 | 430 | 1,590 | 230 |
| 10 | 4,100 | 1,560 | 3,800 | 1,300 | 3,200 | 810 | 2,500 | 520 | 2,560 | 430 | 2,230 | 410 | 1,270 | 220 |
| 12 | 3,500 | 1,330 | 3,200 | 1,220 | 2,700 | 680 | 2,100 | 480 | 2,140 | 420 | 1,860 | 400 | 1,060 | 210 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.2D | | | | | | | | | | | | | |

1. 上表は、突出し長さが工具径の3倍の場合の目安です。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 回転速度は基準切削速度の中央値より算出したものです。ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
4. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
5. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
6. ステンレス鋼、析出硬化系ステンレス鋼、チタン合金、Ni基合金の加工には、水溶性切削油剤の使用を推奨します。
7. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
8. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し量変化による切削条件調整の目安」を参考に調整下さい（下表参照）。

1. The above milling condition is a guideline for the overhang length is 3× D.
2. Use a rigid and precise machine and holder.
3. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
6. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
7. Reduce speed and feed as well as depth of cut when high precision is required.
8. Adjust the speed and feed accordingly when the overhang length is longer than specified (see table below).

## 突出し長さ変化による切削条件調整の目安（φ6≦DC）

| | 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 突出し長さ L/D | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 溝切削 Slot Milling | 4 | 80% | | 70% | | 70% | | 60% | | 60% | | 50% | | 50% | |
| | 5 | 70% | | 60% | | 60% | | 50% | | 50% | | 50% | | 50% | |
| 側面切削 Side Milling | 4 | 90% | | 90% | | 80% | | 70% | | 70% | | 60% | | 60% | |
| | 5 | 80% | | 80% | | 70% | | 70% | | 70% | | 60% | | 60% | |

形状寸法表 SPECIFICATION CHARTS AE-VML▶P305
形状寸法表 SPECIFICATION CHARTS AE-VML（チップブレーカタイプ）▶P306

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-VML

**標準側面切削 刃長3D（スクエア/ラジアス/チップブレーカタイプ共通）** STANDARD SIDE MILLING 3D (APPLIES TO SQUARE / RADIUS / CHIPBREAKER TYPE)
**径方向切込深さae＝0.05D** DEPTH OF CUT

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250（～750N/mm²） | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD（～30HRC） | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80（30～45HRC） | | ステンレス鋼 Stainless Steel SUS304・SUS420（≦200HB） | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 160（140-180） | | 150（130-170） | | 140（120-160） | | 125（100-140） | | 115（90-130） | | 105（80-120） | | 85（70-90） | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 8,500 | 2,480 | 8,000 | 2,180 | 7,400 | 2,010 | 6,600 | 1,660 | 6,100 | 1,530 | 5,600 | 1,400 | 4,500 | 1,080 |
| 8 | 6,400 | 1,870 | 6,000 | 1,630 | 5,600 | 1,520 | 5,000 | 1,260 | 4,600 | 1,160 | 4,200 | 1,050 | 3,400 | 820 |
| 10 | 5,100 | 1,730 | 4,800 | 1,440 | 4,500 | 1,350 | 4,000 | 1,120 | 3,700 | 1,040 | 3,300 | 920 | 2,700 | 720 |
| 12 | 4,200 | 1,430 | 4,000 | 1,200 | 3,700 | 1,110 | 3,300 | 920 | 3,000 | 840 | 2,800 | 780 | 2,200 | 590 |
| 16 | 3,180 | 1,590 | 2,990 | 1,350 | 2,790 | 1,260 | 2,490 | 1,000 | 2,290 | 920 | 2,090 | 840 | 1,690 | 630 |
| 20 | 2,550 | 1,280 | 2,390 | 1,080 | 2,230 | 1,000 | 1,990 | 800 | 1,830 | 730 | 1,670 | 670 | 1,350 | 510 |
| 切込深さ Depth of Cut | ap | ae | | | | | | | | | | | | |
| | 3D | 0.05D | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 回転速度は基準切削速度の中央値より算出したものです。ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
5. ステンレス鋼、析出硬化系ステンレス鋼、チタン合金、Ni基合金の加工には、水溶性切削油剤の使用を推奨します。
6. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。

1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
6. Reduce speed and feed as well as depth of cut when high precision is required.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## AE-VML

### 高能率側面切削 刃長3D(スクエア/ラジアス/チップブレーカタイプ共通)

HIGH EFFICIENCY SIDE MILLING 3D (APPLIES TO SQUARE / RADIUS / CHIPBREAKER TYPE)

⚠ 高速高精度マシニングセンタと高剛性ホルダを使用し、強固にワークが保持されている場合の基準条件表です。

Caution:The chart below shows the milling condition with the use of a high-speed, high precision machining center, rigid holder and secure work fixture.

### 径方向切込深さae＝0.1D

DEPTH OF CUT

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250（～750N/mm²） | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD（～30HRC） | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80（30～45HRC） | | ステンレス鋼 Stainless Steel SUS304・SUS420（≦200HB） | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 220(200-240) | | 170(150-190) | | 135(110-150) | | 130(110-150) | | 120(100-140) | | 110(90-130) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 11,700 | 3,180 | 9,000 | 2,270 | 7,200 | 1,810 | 6,900 | 1,600 | 6,400 | 1,480 | 5,800 | 1,340 |
| 8 | 8,800 | 2,390 | 6,800 | 1,710 | 5,400 | 1,360 | 5,200 | 1,210 | 4,800 | 1,120 | 4,400 | 1,020 |
| 10 | 7,000 | 2,240 | 5,400 | 1,510 | 4,300 | 1,200 | 4,100 | 1,070 | 3,800 | 990 | 3,500 | 910 |
| 12 | 5,800 | 1,860 | 4,500 | 1,260 | 3,600 | 1,010 | 3,500 | 910 | 3,200 | 830 | 2,900 | 750 |
| 16 | 4,380 | 1,970 | 3,380 | 1,350 | 2,690 | 1,080 | 2,590 | 910 | 2,390 | 840 | 2,190 | 770 |
| 20 | 3,500 | 1,580 | 2,710 | 1,080 | 2,150 | 860 | 2,070 | 720 | 1,910 | 670 | 1,750 | 610 |

| 切込深さ Depth of Cut | ap | ae |
|---|---|---|
| | 3D | 0.1D |

### 径方向切込深さae＝0.15D

DEPTH OF CUT

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250（～750N/mm²） | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD（～30HRC） | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80（30～45HRC） | | ステンレス鋼 Stainless Steel SUS304・SUS420（≦200HB） | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 140(120-160) | | 100(80-120) | | 90(70-110) | | 85(60-100) | | 75(50-90) | | 65(40-80) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 7,400 | 1,860 | 5,600 | 1,300 | 4,800 | 1,110 | 4,500 | 950 | 4,000 | 840 | 3,400 | 720 |
| 8 | 5,600 | 1,410 | 4,200 | 970 | 3,600 | 840 | 3,400 | 720 | 3,000 | 640 | 2,600 | 550 |
| 10 | 4,500 | 1,350 | 3,300 | 860 | 2,900 | 750 | 2,700 | 650 | 2,400 | 580 | 2,100 | 510 |
| 12 | 3,700 | 1,110 | 2,800 | 730 | 2,400 | 620 | 2,300 | 550 | 2,000 | 480 | 1,700 | 410 |
| 16 | 2,790 | 1,120 | 1,990 | 700 | 1,790 | 630 | 1,690 | 570 | 1,490 | 510 | 1,290 | 420 |
| 20 | 2,230 | 890 | 1,590 | 560 | 1,430 | 500 | 1,350 | 460 | 1,190 | 400 | 1,040 | 340 |

| 切込深さ Depth of Cut | ap | ae |
|---|---|---|
| | 3D | 0.15D |

### 径方向切込深さae≦0.2D

DEPTH OF CUT

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250（～750N/mm²） | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD（～30HRC） | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80（30～45HRC） | | ステンレス鋼 Stainless Steel SUS304・SUS420（≦200HB） | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100(80-120) | | 80(60-100) | | 70(50-90) | | 65(40-80) | | 55(30-70) | | 45(20-60) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 5,300 | 1,230 | 4,200 | 890 | 3,700 | 780 | 3,500 | 670 | 2,900 | 560 | 2,400 | 460 |
| 8 | 4,000 | 930 | 3,200 | 680 | 2,800 | 590 | 2,600 | 500 | 2,200 | 420 | 1,800 | 350 |
| 10 | 3,200 | 900 | 2,500 | 600 | 2,200 | 530 | 2,100 | 460 | 1,800 | 390 | 1,400 | 310 |
| 12 | 2,700 | 760 | 2,100 | 500 | 1,900 | 460 | 1,700 | 370 | 1,500 | 330 | 1,200 | 260 |
| 16 | 1,990 | 800 | 1,590 | 560 | 1,390 | 490 | 1,290 | 420 | 1,090 | 350 | 900 | 270 |
| 20 | 1,590 | 640 | 1,270 | 440 | 1,110 | 390 | 1,040 | 340 | 880 | 290 | 720 | 220 |

| 切込深さ Depth of Cut | ap | ae |
|---|---|---|
| | 3D | ≦0.2D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 回転速度は基準切削速度の中央値より算出したものです。ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
5. ステンレス鋼、析出硬化系ステンレス鋼、チタン合金、Ni基合金の加工には、水溶性切削油剤の使用を推奨します。
6. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。

1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
6. Reduce speed and feed as well as depth of cut when high precision is required.

形状寸法表 SPECIFICATION CHARTS AE-VML ▶P305
形状寸法表 SPECIFICATION CHARTS AE-VML（チップブレーカタイプ）▶P306

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-VML

### 標準側面切削 刃長4D（スクエア/ラジアス/チップブレーカタイプ共通） STANDARD SIDE MILLING 4D (APPLIES TO SQUARE / RADIUS / CHIPBREAKER TYPE)
### 径方向切込深さae＝0.05D DEPTH OF CUT

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250（～750N/mm²） | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD（～30HRC） | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80（30～45HRC） | | ステンレス鋼 Stainless Steel SUS304・SUS420（≦200HB） | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 140（120-160） | | 130（110-150） | | 120（100-140） | | 115（90-130） | | 105（80-120） | | 95（70-110） | | 75（60-80） | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 7,400 | 2,010 | 6,900 | 1,740 | 6,400 | 1,610 | 6,100 | 1,420 | 5,600 | 1,300 | 5,000 | 1,160 | 4,000 | 880 |
| 8 | 5,600 | 1,520 | 5,200 | 1,310 | 4,800 | 1,210 | 4,600 | 1,070 | 4,200 | 980 | 3,800 | 880 | 3,000 | 660 |
| 10 | 4,500 | 1,440 | 4,100 | 1,230 | 3,800 | 1,140 | 3,700 | 960 | 3,300 | 860 | 3,000 | 780 | 2,400 | 590 |
| 12 | 3,700 | 1,180 | 3,500 | 1,050 | 3,200 | 960 | 3,100 | 810 | 2,800 | 730 | 2,500 | 650 | 2,000 | 500 |
| 16 | 2,790 | 1,330 | 2,590 | 1,170 | 2,390 | 1,080 | 2,290 | 860 | 2,090 | 780 | 1,890 | 710 | 1,490 | 520 |
| 20 | 2,230 | 1,060 | 2,070 | 930 | 1,910 | 860 | 1,830 | 690 | 1,670 | 630 | 1,510 | 570 | 1,190 | 420 |
| 切込深さ Depth of Cut | ap: 4D　ae: 0.05D | | | | | | | | | | | | | |

### 高能率側面切削 刃長4D（スクエア/ラジアス/チップブレーカタイプ共通） HIGH EFFICIENCY SIDE MILLING 4D (APPLIES TO SQUARE / RADIUS / CHIPBREAKER TYPE)
⚠ 高速高精度マシニングセンタと高剛性ホルダを使用し、強固にワークが保持されている場合の基準条件表です。
Caution:The chart below shows the milling condition with the use of a high-speed, high precision machining center, rigid holder and secure work fixture.

### 径方向切込深さae＝0.1D DEPTH OF CUT

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250（～750N/mm²） | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD（～30HRC） | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80（30～45HRC） | | ステンレス鋼 Stainless Steel SUS304・SUS420（≦200HB） | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 200（180-220） | | 160（140-180） | | 130（110-150） | | 125（100-140） | | 115（90-130） | | 105（80-120） | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 10,600 | 2,670 | 8,500 | 1,970 | 6,900 | 1,600 | 6,600 | 1,400 | 6,100 | 1,290 | 5,600 | 1,190 |
| 8 | 8,000 | 2,020 | 6,400 | 1,480 | 5,200 | 1,210 | 5,000 | 1,060 | 4,600 | 980 | 4,200 | 890 |
| 10 | 6,400 | 1,920 | 5,100 | 1,330 | 4,100 | 1,070 | 4,000 | 960 | 3,700 | 890 | 3,300 | 790 |
| 12 | 5,300 | 1,590 | 4,200 | 1,090 | 3,500 | 910 | 3,300 | 790 | 3,000 | 720 | 2,800 | 670 |
| 16 | 3,980 | 1,690 | 3,180 | 1,190 | 2,590 | 970 | 2,490 | 870 | 2,290 | 800 | 2,090 | 730 |
| 20 | 3,180 | 1,350 | 2,550 | 960 | 2,070 | 780 | 1,990 | 700 | 1,830 | 640 | 1,670 | 580 |
| 切込深さ Depth of Cut | ap: 4D　ae: 0.1D | | | | | | | | | | | |

### 径方向切込深さae≦0.15D DEPTH OF CUT

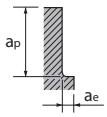
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250（～750N/mm²） | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD（～30HRC） | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80（30～45HRC） | | ステンレス鋼 Stainless Steel SUS304・SUS420（≦200HB） | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 135（110-150） | | 115（100-140） | | 85（60-100） | | 75（50-90） | | 65（50-80） | | 55（40-70） | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 7,200 | 1,670 | 6,100 | 1,290 | 4,500 | 950 | 4,000 | 770 | 3,400 | 650 | 2,900 | 560 |
| 8 | 5,400 | 1,250 | 4,600 | 980 | 3,400 | 720 | 3,000 | 580 | 2,600 | 500 | 2,200 | 430 |
| 10 | 4,300 | 1,200 | 3,700 | 890 | 2,700 | 650 | 2,400 | 530 | 2,100 | 460 | 1,800 | 400 |
| 12 | 3,600 | 1,010 | 3,100 | 740 | 2,300 | 550 | 2,000 | 440 | 1,700 | 370 | 1,500 | 330 |
| 16 | 2,690 | 1,080 | 2,290 | 800 | 1,690 | 590 | 1,490 | 480 | 1,290 | 420 | 1,090 | 330 |
| 20 | 2,150 | 860 | 1,830 | 640 | 1,350 | 470 | 1,190 | 390 | 1,040 | 340 | 880 | 260 |
| 切込深さ Depth of Cut | ap: 4D　ae: ≦0.15D | | | | | | | | | | | |

※Ni基合金加工の際は標準側面切削条件表をご利用下さい。
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 回転速度は基準切削速度の中央値より算出したものです。ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
5. ステンレス鋼、析出硬化系ステンレス鋼、チタン合金、Ni基合金の加工には、水溶性切削油剤の使用を推奨します。
6. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。

※ For Ni-based alloys, use the standard side milling cutting condition table.
1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
6. Reduce speed and feed as well as depth of cut when high precision is required.

## AE-VMFE
### スクエア／ラジアスタイプ共通 側面切削

APPLIES TO SQUARE / RADIUS TYPE SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 120(100-140) | | 120(100-140) | | 120(100-140) | | 120(100-140) | | 115(100-130) | | 105(90-120) | | 70(60-80) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 6,370 | 2,550 | 6,370 | 2,290 | 6,370 | 2,040 | 6,370 | 1,910 | 6,100 | 1,590 | 5,570 | 1,340 | 3,720 | 740 |
| 8 | 4,780 | 1,910 | 4,780 | 1,720 | 4,780 | 1,530 | 4,780 | 1,430 | 4,580 | 1,190 | 4,180 | 1,000 | 2,790 | 560 |
| 10 | 3,820 | 1,530 | 3,820 | 1,380 | 3,820 | 1,220 | 3,820 | 1,150 | 3,660 | 950 | 3,340 | 800 | 2,230 | 490 |
| 12 | 3,180 | 1,270 | 3,180 | 1,140 | 3,180 | 1,020 | 3,180 | 950 | 3,050 | 790 | 2,790 | 670 | 1,860 | 410 |
| 14 | 2,730 | 1,090 | 2,730 | 980 | 2,730 | 870 | 2,730 | 820 | 2,620 | 680 | 2,390 | 570 | 1,590 | 480 |
| 18 | 2,120 | 850 | 2,120 | 760 | 2,120 | 680 | 2,120 | 640 | 2,030 | 530 | 1,860 | 450 | 1,240 | 370 |
| 22 | 1,740 | 700 | 1,740 | 630 | 1,740 | 560 | 1,740 | 520 | 1,660 | 430 | 1,520 | 360 | 1,010 | 300 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | | | |

| ap | ae |
|---|---|
| 2D | 0.1D |

1. 上表は、突出し長さが工具径の5倍の場合の目安です。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
4. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
5. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
6. ステンレス鋼，析出硬化系ステンレス鋼，チタン合金，Ni 基合金の加工には、水溶性切削油剤の使用を推奨します。
7. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
8. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し長さ変化による切削条件調整の目安」を参考に調整下さい。

1. The above milling condition is a guideline for the overhang length is 5× D.
2. Use a rigid and precise machine and holder.
3. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
6. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
7. Reduce speed and feed as well as depth of cut when high precision is required.
8. Adjust the speed and feed accordingly when the overhang length is longer than specified.

## 突出し長さ変化による切削条件調整の目安 CUTTING CONDITION GUIDE FOR CHANGES IN OVERHANG LENGTH

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄・合金鋼・合金工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel (～750N/mm², ～30HRC) | | | | プリハードン鋼・焼入れ鋼・ステンレス鋼 Prehardened Steel・Hardened Steel・Stainless Steel (30～45HRC) | | | | チタン合金・Ni基合金 Titanium Alloy・Ni-Based Alloy Ti-6Al-4V・Inconel 718 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 突出し長さ L/D | 切削速度 Cutting Speed (m/min) | 送り速度 Feed (mm/min) | 切込深さ Depth of Cut ap | 切込深さ Depth of Cut ae | 切削速度 Cutting Speed (m/min) | 送り速度 Feed (mm/min) | 切込深さ Depth of Cut ap | 切込深さ Depth of Cut ae | 切削速度 Cutting Speed (m/min) | 送り速度 Feed (mm/min) | 切込深さ Depth of Cut ap | 切込深さ Depth of Cut ae |
| 6 | 80% | 80% | 1.7D | 0.08D | 80% | 80% | 1.7D | 0.08D | 80% | 80% | 1.7D | 0.08D |
| 7 | 65% | 65% | 1.6D | 0.05D | 65% | 65% | 1.6D | 0.05D | 65% | 65% | 1.6D | 0.05D |
| 8 | 50% | 50% | 1.5D | 0.03D | 40% | 40% | 1.5D | 0.03D | 30% | 30% | 1.5D | 0.03D |

形状寸法表
SPECIFICATION CHARTS
AE-VTSS▶P309

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-VTSS

### 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100 | | 70 | | 60 | | 60 | | 50 | | 50 | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 650 | 7,400 | 480 | 6,400 | 350 | 6,400 | 330 | 5,300 | 300 | 5,300 | 280 |
| 4 | 8,000 | 670 | 5,600 | 500 | 4,800 | 350 | 4,800 | 340 | 4,000 | 320 | 4,000 | 310 |
| 5 | 6,400 | 710 | 4,500 | 560 | 3,800 | 420 | 3,800 | 390 | 3,200 | 340 | 3,200 | 330 |
| 6 | 5,300 | 740 | 3,700 | 620 | 3,200 | 460 | 3,200 | 260 | 2,700 | 330 | 2,700 | 320 |
| 8 | 4,000 | 630 | 2,800 | 500 | 2,400 | 440 | 2,400 | 260 | 2,000 | 310 | 2,000 | 300 |
| 10 | 3,200 | 580 | 2,200 | 490 | 1,900 | 380 | 1,900 | 240 | 1,600 | 290 | 1,600 | 280 |
| 12 | 2,700 | 560 | 1,900 | 460 | 1,600 | 380 | 1,600 | 230 | 1,300 | 290 | 1,300 | 280 |
| 切込深さ Depth of Cut | | | | ap 0.5D | | | | | | ap 0.25D | | |

### 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100 | | 90 | | 80 | | 70 | | 70 | | 60 | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 960 | 9,600 | 610 | 8,500 | 460 | 7,400 | 310 | 7,400 | 330 | 6,400 | 310 |
| 4 | 8,000 | 1,060 | 7,200 | 650 | 6,400 | 480 | 5,600 | 350 | 5,600 | 360 | 4,800 | 340 |
| 5 | 6,400 | 1,150 | 5,700 | 690 | 5,100 | 540 | 4,500 | 370 | 4,500 | 370 | 3,800 | 340 |
| 6 | 5,300 | 1,190 | 4,800 | 870 | 4,200 | 630 | 3,700 | 420 | 3,700 | 380 | 3,200 | 360 |
| 8 | 4,000 | 1,020 | 3,600 | 870 | 3,200 | 620 | 2,800 | 400 | 2,800 | 300 | 2,400 | 280 |
| 10 | 3,200 | 960 | 2,900 | 780 | 2,500 | 530 | 2,200 | 380 | 2,200 | 280 | 1,900 | 270 |
| 12 | 2,700 | 810 | 2,400 | 720 | 2,100 | 440 | 1,900 | 360 | 1,900 | 280 | 1,600 | 250 |
| 切込深さ Depth of Cut | | | | | ap 1D | | ae 0.2D | | | | | |

### 突込み切削 PLUNGING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | ステンレス鋼 Stainless Steel SUS304・SUS420 (≦200HB) | | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100 | | 70 | | 60 | | 60 | | 50 | | 50 | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 250 | 7,400 | 115 | 6,400 | 110 | 6,400 | 110 | 5,300 | 60 | 5,300 | 60 |
| 4 | 8,000 | 250 | 5,600 | 115 | 4,800 | 110 | 4,800 | 110 | 4,000 | 60 | 4,000 | 60 |
| 5 | 6,400 | 285 | 4,500 | 120 | 3,800 | 110 | 3,800 | 110 | 3,200 | 65 | 3,200 | 65 |
| 6 | 5,300 | 320 | 3,700 | 120 | 3,200 | 110 | 3,200 | 110 | 2,700 | 70 | 2,700 | 70 |
| 8 | 4,000 | 300 | 2,800 | 110 | 2,400 | 100 | 2,400 | 100 | 2,000 | 65 | 2,000 | 65 |
| 10 | 3,200 | 290 | 2,200 | 105 | 1,900 | 95 | 1,900 | 95 | 1,600 | 60 | 1,600 | 60 |
| 12 | 2,700 | 275 | 1,900 | 100 | 1,600 | 90 | 1,600 | 90 | 1,300 | 55 | 1,300 | 55 |
| 切込深さ Depth of Cut | | | | | | ap ≦0.5D | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 回転速度は基準切削速度の中央値より算出したものです。ワーク保持力、機械剛性等、使用状況により回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
5. ステンレス鋼、析出硬化系ステンレス鋼、チタン合金の加工には、水溶性切削油剤の使用を推奨します。
6. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。

1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy.
6. Reduce speed and feed as well as depth of cut when high precision is required.

# AE-TS-N

## スクエア/ピンカド/ラジアスタイプ 溝切削

SQUARE/SHARP CORNER EDGE/RADIUS TYPE SLOTTING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 300 | | 300 | | 150 | |
| 外径×首下長 DC×LU | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 × 3 | 32,000 | 1,200 | 32,000 | 1,200 | 16,000 | 540 |
| 1.5 × 4.5 | 32,000 | 1,350 | 32,000 | 1,350 | 16,000 | 610 |
| 2 × 6 | 32,000 | 1,540 | 32,000 | 1,540 | 16,000 | 660 |
| 2.5 × 7.5 | 32,000 | 1,630 | 32,000 | 1,630 | 16,000 | 810 |
| 3 × 9 | 32,000 | 1,720 | 32,000 | 1,720 | 16,000 | 960 |
| 4 × 12 | 24,000 | 1,780 | 24,000 | 1,780 | 12,000 | 1,030 |
| 5 × 15 | 19,200 | 1,840 | 19,200 | 1,840 | 9,600 | 1,090 |
| 6 × 18 | 16,000 | 1,900 | 16,000 | 1,900 | 8,000 | 1,160 |
| 8 × 24 | 12,000 | 2,030 | 12,000 | 2,030 | 6,000 | 1,300 |
| 10 × 30 | 9,600 | 2,150 | 9,600 | 2,150 | 4,800 | 1,430 |
| 12 × 36 | 8,000 | 2,270 | 8,000 | 2,270 | 4,000 | 1,560 |
| 16 × 48 | 6,000 | 2,380 | 6,000 | 2,380 | 3,000 | 1,630 |
| 20 × 60 | 4,800 | 2,490 | 4,800 | 2,490 | 2,400 | 1,700 |
| 25 × 75 | 3,850 | 2,600 | 3,850 | 2,600 | 1,900 | 1,780 |
| 切込深さ Depth of Cut | ap 1D | | ap 1D | | ap 0.5D | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 90 | | 70 | | 90 | | 90 | |
| 外径×首下長 DC×LU | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 × 3 | 25,500 | 1,910 | 19,100 | 1,150 | 25,500 | 1,150 | 25,500 | 1,150 |
| 1.5 × 4.5 | 17,000 | 1,530 | 12,700 | 950 | 17,000 | 770 | 17,000 | 770 |
| 2 × 6 | 12,700 | 1,330 | 9,500 | 860 | 12,700 | 760 | 12,700 | 760 |
| 2.5 × 7.5 | 10,200 | 1,220 | 7,600 | 800 | 10,200 | 610 | 10,200 | 610 |
| 3 × 9 | 8,500 | 1,150 | 6,400 | 770 | 8,500 | 510 | 8,500 | 510 |
| 4 × 12 | 6,400 | 1,090 | 4,800 | 750 | 6,400 | 480 | 6,400 | 480 |
| 5 × 15 | 5,100 | 1,070 | 3,800 | 740 | 5,100 | 460 | 5,100 | 460 |
| 6 × 18 | 4,200 | 1,010 | 3,200 | 740 | 4,200 | 440 | 4,200 | 440 |
| 8 × 24 | 3,200 | 960 | 2,600 | 740 | 3,200 | 390 | 3,200 | 390 |
| 10 × 30 | 2,900 | 870 | 2,200 | 630 | 2,900 | 390 | 2,900 | 390 |
| 12 × 36 | 2,400 | 790 | 2,000 | 630 | 2,400 | 360 | 2,400 | 360 |
| 16 × 48 | 2,000 | 720 | 1,600 | 550 | 2,000 | 360 | 2,000 | 360 |
| 20 × 60 | 1,600 | 620 | 1,300 | 490 | 1,600 | 340 | 1,600 | 340 |
| 25 × 75 | 1,300 | 590 | 1,000 | 440 | 1,300 | 310 | 1,300 | 310 |
| 切込深さ Depth of Cut | | | | | ap DC≦12 1D 12<DC 0.5D | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し長さ変化による切削条件調整の目安」を参考に調整下さい (p.507参照)。
5. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
6. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
7. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
8. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します (ナイロン系とベークライトを除く)。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.507).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

形状寸法表
SPECIFICATION CHARTS
AE-TS-N▶P278・395

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-TS-N
## スクエア/ピンカド/ラジアスタイプ 側面切削

SQUARE/SHARP CORNER EDGE/RADIUS TYPE SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 300 | | 300 | | 150 | |
| 外径×首下長 DC×LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × 3 | 32,000 | 1,300 | 32,000 | 1,300 | 16,000 | 600 |
| 1.5 × 4.5 | 32,000 | 1,430 | 32,000 | 1,430 | 16,000 | 660 |
| 2 × 6 | 32,000 | 1,730 | 32,000 | 1,730 | 16,000 | 720 |
| 2.5 × 7.5 | 32,000 | 1,920 | 32,000 | 1,920 | 16,000 | 900 |
| 3 × 9 | 32,000 | 2,150 | 32,000 | 2,150 | 16,000 | 1,200 |
| 4 × 12 | 24,000 | 2,230 | 24,000 | 2,230 | 12,000 | 1,290 |
| 5 × 15 | 19,200 | 2,300 | 19,200 | 2,300 | 9,600 | 1,360 |
| 6 × 18 | 16,000 | 2,380 | 16,000 | 2,380 | 8,000 | 1,450 |
| 8 × 24 | 12,000 | 2,540 | 12,000 | 2,540 | 6,000 | 1,620 |
| 10 × 30 | 9,600 | 2,690 | 9,600 | 2,690 | 4,800 | 1,780 |
| 12 × 36 | 8,000 | 2,840 | 8,000 | 2,840 | 4,000 | 1,950 |
| 16 × 48 | 6,000 | 2,980 | 6,000 | 2,980 | 3,000 | 2,040 |
| 20 × 60 | 4,800 | 3,100 | 4,800 | 3,100 | 2,400 | 2,130 |
| 25 × 75 | 3,850 | 3,200 | 3,850 | 3,200 | 1,900 | 2,200 |
| 切込深さ Depth of Cut | | | ap | ae | | |
| | | | 1.5D | 0.2D | | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 110 | | 90 | | 110 | | 110 | |
| 外径×首下長 DC×LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × 3 | 31,800 | 2,390 | 25,500 | 1,530 | 31,800 | 1,430 | 31,800 | 1,430 |
| 1.5 × 4.5 | 21,200 | 1,910 | 17,000 | 1,280 | 21,200 | 950 | 21,200 | 950 |
| 2 × 6 | 15,900 | 1,670 | 12,700 | 1,140 | 15,900 | 950 | 15,900 | 950 |
| 2.5 × 7.5 | 12,700 | 1,520 | 10,200 | 1,070 | 12,700 | 760 | 12,700 | 760 |
| 3 × 9 | 10,600 | 1,430 | 8,500 | 1,020 | 10,600 | 640 | 10,600 | 640 |
| 4 × 12 | 8,000 | 1,370 | 6,400 | 1,000 | 8,000 | 600 | 8,000 | 600 |
| 5 × 15 | 6,400 | 1,340 | 5,100 | 990 | 6,400 | 580 | 6,400 | 580 |
| 6 × 18 | 5,300 | 1,270 | 4,200 | 950 | 5,300 | 560 | 5,300 | 560 |
| 8 × 24 | 4,000 | 1,200 | 3,400 | 870 | 4,000 | 480 | 4,000 | 480 |
| 10 × 30 | 3,500 | 1,050 | 2,900 | 830 | 3,500 | 470 | 3,500 | 470 |
| 12 × 36 | 2,900 | 960 | 2,500 | 790 | 2,900 | 440 | 2,900 | 440 |
| 16 × 48 | 2,400 | 860 | 2,000 | 690 | 2,400 | 430 | 2,400 | 430 |
| 20 × 60 | 1,900 | 740 | 1,600 | 600 | 1,900 | 400 | 1,900 | 400 |
| 25 × 75 | 1,500 | 680 | 1,300 | 570 | 1,500 | 360 | 1,500 | 360 |
| 切込深さ Depth of Cut | | | | ap | ae | | | |
| | | | | 1.5D | 0.5D | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し長さ変化による切削条件調整の目安」を参考に調整下さい（p.507参照）。
5. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
6. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
7. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
8. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.507).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

# AE-TS-N

## スクエア/ピンカド/ラジアスタイプ 突込み切削

SQUARE/SHARP CORNER EDGE/RADIUS TYPE PLUNGING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 80 | | 80 | | 60 | |
| 外径×首下長 DC×LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × 3 | 16,000 | 350 | 16,000 | 350 | 10,000 | 100 |
| 1.5 × 4.5 | 16,000 | 350 | 16,000 | 350 | 9,000 | 100 |
| 2 × 6 | 12,750 | 350 | 12,750 | 350 | 8,500 | 100 |
| 2.5 × 7.5 | 10,000 | 350 | 10,000 | 350 | 8,000 | 100 |
| 3 × 9 | 8,500 | 400 | 8,500 | 400 | 6,400 | 120 |
| 4 × 12 | 6,400 | 400 | 6,400 | 400 | 4,800 | 120 |
| 5 × 15 | 5,100 | 400 | 5,100 | 400 | 3,800 | 120 |
| 6 × 18 | 4,200 | 450 | 4,200 | 450 | 3,100 | 130 |
| 8 × 24 | 3,200 | 500 | 3,200 | 500 | 2,400 | 150 |
| 10 × 30 | 2,550 | 500 | 2,550 | 500 | 1,900 | 150 |
| 12 × 36 | 2,100 | 500 | 2,100 | 500 | 1,600 | 150 |
| 16 × 48 | 1,600 | 550 | 1,600 | 550 | 1,200 | 170 |
| 20 × 60 | 1,300 | 550 | 1,300 | 550 | 960 | 170 |
| 25 × 75 | 1,020 | 550 | 1,020 | 550 | 770 | 170 |
| 切込深さ Depth of Cut | ap / 1D | | | | ap / 0.5D | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 90 | | 70 | | 90 | | 90 | |
| 外径×首下長 DC×LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × 3 | 25,500 | 480 | 19,100 | 290 | 25,500 | 290 | 25,500 | 290 |
| 1.5 × 4.5 | 17,000 | 380 | 12,700 | 240 | 17,000 | 190 | 17,000 | 190 |
| 2 × 6 | 12,700 | 330 | 9,500 | 210 | 12,700 | 190 | 12,700 | 190 |
| 2.5 × 7.5 | 10,200 | 310 | 7,600 | 200 | 10,200 | 150 | 10,200 | 150 |
| 3 × 9 | 8,500 | 290 | 6,400 | 190 | 8,500 | 130 | 8,500 | 130 |
| 4 × 12 | 6,400 | 270 | 4,800 | 190 | 6,400 | 120 | 6,400 | 120 |
| 5 × 15 | 5,100 | 270 | 3,800 | 190 | 5,100 | 110 | 5,100 | 110 |
| 6 × 18 | 4,200 | 250 | 3,200 | 190 | 4,200 | 110 | 4,200 | 110 |
| 8 × 24 | 3,200 | 250 | 2,600 | 190 | 3,200 | 110 | 3,200 | 110 |
| 10 × 30 | 2,900 | 250 | 2,200 | 180 | 2,900 | 110 | 2,900 | 110 |
| 12 × 36 | 2,400 | 250 | 2,000 | 180 | 2,400 | 110 | 2,400 | 110 |
| 16 × 48 | 2,000 | 240 | 1,600 | 180 | 2,000 | 110 | 2,000 | 110 |
| 20 × 60 | 1,600 | 210 | 1,300 | 160 | 1,600 | 110 | 1,600 | 110 |
| 25 × 75 | 1,300 | 200 | 1,000 | 150 | 1,300 | 100 | 1,300 | 100 |
| 切込深さ Depth of Cut | ap / 1D | | | | | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し長さ変化による切削条件調整の目安」を参考に調整下さい (p.507参照)。
5. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
6. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
7. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
8. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します (ナイロン系とベークライトを除く)。
9. 樹脂を突込み切削する場合はステップ送りを行って下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.507).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
9. Please step feed when processing resin by plunging.

形状寸法表
SPECIFICATION CHARTS
AE-TS-N▶P278・395

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-TS-N

スクエア/ピンカド/ラジアスタイプ
突出し長さ変化による切削条件調整の目安（DC＝φ6、φ8）

SQUARE/SHARP CORNER EDGE/RADIUS TYPE
CUTTING CONDITION GUIDE FOR CHANGES IN OVERHANG LENGTH

| | 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|
| | 突出し長さ L/D | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 溝切削 Slot Milling | 5 | 70% | | 70% | | 70% | |
| | 6 | 40% | | 40% | | 40% | |
| 側面切削 Side Milling | 5 | 70% | | 70% | | 70% | |
| | 6 | 50% | | 50% | | 50% | |
| 突込み切削 Plunging | 5 | 80% | | 80% | | 80% | |
| | 6 | 60% | | 60% | | 60% | |

# AE-TL-N
## スクエア/ピンカドタイプ 3D刃長 溝切削

SQUARE/SHARP CORNER EDGE TYPE
3 X D FLUTE LENGTH
SLOTTING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 240 | | 240 | | 120 | |
| 外径×刃長 DC×APMX | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 3 × 9 | 25,600 | 1,380 | 25,600 | 1,380 | 12,800 | 770 |
| 4 × 12 | 19,200 | 1,420 | 19,200 | 1,420 | 9,600 | 820 |
| 5 × 15 | 15,360 | 1,470 | 15,360 | 1,470 | 7,680 | 870 |
| 6 × 18 | 12,800 | 1,520 | 12,800 | 1,520 | 6,400 | 930 |
| 8 × 24 | 9,600 | 1,620 | 9,600 | 1,620 | 4,800 | 1,040 |
| 10 × 30 | 7,680 | 1,720 | 7,680 | 1,720 | 3,840 | 1,140 |
| 12 × 36 | 6,400 | 1,820 | 6,400 | 1,820 | 3,200 | 1,250 |
| 16 × 48 | 4,800 | 1,920 | 4,800 | 1,920 | 2,400 | 1,320 |
| 20 × 60 | 3,800 | 2,020 | 3,800 | 2,020 | 1,900 | 1,390 |
| 25 × 75 | 3,060 | 2,120 | 3,060 | 2,120 | 1,530 | 1,460 |
| 切込深さ Depth of Cut | | ap 1D | | | | ap 0.5D |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 90 | | 70 | | 90 | | 90 | |
| 外径×刃長 DC×APMX | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 3 × 9 | 8,500 | 1,150 | 6,400 | 770 | 8,500 | 510 | 8,500 | 510 |
| 4 × 12 | 6,400 | 1,090 | 4,800 | 750 | 6,400 | 480 | 6,400 | 480 |
| 5 × 15 | 5,100 | 1,070 | 3,800 | 740 | 5,100 | 460 | 5,100 | 460 |
| 6 × 18 | 4,200 | 1,010 | 3,200 | 740 | 4,200 | 440 | 4,200 | 440 |
| 8 × 24 | 3,200 | 960 | 2,600 | 740 | 3,200 | 390 | 3,200 | 390 |
| 10 × 30 | 2,900 | 870 | 2,200 | 630 | 2,900 | 390 | 2,900 | 390 |
| 12 × 36 | 2,400 | 790 | 2,000 | 630 | 2,400 | 360 | 2,400 | 360 |
| 16 × 48 | 2,000 | 720 | 1,600 | 550 | 2,000 | 360 | 2,000 | 360 |
| 20 × 60 | 1,600 | 620 | 1,300 | 490 | 1,600 | 340 | 1,600 | 340 |
| 25 × 75 | 1,300 | 590 | 1,000 | 440 | 1,300 | 310 | 1,300 | 310 |
| 切込深さ Depth of Cut | | | | ap DC≦12 1D 12<DC 0.5D | | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカーの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
5. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
6. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
5. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

形状寸法表
SPECIFICATION CHARTS
AE-TL-N▶P284

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-TL-N
スクエア/ピンカドタイプ
3D刃長
側面切削

SQUARE/SHARP CORNER EDGE TYPE
3 X D FLUTE LENGTH
SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 240 | | 240 | | 120 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 × 9 | 25,600 | 1,720 | 25,600 | 1,720 | 12,800 | 960 |
| 4 × 12 | 19,200 | 1,780 | 19,200 | 1,780 | 9,600 | 1,020 |
| 5 × 15 | 15,360 | 1,840 | 15,360 | 1,840 | 7,680 | 1,080 |
| 6 × 18 | 12,800 | 1,900 | 12,800 | 1,900 | 6,400 | 1,160 |
| 8 × 24 | 9,600 | 2,030 | 9,600 | 2,030 | 4,800 | 1,300 |
| 10 × 30 | 7,680 | 2,150 | 7,680 | 2,150 | 3,840 | 1,420 |
| 12 × 36 | 6,400 | 2,270 | 6,400 | 2,270 | 3,200 | 1,550 |
| 16 × 48 | 4,800 | 2,390 | 4,800 | 2,390 | 2,400 | 1,630 |
| 20 × 60 | 3,800 | 2,510 | 3,800 | 2,510 | 1,900 | 1,710 |
| 25 × 75 | 3,060 | 2,640 | 3,060 | 2,640 | 1,530 | 1,800 |
| 切込深さ Depth of Cut | | | ap: 3D | ae: 0.1D | | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 110 | | 90 | | 110 | | 110 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 × 9 | 10,600 | 1,430 | 8,500 | 1,020 | 10,600 | 640 | 10,600 | 640 |
| 4 × 12 | 8,000 | 1,370 | 6,400 | 1,000 | 8,000 | 600 | 8,000 | 600 |
| 5 × 15 | 6,400 | 1,340 | 5,100 | 990 | 6,400 | 580 | 6,400 | 580 |
| 6 × 18 | 5,300 | 1,270 | 4,200 | 950 | 5,300 | 560 | 5,300 | 560 |
| 8 × 24 | 4,000 | 1,200 | 3,400 | 870 | 4,000 | 480 | 4,000 | 480 |
| 10 × 30 | 3,500 | 1,050 | 2,900 | 830 | 3,500 | 470 | 3,500 | 470 |
| 12 × 36 | 2,900 | 960 | 2,500 | 790 | 2,900 | 440 | 2,900 | 440 |
| 16 × 48 | 2,400 | 860 | 2,000 | 690 | 2,400 | 430 | 2,400 | 430 |
| 20 × 60 | 1,900 | 740 | 1,600 | 600 | 1,900 | 400 | 1,900 | 400 |
| 25 × 75 | 1,500 | 680 | 1,300 | 570 | 1,500 | 360 | 1,500 | 360 |
| 切込深さ Depth of Cut | | | | ap: 3D | ae: 0.2D | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
5. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
6. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
5. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

# AE-TL-N
## スクエア/ピンカドタイプ 3D刃長 突込み切削

SQUARE/SHARP CORNER EDGE TYPE
3 X D FLUTE LENGTH
PLUNGING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 70 | | 70 | | 50 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 × 9 | 7,500 | 350 | 7,500 | 350 | 5,300 | 100 |
| 4 × 12 | 5,600 | 350 | 5,600 | 350 | 3,980 | 100 |
| 5 × 15 | 4,460 | 350 | 4,460 | 350 | 3,180 | 100 |
| 6 × 18 | 3,680 | 400 | 3,680 | 400 | 2,650 | 110 |
| 8 × 24 | 2,800 | 450 | 2,800 | 450 | 1,990 | 120 |
| 10 × 30 | 2,230 | 450 | 2,230 | 450 | 1,590 | 120 |
| 12 × 36 | 1,840 | 450 | 1,840 | 450 | 1,330 | 120 |
| 16 × 48 | 1,400 | 500 | 1,400 | 500 | 1,000 | 130 |
| 20 × 60 | 1,100 | 500 | 1,100 | 500 | 800 | 130 |
| 25 × 75 | 890 | 500 | 890 | 500 | 640 | 130 |
| 切込深さ Depth of Cut | ap 1D | | ap 1D | | ap 0.5D | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 90 | | 70 | | 90 | | 90 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 × 9 | 8,500 | 290 | 6,400 | 190 | 8,500 | 130 | 8,500 | 130 |
| 4 × 12 | 6,400 | 270 | 4,800 | 190 | 6,400 | 120 | 6,400 | 120 |
| 5 × 15 | 5,100 | 270 | 3,800 | 190 | 5,100 | 110 | 5,100 | 110 |
| 6 × 18 | 4,200 | 250 | 3,200 | 190 | 4,200 | 110 | 4,200 | 110 |
| 8 × 24 | 3,200 | 250 | 2,600 | 190 | 3,200 | 110 | 3,200 | 110 |
| 10 × 30 | 2,900 | 250 | 2,200 | 180 | 2,900 | 110 | 2,900 | 110 |
| 12 × 36 | 2,400 | 250 | 2,000 | 180 | 2,400 | 110 | 2,400 | 110 |
| 16 × 48 | 2,000 | 240 | 1,600 | 180 | 2,000 | 110 | 2,000 | 110 |
| 20 × 60 | 1,600 | 210 | 1,300 | 160 | 1,600 | 110 | 1,600 | 110 |
| 25 × 75 | 1,300 | 200 | 1,000 | 150 | 1,300 | 100 | 1,300 | 100 |
| 切込深さ Depth of Cut | ap 1D | | | | | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
5. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
6. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。
7. 樹脂を突込み切削する場合はステップ送りを行って下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
5. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
7. Please step feed when processing resin by plunging.

形状寸法表
SPECIFICATION CHARTS
AE-TL-N▶P284

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-TL-N
## スクエア/ピンカドタイプ 5D刃長 側面切削

SQUARE/SHARP CORNER EDGE TYPE
5 X D FLUTE LENGTH
SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100 | | 100 | | 50 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 × 15 | 10,600 | 640 | 10,600 | 640 | 5,300 | 200 |
| 4 × 20 | 8,000 | 690 | 8,000 | 690 | 4,000 | 210 |
| 5 × 25 | 6,400 | 730 | 6,400 | 730 | 3,200 | 230 |
| 6 × 30 | 5,300 | 780 | 5,300 | 780 | 2,600 | 240 |
| 8 × 40 | 4,000 | 870 | 4,000 | 870 | 2,000 | 260 |
| 10 × 50 | 3,200 | 960 | 3,200 | 960 | 1,600 | 290 |
| 12 × 60 | 2,700 | 1,050 | 2,700 | 1,050 | 1,300 | 320 |
| 16 × 80 | 2,000 | 1,140 | 2,000 | 1,140 | 1,000 | 350 |
| 20 ×100 | 1,600 | 1,230 | 1,600 | 1,230 | 800 | 380 |
| 25 ×125 | 1,300 | 1,320 | 1,300 | 1,320 | 640 | 400 |
| 切込深さ Depth of Cut | | | ap 5D | ae 0.1D | | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 85 | | 70 | | 85 | | 85 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 × 15 | 8,500 | 1,150 | 6,800 | 820 | 8,500 | 510 | 8,500 | 510 |
| 4 × 20 | 6,400 | 960 | 5,100 | 770 | 6,400 | 480 | 6,400 | 480 |
| 5 × 25 | 5,100 | 900 | 4,100 | 740 | 5,100 | 460 | 5,100 | 460 |
| 6 × 30 | 4,200 | 880 | 3,400 | 710 | 4,200 | 440 | 4,200 | 440 |
| 8 × 40 | 3,200 | 770 | 2,700 | 650 | 3,200 | 380 | 3,200 | 380 |
| 10 × 50 | 2,800 | 740 | 2,300 | 620 | 2,550 | 380 | 2,550 | 380 |
| 12 × 60 | 2,300 | 660 | 2,000 | 600 | 2,300 | 350 | 2,300 | 350 |
| 16 × 80 | 1,900 | 570 | 1,600 | 480 | 1,900 | 340 | 1,900 | 340 |
| 20 ×100 | 1,500 | 450 | 1,300 | 390 | 1,500 | 270 | 1,500 | 270 |
| 25 ×125 | 1,200 | 360 | 1,000 | 300 | 1,200 | 220 | 1,200 | 220 |
| 切込深さ Depth of Cut | | | ap 5D | | ae 0.1D | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
5. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
6. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
5. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## AE-VTS-N

### スクエア/ピンカド/ラジアスタイプ 溝切削

SQUARE/SHARP CORNER EDGE/RADIUS TYPE SLOTTING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 400 | | 400 | | 200 | |
| 外径×首下長 DC×LU | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 × 3 | 32,000 | 1,430 | 32,000 | 1,430 | 16,000 | 660 |
| 1.5 × 4.5 | 32,000 | 1,630 | 32,000 | 1,630 | 16,000 | 720 |
| 2 × 6 | 32,000 | 1,920 | 32,000 | 1,920 | 16,000 | 800 |
| 2.5 × 7.5 | 32,000 | 2,880 | 32,000 | 2,880 | 16,000 | 1,080 |
| 3 × 9 | 32,000 | 3,820 | 32,000 | 3,820 | 16,000 | 1,430 |
| 4 × 12 | 24,000 | 3,960 | 24,000 | 3,960 | 12,000 | 1,530 |
| 5 × 15 | 19,200 | 4,090 | 19,200 | 4,090 | 9,600 | 1,640 |
| 6 × 18 | 18,500 | 4,230 | 18,500 | 4,230 | 9,300 | 1,740 |
| 8 × 24 | 16,000 | 4,510 | 16,000 | 4,510 | 8,000 | 1,940 |
| 10 × 30 | 13,000 | 4,780 | 13,000 | 4,780 | 6,400 | 2,150 |
| 12 × 36 | 11,000 | 5,050 | 11,000 | 5,050 | 5,300 | 2,360 |
| 切込深さ Depth of Cut | ap 1D | | | | ap 0.5D | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin ベークライト Bakelite | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | | |
| 切削速度 Cutting Speed (m/min) | 95 | | 75 | | 95 | | 95 | |
| 外径×首下長 DC×LU | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 × 3 | 28,600 | 2,150 | 22,300 | 1,340 | 28,600 | 1,290 | 28,600 | 1,290 |
| 1.5 × 4.5 | 19,100 | 1,720 | 14,900 | 1,120 | 19,100 | 860 | 19,100 | 860 |
| 2 × 6 | 14,300 | 1,500 | 11,100 | 1,000 | 14,300 | 860 | 14,300 | 860 |
| 2.5 × 7.5 | 11,500 | 1,380 | 8,900 | 930 | 11,500 | 690 | 11,500 | 690 |
| 3 × 9 | 9,500 | 1,280 | 7,400 | 890 | 9,500 | 570 | 9,500 | 570 |
| 4 × 12 | 7,200 | 1,230 | 5,600 | 870 | 7,200 | 540 | 7,200 | 540 |
| 5 × 15 | 5,700 | 1,200 | 4,500 | 880 | 5,700 | 510 | 5,700 | 510 |
| 6 × 18 | 4,800 | 1,150 | 3,700 | 830 | 4,800 | 500 | 4,800 | 500 |
| 8 × 24 | 3,600 | 1,080 | 3,000 | 830 | 3,600 | 430 | 3,600 | 430 |
| 10 × 30 | 3,200 | 960 | 2,500 | 710 | 3,200 | 430 | 3,200 | 430 |
| 12 × 36 | 2,700 | 890 | 2,100 | 660 | 2,700 | 410 | 2,700 | 410 |
| 切込深さ Depth of Cut | ap 1D | | | | | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し長さ変化による切削条件調整の目安」を参考に調整下さい (p.515参照)。
5. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
6. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
7. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
8. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します (ナイロン系とベークライトを除く)。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.515).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

形状寸法表
SPECIFICATION CHARTS
AE-VTS-N▶P280・396

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-VTS-N
## スクエア/ピンカド/ラジアスタイプ 側面切削

SQUARE/SHARP CORNER EDGE/RADIUS TYPE SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 400 | | 400 | | 200 | |
| 外径×首下長 DC×LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × 3 | 32,000 | 1,430 | 32,000 | 1,430 | 16,000 | 720 |
| 1.5 × 4.5 | 32,000 | 1,630 | 32,000 | 1,630 | 16,000 | 800 |
| 2 × 6 | 32,000 | 1,920 | 32,000 | 1,920 | 16,000 | 1,080 |
| 2.5 × 7.5 | 32,000 | 2,880 | 32,000 | 2,880 | 16,000 | 1,200 |
| 3 × 9 | 32,000 | 3,820 | 32,000 | 3,820 | 16,000 | 1,600 |
| 4 × 12 | 24,000 | 3,960 | 24,000 | 3,960 | 12,000 | 1,700 |
| 5 × 15 | 19,200 | 4,090 | 19,200 | 4,090 | 9,600 | 1,830 |
| 6 × 18 | 18,500 | 4,230 | 18,500 | 4,230 | 9,300 | 1,950 |
| 8 × 24 | 16,000 | 4,510 | 16,000 | 4,510 | 8,000 | 2,180 |
| 10 × 30 | 13,000 | 4,780 | 13,000 | 4,780 | 6,400 | 2,400 |
| 12 × 36 | 11,000 | 5,050 | 11,000 | 5,050 | 5,300 | 2,650 |
| 切込深さ Depth of Cut | | ap 1.5D / ae 0.2D | | | ap 1.5D / ae 0.1D | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 105 | | 85 | | 105 | | 105 | |
| 外径×首下長 DC×LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × 3 | 31,800 | 2,390 | 25,500 | 1,530 | 31,800 | 1,430 | 31,800 | 1,430 |
| 1.5 × 4.5 | 21,200 | 1,910 | 17,000 | 1,280 | 21,200 | 950 | 21,200 | 950 |
| 2 × 6 | 15,900 | 1,670 | 12,700 | 1,140 | 15,900 | 950 | 15,900 | 950 |
| 2.5 × 7.5 | 12,700 | 1,520 | 10,200 | 1,070 | 12,700 | 760 | 12,700 | 760 |
| 3 × 9 | 10,600 | 1,430 | 8,500 | 1,020 | 10,600 | 640 | 10,600 | 640 |
| 4 × 12 | 8,000 | 1,370 | 6,400 | 1,000 | 8,000 | 600 | 8,000 | 600 |
| 5 × 15 | 6,400 | 1,340 | 5,100 | 990 | 6,400 | 580 | 6,400 | 580 |
| 6 × 18 | 5,300 | 1,270 | 4,200 | 950 | 5,300 | 560 | 5,300 | 560 |
| 8 × 24 | 4,000 | 1,200 | 3,400 | 870 | 4,000 | 480 | 4,000 | 480 |
| 10 × 30 | 3,500 | 1,050 | 2,900 | 830 | 3,500 | 470 | 3,500 | 470 |
| 12 × 36 | 2,900 | 960 | 2,500 | 790 | 2,900 | 440 | 2,900 | 440 |
| 切込深さ Depth of Cut | | | | ap 1.5D / ae 0.5D | | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し長さ変化による切削条件調整の目安」を参考に調整下さい（p.515参照）。
5. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
6. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
7. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
8. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.515).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

# AE-VTS-N

## スクエア/ピンカド/ラジアスタイプ 突込み切削

SQUARE/SHARP CORNER EDGE/RADIUS TYPE PLUNGING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 150 | | 150 | | 75 | |
| 外径×首下長 DC×LU | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 × 3 | 20,000 | 400 | 20,000 | 400 | 10,000 | 120 |
| 1.5 × 4.5 | 20,000 | 400 | 20,000 | 400 | 10,000 | 120 |
| 2 × 6 | 20,000 | 400 | 20,000 | 400 | 10,000 | 120 |
| 2.5 × 7.5 | 20,000 | 400 | 20,000 | 400 | 10,000 | 120 |
| 3 × 9 | 15,900 | 500 | 15,900 | 500 | 8,000 | 150 |
| 4 × 12 | 12,000 | 500 | 12,000 | 500 | 6,000 | 150 |
| 5 × 15 | 9,600 | 500 | 9,600 | 500 | 4,800 | 150 |
| 6 × 18 | 8,000 | 600 | 8,000 | 600 | 4,000 | 180 |
| 8 × 24 | 6,000 | 700 | 6,000 | 700 | 3,000 | 210 |
| 10 × 30 | 4,800 | 700 | 4,800 | 700 | 2,400 | 210 |
| 12 × 36 | 4,000 | 700 | 4,000 | 700 | 2,000 | 210 |
| 切込深さ Depth of Cut | ap 1D | | | | ap 0.5D | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 95 | | 70 | | 90 | | 90 | |
| 外径×首下長 DC×LU | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 × 3 | 28,600 | 540 | 22,300 | 330 | 28,600 | 320 | 28,600 | 320 |
| 1.5 × 4.5 | 19,100 | 430 | 14,900 | 280 | 19,100 | 210 | 19,100 | 210 |
| 2 × 6 | 14,300 | 380 | 11,100 | 250 | 14,300 | 210 | 14,300 | 210 |
| 2.5 × 7.5 | 11,500 | 350 | 8,900 | 230 | 11,500 | 170 | 11,500 | 170 |
| 3 × 9 | 9,500 | 320 | 7,400 | 220 | 9,500 | 140 | 9,500 | 140 |
| 4 × 12 | 7,200 | 310 | 5,600 | 220 | 7,200 | 140 | 7,200 | 140 |
| 5 × 15 | 5,700 | 300 | 4,500 | 220 | 5,700 | 130 | 5,700 | 130 |
| 6 × 18 | 4,800 | 290 | 3,700 | 210 | 4,800 | 130 | 4,800 | 130 |
| 8 × 24 | 3,600 | 280 | 2,800 | 210 | 3,600 | 110 | 3,600 | 110 |
| 10 × 30 | 3,200 | 280 | 2,200 | 180 | 2,900 | 110 | 2,900 | 110 |
| 12 × 36 | 2,700 | 280 | 1,850 | 180 | 2,400 | 110 | 2,400 | 110 |
| 切込深さ Depth of Cut | ap 1D | | | | | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し長さ変化による切削条件調整の目安」を参考に調整下さい (p.515参照)。
5. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
6. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
7. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
8. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します (ナイロン系とベークライトを除く)。
9. 樹脂を突込み切削する場合はステップ送りを行って下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.515).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
9. Please step feed when processing resin by plunging.

形状寸法表
SPECIFICATION CHARTS
AE-VTS-N▶P280・396

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-VTS-N

スクエア/ピンカド/ラジアスタイプ
突出し長さ変化による切削条件調整の目安（DC＝φ6、φ8）

SQUARE/SHARP CORNER EDGE/RADIUS TYPE
CUTTING CONDITION GUIDE FOR CHANGES IN OVERHANG LENGTH

| | 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|
| | 突出し長さ L/D | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 溝切削 Slot Milling | 5 | 70% | | 70% | | 70% | |
| | 6 | 70% | 20% | 70% | 20% | 70% | 20% |
| 側面切削 Side Milling | 5 | 70% | | 70% | | 70% | |
| | 6 | 50% | | 50% | | 50% | |
| 突込み切削 Plunging | 5 | 80% | | 80% | | 80% | |
| | 6 | 60% | | 60% | | 60% | |

# AE-VTFE-N
## スクエア/ラジアスタイプ 溝切削

SQUARE/RADIUS TYPE
SLOT MILLING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 200 | | 200 | | 100 | |
| 外径 DC | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 8,490 | 1,530 | 8,490 | 1,530 | 4,250 | 640 |
| 8 | 6,370 | 1,150 | 6,370 | 1,150 | 3,180 | 480 |
| 10 | 6,370 | 1,910 | 6,370 | 1,910 | 3,180 | 760 |
| 12 | 5,310 | 1,910 | 5,310 | 1,910 | 2,650 | 640 |
| 14 | 4,550 | 1,640 | 4,550 | 1,640 | 2,270 | 540 |
| 18 | 3,540 | 1,270 | 3,540 | 1,270 | 1,770 | 420 |
| 22 | 2,900 | 1,040 | 2,900 | 1,040 | 1,450 | 350 |
| 切込深さ Depth of Cut | | | | ap | | |
| | | | DC≦10 | 0.1D | | |
| | | | 10＜DC | 0.2D | | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 100 | | 80 | | 100 | | 100 | |
| 外径 DC | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 4,800 | 1,150 | 3,700 | 830 | 4,800 | 500 | 4,800 | 500 |
| 8 | 3,600 | 1,080 | 3,000 | 830 | 3,600 | 430 | 3,600 | 430 |
| 10 | 3,200 | 960 | 2,500 | 710 | 3,200 | 430 | 3,200 | 430 |
| 12 | 2,700 | 890 | 2,100 | 660 | 2,700 | 410 | 2,700 | 410 |
| 14 | 2,300 | 760 | 2,000 | 630 | 2,300 | 350 | 2,300 | 350 |
| 18 | 1,900 | 680 | 1,600 | 550 | 1,900 | 340 | 1,900 | 340 |
| 22 | 1,600 | 620 | 1,300 | 490 | 1,600 | 340 | 1,600 | 340 |
| 切込深さ Depth of Cut | ap 0.5D | | | | | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 上表は、突出し長さが工具径の5倍の場合の目安です。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
4. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
5. 突出し長さが長くなる場合は、回転速度、送り速度を「突出し長さ変化による切削条件調整の目安」を参考に調整下さい (p.517参照)。
6. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
7. マグネシウム合金切削において、切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
8. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
9. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します (ナイロン系とベークライトを除く)。

1. The above milling condition is a guideline for the overhang length is 5× D.
2. Use a rigid and precise machine and holder.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
4. Reduce speed and feed as well as depth of cut when high precision is required.
5. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.517).
6. When the chips wind around the end mill, reduce the speed and feed.
7. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
8. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
9. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

形状寸法表
SPECIFICATION CHARTS
AE-VTFE-N▶P311・397

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-VTFE-N
### スクエア/ラジアスタイプ 側面切削
SQUARE/RADIUS TYPE
SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 300 | | 300 | | 150 | |
| 外径 DC | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 15,920 | 2,870 | 15,920 | 2,870 | 7,960 | 1,190 |
| 8 | 11,940 | 2,150 | 11,940 | 2,150 | 5,970 | 1,070 |
| 10 | 9,550 | 2,870 | 9,550 | 2,870 | 4,780 | 1,000 |
| 12 | 7,960 | 2,870 | 7,960 | 2,870 | 3,980 | 960 |
| 14 | 6,820 | 2,460 | 6,820 | 2,460 | 3,410 | 820 |
| 18 | 5,310 | 1,910 | 5,310 | 1,910 | 2,650 | 640 |
| 22 | 4,340 | 1,560 | 4,340 | 1,560 | 2,170 | 520 |
| 切込深さ Depth of Cut | | | ap: 2D | ae: 0.1D | | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 110 | | 90 | | 110 | | 110 | |
| 外径 DC | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 5,300 | 1,270 | 4,200 | 950 | 5,300 | 560 | 5,300 | 560 |
| 8 | 4,000 | 1,200 | 3,400 | 870 | 4,000 | 480 | 4,000 | 480 |
| 10 | 3,500 | 1,050 | 2,900 | 830 | 3,500 | 470 | 3,500 | 470 |
| 12 | 2,900 | 960 | 2,500 | 790 | 2,900 | 440 | 2,900 | 440 |
| 14 | 2,500 | 830 | 2,300 | 720 | 2,500 | 380 | 2,500 | 380 |
| 18 | 2,100 | 760 | 1,800 | 620 | 2,100 | 380 | 2,100 | 380 |
| 22 | 1,700 | 660 | 1,400 | 530 | 1,700 | 360 | 1,700 | 360 |
| 切込深さ Depth of Cut | | | | ap: 2.5D ae: 0.4D | | | | |

上表は、エアブローを使用する場合のものです。
使用上のご注意はp.516をご参照下さい。

The table above is for when using air-blow.
See p.516 for precaution for use.

## 突出し長さ変化による切削条件調整の目安 CUTTING CONDITION GUIDE FOR CHANGES IN OVERHANG LENGTH

| 被削材 Work Material | | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | | | 銅合金 Copper Alloy C1100 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 突出し長さ L/D | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ Depth of Cut | |
| | | | | ap | ae | | | ap | ae | | | ap | ae |
| 溝切削 Slot Milling | 6 | 50% | 50% | 0.015D | — | 50% | 50% | 0.015D | — | 50% | 50% | 0.015D | — |
| | 7 | 30% | 20% | 0.01D | — | 30% | 20% | 0.01D | — | 30% | 20% | 0.01D | — |
| 側面切削 Side Milling | 6 | 65% | 60% | 2D | 0.05D | 65% | 60% | 2D | 0.05D | 90% | 90% | 2D | 0.05D |
| | 7 | 55% | 50% | 2D | 0.03D | 55% | 50% | 2D | 0.03D | 70% | 70% | 2D | 0.03D |
| | 8 | 45% | 45% | 2D | 0.025D | 45% | 45% | 2D | 0.025D | 65% | 65% | 2D | 0.01D |

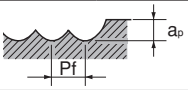
・AE-VTFE-N の外径φ22はL/D＝7以下でご使用下さい。

・Please use the φ22 AE-VTFE-N at L / D = 7 or less.

## AE-LNBD-N

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.

| 被削材 Work Material | | 銅 Copper (C1020,C1100) | | | | 銅タングステン Copper Tungsten (W70% - Cu30%) | | | |
|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込み深さ Depth of cut(mm) | | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | | |
| | | | | $a_p$ | Pf | | | $a_p$ | Pf |
| R0.05 | 0.3 | 38,400 | 225 | 0.005 | 0.01 | 32,000 | 120 | 0.005 | 0.008 |
| | 0.5 | 38,400 | 180 | 0.005 | 0.01 | 32,000 | 96 | 0.005 | 0.008 |
| R0.075 | 0.3 | 38,400 | 257 | 0.008 | 0.02 | 32,000 | 137 | 0.008 | 0.015 |
| | 0.5 | 38,400 | 225 | 0.008 | 0.02 | 32,000 | 120 | 0.008 | 0.021 |
| | 1 | 38,400 | 180 | 0.005 | 0.01 | 32,000 | 96 | 0.005 | 0.011 |
| R0.1 | 0.3 | 38,400 | 450 | 0.02 | 0.04 | 32,000 | 240 | 0.02 | 0.03 |
| | 0.5 | 38,400 | 450 | 0.02 | 0.04 | 32,000 | 240 | 0.02 | 0.03 |
| | 1 | 38,400 | 225 | 0.02 | 0.04 | 32,000 | 120 | 0.02 | 0.03 |
| | 1.5 | 38,400 | 225 | 0.02 | 0.04 | 32,000 | 120 | 0.02 | 0.03 |
| R0.15 | 0.6 | 38,400 | 900 | 0.02 | 0.06 | 32,000 | 480 | 0.02 | 0.045 |
| | 1 | 38,400 | 675 | 0.02 | 0.06 | 32,000 | 360 | 0.02 | 0.045 |
| | 1.5 | 38,400 | 675 | 0.02 | 0.06 | 32,000 | 360 | 0.02 | 0.045 |
| | 2 | 38,400 | 675 | 0.02 | 0.06 | 32,000 | 360 | 0.02 | 0.045 |
| R0.2 | 1 | 38,400 | 900 | 0.025 | 0.1 | 32,000 | 480 | 0.025 | 0.075 |
| | 2 | 32,400 | 675 | 0.025 | 0.1 | 27,000 | 360 | 0.025 | 0.075 |
| | 3 | 32,400 | 675 | 0.025 | 0.1 | 27,000 | 360 | 0.025 | 0.075 |
| | 4 | 32,400 | 675 | 0.01 | 0.06 | 27,000 | 360 | 0.01 | 0.045 |
| R0.25 | 1 | 38,400 | 1,125 | 0.04 | 0.1 | 32,000 | 600 | 0.04 | 0.075 |
| | 2 | 38,400 | 900 | 0.04 | 0.1 | 32,000 | 480 | 0.04 | 0.075 |
| | 3 | 32,400 | 675 | 0.04 | 0.1 | 27,000 | 360 | 0.04 | 0.075 |
| | 4 | 32,400 | 675 | 0.04 | 0.1 | 27,000 | 360 | 0.04 | 0.075 |
| | 5 | 25,200 | 450 | 0.04 | 0.1 | 21,000 | 240 | 0.04 | 0.075 |
| R0.3 | 1 | 38,400 | 2,250 | 0.09 | 0.12 | 32,000 | 1,440 | 0.08 | 0.12 |
| | 2 | 38,400 | 1,688 | 0.09 | 0.12 | 32,000 | 1,080 | 0.08 | 0.12 |
| | 3 | 36,000 | 938 | 0.09 | 0.12 | 30,000 | 600 | 0.08 | 0.12 |
| | 4 | 36,000 | 938 | 0.09 | 0.12 | 30,000 | 600 | 0.08 | 0.12 |
| | 5 | 36,000 | 938 | 0.09 | 0.12 | 30,000 | 600 | 0.08 | 0.12 |
| | 6 | 30,000 | 563 | 0.09 | 0.12 | 25,000 | 360 | 0.08 | 0.12 |
| R0.4 | 2 | 32,400 | 1,688 | 0.12 | 0.16 | 27,000 | 1,080 | 0.11 | 0.16 |
| | 3 | 32,400 | 1,688 | 0.12 | 0.16 | 27,000 | 1,080 | 0.11 | 0.16 |
| | 4 | 32,400 | 1,688 | 0.12 | 0.16 | 27,000 | 1,080 | 0.11 | 0.16 |
| | 6 | 28,800 | 938 | 0.12 | 0.12 | 24,000 | 600 | 0.11 | 0.12 |
| | 8 | 26,400 | 563 | 0.12 | 0.12 | 22,000 | 360 | 0.11 | 0.12 |
| 切込深さ Depth of Cut | |   | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整ください。
3. 水溶性切削油剤をご使用下さい。
4. 加工面、精度を重視される場合は、不水溶性切削油剤をご使用ください。切込深さ、送り速度を必要に応じて調整下さい。
5. 切削油剤は切削油剤メーカの推奨するものを必ずご使用下さい。加工物が変色することがあります。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Use a water soluble fluid.
4. Use a non-water-soluble cutting fluid if the machined surface and accuracy are of critical importance. Adjust the depth of cut and feed rate as necessary.
5. Always use a cutting fluid recommended by the cutting fluid manufacturer as the workpiece may discolor.

形状寸法表
SPECIFICATION CHARTS
AE-LNBD-N▶P357

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-LNBD-N

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.

| 被削材 Work Material | | 銅 Copper (C1020,C1100) | | | | 銅タングステン Copper Tungsten (W70% - Cu30%) | | | |
|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込み深さ Depth of cut(mm) ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf |
| R0.5 | 2 | 33,600 | 1,875 | 0.15 | 0.2 | 28,000 | 1,200 | 0.14 | 0.2 |
| | 3 | 33,600 | 1,875 | 0.15 | 0.2 | 28,000 | 1,200 | 0.14 | 0.2 |
| | 4 | 33,600 | 1,875 | 0.15 | 0.2 | 28,000 | 1,200 | 0.14 | 0.2 |
| | 5 | 25,200 | 1,125 | 0.15 | 0.2 | 21,000 | 720 | 0.14 | 0.2 |
| | 6 | 25,200 | 1,125 | 0.15 | 0.2 | 21,000 | 720 | 0.14 | 0.2 |
| | 8 | 25,200 | 1,125 | 0.15 | 0.15 | 21,000 | 720 | 0.14 | 0.15 |
| | 10 | 21,600 | 750 | 0.12 | 0.12 | 18,000 | 480 | 0.11 | 0.12 |
| | 12 | 21,600 | 750 | 0.12 | 0.12 | 18,000 | 480 | 0.11 | 0.12 |
| R0.75 | 4 | 24,000 | 2,250 | 0.24 | 0.3 | 20,000 | 1,440 | 0.22 | 0.3 |
| | 6 | 21,600 | 1,875 | 0.24 | 0.3 | 18,000 | 1,200 | 0.22 | 0.3 |
| | 12 | 20,400 | 1,125 | 0.24 | 0.24 | 17,000 | 720 | 0.22 | 0.24 |
| | 18 | 15,600 | 750 | 0.18 | 0.18 | 13,000 | 480 | 0.16 | 0.18 |
| R1 | 4 | 19,800 | 2,625 | 0.3 | 0.56 | 16,500 | 1,680 | 0.27 | 0.56 |
| | 6 | 19,800 | 2,625 | 0.3 | 0.56 | 16,500 | 1,680 | 0.27 | 0.56 |
| | 8 | 19,800 | 2,625 | 0.3 | 0.56 | 16,500 | 1,680 | 0.27 | 0.56 |
| | 10 | 16,800 | 1,875 | 0.3 | 0.56 | 14,000 | 1,200 | 0.27 | 0.56 |
| | 12 | 16,800 | 1,875 | 0.3 | 0.56 | 14,000 | 1,200 | 0.27 | 0.56 |
| | 14 | 16,800 | 1,875 | 0.3 | 0.56 | 14,000 | 1,200 | 0.27 | 0.56 |
| | 16 | 16,800 | 1,875 | 0.3 | 0.42 | 14,000 | 1,200 | 0.27 | 0.42 |
| | 20 | 13,200 | 938 | 0.3 | 0.42 | 11,000 | 600 | 0.27 | 0.42 |
| | 25 | 13,200 | 938 | 0.3 | 0.42 | 11,000 | 600 | 0.27 | 0.42 |
| R1.5 | 10 | 14,400 | 2,250 | 0.4 | 0.84 | 12,000 | 1,440 | 0.36 | 0.84 |
| | 12 | 12,000 | 2,250 | 0.4 | 0.84 | 10,000 | 1,440 | 0.36 | 0.84 |
| | 14 | 12,000 | 2,250 | 0.4 | 0.84 | 10,000 | 1,440 | 0.36 | 0.84 |
| | 16 | 12,000 | 1,125 | 0.4 | 0.84 | 10,000 | 720 | 0.36 | 0.84 |
| | 20 | 12,000 | 1,125 | 0.4 | 0.84 | 10,000 | 720 | 0.36 | 0.84 |
| | 25 | 12,000 | 1,125 | 0.4 | 0.84 | 10,000 | 720 | 0.36 | 0.84 |
| | 30 | 10,800 | 938 | 0.4 | 0.84 | 9,000 | 600 | 0.36 | 0.84 |
| R2 | 10 | 10,800 | 3,000 | 1 | 1.3 | 9,000 | 1,920 | 0.9 | 1.3 |
| | 15 | 10,800 | 2,250 | 1 | 1.3 | 9,000 | 1,440 | 0.9 | 1.3 |
| | 20 | 8,400 | 1,500 | 1 | 1.3 | 7,000 | 960 | 0.9 | 1.3 |
| | 25 | 8,400 | 1,500 | 1 | 1.3 | 7,000 | 960 | 0.9 | 1.3 |
| | 30 | 8,400 | 1,500 | 0.8 | 1.3 | 7,000 | 960 | 0.7 | 1.3 |
| | 40 | 6,000 | 938 | 0.7 | 1.3 | 5,000 | 600 | 0.6 | 1.3 |
| R3 | 10 | 10,800 | 3,375 | 1.2 | 1.8 | 9,000 | 2,160 | 1.1 | 1.8 |
| | 15 | 10,800 | 3,375 | 1.2 | 1.8 | 9,000 | 2,160 | 1.1 | 1.8 |
| | 20 | 8,400 | 1,875 | 1.2 | 1.8 | 7,000 | 1,200 | 1.1 | 1.8 |
| | 30 | 7,200 | 1,875 | 1.2 | 1.8 | 6,000 | 1,200 | 1.1 | 1.8 |
| | 50 | 6,000 | 1,125 | 0.8 | 1.8 | 5,000 | 720 | 0.7 | 1.8 |

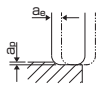
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
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| 被削材 Work Material | | | 銅 Copper (C1020,C1100) | | | | 銅タングステン Copper Tungsten (W70% - Cu30%) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.2 | R0.05 | 0.4 | 40,000 | 400 | 0.03 | 0.06 | 40,000 | 360 | 0.024 | 0.06 |
| | | 0.6 | 40,000 | 360 | 0.024 | 0.06 | 40,000 | 320 | 0.019 | 0.06 |
| | | 1 | 40,000 | 280 | 0.019 | 0.06 | 40,000 | 250 | 0.015 | 0.06 |
| | | 1.5 | 40,000 | 180 | 0.015 | 0.06 | 40,000 | 160 | 0.012 | 0.06 |
| 0.3 | R0.05 | 0.6 | 40,000 | 480 | 0.03 | 0.12 | 40,000 | 430 | 0.024 | 0.12 |
| | | 1 | 40,000 | 430 | 0.023 | 0.12 | 40,000 | 380 | 0.018 | 0.12 |
| | | 1.5 | 40,000 | 360 | 0.019 | 0.12 | 40,000 | 320 | 0.015 | 0.12 |
| | | 2 | 40,000 | 290 | 0.016 | 0.12 | 40,000 | 260 | 0.013 | 0.12 |
| 0.4 | R0.02 | 0.8 | 40,000 | 640 | 0.01 | 0.22 | 40,000 | 580 | 0.008 | 0.22 |
| | | 2 | 40,000 | 520 | 0.006 | 0.22 | 35,000 | 410 | 0.005 | 0.22 |
| | R0.05 | 0.8 | 40,000 | 640 | 0.03 | 0.18 | 40,000 | 580 | 0.024 | 0.18 |
| | | 1.2 | 40,000 | 600 | 0.024 | 0.18 | 40,000 | 540 | 0.019 | 0.18 |
| | | 2 | 40,000 | 520 | 0.019 | 0.18 | 35,000 | 410 | 0.015 | 0.18 |
| | | 3 | 30,000 | 370 | 0.015 | 0.18 | 25,000 | 300 | 0.012 | 0.18 |
| | | 4 | 25,000 | 240 | 0.013 | 0.18 | 20,000 | 190 | 0.01 | 0.18 |
| | R0.1 | 0.8 | 40,000 | 640 | 0.06 | 0.12 | 40,000 | 580 | 0.048 | 0.12 |
| | | 1.2 | 40,000 | 600 | 0.049 | 0.12 | 40,000 | 540 | 0.039 | 0.12 |
| | | 2 | 40,000 | 520 | 0.038 | 0.12 | 35,000 | 410 | 0.03 | 0.12 |
| | | 3 | 30,000 | 370 | 0.031 | 0.12 | 25,000 | 300 | 0.025 | 0.12 |
| | | 4 | 25,000 | 240 | 0.027 | 0.12 | 20,000 | 190 | 0.022 | 0.12 |
| 0.5 | R0.05 | 1 | 40,000 | 880 | 0.03 | 0.24 | 40,000 | 790 | 0.024 | 0.24 |
| | | 2 | 40,000 | 770 | 0.023 | 0.24 | 35,000 | 690 | 0.018 | 0.24 |
| | | 3 | 35,000 | 650 | 0.019 | 0.24 | 30,000 | 510 | 0.015 | 0.24 |
| | | 4 | 30,000 | 540 | 0.017 | 0.24 | 25,000 | 420 | 0.014 | 0.24 |
| | | 5 | 25,000 | 370 | 0.016 | 0.24 | 20,000 | 300 | 0.013 | 0.24 |
| | R0.1 | 1 | 40,000 | 880 | 0.06 | 0.18 | 40,000 | 790 | 0.048 | 0.18 |
| | | 2 | 40,000 | 770 | 0.045 | 0.18 | 35,000 | 690 | 0.036 | 0.18 |
| | | 3 | 35,000 | 650 | 0.039 | 0.18 | 30,000 | 510 | 0.031 | 0.18 |
| | | 4 | 30,000 | 540 | 0.034 | 0.18 | 25,000 | 420 | 0.027 | 0.18 |
| | | 5 | 25,000 | 370 | 0.032 | 0.18 | 20,000 | 300 | 0.026 | 0.18 |
| 0.6 | R0.05 | 1.2 | 40,000 | 1,120 | 0.03 | 0.3 | 35,000 | 880 | 0.024 | 0.3 |
| | | 2 | 37,000 | 1,030 | 0.024 | 0.3 | 35,000 | 810 | 0.019 | 0.3 |
| | | 4 | 29,000 | 710 | 0.019 | 0.3 | 26,000 | 580 | 0.015 | 0.3 |
| | | 6 | 22,000 | 440 | 0.016 | 0.3 | 20,000 | 280 | 0.013 | 0.3 |
| | R0.1 | 1.2 | 40,000 | 1,120 | 0.06 | 0.24 | 35,000 | 880 | 0.048 | 0.24 |
| | | 2 | 37,000 | 1,030 | 0.049 | 0.24 | 35,000 | 810 | 0.039 | 0.24 |
| | | 3 | 33,000 | 800 | 0.042 | 0.24 | 30,000 | 660 | 0.034 | 0.24 |
| | | 4 | 29,000 | 710 | 0.037 | 0.24 | 26,000 | 580 | 0.03 | 0.24 |
| | | 6 | 22,000 | 440 | 0.032 | 0.24 | 20,000 | 280 | 0.026 | 0.24 |
| | R0.2 | 1.2 | 40,000 | 1,120 | 0.12 | 0.12 | 35,000 | 880 | 0.096 | 0.12 |
| | | 4 | 29,000 | 710 | 0.074 | 0.12 | 26,000 | 580 | 0.059 | 0.12 |
| 0.8 | R0.05 | 1.6 | 36,000 | 1,580 | 0.03 | 0.42 | 32,000 | 1,270 | 0.024 | 0.42 |
| | | 4 | 30,000 | 1,390 | 0.021 | 0.42 | 27,000 | 1,010 | 0.017 | 0.42 |
| | | 6 | 25,000 | 1,000 | 0.018 | 0.42 | 23,000 | 800 | 0.014 | 0.42 |
| | | 8 | 20,000 | 750 | 0.016 | 0.42 | 18,000 | 620 | 0.013 | 0.42 |
| | R0.1 | 1.6 | 36,000 | 1,580 | 0.06 | 0.36 | 32,000 | 1,270 | 0.048 | 0.36 |
| | | 4 | 30,000 | 1,240 | 0.042 | 0.36 | 27,000 | 1,010 | 0.034 | 0.36 |
| | | 6 | 25,000 | 1,000 | 0.035 | 0.36 | 23,000 | 800 | 0.028 | 0.36 |
| | | 8 | 20,000 | 750 | 0.032 | 0.36 | 18,000 | 620 | 0.026 | 0.36 |
| 切込深さ Depth of Cut | | |  | | | | | | | |

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2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整ください。
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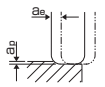
形状寸法表
SPECIFICATION CHARTS
AE-CPR-N▶P398

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR-N

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| 被削材 Work Material | | | 銅 Copper (C1020,C1100) | | | | 銅タングステン Copper Tungsten (W70% - Cu30%) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1 | R0.02 | 2 | 32,000 | 2,880 | 0.01 | 0.6 | 29,000 | 2,350 | 0.008 | 0.6 |
| | | 3 | 30,000 | 2,690 | 0.009 | 0.6 | 27,000 | 2,180 | 0.007 | 0.6 |
| | R0.1 | 2 | 32,000 | 2,880 | 0.06 | 0.5 | 29,000 | 2,350 | 0.05 | 0.5 |
| | | 3 | 30,000 | 2,690 | 0.053 | 0.5 | 27,000 | 2,180 | 0.042 | 0.5 |
| | | 4 | 28,000 | 2,500 | 0.049 | 0.5 | 25,000 | 1,940 | 0.039 | 0.5 |
| | | 5 | 27,000 | 2,240 | 0.046 | 0.5 | 24,000 | 1,800 | 0.037 | 0.5 |
| | | 6 | 25,000 | 2,070 | 0.043 | 0.5 | 23,000 | 1,650 | 0.034 | 0.5 |
| | | 8 | 21,000 | 1,740 | 0.04 | 0.5 | 19,000 | 1,440 | 0.032 | 0.5 |
| | | 10 | 18,000 | 1,390 | 0.037 | 0.5 | 16,000 | 1,130 | 0.03 | 0.5 |
| | R0.2 | 2 | 32,000 | 2,880 | 0.12 | 0.4 | 29,000 | 2,350 | 0.1 | 0.4 |
| | | 3 | 30,000 | 2,690 | 0.11 | 0.4 | 27,000 | 2,180 | 0.08 | 0.4 |
| | | 4 | 28,000 | 2,500 | 0.1 | 0.4 | 25,000 | 1,940 | 0.08 | 0.4 |
| | | 5 | 27,000 | 2,240 | 0.09 | 0.4 | 24,000 | 1,800 | 0.07 | 0.4 |
| | | 6 | 25,000 | 2,070 | 0.09 | 0.4 | 23,000 | 1,650 | 0.07 | 0.4 |
| | | 8 | 21,000 | 1,740 | 0.08 | 0.4 | 19,000 | 1,440 | 0.06 | 0.4 |
| | | 10 | 18,000 | 1,390 | 0.07 | 0.4 | 16,000 | 1,130 | 0.06 | 0.4 |
| | R0.3 | 2 | 32,000 | 2,880 | 0.2 | 0.3 | 29,000 | 2,350 | 0.16 | 0.3 |
| | | 3 | 30,000 | 2,690 | 0.18 | 0.3 | 27,000 | 2,180 | 0.14 | 0.3 |
| 1.5 | R0.3 | 3 | 22,000 | 2,970 | 0.12 | 0.6 | 20,000 | 2,410 | 0.1 | 0.6 |
| | R0.5 | 3 | 22,000 | 2,970 | 0.3 | 0.3 | 20,000 | 2,410 | 0.24 | 0.3 |
| | | 10 | 16,000 | 2,030 | 0.21 | 0.3 | 14,000 | 1,650 | 0.17 | 0.3 |
| | | 12 | 15,000 | 1,810 | 0.2 | 0.3 | 14,000 | 1,470 | 0.16 | 0.3 |
| | | 20 | 8,000 | 1,060 | 0.17 | 0.3 | 7,000 | 860 | 0.14 | 0.3 |
| 2 | R0.1 | 4 | 17,500 | 3,150 | 0.06 | 1.1 | 16,000 | 2,560 | 0.048 | 1.1 |
| | | 6 | 16,500 | 2,930 | 0.054 | 1.1 | 15,000 | 2,370 | 0.043 | 1.1 |
| | | 8 | 15,500 | 2,630 | 0.05 | 1.1 | 14,000 | 2,130 | 0.04 | 1.1 |
| | | 10 | 14,500 | 2,420 | 0.048 | 1.1 | 13,000 | 1,970 | 0.038 | 1.1 |
| | | 15 | 12,000 | 1,910 | 0.043 | 1.1 | 11,000 | 1,550 | 0.034 | 1.1 |
| | | 16 | 11,500 | 1,790 | 0.042 | 1.1 | 10,500 | 1,460 | 0.034 | 1.1 |
| | | 20 | 9,500 | 1,460 | 0.04 | 1.1 | 8,500 | 1,190 | 0.032 | 1.1 |
| | R0.2 | 4 | 17,500 | 3,150 | 0.12 | 1 | 16,000 | 2,560 | 0.1 | 1 |
| | | 10 | 14,500 | 2,420 | 0.1 | 1 | 13,000 | 1,970 | 0.08 | 1 |
| | | 16 | 11,500 | 1,790 | 0.09 | 1 | 10,500 | 1,460 | 0.07 | 1 |
| | | 20 | 9,500 | 1,460 | 0.08 | 1 | 8,500 | 1,190 | 0.06 | 1 |
| | R0.3 | 4 | 17,500 | 3,150 | 0.2 | 0.9 | 16,000 | 2,560 | 0.16 | 0.9 |
| | | 6 | 16,500 | 2,930 | 0.18 | 0.9 | 15,000 | 2,370 | 0.14 | 0.9 |
| | | 8 | 15,500 | 2,630 | 0.17 | 0.9 | 14,000 | 2,130 | 0.13 | 0.9 |
| | | 10 | 14,500 | 2,420 | 0.16 | 0.9 | 13,000 | 1,970 | 0.13 | 0.9 |
| | | 15 | 12,000 | 1,910 | 0.14 | 0.9 | 11,000 | 1,550 | 0.12 | 0.9 |
| | | 16 | 11,500 | 1,790 | 0.14 | 0.9 | 10,500 | 1,460 | 0.11 | 0.9 |
| | | 20 | 9,500 | 1,460 | 0.13 | 0.9 | 8,500 | 1,190 | 0.11 | 0.9 |
| 2.5 | R0.5 | 5 | 15,000 | 3,600 | 0.3 | 0.9 | 13,500 | 2,920 | 0.24 | 0.9 |
| | | 20 | 11,500 | 2,040 | 0.21 | 0.9 | 10,500 | 1,660 | 0.17 | 0.9 |
| 切込深さ Depth of Cut | | |  | | | | | | | |



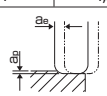
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整ください。
3. 水溶性切削油剤をご使用下さい。
4. 加工面、精度を重視される場合は、不水溶性切削油剤をご使用ください。切込深さ、送り速度を必要に応じて調整下さい。
5. 切削油剤は切削油剤メーカの推奨するものを必ずご使用下さい。加工物が変色することがあります。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Use a water soluble fluid.
4. Use a non-water-soluble cutting fluid if the machined surface and accuracy are of critical importance. Adjust the depth of cut and feed rate as necessary.
5. Always use a cutting fluid recommended by the cutting fluid manufacturer as the workpiece may discolor.

## AE-CPR-N

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.

| 被削材 Work Material | | | 銅 Copper (C1020,C1100) | | | | 銅タングステン Copper Tungsten (W70% - Cu30%) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 3 | R0.2 | 6 | 12,500 | 3,750 | 0.12 | 1.6 | 11,500 | 3,050 | 0.1 | 1.6 |
| | | 12 | 11,500 | 3,190 | 0.1 | 1.6 | 10,500 | 2,600 | 0.08 | 1.6 |
| | | 18 | 10,500 | 2,680 | 0.1 | 1.6 | 9,500 | 2,180 | 0.08 | 1.6 |
| | | 21 | 10,000 | 2,440 | 0.09 | 1.6 | 9,000 | 1,970 | 0.07 | 1.6 |
| | | 24 | 9,500 | 2,210 | 0.09 | 1.6 | 8,500 | 1,800 | 0.07 | 1.6 |
| | R0.3 | 6 | 12,500 | 3,750 | 0.2 | 1.5 | 11,500 | 3,050 | 0.16 | 1.5 |
| | | 8 | 12,000 | 3,510 | 0.19 | 1.5 | 11,000 | 2,840 | 0.15 | 1.5 |
| | | 12 | 11,500 | 3,190 | 0.17 | 1.5 | 10,500 | 2,600 | 0.14 | 1.5 |
| | | 20 | 10,500 | 2,600 | 0.16 | 1.5 | 9,500 | 2,120 | 0.13 | 1.5 |
| | R0.5 | 6 | 12,500 | 3,750 | 0.3 | 1.2 | 11,500 | 3,050 | 0.24 | 1.2 |
| | | 12 | 11,500 | 3,190 | 0.26 | 1.2 | 10,500 | 2,600 | 0.21 | 1.2 |
| | | 15 | 11,000 | 2,930 | 0.25 | 1.2 | 10,000 | 2,370 | 0.2 | 1.2 |
| | | 18 | 10,500 | 2,680 | 0.24 | 1.2 | 9,500 | 2,180 | 0.19 | 1.2 |
| | | 21 | 10,000 | 2,440 | 0.23 | 1.2 | 9,000 | 1,970 | 0.19 | 1.2 |
| | | 25 | 9,500 | 2,170 | 0.23 | 1.2 | 8,500 | 1,770 | 0.18 | 1.2 |
| | | 30 | 8,500 | 1,790 | 0.22 | 1.2 | 8,000 | 1,460 | 0.17 | 1.2 |
| 4 | R0.2 | 8 | 9,500 | 3,710 | 0.12 | 2.2 | 8,600 | 3,020 | 0.1 | 2.2 |
| | | 16 | 8,800 | 3,220 | 0.1 | 2.2 | 7,900 | 2,600 | 0.08 | 2.2 |
| | | 20 | 8,500 | 3,000 | 0.1 | 2.2 | 7,700 | 2,450 | 0.08 | 2.2 |
| | | 24 | 8,100 | 2,760 | 0.1 | 2.2 | 7,300 | 2,240 | 0.08 | 2.2 |
| | | 28 | 7,700 | 2,530 | 0.09 | 2.2 | 6,900 | 2,040 | 0.07 | 2.2 |
| | | 32 | 7,400 | 2,350 | 0.09 | 2.2 | 6,700 | 1,910 | 0.07 | 2.2 |
| | R0.3 | 8 | 9,500 | 3,710 | 0.2 | 2.1 | 8,600 | 3,020 | 0.16 | 2.1 |
| | | 20 | 8,400 | 2,970 | 0.17 | 2.1 | 7,600 | 2,420 | 0.13 | 2.1 |
| | R0.5 | 8 | 9,500 | 3,710 | 0.3 | 1.8 | 8,600 | 3,020 | 0.24 | 1.8 |
| | | 12 | 9,100 | 3,440 | 0.28 | 1.8 | 8,200 | 2,790 | 0.22 | 1.8 |
| | | 16 | 8,800 | 3,220 | 0.26 | 1.8 | 7,900 | 2,600 | 0.21 | 1.8 |
| | | 20 | 8,400 | 2,970 | 0.25 | 1.8 | 7,600 | 2,420 | 0.2 | 1.8 |
| | | 24 | 8,100 | 2,760 | 0.24 | 1.8 | 7,300 | 2,240 | 0.19 | 1.8 |
| | | 25 | 8,000 | 2,710 | 0.24 | 1.8 | 7,200 | 2,190 | 0.19 | 1.8 |
| | | 28 | 7,700 | 2,530 | 0.23 | 1.8 | 6,900 | 2,040 | 0.19 | 1.8 |
| | | 32 | 7,400 | 2,350 | 0.23 | 1.8 | 6,700 | 1,910 | 0.18 | 1.8 |
| | R1 | 8 | 9,500 | 3,710 | 0.6 | 1.2 | 8,600 | 3,020 | 0.48 | 1.2 |
| | | 16 | 8,800 | 3,220 | 0.52 | 1.2 | 7,900 | 2,600 | 0.42 | 1.2 |
| | | 24 | 8,100 | 2,760 | 0.48 | 1.2 | 7,300 | 2,240 | 0.39 | 1.2 |
| | | 28 | 7,700 | 2,530 | 0.47 | 1.2 | 6,900 | 2,040 | 0.37 | 1.2 |
| | | 32 | 7,400 | 2,350 | 0.46 | 1.2 | 6,700 | 1,910 | 0.36 | 1.2 |
| 6 | R0.1 | 12 | 6,500 | 3,900 | 0.06 | 3.5 | 5,900 | 3,190 | 0.05 | 3.5 |
| | | 24 | 6,000 | 3,380 | 0.05 | 3.5 | 5,400 | 2,730 | 0.04 | 3.5 |
| | R0.2 | 12 | 6,500 | 3,900 | 0.12 | 3.4 | 5,900 | 3,190 | 0.1 | 3.4 |
| | | 24 | 6,000 | 3,380 | 0.1 | 3.4 | 5,400 | 2,730 | 0.08 | 3.4 |
| | | 32 | 5,700 | 3,060 | 0.1 | 3.4 | 5,100 | 2,470 | 0.08 | 3.4 |
| | | 48 | 5,000 | 2,440 | 0.09 | 3.4 | 4,500 | 1,980 | 0.07 | 3.4 |
| | R0.5 | 12 | 6,500 | 3,900 | 0.3 | 3 | 5,900 | 3,190 | 0.24 | 3 |
| | | 24 | 6,000 | 3,380 | 0.26 | 3 | 5,400 | 2,730 | 0.21 | 3 |
| | | 30 | 5,800 | 3,150 | 0.25 | 3 | 5,200 | 2,550 | 0.2 | 3 |
| | | 32 | 5,700 | 3,060 | 0.25 | 3 | 5,100 | 2,470 | 0.2 | 3 |
| | | 48 | 5,000 | 2,440 | 0.23 | 3 | 4,500 | 1,980 | 0.18 | 3 |
| | R1 | 12 | 6,500 | 3,900 | 0.6 | 2.4 | 5,900 | 3,190 | 0.48 | 2.4 |
| | | 24 | 6,000 | 3,380 | 0.52 | 2.4 | 5,400 | 2,730 | 0.42 | 2.4 |
| | | 32 | 5,700 | 3,060 | 0.49 | 2.4 | 5,100 | 2,470 | 0.39 | 2.4 |
| | | 48 | 5,000 | 2,440 | 0.46 | 2.4 | 4,500 | 1,980 | 0.36 | 2.4 |
| 切込深さ Depth of Cut | | |  | | | | | | | |



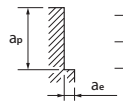
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整ください。
3. 水溶性切削油剤をご使用下さい。
4. 加工面、精度を重視される場合は、不水溶性切削油剤をご使用ください。切込深さ、送り速度を必要に応じて調整下さい。
5. 切削油剤は切削油剤メーカの推奨するものを必ずご使用下さい。加工物が変色することがあります。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Use a water soluble fluid.
4. Use a non-water-soluble cutting fluid if the machined surface and accuracy are of critical importance. Adjust the depth of cut and feed rate as necessary.
5. Always use a cutting fluid recommended by the cutting fluid manufacturer as the workpiece may discolor.

形状寸法表
SPECIFICATION CHARTS
AE-MSS-H▶P289

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-MSS-H
## 側面切削 SIDE MILLING

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SCM・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed(m/min) | 110 ～ 130 | | 80 ～ 100 | | 60 ～ 80 | | 50 ～ 70 | | 40 ～ 60 | |
| 外径×首下長 DC×LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 × 9 | 12,740 | 1,220 | 9,550 | 880 | 7,430 | 530 | 6,370 | 400 | 5,310 | 250 |
| 4 × 12 | 9,550 | 1,220 | 7,170 | 890 | 5,570 | 530 | 4,780 | 400 | 3,980 | 250 |
| 5 × 15 | 7,640 | 1,220 | 5,730 | 920 | 4,460 | 540 | 3,820 | 400 | 3,180 | 250 |
| 6 × 18 | 6,370 | 1,830 | 4,780 | 1,350 | 3,720 | 800 | 3,180 | 600 | 2,650 | 380 |
| 8 × 24 | 4,780 | 1,830 | 3,580 | 1,350 | 2,790 | 800 | 2,390 | 600 | 1,990 | 380 |
| 10 × 30 | 3,820 | 1,830 | 2,870 | 1,340 | 2,230 | 800 | 1,910 | 600 | 1,590 | 380 |
| 12 × 36 | 3,180 | 1,830 | 2,390 | 1,330 | 1,860 | 800 | 1,590 | 600 | 1,330 | 380 |
| 切込深さ Depth of Cut |  | | | | | | | | | |
| | ap ≦1.5D | ae ≦0.1D | ap ≦1.5D | ae ≦0.05D | | | ap ≦1.5D | ae ≦0.03D | | |
| | ae Max = 1mm | | ae Max = 0.5mm | | | | ae Max = 0.3mm | | | |

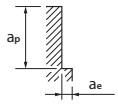
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

## AE-MSS-H
## 高速側面切削 HIGH-SPEED SIDE MILLING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

⚠ Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions below are for high speed / high precision machining centers.

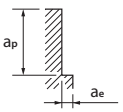
| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SCM・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed(m/min) | 290 ～ 310 | | 240 ～ 260 | | 150 ～ 170 | | 130 ～ 150 | | 90 ～ 110 | |
| 外径×首下長 DC×LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 × 9 | 31,850 | 3,440 | 26,540 | 2,870 | 16,990 | 1,530 | 14,860 | 1,190 | 10,620 | 720 |
| 4 × 12 | 23,890 | 3,440 | 19,900 | 2,870 | 12,740 | 1,530 | 11,150 | 1,190 | 7,960 | 720 |
| 5 × 15 | 19,110 | 3,440 | 15,920 | 2,870 | 10,190 | 1,530 | 8,920 | 1,190 | 6,370 | 720 |
| 6 × 18 | 15,920 | 5,160 | 13,270 | 4,300 | 8,490 | 2,290 | 7,430 | 1,780 | 5,310 | 1,080 |
| 8 × 24 | 11,940 | 5,160 | 9,950 | 4,300 | 6,370 | 2,290 | 5,570 | 1,770 | 3,980 | 1,080 |
| 10 × 30 | 9,550 | 5,160 | 7,960 | 4,300 | 5,100 | 2,300 | 4,460 | 1,770 | 3,180 | 1,080 |
| 12 × 36 | 7,960 | 5,160 | 6,630 | 4,300 | 4,250 | 2,300 | 3,720 | 1,770 | 2,650 | 1,080 |
| 切込深さ Depth of Cut |  | | | | | | | | | |
| | ap ≦1.5D | ae ≦0.02D | | | | | ap ≦1.5D | ae ≦0.01D | | |
| | ae Max = 0.2mm | | | | | | ae Max = 0.1mm | | | |

1. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Tools can cause sparks. Do not use flammable fluids.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

## AE-MS-H
## スクエア/ラジアスタイプ
## 側面切削

SQUARE TYPE/RADIUS TYPE
SIDE MILLING

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SCM・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed(m/min) | 110 ～ 130 | | 80 ～ 100 | | 60 ～ 80 | | 50 ～ 70 | | 40 ～ 60 | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 | 38,220 | 1,530 | 28,660 | 1,150 | 22,290 | 620 | 19,110 | 460 | 15,920 | 330 |
| 1.5 | 25,480 | 1,530 | 19,110 | 1,150 | 14,860 | 620 | 12,740 | 460 | 10,620 | 330 |
| 2 | 19,110 | 1,530 | 14,330 | 1,150 | 11,150 | 620 | 9,550 | 460 | 7,960 | 330 |
| 2.5 | 15,290 | 1,530 | 11,460 | 1,150 | 8,920 | 620 | 7,640 | 460 | 6,370 | 330 |
| 3 | 12,740 | 1,530 | 9,550 | 1,150 | 7,430 | 620 | 6,370 | 460 | 5,310 | 340 |
| 4 | 9,550 | 1,530 | 7,170 | 1,150 | 5,570 | 620 | 4,780 | 460 | 3,980 | 340 |
| 5 | 7,640 | 1,530 | 5,730 | 1,150 | 4,460 | 620 | 3,820 | 460 | 3,180 | 360 |
| 6 | 6,370 | 2,290 | 4,780 | 1,720 | 3,720 | 940 | 3,180 | 690 | 2,650 | 510 |
| 8 | 4,780 | 2,290 | 3,580 | 1,720 | 2,790 | 940 | 2,390 | 690 | 1,990 | 510 |
| 10 | 3,820 | 2,290 | 2,870 | 1,720 | 2,230 | 940 | 1,910 | 690 | 1,590 | 510 |
| 12 | 3,180 | 2,290 | 2,390 | 1,720 | 1,860 | 950 | 1,590 | 690 | 1,330 | 510 |
| 16 | 2,390 | 2,290 | 1,790 | 1,720 | 1,390 | 930 | 1,190 | 690 | 1,000 | 500 |
| 20 | 1,910 | 2,290 | 1,430 | 1,720 | 1,110 | 930 | 960 | 690 | 800 | 500 |
| 切込深さ Depth of Cut |  | | ap / ae<br>DC≦φ1.5: 1.5D / 0.02D<br>φ1.5<DC≦φ2.5: 1.5D / 0.05D<br>φ2.5<DC: 1.5D / 0.1D<br>ae Max = 1mm | | ap / ae<br>1.5D / 0.05D<br>ae Max = 1mm | | ap / ae<br>1.5D / 0.03D<br>ae Max = 0.5mm | | ap / ae<br>1D / 0.02D<br>ae Max = 0.5mm | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

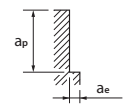
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

## AE-MS-H
## スクエア/ラジアスタイプ
## 高速側面切削

SQUARE TYPE/RADIUS TYPE
HIGH-SPEED SIDE MILLING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SCM・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed(m/min) | 290 ～ 310 | | 240 ～ 260 | | 150 ～ 170 | | 130 ～ 150 | | 90 ～ 110 | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 | 50,000 | 2,000 | 50,000 | 2,000 | 50,000 | 1,600 | 44,590 | 1,250 | 31,850 | 700 |
| 1.5 | 50,000 | 3,000 | 50,000 | 3,000 | 33,970 | 1,630 | 29,720 | 1,250 | 21,230 | 760 |
| 2 | 47,770 | 3,820 | 39,810 | 3,180 | 25,480 | 1,630 | 22,290 | 1,250 | 15,920 | 800 |
| 2.5 | 38,220 | 3,820 | 31,850 | 3,190 | 20,380 | 1,630 | 17,830 | 1,250 | 12,740 | 800 |
| 3 | 31,850 | 3,820 | 26,540 | 3,180 | 16,990 | 1,630 | 14,860 | 1,250 | 10,620 | 810 |
| 4 | 23,890 | 3,820 | 19,900 | 3,180 | 12,740 | 1,630 | 11,150 | 1,250 | 7,960 | 810 |
| 5 | 19,110 | 3,820 | 15,920 | 3,180 | 10,190 | 1,630 | 8,920 | 1,250 | 6,370 | 810 |
| 6 | 15,920 | 5,730 | 13,270 | 4,780 | 8,490 | 2,450 | 7,430 | 1,870 | 5,310 | 1,210 |
| 8 | 11,940 | 5,730 | 9,950 | 4,780 | 6,370 | 2,450 | 5,570 | 1,870 | 3,980 | 1,210 |
| 10 | 9,550 | 5,730 | 7,960 | 4,780 | 5,100 | 2,450 | 4,460 | 1,870 | 3,180 | 1,210 |
| 12 | 7,960 | 5,730 | 6,630 | 4,770 | 4,250 | 2,450 | 3,720 | 1,900 | 2,650 | 1,210 |
| 16 | 5,970 | 5,730 | 4,980 | 4,780 | 3,180 | 2,450 | 2,790 | 1,870 | 1,990 | 1,190 |
| 20 | 4,780 | 5,730 | 3,980 | 4,780 | 2,550 | 2,450 | 2,230 | 1,870 | 1,590 | 1,190 |
| 切込深さ Depth of Cut |  | | ap / ae<br>1D / 0.05D<br>ae Max = 0.5mm | | ap / ae<br>1D / 0.03D<br>ae Max = 0.5mm | | ap / ae<br>1D / 0.02D<br>ae Max = 0.2mm | | ap / ae<br>1D / 0.01D<br>ae Max = 0.2mm | |

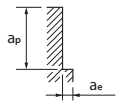
1. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Tools can cause sparks. Do not use flammable fluids.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

形状寸法表
SPECIFICATION CHARTS
AE-ML-H▶P307

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-ML-H
## 側面切削 SIDE MILLING

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SCM・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed(m/min) | 60 | | 45 | | 30 | | 20 | | 15 | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 6,370 | 650 | 4,780 | 370 | 3,180 | 170 | 2,120 | 100 | 1,590 | 60 |
| 4 | 4,780 | 650 | 3,580 | 370 | 2,390 | 170 | 1,590 | 100 | 1,190 | 60 |
| 5 | 3,820 | 650 | 2,870 | 370 | 1,910 | 170 | 1,270 | 100 | 960 | 60 |
| 6 | 3,180 | 970 | 2,390 | 560 | 1,590 | 260 | 1,060 | 150 | 800 | 90 |
| 8 | 2,390 | 970 | 1,790 | 560 | 1,190 | 260 | 800 | 150 | 600 | 90 |
| 10 | 1,910 | 970 | 1,430 | 560 | 960 | 260 | 640 | 150 | 480 | 90 |
| 12 | 1,590 | 970 | 1,190 | 560 | 800 | 260 | 530 | 150 | 400 | 90 |
| 16 | 1,190 | 970 | 900 | 560 | 600 | 260 | 400 | 150 | 300 | 90 |
| 20 | 960 | 970 | 720 | 560 | 480 | 260 | 320 | 150 | 240 | 90 |
| 切込深さ Depth of Cut |  | | ap: 3D, ae: 0.01D<br>ae Max = 0.2mm | | | | ap: 3D, ae: 0.005D<br>ae Max = 0.1mm | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

## AE-CRE-H

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire prevention measures.
The conditions below are for high speed / high precision machining centers.

### 正面切削 FRONTAL MILLING

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 (m/min) | 140～160 | | 140～160 | | 90～110 | | 70～90 | | 50～70 | |
| 外径×コーナ半径 DC×RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × R0.2 | 48,000 | 7,250 | 48,000 | 6,800 | 32,000 | 2,900 | 25,500 | 1,650 | 19,500 | 950 |
| 2 × R0.5 | 24,000 | 7,250 | 24,000 | 6,800 | 16,000 | 2,900 | 13,000 | 1,700 | 9,550 | 950 |
| 3 × R0.75 | 16,000 | 8,600 | 16,000 | 8,050 | 10,700 | 3,450 | 8,450 | 1,950 | 6,350 | 1,100 |
| 4 × R1 | 12,000 | 9,550 | 12,000 | 8,950 | 7,950 | 3,800 | 6,350 | 2,200 | 4,750 | 1,200 |
| 5 × R1.2 | 9,550 | 9,500 | 9,550 | 8,950 | 6,350 | 3,800 | 5,050 | 2,200 | 3,800 | 1,200 |
| 6 × R1.5 | 7,950 | 9,500 | 7,950 | 8,900 | 5,300 | 3,800 | 4,200 | 2,200 | 3,150 | 1,200 |
| 7 × R1.5 | 6,800 | 8,550 | 6,800 | 8,000 | 4,500 | 3,400 | 3,600 | 1,950 | 2,700 | 1,100 |
| 8 × R2 | 5,950 | 9,500 | 5,950 | 8,900 | 3,950 | 3,750 | 3,150 | 2,200 | 2,350 | 1,200 |
| 9 × R2 | 5,300 | 8,550 | 5,300 | 8,000 | 3,500 | 3,400 | 2,800 | 1,950 | 2,100 | 1,100 |
| 10 × R2 | 4,750 | 9,450 | 4,750 | 8,900 | 3,150 | 3,750 | 2,500 | 2,150 | 1,900 | 1,200 |
| 11 × R2 | 4,300 | 8,500 | 4,300 | 7,950 | 2,850 | 3,350 | 2,300 | 1,950 | 1,700 | 1,100 |
| 12 × R3 | 3,950 | 9,450 | 3,950 | 8,850 | 2,650 | 3,800 | 2,100 | 2,200 | 1,550 | 1,200 |
| 13 × R3 | 3,650 | 8,500 | 3,650 | 8,000 | 2,400 | 3,350 | 1,950 | 1,950 | 1,450 | 1,100 |
| 切込深さ Depth of Cut | ap 0.1RE / ae 0.3D<br>ap Max = 0.2mm | | ap 0.1RE / ae 0.3D<br>ap Max = 0.2mm | | | | ap 0.05RE / ae 0.3D<br>ap Max = 0.1mm | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 上表はコーナ部円弧補間の動きを前提とした条件表です。コーナ部円弧補間のない加工（直角曲がりなど）では、上表の回転速度50～70%、切込深さ50～80%として下さい。
3. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
4. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調整下さい。
5. 上表は、等高線加工、工具の突出し量が4D（外径×4倍以下）の場合の目安です。突出し量が大きな場合は、びびりが発生しやすくなりますので係数を参考に、回転速度、送り速度、切込深さを調整下さい。切削速度を下げて、aeを調整して使用することも可能です。

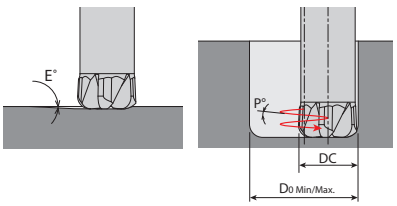
1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. These milling conditions are for overhang length of less than 4 × D. For longer overhang length, reduce the speed, feed rate, and the cutting depth in accordance to the respective coefficients to prevent chattering. It can also be used by lowering the cutting speed and adjusting the ae.

### 突出し長さ変化による切削条件調整の目安 CUTTING CONDITION GUIDE FOR CHANGES IN OVERHANG LENGTH

| 被削材 Work Material | 調質鋼（～45HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel SCM・SKD61・NAK80 | | | 調質鋼 Hardened Steel | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ～55HRC | | | ～62HRC | | | ～66HRC | | | ～70HRC | | |
| 突出し長さ L/D | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) |
| L/D≦4 | 100% | | | 100% | | | 100% | | | 100% | | | 100% | | |
| 4<L/D<6 | 70% | | | 70% | | | 70% | | | 60% | | | 60% | | |
| L/D=6 | 50% | | | 50% | | | 50% | | | 40% | | | 40% | | |

### ランピング加工時の最大傾斜角（E°）とヘリカル加工時の最大傾斜角（P°）
MAXIMUM RAMPING (E) AND HELICAL (P) ANGLE

| 外径×コーナ半径 DC×RE | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) 最小径 D0 Min. | ヘリカル穴あけ Helical Milling (mm) 最大径 D0 Max. | ヘリカル角度 Helical Angle P° |
|---|---|---|---|---|
| 1×R0.2 | 3° | 1.25 | 1.75 | 1.5° |
| 2×R0.5 | | 2.5 | 3.5 | |
| 3×R0.75 | | 4.5 | 5.5 | |
| 4×R1 | | 6 | 7 | |
| 5×R1.2 | | 7.5 | 9 | |
| 6×R1.5 | | 9 | 11 | |
| 7×R1.5 | | 10.5 | 13 | |
| 8×R2 | | 12 | 15 | |
| 9×R2 | | 13.5 | 17 | |
| 10×R2 | | 15 | 19 | |
| 11×R2 | | 16.5 | 21 | |
| 12×R3 | | 18 | 23 | |
| 13×R3 | | 19.5 | 25 | |




・ランピング加工、ヘリカル穴あけ時は突出し長さ変化による切削条件調整後、送り速度を50%以下として下さい。

・When ramping or helical milling, after adjusting the cutting condition by changing the overhang length, set the feed rate to 50% or less.

形状寸法表
SPECIFICATION CHARTS
AE-HFE-H▶P384

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-HFE-H

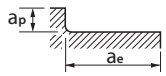
⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution: sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire prevention measures.
The conditions below are for high speed / high precision machining centers.

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

### 正面切削 FRONTAL MILLING

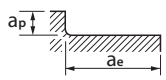
### L/D≦4

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 (m/min) | 120～140 | | 100～120 | | 80～100 | | 70～90 | | 60～80 | |
| 外径×疑似R DC×rt | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × R0.1 | 41,000 | 7,400 | 35,000 | 5,300 | 28,500 | 3,200 | 25,000 | 1,650 | 22,000 | 1,250 |
| 2 × R0.2 | 20,500 | 7,400 | 17,500 | 5,300 | 14,000 | 3,150 | 12,500 | 1,650 | 11,000 | 1,250 |
| 3 × R0.3 | 13,500 | 9,100 | 11,500 | 6,550 | 9,550 | 4,050 | 8,450 | 2,100 | 7,400 | 1,550 |
| 4 × R0.35 | 10,000 | 9,450 | 8,750 | 6,950 | 7,150 | 4,250 | 6,350 | 2,200 | 5,550 | 1,650 |
| 5 × R0.4 | 8,250 | 9,750 | 7,000 | 6,950 | 5,700 | 4,250 | 5,050 | 2,200 | 4,450 | 1,650 |
| 6 × R0.45 | 6,900 | 9,800 | 5,800 | 6,950 | 4,750 | 4,250 | 4,200 | 2,200 | 3,700 | 1,650 |
| 8 × R0.65 | 5,150 | 9,750 | 4,350 | 6,950 | 3,550 | 4,250 | 3,150 | 2,200 | 2,750 | 1,600 |
| 10 × R0.7 | 4,100 | 9,700 | 3,500 | 6,950 | 2,850 | 4,250 | 2,500 | 2,150 | 2,200 | 1,600 |
| 12 × R0.8 | 3,450 | 9,800 | 2,900 | 6,950 | 2,350 | 4,200 | 2,100 | 2,200 | 1,850 | 1,650 |
| 切込深さ Depth of Cut |  | | | | | | | | | |



| ap | ae |
|---|---|
| 0.04D | 0.6D |

### 4<L/D≦6

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 (m/min) | 110～130 | | 90～110 | | 70～90 | | 60～80 | | 40～60 | |
| 外径×疑似R DC×rt | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × R0.1 | 38,000 | 5,750 | 31,500 | 3,550 | 25,000 | 2,800 | 22,000 | 1,450 | 15,500 | 850 |
| 2 × R0.2 | 19,000 | 5,750 | 15,500 | 3,500 | 12,500 | 2,800 | 11,000 | 1,450 | 7,950 | 900 |
| 3 × R0.3 | 12,500 | 7,100 | 10,500 | 4,450 | 8,450 | 3,600 | 7,400 | 1,800 | 5,300 | 1,100 |
| 4 × R0.35 | 9,550 | 7,600 | 7,950 | 4,750 | 6,350 | 3,800 | 5,550 | 1,900 | 3,950 | 1,150 |
| 5 × R0.4 | 7,600 | 7,550 | 6,350 | 4,750 | 5,050 | 3,750 | 4,450 | 1,900 | 3,150 | 1,150 |
| 6 × R0.45 | 6,350 | 7,600 | 5,300 | 4,750 | 4,200 | 3,750 | 3,700 | 1,900 | 2,650 | 1,150 |
| 8 × R0.65 | 4,750 | 7,550 | 3,950 | 4,700 | 3,150 | 3,750 | 2,750 | 1,900 | 1,950 | 1,150 |
| 10 × R0.7 | 3,800 | 7,550 | 3,150 | 4,700 | 2,500 | 3,700 | 2,200 | 1,900 | 1,550 | 1,150 |
| 12 × R0.8 | 3,150 | 7,550 | 2,650 | 4,750 | 2,100 | 3,750 | 1,850 | 1,900 | 1,300 | 1,150 |
| 切込深さ Depth of Cut |  | | | | | | | | | |



| ap | ae |
|---|---|
| 0.03D | 0.5D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
3. 切込み深さapが上表を超えて使用する際は、最大切込み深さap Maxを超えないように設定して下さい。切削条件は状況に応じて調整下さい。
4. 突出し長さが長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込み深さを調整下さい。
5. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
6. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込み深さを調整下さい。
7. ピック量が有効径（DCF）以上の場合、加工面にカスプが発生することがあります。

1. Use a rigid and precise machine and holder.
2. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
3. When the depth of cut ap exceeds the table above, set it so that it does not exceed the maximum depth of cut ap Max. Please adjust the cutting condition according to the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. We suggest using air blow or MQL (mist).
6. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
7. If the pick amount is DCF or more, cusp may occur on the machined surface.

## AE-HFE-H

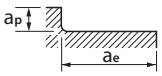
⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution: sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire prevention measures.
The conditions below are for high speed / high precision machining centers.

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

### 正面切削 FRONTAL MILLING

### 6<L/D≦7

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 (m/min) | 90～110 | | 65～85 | | 50～70 | | 45～65 | | 30～50 | |
| 外径×疑似R DC×rt | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 × R0.1 | 31,500 | 4,150 | 23,500 | 2,650 | 19,000 | 1,400 | 17,500 | 950 | 12,500 | 550 |
| 2 × R0.2 | 15,500 | 4,100 | 11,500 | 2,600 | 9,550 | 1,450 | 8,750 | 950 | 6,000 | 550 |
| 3 × R0.3 | 10,500 | 5,200 | 7,950 | 3,350 | 6,350 | 1,800 | 5,800 | 1,200 | 4,200 | 700 |
| 4 × R0.35 | 7,950 | 5,550 | 5,950 | 3,550 | 4,750 | 1,850 | 4,350 | 1,300 | 3,150 | 750 |
| 5 × R0.4 | 6,350 | 5,550 | 4,750 | 3,550 | 3,800 | 1,850 | 3,500 | 1,300 | 2,500 | 750 |
| 6 × R0.45 | 5,300 | 5,550 | 3,950 | 3,550 | 3,150 | 1,850 | 2,900 | 1,300 | 2,100 | 750 |
| 8 × R0.65 | 3,950 | 5,500 | 2,950 | 3,500 | 2,350 | 1,850 | 2,150 | 1,250 | 1,550 | 750 |
| 10 × R0.7 | 3,150 | 5,500 | 2,350 | 3,500 | 1,900 | 1,850 | 1,750 | 1,300 | 1,250 | 750 |
| 12 × R0.8 | 2,650 | 5,550 | 1,950 | 3,500 | 1,550 | 1,850 | 1,450 | 1,300 | 1,050 | 750 |
| 切込深さ Depth of Cut |  | | | | | | | | | |

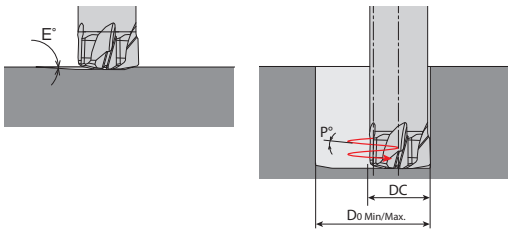


| ap | ae |
|---|---|
| 0.02D | 0.4D |

・使用上のご注意はP.527をご参照ください。 ・See P.527 for precaution for use.

### ランピング加工時の最大傾斜角(E°)とヘリカル加工時の最大傾斜角(P°)
### MAXIMUM RAMPING (E) AND HELICAL (P) ANGLE

| 外径×疑似R DC×rt | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° |
|---|---|---|---|---|
| | | 最小径 D0 Min. | 最大径 D0 Max. | |
| 1 × R0.1 | 3° | 1.25 | 1.75 | 1.5° |
| 2 × R0.2 | | 2.5 | 3.5 | |
| 3 × R0.3 | | 4.5 | 5.5 | |
| 4 × R0.35 | | 6 | 7 | |
| 5 × R0.4 | | 7.5 | 9 | |
| 6 × R0.45 | | 9 | 11 | |
| 8 × R0.65 | | 12 | 15 | |
| 10 × R0.7 | | 15 | 19 | |
| 12 × R0.8 | | 18 | 23 | |





・ランピング加工、ヘリカル穴あけ時は送り速度を50%以下として下さい。
・For ramping and helical milling, set the feed rate to 50%.

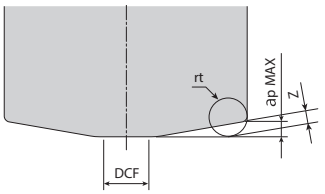
### プログラム上の刃先形状定義
### EDGE SHAPE DEFINITIONS FOR THE PURPOSE OF CREATING A PROGRAM

| 外径 DC | 疑似R rt | 取り残し量 Remainder Z |
|---|---|---|
| 1 | R0.1 | 0.04 |
| 2 | R0.2 | 0.073 |
| 3 | R0.3 | 0.11 |
| 4 | R0.35 | 0.143 |
| 5 | R0.4 | 0.185 |
| 6 | R0.45 | 0.227 |
| 8 | R0.65 | 0.294 |
| 10 | R0.7 | 0.351 |
| 12 | R0.8 | 0.428 |

・加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
・During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

### 最大切込み深さ
### MAXIMUM DEPTH OF CUT

| 外径 DC | ap Max |
|---|---|
| 1 | 0.04 |
| 2 | 0.08 |
| 3 | 0.12 |
| 4 | 0.16 |
| 5 | 0.2 |
| 6 | 0.24 |
| 8 | 0.32 |
| 10 | 0.4 |
| 12 | 0.48 |



形状寸法表
SPECIFICATION CHARTS
AE-BD-H▶P324

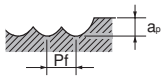
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-BD-H
## 仕上げ加工

FINISHING

●加工パスは等高線加工を前提としています。

The machining path is on condition of contouring line operation.

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | | | |
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.5 | 38,400 | 2,350 | 38,400 | 2,350 | 38,400 | 2,000 | 38,400 | 1,600 | 38,400 | 1,450 |
| R0.75 | 38,400 | 3,050 | 38,400 | 3,050 | 38,400 | 2,500 | 31,800 | 1,900 | 25,200 | 1,450 |
| R1 | 38,400 | 3,600 | 38,400 | 3,550 | 28,800 | 2,200 | 24,000 | 1,750 | 19,200 | 1,250 |
| R1.5 | 31,800 | 4,000 | 25,200 | 3,200 | 19,200 | 2,000 | 16,200 | 1,600 | 12,600 | 1,200 |
| R2 | 24,000 | 3,650 | 19,200 | 2,950 | 14,400 | 1,900 | 11,900 | 1,500 | 9,500 | 1,150 |
| R2.5 | 19,200 | 3,500 | 15,000 | 2,650 | 11,500 | 1,700 | 9,500 | 1,350 | 7,600 | 1,000 |
| R3 | 16,200 | 3,350 | 12,600 | 2,300 | 9,500 | 1,550 | 8,000 | 1,250 | 6,400 | 955 |
| R4 | 11,900 | 2,850 | 9,500 | 2,050 | 7,100 | 1,350 | 5,900 | 1,050 | 4,800 | 830 |
| R5 | 9,500 | 2,550 | 7,600 | 1,800 | 5,800 | 1,150 | 4,800 | 875 | 3,800 | 700 |
| R6 | 8,000 | 2,400 | 6,400 | 1,650 | 4,800 | 955 | 4,000 | 795 | 3,200 | 635 |
| 切込深さ Depth of Cut |  | | ap: 0.05D, Pf: 0.1D | | ap: 0.03D, Pf: 0.1D | | ap: 0.02D, Pf: 0.05D | | | |

## AE-BD-H
## 高速仕上げ加工

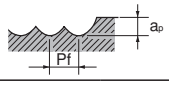
HIGH-SPEED FINISHING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions below are for high speed / high precision machining centers.

●加工パスは等高線加工を前提としています。

The machining path is on condition of contouring line operation.

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | | | |
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.5 | 50,000 | 3,700 | 50,000 | 3,700 | 50,000 | 3,100 | 50,000 | 2,600 | 50,000 | 2,400 |
| R0.75 | 50,000 | 4,800 | 50,000 | 4,800 | 50,000 | 3,900 | 50,000 | 3,050 | 38,400 | 2,300 |
| R1 | 50,000 | 5,600 | 50,000 | 5,350 | 48,000 | 3,650 | 38,400 | 2,800 | 28,800 | 2,100 |
| R1.5 | 49,800 | 6,200 | 38,400 | 4,800 | 31,800 | 3,350 | 25,200 | 2,550 | 19,200 | 1,900 |
| R2 | 37,200 | 5,700 | 28,800 | 4,400 | 24,000 | 3,200 | 19,200 | 2,400 | 14,400 | 1,800 |
| R2.5 | 30,000 | 5,450 | 22,800 | 4,000 | 19,200 | 2,850 | 15,600 | 2,150 | 11,500 | 1,600 |
| R3 | 24,600 | 5,200 | 19,200 | 3,450 | 16,200 | 2,550 | 12,600 | 2,050 | 9,500 | 1,550 |
| R4 | 18,600 | 4,450 | 14,400 | 3,050 | 11,900 | 2,250 | 9,500 | 1,800 | 7,100 | 1,350 |
| R5 | 15,000 | 3,950 | 11,500 | 2,650 | 9,500 | 1,900 | 7,600 | 1,550 | 5,800 | 1,150 |
| R6 | 12,600 | 3,700 | 9,500 | 2,500 | 8,000 | 1,600 | 6,400 | 1,350 | 4,800 | 995 |
| 切込深さ Depth of Cut |  | | ap: 0.02D, Pf: 0.05D | | | | ap: 0.01D, Pf: 0.05D | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）を推奨します。
3. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. 切込深さが小さい場合、回転速度、送り速度をさらに上げることが可能です。

1. Use a rigid and precise machine and holder.
2. Using air blow or MQL (oil mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Cutting speed and feed rate can be increased in case of lower depth of cut.

## AE-BM-H
## 荒加工

ROUGHING

●加工パスは等高線加工を前提としています。

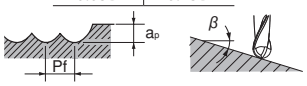
The machining path is on condition of contouring line operation.

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | | | |
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 | 20,700 | 3,310 | 18,300 | 1,830 | 15,900 | 1,590 | 14,300 | 1,140 | 9,600 | 770 |
| R1.5 | 13,800 | 2,760 | 12,200 | 1,710 | 10,600 | 1,480 | 9,600 | 1,150 | 6,400 | 770 |
| R2 | 10,400 | 2,500 | 9,200 | 1,660 | 8,000 | 1,440 | 7,200 | 1,150 | 4,800 | 770 |
| R2.5 | 8,300 | 2,660 | 7,300 | 1,900 | 6,400 | 1,660 | 5,700 | 1,370 | 3,800 | 910 |
| R3 | 6,900 | 2,760 | 6,100 | 1,950 | 5,300 | 1,700 | 4,800 | 1,340 | 3,200 | 900 |
| R4 | 5,200 | 2,500 | 4,600 | 1,840 | 4,000 | 1,600 | 3,600 | 1,300 | 2,400 | 860 |
| R5 | 4,500 | 2,340 | 4,000 | 1,760 | 3,500 | 1,540 | 3,200 | 1,280 | 2,200 | 850 |
| R6 | 4,000 | 2,240 | 3,600 | 1,730 | 3,200 | 1,540 | 2,900 | 1,160 | 2,100 | 840 |
| 切込深さ Depth of Cut | | | | | | | | | | |

| | ap | Pf |
|---|---|---|
| RE<R3 | 0.1D | 0.2D |
| R3≦RE | 0.15D | 0.2D |

| | ap | Pf |
|---|---|---|
| RE<R3 | 0.07D | 0.15D |
| R3≦RE | 0.12D | 0.15D |

| ap | Pf |
|---|---|
| 0.05D | 0.15D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）を推奨します。
3. 上表は、エンドミルの突出し量が、[外径×4倍以下] を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 走査線加工でご使用の場合、加工傾斜角度（β）が15°≦βの場合は、上表の回転速度40～60%、送り速度30～50%、軸方向切込深さ30～80%程度に下げてご使用下さい。
7. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50－80%, the feed rate to 50－80%, and the pick feed to 20－60% of the above shown cutting conditions.
6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40－60%, the feed 30－50%, and the axial cutting depth to 30－60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

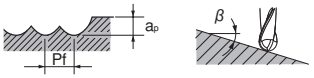
## AE-BM-H
## 仕上げ加工

FINISHING

●加工パスは等高線加工を前提としています。

The machining path is on condition of contouring line operation.

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | | | |
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 | 27,100 | 4,340 | 24,700 | 2,470 | 22,300 | 1,780 | 18,300 | 1,460 | 13,500 | 1,080 |
| R1.5 | 18,000 | 3,600 | 16,500 | 2,310 | 14,900 | 1,780 | 12,200 | 1,460 | 9,000 | 1,080 |
| R2 | 13,500 | 3,240 | 12,300 | 2,210 | 11,100 | 1,780 | 9,200 | 1,470 | 6,800 | 1,090 |
| R2.5 | 10,800 | 3,460 | 9,900 | 2,570 | 8,900 | 2,140 | 7,300 | 1,750 | 5,400 | 1,300 |
| R3 | 9,000 | 3,600 | 8,200 | 2,620 | 7,400 | 2,070 | 6,100 | 1,710 | 4,500 | 1,260 |
| R4 | 6,800 | 3,260 | 6,200 | 2,480 | 5,600 | 1,790 | 4,600 | 1,470 | 3,400 | 1,090 |
| R5 | 5,700 | 2,960 | 5,300 | 2,330 | 4,800 | 1,730 | 4,000 | 1,440 | 3,000 | 1,080 |
| R6 | 5,000 | 2,800 | 4,600 | 2,210 | 4,200 | 1,680 | 3,500 | 1,400 | 2,800 | 1,120 |
| 切込深さ Depth of Cut | | | | | | | | | | |




| ap | Pf |
|---|---|
| 0.02D | 0.05D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）を推奨します。
3. 上表は、エンドミルの突出し量が、[外径×4倍以下] を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 走査線加工でご使用の場合、加工傾斜角度（β）が15°≦βの場合は、上表の回転速度40～60%、送り速度30～50%、軸方向切込深さ30～80%程度に下げてご使用下さい。
7. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50－80%, the feed rate to 50－80%, and the pick feed to 20－60% of the above shown cutting conditions.
6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40－60%, the feed 30－50%, and the axial cutting depth to 30－60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

形状寸法表
SPECIFICATION CHARTS
AE-BM-H▶P337

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

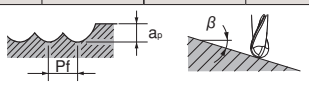
## AE-BM-H
## 高速荒加工 HIGH-SPEED ROUGHING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions below are for high speed / high precision machining centers.

●加工パスは等高線加工を前提としています。

The machining path is on condition of contouring line operation.

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | | | |
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 | 37,300 | 5,970 | 33,000 | 3,300 | 28,700 | 2,870 | 25,800 | 2,060 | 17,200 | 1,380 |
| R1.5 | 24,800 | 4,960 | 22,000 | 3,080 | 19,100 | 2,670 | 17,200 | 2,060 | 11,500 | 1,380 |
| R2 | 20,700 | 4,970 | 18,300 | 3,290 | 15,900 | 2,860 | 14,300 | 2,290 | 9,600 | 1,540 |
| R2.5 | 16,600 | 5,310 | 14,600 | 3,800 | 12,700 | 3,300 | 11,500 | 2,760 | 7,600 | 1,820 |
| R3 | 13,800 | 5,520 | 12,200 | 3,900 | 10,600 | 3,390 | 9,600 | 2,690 | 6,400 | 1,790 |
| R4 | 10,400 | 4,990 | 9,200 | 3,680 | 8,000 | 3,200 | 7,200 | 2,590 | 4,800 | 1,730 |
| R5 | 8,900 | 4,630 | 8,000 | 3,520 | 7,000 | 3,080 | 6,400 | 2,560 | 4,500 | 1,800 |
| R6 | 8,000 | 4,480 | 7,200 | 3,460 | 6,400 | 3,070 | 5,800 | 2,320 | 4,200 | 1,680 |
| 切込深さ Depth of Cut | ap | Pf | ap | Pf |  | | | | ap | Pf |
| | 0.1D | 0.2D | 0.08D | 0.2D | | | | | 0.05D | 0.1D |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）を推奨します。
3. 上表は、エンドミルの突出し量が、[外径×4倍以下] を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 走査線加工でご使用の場合、加工傾斜角度（β）が15°≦βの場合は、上表の回転速度40～60%、送り速度30～50%、軸方向切込深さ30～80%程度に下げてご使用下さい。
7. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50－80%, the feed rate to 50－80%, and the pick feed to 20－60% of the above shown cutting conditions.
6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40－60%, the feed 30－50%, and the axial cutting depth to 30－60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

# AE-BM-H
## 高速仕上げ加工

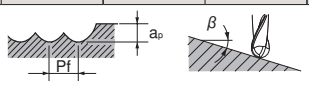
HIGH-SPEED FINISHING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions below are for high speed / high precision machining centers.

●加工パスは等高線加工を前提としています。

The machining path is on condition of contouring line operation.

| 被削材 Work Material | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 | 40,610 | 6,500 | 37,020 | 3,700 | 33,440 | 2,680 | 27,470 | 2,200 | 20,300 | 1,620 |
| R1.5 | 27,070 | 5,410 | 24,680 | 3,460 | 22,290 | 2,670 | 18,310 | 2,200 | 13,540 | 1,620 |
| R2 | 24,360 | 5,850 | 22,210 | 4,000 | 20,060 | 3,210 | 16,480 | 2,640 | 12,180 | 1,950 |
| R2.5 | 19,490 | 6,240 | 17,770 | 4,620 | 16,050 | 3,850 | 13,180 | 3,160 | 9,750 | 2,340 |
| R3 | 16,240 | 6,500 | 14,810 | 4,740 | 13,380 | 3,750 | 10,990 | 3,080 | 8,120 | 2,270 |
| R4 | 12,180 | 5,850 | 11,110 | 4,440 | 10,030 | 3,210 | 8,240 | 2,640 | 6,090 | 1,950 |
| R5 | 10,320 | 5,370 | 9,460 | 4,160 | 8,600 | 3,100 | 7,170 | 2,580 | 5,450 | 1,960 |
| R6 | 9,080 | 5,080 | 8,360 | 4,010 | 7,640 | 3,060 | 6,210 | 2,480 | 5,020 | 2,010 |
| 切込深さ Depth of Cut |  | | | | ap: 0.02D | Pf: 0.05D | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）を推奨します。
3. 上表は、エンドミルの突出し量が、[外径×4倍以下] を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 走査線加工でご使用の場合、加工傾斜角度（β）が15°≦βの場合は、上表の回転速度40～60%、送り速度30～50%、軸方向切込深さ30～80%程度に下げてご使用下さい。
7. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

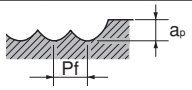
1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50－80%, the feed rate to 50－80%, and the pick feed to 20－60% of the above shown cutting conditions.
6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40－60%, the feed 30－50%, and the axial cutting depth to 30－60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

形状寸法表
SPECIFICATION CHARTS
AE-LNBD-H▶P348

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-LNBD-H

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R0.05 | 0.2 | 50,000 | 80 | 0.003 | 0.003 | 50,000 | 70 | 0.003 | 0.003 | 50,000 | 70 | 0.003 | 0.003 | 50,000 | 60 | 0.003 | 0.003 | 50,000 | 50 | 0.003 | 0.003 |
| | 0.3 | 50,000 | 70 | 0.003 | 0.003 | 50,000 | 60 | 0.003 | 0.003 | 50,000 | 60 | 0.003 | 0.003 | 50,000 | 50 | 0.003 | 0.003 | 50,000 | 40 | 0.003 | 0.003 |
| | 0.5 | 50,000 | 50 | 0.003 | 0.003 | 50,000 | 40 | 0.003 | 0.003 | 50,000 | 40 | 0.003 | 0.003 | 50,000 | 30 | 0.003 | 0.003 | 50,000 | 20 | 0.003 | 0.003 |
| R0.1 | 0.3 | 50,000 | 400 | 0.005 | 0.005 | 50,000 | 280 | 0.005 | 0.005 | 50,000 | 220 | 0.004 | 0.005 | 50,000 | 190 | 0.004 | 0.005 | 50,000 | 140 | 0.004 | 0.005 |
| | 0.5 | 50,000 | 380 | 0.005 | 0.005 | 50,000 | 260 | 0.005 | 0.005 | 50,000 | 200 | 0.004 | 0.005 | 50,000 | 170 | 0.004 | 0.005 | 50,000 | 130 | 0.004 | 0.005 |
| | 0.75 | 50,000 | 340 | 0.005 | 0.005 | 50,000 | 230 | 0.005 | 0.005 | 50,000 | 180 | 0.004 | 0.005 | 50,000 | 150 | 0.004 | 0.005 | 50,000 | 110 | 0.004 | 0.005 |
| | 1 | 50,000 | 340 | 0.005 | 0.005 | 50,000 | 230 | 0.005 | 0.005 | 50,000 | 180 | 0.004 | 0.005 | 50,000 | 150 | 0.004 | 0.005 | 45,000 | 110 | 0.004 | 0.005 |
| | 1.25 | 50,000 | 300 | 0.005 | 0.005 | 50,000 | 210 | 0.005 | 0.005 | 50,000 | 150 | 0.004 | 0.005 | 46,500 | 130 | 0.004 | 0.005 | 37,200 | 100 | 0.004 | 0.005 |
| | 1.5 | 50,000 | 280 | 0.005 | 0.005 | 50,000 | 190 | 0.005 | 0.005 | 49,200 | 130 | 0.004 | 0.005 | 44,300 | 110 | 0.004 | 0.005 | 35,500 | 80 | 0.004 | 0.005 |
| | 1.75 | 50,000 | 240 | 0.005 | 0.005 | 50,000 | 170 | 0.005 | 0.005 | 45,600 | 120 | 0.004 | 0.005 | 41,100 | 100 | 0.004 | 0.005 | 32,900 | 80 | 0.004 | 0.005 |
| | 2 | 45,600 | 210 | 0.005 | 0.005 | 44,500 | 140 | 0.005 | 0.005 | 39,600 | 100 | 0.004 | 0.005 | 35,700 | 90 | 0.004 | 0.005 | 28,600 | 70 | 0.004 | 0.005 |
| | 2.5 | 38,400 | 160 | 0.004 | 0.005 | 37,200 | 100 | 0.004 | 0.005 | 37,200 | 80 | 0.004 | 0.005 | 33,500 | 70 | 0.004 | 0.005 | 26,800 | 50 | 0.004 | 0.005 |
| | 3 | 38,400 | 140 | 0.004 | 0.005 | 37,200 | 90 | 0.004 | 0.005 | 37,200 | 70 | 0.004 | 0.005 | 33,500 | 60 | 0.004 | 0.005 | 26,800 | 50 | 0.004 | 0.005 |
| R0.15 | 0.5 | 50,000 | 600 | 0.005 | 0.1 | 50,000 | 400 | 0.005 | 0.01 | 50,000 | 300 | 0.005 | 0.01 | 50,000 | 260 | 0.005 | 0.01 | 50,000 | 200 | 0.01 | 0.01 |
| | 0.6 | 50,000 | 570 | 0.005 | 0.1 | 50,000 | 390 | 0.005 | 0.01 | 50,000 | 300 | 0.005 | 0.01 | 50,000 | 260 | 0.005 | 0.01 | 50,000 | 200 | 0.01 | 0.01 |
| | 0.75 | 50,000 | 570 | 0.005 | 0.1 | 50,000 | 390 | 0.05 | 0.01 | 50,000 | 300 | 0.005 | 0.01 | 50,000 | 260 | 0.005 | 0.01 | 50,000 | 200 | 0.01 | 0.01 |
| | 1 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 390 | 0.005 | 0.01 | 50,000 | 300 | 0.005 | 0.01 | 50,000 | 260 | 0.005 | 0.01 | 50,000 | 200 | 0.01 | 0.01 |
| | 1.25 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 380 | 0.005 | 0.01 | 50,000 | 300 | 0.005 | 0.01 | 50,000 | 260 | 0.005 | 0.01 | 50,000 | 200 | 0.01 | 0.01 |
| | 1.5 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 370 | 0.005 | 0.01 | 50,000 | 290 | 0.005 | 0.01 | 50,000 | 250 | 0.005 | 0.01 | 46,500 | 190 | 0.01 | 0.01 |
| | 1.75 | 50,000 | 480 | 0.005 | 0.01 | 50,000 | 310 | 0.005 | 0.01 | 50,000 | 220 | 0.005 | 0.01 | 46,500 | 190 | 0.005 | 0.01 | 37,200 | 140 | 0.01 | 0.01 |
| | 2 | 50,000 | 450 | 0.005 | 0.005 | 50,000 | 290 | 0.005 | 0.005 | 49,200 | 210 | 0.004 | 0.005 | 44,300 | 180 | 0.004 | 0.005 | 35,500 | 140 | 0.004 | 0.005 |
| | 2.25 | 50,000 | 380 | 0.005 | 0.005 | 50,000 | 250 | 0.005 | 0.005 | 49,200 | 180 | 0.004 | 0.005 | 44,300 | 150 | 0.004 | 0.005 | 35,500 | 110 | 0.004 | 0.005 |
| | 2.5 | 48,000 | 280 | 0.005 | 0.005 | 48,000 | 190 | 0.005 | 0.005 | 43,200 | 130 | 0.004 | 0.005 | 38,900 | 110 | 0.004 | 0.005 | 31,200 | 80 | 0.004 | 0.005 |
| | 3 | 45,600 | 230 | 0.005 | 0.005 | 44,400 | 150 | 0.005 | 0.005 | 39,600 | 100 | 0.004 | 0.005 | 35,700 | 90 | 0.004 | 0.005 | 28,600 | 70 | 0.004 | 0.005 |
| | 3.5 | 40,800 | 190 | 0.004 | 0.005 | 39,600 | 120 | 0.004 | 0.005 | 39,600 | 95 | 0.004 | 0.005 | 35,700 | 80 | 0.004 | 0.005 | 28,600 | 60 | 0.004 | 0.005 |
| | 4 | 38,400 | 140 | 0.004 | 0.005 | 37,200 | 90 | 0.004 | 0.005 | 37,200 | 70 | 0.004 | 0.005 | 33,500 | 60 | 0.004 | 0.005 | 26,800 | 50 | 0.004 | 0.005 |
| | 4.5 | 38,400 | 120 | 0.004 | 0.005 | 37,200 | 80 | 0.004 | 0.005 | 37,200 | 60 | 0.004 | 0.005 | 33,500 | 50 | 0.004 | 0.005 | 26,800 | 40 | 0.004 | 0.005 |
| | 5 | 34,800 | 95 | 0.004 | 0.005 | 33,600 | 60 | 0.004 | 0.005 | 33,600 | 50 | 0.004 | 0.005 | 30,300 | 40 | 0.004 | 0.005 | 24,200 | 30 | 0.004 | 0.005 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

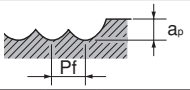
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
RE 0.2～0.25 NEXT

# AE-LNBD-H

前ページより
FROM RE 0.05～0.15

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R0.2 | 0.5 | 50,000 | 900 | 0.01 | 0.02 | 50,000 | 630 | 0.01 | 0.02 | 50,000 | 500 | 0.008 | 0.015 | 50,000 | 430 | 0.008 | 0.015 | 50,000 | 320 | 0.008 | 0.015 |
| | 0.75 | 50,000 | 850 | 0.01 | 0.02 | 50,000 | 590 | 0.01 | 0.02 | 50,000 | 470 | 0.008 | 0.015 | 50,000 | 400 | 0.008 | 0.015 | 50,000 | 300 | 0.008 | 0.015 |
| | 0.8 | 50,000 | 850 | 0.01 | 0.02 | 50,000 | 590 | 0.01 | 0.02 | 50,000 | 470 | 0.008 | 0.015 | 50,000 | 400 | 0.008 | 0.015 | 50,000 | 300 | 0.008 | 0.015 |
| | 1 | 50,000 | 850 | 0.01 | 0.02 | 50,000 | 550 | 0.01 | 0.02 | 50,000 | 440 | 0.008 | 0.015 | 50,000 | 370 | 0.008 | 0.015 | 50,000 | 280 | 0.008 | 0.015 |
| | 1.5 | 50,000 | 760 | 0.01 | 0.02 | 50,000 | 520 | 0.01 | 0.02 | 50,000 | 410 | 0.008 | 0.015 | 50,000 | 350 | 0.008 | 0.015 | 46,500 | 260 | 0.008 | 0.015 |
| | 2 | 50,000 | 660 | 0.01 | 0.02 | 50,000 | 460 | 0.01 | 0.02 | 50,000 | 330 | 0.008 | 0.015 | 48,600 | 280 | 0.008 | 0.015 | 38,900 | 210 | 0.008 | 0.015 |
| | 2.5 | 50,000 | 520 | 0.008 | 0.015 | 50,000 | 360 | 0.008 | 0.015 | 49,200 | 260 | 0.008 | 0.015 | 44,300 | 220 | 0.008 | 0.015 | 35,500 | 170 | 0.008 | 0.015 |
| | 3 | 50,000 | 470 | 0.005 | 0.01 | 50,000 | 320 | 0.005 | 0.01 | 45,600 | 220 | 0.005 | 0.01 | 41,100 | 190 | 0.005 | 0.01 | 32,900 | 140 | 0.005 | 0.01 |
| | 3.5 | 48,000 | 400 | 0.005 | 0.01 | 48,000 | 280 | 0.005 | 0.01 | 43,200 | 200 | 0.005 | 0.01 | 38,900 | 170 | 0.005 | 0.01 | 31,200 | 130 | 0.005 | 0.01 |
| | 4 | 43,200 | 350 | 0.005 | 0.005 | 42,000 | 230 | 0.005 | 0.005 | 37,200 | 160 | 0.005 | 0.005 | 33,500 | 140 | 0.005 | 0.005 | 26,800 | 110 | 0.005 | 0.005 |
| | 4.5 | 38,400 | 270 | 0.004 | 0.005 | 37,200 | 180 | 0.004 | 0.005 | 33,600 | 130 | 0.004 | 0.005 | 30,300 | 110 | 0.004 | 0.005 | 24,200 | 80 | 0.004 | 0.005 |
| | 5 | 38,400 | 260 | 0.004 | 0.005 | 37,200 | 170 | 0.004 | 0.005 | 33,600 | 120 | 0.004 | 0.005 | 30,300 | 100 | 0.004 | 0.005 | 24,200 | 80 | 0.004 | 0.005 |
| | 5.5 | 36,000 | 210 | 0.004 | 0.005 | 34,800 | 140 | 0.004 | 0.005 | 31,200 | 100 | 0.004 | 0.005 | 28,100 | 90 | 0.004 | 0.005 | 22,500 | 70 | 0.004 | 0.005 |
| | 6 | 36,000 | 190 | 0.004 | 0.005 | 34,800 | 120 | 0.004 | 0.005 | 31,200 | 100 | 0.004 | 0.005 | 28,100 | 90 | 0.004 | 0.005 | 22,500 | 70 | 0.004 | 0.005 |
| R0.25 | 0.75 | 50,000 | 1,100 | 0.015 | 0.03 | 50,000 | 750 | 0.015 | 0.03 | 50,000 | 590 | 0.01 | 0.02 | 50,000 | 500 | 0.01 | 0.02 | 50,000 | 380 | 0.01 | 0.02 |
| | 1 | 50,000 | 1,050 | 0.015 | 0.03 | 50,000 | 730 | 0.015 | 0.03 | 50,000 | 580 | 0.01 | 0.02 | 50,000 | 490 | 0.01 | 0.02 | 50,000 | 370 | 0.01 | 0.02 |
| | 1.5 | 50,000 | 1,050 | 0.015 | 0.03 | 50,000 | 700 | 0.015 | 0.03 | 50,000 | 560 | 0.01 | 0.02 | 50,000 | 480 | 0.01 | 0.02 | 48,000 | 360 | 0.01 | 0.02 |
| | 2 | 50,000 | 950 | 0.015 | 0.03 | 50,000 | 650 | 0.015 | 0.03 | 50,000 | 520 | 0.01 | 0.02 | 48,600 | 440 | 0.01 | 0.02 | 38,900 | 330 | 0.01 | 0.02 |
| | 2.5 | 50,000 | 950 | 0.015 | 0.03 | 50,000 | 600 | 0.015 | 0.03 | 50,000 | 430 | 0.01 | 0.02 | 46,500 | 370 | 0.01 | 0.02 | 37,200 | 280 | 0.01 | 0.02 |
| | 3 | 50,000 | 850 | 0.01 | 0.02 | 50,000 | 550 | 0.01 | 0.02 | 48,000 | 390 | 0.01 | 0.02 | 43,200 | 330 | 0.01 | 0.02 | 34,600 | 250 | 0.01 | 0.02 |
| | 3.5 | 50,000 | 650 | 0.01 | 0.02 | 50,000 | 450 | 0.01 | 0.02 | 45,600 | 320 | 0.01 | 0.02 | 41,100 | 270 | 0.01 | 0.02 | 32,900 | 200 | 0.01 | 0.02 |
| | 4 | 50,000 | 570 | 0.01 | 0.01 | 50,000 | 390 | 0.01 | 0.01 | 40,800 | 270 | 0.01 | 0.01 | 36,800 | 230 | 0.01 | 0.01 | 29,400 | 170 | 0.01 | 0.01 |
| | 4.5 | 45,600 | 470 | 0.01 | 0.01 | 45,600 | 320 | 0.01 | 0.01 | 31,200 | 220 | 0.01 | 0.01 | 28,100 | 190 | 0.01 | 0.01 | 22,500 | 140 | 0.01 | 0.01 |
| | 5 | 36,000 | 380 | 0.005 | 0.01 | 34,800 | 250 | 0.005 | 0.01 | 28,800 | 170 | 0.005 | 0.01 | 26,000 | 140 | 0.005 | 0.01 | 20,800 | 110 | 0.005 | 0.01 |
| | 5.5 | 33,600 | 280 | 0.004 | 0.005 | 32,400 | 180 | 0.004 | 0.005 | 26,400 | 120 | 0.004 | 0.005 | 23,800 | 100 | 0.004 | 0.005 | 19,100 | 80 | 0.004 | 0.005 |
| | 6 | 31,200 | 230 | 0.004 | 0.005 | 30,000 | 150 | 0.004 | 0.005 | 24,000 | 100 | 0.004 | 0.005 | 21,600 | 90 | 0.004 | 0.005 | 17,300 | 70 | 0.004 | 0.005 |
| | 7 | 28,800 | 190 | 0.004 | 0.005 | 27,600 | 130 | 0.004 | 0.005 | 24,000 | 100 | 0.004 | 0.005 | 21,600 | 90 | 0.004 | 0.005 | 17,300 | 70 | 0.004 | 0.005 |
| | 8 | 26,400 | 150 | 0.004 | 0.005 | 25,200 | 110 | 0.004 | 0.005 | 24,000 | 100 | 0.004 | 0.005 | 21,600 | 90 | 0.004 | 0.005 | 17,300 | 70 | 0.004 | 0.005 |
| | 9 | 24,000 | 110 | 0.004 | 0.005 | 25,200 | 100 | 0.004 | 0.005 | 24,000 | 90 | 0.004 | 0.005 | 21,600 | 80 | 0.004 | 0.005 | 17,300 | 60 | 0.004 | 0.005 |
| | 10 | 24,000 | 95 | 0.004 | 0.005 | 25,200 | 100 | 0.004 | 0.005 | 24,000 | 90 | 0.004 | 0.005 | 21,600 | 80 | 0.004 | 0.005 | 17,300 | 60 | 0.004 | 0.005 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5（R0.25）未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
RE 0.3 NEXT

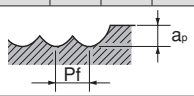
形状寸法表
SPECIFICATION CHARTS
AE-LNBD-H▶P348

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-LNBD-H

前ページより
FROM RE 0.2～0.25

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R0.3 | 0.75 | 50,000 | 1,250 | 0.03 | 0.05 | 50,000 | 880 | 0.03 | 0.05 | 50,000 | 700 | 0.01 | 0.02 | 50,000 | 600 | 0.01 | 0.02 | 50,000 | 450 | 0.01 | 0.02 |
| | 1 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 840 | 0.03 | 0.05 | 50,000 | 670 | 0.01 | 0.02 | 50,000 | 570 | 0.01 | 0.02 | 50,000 | 430 | 0.01 | 0.02 |
| | 1.2 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 840 | 0.03 | 0.05 | 50,000 | 670 | 0.01 | 0.02 | 50,000 | 570 | 0.01 | 0.02 | 50,000 | 430 | 0.01 | 0.02 |
| | 1.5 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 830 | 0.03 | 0.05 | 50,000 | 660 | 0.01 | 0.02 | 50,000 | 560 | 0.01 | 0.02 | 50,000 | 420 | 0.01 | 0.02 |
| | 2 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 820 | 0.03 | 0.05 | 50,000 | 650 | 0.01 | 0.02 | 50,000 | 550 | 0.01 | 0.02 | 50,000 | 410 | 0.01 | 0.02 |
| | 2.5 | 50,000 | 1,100 | 0.03 | 0.05 | 50,000 | 770 | 0.03 | 0.05 | 50,000 | 610 | 0.01 | 0.02 | 50,000 | 520 | 0.01 | 0.02 | 48,000 | 390 | 0.01 | 0.02 |
| | 3 | 50,000 | 1,100 | 0.02 | 0.03 | 50,000 | 750 | 0.02 | 0.03 | 50,000 | 540 | 0.01 | 0.02 | 48,600 | 460 | 0.01 | 0.02 | 38,900 | 350 | 0.01 | 0.02 |
| | 3.5 | 50,000 | 950 | 0.02 | 0.03 | 50,000 | 660 | 0.02 | 0.03 | 49,200 | 480 | 0.01 | 0.02 | 44,300 | 410 | 0.01 | 0.02 | 35,500 | 310 | 0.01 | 0.02 |
| | 4 | 48,000 | 850 | 0.01 | 0.02 | 48,000 | 590 | 0.01 | 0.02 | 43,200 | 420 | 0.01 | 0.02 | 38,900 | 360 | 0.01 | 0.02 | 31,200 | 270 | 0.01 | 0.02 |
| | 4.5 | 40,800 | 740 | 0.01 | 0.02 | 40,800 | 510 | 0.01 | 0.02 | 37,200 | 370 | 0.01 | 0.02 | 33,500 | 310 | 0.01 | 0.02 | 26,800 | 230 | 0.01 | 0.02 |
| | 5 | 36,000 | 640 | 0.01 | 0.02 | 36,000 | 440 | 0.01 | 0.02 | 32,400 | 310 | 0.01 | 0.02 | 29,200 | 260 | 0.01 | 0.02 | 23,400 | 200 | 0.01 | 0.02 |
| | 5.5 | 33,600 | 610 | 0.01 | 0.02 | 33,600 | 420 | 0.01 | 0.02 | 30,000 | 300 | 0.01 | 0.02 | 27,000 | 260 | 0.01 | 0.02 | 21,600 | 200 | 0.01 | 0.02 |
| | 6 | 31,200 | 570 | 0.01 | 0.02 | 30,000 | 380 | 0.01 | 0.02 | 26,400 | 260 | 0.01 | 0.02 | 23,800 | 220 | 0.01 | 0.02 | 19,100 | 170 | 0.01 | 0.02 |
| | 6.5 | 28,800 | 520 | 0.01 | 0.01 | 27,600 | 340 | 0.01 | 0.01 | 24,000 | 230 | 0.01 | 0.01 | 21,600 | 200 | 0.01 | 0.01 | 17,300 | 150 | 0.01 | 0.01 |
| | 7 | 27,600 | 420 | 0.01 | 0.01 | 26,400 | 280 | 0.01 | 0.01 | 22,800 | 190 | 0.01 | 0.01 | 20,600 | 160 | 0.01 | 0.01 | 16,500 | 120 | 0.01 | 0.01 |
| | 7.5 | 27,600 | 380 | 0.01 | 0.01 | 26,400 | 250 | 0.01 | 0.01 | 22,800 | 170 | 0.01 | 0.01 | 20,600 | 140 | 0.01 | 0.01 | 16,500 | 110 | 0.01 | 0.01 |
| | 8 | 24,000 | 300 | 0.005 | 0.01 | 22,800 | 200 | 0.005 | 0.01 | 20,400 | 140 | 0.005 | 0.01 | 18,400 | 120 | 0.005 | 0.01 | 14,700 | 90 | 0.005 | 0.01 |
| | 8.5 | 24,000 | 280 | 0.005 | 0.01 | 22,800 | 180 | 0.005 | 0.01 | 20,400 | 130 | 0.005 | 0.01 | 18,400 | 110 | 0.005 | 0.01 | 14,700 | 80 | 0.005 | 0.01 |
| | 9 | 24,000 | 260 | 0.005 | 0.01 | 22,800 | 170 | 0.005 | 0.01 | 20,400 | 120 | 0.005 | 0.01 | 18,400 | 100 | 0.005 | 0.01 | 14,700 | 80 | 0.005 | 0.01 |
| | 9.5 | 24,000 | 220 | 0.005 | 0.008 | 22,800 | 140 | 0.005 | 0.008 | 20,400 | 110 | 0.005 | 0.008 | 18,400 | 90 | 0.005 | 0.008 | 14,700 | 70 | 0.005 | 0.008 |
| | 10 | 24,000 | 190 | 0.005 | 0.008 | 22,800 | 120 | 0.005 | 0.008 | 20,400 | 100 | 0.005 | 0.008 | 18,400 | 90 | 0.005 | 0.008 | 14,700 | 70 | 0.005 | 0.008 |
| | 11 | 21,600 | 140 | 0.005 | 0.008 | 20,400 | 90 | 0.005 | 0.008 | 20,400 | 80 | 0.005 | 0.008 | 18,400 | 70 | 0.005 | 0.008 | 14,700 | 50 | 0.005 | 0.008 |
| | 12 | 21,600 | 110 | 0.005 | 0.005 | 20,400 | 80 | 0.005 | 0.005 | 20,400 | 70 | 0.004 | 0.005 | 18,400 | 60 | 0.004 | 0.005 | 14,700 | 50 | 0.004 | 0.005 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

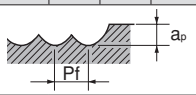
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
RE 0.4～0.5 NEXT

# AE-LNBD-H

前ページより
FROM RE 0.3

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R0.4 | 1 | 50,000 | 2,200 | 0.04 | 0.08 | 50,000 | 1,800 | 0.04 | 0.08 | 50,000 | 1,400 | 0.04 | 0.08 | 50,000 | 1,190 | 0.04 | 0.08 | 50,000 | 890 | 0.04 | 0.08 |
| | 1.5 | 50,000 | 2,000 | 0.04 | 0.08 | 50,000 | 1,700 | 0.04 | 0.08 | 50,000 | 1,300 | 0.04 | 0.08 | 50,000 | 1,110 | 0.04 | 0.08 | 50,000 | 830 | 0.04 | 0.08 |
| | 2 | 50,000 | 1,900 | 0.04 | 0.08 | 50,000 | 1,600 | 0.04 | 0.08 | 50,000 | 1,200 | 0.015 | 0.03 | 50,000 | 1,020 | 0.015 | 0.03 | 50,000 | 770 | 0.015 | 0.03 |
| | 2.5 | 50,000 | 1,700 | 0.04 | 0.08 | 50,000 | 1,400 | 0.04 | 0.08 | 50,000 | 1,000 | 0.015 | 0.03 | 50,000 | 850 | 0.015 | 0.03 | 41,500 | 640 | 0.015 | 0.03 |
| | 3 | 50,000 | 1,500 | 0.04 | 0.08 | 50,000 | 1,100 | 0.04 | 0.08 | 50,000 | 820 | 0.015 | 0.03 | 48,600 | 700 | 0.015 | 0.03 | 38,900 | 530 | 0.015 | 0.03 |
| | 4 | 48,000 | 1,100 | 0.04 | 0.08 | 48,000 | 1,000 | 0.04 | 0.08 | 45,600 | 760 | 0.015 | 0.03 | 41,100 | 650 | 0.015 | 0.03 | 32,900 | 490 | 0.015 | 0.03 |
| | 5 | 40,800 | 900 | 0.03 | 0.05 | 40,800 | 800 | 0.03 | 0.05 | 37,200 | 580 | 0.015 | 0.03 | 33,500 | 490 | 0.015 | 0.03 | 26,800 | 370 | 0.015 | 0.03 |
| | 6 | 36,000 | 760 | 0.03 | 0.05 | 36,000 | 650 | 0.03 | 0.05 | 32,400 | 460 | 0.015 | 0.03 | 29,200 | 390 | 0.015 | 0.03 | 23,400 | 290 | 0.015 | 0.03 |
| | 7 | 30,000 | 570 | 0.01 | 0.02 | 30,000 | 450 | 0.01 | 0.02 | 26,400 | 310 | 0.01 | 0.02 | 23,800 | 260 | 0.01 | 0.02 | 19,100 | 200 | 0.01 | 0.02 |
| | 8 | 27,600 | 420 | 0.005 | 0.01 | 27,600 | 300 | 0.005 | 0.01 | 24,000 | 200 | 0.005 | 0.01 | 21,600 | 170 | 0.005 | 0.01 | 17,300 | 130 | 0.005 | 0.01 |
| | 9 | 25,200 | 360 | 0.005 | 0.009 | 24,000 | 250 | 0.005 | 0.009 | 22,200 | 190 | 0.005 | 0.009 | 20,000 | 160 | 0.005 | 0.009 | 16,000 | 120 | 0.005 | 0.009 |
| | 10 | 21,600 | 300 | 0.005 | 0.008 | 20,400 | 200 | 0.005 | 0.008 | 20,400 | 170 | 0.005 | 0.008 | 18,400 | 140 | 0.005 | 0.008 | 14,700 | 110 | 0.005 | 0.008 |
| | 12 | 20,400 | 230 | 0.005 | 0.005 | 19,200 | 160 | 0.005 | 0.005 | 19,200 | 110 | 0.005 | 0.005 | 17,300 | 90 | 0.005 | 0.005 | 13,900 | 70 | 0.005 | 0.005 |
| R0.5 | 1.5 | 50,000 | 3,900 | 0.05 | 0.1 | 50,000 | 3,900 | 0.05 | 0.1 | 50,000 | 3,100 | 0.02 | 0.05 | 50,000 | 2,640 | 0.02 | 0.05 | 50,000 | 1,980 | 0.02 | 0.05 |
| | 2 | 50,000 | 3,700 | 0.05 | 0.1 | 50,000 | 3,700 | 0.05 | 0.1 | 50,000 | 3,000 | 0.02 | 0.05 | 50,000 | 2,550 | 0.02 | 0.05 | 50,000 | 1,910 | 0.02 | 0.05 |
| | 2.5 | 50,000 | 3,350 | 0.05 | 0.1 | 50,000 | 3,100 | 0.05 | 0.1 | 50,000 | 2,500 | 0.02 | 0.05 | 50,000 | 2,130 | 0.02 | 0.05 | 48,000 | 1,600 | 0.02 | 0.05 |
| | 3 | 50,000 | 3,000 | 0.05 | 0.1 | 50,000 | 2,400 | 0.05 | 0.1 | 50,000 | 1,900 | 0.02 | 0.05 | 48,600 | 1,620 | 0.02 | 0.05 | 38,900 | 1,220 | 0.02 | 0.05 |
| | 4 | 48,000 | 2,850 | 0.05 | 0.1 | 48,000 | 2,200 | 0.05 | 0.1 | 48,000 | 1,700 | 0.02 | 0.05 | 43,200 | 1,450 | 0.02 | 0.05 | 34,600 | 1,090 | 0.02 | 0.05 |
| | 5 | 43,200 | 2,100 | 0.05 | 0.1 | 43,200 | 1,600 | 0.05 | 0.1 | 43,200 | 1,200 | 0.02 | 0.05 | 38,900 | 1,020 | 0.02 | 0.05 | 31,200 | 770 | 0.02 | 0.05 |
| | 6 | 36,000 | 1,900 | 0.05 | 0.1 | 36,000 | 1,500 | 0.05 | 0.1 | 36,000 | 1,200 | 0.02 | 0.05 | 32,400 | 1,020 | 0.02 | 0.05 | 26,000 | 770 | 0.02 | 0.05 |
| | 7 | 32,400 | 1,600 | 0.05 | 0.1 | 32,400 | 1,300 | 0.05 | 0.1 | 32,400 | 1,000 | 0.02 | 0.05 | 29,200 | 850 | 0.02 | 0.05 | 23,400 | 640 | 0.02 | 0.05 |
| | 8 | 31,200 | 1,500 | 0.05 | 0.1 | 31,200 | 1,200 | 0.05 | 0.1 | 31,200 | 960 | 0.02 | 0.05 | 28,100 | 820 | 0.02 | 0.05 | 22,500 | 620 | 0.02 | 0.05 |
| | 9 | 28,800 | 1,100 | 0.03 | 0.05 | 28,800 | 880 | 0.03 | 0.05 | 28,800 | 700 | 0.02 | 0.05 | 26,000 | 600 | 0.02 | 0.05 | 20,800 | 450 | 0.02 | 0.05 |
| | 10 | 26,400 | 1,000 | 0.01 | 0.02 | 25,200 | 760 | 0.01 | 0.02 | 21,600 | 520 | 0.01 | 0.02 | 19,500 | 440 | 0.01 | 0.02 | 15,600 | 330 | 0.01 | 0.02 |
| | 12 | 24,000 | 760 | 0.01 | 0.01 | 22,800 | 570 | 0.01 | 0.01 | 20,400 | 400 | 0.01 | 0.01 | 18,400 | 340 | 0.01 | 0.01 | 14,700 | 260 | 0.01 | 0.01 |
| | 13 | 22,800 | 670 | 0.005 | 0.01 | 21,600 | 500 | 0.005 | 0.01 | 19,200 | 350 | 0.005 | 0.01 | 17,300 | 300 | 0.005 | 0.01 | 13,900 | 230 | 0.005 | 0.01 |
| | 14 | 21,600 | 570 | 0.005 | 0.01 | 20,400 | 430 | 0.005 | 0.01 | 18,000 | 300 | 0.005 | 0.01 | 16,200 | 260 | 0.005 | 0.01 | 13,000 | 200 | 0.005 | 0.01 |
| | 16 | 19,200 | 400 | 0.005 | 0.01 | 18,000 | 300 | 0.005 | 0.01 | 15,600 | 200 | 0.005 | 0.01 | 14,100 | 170 | 0.005 | 0.01 | 11,300 | 130 | 0.005 | 0.01 |
| | 18 | 16,800 | 300 | 0.005 | 0.005 | 15,600 | 220 | 0.005 | 0.005 | 14,400 | 160 | 0.004 | 0.005 | 13,000 | 140 | 0.004 | 0.005 | 10,400 | 110 | 0.004 | 0.005 |
| | 20 | 15,600 | 285 | 0.005 | 0.005 | 14,400 | 180 | 0.005 | 0.005 | 14,400 | 140 | 0.004 | 0.005 | 13,000 | 120 | 0.004 | 0.005 | 10,400 | 90 | 0.004 | 0.005 |
| | 22 | 14,400 | 190 | 0.005 | 0.005 | 14,400 | 110 | 0.005 | 0.005 | 14,400 | 100 | 0.004 | 0.005 | 13,000 | 90 | 0.004 | 0.005 | 10,400 | 70 | 0.004 | 0.005 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
RE 0.6～0.75 NEXT

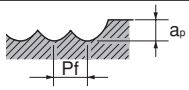
形状寸法表
SPECIFICATION CHARTS
AE-LNBD-H▶P348

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-LNBD-H

前ページより
FROM RE 0.4～0.5

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R0.6 | 2 | 50,000 | 3,800 | 0.06 | 0.12 | 50,000 | 3,800 | 0.06 | 0.12 | 50,000 | 3,200 | 0.02 | 0.05 | 50,000 | 2,720 | 0.02 | 0.05 | 50,000 | 2,040 | 0.02 | 0.05 |
| | 2.4 | 50,000 | 3,600 | 0.06 | 0.12 | 50,000 | 3,600 | 0.06 | 0.12 | 50,000 | 3,000 | 0.02 | 0.05 | 50,000 | 2,550 | 0.02 | 0.05 | 50,000 | 1,910 | 0.02 | 0.05 |
| | 2.5 | 50,000 | 3,600 | 0.06 | 0.12 | 50,000 | 3,600 | 0.06 | 0.12 | 50,000 | 3,000 | 0.02 | 0.05 | 50,000 | 2,550 | 0.02 | 0.05 | 48,000 | 1,910 | 0.02 | 0.05 |
| | 3 | 50,000 | 3,200 | 0.06 | 0.12 | 50,000 | 3,200 | 0.06 | 0.12 | 50,000 | 2,600 | 0.02 | 0.05 | 46,500 | 2,210 | 0.02 | 0.05 | 37,200 | 1,660 | 0.02 | 0.05 |
| | 4 | 48,000 | 2,850 | 0.06 | 0.12 | 48,000 | 2,300 | 0.06 | 0.12 | 45,600 | 1,750 | 0.02 | 0.05 | 41,100 | 1,490 | 0.02 | 0.05 | 32,900 | 1,120 | 0.02 | 0.05 |
| | 6 | 38,400 | 2,000 | 0.06 | 0.12 | 38,400 | 1,600 | 0.06 | 0.12 | 36,000 | 1,200 | 0.02 | 0.05 | 32,400 | 1,020 | 0.02 | 0.05 | 26,000 | 770 | 0.02 | 0.05 |
| | 8 | 30,000 | 1,600 | 0.06 | 0.12 | 30,000 | 1,200 | 0.06 | 0.12 | 30,000 | 960 | 0.02 | 0.05 | 27,000 | 820 | 0.02 | 0.05 | 21,600 | 620 | 0.02 | 0.05 |
| | 10 | 24,000 | 1,100 | 0.05 | 0.1 | 21,600 | 800 | 0.05 | 0.1 | 19,200 | 560 | 0.02 | 0.05 | 17,300 | 480 | 0.02 | 0.05 | 13,900 | 360 | 0.02 | 0.05 |
| | 12 | 20,400 | 850 | 0.03 | 0.05 | 19,200 | 640 | 0.03 | 0.05 | 16,800 | 440 | 0.02 | 0.05 | 15,200 | 370 | 0.02 | 0.05 | 12,100 | 280 | 0.02 | 0.05 |
| | 14 | 19,200 | 610 | 0.03 | 0.05 | 18,000 | 450 | 0.03 | 0.05 | 15,600 | 310 | 0.02 | 0.05 | 14,100 | 260 | 0.02 | 0.05 | 11,300 | 200 | 0.02 | 0.05 |
| | 16 | 18,000 | 420 | 0.02 | 0.05 | 16,800 | 300 | 0.02 | 0.05 | 14,400 | 200 | 0.02 | 0.05 | 13,000 | 170 | 0.02 | 0.05 | 10,400 | 130 | 0.02 | 0.05 |
| | 18 | 18,000 | 330 | 0.005 | 0.005 | 16,800 | 200 | 0.005 | 0.005 | 14,400 | 130 | 0.004 | 0.005 | 13,000 | 110 | 0.004 | 0.005 | 10,400 | 80 | 0.004 | 0.005 |
| | 20 | 15,600 | 300 | 0.005 | 0.005 | 14,400 | 180 | 0.005 | 0.005 | 12,000 | 120 | 0.004 | 0.005 | 10,800 | 100 | 0.004 | 0.005 | 8,700 | 80 | 0.004 | 0.005 |
| R0.75 | 2 | 50,000 | 5,200 | 0.075 | 0.15 | 50,000 | 5,200 | 0.075 | 0.15 | 50,000 | 4,200 | 0.03 | 0.06 | 50,000 | 3,570 | 0.03 | 0.06 | 50,000 | 2,680 | 0.03 | 0.06 |
| | 2.5 | 50,000 | 5,000 | 0.075 | 0.15 | 50,000 | 5,000 | 0.075 | 0.15 | 50,000 | 4,000 | 0.03 | 0.06 | 50,000 | 3,400 | 0.03 | 0.06 | 50,000 | 2,550 | 0.03 | 0.06 |
| | 3 | 50,000 | 4,800 | 0.075 | 0.15 | 50,000 | 4,800 | 0.075 | 0.15 | 50,000 | 3,900 | 0.03 | 0.06 | 50,000 | 3,320 | 0.03 | 0.06 | 48,000 | 2,490 | 0.03 | 0.06 |
| | 4 | 48,000 | 3,700 | 0.075 | 0.15 | 48,000 | 2,900 | 0.075 | 0.15 | 45,600 | 2,200 | 0.03 | 0.06 | 41,100 | 1,870 | 0.03 | 0.06 | 32,900 | 1,400 | 0.03 | 0.06 |
| | 5 | 42,000 | 3,200 | 0.075 | 0.15 | 42,000 | 2,600 | 0.075 | 0.15 | 39,600 | 1,900 | 0.03 | 0.06 | 35,700 | 1,620 | 0.03 | 0.06 | 28,600 | 1,220 | 0.03 | 0.06 |
| | 6 | 36,000 | 2,700 | 0.075 | 0.15 | 36,000 | 2,200 | 0.075 | 0.15 | 32,400 | 1,500 | 0.03 | 0.06 | 29,200 | 1,280 | 0.03 | 0.06 | 23,400 | 960 | 0.03 | 0.06 |
| | 8 | 28,800 | 2,100 | 0.075 | 0.15 | 28,800 | 1,700 | 0.075 | 0.15 | 25,200 | 1,100 | 0.03 | 0.06 | 22,700 | 940 | 0.03 | 0.06 | 18,200 | 710 | 0.03 | 0.06 |
| | 10 | 28,800 | 1,900 | 0.075 | 0.15 | 28,800 | 1,500 | 0.075 | 0.15 | 25,200 | 1,000 | 0.03 | 0.06 | 22,700 | 850 | 0.03 | 0.06 | 18,200 | 640 | 0.03 | 0.06 |
| | 12 | 25,200 | 1,300 | 0.075 | 0.1 | 25,200 | 1,000 | 0.075 | 0.1 | 21,600 | 680 | 0.03 | 0.06 | 19,500 | 580 | 0.03 | 0.06 | 15,600 | 440 | 0.03 | 0.06 |
| | 14 | 20,400 | 1,100 | 0.05 | 0.1 | 20,400 | 900 | 0.05 | 0.1 | 18,000 | 630 | 0.03 | 0.06 | 16,200 | 540 | 0.03 | 0.06 | 13,000 | 410 | 0.03 | 0.06 |
| | 16 | 16,800 | 760 | 0.05 | 0.1 | 15,600 | 560 | 0.05 | 0.1 | 12,000 | 340 | 0.03 | 0.05 | 10,800 | 290 | 0.03 | 0.05 | 8,700 | 220 | 0.03 | 0.05 |
| | 18 | 15,600 | 470 | 0.03 | 0.05 | 14,400 | 350 | 0.03 | 0.05 | 12,000 | 230 | 0.03 | 0.05 | 10,800 | 200 | 0.03 | 0.05 | 8,700 | 150 | 0.03 | 0.05 |
| | 20 | 14,400 | 340 | 0.02 | 0.05 | 13,200 | 240 | 0.02 | 0.05 | 10,800 | 150 | 0.02 | 0.05 | 9,800 | 130 | 0.02 | 0.05 | 7,800 | 100 | 0.02 | 0.05 |
| | 22 | 14,400 | 300 | 0.02 | 0.05 | 13,200 | 220 | 0.02 | 0.05 | 10,800 | 140 | 0.02 | 0.05 | 9,800 | 120 | 0.02 | 0.05 | 7,800 | 90 | 0.02 | 0.05 |
| | 25 | 13,800 | 250 | 0.02 | 0.05 | 12,600 | 180 | 0.02 | 0.05 | 10,800 | 120 | 0.02 | 0.05 | 9,800 | 100 | 0.02 | 0.05 | 7,800 | 80 | 0.02 | 0.05 |
| | 30 | 13,200 | 190 | 0.005 | 0.01 | 12,000 | 120 | 0.005 | 0.01 | 10,800 | 90 | 0.005 | 0.01 | 9,800 | 80 | 0.005 | 0.01 | 7,800 | 60 | 0.01 | 0.01 |
| 切込深さ Depth of Cut | |  | | | | | | | | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

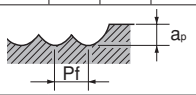
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

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RE 0.8～1.25 NEXT

# AE-LNBD-H

前ページより
FROM RE 0.6～0.75

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R0.8 | 4 | 36,000 | 3,500 | 0.08 | 0.16 | 34,800 | 2,700 | 0.08 | 0.16 | 31,200 | 2,000 | 0.03 | 0.08 | 28,100 | 1,700 | 0.03 | 0.08 | 22,500 | 1,280 | 0.03 | 0.08 |
| | 8 | 28,800 | 2,800 | 0.08 | 0.16 | 27,600 | 2,100 | 0.08 | 0.16 | 24,000 | 1,400 | 0.03 | 0.08 | 21,600 | 1,190 | 0.03 | 0.08 | 17,300 | 890 | 0.03 | 0.08 |
| | 12 | 25,200 | 1,700 | 0.05 | 0.1 | 24,000 | 1,380 | 0.05 | 0.1 | 21,600 | 990 | 0.03 | 0.08 | 19,500 | 840 | 0.03 | 0.08 | 15,600 | 630 | 0.03 | 0.08 |
| | 16 | 16,800 | 760 | 0.05 | 0.1 | 15,600 | 600 | 0.05 | 0.1 | 13,200 | 400 | 0.03 | 0.08 | 11,900 | 340 | 0.03 | 0.08 | 9,600 | 260 | 0.03 | 0.08 |
| | 20 | 14,400 | 360 | 0.03 | 0.05 | 13,200 | 280 | 0.03 | 0.05 | 12,000 | 200 | 0.03 | 0.05 | 10,800 | 170 | 0.03 | 0.05 | 8,700 | 130 | 0.03 | 0.05 |
| R1 | 2.5 | 50,000 | 6,400 | 0.1 | 0.2 | 50,000 | 6,000 | 0.1 | 0.2 | 50,000 | 4,400 | 0.05 | 0.1 | 50,000 | 3,740 | 0.05 | 0.1 | 43,200 | 2,810 | 0.05 | 0.1 |
| | 3 | 50,000 | 6,000 | 0.1 | 0.2 | 50,000 | 5,700 | 0.1 | 0.2 | 50,000 | 4,000 | 0.05 | 0.1 | 48,600 | 3,400 | 0.05 | 0.1 | 38,900 | 2,550 | 0.05 | 0.1 |
| | 4 | 50,000 | 5,600 | 0.1 | 0.2 | 50,000 | 5,300 | 0.1 | 0.2 | 48,000 | 3,600 | 0.05 | 0.1 | 43,200 | 3,060 | 0.05 | 0.1 | 34,600 | 2,300 | 0.05 | 0.1 |
| | 5 | 48,000 | 4,500 | 0.1 | 0.2 | 46,800 | 4,300 | 0.1 | 0.2 | 40,800 | 2,700 | 0.05 | 0.1 | 36,800 | 2,300 | 0.05 | 0.1 | 29,400 | 1,730 | 0.05 | 0.1 |
| | 6 | 43,200 | 2,800 | 0.1 | 0.2 | 42,000 | 2,700 | 0.1 | 0.2 | 36,000 | 1,800 | 0.05 | 0.1 | 32,400 | 1,530 | 0.05 | 0.1 | 26,000 | 1,150 | 0.05 | 0.1 |
| | 8 | 30,000 | 2,400 | 0.1 | 0.2 | 28,800 | 2,300 | 0.1 | 0.2 | 24,000 | 1,500 | 0.05 | 0.1 | 21,600 | 1,280 | 0.05 | 0.1 | 17,300 | 960 | 0.05 | 0.1 |
| | 10 | 24,000 | 2,200 | 0.1 | 0.2 | 22,800 | 2,000 | 0.1 | 0.2 | 20,400 | 1,400 | 0.05 | 0.1 | 18,400 | 1,190 | 0.05 | 0.1 | 14,700 | 890 | 0.05 | 0.1 |
| | 12 | 19,200 | 1,900 | 0.1 | 0.2 | 18,000 | 1,700 | 0.1 | 0.2 | 15,600 | 1,100 | 0.05 | 0.1 | 14,100 | 940 | 0.05 | 0.1 | 11,300 | 710 | 0.05 | 0.1 |
| | 13 | 19,200 | 1,800 | 0.1 | 0.2 | 18,000 | 1,600 | 0.1 | 0.2 | 15,600 | 1,050 | 0.05 | 0.1 | 14,100 | 890 | 0.05 | 0.1 | 11,300 | 670 | 0.05 | 0.1 |
| | 14 | 18,000 | 1,700 | 0.1 | 0.2 | 16,800 | 1,500 | 0.1 | 0.2 | 14,400 | 1,000 | 0.05 | 0.1 | 13,000 | 850 | 0.05 | 0.1 | 10,400 | 640 | 0.05 | 0.1 |
| | 16 | 16,800 | 1,600 | 0.1 | 0.1 | 15,600 | 1,400 | 0.1 | 0.1 | 13,200 | 950 | 0.05 | 0.1 | 11,900 | 810 | 0.05 | 0.1 | 9,600 | 610 | 0.05 | 0.1 |
| | 18 | 15,600 | 1,500 | 0.1 | 0.1 | 14,400 | 1,200 | 0.1 | 0.1 | 12,000 | 800 | 0.05 | 0.1 | 10,800 | 680 | 0.05 | 0.1 | 8,700 | 510 | 0.05 | 0.1 |
| | 20 | 13,200 | 1,100 | 0.05 | 0.1 | 12,000 | 890 | 0.05 | 0.1 | 10,800 | 640 | 0.05 | 0.1 | 9,800 | 540 | 0.05 | 0.1 | 7,800 | 410 | 0.05 | 0.1 |
| | 22 | 10,800 | 950 | 0.05 | 0.1 | 10,800 | 860 | 0.05 | 0.1 | 9,000 | 570 | 0.05 | 0.1 | 8,100 | 480 | 0.05 | 0.1 | 6,500 | 360 | 0.05 | 0.1 |
| | 25 | 10,800 | 760 | 0.03 | 0.05 | 10,800 | 680 | 0.03 | 0.05 | 9,000 | 450 | 0.03 | 0.05 | 8,100 | 380 | 0.03 | 0.05 | 6,500 | 290 | 0.03 | 0.05 |
| | 30 | 10,800 | 470 | 0.02 | 0.05 | 10,800 | 360 | 0.02 | 0.05 | 9,000 | 240 | 0.02 | 0.05 | 8,100 | 200 | 0.02 | 0.05 | 6,500 | 150 | 0.02 | 0.05 |
| | 35 | 9,000 | 230 | 0.02 | 0.03 | 8,400 | 130 | 0.02 | 0.03 | 7,200 | 100 | 0.02 | 0.03 | 6,500 | 90 | 0.02 | 0.03 | 5,200 | 70 | 0.02 | 0.03 |
| | 40 | 7,200 | 140 | 0.02 | 0.03 | 7,200 | 100 | 0.02 | 0.03 | 7,200 | 90 | 0.02 | 0.03 | 6,500 | 80 | 0.02 | 0.03 | 5,200 | 60 | 0.02 | 0.03 |
| R1.25 | 6 | 28,800 | 3,600 | 0.1 | 0.2 | 27,600 | 3,400 | 0.1 | 0.2 | 24,000 | 2,400 | 0.05 | 0.1 | 21,600 | 2,040 | 0.05 | 0.1 | 17,300 | 1,530 | 0.05 | 0.1 |
| | 8 | 26,400 | 3,350 | 0.1 | 0.2 | 25,200 | 3,150 | 0.1 | 0.2 | 21,600 | 2,150 | 0.05 | 0.1 | 19,500 | 1,830 | 0.05 | 0.1 | 15,600 | 1,370 | 0.05 | 0.1 |
| | 10 | 24,000 | 3,100 | 0.1 | 0.2 | 22,800 | 2,900 | 0.1 | 0.2 | 19,200 | 1,900 | 0.05 | 0.1 | 17,300 | 1,620 | 0.05 | 0.1 | 13,900 | 1,220 | 0.05 | 0.1 |
| | 15 | 20,400 | 2,600 | 0.1 | 0.2 | 19,200 | 2,400 | 0.1 | 0.2 | 16,800 | 1,600 | 0.05 | 0.1 | 15,200 | 1,360 | 0.05 | 0.1 | 12,100 | 1,020 | 0.05 | 0.1 |
| | 20 | 18,000 | 1,700 | 0.1 | 0.2 | 16,800 | 1,600 | 0.1 | 0.2 | 14,400 | 1,000 | 0.05 | 0.1 | 13,000 | 850 | 0.05 | 0.1 | 10,400 | 640 | 0.05 | 0.1 |
| | 25 | 13,200 | 950 | 0.03 | 0.05 | 12,000 | 830 | 0.03 | 0.05 | 10,800 | 590 | 0.03 | 0.05 | 9,800 | 500 | 0.03 | 0.05 | 7,800 | 380 | 0.03 | 0.05 |
| | 30 | 10,800 | 760 | 0.03 | 0.05 | 9,600 | 650 | 0.03 | 0.05 | 8,400 | 450 | 0.03 | 0.05 | 7,600 | 380 | 0.03 | 0.05 | 6,100 | 290 | 0.03 | 0.05 |
| | 35 | 9,000 | 470 | 0.02 | 0.03 | 8,400 | 430 | 0.02 | 0.03 | 7,200 | 290 | 0.02 | 0.03 | 6,500 | 250 | 0.02 | 0.03 | 5,200 | 190 | 0.02 | 0.03 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
RE 1.5～1.75 NEXT

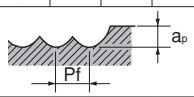
形状寸法表
SPECIFICATION CHARTS
AE-LNBD-H▶P348

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-LNBD-H

前ページより
FROM RE 0.8～1.25

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R1.5 | 6 | 49,800 | 6,200 | 0.15 | 0.3 | 38,400 | 4,800 | 0.15 | 0.3 | 31,800 | 3,300 | 0.06 | 0.15 | 28,700 | 2,810 | 0.06 | 0.15 | 22,900 | 2,110 | 0.06 | 0.15 |
| | 8 | 36,000 | 4,200 | 0.15 | 0.3 | 30,000 | 3,500 | 0.15 | 0.3 | 26,400 | 2,400 | 0.06 | 0.15 | 23,800 | 2,040 | 0.06 | 0.15 | 19,100 | 1,530 | 0.06 | 0.15 |
| | 10 | 30,000 | 3,600 | 0.15 | 0.3 | 24,000 | 2,800 | 0.15 | 0.3 | 21,600 | 2,000 | 0.06 | 0.15 | 19,500 | 1,700 | 0.06 | 0.15 | 15,600 | 1,280 | 0.06 | 0.15 |
| | 12 | 24,000 | 2,800 | 0.15 | 0.3 | 21,600 | 2,500 | 0.15 | 0.3 | 19,200 | 1,700 | 0.06 | 0.15 | 17,300 | 1,450 | 0.06 | 0.15 | 13,900 | 1,090 | 0.06 | 0.15 |
| | 13 | 22,800 | 2,650 | 0.15 | 0.3 | 19,800 | 2,250 | 0.15 | 0.3 | 17,400 | 1,500 | 0.06 | 0.15 | 15,700 | 1,280 | 0.06 | 0.15 | 12,600 | 960 | 0.06 | 0.15 |
| | 14 | 21,600 | 2,500 | 0.15 | 0.3 | 18,000 | 2,000 | 0.15 | 0.3 | 15,600 | 1,300 | 0.06 | 0.15 | 14,100 | 1,110 | 0.06 | 0.15 | 11,300 | 830 | 0.06 | 0.15 |
| | 15 | 19,200 | 2,200 | 0.1 | 0.3 | 15,600 | 1,800 | 0.1 | 0.3 | 13,200 | 1,200 | 0.06 | 0.15 | 11,900 | 1,020 | 0.06 | 0.15 | 9,600 | 770 | 0.06 | 0.15 |
| | 16 | 19,200 | 1,900 | 0.1 | 0.2 | 15,600 | 1,500 | 0.1 | 0.2 | 13,200 | 1,100 | 0.06 | 0.15 | 11,900 | 940 | 0.06 | 0.15 | 9,600 | 710 | 0.06 | 0.15 |
| | 20 | 16,800 | 1,700 | 0.1 | 0.2 | 13,200 | 1,600 | 0.1 | 0.2 | 12,000 | 1,000 | 0.06 | 0.15 | 10,800 | 850 | 0.06 | 0.15 | 8,700 | 640 | 0.06 | 0.15 |
| | 25 | 14,400 | 1,100 | 0.05 | 0.1 | 10,800 | 820 | 0.05 | 0.1 | 9,600 | 580 | 0.05 | 0.1 | 8,700 | 490 | 0.05 | 0.1 | 7,000 | 370 | 0.05 | 0.1 |
| | 30 | 10,800 | 760 | 0.03 | 0.05 | 8,400 | 590 | 0.03 | 0.05 | 7,200 | 400 | 0.03 | 0.05 | 6,500 | 340 | 0.03 | 0.05 | 5,200 | 260 | 0.03 | 0.05 |
| | 35 | 9,000 | 570 | 0.02 | 0.05 | 7,200 | 460 | 0.02 | 0.05 | 6,000 | 300 | 0.02 | 0.05 | 5,400 | 260 | 0.02 | 0.05 | 4,400 | 200 | 0.02 | 0.05 |
| | 40 | 7,800 | 470 | 0.02 | 0.03 | 6,000 | 360 | 0.02 | 0.03 | 4,800 | 230 | 0.02 | 0.03 | 4,400 | 200 | 0.02 | 0.03 | 3,500 | 150 | 0.02 | 0.03 |
| R1.75 | 10 | 24,000 | 3,100 | 0.1 | 0.3 | 19,200 | 2,200 | 0.1 | 0.3 | 16,800 | 1,500 | 0.07 | 0.15 | 15,200 | 1,280 | 0.07 | 0.15 | 12,100 | 960 | 0.07 | 0.15 |
| | 15 | 21,600 | 2,800 | 0.1 | 0.3 | 16,800 | 2,000 | 0.1 | 0.3 | 14,400 | 1,300 | 0.07 | 0.15 | 13,000 | 1,110 | 0.07 | 0.15 | 10,400 | 830 | 0.07 | 0.15 |
| | 16 | 20,400 | 2,700 | 0.1 | 0.3 | 15,600 | 1,900 | 0.1 | 0.2 | 13,200 | 1,250 | 0.07 | 0.15 | 11,900 | 1,060 | 0.07 | 0.15 | 9,600 | 800 | 0.07 | 0.15 |
| | 20 | 19,200 | 2,500 | 0.1 | 0.2 | 14,400 | 1,800 | 0.1 | 0.2 | 12,000 | 1,200 | 0.07 | 0.15 | 10,800 | 1,020 | 0.07 | 0.15 | 8,700 | 770 | 0.07 | 0.15 |
| | 25 | 14,400 | 1,900 | 0.1 | 0.1 | 10,800 | 1,300 | 0.1 | 0.1 | 9,600 | 920 | 0.07 | 0.15 | 8,700 | 780 | 0.07 | 0.15 | 7,000 | 590 | 0.07 | 0.15 |
| | 30 | 12,000 | 1,500 | 0.05 | 0.1 | 9,600 | 1,100 | 0.05 | 0.1 | 8,400 | 770 | 0.05 | 0.1 | 7,600 | 650 | 0.05 | 0.1 | 6,100 | 490 | 0.05 | 0.1 |
| | 35 | 10,800 | 950 | 0.05 | 0.05 | 8,400 | 700 | 0.05 | 0.05 | 6,000 | 400 | 0.05 | 0.05 | 5,400 | 340 | 0.05 | 0.05 | 4,400 | 260 | 0.05 | 0.05 |
| | 40 | 9,000 | 760 | 0.05 | 0.05 | 7,200 | 580 | 0.05 | 0.05 | 4,800 | 300 | 0.05 | 0.05 | 4,400 | 260 | 0.05 | 0.05 | 3,500 | 200 | 0.05 | 0.05 |
| | 45 | 7,800 | 570 | 0.03 | 0.03 | 6,000 | 420 | 0.03 | 0.03 | 4,800 | 260 | 0.03 | 0.03 | 4,400 | 220 | 0.03 | 0.03 | 3,500 | 170 | 0.03 | 0.03 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

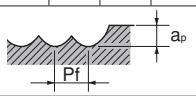
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
RE 2～2.5 NEXT

## AE-LNBD-H

前ページより
FROM RE 1.5～1.75

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R2 | 8 | 37,200 | 5,700 | 0.2 | 0.5 | 28,800 | 4,400 | 0.2 | 0.5 | 24,000 | 3,200 | 0.08 | 0.2 | 21,600 | 2,720 | 0.08 | 0.2 | 17,300 | 2,040 | 0.08 | 0.20 |
| | 10 | 30,000 | 4,200 | 0.2 | 0.5 | 24,000 | 3,300 | 0.2 | 0.5 | 21,600 | 2,300 | 0.08 | 0.2 | 19,500 | 1,960 | 0.08 | 0.2 | 15,600 | 1,470 | 0.08 | 0.20 |
| | 12 | 24,000 | 3,400 | 0.2 | 0.5 | 20,400 | 2,900 | 0.2 | 0.5 | 16,800 | 1,900 | 0.08 | 0.2 | 15,200 | 1,620 | 0.08 | 0.2 | 12,100 | 1,220 | 0.08 | 0.20 |
| | 13 | 24,000 | 3,400 | 0.2 | 0.5 | 19,800 | 2,800 | 0.2 | 0.5 | 15,600 | 1,750 | 0.08 | 0.2 | 14,100 | 1,490 | 0.08 | 0.2 | 11,300 | 1,120 | 0.08 | 0.20 |
| | 14 | 24,000 | 3,400 | 0.2 | 0.5 | 19,800 | 2,800 | 0.2 | 0.5 | 15,600 | 1,750 | 0.08 | 0.2 | 14,100 | 1,490 | 0.08 | 0.2 | 11,300 | 1,120 | 0.08 | 0.20 |
| | 15 | 24,000 | 3,400 | 0.2 | 0.5 | 19,200 | 2,700 | 0.2 | 0.5 | 14,400 | 1,600 | 0.08 | 0.2 | 13,000 | 1,360 | 0.08 | 0.2 | 10,400 | 1,020 | 0.08 | 0.20 |
| | 16 | 21,600 | 3,000 | 0.2 | 0.5 | 18,000 | 2,500 | 0.2 | 0.5 | 12,000 | 1,300 | 0.08 | 0.2 | 10,800 | 1,110 | 0.08 | 0.2 | 8,700 | 830 | 0.08 | 0.20 |
| | 20 | 19,200 | 2,600 | 0.2 | 0.4 | 16,800 | 2,300 | 0.2 | 0.4 | 9,600 | 1,000 | 0.08 | 0.2 | 8,700 | 850 | 0.08 | 0.2 | 7,000 | 640 | 0.08 | 0.20 |
| | 25 | 19,200 | 2,600 | 0.1 | 0.3 | 15,600 | 2,200 | 0.1 | 0.3 | 7,200 | 810 | 0.08 | 0.2 | 6,500 | 690 | 0.08 | 0.2 | 5,200 | 520 | 0.08 | 0.20 |
| | 30 | 16,800 | 2,200 | 0.1 | 0.2 | 14,400 | 1,900 | 0.1 | 0.2 | 6,000 | 630 | 0.08 | 0.2 | 5,400 | 540 | 0.08 | 0.2 | 4,400 | 410 | 0.08 | 0.20 |
| | 35 | 14,400 | 1,700 | 0.1 | 0.2 | 10,800 | 1,200 | 0.1 | 0.2 | 4,800 | 420 | 0.08 | 0.2 | 4,400 | 360 | 0.08 | 0.2 | 3,500 | 270 | 0.08 | 0.20 |
| | 40 | 10,800 | 1,200 | 0.05 | 0.1 | 9,600 | 1,000 | 0.05 | 0.1 | 4,800 | 400 | 0.05 | 0.1 | 4,400 | 340 | 0.05 | 0.1 | 3,500 | 260 | 0.05 | 0.1 |
| | 45 | 9,000 | 950 | 0.05 | 0.05 | 8,400 | 890 | 0.05 | 0.05 | 4,400 | 360 | 0.05 | 0.05 | 3,900 | 310 | 0.05 | 0.05 | 3,200 | 230 | 0.05 | 0.05 |
| | 50 | 7,800 | 660 | 0.02 | 0.05 | 7,200 | 600 | 0.02 | 0.05 | 4,400 | 280 | 0.02 | 0.05 | 3,900 | 240 | 0.02 | 0.05 | 3,200 | 180 | 0.02 | 0.05 |
| R2.5 | 10 | 30,000 | 5,400 | 0.25 | 0.5 | 22,800 | 4,000 | 0.25 | 0.5 | 19,200 | 2,800 | 0.1 | 0.25 | 17,300 | 2,380 | 0.1 | 0.25 | 13,900 | 1,790 | 0.1 | 0.25 |
| | 15 | 24,000 | 3,900 | 0.25 | 0.5 | 20,400 | 3,300 | 0.25 | 0.5 | 15,600 | 2,000 | 0.1 | 0.25 | 14,100 | 1,700 | 0.1 | 0.25 | 11,300 | 1,280 | 0.1 | 0.25 |
| | 20 | 19,200 | 3,300 | 0.25 | 0.5 | 15,600 | 2,700 | 0.25 | 0.5 | 9,600 | 1,300 | 0.1 | 0.25 | 8,700 | 1,110 | 0.1 | 0.25 | 7,000 | 830 | 0.1 | 0.25 |
| | 25 | 18,000 | 3,000 | 0.2 | 0.3 | 14,400 | 2,400 | 0.2 | 0.3 | 7,200 | 960 | 0.1 | 0.25 | 6,500 | 820 | 0.1 | 0.25 | 5,200 | 620 | 0.1 | 0.25 |
| | 30 | 16,800 | 2,300 | 0.1 | 0.3 | 13,200 | 1,800 | 0.1 | 0.3 | 4,800 | 520 | 0.1 | 0.25 | 4,400 | 440 | 0.1 | 0.25 | 3,500 | 330 | 0.1 | 0.25 |
| | 35 | 14,400 | 1,500 | 0.1 | 0.3 | 12,000 | 1,100 | 0.1 | 0.3 | 3,900 | 280 | 0.1 | 0.25 | 3,500 | 240 | 0.1 | 0.25 | 2,800 | 180 | 0.1 | 0.25 |
| | 40 | 12,000 | 1,100 | 0.1 | 0.2 | 10,800 | 990 | 0.1 | 0.2 | 3,600 | 260 | 0.1 | 0.2 | 3,300 | 220 | 0.1 | 0.2 | 2,600 | 170 | 0.1 | 0.20 |
| | 45 | 10,800 | 850 | 0.1 | 0.1 | 9,600 | 660 | 0.1 | 0.1 | 3,600 | 200 | 0.1 | 0.1 | 3,300 | 170 | 0.1 | 0.1 | 2,600 | 130 | 0.1 | 0.1 |
| | 50 | 9,000 | 760 | 0.1 | 0.1 | 8,400 | 610 | 0.1 | 0.1 | 3,400 | 190 | 0.1 | 0.1 | 3,100 | 160 | 0.1 | 0.1 | 2,500 | 120 | 0.1 | 0.1 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | | | | | | | |

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2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
RE 3 NEXT

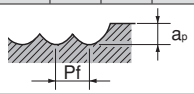
形状寸法表
SPECIFICATION CHARTS
AE-LNBD-H▶P348

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-LNBD-H

前ページより
FROM RE 2～2.5

●加工パスは等高線加工を前提としています。●The machining path is on condition of contouring line operation.

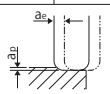
| 被削材 Work Material | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel Prehardened Steel SKD11・SKD61・NAK80 (～45HRC) | | | | 調質鋼 Hardened Steel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ～55HRC | | | | ～62HRC | | | | ～66HRC | | | | ～70HRC | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | Pf (mm) |
| R3 | 10 | 26,400 | 5,600 | 0.3 | 0.5 | 21,600 | 3,800 | 0.3 | 0.5 | 18,600 | 2,800 | 0.1 | 0.2 | 16,800 | 2,380 | 0.1 | 0.2 | 13,400 | 1,790 | 0.1 | 0.20 |
| | 12 | 24,000 | 5,200 | 0.3 | 0.5 | 19,200 | 3,400 | 0.3 | 0.5 | 16,200 | 2,500 | 0.1 | 0.2 | 14,600 | 2,130 | 0.1 | 0.2 | 11,700 | 1,600 | 0.1 | 0.20 |
| | 15 | 22,200 | 4,800 | 0.3 | 0.5 | 17,400 | 3,250 | 0.3 | 0.5 | 14,400 | 1,850 | 0.1 | 0.2 | 13,000 | 1,570 | 0.1 | 0.2 | 10,400 | 1,180 | 0.1 | 0.20 |
| | 20 | 19,200 | 3,900 | 0.3 | 0.5 | 14,400 | 3,000 | 0.3 | 0.5 | 9,600 | 1,600 | 0.1 | 0.2 | 8,700 | 1,360 | 0.1 | 0.2 | 7,000 | 1,020 | 0.1 | 0.20 |
| | 25 | 14,400 | 3,000 | 0.3 | 0.5 | 12,000 | 2,500 | 0.3 | 0.5 | 7,200 | 1,200 | 0.1 | 0.2 | 6,500 | 1,020 | 0.1 | 0.2 | 5,200 | 770 | 0.1 | 0.20 |
| | 30 | 12,000 | 2,400 | 0.3 | 0.5 | 10,800 | 2,100 | 0.3 | 0.5 | 4,800 | 740 | 0.1 | 0.2 | 4,400 | 630 | 0.1 | 0.2 | 3,500 | 470 | 0.1 | 0.20 |
| | 35 | 10,800 | 2,100 | 0.2 | 0.4 | 10,800 | 2,000 | 0.2 | 0.4 | 4,200 | 620 | 0.1 | 0.2 | 3,800 | 530 | 0.1 | 0.2 | 3,100 | 400 | 0.1 | 0.20 |
| | 40 | 10,800 | 1,900 | 0.2 | 0.3 | 10,800 | 1,800 | 0.2 | 0.3 | 3,600 | 480 | 0.1 | 0.2 | 3,300 | 410 | 0.1 | 0.2 | 2,600 | 310 | 0.1 | 0.20 |
| | 45 | 9,600 | 1,700 | 0.2 | 0.3 | 9,600 | 1,600 | 0.2 | 0.3 | 3,400 | 440 | 0.1 | 0.2 | 3,100 | 370 | 0.1 | 0.2 | 2,500 | 280 | 0.1 | 0.20 |
| | 50 | 8,400 | 1,500 | 0.2 | 0.3 | 8,400 | 1,400 | 0.2 | 0.3 | 3,000 | 400 | 0.1 | 0.2 | 2,700 | 340 | 0.1 | 0.2 | 2,200 | 260 | 0.1 | 0.20 |
| | 60 | 7,200 | 1,250 | 0.2 | 0.3 | 7,200 | 1,150 | 0.2 | 0.3 | 2,800 | 350 | 0.1 | 0.2 | 2,500 | 300 | 0.1 | 0.2 | 2,000 | 230 | 0.1 | 0.20 |
| 切込深さ Depth of Cut | |  | | | | | | | | | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

# AE-CPR2-H
## 標準切削

REGULAR MILLING

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.2 | R0.02 | 0.5 | 40,000 | 560 | 0.006 | 0.072 | 36,000 | 470 | 0.005 | 0.06 | 31,500 | 380 | 0.003 | 0.048 |
| | | 1 | 38,000 | 530 | 0.005 | 0.072 | 34,000 | 440 | 0.004 | 0.06 | 30,000 | 360 | 0.002 | 0.048 |
| | | 1.5 | 36,000 | 430 | 0.004 | 0.054 | 32,000 | 350 | 0.003 | 0.045 | 28,500 | 290 | 0.002 | 0.036 |
| | | 2 | 34,000 | 250 | 0.002 | 0.054 | 30,000 | 200 | 0.002 | 0.045 | 27,000 | 160 | 0.001 | 0.036 |
| | R0.05 | 0.5 | 40,000 | 560 | 0.006 | 0.072 | 36,000 | 470 | 0.005 | 0.06 | 31,500 | 380 | 0.003 | 0.048 |
| | | 1 | 38,000 | 530 | 0.005 | 0.072 | 34,000 | 440 | 0.004 | 0.06 | 30,000 | 360 | 0.002 | 0.048 |
| | | 1.5 | 36,000 | 430 | 0.004 | 0.054 | 32,000 | 350 | 0.003 | 0.045 | 28,500 | 290 | 0.002 | 0.036 |
| | | 2 | 34,000 | 250 | 0.002 | 0.054 | 30,000 | 200 | 0.002 | 0.045 | 27,000 | 160 | 0.001 | 0.036 |
| 0.3 | R0.02 | 1 | 36,500 | 730 | 0.006 | 0.108 | 32,500 | 560 | 0.005 | 0.09 | 30,500 | 480 | 0.003 | 0.072 |
| | | 1.5 | 33,000 | 600 | 0.004 | 0.09 | 30,000 | 470 | 0.003 | 0.075 | 28,000 | 410 | 0.002 | 0.06 |
| | | 2 | 30,000 | 510 | 0.002 | 0.073 | 27,000 | 390 | 0.002 | 0.061 | 25,500 | 340 | 0.001 | 0.049 |
| | | 2.5 | 26,500 | 400 | 0.002 | 0.073 | 24,000 | 320 | 0.002 | 0.061 | 22,500 | 280 | 0.001 | 0.049 |
| | | 3 | 23,000 | 190 | 0.001 | 0.066 | 21,000 | 150 | 0.001 | 0.055 | 19,500 | 130 | 0.001 | 0.044 |
| | R0.05 | 1 | 36,500 | 730 | 0.006 | 0.108 | 32,500 | 560 | 0.005 | 0.09 | 30,500 | 480 | 0.003 | 0.072 |
| | | 1.5 | 33,000 | 600 | 0.004 | 0.09 | 30,000 | 470 | 0.003 | 0.075 | 28,000 | 410 | 0.002 | 0.06 |
| | | 2 | 30,000 | 510 | 0.002 | 0.073 | 27,000 | 390 | 0.002 | 0.061 | 25,500 | 340 | 0.001 | 0.049 |
| | | 2.5 | 26,500 | 400 | 0.002 | 0.073 | 24,000 | 320 | 0.002 | 0.061 | 22,500 | 280 | 0.001 | 0.049 |
| | | 3 | 23,000 | 190 | 0.001 | 0.066 | 21,000 | 150 | 0.001 | 0.055 | 19,500 | 130 | 0.001 | 0.044 |
| 0.4 | R0.02 | 1 | 29,500 | 750 | 0.008 | 0.144 | 26,000 | 580 | 0.007 | 0.12 | 24,500 | 470 | 0.004 | 0.096 |
| | | 1.5 | 29,500 | 750 | 0.008 | 0.144 | 26,000 | 580 | 0.007 | 0.12 | 24,500 | 470 | 0.004 | 0.096 |
| | | 2 | 27,500 | 680 | 0.006 | 0.122 | 24,500 | 520 | 0.005 | 0.102 | 23,000 | 420 | 0.003 | 0.082 |
| | | 2.5 | 25,000 | 570 | 0.004 | 0.106 | 22,500 | 440 | 0.003 | 0.088 | 21,000 | 350 | 0.002 | 0.07 |
| | | 3 | 23,000 | 470 | 0.002 | 0.09 | 20,000 | 360 | 0.002 | 0.075 | 19,000 | 290 | 0.001 | 0.06 |
| | | 4 | 21,000 | 380 | 0.001 | 0.043 | 18,500 | 290 | 0.001 | 0.036 | 17,500 | 240 | 0.001 | 0.029 |
| | R0.05 | 1 | 29,500 | 750 | 0.008 | 0.144 | 26,000 | 580 | 0.007 | 0.12 | 24,500 | 470 | 0.004 | 0.096 |
| | | 1.5 | 29,500 | 750 | 0.008 | 0.144 | 26,000 | 580 | 0.007 | 0.12 | 24,500 | 470 | 0.004 | 0.096 |
| | | 2 | 27,500 | 680 | 0.006 | 0.122 | 24,500 | 520 | 0.005 | 0.102 | 23,000 | 420 | 0.003 | 0.082 |
| | | 3 | 23,000 | 470 | 0.002 | 0.09 | 20,000 | 360 | 0.002 | 0.075 | 19,000 | 290 | 0.001 | 0.06 |
| | | 4 | 21,000 | 380 | 0.001 | 0.043 | 18,500 | 290 | 0.001 | 0.036 | 17,500 | 240 | 0.001 | 0.029 |
| | R0.1 | 1 | 29,500 | 750 | 0.012 | 0.144 | 26,000 | 580 | 0.01 | 0.12 | 24,500 | 470 | 0.006 | 0.096 |
| | | 2 | 27,500 | 680 | 0.01 | 0.122 | 24,500 | 520 | 0.008 | 0.102 | 23,000 | 420 | 0.005 | 0.082 |
| | | 3 | 23,000 | 470 | 0.004 | 0.09 | 20,000 | 360 | 0.003 | 0.075 | 19,000 | 290 | 0.002 | 0.06 |
| | | 4 | 21,000 | 380 | 0.002 | 0.043 | 18,500 | 290 | 0.002 | 0.036 | 17,500 | 240 | 0.001 | 0.029 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

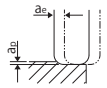
次ページへ
外径 DC 0.5～0.8 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR2-H▶P406

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR2-H
## 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 0.2～0.4

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.5 | R0.02 | 1 | 29,000 | 820 | 0.008 | 0.18 | 26,000 | 670 | 0.007 | 0.15 | 26,000 | 620 | 0.004 | 0.12 |
| | | 2 | 29,000 | 820 | 0.008 | 0.18 | 26,000 | 670 | 0.007 | 0.15 | 26,000 | 620 | 0.004 | 0.12 |
| | | 3 | 27,500 | 700 | 0.004 | 0.126 | 24,500 | 570 | 0.003 | 0.105 | 24,500 | 530 | 0.002 | 0.084 |
| | | 4 | 22,500 | 510 | 0.002 | 0.108 | 20,000 | 420 | 0.002 | 0.09 | 20,000 | 390 | 0.001 | 0.072 |
| | | 5 | 21,000 | 420 | 0.001 | 0.054 | 18,500 | 340 | 0.001 | 0.045 | 18,500 | 320 | 0.001 | 0.036 |
| | | 6 | 19,500 | 360 | 0.001 | 0.036 | 17,000 | 300 | 0.001 | 0.03 | 17,000 | 270 | 0.001 | 0.024 |
| | R0.05 | 1 | 29,000 | 820 | 0.008 | 0.18 | 26,000 | 670 | 0.007 | 0.15 | 26,000 | 620 | 0.004 | 0.12 |
| | | 2 | 29,000 | 820 | 0.008 | 0.18 | 26,000 | 670 | 0.007 | 0.15 | 26,000 | 620 | 0.004 | 0.12 |
| | | 3 | 27,500 | 700 | 0.004 | 0.126 | 24,500 | 570 | 0.003 | 0.105 | 24,500 | 530 | 0.002 | 0.084 |
| | | 4 | 22,500 | 510 | 0.002 | 0.108 | 20,000 | 420 | 0.002 | 0.09 | 20,000 | 390 | 0.001 | 0.072 |
| | | 5 | 21,000 | 420 | 0.001 | 0.054 | 18,500 | 340 | 0.001 | 0.045 | 18,500 | 320 | 0.001 | 0.036 |
| | | 6 | 19,500 | 360 | 0.001 | 0.036 | 17,000 | 300 | 0.001 | 0.03 | 17,000 | 270 | 0.001 | 0.024 |
| | R0.1 | 1 | 29,000 | 820 | 0.012 | 0.18 | 26,000 | 670 | 0.01 | 0.15 | 26,000 | 620 | 0.006 | 0.12 |
| | | 2 | 29,000 | 820 | 0.012 | 0.18 | 26,000 | 670 | 0.01 | 0.15 | 26,000 | 620 | 0.006 | 0.12 |
| | | 3 | 27,500 | 700 | 0.006 | 0.126 | 24,500 | 570 | 0.005 | 0.105 | 24,500 | 530 | 0.003 | 0.084 |
| | | 4 | 22,500 | 510 | 0.004 | 0.108 | 20,000 | 420 | 0.003 | 0.09 | 20,000 | 390 | 0.002 | 0.072 |
| | | 5 | 21,000 | 420 | 0.002 | 0.054 | 18,500 | 340 | 0.002 | 0.045 | 18,500 | 320 | 0.001 | 0.036 |
| | | 6 | 19,500 | 360 | 0.001 | 0.036 | 17,000 | 300 | 0.001 | 0.03 | 17,000 | 270 | 0.001 | 0.024 |
| 0.6 | R0.05 | 2 | 29,000 | 980 | 0.007 | 0.216 | 26,000 | 810 | 0.006 | 0.18 | 21,500 | 620 | 0.004 | 0.144 |
| | | 4 | 24,500 | 700 | 0.003 | 0.146 | 21,500 | 570 | 0.003 | 0.122 | 18,000 | 440 | 0.002 | 0.098 |
| | | 6 | 21,000 | 500 | 0.001 | 0.065 | 18,500 | 410 | 0.001 | 0.054 | 15,500 | 320 | 0.001 | 0.043 |
| | R0.1 | 1 | 29,000 | 980 | 0.014 | 0.216 | 26,000 | 810 | 0.012 | 0.18 | 21,500 | 620 | 0.007 | 0.144 |
| | | 2 | 29,000 | 980 | 0.014 | 0.216 | 26,000 | 810 | 0.012 | 0.18 | 21,500 | 620 | 0.007 | 0.144 |
| | | 4 | 24,500 | 700 | 0.006 | 0.146 | 21,500 | 570 | 0.005 | 0.122 | 18,000 | 440 | 0.003 | 0.098 |
| | | 6 | 21,000 | 500 | 0.002 | 0.065 | 18,500 | 410 | 0.002 | 0.054 | 15,500 | 320 | 0.001 | 0.043 |
| 0.8 | R0.05 | 2 | 25,000 | 1,130 | 0.012 | 0.288 | 22,500 | 930 | 0.01 | 0.24 | 19,000 | 700 | 0.006 | 0.192 |
| | | 4 | 23,500 | 1,000 | 0.096 | 0.288 | 20,500 | 800 | 0.08 | 0.24 | 17,000 | 570 | 0.048 | 0.192 |
| | | 6 | 19,500 | 700 | 0.042 | 0.288 | 16,500 | 560 | 0.035 | 0.24 | 14,000 | 390 | 0.021 | 0.192 |
| | R0.1 | 2 | 25,000 | 1,130 | 0.024 | 0.288 | 22,500 | 930 | 0.02 | 0.24 | 19,000 | 700 | 0.012 | 0.192 |
| | | 4 | 23,500 | 1,000 | 0.019 | 0.288 | 20,500 | 800 | 0.016 | 0.24 | 17,000 | 570 | 0.01 | 0.192 |
| | | 6 | 19,500 | 700 | 0.008 | 0.288 | 16,500 | 560 | 0.007 | 0.24 | 14,000 | 390 | 0.004 | 0.192 |
| | R0.2 | 2 | 25,000 | 1,130 | 0.048 | 0.288 | 22,500 | 930 | 0.04 | 0.24 | 19,000 | 700 | 0.024 | 0.192 |
| | | 4 | 23,500 | 1,000 | 0.038 | 0.288 | 20,500 | 800 | 0.032 | 0.24 | 17,000 | 570 | 0.019 | 0.192 |
| | | 6 | 19,500 | 700 | 0.017 | 0.288 | 16,500 | 560 | 0.014 | 0.24 | 14,000 | 390 | 0.008 | 0.192 |
| | | 8 | 18,000 | 570 | 0.01 | 0.259 | 15,500 | 450 | 0.008 | 0.216 | 13,000 | 320 | 0.005 | 0.173 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
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6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
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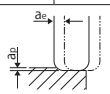
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   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
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   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 1～1.2 NEXT

# AE-CPR2-H
## 標準切削

REGULAR MILLING

前ページより
FROM 外径 DC 0.5～0.8

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1 | R0.05 | 2 | 25,500 | 1,500 | 0.018 | 0.36 | 22,500 | 1,230 | 0.015 | 0.3 | 18,500 | 880 | 0.009 | 0.24 |
| | | 3 | 23,000 | 1,300 | 0.018 | 0.36 | 20,000 | 1,050 | 0.015 | 0.3 | 17,000 | 760 | 0.009 | 0.24 |
| | | 4 | 23,000 | 1,300 | 0.012 | 0.36 | 20,000 | 1,050 | 0.01 | 0.3 | 17,000 | 760 | 0.006 | 0.24 |
| | | 6 | 20,500 | 1,050 | 0.006 | 0.252 | 18,000 | 840 | 0.005 | 0.21 | 15,500 | 610 | 0.003 | 0.168 |
| | | 8 | 18,000 | 800 | 0.004 | 0.216 | 15,500 | 650 | 0.003 | 0.18 | 13,500 | 470 | 0.002 | 0.144 |
| | | 10 | 16,500 | 650 | 0.002 | 0.108 | 14,500 | 530 | 0.002 | 0.09 | 12,500 | 380 | 0.001 | 0.072 |
| | | 12 | 15,500 | 570 | 0.001 | 0.072 | 13,500 | 460 | 0.001 | 0.06 | 11,500 | 340 | 0.001 | 0.048 |
| | R0.1 | 2 | 25,500 | 1,500 | 0.036 | 0.36 | 22,500 | 1,230 | 0.03 | 0.3 | 18,500 | 880 | 0.018 | 0.24 |
| | | 3 | 23,000 | 1,300 | 0.036 | 0.36 | 20,000 | 1,050 | 0.03 | 0.3 | 17,000 | 760 | 0.018 | 0.24 |
| | | 4 | 23,000 | 1,300 | 0.024 | 0.36 | 20,000 | 1,050 | 0.02 | 0.3 | 17,000 | 760 | 0.012 | 0.24 |
| | | 6 | 20,500 | 1,050 | 0.012 | 0.252 | 18,000 | 840 | 0.01 | 0.21 | 15,500 | 610 | 0.006 | 0.168 |
| | | 8 | 18,000 | 800 | 0.007 | 0.216 | 15,500 | 650 | 0.006 | 0.18 | 13,500 | 470 | 0.004 | 0.144 |
| | | 10 | 16,500 | 650 | 0.005 | 0.108 | 14,500 | 530 | 0.004 | 0.09 | 12,500 | 380 | 0.002 | 0.072 |
| | | 12 | 15,500 | 570 | 0.004 | 0.072 | 13,500 | 460 | 0.003 | 0.06 | 11,500 | 340 | 0.002 | 0.048 |
| | R0.2 | 2 | 25,500 | 1,500 | 0.072 | 0.36 | 22,500 | 1,230 | 0.06 | 0.3 | 18,500 | 880 | 0.036 | 0.24 |
| | | 3 | 23,000 | 1,300 | 0.072 | 0.36 | 20,000 | 1,050 | 0.06 | 0.3 | 17,000 | 760 | 0.036 | 0.24 |
| | | 4 | 23,000 | 1,300 | 0.048 | 0.36 | 20,000 | 1,050 | 0.04 | 0.3 | 17,000 | 760 | 0.024 | 0.24 |
| | | 6 | 20,500 | 1,050 | 0.024 | 0.252 | 18,000 | 840 | 0.02 | 0.21 | 15,500 | 610 | 0.012 | 0.168 |
| | | 8 | 18,000 | 800 | 0.014 | 0.216 | 15,500 | 650 | 0.012 | 0.18 | 13,500 | 470 | 0.007 | 0.144 |
| | | 10 | 16,500 | 650 | 0.01 | 0.108 | 14,500 | 530 | 0.008 | 0.09 | 12,500 | 380 | 0.005 | 0.072 |
| | | 12 | 15,500 | 570 | 0.007 | 0.072 | 13,500 | 460 | 0.006 | 0.06 | 11,500 | 340 | 0.004 | 0.048 |
| | | 16 | 12,000 | 400 | 0.005 | 0.036 | 10,500 | 330 | 0.004 | 0.03 | 9,150 | 240 | 0.002 | 0.024 |
| | | 20 | 10,000 | 290 | 0.004 | 0.029 | 8,900 | 230 | 0.003 | 0.024 | 7,650 | 170 | 0.002 | 0.019 |
| | R0.3 | 2 | 25,500 | 1,500 | 0.09 | 0.36 | 22,500 | 1,230 | 0.075 | 0.3 | 18,500 | 880 | 0.045 | 0.24 |
| | | 3 | 23,000 | 1,300 | 0.09 | 0.36 | 20,000 | 1,050 | 0.075 | 0.3 | 17,000 | 760 | 0.045 | 0.24 |
| | | 4 | 23,000 | 1,300 | 0.06 | 0.36 | 20,000 | 1,050 | 0.05 | 0.3 | 17,000 | 760 | 0.03 | 0.24 |
| | | 6 | 20,500 | 1,050 | 0.03 | 0.252 | 18,000 | 840 | 0.025 | 0.21 | 15,500 | 610 | 0.015 | 0.168 |
| | | 8 | 18,000 | 800 | 0.018 | 0.216 | 15,500 | 650 | 0.015 | 0.18 | 13,500 | 470 | 0.009 | 0.144 |
| | | 10 | 16,500 | 650 | 0.012 | 0.108 | 14,500 | 530 | 0.01 | 0.09 | 12,500 | 380 | 0.006 | 0.072 |
| | | 12 | 15,500 | 570 | 0.008 | 0.072 | 13,500 | 460 | 0.007 | 0.06 | 11,500 | 340 | 0.004 | 0.048 |
| 1.2 | R0.2 | 6 | 19,000 | 1,200 | 0.038 | 0.432 | 18,000 | 1,050 | 0.032 | 0.36 | 14,500 | 740 | 0.019 | 0.288 |
| | | 8 | 17,000 | 970 | 0.022 | 0.302 | 16,000 | 850 | 0.018 | 0.252 | 13,000 | 580 | 0.011 | 0.202 |
| | | 10 | 16,000 | 850 | 0.013 | 0.259 | 15,000 | 740 | 0.011 | 0.216 | 12,000 | 510 | 0.007 | 0.173 |
| | R0.3 | 6 | 19,000 | 1,200 | 0.048 | 0.432 | 18,000 | 1,050 | 0.04 | 0.36 | 14,500 | 740 | 0.024 | 0.288 |
| | | 8 | 17,000 | 970 | 0.026 | 0.302 | 16,000 | 850 | 0.022 | 0.252 | 13,000 | 580 | 0.013 | 0.202 |
| | | 10 | 16,000 | 850 | 0.017 | 0.259 | 15,000 | 740 | 0.014 | 0.216 | 12,000 | 510 | 0.008 | 0.173 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

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5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

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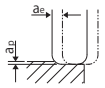
次ページへ
外径 DC 1.5 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR2-H▶P406

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR2-H
## 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 1～1.2

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1.5 | R0.05 | 3 | 18,000 | 1,630 | 0.018 | 0.54 | 17,000 | 1,400 | 0.015 | 0.45 | 14,500 | 970 | 0.009 | 0.36 |
| | | 4 | 18,000 | 1,630 | 0.015 | 0.54 | 17,000 | 1,400 | 0.013 | 0.45 | 14,500 | 970 | 0.008 | 0.36 |
| | | 6 | 17,000 | 1,450 | 0.012 | 0.54 | 16,000 | 1,250 | 0.01 | 0.45 | 13,500 | 880 | 0.006 | 0.36 |
| | | 8 | 16,000 | 1,250 | 0.008 | 0.458 | 15,500 | 1,100 | 0.007 | 0.382 | 12,500 | 750 | 0.004 | 0.306 |
| | | 10 | 14,500 | 1,000 | 0.005 | 0.35 | 13,500 | 900 | 0.005 | 0.292 | 11,000 | 630 | 0.003 | 0.234 |
| | | 12 | 13,500 | 900 | 0.004 | 0.324 | 12,500 | 790 | 0.003 | 0.27 | 10,500 | 550 | 0.002 | 0.216 |
| | R0.1 | 3 | 18,000 | 1,630 | 0.036 | 0.54 | 17,000 | 1,400 | 0.03 | 0.45 | 14,500 | 970 | 0.018 | 0.36 |
| | | 4 | 18,000 | 1,630 | 0.03 | 0.54 | 17,000 | 1,400 | 0.025 | 0.45 | 14,500 | 970 | 0.015 | 0.36 |
| | | 6 | 17,000 | 1,450 | 0.024 | 0.54 | 16,000 | 1,250 | 0.02 | 0.45 | 13,500 | 880 | 0.012 | 0.36 |
| | | 8 | 16,000 | 1,250 | 0.016 | 0.458 | 15,500 | 1,100 | 0.013 | 0.382 | 12,500 | 750 | 0.008 | 0.306 |
| | | 10 | 14,500 | 1,000 | 0.011 | 0.35 | 13,500 | 900 | 0.009 | 0.292 | 11,000 | 630 | 0.005 | 0.234 |
| | | 12 | 13,500 | 900 | 0.007 | 0.324 | 12,500 | 790 | 0.006 | 0.27 | 10,500 | 550 | 0.004 | 0.216 |
| | R0.2 | 3 | 18,000 | 1,630 | 0.072 | 0.54 | 17,000 | 1,400 | 0.06 | 0.45 | 14,500 | 970 | 0.036 | 0.36 |
| | | 4 | 18,000 | 1,630 | 0.06 | 0.54 | 17,000 | 1,400 | 0.05 | 0.45 | 14,500 | 970 | 0.03 | 0.36 |
| | | 6 | 17,000 | 1,450 | 0.048 | 0.54 | 16,000 | 1,250 | 0.04 | 0.45 | 13,500 | 880 | 0.024 | 0.36 |
| | | 8 | 16,000 | 1,250 | 0.031 | 0.458 | 15,500 | 1,100 | 0.026 | 0.382 | 12,500 | 750 | 0.016 | 0.306 |
| | | 10 | 14,500 | 1,000 | 0.022 | 0.35 | 13,500 | 900 | 0.018 | 0.292 | 11,000 | 630 | 0.011 | 0.234 |
| | | 12 | 13,500 | 900 | 0.014 | 0.324 | 12,500 | 790 | 0.012 | 0.27 | 10,500 | 550 | 0.007 | 0.216 |
| | | 16 | 9,150 | 530 | 0.008 | 0.134 | 8,650 | 460 | 0.007 | 0.112 | 7,150 | 320 | 0.004 | 0.09 |
| | R0.3 | 3 | 18,000 | 1,630 | 0.108 | 0.54 | 17,000 | 1,400 | 0.09 | 0.45 | 14,500 | 970 | 0.054 | 0.36 |
| | | 4 | 18,000 | 1,630 | 0.09 | 0.54 | 17,000 | 1,400 | 0.075 | 0.45 | 14,500 | 970 | 0.045 | 0.36 |
| | | 6 | 17,000 | 1,450 | 0.072 | 0.54 | 16,000 | 1,250 | 0.06 | 0.45 | 13,500 | 880 | 0.036 | 0.36 |
| | | 8 | 16,000 | 1,250 | 0.047 | 0.458 | 15,500 | 1,100 | 0.039 | 0.382 | 12,500 | 750 | 0.023 | 0.306 |
| | | 10 | 14,500 | 1,000 | 0.032 | 0.35 | 13,500 | 900 | 0.027 | 0.292 | 11,000 | 630 | 0.016 | 0.234 |
| | | 12 | 13,500 | 900 | 0.022 | 0.324 | 12,500 | 790 | 0.018 | 0.27 | 10,500 | 550 | 0.011 | 0.216 |
| | | 16 | 9,150 | 530 | 0.012 | 0.134 | 8,650 | 460 | 0.01 | 0.112 | 7,150 | 320 | 0.006 | 0.09 |
| | R0.5 | 3 | 18,000 | 1,630 | 0.18 | 0.54 | 17,000 | 1,400 | 0.15 | 0.45 | 14,500 | 970 | 0.09 | 0.36 |
| | | 4 | 18,000 | 1,630 | 0.15 | 0.54 | 17,000 | 1,400 | 0.125 | 0.45 | 14,500 | 970 | 0.075 | 0.36 |
| | | 6 | 17,000 | 1,450 | 0.12 | 0.54 | 16,000 | 1,250 | 0.1 | 0.45 | 13,500 | 880 | 0.06 | 0.36 |
| | | 8 | 16,000 | 1,250 | 0.078 | 0.458 | 15,500 | 1,100 | 0.065 | 0.382 | 12,500 | 750 | 0.039 | 0.306 |
| | | 10 | 14,500 | 1,000 | 0.054 | 0.35 | 13,500 | 900 | 0.045 | 0.292 | 11,000 | 630 | 0.027 | 0.234 |
| | | 12 | 13,500 | 900 | 0.036 | 0.324 | 12,500 | 790 | 0.03 | 0.27 | 10,500 | 550 | 0.018 | 0.216 |
| | | 16 | 9,150 | 530 | 0.02 | 0.134 | 8,650 | 460 | 0.017 | 0.112 | 7,150 | 320 | 0.01 | 0.09 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

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4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
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6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
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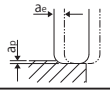
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   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 2 NEXT

# AE-CPR2-H
## 標準切削

REGULAR MILLING

前ページより
FROM 外径 DC 1.5

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 2 | R0.05 | 4 | 15,000 | 1,730 | 0.018 | 0.72 | 15,000 | 1,570 | 0.015 | 0.6 | 13,000 | 1,100 | 0.009 | 0.48 |
| | | 6 | 14,000 | 1,670 | 0.015 | 0.72 | 14,000 | 1,450 | 0.013 | 0.6 | 12,000 | 1,070 | 0.008 | 0.48 |
| | | 8 | 13,000 | 1,450 | 0.012 | 0.72 | 13,000 | 1,300 | 0.01 | 0.6 | 11,500 | 1,000 | 0.006 | 0.48 |
| | | 10 | 12,000 | 1,300 | 0.01 | 0.612 | 12,000 | 1,150 | 0.008 | 0.51 | 11,000 | 910 | 0.005 | 0.408 |
| | | 12 | 11,500 | 1,150 | 0.006 | 0.504 | 11,500 | 1,050 | 0.005 | 0.42 | 10,000 | 810 | 0.003 | 0.336 |
| | | 16 | 10,000 | 900 | 0.004 | 0.432 | 10,000 | 800 | 0.003 | 0.36 | 8,900 | 630 | 0.002 | 0.288 |
| | | 20 | 9,300 | 730 | 0.002 | 0.216 | 9,300 | 650 | 0.002 | 0.18 | 8,250 | 510 | 0.001 | 0.144 |
| | R0.1 | 4 | 15,000 | 1,730 | 0.036 | 0.72 | 15,000 | 1,570 | 0.03 | 0.6 | 13,000 | 1,100 | 0.018 | 0.48 |
| | | 6 | 14,000 | 1,670 | 0.03 | 0.72 | 14,000 | 1,450 | 0.025 | 0.6 | 12,000 | 1,070 | 0.015 | 0.48 |
| | | 8 | 13,000 | 1,450 | 0.024 | 0.72 | 13,000 | 1,300 | 0.02 | 0.6 | 11,500 | 1,000 | 0.012 | 0.48 |
| | | 10 | 12,000 | 1,300 | 0.019 | 0.612 | 12,000 | 1,150 | 0.016 | 0.51 | 11,000 | 910 | 0.01 | 0.408 |
| | | 12 | 11,500 | 1,150 | 0.012 | 0.504 | 11,500 | 1,050 | 0.01 | 0.42 | 10,000 | 810 | 0.006 | 0.336 |
| | | 16 | 10,000 | 900 | 0.007 | 0.432 | 10,000 | 800 | 0.006 | 0.36 | 8,900 | 630 | 0.004 | 0.288 |
| | | 20 | 9,300 | 730 | 0.005 | 0.216 | 9,300 | 650 | 0.004 | 0.18 | 8,250 | 510 | 0.002 | 0.144 |
| | | 25 | 8,600 | 630 | 0.002 | 0.144 | 8,600 | 560 | 0.002 | 0.12 | 7,650 | 440 | 0.001 | 0.096 |
| | R0.2 | 4 | 15,000 | 1,730 | 0.072 | 0.72 | 15,000 | 1,570 | 0.06 | 0.6 | 13,000 | 1,100 | 0.036 | 0.48 |
| | | 6 | 14,000 | 1,670 | 0.066 | 0.72 | 14,000 | 1,450 | 0.055 | 0.6 | 12,000 | 1,070 | 0.033 | 0.48 |
| | | 8 | 13,000 | 1,450 | 0.048 | 0.72 | 13,000 | 1,300 | 0.04 | 0.6 | 11,500 | 1,000 | 0.024 | 0.48 |
| | | 10 | 12,000 | 1,300 | 0.038 | 0.612 | 12,000 | 1,150 | 0.032 | 0.51 | 11,000 | 910 | 0.019 | 0.408 |
| | | 12 | 11,500 | 1,150 | 0.024 | 0.504 | 11,500 | 1,050 | 0.02 | 0.42 | 10,000 | 810 | 0.012 | 0.336 |
| | | 16 | 10,000 | 900 | 0.014 | 0.432 | 10,000 | 800 | 0.012 | 0.36 | 8,900 | 630 | 0.007 | 0.288 |
| | | 20 | 9,300 | 730 | 0.01 | 0.216 | 9,300 | 650 | 0.008 | 0.18 | 8,250 | 510 | 0.005 | 0.144 |
| | | 25 | 8,600 | 630 | 0.005 | 0.144 | 8,600 | 560 | 0.004 | 0.12 | 7,650 | 440 | 0.002 | 0.096 |
| | R0.3 | 4 | 15,000 | 1,730 | 0.108 | 0.72 | 15,000 | 1,570 | 0.09 | 0.6 | 13,000 | 1,100 | 0.054 | 0.48 |
| | | 6 | 14,000 | 1,670 | 0.09 | 0.72 | 14,000 | 1,450 | 0.075 | 0.6 | 12,000 | 1,070 | 0.045 | 0.48 |
| | | 8 | 13,000 | 1,450 | 0.072 | 0.72 | 13,000 | 1,300 | 0.06 | 0.6 | 11,500 | 1,000 | 0.036 | 0.48 |
| | | 10 | 12,000 | 1,300 | 0.058 | 0.612 | 12,000 | 1,150 | 0.048 | 0.51 | 11,000 | 910 | 0.029 | 0.408 |
| | | 12 | 11,500 | 1,150 | 0.036 | 0.504 | 11,500 | 1,050 | 0.03 | 0.42 | 10,000 | 810 | 0.018 | 0.336 |
| | | 16 | 10,000 | 900 | 0.022 | 0.432 | 10,000 | 800 | 0.018 | 0.36 | 8,900 | 630 | 0.011 | 0.288 |
| | | 20 | 9,300 | 730 | 0.014 | 0.216 | 9,300 | 650 | 0.012 | 0.18 | 8,250 | 510 | 0.007 | 0.144 |
| | | 25 | 8,600 | 630 | 0.007 | 0.144 | 8,600 | 560 | 0.006 | 0.12 | 7,650 | 440 | 0.004 | 0.096 |
| | R0.5 | 4 | 15,000 | 1,730 | 0.15 | 0.72 | 15,000 | 1,570 | 0.125 | 0.6 | 13,000 | 1,100 | 0.075 | 0.48 |
| | | 6 | 14,000 | 1,670 | 0.12 | 0.72 | 14,000 | 1,450 | 0.1 | 0.6 | 12,000 | 1,070 | 0.06 | 0.48 |
| | | 8 | 13,000 | 1,450 | 0.09 | 0.72 | 13,000 | 1,300 | 0.075 | 0.6 | 11,500 | 1,000 | 0.045 | 0.48 |
| | | 10 | 12,000 | 1,300 | 0.072 | 0.612 | 12,000 | 1,150 | 0.06 | 0.51 | 11,000 | 910 | 0.036 | 0.408 |
| | | 12 | 11,500 | 1,150 | 0.044 | 0.504 | 11,500 | 1,050 | 0.037 | 0.42 | 10,000 | 810 | 0.022 | 0.336 |
| | | 16 | 10,000 | 900 | 0.026 | 0.432 | 10,000 | 800 | 0.022 | 0.36 | 8,900 | 630 | 0.013 | 0.288 |
| | | 20 | 9,300 | 730 | 0.018 | 0.216 | 9,300 | 650 | 0.015 | 0.18 | 8,250 | 510 | 0.009 | 0.144 |
| | | 25 | 8,600 | 630 | 0.011 | 0.144 | 8,600 | 560 | 0.009 | 0.12 | 7,650 | 440 | 0.005 | 0.096 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

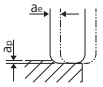
次ページへ
外径 DC 2.5～3 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR2-H▶P406

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR2-H
### 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 2

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 2.5 | R0.2 | 10 | 11,500 | 1,600 | 0.048 | 0.9 | 10,500 | 1,200 | 0.04 | 0.75 | 10,500 | 1,200 | 0.024 | 0.6 |
| | | 20 | 8,900 | 1,000 | 0.024 | 0.54 | 8,000 | 740 | 0.02 | 0.45 | 8,000 | 740 | 0.012 | 0.36 |
| | | 30 | 7,650 | 700 | 0.012 | 0.18 | 6,850 | 520 | 0.01 | 0.15 | 6,850 | 520 | 0.006 | 0.12 |
| | R0.5 | 10 | 11,500 | 1,600 | 0.09 | 0.9 | 10,500 | 1,200 | 0.075 | 0.75 | 10,500 | 1,200 | 0.045 | 0.6 |
| | | 20 | 8,900 | 1,000 | 0.044 | 0.54 | 8,000 | 740 | 0.037 | 0.45 | 8,000 | 740 | 0.022 | 0.36 |
| | | 30 | 7,650 | 700 | 0.013 | 0.18 | 6,850 | 520 | 0.011 | 0.15 | 6,850 | 520 | 0.007 | 0.12 |
| 3 | R0.2 | 8 | 9,550 | 1,500 | 0.048 | 1.08 | 8,600 | 1,150 | 0.04 | 0.9 | 7,650 | 830 | 0.024 | 0.72 |
| | | 12 | 9,550 | 1,500 | 0.048 | 1.08 | 8,600 | 1,150 | 0.04 | 0.9 | 7,650 | 830 | 0.024 | 0.72 |
| | | 16 | 8,500 | 1,200 | 0.034 | 0.864 | 7,650 | 910 | 0.028 | 0.72 | 6,800 | 660 | 0.017 | 0.576 |
| | | 20 | 7,400 | 990 | 0.022 | 0.734 | 6,700 | 750 | 0.018 | 0.612 | 5,950 | 550 | 0.011 | 0.49 |
| | | 25 | 7,100 | 830 | 0.014 | 0.648 | 6,400 | 640 | 0.012 | 0.54 | 5,700 | 460 | 0.007 | 0.432 |
| | | 30 | 6,900 | 760 | 0.01 | 0.324 | 6,200 | 580 | 0.008 | 0.27 | 5,500 | 420 | 0.005 | 0.216 |
| | | 35 | 6,350 | 660 | 0.007 | 0.216 | 5,700 | 500 | 0.006 | 0.18 | 5,100 | 370 | 0.004 | 0.144 |
| | R0.3 | 12 | 9,550 | 1,500 | 0.072 | 1.08 | 8,600 | 1,150 | 0.06 | 0.9 | 7,650 | 830 | 0.036 | 0.72 |
| | | 16 | 8,500 | 1,200 | 0.05 | 0.864 | 7,650 | 910 | 0.042 | 0.72 | 6,800 | 660 | 0.025 | 0.576 |
| | | 20 | 7,400 | 990 | 0.032 | 0.734 | 6,700 | 750 | 0.027 | 0.612 | 5,950 | 550 | 0.016 | 0.49 |
| | | 25 | 7,100 | 830 | 0.022 | 0.648 | 6,400 | 640 | 0.018 | 0.54 | 5,700 | 460 | 0.011 | 0.432 |
| | | 30 | 6,900 | 760 | 0.014 | 0.324 | 6,200 | 580 | 0.012 | 0.27 | 5,500 | 420 | 0.007 | 0.216 |
| | | 35 | 6,350 | 660 | 0.011 | 0.216 | 5,700 | 500 | 0.009 | 0.18 | 5,100 | 370 | 0.005 | 0.144 |
| | R0.5 | 12 | 9,550 | 1,500 | 0.09 | 1.08 | 8,600 | 1,150 | 0.075 | 0.9 | 7,650 | 830 | 0.045 | 0.72 |
| | | 16 | 8,500 | 1,200 | 0.062 | 0.864 | 7,650 | 910 | 0.052 | 0.72 | 6,800 | 660 | 0.031 | 0.576 |
| | | 20 | 7,400 | 990 | 0.04 | 0.734 | 6,700 | 750 | 0.033 | 0.612 | 5,950 | 550 | 0.02 | 0.49 |
| | | 25 | 7,100 | 830 | 0.026 | 0.648 | 6,400 | 640 | 0.022 | 0.54 | 5,700 | 460 | 0.013 | 0.432 |
| | | 30 | 6,900 | 760 | 0.018 | 0.324 | 6,200 | 580 | 0.015 | 0.27 | 5,500 | 420 | 0.009 | 0.216 |
| | | 35 | 6,350 | 660 | 0.013 | 0.216 | 5,700 | 500 | 0.011 | 0.18 | 5,100 | 370 | 0.007 | 0.144 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

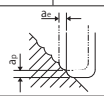


1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of $\phi$ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

# AE-CPR2-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.2 | R0.02 | 0.5 | 50,000 | 700 | 0.006 | 0.007 | 43,000 | 550 | 0.005 | 0.006 | 43,000 | 520 | 0.003 | 0.005 |
| | | 1 | 47,500 | 680 | 0.006 | 0.007 | 40,500 | 520 | 0.005 | 0.006 | 40,500 | 490 | 0.003 | 0.005 |
| | | 1.5 | 45,000 | 540 | 0.005 | 0.006 | 38,000 | 420 | 0.004 | 0.005 | 38,000 | 400 | 0.002 | 0.004 |
| | | 2 | 42,000 | 300 | 0.004 | 0.006 | 35,500 | 230 | 0.003 | 0.005 | 35,500 | 220 | 0.002 | 0.004 |
| | R0.05 | 0.5 | 50,000 | 700 | 0.006 | 0.007 | 43,000 | 550 | 0.005 | 0.006 | 43,000 | 520 | 0.003 | 0.005 |
| | | 1 | 47,500 | 680 | 0.006 | 0.007 | 40,500 | 520 | 0.005 | 0.006 | 40,500 | 490 | 0.003 | 0.005 |
| | | 1.5 | 45,000 | 540 | 0.005 | 0.006 | 38,000 | 420 | 0.004 | 0.005 | 38,000 | 400 | 0.002 | 0.004 |
| | | 2 | 42,000 | 300 | 0.004 | 0.006 | 35,500 | 230 | 0.003 | 0.005 | 35,500 | 220 | 0.002 | 0.004 |
| 0.3 | R0.02 | 1 | 43,000 | 850 | 0.006 | 0.011 | 38,000 | 690 | 0.005 | 0.009 | 33,500 | 530 | 0.003 | 0.007 |
| | | 1.5 | 40,000 | 740 | 0.006 | 0.011 | 35,000 | 590 | 0.005 | 0.009 | 30,500 | 440 | 0.003 | 0.007 |
| | | 2 | 36,000 | 610 | 0.005 | 0.01 | 32,000 | 500 | 0.004 | 0.008 | 28,000 | 370 | 0.002 | 0.006 |
| | | 2.5 | 32,000 | 480 | 0.004 | 0.01 | 28,000 | 380 | 0.003 | 0.008 | 24,500 | 290 | 0.002 | 0.006 |
| | | 3 | 28,000 | 220 | 0.002 | 0.008 | 24,500 | 180 | 0.002 | 0.007 | 21,500 | 130 | 0.001 | 0.006 |
| | R0.05 | 1 | 43,000 | 850 | 0.006 | 0.011 | 38,000 | 690 | 0.005 | 0.009 | 33,500 | 530 | 0.003 | 0.007 |
| | | 1.5 | 40,000 | 740 | 0.006 | 0.011 | 35,000 | 590 | 0.005 | 0.009 | 30,500 | 440 | 0.003 | 0.007 |
| | | 2 | 36,000 | 610 | 0.005 | 0.01 | 32,000 | 500 | 0.004 | 0.008 | 28,000 | 370 | 0.002 | 0.006 |
| | | 2.5 | 32,000 | 480 | 0.004 | 0.01 | 28,000 | 380 | 0.003 | 0.008 | 24,500 | 290 | 0.002 | 0.006 |
| | | 3 | 28,000 | 220 | 0.002 | 0.008 | 24,500 | 180 | 0.002 | 0.007 | 21,500 | 130 | 0.001 | 0.006 |
| 0.4 | R0.02 | 1 | 39,500 | 1,010 | 0.007 | 0.014 | 32,000 | 780 | 0.006 | 0.012 | 28,500 | 550 | 0.004 | 0.01 |
| | | 1.5 | 39,500 | 1,010 | 0.007 | 0.014 | 32,000 | 780 | 0.006 | 0.012 | 28,500 | 550 | 0.004 | 0.01 |
| | | 2 | 37,000 | 910 | 0.007 | 0.014 | 30,500 | 700 | 0.006 | 0.012 | 27,000 | 500 | 0.004 | 0.01 |
| | | 2.5 | 33,500 | 750 | 0.006 | 0.012 | 27,500 | 580 | 0.005 | 0.01 | 24,500 | 410 | 0.003 | 0.008 |
| | | 3 | 30,500 | 630 | 0.005 | 0.01 | 25,000 | 480 | 0.004 | 0.008 | 22,500 | 340 | 0.002 | 0.006 |
| | | 4 | 28,500 | 510 | 0.002 | 0.007 | 23,500 | 390 | 0.002 | 0.006 | 20,500 | 280 | 0.001 | 0.005 |
| | R0.05 | 1 | 39,500 | 1,010 | 0.007 | 0.014 | 32,000 | 780 | 0.006 | 0.012 | 28,500 | 550 | 0.004 | 0.01 |
| | | 1.5 | 39,500 | 1,010 | 0.007 | 0.014 | 32,000 | 780 | 0.006 | 0.012 | 28,500 | 550 | 0.004 | 0.01 |
| | | 2 | 37,000 | 910 | 0.007 | 0.014 | 30,500 | 700 | 0.006 | 0.012 | 27,000 | 500 | 0.004 | 0.01 |
| | | 3 | 30,500 | 630 | 0.005 | 0.01 | 25,000 | 480 | 0.004 | 0.008 | 22,500 | 340 | 0.002 | 0.006 |
| | | 4 | 28,500 | 510 | 0.002 | 0.007 | 23,500 | 390 | 0.002 | 0.006 | 20,500 | 280 | 0.001 | 0.005 |
| | R0.1 | 1 | 39,500 | 1,010 | 0.012 | 0.014 | 32,000 | 780 | 0.01 | 0.012 | 28,500 | 550 | 0.006 | 0.01 |
| | | 2 | 37,000 | 910 | 0.012 | 0.014 | 30,500 | 700 | 0.01 | 0.012 | 27,000 | 500 | 0.006 | 0.01 |
| | | 3 | 30,500 | 630 | 0.008 | 0.01 | 25,000 | 480 | 0.007 | 0.008 | 22,500 | 340 | 0.004 | 0.006 |
| | | 4 | 28,500 | 510 | 0.005 | 0.007 | 23,500 | 390 | 0.004 | 0.006 | 20,500 | 280 | 0.002 | 0.005 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 0.5～0.8 NEXT

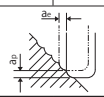
形状寸法表
SPECIFICATION CHARTS
AE-CPR2-H▶P406

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR2-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 0.2～0.4

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.5 | R0.02 | 1 | 34,500 | 970 | 0.007 | 0.018 | 28,500 | 780 | 0.006 | 0.015 | 24,000 | 580 | 0.004 | 0.012 |
| | | 2 | 34,500 | 970 | 0.007 | 0.018 | 28,500 | 780 | 0.006 | 0.015 | 24,000 | 580 | 0.004 | 0.012 |
| | | 3 | 32,500 | 820 | 0.007 | 0.016 | 27,000 | 660 | 0.006 | 0.013 | 22,500 | 490 | 0.004 | 0.01 |
| | | 4 | 26,500 | 600 | 0.004 | 0.012 | 22,500 | 480 | 0.003 | 0.01 | 18,500 | 360 | 0.002 | 0.008 |
| | | 5 | 25,000 | 490 | 0.002 | 0.008 | 20,500 | 390 | 0.002 | 0.007 | 17,500 | 290 | 0.001 | 0.006 |
| | | 6 | 23,000 | 430 | 0.001 | 0.007 | 19,000 | 340 | 0.001 | 0.006 | 16,000 | 260 | 0.001 | 0.005 |
| | R0.05 | 1 | 34,500 | 970 | 0.007 | 0.018 | 28,500 | 780 | 0.006 | 0.015 | 24,000 | 580 | 0.004 | 0.012 |
| | | 2 | 34,500 | 970 | 0.007 | 0.018 | 28,500 | 780 | 0.006 | 0.015 | 24,000 | 580 | 0.004 | 0.012 |
| | | 3 | 32,500 | 820 | 0.007 | 0.016 | 27,000 | 660 | 0.006 | 0.013 | 22,500 | 490 | 0.004 | 0.01 |
| | | 4 | 26,500 | 600 | 0.004 | 0.012 | 22,500 | 480 | 0.003 | 0.01 | 18,500 | 360 | 0.002 | 0.008 |
| | | 5 | 25,000 | 490 | 0.002 | 0.008 | 20,500 | 390 | 0.002 | 0.007 | 17,500 | 290 | 0.001 | 0.006 |
| | | 6 | 23,000 | 430 | 0.001 | 0.007 | 19,000 | 340 | 0.001 | 0.006 | 16,000 | 260 | 0.001 | 0.005 |
| | R0.1 | 1 | 34,500 | 970 | 0.012 | 0.018 | 28,500 | 780 | 0.01 | 0.015 | 24,000 | 580 | 0.006 | 0.012 |
| | | 2 | 34,500 | 970 | 0.012 | 0.018 | 28,500 | 780 | 0.01 | 0.015 | 24,000 | 580 | 0.006 | 0.012 |
| | | 3 | 32,500 | 820 | 0.012 | 0.016 | 27,000 | 660 | 0.01 | 0.013 | 22,500 | 490 | 0.006 | 0.01 |
| | | 4 | 26,500 | 600 | 0.007 | 0.012 | 22,500 | 480 | 0.006 | 0.01 | 18,500 | 360 | 0.004 | 0.008 |
| | | 5 | 25,000 | 490 | 0.005 | 0.008 | 20,500 | 390 | 0.004 | 0.007 | 17,500 | 290 | 0.002 | 0.006 |
| | | 6 | 23,000 | 430 | 0.004 | 0.007 | 19,000 | 340 | 0.003 | 0.006 | 16,000 | 260 | 0.002 | 0.005 |
| 0.6 | R0.05 | 2 | 31,000 | 1,050 | 0.007 | 0.022 | 26,500 | 850 | 0.006 | 0.018 | 24,000 | 690 | 0.004 | 0.014 |
| | | 4 | 26,000 | 740 | 0.006 | 0.014 | 22,000 | 600 | 0.005 | 0.012 | 20,000 | 490 | 0.003 | 0.01 |
| | | 6 | 22,500 | 530 | 0.002 | 0.011 | 19,000 | 430 | 0.002 | 0.009 | 17,000 | 350 | 0.001 | 0.007 |
| | R0.1 | 1 | 31,000 | 1,050 | 0.014 | 0.022 | 26,500 | 850 | 0.012 | 0.018 | 24,000 | 690 | 0.007 | 0.014 |
| | | 2 | 31,000 | 1,050 | 0.014 | 0.022 | 26,500 | 850 | 0.012 | 0.018 | 24,000 | 690 | 0.007 | 0.014 |
| | | 4 | 26,000 | 740 | 0.011 | 0.014 | 22,000 | 600 | 0.009 | 0.012 | 20,000 | 490 | 0.005 | 0.01 |
| | | 6 | 22,500 | 530 | 0.005 | 0.011 | 19,000 | 430 | 0.004 | 0.009 | 17,000 | 350 | 0.002 | 0.007 |
| 0.8 | R0.05 | 2 | 31,000 | 1,470 | 0.012 | 0.024 | 27,500 | 1,250 | 0.01 | 0.02 | 25,500 | 930 | 0.006 | 0.016 |
| | | 4 | 29,000 | 1,200 | 0.01 | 0.024 | 25,500 | 1,050 | 0.008 | 0.02 | 23,500 | 790 | 0.005 | 0.016 |
| | | 6 | 23,500 | 850 | 0.007 | 0.017 | 21,000 | 720 | 0.006 | 0.014 | 19,500 | 550 | 0.004 | 0.011 |
| | R0.1 | 2 | 31,000 | 1,470 | 0.022 | 0.024 | 27,500 | 1,250 | 0.018 | 0.02 | 25,500 | 930 | 0.011 | 0.016 |
| | | 4 | 29,000 | 1,200 | 0.018 | 0.024 | 25,500 | 1,050 | 0.015 | 0.02 | 23,500 | 790 | 0.009 | 0.016 |
| | | 6 | 23,500 | 850 | 0.014 | 0.017 | 21,000 | 720 | 0.012 | 0.014 | 19,500 | 550 | 0.007 | 0.011 |
| | R0.2 | 2 | 31,000 | 1,470 | 0.029 | 0.024 | 27,500 | 1,250 | 0.024 | 0.02 | 25,500 | 930 | 0.014 | 0.016 |
| | | 4 | 29,000 | 1,200 | 0.024 | 0.024 | 25,500 | 1,050 | 0.02 | 0.02 | 23,500 | 790 | 0.012 | 0.016 |
| | | 6 | 23,500 | 850 | 0.019 | 0.017 | 21,000 | 720 | 0.016 | 0.014 | 19,500 | 550 | 0.01 | 0.011 |
| | | 8 | 22,000 | 690 | 0.01 | 0.012 | 19,500 | 590 | 0.008 | 0.01 | 18,000 | 450 | 0.005 | 0.008 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

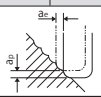
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 1～1.2 NEXT

# AE-CPR2-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 0.5～0.8

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1 | R0.05 | 2 | 29,500 | 1,680 | 0.01 | 0.036 | 26,500 | 1,410 | 0.008 | 0.03 | 24,500 | 1,130 | 0.005 | 0.024 |
| | | 3 | 27,000 | 1,500 | 0.01 | 0.036 | 24,500 | 1,250 | 0.008 | 0.03 | 22,500 | 1,000 | 0.005 | 0.024 |
| | | 4 | 27,000 | 1,500 | 0.007 | 0.036 | 24,500 | 1,250 | 0.006 | 0.03 | 22,500 | 1,000 | 0.004 | 0.024 |
| | | 6 | 24,000 | 1,200 | 0.007 | 0.032 | 21,500 | 1,000 | 0.006 | 0.027 | 20,000 | 800 | 0.004 | 0.022 |
| | | 8 | 21,000 | 950 | 0.004 | 0.025 | 19,000 | 790 | 0.003 | 0.021 | 17,500 | 620 | 0.002 | 0.017 |
| | | 10 | 19,500 | 770 | 0.004 | 0.018 | 17,500 | 640 | 0.003 | 0.015 | 16,500 | 510 | 0.002 | 0.012 |
| | | 12 | 18,000 | 670 | 0.004 | 0.016 | 16,000 | 560 | 0.003 | 0.013 | 15,000 | 440 | 0.002 | 0.01 |
| | R0.1 | 2 | 29,500 | 1,680 | 0.024 | 0.036 | 26,500 | 1,410 | 0.02 | 0.03 | 24,500 | 1,130 | 0.012 | 0.024 |
| | | 3 | 27,000 | 1,500 | 0.024 | 0.036 | 24,500 | 1,250 | 0.02 | 0.03 | 22,500 | 1,000 | 0.012 | 0.024 |
| | | 4 | 27,000 | 1,500 | 0.018 | 0.036 | 24,500 | 1,250 | 0.015 | 0.03 | 22,500 | 1,000 | 0.009 | 0.024 |
| | | 6 | 24,000 | 1,200 | 0.018 | 0.032 | 21,500 | 1,000 | 0.015 | 0.027 | 20,000 | 800 | 0.009 | 0.022 |
| | | 8 | 21,000 | 950 | 0.011 | 0.025 | 19,000 | 790 | 0.009 | 0.021 | 17,500 | 620 | 0.005 | 0.017 |
| | | 10 | 19,500 | 770 | 0.007 | 0.018 | 17,500 | 640 | 0.006 | 0.015 | 16,500 | 510 | 0.004 | 0.012 |
| | | 12 | 18,000 | 670 | 0.005 | 0.016 | 16,000 | 560 | 0.004 | 0.013 | 15,000 | 440 | 0.002 | 0.01 |
| | R0.2 | 2 | 29,500 | 1,680 | 0.036 | 0.036 | 26,500 | 1,410 | 0.03 | 0.03 | 24,500 | 1,130 | 0.018 | 0.024 |
| | | 3 | 27,000 | 1,500 | 0.036 | 0.036 | 24,500 | 1,250 | 0.03 | 0.03 | 22,500 | 1,000 | 0.018 | 0.024 |
| | | 4 | 27,000 | 1,500 | 0.024 | 0.036 | 24,500 | 1,250 | 0.02 | 0.03 | 22,500 | 1,000 | 0.012 | 0.024 |
| | | 6 | 24,000 | 1,200 | 0.024 | 0.032 | 21,500 | 1,000 | 0.02 | 0.027 | 20,000 | 800 | 0.012 | 0.022 |
| | | 8 | 21,000 | 950 | 0.014 | 0.025 | 19,000 | 790 | 0.012 | 0.021 | 17,500 | 620 | 0.007 | 0.017 |
| | | 10 | 19,500 | 770 | 0.01 | 0.018 | 17,500 | 640 | 0.008 | 0.015 | 16,500 | 510 | 0.005 | 0.012 |
| | | 12 | 18,000 | 670 | 0.007 | 0.016 | 16,000 | 560 | 0.006 | 0.013 | 15,000 | 440 | 0.004 | 0.01 |
| | | 16 | 14,500 | 470 | 0.005 | 0.012 | 13,000 | 390 | 0.004 | 0.01 | 12,000 | 310 | 0.002 | 0.008 |
| | | 20 | 12,000 | 340 | 0.004 | 0.011 | 11,000 | 280 | 0.003 | 0.009 | 10,000 | 220 | 0.002 | 0.007 |
| | R0.3 | 2 | 29,500 | 1,680 | 0.043 | 0.036 | 26,500 | 1,410 | 0.036 | 0.03 | 24,500 | 1,130 | 0.022 | 0.024 |
| | | 3 | 27,000 | 1,500 | 0.043 | 0.036 | 24,500 | 1,250 | 0.036 | 0.03 | 22,500 | 1,000 | 0.022 | 0.024 |
| | | 4 | 27,000 | 1,500 | 0.036 | 0.036 | 24,500 | 1,250 | 0.03 | 0.03 | 22,500 | 1,000 | 0.018 | 0.024 |
| | | 6 | 24,000 | 1,200 | 0.036 | 0.032 | 21,500 | 1,000 | 0.03 | 0.027 | 20,000 | 800 | 0.018 | 0.022 |
| | | 8 | 21,000 | 950 | 0.022 | 0.025 | 19,000 | 790 | 0.018 | 0.021 | 17,500 | 620 | 0.011 | 0.017 |
| | | 10 | 19,500 | 770 | 0.014 | 0.018 | 17,500 | 640 | 0.012 | 0.015 | 16,500 | 510 | 0.007 | 0.012 |
| | | 12 | 18,000 | 670 | 0.011 | 0.016 | 16,000 | 560 | 0.009 | 0.013 | 15,000 | 440 | 0.005 | 0.01 |
| 1.2 | R0.2 | 6 | 22,500 | 1,450 | 0.019 | 0.043 | 21,000 | 1,250 | 0.016 | 0.036 | 19,000 | 960 | 0.01 | 0.029 |
| | | 8 | 20,000 | 1,150 | 0.011 | 0.034 | 18,500 | 980 | 0.009 | 0.028 | 17,000 | 760 | 0.005 | 0.022 |
| | | 10 | 18,500 | 1,000 | 0.006 | 0.025 | 17,500 | 860 | 0.005 | 0.021 | 16,000 | 670 | 0.003 | 0.017 |
| | R0.3 | 6 | 22,500 | 1,450 | 0.029 | 0.043 | 21,000 | 1,250 | 0.024 | 0.036 | 19,000 | 960 | 0.014 | 0.029 |
| | | 8 | 20,000 | 1,150 | 0.016 | 0.034 | 18,500 | 980 | 0.013 | 0.028 | 17,000 | 760 | 0.008 | 0.022 |
| | | 10 | 18,500 | 1,000 | 0.01 | 0.025 | 17,500 | 860 | 0.008 | 0.021 | 16,000 | 670 | 0.005 | 0.017 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of $\phi$ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

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外径 DC 1.5 NEXT

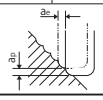
形状寸法表
SPECIFICATION CHARTS
AE-CPR2-H▶P406

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR2-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 1～1.2

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1.5 | R0.05 | 3 | 22,000 | 1,930 | 0.007 | 0.054 | 19,500 | 1,610 | 0.006 | 0.045 | 17,000 | 1,160 | 0.004 | 0.036 |
| | | 4 | 22,000 | 1,930 | 0.007 | 0.054 | 19,500 | 1,610 | 0.006 | 0.045 | 17,000 | 1,160 | 0.004 | 0.036 |
| | | 6 | 21,000 | 1,750 | 0.006 | 0.054 | 18,500 | 1,450 | 0.005 | 0.045 | 16,000 | 1,050 | 0.003 | 0.036 |
| | | 8 | 20,000 | 1,500 | 0.006 | 0.054 | 17,500 | 1,250 | 0.005 | 0.045 | 15,500 | 910 | 0.003 | 0.036 |
| | | 10 | 17,500 | 1,250 | 0.048 | 0.043 | 15,500 | 1,050 | 0.04 | 0.036 | 13,500 | 760 | 0.024 | 0.029 |
| | | 12 | 16,500 | 1,100 | 0.036 | 0.037 | 14,500 | 910 | 0.03 | 0.031 | 12,500 | 670 | 0.018 | 0.025 |
| | R0.1 | 3 | 22,000 | 1,930 | 0.014 | 0.054 | 19,500 | 1,610 | 0.012 | 0.045 | 17,000 | 1,160 | 0.007 | 0.036 |
| | | 4 | 22,000 | 1,930 | 0.014 | 0.054 | 19,500 | 1,610 | 0.012 | 0.045 | 17,000 | 1,160 | 0.007 | 0.036 |
| | | 6 | 21,000 | 1,750 | 0.012 | 0.054 | 18,500 | 1,450 | 0.01 | 0.045 | 16,000 | 1,050 | 0.006 | 0.036 |
| | | 8 | 20,000 | 1,500 | 0.012 | 0.054 | 17,500 | 1,250 | 0.01 | 0.045 | 15,500 | 910 | 0.006 | 0.036 |
| | | 10 | 17,500 | 1,250 | 0.108 | 0.043 | 15,500 | 1,050 | 0.09 | 0.036 | 13,500 | 760 | 0.054 | 0.029 |
| | | 12 | 16,500 | 1,100 | 0.072 | 0.037 | 14,500 | 910 | 0.06 | 0.031 | 12,500 | 670 | 0.036 | 0.025 |
| | R0.2 | 3 | 22,000 | 1,930 | 0.029 | 0.054 | 19,500 | 1,610 | 0.024 | 0.045 | 17,000 | 1,160 | 0.014 | 0.036 |
| | | 4 | 22,000 | 1,930 | 0.029 | 0.054 | 19,500 | 1,610 | 0.024 | 0.045 | 17,000 | 1,160 | 0.014 | 0.036 |
| | | 6 | 21,000 | 1,750 | 0.024 | 0.054 | 18,500 | 1,450 | 0.02 | 0.045 | 16,000 | 1,050 | 0.012 | 0.036 |
| | | 8 | 20,000 | 1,500 | 0.024 | 0.054 | 17,500 | 1,250 | 0.02 | 0.045 | 15,500 | 910 | 0.012 | 0.036 |
| | | 10 | 17,500 | 1,250 | 0.022 | 0.043 | 15,500 | 1,050 | 0.018 | 0.036 | 13,500 | 760 | 0.011 | 0.029 |
| | | 12 | 16,500 | 1,100 | 0.014 | 0.037 | 14,500 | 910 | 0.012 | 0.031 | 12,500 | 670 | 0.007 | 0.025 |
| | | 16 | 11,000 | 640 | 0.01 | 0.026 | 10,000 | 530 | 0.008 | 0.022 | 8,650 | 390 | 0.005 | 0.018 |
| | R0.3 | 3 | 22,000 | 1,930 | 0.043 | 0.054 | 19,500 | 1,610 | 0.036 | 0.045 | 17,000 | 1,160 | 0.022 | 0.036 |
| | | 4 | 22,000 | 1,930 | 0.043 | 0.054 | 19,500 | 1,610 | 0.036 | 0.045 | 17,000 | 1,160 | 0.022 | 0.036 |
| | | 6 | 21,000 | 1,750 | 0.036 | 0.054 | 18,500 | 1,450 | 0.03 | 0.045 | 16,000 | 1,050 | 0.018 | 0.036 |
| | | 8 | 20,000 | 1,500 | 0.036 | 0.054 | 17,500 | 1,250 | 0.03 | 0.045 | 15,500 | 910 | 0.018 | 0.036 |
| | | 10 | 17,500 | 1,250 | 0.032 | 0.043 | 15,500 | 1,050 | 0.027 | 0.036 | 13,500 | 760 | 0.016 | 0.029 |
| | | 12 | 16,500 | 1,100 | 0.022 | 0.037 | 14,500 | 910 | 0.018 | 0.031 | 12,500 | 670 | 0.011 | 0.025 |
| | | 16 | 11,000 | 640 | 0.014 | 0.026 | 10,000 | 530 | 0.012 | 0.022 | 8,650 | 390 | 0.007 | 0.018 |
| | R0.5 | 3 | 22,000 | 1,930 | 0.072 | 0.054 | 19,500 | 1,610 | 0.06 | 0.045 | 17,000 | 1,160 | 0.036 | 0.036 |
| | | 4 | 22,000 | 1,930 | 0.072 | 0.054 | 19,500 | 1,610 | 0.06 | 0.045 | 17,000 | 1,160 | 0.036 | 0.036 |
| | | 6 | 21,000 | 1,750 | 0.06 | 0.054 | 18,500 | 1,450 | 0.05 | 0.045 | 16,000 | 1,050 | 0.03 | 0.036 |
| | | 8 | 20,000 | 1,500 | 0.06 | 0.054 | 17,500 | 1,250 | 0.05 | 0.045 | 15,500 | 910 | 0.03 | 0.036 |
| | | 10 | 17,500 | 1,250 | 0.054 | 0.043 | 15,500 | 1,050 | 0.045 | 0.036 | 13,500 | 760 | 0.027 | 0.029 |
| | | 12 | 16,500 | 1,100 | 0.036 | 0.037 | 14,500 | 910 | 0.03 | 0.031 | 12,500 | 670 | 0.018 | 0.025 |
| | | 16 | 11,000 | 640 | 0.024 | 0.026 | 10,000 | 530 | 0.02 | 0.022 | 8,650 | 390 | 0.012 | 0.018 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

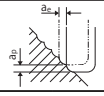
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 2 NEXT

# AE-CPR2-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 1.5

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 2 | R0.05 | 4 | 18,000 | 2,200 | 0.01 | 0.072 | 17,500 | 1,930 | 0.008 | 0.06 | 16,500 | 1,630 | 0.005 | 0.048 |
| | | 6 | 17,500 | 2,070 | 0.01 | 0.072 | 17,000 | 1,800 | 0.008 | 0.06 | 16,000 | 1,530 | 0.005 | 0.048 |
| | | 8 | 16,500 | 1,850 | 0.01 | 0.072 | 16,000 | 1,600 | 0.008 | 0.06 | 15,000 | 1,350 | 0.005 | 0.048 |
| | | 10 | 15,500 | 1,650 | 0.01 | 0.072 | 15,500 | 1,450 | 0.008 | 0.06 | 14,500 | 1,200 | 0.005 | 0.048 |
| | | 12 | 14,500 | 1,500 | 0.01 | 0.065 | 14,500 | 1,300 | 0.008 | 0.054 | 13,500 | 1,050 | 0.005 | 0.043 |
| | | 16 | 13,000 | 1,150 | 0.006 | 0.05 | 12,500 | 1,000 | 0.005 | 0.042 | 12,000 | 830 | 0.003 | 0.034 |
| | | 20 | 12,000 | 940 | 0.004 | 0.036 | 11,500 | 820 | 0.003 | 0.03 | 11,000 | 680 | 0.002 | 0.024 |
| | R0.1 | 4 | 18,000 | 2,200 | 0.018 | 0.072 | 17,500 | 1,930 | 0.015 | 0.06 | 16,500 | 1,630 | 0.009 | 0.048 |
| | | 6 | 17,500 | 2,070 | 0.018 | 0.072 | 17,000 | 1,800 | 0.015 | 0.06 | 16,000 | 1,530 | 0.009 | 0.048 |
| | | 8 | 16,500 | 1,850 | 0.018 | 0.072 | 16,000 | 1,600 | 0.015 | 0.06 | 15,000 | 1,350 | 0.009 | 0.048 |
| | | 10 | 15,500 | 1,650 | 0.018 | 0.072 | 15,500 | 1,450 | 0.015 | 0.06 | 14,500 | 1,200 | 0.009 | 0.048 |
| | | 12 | 14,500 | 1,500 | 0.018 | 0.065 | 14,500 | 1,300 | 0.015 | 0.054 | 13,500 | 1,050 | 0.009 | 0.043 |
| | | 16 | 13,000 | 1,150 | 0.011 | 0.05 | 12,500 | 1,000 | 0.009 | 0.042 | 12,000 | 830 | 0.005 | 0.034 |
| | | 20 | 12,000 | 940 | 0.007 | 0.036 | 11,500 | 820 | 0.006 | 0.03 | 11,000 | 680 | 0.004 | 0.024 |
| | | 25 | 11,000 | 800 | 0.005 | 0.032 | 11,000 | 700 | 0.004 | 0.027 | 10,000 | 580 | 0.002 | 0.022 |
| | R0.2 | 4 | 18,000 | 2,200 | 0.024 | 0.072 | 17,500 | 1,930 | 0.02 | 0.06 | 16,500 | 1,630 | 0.012 | 0.048 |
| | | 6 | 17,500 | 2,070 | 0.024 | 0.072 | 17,000 | 1,800 | 0.02 | 0.06 | 16,000 | 1,530 | 0.012 | 0.048 |
| | | 8 | 16,500 | 1,850 | 0.024 | 0.072 | 16,000 | 1,600 | 0.02 | 0.06 | 15,000 | 1,350 | 0.012 | 0.048 |
| | | 10 | 15,500 | 1,650 | 0.024 | 0.072 | 15,500 | 1,450 | 0.02 | 0.06 | 14,500 | 1,200 | 0.012 | 0.048 |
| | | 12 | 14,500 | 1,500 | 0.024 | 0.065 | 14,500 | 1,300 | 0.02 | 0.054 | 13,500 | 1,050 | 0.012 | 0.043 |
| | | 16 | 13,000 | 1,150 | 0.014 | 0.05 | 12,500 | 1,000 | 0.012 | 0.042 | 12,000 | 830 | 0.007 | 0.034 |
| | | 20 | 12,000 | 940 | 0.01 | 0.036 | 11,500 | 820 | 0.008 | 0.03 | 11,000 | 680 | 0.005 | 0.024 |
| | | 25 | 11,000 | 800 | 0.007 | 0.032 | 11,000 | 700 | 0.006 | 0.027 | 10,000 | 580 | 0.004 | 0.022 |
| | R0.3 | 4 | 18,000 | 2,200 | 0.036 | 0.072 | 17,500 | 1,930 | 0.03 | 0.06 | 16,500 | 1,630 | 0.018 | 0.048 |
| | | 6 | 17,500 | 2,070 | 0.036 | 0.072 | 17,000 | 1,800 | 0.03 | 0.06 | 16,000 | 1,530 | 0.018 | 0.048 |
| | | 8 | 16,500 | 1,850 | 0.036 | 0.072 | 16,000 | 1,600 | 0.03 | 0.06 | 15,000 | 1,350 | 0.018 | 0.048 |
| | | 10 | 15,500 | 1,650 | 0.036 | 0.072 | 15,500 | 1,450 | 0.03 | 0.06 | 14,500 | 1,200 | 0.018 | 0.048 |
| | | 12 | 14,500 | 1,500 | 0.036 | 0.065 | 14,500 | 1,300 | 0.03 | 0.054 | 13,500 | 1,050 | 0.018 | 0.043 |
| | | 16 | 13,000 | 1,150 | 0.022 | 0.05 | 12,500 | 1,000 | 0.018 | 0.042 | 12,000 | 830 | 0.011 | 0.034 |
| | | 20 | 12,000 | 940 | 0.014 | 0.036 | 11,500 | 820 | 0.012 | 0.03 | 11,000 | 680 | 0.007 | 0.024 |
| | | 25 | 11,000 | 800 | 0.011 | 0.032 | 11,000 | 700 | 0.009 | 0.027 | 10,000 | 580 | 0.005 | 0.022 |
| | R0.5 | 4 | 18,000 | 2,200 | 0.06 | 0.072 | 17,500 | 1,930 | 0.05 | 0.06 | 16,500 | 1,630 | 0.03 | 0.048 |
| | | 6 | 17,500 | 2,070 | 0.06 | 0.072 | 17,000 | 1,800 | 0.05 | 0.06 | 16,000 | 1,530 | 0.03 | 0.048 |
| | | 8 | 16,500 | 1,850 | 0.06 | 0.072 | 16,000 | 1,600 | 0.05 | 0.06 | 15,000 | 1,350 | 0.03 | 0.048 |
| | | 10 | 15,500 | 1,650 | 0.06 | 0.072 | 15,500 | 1,450 | 0.05 | 0.06 | 14,500 | 1,200 | 0.03 | 0.048 |
| | | 12 | 14,500 | 1,500 | 0.06 | 0.065 | 14,500 | 1,300 | 0.05 | 0.054 | 13,500 | 1,050 | 0.03 | 0.043 |
| | | 16 | 13,000 | 1,150 | 0.036 | 0.05 | 12,500 | 1,000 | 0.03 | 0.042 | 12,000 | 830 | 0.018 | 0.034 |
| | | 20 | 12,000 | 940 | 0.024 | 0.036 | 11,500 | 820 | 0.02 | 0.03 | 11,000 | 680 | 0.012 | 0.024 |
| | | 25 | 11,000 | 800 | 0.018 | 0.032 | 11,000 | 700 | 0.015 | 0.027 | 10,000 | 580 | 0.009 | 0.022 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 2.5～3 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR2-H▶P406

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR2-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 2

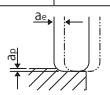
| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 2.5 | R0.2 | 10 | 13,000 | 1,850 | 0.024 | 0.09 | 13,000 | 1,400 | 0.02 | 0.075 | 12,000 | 1,350 | 0.012 | 0.06 |
| | | 20 | 10,000 | 1,150 | 0.014 | 0.062 | 10,000 | 890 | 0.012 | 0.052 | 9,450 | 830 | 0.007 | 0.042 |
| | | 30 | 8,500 | 930 | 0.007 | 0.036 | 8,500 | 720 | 0.006 | 0.03 | 8,000 | 670 | 0.004 | 0.024 |
| | R0.5 | 10 | 13,000 | 1,850 | 0.06 | 0.09 | 13,000 | 1,400 | 0.05 | 0.075 | 12,000 | 1,350 | 0.03 | 0.06 |
| | | 20 | 10,000 | 1,150 | 0.036 | 0.062 | 10,000 | 890 | 0.03 | 0.052 | 9,450 | 830 | 0.018 | 0.042 |
| | | 30 | 8,500 | 930 | 0.018 | 0.036 | 8,500 | 720 | 0.015 | 0.03 | 8,000 | 670 | 0.009 | 0.024 |
| 3 | R0.2 | 8 | 12,000 | 2,000 | 0.024 | 0.096 | 11,000 | 1,400 | 0.02 | 0.08 | 10,000 | 1,100 | 0.012 | 0.064 |
| | | 12 | 12,000 | 2,000 | 0.024 | 0.096 | 11,000 | 1,400 | 0.02 | 0.08 | 10,000 | 1,100 | 0.012 | 0.064 |
| | | 16 | 10,500 | 1,600 | 0.024 | 0.096 | 9,600 | 1,150 | 0.02 | 0.08 | 9,000 | 880 | 0.012 | 0.064 |
| | | 20 | 9,300 | 1,350 | 0.024 | 0.077 | 8,400 | 940 | 0.02 | 0.064 | 7,850 | 730 | 0.012 | 0.051 |
| | | 25 | 8,900 | 1,100 | 0.014 | 0.058 | 8,050 | 800 | 0.012 | 0.048 | 7,550 | 610 | 0.007 | 0.038 |
| | | 30 | 8,600 | 1,000 | 0.01 | 0.048 | 7,800 | 720 | 0.008 | 0.04 | 7,300 | 560 | 0.005 | 0.032 |
| | | 35 | 7,950 | 880 | 0.007 | 0.043 | 7,200 | 630 | 0.006 | 0.036 | 6,750 | 480 | 0.004 | 0.029 |
| | R0.3 | 12 | 12,000 | 2,000 | 0.036 | 0.096 | 11,000 | 1,400 | 0.03 | 0.08 | 10,000 | 1,100 | 0.018 | 0.064 |
| | | 16 | 10,500 | 1,600 | 0.036 | 0.096 | 9,600 | 1,150 | 0.03 | 0.08 | 9,000 | 880 | 0.018 | 0.064 |
| | | 20 | 9,300 | 1,350 | 0.036 | 0.077 | 8,400 | 940 | 0.03 | 0.064 | 7,850 | 730 | 0.018 | 0.051 |
| | | 25 | 8,900 | 1,100 | 0.022 | 0.058 | 8,050 | 800 | 0.018 | 0.048 | 7,550 | 610 | 0.011 | 0.038 |
| | | 30 | 8,600 | 1,000 | 0.014 | 0.048 | 7,800 | 720 | 0.012 | 0.04 | 7,300 | 560 | 0.007 | 0.032 |
| | | 35 | 7,950 | 880 | 0.011 | 0.043 | 7,200 | 630 | 0.009 | 0.036 | 6,750 | 480 | 0.005 | 0.029 |
| | R0.5 | 12 | 12,000 | 2,000 | 0.06 | 0.096 | 11,000 | 1,400 | 0.05 | 0.08 | 10,000 | 1,100 | 0.03 | 0.064 |
| | | 16 | 10,500 | 1,600 | 0.06 | 0.096 | 9,600 | 1,150 | 0.05 | 0.08 | 9,000 | 880 | 0.03 | 0.064 |
| | | 20 | 9,300 | 1,350 | 0.06 | 0.077 | 8,400 | 940 | 0.05 | 0.064 | 7,850 | 730 | 0.03 | 0.051 |
| | | 25 | 8,900 | 1,100 | 0.036 | 0.058 | 8,050 | 800 | 0.03 | 0.048 | 7,550 | 610 | 0.018 | 0.038 |
| | | 30 | 8,600 | 1,000 | 0.024 | 0.048 | 7,800 | 720 | 0.02 | 0.04 | 7,300 | 560 | 0.012 | 0.032 |
| | | 35 | 7,950 | 880 | 0.018 | 0.043 | 7,200 | 630 | 0.015 | 0.036 | 6,750 | 480 | 0.009 | 0.029 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
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1. Use a rigid and precise machine and holder.
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5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

# AE-CPR4-H
## 標準切削

REGULAR MILLING

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.2 | R0.02 | 0.5 | 40,000 | 560 | 0.006 | 0.072 | 36,000 | 470 | 0.005 | 0.06 | 31,500 | 380 | 0.003 | 0.048 |
| | | 1 | 38,000 | 530 | 0.005 | 0.072 | 34,000 | 440 | 0.004 | 0.06 | 30,000 | 360 | 0.002 | 0.048 |
| | | 1.5 | 36,000 | 430 | 0.004 | 0.054 | 32,000 | 350 | 0.003 | 0.045 | 28,500 | 290 | 0.002 | 0.036 |
| | | 2 | 34,000 | 250 | 0.002 | 0.054 | 30,000 | 200 | 0.002 | 0.045 | 27,000 | 160 | 0.001 | 0.036 |
| | R0.05 | 0.5 | 40,000 | 560 | 0.006 | 0.072 | 36,000 | 470 | 0.005 | 0.06 | 31,500 | 380 | 0.003 | 0.048 |
| | | 1 | 38,000 | 530 | 0.005 | 0.072 | 34,000 | 440 | 0.004 | 0.06 | 30,000 | 360 | 0.002 | 0.048 |
| | | 1.5 | 36,000 | 430 | 0.004 | 0.054 | 32,000 | 350 | 0.003 | 0.045 | 28,500 | 290 | 0.002 | 0.036 |
| | | 2 | 34,000 | 250 | 0.002 | 0.054 | 30,000 | 200 | 0.002 | 0.045 | 27,000 | 160 | 0.001 | 0.036 |
| 0.3 | R0.02 | 1 | 36,500 | 730 | 0.006 | 0.108 | 32,500 | 560 | 0.005 | 0.09 | 30,500 | 480 | 0.003 | 0.072 |
| | | 1.5 | 33,000 | 600 | 0.004 | 0.09 | 30,000 | 470 | 0.003 | 0.075 | 28,000 | 410 | 0.002 | 0.06 |
| | | 2 | 30,000 | 510 | 0.002 | 0.073 | 27,000 | 390 | 0.002 | 0.061 | 25,500 | 340 | 0.001 | 0.049 |
| | | 2.5 | 26,500 | 400 | 0.002 | 0.073 | 24,000 | 320 | 0.002 | 0.061 | 22,500 | 280 | 0.001 | 0.049 |
| | | 3 | 23,000 | 190 | 0.001 | 0.066 | 21,000 | 150 | 0.001 | 0.055 | 19,500 | 130 | 0.001 | 0.044 |
| | R0.05 | 1 | 36,500 | 730 | 0.006 | 0.108 | 32,500 | 560 | 0.005 | 0.09 | 30,500 | 480 | 0.003 | 0.072 |
| | | 1.5 | 33,000 | 600 | 0.004 | 0.09 | 30,000 | 470 | 0.003 | 0.075 | 28,000 | 410 | 0.002 | 0.06 |
| | | 2 | 30,000 | 510 | 0.002 | 0.073 | 27,000 | 390 | 0.002 | 0.061 | 25,500 | 340 | 0.001 | 0.049 |
| | | 2.5 | 26,500 | 400 | 0.002 | 0.073 | 24,000 | 320 | 0.002 | 0.061 | 22,500 | 280 | 0.001 | 0.049 |
| | | 3 | 23,000 | 190 | 0.001 | 0.066 | 21,000 | 150 | 0.001 | 0.055 | 19,500 | 130 | 0.001 | 0.044 |
| 0.4 | R0.02 | 1 | 29,500 | 1,130 | 0.008 | 0.144 | 26,000 | 870 | 0.007 | 0.12 | 24,500 | 710 | 0.004 | 0.096 |
| | | 1.5 | 29,500 | 1,130 | 0.008 | 0.144 | 26,000 | 870 | 0.007 | 0.12 | 24,500 | 710 | 0.004 | 0.096 |
| | | 2 | 27,500 | 1,020 | 0.006 | 0.122 | 24,500 | 780 | 0.005 | 0.102 | 23,000 | 630 | 0.003 | 0.082 |
| | | 2.5 | 25,000 | 860 | 0.004 | 0.106 | 22,500 | 660 | 0.003 | 0.088 | 21,000 | 530 | 0.002 | 0.07 |
| | | 3 | 23,000 | 710 | 0.002 | 0.09 | 20,000 | 540 | 0.002 | 0.075 | 19,000 | 440 | 0.001 | 0.06 |
| | | 4 | 21,000 | 570 | 0.001 | 0.043 | 18,500 | 440 | 0.001 | 0.036 | 17,500 | 360 | 0.001 | 0.029 |
| | R0.05 | 1 | 29,500 | 1,130 | 0.008 | 0.144 | 26,000 | 870 | 0.007 | 0.12 | 24,500 | 710 | 0.004 | 0.096 |
| | | 1.5 | 29,500 | 1,130 | 0.008 | 0.144 | 26,000 | 870 | 0.007 | 0.12 | 24,500 | 710 | 0.004 | 0.096 |
| | | 2 | 27,500 | 1,020 | 0.006 | 0.122 | 24,500 | 780 | 0.005 | 0.102 | 23,000 | 630 | 0.003 | 0.082 |
| | | 2.5 | 25,000 | 860 | 0.004 | 0.106 | 22,500 | 660 | 0.003 | 0.088 | 21,000 | 530 | 0.002 | 0.07 |
| | | 3 | 23,000 | 710 | 0.002 | 0.09 | 20,000 | 540 | 0.002 | 0.075 | 19,000 | 440 | 0.001 | 0.06 |
| | | 4 | 21,000 | 570 | 0.001 | 0.043 | 18,500 | 440 | 0.001 | 0.036 | 17,500 | 360 | 0.001 | 0.029 |
| | R0.1 | 1 | 29,500 | 1,130 | 0.012 | 0.144 | 26,000 | 870 | 0.01 | 0.12 | 24,500 | 710 | 0.006 | 0.096 |
| | | 2 | 27,500 | 1,020 | 0.01 | 0.122 | 24,500 | 780 | 0.008 | 0.102 | 23,000 | 630 | 0.005 | 0.082 |
| | | 3 | 23,000 | 710 | 0.004 | 0.09 | 20,000 | 540 | 0.003 | 0.075 | 19,000 | 440 | 0.002 | 0.06 |
| | | 4 | 21,000 | 570 | 0.002 | 0.043 | 18,500 | 440 | 0.002 | 0.036 | 17,500 | 360 | 0.001 | 0.029 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

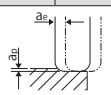
次ページへ
外径 DC 0.5～0.7 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
## 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 0.2～0.4

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.5 | R0.02 | 1 | 29,000 | 1,230 | 0.008 | 0.18 | 26,000 | 1,010 | 0.007 | 0.15 | 26,000 | 930 | 0.004 | 0.12 |
| | | 2 | 29,000 | 1,230 | 0.008 | 0.18 | 26,000 | 1,010 | 0.007 | 0.15 | 26,000 | 930 | 0.004 | 0.12 |
| | | 3 | 27,500 | 1,050 | 0.004 | 0.126 | 24,500 | 860 | 0.003 | 0.105 | 24,500 | 800 | 0.002 | 0.084 |
| | | 4 | 22,500 | 770 | 0.002 | 0.108 | 20,000 | 630 | 0.002 | 0.09 | 20,000 | 590 | 0.001 | 0.072 |
| | | 5 | 21,000 | 630 | 0.001 | 0.054 | 18,500 | 510 | 0.001 | 0.045 | 18,500 | 480 | 0.001 | 0.036 |
| | | 6 | 19,500 | 540 | 0.001 | 0.036 | 17,000 | 450 | 0.001 | 0.03 | 17,000 | 410 | 0.001 | 0.024 |
| | R0.05 | 1 | 29,000 | 1,230 | 0.008 | 0.18 | 26,000 | 1,010 | 0.007 | 0.15 | 26,000 | 930 | 0.004 | 0.12 |
| | | 2 | 29,000 | 1,230 | 0.008 | 0.18 | 26,000 | 1,010 | 0.007 | 0.15 | 26,000 | 930 | 0.004 | 0.12 |
| | | 3 | 27,500 | 1,050 | 0.004 | 0.126 | 24,500 | 860 | 0.003 | 0.105 | 24,500 | 800 | 0.002 | 0.084 |
| | | 4 | 22,500 | 770 | 0.002 | 0.108 | 20,000 | 630 | 0.002 | 0.09 | 20,000 | 590 | 0.001 | 0.072 |
| | | 5 | 21,000 | 630 | 0.001 | 0.054 | 18,500 | 510 | 0.001 | 0.045 | 18,500 | 480 | 0.001 | 0.036 |
| | | 6 | 19,500 | 540 | 0.001 | 0.036 | 17,000 | 450 | 0.001 | 0.03 | 17,000 | 410 | 0.001 | 0.024 |
| | R0.1 | 1 | 29,000 | 1,230 | 0.012 | 0.18 | 26,000 | 1,010 | 0.01 | 0.15 | 26,000 | 930 | 0.006 | 0.12 |
| | | 2 | 29,000 | 1,230 | 0.012 | 0.18 | 26,000 | 1,010 | 0.01 | 0.15 | 26,000 | 930 | 0.006 | 0.12 |
| | | 3 | 27,500 | 1,050 | 0.006 | 0.126 | 24,500 | 860 | 0.005 | 0.105 | 24,500 | 800 | 0.003 | 0.084 |
| | | 4 | 22,500 | 770 | 0.004 | 0.108 | 20,000 | 630 | 0.003 | 0.09 | 20,000 | 590 | 0.002 | 0.072 |
| | | 5 | 21,000 | 630 | 0.002 | 0.054 | 18,500 | 510 | 0.002 | 0.045 | 18,500 | 480 | 0.001 | 0.036 |
| | | 6 | 19,500 | 540 | 0.001 | 0.036 | 17,000 | 450 | 0.001 | 0.03 | 17,000 | 410 | 0.001 | 0.024 |
| 0.6 | R0.05 | 1 | 29,000 | 1,470 | 0.007 | 0.216 | 26,000 | 1,220 | 0.006 | 0.18 | 21,500 | 930 | 0.004 | 0.144 |
| | | 2 | 29,000 | 1,470 | 0.007 | 0.216 | 26,000 | 1,220 | 0.006 | 0.18 | 21,500 | 930 | 0.004 | 0.144 |
| | | 4 | 24,500 | 1,050 | 0.003 | 0.146 | 21,500 | 860 | 0.003 | 0.122 | 18,000 | 660 | 0.002 | 0.098 |
| | | 6 | 21,000 | 750 | 0.001 | 0.065 | 18,500 | 620 | 0.001 | 0.054 | 15,500 | 480 | 0.001 | 0.043 |
| | R0.1 | 1 | 29,000 | 1,470 | 0.014 | 0.216 | 26,000 | 1,220 | 0.012 | 0.18 | 21,500 | 930 | 0.007 | 0.144 |
| | | 2 | 29,000 | 1,470 | 0.014 | 0.216 | 26,000 | 1,220 | 0.012 | 0.18 | 21,500 | 930 | 0.007 | 0.144 |
| | | 4 | 24,500 | 1,050 | 0.006 | 0.146 | 21,500 | 860 | 0.005 | 0.122 | 18,000 | 660 | 0.003 | 0.098 |
| | | 6 | 21,000 | 750 | 0.002 | 0.065 | 18,500 | 620 | 0.002 | 0.054 | 15,500 | 480 | 0.001 | 0.043 |
| 0.7 | R0.02 | 1.5 | 27,000 | 1,580 | 0.008 | 0.264 | 23,500 | 1,280 | 0.007 | 0.22 | 19,500 | 970 | 0.004 | 0.176 |
| | | 2 | 27,000 | 1,580 | 0.008 | 0.264 | 23,500 | 1,280 | 0.007 | 0.22 | 19,500 | 970 | 0.004 | 0.176 |
| | | 4 | 24,000 | 1,300 | 0.004 | 0.192 | 21,000 | 1,040 | 0.003 | 0.16 | 17,500 | 790 | 0.002 | 0.128 |
| | | 6 | 20,000 | 900 | 0.002 | 0.096 | 17,500 | 740 | 0.002 | 0.08 | 14,500 | 550 | 0.001 | 0.064 |
| | R0.05 | 1.5 | 27,000 | 1,580 | 0.012 | 0.264 | 23,500 | 1,280 | 0.01 | 0.22 | 19,500 | 970 | 0.006 | 0.176 |
| | | 2 | 27,000 | 1,580 | 0.012 | 0.264 | 23,500 | 1,280 | 0.01 | 0.22 | 19,500 | 970 | 0.006 | 0.176 |
| | | 4 | 24,000 | 1,300 | 0.006 | 0.192 | 21,000 | 1,040 | 0.005 | 0.16 | 17,500 | 790 | 0.003 | 0.128 |
| | | 6 | 20,000 | 900 | 0.004 | 0.096 | 17,500 | 740 | 0.003 | 0.08 | 14,500 | 550 | 0.002 | 0.064 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

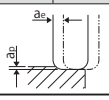
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
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5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 0.7～1 NEXT

# AE-CPR4-H
## 標準切削

REGULAR MILLING

前ページより
FROM 外径 DC 0.5～0.7

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.7 | R0.1 | 2 | 27,000 | 1,580 | 0.022 | 0.264 | 23,500 | 1,280 | 0.018 | 0.22 | 19,500 | 970 | 0.011 | 0.176 |
| | | 4 | 24,000 | 1,300 | 0.012 | 0.192 | 21,000 | 1,040 | 0.01 | 0.16 | 17,500 | 790 | 0.006 | 0.128 |
| | | 6 | 20,000 | 900 | 0.006 | 0.096 | 17,500 | 740 | 0.005 | 0.08 | 14,500 | 550 | 0.003 | 0.064 |
| 0.8 | R0.05 | 2 | 25,000 | 1,700 | 0.012 | 0.288 | 22,500 | 1,400 | 0.01 | 0.24 | 19,000 | 1,050 | 0.006 | 0.192 |
| | | 4 | 23,500 | 1,500 | 0.096 | 0.288 | 20,500 | 1,200 | 0.08 | 0.24 | 17,000 | 860 | 0.048 | 0.192 |
| | | 6 | 19,500 | 1,050 | 0.042 | 0.288 | 16,500 | 840 | 0.035 | 0.24 | 14,000 | 590 | 0.021 | 0.192 |
| | R0.1 | 2 | 25,000 | 1,700 | 0.024 | 0.288 | 22,500 | 1,400 | 0.02 | 0.24 | 19,000 | 1,050 | 0.012 | 0.192 |
| | | 4 | 23,500 | 1,500 | 0.019 | 0.288 | 20,500 | 1,200 | 0.016 | 0.24 | 17,000 | 860 | 0.01 | 0.192 |
| | | 6 | 19,500 | 1,050 | 0.008 | 0.288 | 16,500 | 840 | 0.007 | 0.24 | 14,000 | 590 | 0.004 | 0.192 |
| | R0.2 | 2 | 25,000 | 1,700 | 0.048 | 0.288 | 22,500 | 1,400 | 0.04 | 0.24 | 19,000 | 1,050 | 0.024 | 0.192 |
| | | 4 | 23,500 | 1,500 | 0.038 | 0.288 | 20,500 | 1,200 | 0.032 | 0.24 | 17,000 | 860 | 0.019 | 0.192 |
| | | 6 | 19,500 | 1,050 | 0.017 | 0.288 | 16,500 | 840 | 0.014 | 0.24 | 14,000 | 590 | 0.008 | 0.192 |
| | | 8 | 18,000 | 860 | 0.01 | 0.259 | 15,500 | 680 | 0.008 | 0.216 | 13,000 | 480 | 0.005 | 0.173 |
| 0.9 | R0.1 | 4 | 23,000 | 1,730 | 0.022 | 0.324 | 20,000 | 1,380 | 0.018 | 0.27 | 17,000 | 1,000 | 0.011 | 0.216 |
| | | 8 | 18,000 | 1,190 | 0.006 | 0.276 | 15,500 | 930 | 0.005 | 0.23 | 13,000 | 660 | 0.003 | 0.184 |
| 1 | R0.02 | 2 | 25,500 | 2,250 | 0.007 | 0.36 | 22,500 | 1,850 | 0.006 | 0.3 | 18,500 | 1,320 | 0.004 | 0.24 |
| | | 3 | 23,000 | 1,950 | 0.007 | 0.36 | 20,000 | 1,580 | 0.006 | 0.3 | 17,000 | 1,140 | 0.004 | 0.24 |
| | | 4 | 23,000 | 1,950 | 0.005 | 0.36 | 20,000 | 1,580 | 0.004 | 0.3 | 17,000 | 1,140 | 0.002 | 0.24 |
| | | 6 | 20,500 | 1,580 | 0.002 | 0.252 | 18,000 | 1,260 | 0.002 | 0.21 | 15,500 | 920 | 0.001 | 0.168 |
| | | 8 | 18,000 | 1,200 | 0.001 | 0.216 | 15,500 | 980 | 0.001 | 0.18 | 13,500 | 710 | 0.001 | 0.144 |
| | | 10 | 16,500 | 980 | 0.001 | 0.108 | 14,500 | 800 | 0.001 | 0.09 | 12,500 | 570 | 0.001 | 0.072 |
| | R0.05 | 2 | 25,500 | 2,250 | 0.018 | 0.36 | 22,500 | 1,850 | 0.015 | 0.3 | 18,500 | 1,320 | 0.009 | 0.24 |
| | | 3 | 23,000 | 1,950 | 0.018 | 0.36 | 20,000 | 1,580 | 0.015 | 0.3 | 17,000 | 1,140 | 0.009 | 0.24 |
| | | 4 | 23,000 | 1,950 | 0.012 | 0.36 | 20,000 | 1,580 | 0.01 | 0.3 | 17,000 | 1,140 | 0.006 | 0.24 |
| | | 6 | 20,500 | 1,580 | 0.006 | 0.252 | 18,000 | 1,260 | 0.005 | 0.21 | 15,500 | 920 | 0.003 | 0.168 |
| | | 8 | 18,000 | 1,200 | 0.004 | 0.216 | 15,500 | 980 | 0.003 | 0.18 | 13,500 | 710 | 0.002 | 0.144 |
| | | 10 | 16,500 | 980 | 0.002 | 0.108 | 14,500 | 800 | 0.002 | 0.09 | 12,500 | 570 | 0.001 | 0.072 |
| | | 12 | 15,500 | 860 | 0.001 | 0.072 | 13,500 | 690 | 0.001 | 0.06 | 11,500 | 510 | 0.001 | 0.048 |
| | R0.1 | 2 | 25,500 | 2,250 | 0.036 | 0.36 | 22,500 | 1,850 | 0.03 | 0.3 | 18,500 | 1,320 | 0.018 | 0.24 |
| | | 3 | 23,000 | 1,950 | 0.036 | 0.36 | 20,000 | 1,580 | 0.03 | 0.3 | 17,000 | 1,140 | 0.018 | 0.24 |
| | | 4 | 23,000 | 1,950 | 0.024 | 0.36 | 20,000 | 1,580 | 0.02 | 0.3 | 17,000 | 1,140 | 0.012 | 0.24 |
| | | 6 | 20,500 | 1,580 | 0.012 | 0.252 | 18,000 | 1,260 | 0.01 | 0.21 | 15,500 | 920 | 0.006 | 0.168 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

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   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
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5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

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2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
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   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

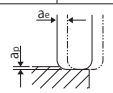
次ページへ
外径 DC 1～1.5 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
## 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 0.7～1

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1 | R0.1 | 8 | 18,000 | 1,200 | 0.007 | 0.216 | 15,500 | 980 | 0.006 | 0.18 | 13,500 | 710 | 0.004 | 0.144 |
| | | 10 | 16,500 | 980 | 0.005 | 0.108 | 14,500 | 800 | 0.004 | 0.09 | 12,500 | 570 | 0.002 | 0.072 |
| | | 12 | 15,500 | 860 | 0.004 | 0.072 | 13,500 | 690 | 0.003 | 0.06 | 11,500 | 510 | 0.002 | 0.048 |
| | | 16 | 12,000 | 600 | 0.002 | 0.036 | 10,500 | 500 | 0.002 | 0.03 | 9,150 | 360 | 0.001 | 0.024 |
| | | 20 | 10,000 | 440 | 0.002 | 0.029 | 8,900 | 350 | 0.002 | 0.024 | 7,650 | 260 | 0.001 | 0.019 |
| | R0.2 | 2 | 25,500 | 2,250 | 0.072 | 0.36 | 22,500 | 1,850 | 0.06 | 0.3 | 18,500 | 1,320 | 0.036 | 0.24 |
| | | 3 | 23,000 | 1,950 | 0.072 | 0.36 | 20,000 | 1,580 | 0.06 | 0.3 | 17,000 | 1,140 | 0.036 | 0.24 |
| | | 4 | 23,000 | 1,950 | 0.048 | 0.36 | 20,000 | 1,580 | 0.04 | 0.3 | 17,000 | 1,140 | 0.024 | 0.24 |
| | | 6 | 20,500 | 1,580 | 0.024 | 0.252 | 18,000 | 1,260 | 0.02 | 0.21 | 15,500 | 920 | 0.012 | 0.168 |
| | | 8 | 18,000 | 1,200 | 0.014 | 0.216 | 15,500 | 980 | 0.012 | 0.18 | 13,500 | 710 | 0.007 | 0.144 |
| | | 10 | 16,500 | 980 | 0.01 | 0.108 | 14,500 | 800 | 0.008 | 0.09 | 12,500 | 570 | 0.005 | 0.072 |
| | | 12 | 15,500 | 860 | 0.007 | 0.072 | 13,500 | 690 | 0.006 | 0.06 | 11,500 | 510 | 0.004 | 0.048 |
| | | 16 | 12,000 | 600 | 0.005 | 0.036 | 10,500 | 500 | 0.004 | 0.03 | 9,150 | 360 | 0.002 | 0.024 |
| | | 20 | 10,000 | 440 | 0.004 | 0.029 | 8,900 | 350 | 0.003 | 0.024 | 7,650 | 260 | 0.002 | 0.019 |
| | R0.3 | 2 | 25,500 | 2,250 | 0.09 | 0.36 | 22,500 | 1,850 | 0.075 | 0.3 | 18,500 | 1,320 | 0.045 | 0.24 |
| | | 3 | 23,000 | 1,950 | 0.09 | 0.36 | 20,000 | 1,580 | 0.075 | 0.3 | 17,000 | 1,140 | 0.045 | 0.24 |
| | | 4 | 23,000 | 1,950 | 0.06 | 0.36 | 20,000 | 1,580 | 0.05 | 0.3 | 17,000 | 1,140 | 0.03 | 0.24 |
| | | 6 | 20,500 | 1,580 | 0.03 | 0.252 | 18,000 | 1,260 | 0.025 | 0.21 | 15,500 | 920 | 0.015 | 0.168 |
| | | 8 | 18,000 | 1,200 | 0.018 | 0.216 | 15,500 | 980 | 0.015 | 0.18 | 13,500 | 710 | 0.009 | 0.144 |
| | | 10 | 16,500 | 980 | 0.012 | 0.108 | 14,500 | 800 | 0.01 | 0.09 | 12,500 | 570 | 0.006 | 0.072 |
| | | 12 | 15,500 | 860 | 0.008 | 0.072 | 13,500 | 690 | 0.007 | 0.06 | 11,500 | 510 | 0.004 | 0.048 |
| | | 16 | 12,000 | 600 | 0.006 | 0.036 | 10,500 | 500 | 0.005 | 0.03 | 9,150 | 360 | 0.003 | 0.024 |
| | | 20 | 10,000 | 440 | 0.005 | 0.029 | 8,900 | 350 | 0.004 | 0.024 | 7,650 | 260 | 0.002 | 0.019 |
| 1.2 | R0.2 | 6 | 19,000 | 1,800 | 0.038 | 0.432 | 18,000 | 1,580 | 0.032 | 0.36 | 14,500 | 1,110 | 0.019 | 0.288 |
| | | 8 | 17,000 | 1,460 | 0.022 | 0.302 | 16,000 | 1,280 | 0.018 | 0.252 | 13,000 | 870 | 0.011 | 0.202 |
| | | 10 | 16,000 | 1,280 | 0.013 | 0.259 | 15,000 | 1,110 | 0.011 | 0.216 | 12,000 | 770 | 0.007 | 0.173 |
| | R0.3 | 6 | 19,000 | 1,800 | 0.048 | 0.432 | 18,000 | 1,580 | 0.04 | 0.36 | 14,500 | 1,110 | 0.024 | 0.288 |
| | | 8 | 17,000 | 1,460 | 0.026 | 0.302 | 16,000 | 1,280 | 0.022 | 0.252 | 13,000 | 870 | 0.013 | 0.202 |
| | | 10 | 16,000 | 1,280 | 0.017 | 0.259 | 15,000 | 1,110 | 0.014 | 0.216 | 12,000 | 770 | 0.008 | 0.173 |
| 1.5 | R0.05 | 3 | 18,000 | 2,450 | 0.018 | 0.54 | 17,000 | 2,100 | 0.015 | 0.45 | 14,500 | 1,450 | 0.009 | 0.36 |
| | | 4 | 18,000 | 2,450 | 0.015 | 0.54 | 17,000 | 2,100 | 0.013 | 0.45 | 14,500 | 1,450 | 0.008 | 0.36 |
| | | 6 | 17,000 | 2,180 | 0.012 | 0.54 | 16,000 | 1,880 | 0.01 | 0.45 | 13,500 | 1,320 | 0.006 | 0.36 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

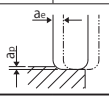
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 1.5 NEXT

# AE-CPR4-H
## 標準切削

REGULAR MILLING

前ページより
FROM 外径 DC 1～1.5

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1.5 | R0.05 | 8 | 16,000 | 1,880 | 0.008 | 0.458 | 15,500 | 1,650 | 0.007 | 0.382 | 12,500 | 1,130 | 0.004 | 0.306 |
| | | 10 | 14,500 | 1,500 | 0.005 | 0.35 | 13,500 | 1,350 | 0.005 | 0.292 | 11,000 | 950 | 0.003 | 0.234 |
| | | 12 | 13,500 | 1,350 | 0.004 | 0.324 | 12,500 | 1,190 | 0.003 | 0.27 | 10,500 | 830 | 0.002 | 0.216 |
| | | 16 | 9,150 | 800 | 0.002 | 0.134 | 8,650 | 690 | 0.002 | 0.112 | 7,150 | 480 | 0.001 | 0.09 |
| | R0.1 | 3 | 18,000 | 2,450 | 0.036 | 0.54 | 17,000 | 2,100 | 0.03 | 0.45 | 14,500 | 1,450 | 0.018 | 0.36 |
| | | 4 | 18,000 | 2,450 | 0.03 | 0.54 | 17,000 | 2,100 | 0.025 | 0.45 | 14,500 | 1,450 | 0.015 | 0.36 |
| | | 6 | 17,000 | 2,180 | 0.024 | 0.54 | 16,000 | 1,880 | 0.02 | 0.45 | 13,500 | 1,320 | 0.012 | 0.36 |
| | | 8 | 16,000 | 1,880 | 0.016 | 0.458 | 15,500 | 1,650 | 0.013 | 0.382 | 12,500 | 1,130 | 0.008 | 0.306 |
| | | 10 | 14,500 | 1,500 | 0.011 | 0.35 | 13,500 | 1,350 | 0.009 | 0.292 | 11,000 | 950 | 0.005 | 0.234 |
| | | 12 | 13,500 | 1,350 | 0.007 | 0.324 | 12,500 | 1,190 | 0.006 | 0.27 | 10,500 | 830 | 0.004 | 0.216 |
| | | 16 | 9,150 | 800 | 0.004 | 0.134 | 8,650 | 690 | 0.004 | 0.112 | 7,150 | 480 | 0.002 | 0.09 |
| | R0.2 | 3 | 18,000 | 2,450 | 0.072 | 0.54 | 17,000 | 2,100 | 0.06 | 0.45 | 14,500 | 1,450 | 0.036 | 0.36 |
| | | 4 | 18,000 | 2,450 | 0.06 | 0.54 | 17,000 | 2,100 | 0.05 | 0.45 | 14,500 | 1,450 | 0.03 | 0.36 |
| | | 6 | 17,000 | 2,180 | 0.048 | 0.54 | 16,000 | 1,880 | 0.04 | 0.45 | 13,500 | 1,320 | 0.024 | 0.36 |
| | | 8 | 16,000 | 1,880 | 0.031 | 0.458 | 15,500 | 1,650 | 0.026 | 0.382 | 12,500 | 1,130 | 0.016 | 0.306 |
| | | 10 | 14,500 | 1,500 | 0.022 | 0.35 | 13,500 | 1,350 | 0.018 | 0.292 | 11,000 | 950 | 0.011 | 0.234 |
| | | 12 | 13,500 | 1,350 | 0.014 | 0.324 | 12,500 | 1,190 | 0.012 | 0.27 | 10,500 | 830 | 0.007 | 0.216 |
| | | 16 | 9,150 | 800 | 0.008 | 0.134 | 8,650 | 690 | 0.007 | 0.112 | 7,150 | 480 | 0.004 | 0.09 |
| | R0.3 | 3 | 18,000 | 2,450 | 0.108 | 0.54 | 17,000 | 2,100 | 0.09 | 0.45 | 14,500 | 1,450 | 0.054 | 0.36 |
| | | 4 | 18,000 | 2,450 | 0.09 | 0.54 | 17,000 | 2,100 | 0.075 | 0.45 | 14,500 | 1,450 | 0.045 | 0.36 |
| | | 6 | 17,000 | 2,180 | 0.072 | 0.54 | 16,000 | 1,880 | 0.06 | 0.45 | 13,500 | 1,320 | 0.036 | 0.36 |
| | | 8 | 16,000 | 1,880 | 0.047 | 0.458 | 15,500 | 1,650 | 0.039 | 0.382 | 12,500 | 1,130 | 0.023 | 0.306 |
| | | 10 | 14,500 | 1,500 | 0.032 | 0.35 | 13,500 | 1,350 | 0.027 | 0.292 | 11,000 | 950 | 0.016 | 0.234 |
| | | 12 | 13,500 | 1,350 | 0.022 | 0.324 | 12,500 | 1,190 | 0.018 | 0.27 | 10,500 | 830 | 0.011 | 0.216 |
| | | 16 | 9,150 | 800 | 0.012 | 0.134 | 8,650 | 690 | 0.01 | 0.112 | 7,150 | 480 | 0.006 | 0.09 |
| | R0.5 | 3 | 18,000 | 2,450 | 0.18 | 0.54 | 17,000 | 2,100 | 0.15 | 0.45 | 14,500 | 1,450 | 0.09 | 0.36 |
| | | 4 | 18,000 | 2,450 | 0.15 | 0.54 | 17,000 | 2,100 | 0.125 | 0.45 | 14,500 | 1,450 | 0.075 | 0.36 |
| | | 6 | 17,000 | 2,180 | 0.12 | 0.54 | 16,000 | 1,880 | 0.1 | 0.45 | 13,500 | 1,320 | 0.06 | 0.36 |
| | | 8 | 16,000 | 1,880 | 0.078 | 0.458 | 15,500 | 1,650 | 0.065 | 0.382 | 12,500 | 1,130 | 0.039 | 0.306 |
| | | 10 | 14,500 | 1,500 | 0.054 | 0.35 | 13,500 | 1,350 | 0.045 | 0.292 | 11,000 | 950 | 0.027 | 0.234 |
| | | 12 | 13,500 | 1,350 | 0.036 | 0.324 | 12,500 | 1,190 | 0.03 | 0.27 | 10,500 | 830 | 0.018 | 0.216 |
| | | 16 | 9,150 | 800 | 0.02 | 0.134 | 8,650 | 690 | 0.017 | 0.112 | 7,150 | 480 | 0.01 | 0.09 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
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   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
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7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

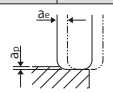
次ページへ
外径 DC 2 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
### 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 1.5

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 2 | R0.05 | 4 | 15,000 | 2,600 | 0.018 | 0.72 | 15,000 | 2,350 | 0.015 | 0.6 | 13,000 | 1,650 | 0.009 | 0.48 |
| | | 6 | 14,000 | 2,500 | 0.015 | 0.72 | 14,000 | 2,180 | 0.013 | 0.6 | 12,000 | 1,600 | 0.008 | 0.48 |
| | | 8 | 13,000 | 2,180 | 0.012 | 0.72 | 13,000 | 1,950 | 0.01 | 0.6 | 11,500 | 1,500 | 0.006 | 0.48 |
| | | 10 | 12,000 | 1,950 | 0.01 | 0.612 | 12,000 | 1,730 | 0.008 | 0.51 | 11,000 | 1,370 | 0.005 | 0.408 |
| | | 12 | 11,500 | 1,730 | 0.006 | 0.504 | 11,500 | 1,580 | 0.005 | 0.42 | 10,000 | 1,220 | 0.003 | 0.336 |
| | | 16 | 10,000 | 1,350 | 0.004 | 0.432 | 10,000 | 1,200 | 0.003 | 0.36 | 8,900 | 950 | 0.002 | 0.288 |
| | | 20 | 9,300 | 1,100 | 0.002 | 0.216 | 9,300 | 980 | 0.002 | 0.18 | 8,250 | 770 | 0.001 | 0.144 |
| | R0.1 | 4 | 15,000 | 2,600 | 0.036 | 0.72 | 15,000 | 2,350 | 0.03 | 0.6 | 13,000 | 1,650 | 0.018 | 0.48 |
| | | 6 | 14,000 | 2,500 | 0.03 | 0.72 | 14,000 | 2,180 | 0.025 | 0.6 | 12,000 | 1,600 | 0.015 | 0.48 |
| | | 8 | 13,000 | 2,180 | 0.024 | 0.72 | 13,000 | 1,950 | 0.02 | 0.6 | 11,500 | 1,500 | 0.012 | 0.48 |
| | | 10 | 12,000 | 1,950 | 0.019 | 0.612 | 12,000 | 1,730 | 0.016 | 0.51 | 11,000 | 1,370 | 0.01 | 0.408 |
| | | 12 | 11,500 | 1,730 | 0.012 | 0.504 | 11,500 | 1,580 | 0.01 | 0.42 | 10,000 | 1,220 | 0.006 | 0.336 |
| | | 16 | 10,000 | 1,350 | 0.007 | 0.432 | 10,000 | 1,200 | 0.006 | 0.36 | 8,900 | 950 | 0.004 | 0.288 |
| | | 20 | 9,300 | 1,100 | 0.005 | 0.216 | 9,300 | 980 | 0.004 | 0.18 | 8,250 | 770 | 0.002 | 0.144 |
| | | 25 | 8,600 | 950 | 0.002 | 0.144 | 8,600 | 840 | 0.002 | 0.12 | 7,650 | 660 | 0.001 | 0.096 |
| | R0.2 | 4 | 15,000 | 2,600 | 0.072 | 0.72 | 15,000 | 2,350 | 0.06 | 0.6 | 13,000 | 1,650 | 0.036 | 0.48 |
| | | 6 | 14,000 | 2,500 | 0.066 | 0.72 | 14,000 | 2,180 | 0.055 | 0.6 | 12,000 | 1,600 | 0.033 | 0.48 |
| | | 8 | 13,000 | 2,180 | 0.048 | 0.72 | 13,000 | 1,950 | 0.04 | 0.6 | 11,500 | 1,500 | 0.024 | 0.48 |
| | | 10 | 12,000 | 1,950 | 0.038 | 0.612 | 12,000 | 1,730 | 0.032 | 0.51 | 11,000 | 1,370 | 0.019 | 0.408 |
| | | 12 | 11,500 | 1,730 | 0.024 | 0.504 | 11,500 | 1,580 | 0.02 | 0.42 | 10,000 | 1,220 | 0.012 | 0.336 |
| | | 16 | 10,000 | 1,350 | 0.014 | 0.432 | 10,000 | 1,200 | 0.012 | 0.36 | 8,900 | 950 | 0.007 | 0.288 |
| | | 20 | 9,300 | 1,100 | 0.01 | 0.216 | 9,300 | 980 | 0.008 | 0.18 | 8,250 | 770 | 0.005 | 0.144 |
| | | 25 | 8,600 | 950 | 0.005 | 0.144 | 8,600 | 840 | 0.004 | 0.12 | 7,650 | 660 | 0.002 | 0.096 |
| | R0.3 | 4 | 15,000 | 2,600 | 0.108 | 0.72 | 15,000 | 2,350 | 0.09 | 0.6 | 13,000 | 1,650 | 0.054 | 0.48 |
| | | 6 | 14,000 | 2,500 | 0.09 | 0.72 | 14,000 | 2,180 | 0.075 | 0.6 | 12,000 | 1,600 | 0.045 | 0.48 |
| | | 8 | 13,000 | 2,180 | 0.072 | 0.72 | 13,000 | 1,950 | 0.06 | 0.6 | 11,500 | 1,500 | 0.036 | 0.48 |
| | | 10 | 12,000 | 1,950 | 0.058 | 0.612 | 12,000 | 1,730 | 0.048 | 0.51 | 11,000 | 1,370 | 0.029 | 0.408 |
| | | 12 | 11,500 | 1,730 | 0.036 | 0.504 | 11,500 | 1,580 | 0.03 | 0.42 | 10,000 | 1,220 | 0.018 | 0.336 |
| | | 16 | 10,000 | 1,350 | 0.022 | 0.432 | 10,000 | 1,200 | 0.018 | 0.36 | 8,900 | 950 | 0.011 | 0.288 |
| | | 20 | 9,300 | 1,100 | 0.014 | 0.216 | 9,300 | 980 | 0.012 | 0.18 | 8,250 | 770 | 0.007 | 0.144 |
| | R0.5 | 4 | 15,000 | 2,600 | 0.15 | 0.72 | 15,000 | 2,350 | 0.125 | 0.6 | 13,000 | 1,650 | 0.075 | 0.48 |
| | | 6 | 14,000 | 2,500 | 0.12 | 0.72 | 14,000 | 2,180 | 0.1 | 0.6 | 12,000 | 1,600 | 0.06 | 0.48 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

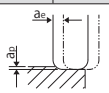
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 2～3 NEXT

# AE-CPR4-H
## 標準切削

REGULAR MILLING

前ページより
FROM 外径 DC 2

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 2 | R0.5 | 8 | 13,000 | 2,180 | 0.09 | 0.72 | 13,000 | 1,950 | 0.075 | 0.6 | 11,500 | 1,500 | 0.045 | 0.48 |
| | | 10 | 12,000 | 1,950 | 0.072 | 0.612 | 12,000 | 1,730 | 0.06 | 0.51 | 11,000 | 1,370 | 0.036 | 0.408 |
| | | 12 | 11,500 | 1,730 | 0.044 | 0.504 | 11,500 | 1,580 | 0.037 | 0.42 | 10,000 | 1,220 | 0.022 | 0.336 |
| | | 16 | 10,000 | 1,350 | 0.026 | 0.432 | 10,000 | 1,200 | 0.022 | 0.36 | 8,900 | 950 | 0.013 | 0.288 |
| | | 20 | 9,300 | 1,100 | 0.018 | 0.216 | 9,300 | 980 | 0.015 | 0.18 | 8,250 | 770 | 0.009 | 0.144 |
| | | 25 | 8,600 | 950 | 0.011 | 0.144 | 8,600 | 840 | 0.009 | 0.12 | 7,650 | 660 | 0.005 | 0.096 |
| 2.5 | R0.1 | 10 | 11,500 | 2,400 | 0.024 | 0.9 | 10,500 | 1,800 | 0.02 | 0.75 | 10,500 | 1,800 | 0.012 | 0.6 |
| | | 20 | 8,900 | 1,500 | 0.012 | 0.54 | 8,000 | 1,110 | 0.01 | 0.45 | 8,000 | 1,110 | 0.006 | 0.36 |
| | | 30 | 7,650 | 1,050 | 0.006 | 0.18 | 6,850 | 780 | 0.005 | 0.15 | 6,850 | 780 | 0.003 | 0.12 |
| | R0.2 | 10 | 11,500 | 2,400 | 0.048 | 0.9 | 10,500 | 1,800 | 0.04 | 0.75 | 10,500 | 1,800 | 0.024 | 0.6 |
| | | 20 | 8,900 | 1,500 | 0.024 | 0.54 | 8,000 | 1,110 | 0.02 | 0.45 | 8,000 | 1,110 | 0.012 | 0.36 |
| | | 30 | 7,650 | 1,050 | 0.012 | 0.18 | 6,850 | 780 | 0.01 | 0.15 | 6,850 | 780 | 0.006 | 0.12 |
| | R0.3 | 10 | 11,500 | 2,400 | 0.072 | 0.9 | 10,500 | 1,800 | 0.06 | 0.75 | 10,500 | 1,800 | 0.036 | 0.6 |
| | | 20 | 8,900 | 1,500 | 0.036 | 0.54 | 8,000 | 1,110 | 0.03 | 0.45 | 8,000 | 1,110 | 0.018 | 0.36 |
| | | 30 | 7,650 | 1,050 | 0.018 | 0.18 | 6,850 | 780 | 0.015 | 0.15 | 6,850 | 780 | 0.009 | 0.12 |
| | R0.5 | 10 | 11,500 | 2,400 | 0.09 | 0.9 | 10,500 | 1,800 | 0.075 | 0.75 | 10,500 | 1,800 | 0.045 | 0.6 |
| | | 20 | 8,900 | 1,500 | 0.044 | 0.54 | 8,000 | 1,110 | 0.037 | 0.45 | 8,000 | 1,110 | 0.022 | 0.36 |
| | | 30 | 7,650 | 1,050 | 0.013 | 0.18 | 6,850 | 780 | 0.011 | 0.15 | 6,850 | 780 | 0.007 | 0.12 |
| 3 | R0.1 | 4 | 10,500 | 2,600 | 0.036 | 1.08 | 9,300 | 2,350 | 0.03 | 0.9 | 8,600 | 1,650 | 0.018 | 0.72 |
| | | 6 | 10,500 | 2,600 | 0.03 | 1.08 | 9,300 | 2,350 | 0.025 | 0.9 | 8,600 | 1,650 | 0.015 | 0.72 |
| | | 8 | 9,550 | 2,250 | 0.024 | 1.08 | 8,600 | 1,730 | 0.02 | 0.9 | 7,650 | 1,250 | 0.012 | 0.72 |
| | | 10 | 9,550 | 2,250 | 0.024 | 1.08 | 8,600 | 1,730 | 0.02 | 0.9 | 7,650 | 1,250 | 0.012 | 0.72 |
| | | 12 | 9,550 | 2,250 | 0.024 | 1.08 | 8,600 | 1,730 | 0.02 | 0.9 | 7,650 | 1,250 | 0.012 | 0.72 |
| | | 16 | 8,500 | 1,800 | 0.017 | 0.864 | 7,650 | 1,370 | 0.014 | 0.72 | 6,800 | 990 | 0.008 | 0.576 |
| | | 20 | 7,400 | 1,490 | 0.011 | 0.734 | 6,700 | 1,130 | 0.009 | 0.612 | 5,950 | 830 | 0.005 | 0.49 |
| | | 25 | 7,100 | 1,250 | 0.007 | 0.648 | 6,400 | 960 | 0.006 | 0.54 | 5,700 | 690 | 0.004 | 0.432 |
| | R0.2 | 4 | 10,500 | 2,600 | 0.072 | 1.08 | 9,300 | 2,350 | 0.06 | 0.9 | 8,600 | 1,650 | 0.036 | 0.72 |
| | | 6 | 10,500 | 2,600 | 0.06 | 1.08 | 9,300 | 2,350 | 0.05 | 0.9 | 8,600 | 1,650 | 0.03 | 0.72 |
| | | 8 | 9,550 | 2,250 | 0.048 | 1.08 | 8,600 | 1,730 | 0.04 | 0.9 | 7,650 | 1,250 | 0.024 | 0.72 |
| | | 10 | 9,550 | 2,250 | 0.048 | 1.08 | 8,600 | 1,730 | 0.04 | 0.9 | 7,650 | 1,250 | 0.024 | 0.72 |
| | | 12 | 9,550 | 2,250 | 0.048 | 1.08 | 8,600 | 1,730 | 0.04 | 0.9 | 7,650 | 1,250 | 0.024 | 0.72 |
| | | 16 | 8,500 | 1,800 | 0.034 | 0.864 | 7,650 | 1,370 | 0.028 | 0.72 | 6,800 | 990 | 0.017 | 0.576 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
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5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
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7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
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7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

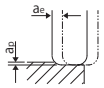
次ページへ
外径 DC 3～4 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
### 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 2〜3

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (〜45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (〜55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (〜66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 3 | R0.2 | 20 | 7,400 | 1,490 | 0.022 | 0.734 | 6,700 | 1,130 | 0.018 | 0.612 | 5,950 | 830 | 0.011 | 0.49 |
| | | 25 | 7,100 | 1,250 | 0.014 | 0.648 | 6,400 | 960 | 0.012 | 0.54 | 5,700 | 690 | 0.007 | 0.432 |
| | | 30 | 6,900 | 1,140 | 0.01 | 0.324 | 6,200 | 870 | 0.008 | 0.27 | 5,500 | 630 | 0.005 | 0.216 |
| | | 35 | 6,350 | 990 | 0.007 | 0.216 | 5,700 | 750 | 0.006 | 0.18 | 5,100 | 560 | 0.004 | 0.144 |
| | R0.3 | 4 | 10,500 | 2,600 | 0.108 | 1.08 | 9,300 | 2,350 | 0.09 | 0.9 | 8,600 | 1,650 | 0.054 | 0.72 |
| | | 6 | 10,500 | 2,600 | 0.09 | 1.08 | 9,300 | 2,350 | 0.075 | 0.9 | 8,600 | 1,650 | 0.045 | 0.72 |
| | | 8 | 9,550 | 2,250 | 0.072 | 1.08 | 8,600 | 1,730 | 0.06 | 0.9 | 7,650 | 1,250 | 0.036 | 0.72 |
| | | 10 | 9,550 | 2,250 | 0.072 | 1.08 | 8,600 | 1,730 | 0.06 | 0.9 | 7,650 | 1,250 | 0.036 | 0.72 |
| | | 12 | 9,550 | 2,250 | 0.072 | 1.08 | 8,600 | 1,730 | 0.06 | 0.9 | 7,650 | 1,250 | 0.036 | 0.72 |
| | | 16 | 8,500 | 1,800 | 0.05 | 0.864 | 7,650 | 1,370 | 0.042 | 0.72 | 6,800 | 990 | 0.025 | 0.576 |
| | | 20 | 7,400 | 1,490 | 0.032 | 0.734 | 6,700 | 1,130 | 0.027 | 0.612 | 5,950 | 830 | 0.016 | 0.49 |
| | | 25 | 7,100 | 1,250 | 0.022 | 0.648 | 6,400 | 960 | 0.018 | 0.54 | 5,700 | 690 | 0.011 | 0.432 |
| | | 30 | 6,900 | 1,140 | 0.014 | 0.324 | 6,200 | 870 | 0.012 | 0.27 | 5,500 | 630 | 0.007 | 0.216 |
| | | 35 | 6,350 | 990 | 0.011 | 0.216 | 5,700 | 750 | 0.009 | 0.18 | 5,100 | 560 | 0.005 | 0.144 |
| | R0.5 | 4 | 10,500 | 2,600 | 0.18 | 1.08 | 9,300 | 2,350 | 0.15 | 0.9 | 8,600 | 1,650 | 0.09 | 0.72 |
| | | 6 | 10,500 | 2,600 | 0.15 | 1.08 | 9,300 | 2,350 | 0.125 | 0.9 | 8,600 | 1,650 | 0.075 | 0.72 |
| | | 8 | 9,550 | 2,250 | 0.12 | 1.08 | 8,600 | 1,730 | 0.1 | 0.9 | 7,650 | 1,250 | 0.06 | 0.72 |
| | | 10 | 9,550 | 2,250 | 0.12 | 1.08 | 8,600 | 1,730 | 0.1 | 0.9 | 7,650 | 1,250 | 0.06 | 0.72 |
| | | 12 | 9,550 | 2,250 | 0.09 | 1.08 | 8,600 | 1,730 | 0.075 | 0.9 | 7,650 | 1,250 | 0.045 | 0.72 |
| | | 16 | 8,500 | 1,800 | 0.062 | 0.864 | 7,650 | 1,370 | 0.052 | 0.72 | 6,800 | 990 | 0.031 | 0.576 |
| | | 20 | 7,400 | 1,490 | 0.04 | 0.734 | 6,700 | 1,130 | 0.033 | 0.612 | 5,950 | 830 | 0.02 | 0.49 |
| | | 25 | 7,100 | 1,250 | 0.026 | 0.648 | 6,400 | 960 | 0.022 | 0.54 | 5,700 | 690 | 0.013 | 0.432 |
| | | 30 | 6,900 | 1,140 | 0.018 | 0.324 | 6,200 | 870 | 0.015 | 0.27 | 5,500 | 630 | 0.009 | 0.216 |
| | | 35 | 6,350 | 990 | 0.013 | 0.216 | 5,700 | 750 | 0.011 | 0.18 | 5,100 | 560 | 0.007 | 0.144 |
| 4 | R0.1 | 8 | 8,650 | 2,550 | 0.03 | 1.44 | 7,800 | 1,920 | 0.025 | 1.2 | 6,100 | 1,200 | 0.015 | 0.96 |
| | | 12 | 8,650 | 2,550 | 0.027 | 1.44 | 7,800 | 1,920 | 0.023 | 1.2 | 6,100 | 1,200 | 0.014 | 0.96 |
| | | 16 | 7,150 | 2,050 | 0.024 | 1.44 | 6,450 | 1,550 | 0.02 | 1.2 | 5,000 | 970 | 0.012 | 0.96 |
| | | 20 | 6,750 | 1,950 | 0.019 | 1.224 | 6,100 | 1,450 | 0.016 | 1.02 | 4,750 | 910 | 0.01 | 0.816 |
| | | 25 | 5,950 | 1,700 | 0.012 | 0.979 | 5,350 | 1,300 | 0.01 | 0.816 | 4,150 | 800 | 0.006 | 0.653 |
| | | 30 | 5,550 | 1,600 | 0.008 | 0.893 | 5,000 | 1,200 | 0.007 | 0.744 | 3,900 | 750 | 0.004 | 0.595 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

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4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
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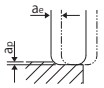
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7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 4 NEXT

# AE-CPR4-H
## 標準切削

REGULAR MILLING

前ページより
FROM 外径 DC 3～4

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 4 | R0.2 | 8 | 8,650 | 2,550 | 0.06 | 1.44 | 7,800 | 1,920 | 0.05 | 1.2 | 6,100 | 1,200 | 0.03 | 0.96 |
| | | 12 | 8,650 | 2,550 | 0.054 | 1.44 | 7,800 | 1,920 | 0.045 | 1.2 | 6,100 | 1,200 | 0.027 | 0.96 |
| | | 16 | 7,150 | 2,050 | 0.048 | 1.44 | 6,450 | 1,550 | 0.04 | 1.2 | 5,000 | 970 | 0.024 | 0.96 |
| | | 20 | 6,750 | 1,950 | 0.038 | 1.224 | 6,100 | 1,450 | 0.032 | 1.02 | 4,750 | 910 | 0.019 | 0.816 |
| | | 25 | 5,950 | 1,700 | 0.024 | 0.979 | 5,350 | 1,300 | 0.02 | 0.816 | 4,150 | 800 | 0.012 | 0.653 |
| | | 30 | 5,550 | 1,600 | 0.017 | 0.893 | 5,000 | 1,200 | 0.014 | 0.744 | 3,900 | 750 | 0.008 | 0.595 |
| | | 40 | 5,150 | 1,500 | 0.01 | 0.432 | 4,650 | 1,100 | 0.008 | 0.36 | 3,600 | 700 | 0.005 | 0.288 |
| | R0.3 | 8 | 8,650 | 2,550 | 0.09 | 1.44 | 7,800 | 1,920 | 0.075 | 1.2 | 6,100 | 1,200 | 0.045 | 0.96 |
| | | 12 | 8,650 | 2,550 | 0.08 | 1.44 | 7,800 | 1,920 | 0.067 | 1.2 | 6,100 | 1,200 | 0.04 | 0.96 |
| | | 16 | 7,150 | 2,050 | 0.072 | 1.44 | 6,450 | 1,550 | 0.06 | 1.2 | 5,000 | 970 | 0.036 | 0.96 |
| | | 20 | 6,750 | 1,950 | 0.058 | 1.224 | 6,100 | 1,450 | 0.048 | 1.02 | 4,750 | 910 | 0.029 | 0.816 |
| | | 25 | 5,950 | 1,700 | 0.036 | 0.979 | 5,350 | 1,300 | 0.03 | 0.816 | 4,150 | 800 | 0.018 | 0.653 |
| | | 30 | 5,550 | 1,600 | 0.025 | 0.893 | 5,000 | 1,200 | 0.021 | 0.744 | 3,900 | 750 | 0.013 | 0.595 |
| | | 40 | 5,150 | 1,500 | 0.014 | 0.432 | 4,650 | 1,100 | 0.012 | 0.36 | 3,600 | 700 | 0.007 | 0.288 |
| | R0.5 | 8 | 8,650 | 2,550 | 0.12 | 1.44 | 7,800 | 1,920 | 0.1 | 1.2 | 6,100 | 1,200 | 0.06 | 0.96 |
| | | 12 | 8,650 | 2,550 | 0.106 | 1.44 | 7,800 | 1,920 | 0.088 | 1.2 | 6,100 | 1,200 | 0.053 | 0.96 |
| | | 16 | 7,150 | 2,050 | 0.09 | 1.44 | 6,450 | 1,550 | 0.075 | 1.2 | 5,000 | 970 | 0.045 | 0.96 |
| | | 20 | 6,750 | 1,950 | 0.072 | 1.224 | 6,100 | 1,450 | 0.06 | 1.02 | 4,750 | 910 | 0.036 | 0.816 |
| | | 25 | 5,950 | 1,700 | 0.044 | 0.979 | 5,350 | 1,300 | 0.037 | 0.816 | 4,150 | 800 | 0.022 | 0.653 |
| | | 30 | 5,550 | 1,600 | 0.031 | 0.893 | 5,000 | 1,200 | 0.026 | 0.744 | 3,900 | 750 | 0.016 | 0.595 |
| | | 40 | 5,150 | 1,500 | 0.018 | 0.432 | 4,650 | 1,100 | 0.015 | 0.36 | 3,600 | 700 | 0.009 | 0.288 |
| | | 50 | 4,550 | 1,300 | 0.011 | 0.259 | 4,100 | 980 | 0.009 | 0.216 | 3,150 | 610 | 0.005 | 0.173 |
| | R1 | 8 | 8,650 | 2,550 | 0.24 | 1.44 | 7,800 | 1,920 | 0.2 | 1.2 | 6,100 | 1,200 | 0.12 | 0.96 |
| | | 12 | 8,650 | 2,550 | 0.21 | 1.44 | 7,800 | 1,920 | 0.175 | 1.2 | 6,100 | 1,200 | 0.105 | 0.96 |
| | | 16 | 7,150 | 2,050 | 0.144 | 1.44 | 6,450 | 1,550 | 0.12 | 1.2 | 5,000 | 970 | 0.072 | 0.96 |
| | | 20 | 6,750 | 1,950 | 0.12 | 1.224 | 6,100 | 1,450 | 0.1 | 1.02 | 4,750 | 910 | 0.06 | 0.816 |
| | | 25 | 5,950 | 1,700 | 0.072 | 0.979 | 5,350 | 1,300 | 0.06 | 0.816 | 4,150 | 800 | 0.036 | 0.653 |
| | | 30 | 5,550 | 1,600 | 0.048 | 0.893 | 5,000 | 1,200 | 0.04 | 0.744 | 3,900 | 750 | 0.024 | 0.595 |
| | | 40 | 5,150 | 1,500 | 0.029 | 0.432 | 4,650 | 1,100 | 0.024 | 0.36 | 3,600 | 700 | 0.014 | 0.288 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of $\phi$ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

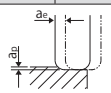
次ページへ
外径 DC 6 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
## 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 4

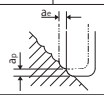
| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 6 | R0.1 | 12 | 7,200 | 2,900 | 0.024 | 2.16 | 6,500 | 2,150 | 0.02 | 1.8 | 5,050 | 1,400 | 0.012 | 1.44 |
| | | 18 | 6,100 | 2,400 | 0.019 | 1.8 | 5,500 | 1,800 | 0.016 | 1.5 | 4,250 | 1,150 | 0.01 | 1.2 |
| | | 24 | 5,550 | 2,000 | 0.01 | 1.62 | 5,000 | 1,500 | 0.008 | 1.35 | 3,850 | 950 | 0.005 | 1.08 |
| | | 30 | 4,800 | 1,750 | 0.007 | 1.44 | 4,300 | 1,300 | 0.006 | 1.2 | 3,350 | 850 | 0.004 | 0.96 |
| | | 48 | 2,800 | 1,000 | 0.005 | 0.6 | 2,500 | 750 | 0.004 | 0.5 | 1,950 | 500 | 0.002 | 0.4 |
| | R0.2 | 12 | 7,200 | 2,900 | 0.048 | 2.16 | 6,500 | 2,150 | 0.04 | 1.8 | 5,050 | 1,400 | 0.024 | 1.44 |
| | | 18 | 6,100 | 2,400 | 0.038 | 1.8 | 5,500 | 1,800 | 0.032 | 1.5 | 4,250 | 1,150 | 0.019 | 1.2 |
| | | 24 | 5,550 | 2,000 | 0.019 | 1.62 | 5,000 | 1,500 | 0.016 | 1.35 | 3,850 | 950 | 0.01 | 1.08 |
| | | 30 | 4,800 | 1,750 | 0.014 | 1.44 | 4,300 | 1,300 | 0.012 | 1.2 | 3,350 | 850 | 0.007 | 0.96 |
| | | 48 | 2,800 | 1,000 | 0.01 | 0.6 | 2,500 | 750 | 0.008 | 0.5 | 1,950 | 500 | 0.005 | 0.4 |
| | R0.3 | 12 | 7,200 | 2,900 | 0.072 | 2.16 | 6,500 | 2,150 | 0.06 | 1.8 | 5,050 | 1,400 | 0.036 | 1.44 |
| | | 18 | 6,100 | 2,400 | 0.058 | 1.8 | 5,500 | 1,800 | 0.048 | 1.5 | 4,250 | 1,150 | 0.029 | 1.2 |
| | | 24 | 5,550 | 2,000 | 0.029 | 1.62 | 5,000 | 1,500 | 0.024 | 1.35 | 3,850 | 950 | 0.014 | 1.08 |
| | | 30 | 4,800 | 1,750 | 0.022 | 1.44 | 4,300 | 1,300 | 0.018 | 1.2 | 3,350 | 850 | 0.011 | 0.96 |
| | | 48 | 2,800 | 1,000 | 0.014 | 0.6 | 2,500 | 750 | 0.012 | 0.5 | 1,950 | 500 | 0.007 | 0.4 |
| | R0.5 | 12 | 7,200 | 2,900 | 0.12 | 2.16 | 6,500 | 2,150 | 0.1 | 1.8 | 5,050 | 1,400 | 0.06 | 1.44 |
| | | 18 | 6,100 | 2,400 | 0.096 | 1.8 | 5,500 | 1,800 | 0.08 | 1.5 | 4,250 | 1,150 | 0.048 | 1.2 |
| | | 24 | 5,550 | 2,000 | 0.048 | 1.62 | 5,000 | 1,500 | 0.04 | 1.35 | 3,850 | 950 | 0.024 | 1.08 |
| | | 30 | 4,800 | 1,750 | 0.036 | 1.44 | 4,300 | 1,300 | 0.03 | 1.2 | 3,350 | 850 | 0.018 | 0.96 |
| | | 48 | 2,800 | 1,000 | 0.24 | 0.6 | 2,500 | 750 | 0.2 | 0.5 | 1,950 | 500 | 0.12 | 0.4 |
| | R1 | 12 | 7,200 | 2,900 | 0.24 | 2.16 | 6,500 | 2,150 | 0.2 | 1.8 | 5,050 | 1,400 | 0.12 | 1.44 |
| | | 18 | 6,100 | 2,400 | 0.192 | 1.8 | 5,500 | 1,800 | 0.16 | 1.5 | 4,250 | 1,150 | 0.096 | 1.2 |
| | | 24 | 5,550 | 2,000 | 0.096 | 1.62 | 5,000 | 1,500 | 0.08 | 1.35 | 3,850 | 950 | 0.048 | 1.08 |
| | | 30 | 4,800 | 1,750 | 0.072 | 1.44 | 4,300 | 1,300 | 0.06 | 1.2 | 3,350 | 850 | 0.036 | 0.96 |
| | | 48 | 2,800 | 1,000 | 0.48 | 0.6 | 2,500 | 750 | 0.4 | 0.5 | 1,950 | 500 | 0.24 | 0.4 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

# AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.2 | R0.02 | 0.5 | 50,000 | 700 | 0.006 | 0.007 | 43,000 | 550 | 0.005 | 0.006 | 43,000 | 520 | 0.003 | 0.005 |
| | | 1 | 47,500 | 680 | 0.006 | 0.007 | 40,500 | 520 | 0.005 | 0.006 | 40,500 | 490 | 0.003 | 0.005 |
| | | 1.5 | 45,000 | 540 | 0.005 | 0.006 | 38,000 | 420 | 0.004 | 0.005 | 38,000 | 400 | 0.002 | 0.004 |
| | | 2 | 42,000 | 300 | 0.004 | 0.006 | 35,500 | 230 | 0.003 | 0.005 | 35,500 | 220 | 0.002 | 0.004 |
| | R0.05 | 0.5 | 50,000 | 700 | 0.006 | 0.007 | 43,000 | 550 | 0.005 | 0.006 | 43,000 | 520 | 0.003 | 0.005 |
| | | 1 | 47,500 | 680 | 0.006 | 0.007 | 40,500 | 520 | 0.005 | 0.006 | 40,500 | 490 | 0.003 | 0.005 |
| | | 1.5 | 45,000 | 540 | 0.005 | 0.006 | 38,000 | 420 | 0.004 | 0.005 | 38,000 | 400 | 0.002 | 0.004 |
| | | 2 | 42,000 | 300 | 0.004 | 0.006 | 35,500 | 230 | 0.003 | 0.005 | 35,500 | 220 | 0.002 | 0.004 |
| 0.3 | R0.02 | 1 | 43,000 | 850 | 0.006 | 0.011 | 38,000 | 690 | 0.005 | 0.009 | 33,500 | 530 | 0.003 | 0.007 |
| | | 1.5 | 40,000 | 740 | 0.006 | 0.011 | 35,000 | 590 | 0.005 | 0.009 | 30,500 | 440 | 0.003 | 0.007 |
| | | 2 | 36,000 | 610 | 0.005 | 0.01 | 32,000 | 500 | 0.004 | 0.008 | 28,000 | 370 | 0.002 | 0.006 |
| | | 2.5 | 32,000 | 480 | 0.004 | 0.01 | 28,000 | 380 | 0.003 | 0.008 | 24,500 | 290 | 0.002 | 0.006 |
| | | 3 | 28,000 | 220 | 0.002 | 0.008 | 24,500 | 180 | 0.002 | 0.007 | 21,500 | 130 | 0.001 | 0.006 |
| | R0.05 | 1 | 43,000 | 850 | 0.006 | 0.011 | 38,000 | 690 | 0.005 | 0.009 | 33,500 | 530 | 0.003 | 0.007 |
| | | 1.5 | 40,000 | 740 | 0.006 | 0.011 | 35,000 | 590 | 0.005 | 0.009 | 30,500 | 440 | 0.003 | 0.007 |
| | | 2 | 36,000 | 610 | 0.005 | 0.01 | 32,000 | 500 | 0.004 | 0.008 | 28,000 | 370 | 0.002 | 0.006 |
| | | 2.5 | 32,000 | 480 | 0.004 | 0.01 | 28,000 | 380 | 0.003 | 0.008 | 24,500 | 290 | 0.002 | 0.006 |
| | | 3 | 28,000 | 220 | 0.002 | 0.008 | 24,500 | 180 | 0.002 | 0.007 | 21,500 | 130 | 0.001 | 0.006 |
| 0.4 | R0.02 | 1 | 39,500 | 1,510 | 0.007 | 0.014 | 32,000 | 1,170 | 0.006 | 0.012 | 28,500 | 820 | 0.004 | 0.01 |
| | | 1.5 | 39,500 | 1,510 | 0.007 | 0.014 | 32,000 | 1,170 | 0.006 | 0.012 | 28,500 | 820 | 0.004 | 0.01 |
| | | 2 | 37,000 | 1,370 | 0.007 | 0.014 | 30,500 | 1,050 | 0.006 | 0.012 | 27,000 | 750 | 0.004 | 0.01 |
| | | 2.5 | 33,500 | 1,130 | 0.006 | 0.012 | 27,500 | 870 | 0.005 | 0.01 | 24,500 | 620 | 0.003 | 0.008 |
| | | 3 | 30,500 | 950 | 0.005 | 0.01 | 25,000 | 720 | 0.004 | 0.008 | 22,500 | 510 | 0.002 | 0.006 |
| | | 4 | 28,500 | 760 | 0.002 | 0.007 | 23,500 | 590 | 0.002 | 0.006 | 20,500 | 420 | 0.001 | 0.005 |
| | R0.05 | 1 | 39,500 | 1,510 | 0.007 | 0.014 | 32,000 | 1,170 | 0.006 | 0.012 | 28,500 | 820 | 0.004 | 0.01 |
| | | 1.5 | 39,500 | 1,510 | 0.007 | 0.014 | 32,000 | 1,170 | 0.006 | 0.012 | 28,500 | 820 | 0.004 | 0.01 |
| | | 2 | 37,000 | 1,370 | 0.007 | 0.014 | 30,500 | 1,050 | 0.006 | 0.012 | 27,000 | 750 | 0.004 | 0.01 |
| | | 2.5 | 33,500 | 1,130 | 0.006 | 0.012 | 27,500 | 870 | 0.005 | 0.01 | 24,500 | 620 | 0.003 | 0.008 |
| | | 3 | 30,500 | 950 | 0.005 | 0.01 | 25,000 | 720 | 0.004 | 0.008 | 22,500 | 510 | 0.002 | 0.006 |
| | | 4 | 28,500 | 760 | 0.002 | 0.007 | 23,500 | 590 | 0.002 | 0.006 | 20,500 | 420 | 0.001 | 0.005 |
| | R0.1 | 1 | 39,500 | 1,510 | 0.012 | 0.014 | 32,000 | 1,170 | 0.01 | 0.012 | 28,500 | 820 | 0.006 | 0.01 |
| | | 2 | 37,000 | 1,370 | 0.012 | 0.014 | 30,500 | 1,050 | 0.01 | 0.012 | 27,000 | 750 | 0.006 | 0.01 |
| | | 3 | 30,500 | 950 | 0.008 | 0.01 | 25,000 | 720 | 0.007 | 0.008 | 22,500 | 510 | 0.004 | 0.006 |
| | | 4 | 28,500 | 760 | 0.005 | 0.007 | 23,500 | 590 | 0.004 | 0.006 | 20,500 | 420 | 0.002 | 0.005 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

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外径 DC 0.5～0.7 NEXT

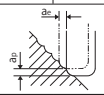
形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 0.2～0.4

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.5 | R0.02 | 1 | 34,500 | 1,460 | 0.007 | 0.018 | 28,500 | 1,170 | 0.006 | 0.015 | 24,000 | 870 | 0.004 | 0.012 |
| | | 2 | 34,500 | 1,460 | 0.007 | 0.018 | 28,500 | 1,170 | 0.006 | 0.015 | 24,000 | 870 | 0.004 | 0.012 |
| | | 3 | 32,500 | 1,230 | 0.007 | 0.016 | 27,000 | 990 | 0.006 | 0.013 | 22,500 | 740 | 0.004 | 0.01 |
| | | 4 | 26,500 | 900 | 0.004 | 0.012 | 22,500 | 720 | 0.003 | 0.01 | 18,500 | 540 | 0.002 | 0.008 |
| | | 5 | 25,000 | 740 | 0.002 | 0.008 | 20,500 | 590 | 0.002 | 0.007 | 17,500 | 440 | 0.001 | 0.006 |
| | | 6 | 23,000 | 650 | 0.001 | 0.007 | 19,000 | 510 | 0.001 | 0.006 | 16,000 | 390 | 0.001 | 0.005 |
| | R0.05 | 1 | 34,500 | 1,460 | 0.007 | 0.018 | 28,500 | 1,170 | 0.006 | 0.015 | 24,000 | 870 | 0.004 | 0.012 |
| | | 2 | 34,500 | 1,460 | 0.007 | 0.018 | 28,500 | 1,170 | 0.006 | 0.015 | 24,000 | 870 | 0.004 | 0.012 |
| | | 3 | 32,500 | 1,230 | 0.007 | 0.016 | 27,000 | 990 | 0.006 | 0.013 | 22,500 | 740 | 0.004 | 0.01 |
| | | 4 | 26,500 | 900 | 0.004 | 0.012 | 22,500 | 720 | 0.003 | 0.01 | 18,500 | 540 | 0.002 | 0.008 |
| | | 5 | 25,000 | 740 | 0.002 | 0.008 | 20,500 | 590 | 0.002 | 0.007 | 17,500 | 440 | 0.001 | 0.006 |
| | | 6 | 23,000 | 650 | 0.001 | 0.007 | 19,000 | 510 | 0.001 | 0.006 | 16,000 | 390 | 0.001 | 0.005 |
| | R0.1 | 1 | 34,500 | 1,460 | 0.012 | 0.018 | 28,500 | 1,170 | 0.01 | 0.015 | 24,000 | 870 | 0.006 | 0.012 |
| | | 2 | 34,500 | 1,460 | 0.012 | 0.018 | 28,500 | 1,170 | 0.01 | 0.015 | 24,000 | 870 | 0.006 | 0.012 |
| | | 3 | 32,500 | 1,230 | 0.012 | 0.016 | 27,000 | 990 | 0.01 | 0.013 | 22,500 | 740 | 0.006 | 0.01 |
| | | 4 | 26,500 | 900 | 0.007 | 0.012 | 22,500 | 720 | 0.006 | 0.01 | 18,500 | 540 | 0.004 | 0.008 |
| | | 5 | 25,000 | 740 | 0.005 | 0.008 | 20,500 | 590 | 0.004 | 0.007 | 17,500 | 440 | 0.002 | 0.006 |
| | | 6 | 23,000 | 650 | 0.004 | 0.007 | 19,000 | 510 | 0.003 | 0.006 | 16,000 | 390 | 0.002 | 0.005 |
| 0.6 | R0.05 | 1 | 31,000 | 1,580 | 0.007 | 0.022 | 26,500 | 1,280 | 0.006 | 0.018 | 24,000 | 1,040 | 0.004 | 0.014 |
| | | 2 | 31,000 | 1,580 | 0.007 | 0.022 | 26,500 | 1,280 | 0.006 | 0.018 | 24,000 | 1,040 | 0.004 | 0.014 |
| | | 4 | 26,000 | 1,110 | 0.006 | 0.014 | 22,000 | 900 | 0.005 | 0.012 | 20,000 | 740 | 0.003 | 0.01 |
| | | 6 | 22,500 | 800 | 0.002 | 0.011 | 19,000 | 650 | 0.002 | 0.009 | 17,000 | 530 | 0.001 | 0.007 |
| | R0.1 | 1 | 31,000 | 1,580 | 0.014 | 0.022 | 26,500 | 1,280 | 0.012 | 0.018 | 24,000 | 1,040 | 0.007 | 0.014 |
| | | 2 | 31,000 | 1,580 | 0.014 | 0.022 | 26,500 | 1,280 | 0.012 | 0.018 | 24,000 | 1,040 | 0.007 | 0.014 |
| | | 4 | 26,000 | 1,110 | 0.011 | 0.014 | 22,000 | 900 | 0.009 | 0.012 | 20,000 | 740 | 0.005 | 0.01 |
| | | 6 | 22,500 | 800 | 0.005 | 0.011 | 19,000 | 650 | 0.004 | 0.009 | 17,000 | 530 | 0.002 | 0.007 |
| 0.7 | R0.02 | 1.5 | 30,000 | 1,800 | 0.007 | 0.026 | 26,000 | 1,560 | 0.006 | 0.022 | 24,000 | 1,220 | 0.004 | 0.018 |
| | | 2 | 30,000 | 1,800 | 0.007 | 0.026 | 26,000 | 1,560 | 0.006 | 0.022 | 24,000 | 1,220 | 0.004 | 0.018 |
| | | 4 | 27,000 | 1,420 | 0.005 | 0.019 | 23,500 | 1,210 | 0.004 | 0.016 | 21,500 | 940 | 0.002 | 0.013 |
| | | 6 | 22,500 | 980 | 0.002 | 0.012 | 19,500 | 830 | 0.002 | 0.01 | 18,000 | 650 | 0.001 | 0.008 |
| | R0.05 | 1.5 | 30,000 | 1,800 | 0.007 | 0.026 | 26,000 | 1,560 | 0.006 | 0.022 | 24,000 | 1,220 | 0.004 | 0.018 |
| | | 2 | 30,000 | 1,800 | 0.007 | 0.026 | 26,000 | 1,560 | 0.006 | 0.022 | 24,000 | 1,220 | 0.004 | 0.018 |
| | | 4 | 27,000 | 1,420 | 0.005 | 0.019 | 23,500 | 1,210 | 0.004 | 0.016 | 21,500 | 940 | 0.002 | 0.013 |
| | | 6 | 22,500 | 980 | 0.002 | 0.012 | 19,500 | 830 | 0.002 | 0.01 | 18,000 | 650 | 0.001 | 0.008 |
| | R0.1 | 2 | 30,000 | 1,800 | 0.018 | 0.026 | 26,000 | 1,560 | 0.015 | 0.022 | 24,000 | 1,220 | 0.009 | 0.018 |
| | | 4 | 27,000 | 1,420 | 0.014 | 0.019 | 23,500 | 1,210 | 0.012 | 0.016 | 21,500 | 940 | 0.007 | 0.013 |
| | | 6 | 22,500 | 980 | 0.011 | 0.012 | 19,500 | 830 | 0.009 | 0.01 | 18,000 | 650 | 0.005 | 0.008 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

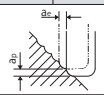
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 0.8～1 NEXT

# AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 0.5～0.7

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 0.8 | R0.05 | 2 | 31,000 | 2,200 | 0.012 | 0.024 | 27,500 | 1,880 | 0.01 | 0.02 | 25,500 | 1,400 | 0.006 | 0.016 |
| | | 4 | 29,000 | 1,800 | 0.01 | 0.024 | 25,500 | 1,580 | 0.008 | 0.02 | 23,500 | 1,190 | 0.005 | 0.016 |
| | | 6 | 23,500 | 1,280 | 0.007 | 0.017 | 21,000 | 1,080 | 0.006 | 0.014 | 19,500 | 830 | 0.004 | 0.011 |
| | R0.1 | 2 | 31,000 | 2,200 | 0.022 | 0.024 | 27,500 | 1,880 | 0.018 | 0.02 | 25,500 | 1,400 | 0.011 | 0.016 |
| | | 4 | 29,000 | 1,800 | 0.018 | 0.024 | 25,500 | 1,580 | 0.015 | 0.02 | 23,500 | 1,190 | 0.009 | 0.016 |
| | | 6 | 23,500 | 1,280 | 0.014 | 0.017 | 21,000 | 1,080 | 0.012 | 0.014 | 19,500 | 830 | 0.007 | 0.011 |
| | R0.2 | 2 | 31,000 | 2,200 | 0.029 | 0.024 | 27,500 | 1,880 | 0.024 | 0.02 | 25,500 | 1,400 | 0.014 | 0.016 |
| | | 4 | 29,000 | 1,800 | 0.024 | 0.024 | 25,500 | 1,580 | 0.02 | 0.02 | 23,500 | 1,190 | 0.012 | 0.016 |
| | | 6 | 23,500 | 1,280 | 0.019 | 0.017 | 21,000 | 1,080 | 0.016 | 0.014 | 19,500 | 830 | 0.01 | 0.011 |
| | | 8 | 22,000 | 1,040 | 0.01 | 0.012 | 19,500 | 890 | 0.008 | 0.01 | 18,000 | 680 | 0.005 | 0.008 |
| 0.9 | R0.1 | 4 | 28,000 | 2,020 | 0.018 | 0.03 | 25,000 | 1,690 | 0.015 | 0.025 | 23,000 | 1,330 | 0.009 | 0.02 |
| | | 8 | 21,500 | 1,360 | 0.011 | 0.024 | 19,000 | 1,140 | 0.009 | 0.02 | 17,500 | 890 | 0.005 | 0.016 |
| 1 | R0.02 | 2 | 29,500 | 2,520 | 0.01 | 0.036 | 26,500 | 2,120 | 0.008 | 0.03 | 24,500 | 1,700 | 0.005 | 0.024 |
| | | 3 | 27,000 | 2,250 | 0.01 | 0.036 | 24,500 | 1,880 | 0.008 | 0.03 | 22,500 | 1,500 | 0.005 | 0.024 |
| | | 4 | 27,000 | 2,250 | 0.007 | 0.036 | 24,500 | 1,880 | 0.006 | 0.03 | 22,500 | 1,500 | 0.004 | 0.024 |
| | | 6 | 24,000 | 1,800 | 0.007 | 0.032 | 21,500 | 1,500 | 0.006 | 0.027 | 20,000 | 1,200 | 0.004 | 0.022 |
| | | 8 | 21,000 | 1,430 | 0.004 | 0.025 | 19,000 | 1,190 | 0.003 | 0.021 | 17,500 | 930 | 0.002 | 0.017 |
| | | 10 | 19,500 | 1,160 | 0.004 | 0.018 | 17,500 | 960 | 0.003 | 0.015 | 16,500 | 770 | 0.002 | 0.012 |
| | R0.05 | 2 | 29,500 | 2,520 | 0.01 | 0.036 | 26,500 | 2,120 | 0.008 | 0.03 | 24,500 | 1,700 | 0.005 | 0.024 |
| | | 3 | 27,000 | 2,250 | 0.01 | 0.036 | 24,500 | 1,880 | 0.008 | 0.03 | 22,500 | 1,500 | 0.005 | 0.024 |
| | | 4 | 27,000 | 2,250 | 0.007 | 0.036 | 24,500 | 1,880 | 0.006 | 0.03 | 22,500 | 1,500 | 0.004 | 0.024 |
| | | 6 | 24,000 | 1,800 | 0.007 | 0.032 | 21,500 | 1,500 | 0.006 | 0.027 | 20,000 | 1,200 | 0.004 | 0.022 |
| | | 8 | 21,000 | 1,430 | 0.004 | 0.025 | 19,000 | 1,190 | 0.003 | 0.021 | 17,500 | 930 | 0.002 | 0.017 |
| | | 10 | 19,500 | 1,160 | 0.004 | 0.018 | 17,500 | 960 | 0.003 | 0.015 | 16,500 | 770 | 0.002 | 0.012 |
| | | 12 | 18,000 | 1,010 | 0.004 | 0.016 | 16,000 | 840 | 0.003 | 0.013 | 15,000 | 660 | 0.002 | 0.01 |
| | R0.1 | 2 | 29,500 | 2,520 | 0.024 | 0.036 | 26,500 | 2,120 | 0.02 | 0.03 | 24,500 | 1,700 | 0.012 | 0.024 |
| | | 3 | 27,000 | 2,250 | 0.024 | 0.036 | 24,500 | 1,880 | 0.02 | 0.03 | 22,500 | 1,500 | 0.012 | 0.024 |
| | | 4 | 27,000 | 2,250 | 0.018 | 0.036 | 24,500 | 1,880 | 0.015 | 0.03 | 22,500 | 1,500 | 0.009 | 0.024 |
| | | 6 | 24,000 | 1,800 | 0.018 | 0.032 | 21,500 | 1,500 | 0.015 | 0.027 | 20,000 | 1,200 | 0.009 | 0.022 |
| | | 8 | 21,000 | 1,430 | 0.011 | 0.025 | 19,000 | 1,190 | 0.009 | 0.021 | 17,500 | 930 | 0.005 | 0.017 |
| | | 10 | 19,500 | 1,160 | 0.007 | 0.018 | 17,500 | 960 | 0.006 | 0.015 | 16,500 | 770 | 0.004 | 0.012 |
| | | 12 | 18,000 | 1,010 | 0.005 | 0.016 | 16,000 | 840 | 0.004 | 0.013 | 15,000 | 660 | 0.002 | 0.01 |
| | | 16 | 14,500 | 710 | 0.004 | 0.012 | 13,000 | 590 | 0.003 | 0.01 | 12,000 | 480 | 0.002 | 0.008 |
| | | 20 | 12,000 | 510 | 0.002 | 0.011 | 11,000 | 420 | 0.002 | 0.009 | 10,000 | 340 | 0.001 | 0.007 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

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外径 DC 1～1.2 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 0.8～1

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1 | R0.2 | 2 | 29,500 | 2,520 | 0.036 | 0.036 | 26,500 | 2,120 | 0.03 | 0.03 | 24,500 | 1,700 | 0.018 | 0.024 |
| | | 3 | 27,000 | 2,250 | 0.036 | 0.036 | 24,500 | 1,880 | 0.03 | 0.03 | 22,500 | 1,500 | 0.018 | 0.024 |
| | | 4 | 27,000 | 2,250 | 0.024 | 0.036 | 24,500 | 1,880 | 0.02 | 0.03 | 22,500 | 1,500 | 0.012 | 0.024 |
| | | 6 | 24,000 | 1,800 | 0.024 | 0.032 | 21,500 | 1,500 | 0.02 | 0.027 | 20,000 | 1,200 | 0.012 | 0.022 |
| | | 8 | 21,000 | 1,430 | 0.014 | 0.025 | 19,000 | 1,190 | 0.012 | 0.021 | 17,500 | 930 | 0.007 | 0.017 |
| | | 10 | 19,500 | 1,160 | 0.01 | 0.018 | 17,500 | 960 | 0.008 | 0.015 | 16,500 | 770 | 0.005 | 0.012 |
| | | 12 | 18,000 | 1,010 | 0.007 | 0.016 | 16,000 | 840 | 0.006 | 0.013 | 15,000 | 660 | 0.004 | 0.01 |
| | | 16 | 14,500 | 710 | 0.005 | 0.012 | 13,000 | 590 | 0.004 | 0.01 | 12,000 | 470 | 0.002 | 0.008 |
| | | 20 | 12,000 | 510 | 0.004 | 0.011 | 11,000 | 420 | 0.003 | 0.009 | 10,000 | 330 | 0.002 | 0.007 |
| | R0.3 | 2 | 29,500 | 2,520 | 0.043 | 0.036 | 26,500 | 2,120 | 0.036 | 0.03 | 24,500 | 1,700 | 0.022 | 0.024 |
| | | 3 | 27,000 | 2,250 | 0.043 | 0.036 | 24,500 | 1,880 | 0.036 | 0.03 | 22,500 | 1,500 | 0.022 | 0.024 |
| | | 4 | 27,000 | 2,250 | 0.036 | 0.036 | 24,500 | 1,880 | 0.03 | 0.03 | 22,500 | 1,500 | 0.018 | 0.024 |
| | | 6 | 24,000 | 1,800 | 0.036 | 0.032 | 21,500 | 1,500 | 0.03 | 0.027 | 20,000 | 1,200 | 0.018 | 0.022 |
| | | 8 | 21,000 | 1,430 | 0.022 | 0.025 | 19,000 | 1,190 | 0.018 | 0.021 | 17,500 | 930 | 0.011 | 0.017 |
| | | 10 | 19,500 | 1,160 | 0.014 | 0.018 | 17,500 | 960 | 0.012 | 0.015 | 16,500 | 770 | 0.007 | 0.012 |
| | | 12 | 18,000 | 1,010 | 0.011 | 0.016 | 16,000 | 840 | 0.009 | 0.013 | 15,000 | 660 | 0.005 | 0.01 |
| | | 16 | 14,500 | 710 | 0.007 | 0.012 | 13,000 | 590 | 0.006 | 0.01 | 12,000 | 470 | 0.004 | 0.008 |
| | | 20 | 12,000 | 510 | 0.006 | 0.011 | 11,000 | 420 | 0.005 | 0.009 | 10,000 | 330 | 0.003 | 0.007 |
| 1.2 | R0.2 | 6 | 22,500 | 2,180 | 0.019 | 0.043 | 21,000 | 1,880 | 0.016 | 0.036 | 19,000 | 1,440 | 0.01 | 0.029 |
| | | 8 | 20,000 | 1,730 | 0.011 | 0.034 | 18,500 | 1,470 | 0.009 | 0.028 | 17,000 | 1,140 | 0.005 | 0.022 |
| | | 10 | 18,500 | 1,500 | 0.006 | 0.025 | 17,500 | 1,290 | 0.005 | 0.021 | 16,000 | 1,010 | 0.003 | 0.017 |
| | R0.3 | 6 | 22,500 | 2,180 | 0.029 | 0.043 | 21,000 | 1,880 | 0.024 | 0.036 | 19,000 | 1,440 | 0.014 | 0.029 |
| | | 8 | 20,000 | 1,730 | 0.016 | 0.034 | 18,500 | 1,470 | 0.013 | 0.028 | 17,000 | 1,140 | 0.008 | 0.022 |
| | | 10 | 18,500 | 1,500 | 0.01 | 0.025 | 17,500 | 1,290 | 0.008 | 0.021 | 16,000 | 1,010 | 0.005 | 0.017 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

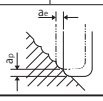
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of $\phi$ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 1.5 NEXT

# AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 1～1.2

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 1.5 | R0.05 | 3 | 22,000 | 2,900 | 0.007 | 0.054 | 19,500 | 2,420 | 0.006 | 0.045 | 17,000 | 1,740 | 0.004 | 0.036 |
| | | 4 | 22,000 | 2,900 | 0.007 | 0.054 | 19,500 | 2,420 | 0.006 | 0.045 | 17,000 | 1,740 | 0.004 | 0.036 |
| | | 6 | 21,000 | 2,630 | 0.006 | 0.054 | 18,500 | 2,180 | 0.005 | 0.045 | 16,000 | 1,580 | 0.003 | 0.036 |
| | | 8 | 20,000 | 2,250 | 0.006 | 0.054 | 17,500 | 1,880 | 0.005 | 0.045 | 15,500 | 1,370 | 0.003 | 0.036 |
| | | 10 | 17,500 | 1,880 | 0.048 | 0.043 | 15,500 | 1,580 | 0.04 | 0.036 | 13,500 | 1,140 | 0.024 | 0.029 |
| | | 12 | 16,500 | 1,650 | 0.036 | 0.037 | 14,500 | 1,370 | 0.03 | 0.031 | 12,500 | 1,010 | 0.018 | 0.025 |
| | | 16 | 11,000 | 960 | 0.024 | 0.026 | 10,000 | 800 | 0.02 | 0.022 | 8,650 | 590 | 0.012 | 0.018 |
| | R0.1 | 3 | 22,000 | 2,900 | 0.014 | 0.054 | 19,500 | 2,420 | 0.012 | 0.045 | 17,000 | 1,740 | 0.007 | 0.036 |
| | | 4 | 22,000 | 2,900 | 0.014 | 0.054 | 19,500 | 2,420 | 0.012 | 0.045 | 17,000 | 1,740 | 0.007 | 0.036 |
| | | 6 | 21,000 | 2,630 | 0.012 | 0.054 | 18,500 | 2,180 | 0.01 | 0.045 | 16,000 | 1,580 | 0.006 | 0.036 |
| | | 8 | 20,000 | 2,250 | 0.012 | 0.054 | 17,500 | 1,880 | 0.01 | 0.045 | 15,500 | 1,370 | 0.006 | 0.036 |
| | | 10 | 17,500 | 1,880 | 0.108 | 0.043 | 15,500 | 1,580 | 0.09 | 0.036 | 13,500 | 1,140 | 0.054 | 0.029 |
| | | 12 | 16,500 | 1,650 | 0.072 | 0.037 | 14,500 | 1,370 | 0.06 | 0.031 | 12,500 | 1,010 | 0.036 | 0.025 |
| | | 16 | 11,000 | 960 | 0.048 | 0.026 | 10,000 | 800 | 0.04 | 0.022 | 8,650 | 590 | 0.024 | 0.018 |
| | R0.2 | 3 | 22,000 | 2,900 | 0.029 | 0.054 | 19,500 | 2,420 | 0.024 | 0.045 | 17,000 | 1,740 | 0.014 | 0.036 |
| | | 4 | 22,000 | 2,900 | 0.029 | 0.054 | 19,500 | 2,420 | 0.024 | 0.045 | 17,000 | 1,740 | 0.014 | 0.036 |
| | | 6 | 21,000 | 2,630 | 0.024 | 0.054 | 18,500 | 2,180 | 0.02 | 0.045 | 16,000 | 1,580 | 0.012 | 0.036 |
| | | 8 | 20,000 | 2,250 | 0.024 | 0.054 | 17,500 | 1,880 | 0.02 | 0.045 | 15,500 | 1,370 | 0.012 | 0.036 |
| | | 10 | 17,500 | 1,880 | 0.022 | 0.043 | 15,500 | 1,580 | 0.018 | 0.036 | 13,500 | 1,140 | 0.011 | 0.029 |
| | | 12 | 16,500 | 1,650 | 0.014 | 0.037 | 14,500 | 1,370 | 0.012 | 0.031 | 12,500 | 1,010 | 0.007 | 0.025 |
| | | 16 | 11,000 | 960 | 0.01 | 0.026 | 10,000 | 800 | 0.008 | 0.022 | 8,650 | 590 | 0.005 | 0.018 |
| | R0.3 | 3 | 22,000 | 2,900 | 0.043 | 0.054 | 19,500 | 2,420 | 0.036 | 0.045 | 17,000 | 1,740 | 0.022 | 0.036 |
| | | 4 | 22,000 | 2,900 | 0.043 | 0.054 | 19,500 | 2,420 | 0.036 | 0.045 | 17,000 | 1,740 | 0.022 | 0.036 |
| | | 6 | 21,000 | 2,630 | 0.036 | 0.054 | 18,500 | 2,180 | 0.03 | 0.045 | 16,000 | 1,580 | 0.018 | 0.036 |
| | | 8 | 20,000 | 2,250 | 0.036 | 0.054 | 17,500 | 1,880 | 0.03 | 0.045 | 15,500 | 1,370 | 0.018 | 0.036 |
| | | 10 | 17,500 | 1,880 | 0.032 | 0.043 | 15,500 | 1,580 | 0.027 | 0.036 | 13,500 | 1,140 | 0.016 | 0.029 |
| | | 12 | 16,500 | 1,650 | 0.022 | 0.037 | 14,500 | 1,370 | 0.018 | 0.031 | 12,500 | 1,010 | 0.011 | 0.025 |
| | | 16 | 11,000 | 960 | 0.014 | 0.026 | 10,000 | 800 | 0.012 | 0.022 | 8,650 | 590 | 0.007 | 0.018 |
| | R0.5 | 3 | 22,000 | 2,900 | 0.072 | 0.054 | 19,500 | 2,420 | 0.06 | 0.045 | 17,000 | 1,740 | 0.036 | 0.036 |
| | | 4 | 22,000 | 2,900 | 0.072 | 0.054 | 19,500 | 2,420 | 0.06 | 0.045 | 17,000 | 1,740 | 0.036 | 0.036 |
| | | 6 | 21,000 | 2,630 | 0.06 | 0.054 | 18,500 | 2,180 | 0.05 | 0.045 | 16,000 | 1,580 | 0.03 | 0.036 |
| | | 8 | 20,000 | 2,250 | 0.06 | 0.054 | 17,500 | 1,880 | 0.05 | 0.045 | 15,500 | 1,370 | 0.03 | 0.036 |
| | | 10 | 17,500 | 1,880 | 0.054 | 0.043 | 15,500 | 1,580 | 0.045 | 0.036 | 13,500 | 1,140 | 0.027 | 0.029 |
| | | 12 | 16,500 | 1,650 | 0.036 | 0.037 | 14,500 | 1,370 | 0.03 | 0.031 | 12,500 | 1,010 | 0.018 | 0.025 |
| | | 16 | 11,000 | 960 | 0.024 | 0.026 | 10,000 | 800 | 0.02 | 0.022 | 8,650 | 590 | 0.012 | 0.018 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
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6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 2 NEXT

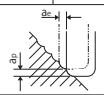
形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 1.5

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 2 | R0.05 | 4 | 18,000 | 3,300 | 0.01 | 0.072 | 17,500 | 2,900 | 0.008 | 0.06 | 16,500 | 2,450 | 0.005 | 0.048 |
| | | 6 | 17,500 | 3,100 | 0.01 | 0.072 | 17,000 | 2,700 | 0.008 | 0.06 | 16,000 | 2,300 | 0.005 | 0.048 |
| | | 8 | 16,500 | 2,780 | 0.01 | 0.072 | 16,000 | 2,400 | 0.008 | 0.06 | 15,000 | 2,030 | 0.005 | 0.048 |
| | | 10 | 15,500 | 2,480 | 0.01 | 0.072 | 15,500 | 2,180 | 0.008 | 0.06 | 14,500 | 1,800 | 0.005 | 0.048 |
| | | 12 | 14,500 | 2,250 | 0.01 | 0.065 | 14,500 | 1,950 | 0.008 | 0.054 | 13,500 | 1,580 | 0.005 | 0.043 |
| | | 16 | 13,000 | 1,730 | 0.006 | 0.05 | 12,500 | 1,500 | 0.005 | 0.042 | 12,000 | 1,250 | 0.003 | 0.034 |
| | | 20 | 12,000 | 1,410 | 0.004 | 0.036 | 11,500 | 1,230 | 0.003 | 0.03 | 11,000 | 1,020 | 0.002 | 0.024 |
| | R0.1 | 4 | 18,000 | 3,300 | 0.018 | 0.072 | 17,500 | 2,900 | 0.015 | 0.06 | 16,500 | 2,450 | 0.009 | 0.048 |
| | | 6 | 17,500 | 3,100 | 0.018 | 0.072 | 17,000 | 2,700 | 0.015 | 0.06 | 16,000 | 2,300 | 0.009 | 0.048 |
| | | 8 | 16,500 | 2,780 | 0.018 | 0.072 | 16,000 | 2,400 | 0.015 | 0.06 | 15,000 | 2,030 | 0.009 | 0.048 |
| | | 10 | 15,500 | 2,480 | 0.018 | 0.072 | 15,500 | 2,180 | 0.015 | 0.06 | 14,500 | 1,800 | 0.009 | 0.048 |
| | | 12 | 14,500 | 2,250 | 0.018 | 0.065 | 14,500 | 1,950 | 0.015 | 0.054 | 13,500 | 1,580 | 0.009 | 0.043 |
| | | 16 | 13,000 | 1,730 | 0.011 | 0.05 | 12,500 | 1,500 | 0.009 | 0.042 | 12,000 | 1,250 | 0.005 | 0.034 |
| | | 20 | 12,000 | 1,410 | 0.007 | 0.036 | 11,500 | 1,230 | 0.006 | 0.03 | 11,000 | 1,020 | 0.004 | 0.024 |
| | | 25 | 11,000 | 1,200 | 0.005 | 0.032 | 11,000 | 1,050 | 0.004 | 0.027 | 10,000 | 870 | 0.002 | 0.022 |
| | R0.2 | 4 | 18,000 | 3,300 | 0.024 | 0.072 | 17,500 | 2,900 | 0.02 | 0.06 | 16,500 | 2,450 | 0.012 | 0.048 |
| | | 6 | 17,500 | 3,100 | 0.024 | 0.072 | 17,000 | 2,700 | 0.02 | 0.06 | 16,000 | 2,300 | 0.012 | 0.048 |
| | | 8 | 16,500 | 2,780 | 0.024 | 0.072 | 16,000 | 2,400 | 0.02 | 0.06 | 15,000 | 2,030 | 0.012 | 0.048 |
| | | 10 | 15,500 | 2,480 | 0.024 | 0.072 | 15,500 | 2,180 | 0.02 | 0.06 | 14,500 | 1,800 | 0.012 | 0.048 |
| | | 12 | 14,500 | 2,250 | 0.024 | 0.065 | 14,500 | 1,950 | 0.02 | 0.054 | 13,500 | 1,580 | 0.012 | 0.043 |
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| | | 20 | 12,000 | 1,410 | 0.01 | 0.036 | 11,500 | 1,230 | 0.008 | 0.03 | 11,000 | 1,020 | 0.005 | 0.024 |
| | | 25 | 11,000 | 1,200 | 0.007 | 0.032 | 11,000 | 1,050 | 0.006 | 0.027 | 10,000 | 870 | 0.004 | 0.022 |
| | R0.3 | 4 | 18,000 | 3,300 | 0.036 | 0.072 | 17,500 | 2,900 | 0.03 | 0.06 | 16,500 | 2,450 | 0.018 | 0.048 |
| | | 6 | 17,500 | 3,100 | 0.036 | 0.072 | 17,000 | 2,700 | 0.03 | 0.06 | 16,000 | 2,300 | 0.018 | 0.048 |
| | | 8 | 16,500 | 2,780 | 0.036 | 0.072 | 16,000 | 2,400 | 0.03 | 0.06 | 15,000 | 2,030 | 0.018 | 0.048 |
| | | 10 | 15,500 | 2,480 | 0.036 | 0.072 | 15,500 | 2,180 | 0.03 | 0.06 | 14,500 | 1,800 | 0.018 | 0.048 |
| | | 12 | 14,500 | 2,250 | 0.036 | 0.065 | 14,500 | 1,950 | 0.03 | 0.054 | 13,500 | 1,580 | 0.018 | 0.043 |
| | | 16 | 13,000 | 1,730 | 0.022 | 0.05 | 12,500 | 1,500 | 0.018 | 0.042 | 12,000 | 1,250 | 0.011 | 0.034 |
| | | 20 | 12,000 | 1,410 | 0.014 | 0.036 | 11,500 | 1,230 | 0.012 | 0.03 | 11,000 | 1,020 | 0.007 | 0.024 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

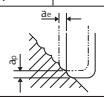
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
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8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 2～3 NEXT

# AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 2

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 2 | R0.5 | 4 | 18,000 | 3,300 | 0.06 | 0.072 | 17,500 | 2,900 | 0.05 | 0.06 | 16,500 | 2,450 | 0.03 | 0.048 |
| | | 6 | 17,500 | 3,100 | 0.06 | 0.072 | 17,000 | 2,700 | 0.05 | 0.06 | 16,000 | 2,300 | 0.03 | 0.048 |
| | | 8 | 16,500 | 2,780 | 0.06 | 0.072 | 16,000 | 2,400 | 0.05 | 0.06 | 15,000 | 2,030 | 0.03 | 0.048 |
| | | 10 | 15,500 | 2,480 | 0.06 | 0.072 | 15,500 | 2,180 | 0.05 | 0.06 | 14,500 | 1,800 | 0.03 | 0.048 |
| | | 12 | 14,500 | 2,250 | 0.06 | 0.065 | 14,500 | 1,950 | 0.05 | 0.054 | 13,500 | 1,580 | 0.03 | 0.043 |
| | | 16 | 13,000 | 1,730 | 0.036 | 0.05 | 12,500 | 1,500 | 0.03 | 0.042 | 12,000 | 1,250 | 0.018 | 0.034 |
| | | 20 | 12,000 | 1,410 | 0.024 | 0.036 | 11,500 | 1,230 | 0.02 | 0.03 | 11,000 | 1,020 | 0.012 | 0.024 |
| | | 25 | 11,000 | 1,200 | 0.018 | 0.032 | 11,000 | 1,050 | 0.015 | 0.027 | 10,000 | 870 | 0.009 | 0.022 |
| 2.5 | R0.1 | 10 | 13,000 | 2,780 | 0.012 | 0.09 | 13,000 | 2,100 | 0.01 | 0.075 | 12,000 | 2,030 | 0.006 | 0.06 |
| | | 20 | 10,000 | 1,730 | 0.007 | 0.062 | 10,000 | 1,340 | 0.006 | 0.052 | 9,450 | 1,250 | 0.004 | 0.042 |
| | | 30 | 8,500 | 1,400 | 0.004 | 0.036 | 8,500 | 1,080 | 0.003 | 0.03 | 8,000 | 1,000 | 0.002 | 0.024 |
| | R0.2 | 10 | 13,000 | 2,780 | 0.024 | 0.09 | 13,000 | 2,100 | 0.02 | 0.075 | 12,000 | 2,030 | 0.012 | 0.06 |
| | | 20 | 10,000 | 1,730 | 0.014 | 0.062 | 10,000 | 1,340 | 0.012 | 0.052 | 9,450 | 1,250 | 0.007 | 0.042 |
| | | 30 | 8,500 | 1,400 | 0.007 | 0.036 | 8,500 | 1,080 | 0.006 | 0.03 | 8,000 | 1,000 | 0.004 | 0.024 |
| | R0.3 | 10 | 13,000 | 2,780 | 0.036 | 0.09 | 13,000 | 2,100 | 0.03 | 0.075 | 12,000 | 2,030 | 0.018 | 0.06 |
| | | 20 | 10,000 | 1,730 | 0.022 | 0.062 | 10,000 | 1,340 | 0.018 | 0.052 | 9,450 | 1,250 | 0.011 | 0.042 |
| | | 30 | 8,500 | 1,400 | 0.011 | 0.036 | 8,500 | 1,080 | 0.009 | 0.03 | 8,000 | 1,000 | 0.005 | 0.024 |
| | R0.5 | 10 | 13,000 | 2,780 | 0.06 | 0.09 | 13,000 | 2,100 | 0.05 | 0.075 | 12,000 | 2,030 | 0.03 | 0.06 |
| | | 20 | 10,000 | 1,730 | 0.036 | 0.062 | 10,000 | 1,340 | 0.03 | 0.052 | 9,450 | 1,250 | 0.018 | 0.042 |
| | | 30 | 8,500 | 1,400 | 0.018 | 0.036 | 8,500 | 1,080 | 0.015 | 0.03 | 8,000 | 1,000 | 0.009 | 0.024 |
| 3 | R0.1 | 4 | 14,000 | 4,100 | 0.012 | 0.108 | 13,000 | 2,850 | 0.01 | 0.09 | 12,000 | 2,250 | 0.006 | 0.072 |
| | | 6 | 12,500 | 3,600 | 0.012 | 0.108 | 11,500 | 2,500 | 0.01 | 0.09 | 10,500 | 1,950 | 0.006 | 0.072 |
| | | 8 | 12,000 | 3,000 | 0.012 | 0.096 | 11,000 | 2,100 | 0.01 | 0.08 | 10,000 | 1,650 | 0.006 | 0.064 |
| | | 10 | 12,000 | 3,000 | 0.012 | 0.096 | 11,000 | 2,100 | 0.01 | 0.08 | 10,000 | 1,650 | 0.006 | 0.064 |
| | | 12 | 12,000 | 3,000 | 0.012 | 0.096 | 11,000 | 2,100 | 0.01 | 0.08 | 10,000 | 1,650 | 0.006 | 0.064 |
| | | 16 | 10,500 | 2,400 | 0.012 | 0.096 | 9,600 | 1,730 | 0.01 | 0.08 | 9,000 | 1,320 | 0.006 | 0.064 |
| | | 20 | 9,300 | 2,030 | 0.012 | 0.077 | 8,400 | 1,410 | 0.01 | 0.064 | 7,850 | 1,100 | 0.006 | 0.051 |
| | | 25 | 8,900 | 1,650 | 0.007 | 0.058 | 8,050 | 1,200 | 0.006 | 0.048 | 7,550 | 920 | 0.004 | 0.038 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of $\phi$ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 3 NEXT

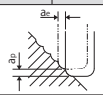
形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 2〜3

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (〜45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (〜55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (〜66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 3 | R0.2 | 4 | 14,000 | 4,100 | 0.024 | 0.108 | 13,000 | 2,850 | 0.02 | 0.09 | 12,000 | 2,250 | 0.012 | 0.072 |
| | | 6 | 12,500 | 3,600 | 0.024 | 0.108 | 11,500 | 2,500 | 0.02 | 0.09 | 10,500 | 1,950 | 0.012 | 0.072 |
| | | 8 | 12,000 | 3,000 | 0.024 | 0.096 | 11,000 | 2,100 | 0.02 | 0.08 | 10,000 | 1,650 | 0.012 | 0.064 |
| | | 10 | 12,000 | 3,000 | 0.024 | 0.096 | 11,000 | 2,100 | 0.02 | 0.08 | 10,000 | 1,650 | 0.012 | 0.064 |
| | | 12 | 12,000 | 3,000 | 0.024 | 0.096 | 11,000 | 2,100 | 0.02 | 0.08 | 10,000 | 1,650 | 0.012 | 0.064 |
| | | 16 | 10,500 | 2,400 | 0.024 | 0.096 | 9,600 | 1,730 | 0.02 | 0.08 | 9,000 | 1,320 | 0.012 | 0.064 |
| | | 20 | 9,300 | 2,030 | 0.024 | 0.077 | 8,400 | 1,410 | 0.02 | 0.064 | 7,850 | 1,100 | 0.012 | 0.051 |
| | | 25 | 8,900 | 1,650 | 0.014 | 0.058 | 8,050 | 1,200 | 0.012 | 0.048 | 7,550 | 920 | 0.007 | 0.038 |
| | | 30 | 8,600 | 1,500 | 0.01 | 0.048 | 7,800 | 1,080 | 0.008 | 0.04 | 7,300 | 840 | 0.005 | 0.032 |
| | | 35 | 7,950 | 1,320 | 0.007 | 0.043 | 7,200 | 950 | 0.006 | 0.036 | 6,750 | 720 | 0.004 | 0.029 |
| | R0.3 | 4 | 14,000 | 4,100 | 0.036 | 0.108 | 13,000 | 2,850 | 0.03 | 0.09 | 12,000 | 2,250 | 0.018 | 0.072 |
| | | 6 | 12,500 | 3,600 | 0.036 | 0.108 | 11,500 | 2,500 | 0.03 | 0.09 | 10,500 | 1,950 | 0.018 | 0.072 |
| | | 8 | 12,000 | 3,000 | 0.036 | 0.096 | 11,000 | 2,100 | 0.03 | 0.08 | 10,000 | 1,650 | 0.018 | 0.064 |
| | | 10 | 12,000 | 3,000 | 0.036 | 0.096 | 11,000 | 2,100 | 0.03 | 0.08 | 10,000 | 1,650 | 0.018 | 0.064 |
| | | 12 | 12,000 | 3,000 | 0.036 | 0.096 | 11,000 | 2,100 | 0.03 | 0.08 | 10,000 | 1,650 | 0.018 | 0.064 |
| | | 16 | 10,500 | 2,400 | 0.036 | 0.096 | 9,600 | 1,730 | 0.03 | 0.08 | 9,000 | 1,320 | 0.018 | 0.064 |
| | | 20 | 9,300 | 2,030 | 0.036 | 0.077 | 8,400 | 1,410 | 0.03 | 0.064 | 7,850 | 1,100 | 0.018 | 0.051 |
| | | 25 | 8,900 | 1,650 | 0.022 | 0.058 | 8,050 | 1,200 | 0.018 | 0.048 | 7,550 | 920 | 0.011 | 0.038 |
| | | 30 | 8,600 | 1,500 | 0.014 | 0.048 | 7,800 | 1,080 | 0.012 | 0.04 | 7,300 | 840 | 0.007 | 0.032 |
| | | 35 | 7,950 | 1,320 | 0.011 | 0.043 | 7,200 | 950 | 0.009 | 0.036 | 6,750 | 720 | 0.005 | 0.029 |
| | R0.5 | 4 | 14,000 | 4,100 | 0.06 | 0.108 | 13,000 | 2,850 | 0.05 | 0.09 | 12,000 | 2,250 | 0.03 | 0.072 |
| | | 6 | 12,500 | 3,600 | 0.06 | 0.108 | 11,500 | 2,500 | 0.05 | 0.09 | 10,500 | 1,950 | 0.03 | 0.072 |
| | | 8 | 12,000 | 3,000 | 0.06 | 0.096 | 11,000 | 2,100 | 0.05 | 0.08 | 10,000 | 1,650 | 0.03 | 0.064 |
| | | 10 | 12,000 | 3,000 | 0.06 | 0.096 | 11,000 | 2,100 | 0.05 | 0.08 | 10,000 | 1,650 | 0.03 | 0.064 |
| | | 12 | 12,000 | 3,000 | 0.06 | 0.096 | 11,000 | 2,100 | 0.05 | 0.08 | 10,000 | 1,650 | 0.03 | 0.064 |
| | | 16 | 10,500 | 2,400 | 0.06 | 0.096 | 9,600 | 1,730 | 0.05 | 0.08 | 9,000 | 1,320 | 0.03 | 0.064 |
| | | 20 | 9,300 | 2,030 | 0.06 | 0.077 | 8,400 | 1,410 | 0.05 | 0.064 | 7,850 | 1,100 | 0.03 | 0.051 |
| | | 25 | 8,900 | 1,650 | 0.036 | 0.058 | 8,050 | 1,200 | 0.03 | 0.048 | 7,550 | 920 | 0.018 | 0.038 |
| | | 30 | 8,600 | 1,500 | 0.024 | 0.048 | 7,800 | 1,080 | 0.02 | 0.04 | 7,300 | 840 | 0.012 | 0.032 |
| | | 35 | 7,950 | 1,320 | 0.018 | 0.043 | 7,200 | 950 | 0.015 | 0.036 | 6,750 | 720 | 0.009 | 0.029 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

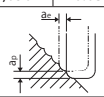
1. Use a rigid and precise machine and holder.
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6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 4 NEXT

# AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 3

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 4 | R0.1 | 8 | 9,500 | 3,100 | 0.012 | 0.144 | 8,650 | 2,550 | 0.01 | 0.12 | 7,800 | 1,800 | 0.006 | 0.096 |
| | | 12 | 9,500 | 3,100 | 0.012 | 0.144 | 8,650 | 2,550 | 0.01 | 0.12 | 7,800 | 1,800 | 0.006 | 0.096 |
| | | 16 | 7,900 | 2,500 | 0.012 | 0.096 | 7,150 | 2,050 | 0.01 | 0.08 | 6,450 | 1,450 | 0.006 | 0.064 |
| | | 20 | 7,450 | 2,400 | 0.012 | 0.096 | 6,750 | 1,950 | 0.01 | 0.08 | 6,100 | 1,350 | 0.006 | 0.064 |
| | | 25 | 6,550 | 2,000 | 0.012 | 0.086 | 5,950 | 1,650 | 0.01 | 0.072 | 5,350 | 1,150 | 0.006 | 0.058 |
| | | 30 | 6,100 | 1,650 | 0.008 | 0.067 | 5,550 | 1,350 | 0.007 | 0.056 | 5,000 | 960 | 0.004 | 0.045 |
| | R0.2 | 8 | 9,500 | 3,100 | 0.024 | 0.144 | 8,650 | 2,550 | 0.02 | 0.12 | 7,800 | 1,800 | 0.012 | 0.096 |
| | | 12 | 9,500 | 3,100 | 0.024 | 0.144 | 8,650 | 2,550 | 0.02 | 0.12 | 7,800 | 1,800 | 0.012 | 0.096 |
| | | 16 | 7,900 | 2,500 | 0.024 | 0.096 | 7,150 | 2,050 | 0.02 | 0.08 | 6,450 | 1,450 | 0.012 | 0.064 |
| | | 20 | 7,450 | 2,400 | 0.024 | 0.096 | 6,750 | 1,950 | 0.02 | 0.08 | 6,100 | 1,350 | 0.012 | 0.064 |
| | | 25 | 6,550 | 2,000 | 0.024 | 0.086 | 5,950 | 1,650 | 0.02 | 0.072 | 5,350 | 1,150 | 0.012 | 0.058 |
| | | 30 | 6,100 | 1,650 | 0.017 | 0.067 | 5,550 | 1,350 | 0.014 | 0.056 | 5,000 | 960 | 0.008 | 0.045 |
| | | 40 | 5,700 | 1,300 | 0.01 | 0.048 | 5,150 | 1,050 | 0.008 | 0.04 | 4,650 | 730 | 0.005 | 0.032 |
| | R0.3 | 8 | 9,500 | 3,100 | 0.036 | 0.144 | 8,650 | 2,550 | 0.03 | 0.12 | 7,800 | 1,800 | 0.018 | 0.096 |
| | | 12 | 9,500 | 3,100 | 0.036 | 0.144 | 8,650 | 2,550 | 0.03 | 0.12 | 7,800 | 1,800 | 0.018 | 0.096 |
| | | 16 | 7,900 | 2,500 | 0.036 | 0.096 | 7,150 | 2,050 | 0.03 | 0.08 | 6,450 | 1,450 | 0.018 | 0.064 |
| | | 20 | 7,450 | 2,400 | 0.036 | 0.096 | 6,750 | 1,950 | 0.03 | 0.08 | 6,100 | 1,350 | 0.018 | 0.064 |
| | | 25 | 6,550 | 2,000 | 0.036 | 0.086 | 5,950 | 1,650 | 0.03 | 0.072 | 5,350 | 1,150 | 0.018 | 0.058 |
| | | 30 | 6,100 | 1,650 | 0.025 | 0.067 | 5,550 | 1,350 | 0.021 | 0.056 | 5,000 | 960 | 0.013 | 0.045 |
| | | 40 | 5,700 | 1,300 | 0.014 | 0.048 | 5,150 | 1,050 | 0.012 | 0.04 | 4,650 | 730 | 0.007 | 0.032 |
| | R0.5 | 8 | 9,500 | 3,100 | 0.06 | 0.144 | 8,650 | 2,550 | 0.05 | 0.12 | 7,800 | 1,800 | 0.03 | 0.096 |
| | | 12 | 9,500 | 3,100 | 0.06 | 0.144 | 8,650 | 2,550 | 0.05 | 0.12 | 7,800 | 1,800 | 0.03 | 0.096 |
| | | 16 | 7,900 | 2,500 | 0.06 | 0.096 | 7,150 | 2,050 | 0.05 | 0.08 | 6,450 | 1,450 | 0.03 | 0.064 |
| | | 20 | 7,450 | 2,400 | 0.06 | 0.096 | 6,750 | 1,950 | 0.05 | 0.08 | 6,100 | 1,350 | 0.03 | 0.064 |
| | | 25 | 6,550 | 2,000 | 0.06 | 0.086 | 5,950 | 1,650 | 0.05 | 0.072 | 5,350 | 1,150 | 0.03 | 0.058 |
| | | 30 | 6,100 | 1,650 | 0.042 | 0.067 | 5,550 | 1,350 | 0.035 | 0.056 | 5,000 | 960 | 0.021 | 0.045 |
| | | 40 | 5,700 | 1,300 | 0.024 | 0.048 | 5,150 | 1,050 | 0.02 | 0.04 | 4,650 | 730 | 0.012 | 0.032 |
| | | 50 | 5,000 | 960 | 0.018 | 0.043 | 4,550 | 790 | 0.015 | 0.036 | 4,100 | 550 | 0.009 | 0.029 |
| | R1 | 8 | 9,500 | 3,100 | 0.096 | 0.144 | 8,650 | 2,550 | 0.08 | 0.12 | 7,800 | 1,800 | 0.048 | 0.096 |
| | | 12 | 9,500 | 3,100 | 0.096 | 0.144 | 8,650 | 2,550 | 0.08 | 0.12 | 7,800 | 1,800 | 0.048 | 0.096 |
| | | 16 | 7,900 | 2,500 | 0.096 | 0.096 | 7,150 | 2,050 | 0.08 | 0.08 | 6,450 | 1,450 | 0.048 | 0.064 |
| | | 20 | 7,450 | 2,400 | 0.096 | 0.096 | 6,750 | 1,950 | 0.08 | 0.08 | 6,100 | 1,350 | 0.048 | 0.064 |
| | | 25 | 6,550 | 2,000 | 0.096 | 0.086 | 5,950 | 1,650 | 0.08 | 0.072 | 5,350 | 1,150 | 0.048 | 0.058 |
| | | 30 | 6,100 | 1,650 | 0.067 | 0.067 | 5,550 | 1,350 | 0.056 | 0.056 | 5,000 | 960 | 0.034 | 0.045 |
| | | 40 | 5,700 | 1,300 | 0.038 | 0.048 | 5,150 | 1,050 | 0.032 | 0.04 | 4,650 | 730 | 0.019 | 0.032 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

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   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
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4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
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4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

次ページへ
外径 DC 6 NEXT

形状寸法表
SPECIFICATION CHARTS
AE-CPR4-H▶P411

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AE-CPR4-H
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 4

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel PX5・NAK80・SKD61 (～45HRC) | | | | 調質鋼 Hardened Steel STAVAX・HPM38 (～55HRC) | | | | 調質鋼 Hardened Steel SKH51・YXR7・HAP40 (～66HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap (mm) | ae (mm) |
| 6 | R0.1 | 12 | 7,950 | 3,550 | 0.012 | 0.216 | 7,200 | 2,900 | 0.01 | 0.18 | 6,550 | 2,050 | 0.006 | 0.144 |
| | | 18 | 6,750 | 2,950 | 0.012 | 0.144 | 6,100 | 2,400 | 0.01 | 0.12 | 5,550 | 1,700 | 0.006 | 0.096 |
| | | 24 | 6,150 | 2,450 | 0.012 | 0.144 | 5,550 | 2,000 | 0.01 | 0.12 | 5,050 | 1,400 | 0.006 | 0.096 |
| | | 30 | 5,300 | 2,150 | 0.01 | 0.108 | 4,800 | 1,750 | 0.008 | 0.09 | 4,350 | 1,250 | 0.005 | 0.072 |
| | | 48 | 3,100 | 1,250 | 0.006 | 0.072 | 2,800 | 1,000 | 0.005 | 0.06 | 2,550 | 700 | 0.003 | 0.048 |
| | R0.2 | 12 | 7,950 | 3,550 | 0.024 | 0.216 | 7,200 | 2,900 | 0.02 | 0.18 | 6,550 | 2,050 | 0.012 | 0.144 |
| | | 18 | 6,750 | 2,950 | 0.024 | 0.144 | 6,100 | 2,400 | 0.02 | 0.12 | 5,550 | 1,700 | 0.012 | 0.096 |
| | | 24 | 6,150 | 2,450 | 0.024 | 0.144 | 5,550 | 2,000 | 0.02 | 0.12 | 5,050 | 1,400 | 0.012 | 0.096 |
| | | 30 | 5,300 | 2,150 | 0.019 | 0.108 | 4,800 | 1,750 | 0.016 | 0.09 | 4,350 | 1,250 | 0.01 | 0.072 |
| | | 48 | 3,100 | 1,250 | 0.012 | 0.072 | 2,800 | 1,000 | 0.01 | 0.06 | 2,550 | 700 | 0.006 | 0.048 |
| | R0.3 | 12 | 7,950 | 3,550 | 0.036 | 0.216 | 7,200 | 2,900 | 0.03 | 0.18 | 6,550 | 2,050 | 0.018 | 0.144 |
| | | 18 | 6,750 | 2,950 | 0.036 | 0.144 | 6,100 | 2,400 | 0.03 | 0.12 | 5,550 | 1,700 | 0.018 | 0.096 |
| | | 24 | 6,150 | 2,450 | 0.036 | 0.144 | 5,550 | 2,000 | 0.03 | 0.12 | 5,050 | 1,400 | 0.018 | 0.096 |
| | | 30 | 5,300 | 2,150 | 0.029 | 0.108 | 4,800 | 1,750 | 0.024 | 0.09 | 4,350 | 1,250 | 0.014 | 0.072 |
| | | 48 | 3,100 | 1,250 | 0.018 | 0.072 | 2,800 | 1,000 | 0.015 | 0.06 | 2,550 | 700 | 0.009 | 0.048 |
| | R0.5 | 12 | 7,950 | 3,550 | 0.054 | 0.216 | 7,200 | 2,900 | 0.045 | 0.18 | 6,550 | 2,050 | 0.027 | 0.144 |
| | | 18 | 6,750 | 2,950 | 0.054 | 0.144 | 6,100 | 2,400 | 0.045 | 0.12 | 5,550 | 1,700 | 0.027 | 0.096 |
| | | 24 | 6,150 | 2,450 | 0.054 | 0.144 | 5,550 | 2,000 | 0.045 | 0.12 | 5,050 | 1,400 | 0.027 | 0.096 |
| | | 30 | 5,300 | 2,150 | 0.043 | 0.108 | 4,800 | 1,750 | 0.036 | 0.09 | 4,350 | 1,250 | 0.022 | 0.072 |
| | | 48 | 3,100 | 1,250 | 0.027 | 0.072 | 2,800 | 1,000 | 0.023 | 0.06 | 2,550 | 700 | 0.014 | 0.048 |
| | R1 | 12 | 7,950 | 3,550 | 0.108 | 0.216 | 7,200 | 2,900 | 0.09 | 0.18 | 6,550 | 2,050 | 0.054 | 0.144 |
| | | 18 | 6,750 | 2,950 | 0.108 | 0.144 | 6,100 | 2,400 | 0.09 | 0.12 | 5,550 | 1,700 | 0.054 | 0.096 |
| | | 24 | 6,150 | 2,450 | 0.108 | 0.144 | 5,550 | 2,000 | 0.09 | 0.12 | 5,050 | 1,400 | 0.054 | 0.096 |
| | | 30 | 5,300 | 2,150 | 0.086 | 0.108 | 4,800 | 1,750 | 0.072 | 0.09 | 4,350 | 1,250 | 0.043 | 0.072 |
| | | 48 | 3,100 | 1,250 | 0.054 | 0.072 | 2,800 | 1,000 | 0.045 | 0.06 | 2,550 | 700 | 0.027 | 0.048 |
| 切込深さ Depth of Cut | | |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. φ0.5 未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
8. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

## PHX-LN-CRE

| 被削材質 Work Material | | | リブ溝切削 Lib Groove Milling | | | | | | | | 等高線仕上げ切削 Contour Line Finish Milling | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 溝 Slotting | | | | 等高オフセット Contour Offset | | | | | | |
| | | | CENA1、STAVAX、HPM38、SKD61 42～55HRC | | | | | | | | | | |
| 外径 DC | RE | 首下長 LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut |
| | | | | | ap | ae | | | ap | ae | | | ae |
| 0.8 | R0.1 | 2 | 18,000 | 720 | 0.02 | 0.2 | 18,000 | 930 | 0.02 | 0.2 | 18,000 | 1,150 | 0.015 |
| | | 4 | 18,000 | 720 | 0.02 | 0.2 | 18,000 | 930 | 0.02 | 0.2 | 18,000 | 1,150 | 0.015 |
| | | 6 | 18,000 | 720 | 0.02 | 0.2 | 18,000 | 930 | 0.02 | 0.2 | 18,000 | 1,150 | 0.015 |
| | | 8 | 15,000 | 540 | 0.013 | 0.2 | 15,000 | 630 | 0.013 | 0.2 | 16,000 | 700 | 0.013 |
| 1 | R0.1 | 4 | 18,000 | 830 | 0.03 | 0.23 | 18,000 | 880 | 0.03 | 0.23 | 18,000 | 1,440 | 0.015 |
| | | 6 | 18,000 | 830 | 0.024 | 0.23 | 18,000 | 880 | 0.024 | 0.23 | 18,000 | 1,440 | 0.015 |
| | | 8 | 15,000 | 750 | 0.013 | 0.23 | 15,000 | 800 | 0.013 | 0.23 | 15,000 | 1,200 | 0.015 |
| | | 10 | 12,000 | 300 | 0.007 | 0.2 | 12,000 | 400 | 0.007 | 0.2 | 12,000 | 960 | 0.015 |
| | | 12 | 10,500 | 220 | 0.006 | 0.18 | 10,500 | 288 | 0.006 | 0.18 | 10,500 | 840 | 0.015 |
| 1 | R0.2 | 4 | 18,000 | 830 | 0.03 | 0.23 | 18,000 | 880 | 0.03 | 0.23 | 18,000 | 1,440 | 0.018 |
| | | 6 | 18,000 | 830 | 0.024 | 0.23 | 18,000 | 880 | 0.024 | 0.23 | 18,000 | 1,440 | 0.018 |
| | | 8 | 15,000 | 750 | 0.013 | 0.23 | 15,000 | 800 | 0.013 | 0.23 | 15,000 | 1,200 | 0.018 |
| | | 10 | 12,000 | 300 | 0.007 | 0.2 | 12,000 | 400 | 0.007 | 0.2 | 12,000 | 960 | 0.018 |
| | | 12 | 10,500 | 220 | 0.006 | 0.18 | 10,500 | 290 | 0.006 | 0.18 | 10,500 | 840 | 0.018 |
| 1 | R0.3 | 4 | 18,000 | 830 | 0.03 | 0.23 | 18,000 | 1,000 | 0.03 | 0.23 | 18,000 | 1,440 | 0.022 |
| | | 6 | 18,000 | 830 | 0.024 | 0.23 | 18,000 | 890 | 0.024 | 0.23 | 18,000 | 1,440 | 0.022 |
| 1.5 | R0.1 | 4 | 16,000 | 1,230 | 0.03 | 0.34 | 16,000 | 1,300 | 0.03 | 0.34 | 18,000 | 1,620 | 0.015 |
| | | 8 | 16,000 | 1,230 | 0.026 | 0.34 | 16,000 | 1,300 | 0.026 | 0.34 | 18,000 | 1,620 | 0.015 |
| | | 12 | 10,000 | 480 | 0.013 | 0.3 | 10,000 | 750 | 0.013 | 0.3 | 10,000 | 900 | 0.015 |
| 1.5 | R0.2 | 4 | 16,000 | 1,230 | 0.03 | 0.34 | 16,000 | 1,300 | 0.03 | 0.34 | 18,000 | 1,620 | 0.018 |
| | | 6 | 16,000 | 1,230 | 0.029 | 0.34 | 16,000 | 1,300 | 0.029 | 0.34 | 18,000 | 1,620 | 0.018 |
| | | 8 | 16,000 | 1,230 | 0.026 | 0.34 | 16,000 | 1,300 | 0.026 | 0.34 | 18,000 | 1,620 | 0.018 |
| 2 | R0.1 | 8 | 12,000 | 1,300 | 0.03 | 0.46 | 12,000 | 1,760 | 0.03 | 0.46 | 18,000 | 1,620 | 0.015 |
| | | 10 | 12,000 | 1,200 | 0.03 | 0.46 | 12,000 | 1,620 | 0.03 | 0.46 | 15,000 | 1,350 | 0.015 |
| | | 12 | 12,000 | 1,150 | 0.024 | 0.46 | 12,000 | 1,320 | 0.024 | 0.46 | 13,000 | 1,170 | 0.015 |
| | | 16 | 7,600 | 780 | 0.012 | 0.46 | 7,600 | 750 | 0.012 | 0.46 | 7,000 | 630 | 0.015 |
| 2 | R0.3 | 8 | 12,000 | 1,300 | 0.05 | 0.46 | 12,000 | 1,620 | 0.05 | 0.46 | 18,000 | 1,620 | 0.022 |
| | | 12 | 12,000 | 1,150 | 0.04 | 0.46 | 12,000 | 1,320 | 0.04 | 0.46 | 13,000 | 1,170 | 0.022 |
| 2 | R0.5 | 6 | 12,000 | 1,300 | 0.08 | 0.45 | 12,000 | 1,760 | 0.08 | 0.45 | 18,000 | 1,620 | 0.025 |
| | | 8 | 12,000 | 1,300 | 0.075 | 0.45 | 12,000 | 1,760 | 0.075 | 0.45 | 18,000 | 1,620 | 0.025 |
| | | 10 | 12,000 | 1,200 | 0.07 | 0.45 | 12,000 | 1,620 | 0.07 | 0.45 | 15,000 | 1,350 | 0.025 |
| | | 12 | 12,000 | 1,150 | 0.06 | 0.45 | 12,000 | 1,320 | 0.06 | 0.45 | 13,000 | 1,170 | 0.025 |
| 3 | R0.3 | 12 | 8,000 | 1,200 | 0.046 | 0.7 | 8,000 | 1,400 | 0.046 | 0.7 | 13,000 | 1,170 | 0.022 |

1. 加工形状、機械剛性、ホルダ剛性、ワーク保持力等の使用状況により、回転速度、送り速度、切込深さを調節下さい。
2. 回転速度、送り速度が機械性能によって上がらない場合は、回転速度、送り速度を同じ比率で下げてご使用下さい。
3. 高い切削速度や高い送り速度は、工具の消耗や加工精度を落とす原因となります。必要に応じて送り速度を下げてご使用下さい。
4. 加工形状によって加工時にビビリが発生する場合は、形状の食い込みなどの原因となる為、回転速度と送り速度を同じ比率で下げて調節しご使用下さい。
5. 精密、精細加工は静粛性に優れた専用加工機をご使用下さい。
6. 加工時は工具刃先の振れを0.005mm 以下に抑えてご使用下さい。
7. 仕上げ加工の高能率加工を行う場合、回転速度、送り速度は2 倍を上限に調節下さい。
8. 平面を仕上げる場合は、機械の振動が少ない回転域で使用し、送り速度による機械のブレが起こらないように加工下さい。
9. 工具コーナ半径部で曲面形状の仕上げ加工を行う場合は、加工ピッチ（カスプハイトを考慮した）を変えてご使用下さい。
10. 傾斜切込み角度は、0.3˚～0.5˚を目安に設定をして下さい。
11. 切込深さが切削条件表より小さい場合、送り速度を最大１５０%を目安に調整して加工も可能です。
12. 切込深さが切削条件表より大きくなる場合は、最大６０%に減速する事で安定した加工が可能です。

1. Adjust the speed, feed, and depth of cut in according to the operating conditions, including the machining shape, machine and, holder rigidity, and workholding force.
2. If the speed and feed rates cannot be increased due to equipment capability, operate by reducing the speed and feed rates at the same ratio.
3. High cutting speeds and feed rates can cause wear and/or reduce machining precision. Therefore, please reduce the feed as needed.
4. Chattering may occur depending on the shape of the part, which can damages. Reduce the speed and feed rate at the same ratio to avoid chattering.
5. For precise, detailed machining, use a dedicated machine that operates less chattering.
6. Keep the runout at the tip of the end mill below 0.005mm.
7. To perform finish machining with a high level of efficiency, keep the speed and feed rates below 2 times.
8. To finish a flat surface, remain speed range in a minimal amount of equipment vibration and feed rate not causing the equipment to wobble.
9. To finish machining a curved surface using the corner radius of the tool, operate by changing the machining pitch.
10. Set the inclined cut angle between approximately 0.3˚ to 0.5˚
11. When the depth of cut is less than the specified amount as listed above, the feed rate can be increased up to 150%.
12. When the depth of cut is greater than the specified amount as listed above, the feed rate can be reduced by no more than 60% to ensure stable milling.

形状寸法表 SPECIFICATION CHARTS PHX-DFR▶P387
形状寸法表 SPECIFICATION CHARTS PHX-LN-DFR▶P431
形状寸法表 SPECIFICATION CHARTS PHX-PC-DFR▶P427
形状寸法表 SPECIFICATION CHARTS PHX-CRT▶P388

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## PHX-DFR/PHX-LN-DFR/PHX-PC-DFR/PHX-CRT

| 被削材質 Work Material | | | | 快削材 高能率荒取り条件 ～40HRC High feed roughing of free-cutting materials | | | | びびり抑制条件 Vibration control conditions<br>高じん性金型材 中荒取り条件 38～53HRC Semi-roughing in high toughness mold materials | | | | 仕上げ加工条件 ～55HRC Machining Conditions For Finishing | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | | | | | | | | | | | |
| | | | | SKT4・SKD61・NAK80・HPM1・DH ** | | | | DH **・DAC ** | | | | SKT4・SKD61・NAK80・HPM1・DH ** | | | | |
| 外径 DC | RE | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut ae | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut ae | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut ae | 仕上げ代 (mm) Clearance |
| 1 | R0.3 | 10 | 0.3° | 16,000 | 900 | 0.03 | 0.14 | 16,000 | 900 | 0.03 | 0.14 | 16,000 | 900 | 0.04 | 0.14 | 0.05 |
| | | 15 | | 8,000 | 450 | 0.03 | 0.14 | 8,000 | 450 | 0.02 | 0.14 | 8,000 | 450 | 0.04 | 0.14 | 0.05 |
| | | 20 | | 6,000 | 350 | 0.02 | 0.14 | 6,000 | 350 | 0.02 | 0.14 | 6,000 | 350 | 0.04 | 0.14 | 0.03 |
| | | 25 | | 6,000 | 300 | 0.01 | 0.13 | 6,000 | 300 | 0.01 | 0.13 | 6,000 | 300 | 0.04 | 0.14 | 0.03 |
| | | 30 | | 6,000 | 250 | 0.01 | 0.12 | 6,000 | 250 | 0.01 | 0.12 | 6,000 | 250 | 0.04 | 0.14 | 0.03 |
| 1.5 | R0.3 | 10 | 0.3° | 16,000 | 1,400 | 0.05 | 0.3 | 16,000 | 1,200 | 0.05 | 0.3 | 16,000 | 1,400 | 0.04 | 0.35 | 0.07 |
| | | 15 | | 8,000 | 800 | 0.05 | 0.3 | 8,000 | 600 | 0.05 | 0.3 | 8,000 | 800 | 0.04 | 0.35 | 0.05 |
| | | 20 | | 5,500 | 550 | 0.04 | 0.3 | 5,500 | 500 | 0.04 | 0.3 | 5,500 | 550 | 0.04 | 0.35 | 0.05 |
| | | 25 | | 5,000 | 500 | 0.04 | 0.3 | 5,000 | 450 | 0.04 | 0.3 | 5,000 | 500 | 0.04 | 0.35 | 0.03 |
| | | 30 | | 4,500 | 450 | 0.04 | 0.3 | 4,500 | 400 | 0.04 | 0.3 | 4,500 | 450 | 0.04 | 0.35 | 0.03 |
| 2 | R0.5 | 10 | 0.3° | 12,000 | 1,450 | 0.15 | 0.4 | 12,000 | 1,100 | 0.15 | 0.4 | 12,000 | 1,100 | 0.06 | 0.4 | 0.07 |
| | | 15 | | 7,800 | 900 | 0.12 | 0.4 | 7,800 | 700 | 0.1 | 0.4 | 7,800 | 700 | 0.06 | 0.4 | 0.07 |
| | | 20 | | 6,200 | 750 | 0.1 | 0.3 | 6,200 | 600 | 0.07 | 0.3 | 6,200 | 600 | 0.06 | 0.4 | 0.05 |
| | | 25 | | 4,700 | 550 | 0.07 | 0.3 | 4,700 | 500 | 0.06 | 0.3 | 4,700 | 500 | 0.06 | 0.4 | 0.05 |
| | | 30 | | 3,500 | 400 | 0.07 | 0.3 | 3,500 | 400 | 0.05 | 0.3 | 3,500 | 400 | 0.06 | 0.4 | 0.05 |
| | | 35 | | 3,500 | 400 | 0.07 | 0.2 | 3,500 | 400 | 0.04 | 0.2 | 3,500 | 400 | 0.06 | 0.4 | 0.03 |
| | | 40 | | 3,500 | 300 | 0.07 | 0.2 | 3,500 | 300 | 0.04 | 0.2 | 3,500 | 300 | 0.06 | 0.4 | 0.03 |
| | | 45 | | 3,500 | 200 | 0.07 | 0.2 | 3,500 | 200 | 0.03 | 0.2 | 3,500 | 200 | 0.06 | 0.4 | 0.03 |
| | | 50 | | 3,500 | 150 | 0.06 | 0.1 | 3,500 | 150 | 0.03 | 0.1 | 3,500 | 200 | 0.06 | 0.4 | 0.03 |
| | | 60 | | 3,500 | 150 | 0.05 | 0.1 | 3,500 | 150 | 0.03 | 0.1 | 3,500 | 200 | 0.06 | 0.4 | 0.03 |
| | | 80 | | 2,300 | 100 | 0.04 | 0.08 | 2,300 | 100 | 0.02 | 0.08 | 2,300 | 130 | 0.06 | 0.4 | 0.03 |
| 2.5 | R0.8 | 15 | 0.3° | 8,900 | 800 | 0.15 | 0.4 | 8,900 | 800 | 0.15 | 0.4 | 8,900 | 800 | 0.08 | 0.4 | 0.07 |
| | | 20 | | 6,300 | 570 | 0.15 | 0.4 | 6,300 | 570 | 0.15 | 0.4 | 6,300 | 570 | 0.08 | 0.4 | 0.07 |
| | | 25 | | 5,100 | 460 | 0.12 | 0.3 | 5,100 | 460 | 0.12 | 0.3 | 5,100 | 460 | 0.08 | 0.4 | 0.05 |
| | | 30 | | 3,800 | 340 | 0.12 | 0.3 | 3,800 | 340 | 0.12 | 0.3 | 3,800 | 340 | 0.08 | 0.4 | 0.03 |
| | | 40 | | 2,800 | 250 | 0.1 | 0.3 | 2,800 | 250 | 0.1 | 0.3 | 2,800 | 250 | 0.08 | 0.4 | 0.03 |
| | | 50 | | 2,800 | 250 | 0.08 | 0.2 | 2,800 | 250 | 0.08 | 0.2 | 2,800 | 250 | 0.08 | 0.4 | 0.03 |
| | | 60 | | 2,800 | 250 | 0.08 | 0.2 | 2,800 | 250 | 0.08 | 0.2 | 2,800 | 250 | 0.08 | 0.4 | 0.03 |
| 3 | R0.5 | 40 | 0.3° | 2,600 | 450 | 0.08 | 0.3 | 2,600 | 400 | 0.08 | 0.3 | 2,600 | 550 | 0.1 | 0.5 | 0.03 |
| | | 60 | | 2,200 | 350 | 0.04 | 0.3 | 2,200 | 300 | 0.04 | 0.3 | 2,200 | 450 | 0.1 | 0.5 | 0.03 |
| | R0.8 | 10 | | 11,000 | 1,650 | 0.13 | 0.6 | 8,000 | 1,200 | 0.13 | 0.6 | 11,000 | 2,100 | 0.1 | 0.5 | 0.1 |
| | | 15 | | 10,000 | 1,500 | 0.13 | 0.6 | 8,000 | 1,200 | 0.13 | 0.6 | 10,000 | 1,900 | 0.1 | 0.5 | 0.07 |
| | | 20 | | 7,500 | 1,100 | 0.12 | 0.5 | 7,200 | 1,000 | 0.12 | 0.5 | 7,500 | 1,400 | 0.1 | 0.5 | 0.07 |
| | | 25 | | 4,800 | 700 | 0.12 | 0.4 | 4,600 | 650 | 0.12 | 0.4 | 4,800 | 900 | 0.1 | 0.5 | 0.05 |
| | | 30 | | 3,800 | 550 | 0.1 | 0.4 | 3,400 | 500 | 0.1 | 0.4 | 3,800 | 750 | 0.1 | 0.5 | 0.03 |
| | | 40 | | 2,600 | 450 | 0.08 | 0.3 | 2,600 | 400 | 0.08 | 0.3 | 2,600 | 550 | 0.1 | 0.5 | 0.03 |
| | | 50 | | 2,200 | 350 | 0.06 | 0.3 | 2,200 | 300 | 0.06 | 0.3 | 2,200 | 450 | 0.1 | 0.5 | 0.03 |
| | | 60 | | 2,200 | 350 | 0.04 | 0.3 | 2,200 | 300 | 0.04 | 0.3 | 2,200 | 450 | 0.1 | 0.5 | 0.03 |
| | | 80 | | 1,060 | 100 | 0.03 | 0.2 | 1,060 | 100 | 0.03 | 0.2 | 1,060 | 160 | 0.07 | 0.35 | 0.03 |
| | | 100 | | 1,060 | 100 | 0.03 | 0.2 | 1,060 | 100 | 0.03 | 0.2 | 1,060 | 160 | 0.07 | 0.35 | 0.03 |
| 4 | R0.5 | 30 | 0.5° | 4,500 | 1,150 | 0.15 | 0.7 | 4,500 | 900 | 0.09 | 0.7 | 4,500 | 1,100 | 0.12 | 0.7 | 0.07 |
| | | 60 | | 2,100 | 700 | 0.08 | 0.5 | 2,100 | 450 | 0.06 | 0.5 | 2,100 | 500 | 0.12 | 0.7 | 0.03 |
| | R1 | 10 | | 9,500 | 2,100 | 0.2 | 0.9 | 6,000 | 1,250 | 0.2 | 0.9 | 9,500 | 2,250 | 0.12 | 0.8 | 0.1 |
| | | 15 | | 9,000 | 2,000 | 0.2 | 0.8 | 6,000 | 1,250 | 0.2 | 0.8 | 9,000 | 2,150 | 0.12 | 0.8 | 0.1 |
| | | 20 | | 8,200 | 1,700 | 0.2 | 0.7 | 6,000 | 1,250 | 0.14 | 0.7 | 8,200 | 2,000 | 0.12 | 0.7 | 0.1 |
| | | 25 | | 5,500 | 1,400 | 0.15 | 0.7 | 5,500 | 1,150 | 0.11 | 0.7 | 5,500 | 1,350 | 0.12 | 0.7 | 0.07 |
| | | 30 | | 4,500 | 1,150 | 0.15 | 0.7 | 4,500 | 900 | 0.09 | 0.7 | 4,500 | 1,100 | 0.12 | 0.7 | 0.07 |
| | | 35 | | 3,600 | 1,100 | 0.12 | 0.6 | 3,600 | 750 | 0.09 | 0.6 | 3,600 | 900 | 0.12 | 0.7 | 0.05 |
| | | 40 | | 3,000 | 900 | 0.12 | 0.6 | 3,000 | 650 | 0.09 | 0.6 | 3,000 | 800 | 0.12 | 0.7 | 0.05 |
| | | 45 | | 2,700 | 850 | 0.1 | 0.5 | 2,700 | 600 | 0.08 | 0.5 | 2,700 | 750 | 0.12 | 0.7 | 0.03 |
| | | 50 | | 2,500 | 800 | 0.1 | 0.5 | 2,500 | 550 | 0.08 | 0.5 | 2,500 | 600 | 0.12 | 0.7 | 0.03 |

次ページへ
外径 DC 4～12 NEXT

CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表

# PHX-DFR/PHX-LN-DFR/PHX-PC-DFR/PHX-CRT

前ページより FROM 外径 DC 1～4

| 被削材質 Work Material | | | | 快削材 高能率荒取り条件 ～40HRC High feed roughing of free-cutting materials | | | | びびり抑制条件 Vibration control conditions<br>高じん性金型材 中荒取り条件 38～53HRC Semi-roughing in high toughness mold materials | | | | 仕上げ加工条件 ～55HRC Machining Conditions For Finishing | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | | | | | | | | | | | |
| | | | | SKT4・SKD61・NAK80・HPM1・DH ** | | | | DH **・DAC ** | | | | SKT4・SKD61・NAK80・HPM1・DH ** | | | | |
| 外径 DC | RE | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut ae | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut ae | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut ae | 仕上げ代 (mm) Clearance |
| 4 | R1 | 60 | 0.5° | 2,100 | 700 | 0.08 | 0.5 | 2,100 | 450 | 0.06 | 0.5 | 2,100 | 500 | 0.12 | 0.7 | 0.03 |
| | | 80 | | 1,600 | 480 | 0.06 | 0.4 | 1,600 | 340 | 0.06 | 0.4 | 1,600 | 380 | 0.1 | 0.5 | 0.03 |
| | | 100 | | 1,200 | 360 | 0.05 | 0.3 | 1,200 | 250 | 0.05 | 0.3 | 1,200 | 290 | 0.1 | 0.5 | 0.03 |
| | | 120 | | 1,200 | 360 | 0.05 | 0.3 | 1,200 | 250 | 0.05 | 0.3 | 1,200 | 290 | 0.1 | 0.5 | 0.03 |
| 5 | R1 | 10 | 0.5° | 7,700 | 2,500 | 0.2 | 1.2 | 4,800 | 3,600 | 0.2 | 1.2 | 7,700 | 1,800 | 0.12 | 1.2 | 0.1 |
| | | 15 | | 7,700 | 2,400 | 0.2 | 1.2 | 4,800 | 3,400 | 0.16 | 1.2 | 6,100 | 1,450 | 0.12 | 1.2 | 0.1 |
| | | 20 | | 7,700 | 2,400 | 0.2 | 1.2 | 4,800 | 3,400 | 0.16 | 1.2 | 6,100 | 1,450 | 0.12 | 1.2 | 0.1 |
| | | 25 | | 5,100 | 2,200 | 0.17 | 1 | 4,800 | 3,000 | 0.13 | 1 | 5,100 | 1,200 | 0.12 | 1.2 | 0.07 |
| | | 30 | | 5,100 | 2,200 | 0.17 | 1 | 4,800 | 3,000 | 0.13 | 1 | 5,100 | 1,200 | 0.12 | 1.2 | 0.07 |
| | | 35 | | 4,400 | 1,700 | 0.15 | 1 | 4,400 | 2,400 | 0.09 | 1 | 4,400 | 1,000 | 0.12 | 1.2 | 0.05 |
| | | 40 | | 3,100 | 1,100 | 0.15 | 1 | 3,100 | 1,500 | 0.08 | 1 | 3,100 | 750 | 0.12 | 1.2 | 0.05 |
| 6 | R0.8 | 62.3 | 0.5° | 1,900 | 700 | 0.08 | 0.9 | 1,900 | 700 | 0.08 | 0.9 | 1,900 | 550 | 0.15 | 1.2 | 0.03 |
| | | 120 | | 800 | 240 | 0.04 | 0.7 | 800 | 240 | 0.04 | 0.7 | 800 | 200 | 0.12 | 1 | 0.03 |
| | R1 | 20 | | 6,500 | 2,100 | 0.35 | 1.3 | 4,000 | 1,700 | 0.24 | 1.3 | 6,500 | 1,900 | 0.15 | 1.2 | 0.1 |
| | | 40 | | 3,700 | 1,500 | 0.15 | 1 | 3,700 | 1,400 | 0.14 | 1 | 3,700 | 1,100 | 0.15 | 1.2 | 0.07 |
| | R1.5 | 24 | | 6,500 | 2,100 | 0.35 | 1.3 | 4,000 | 1,700 | 0.24 | 1.3 | 6,500 | 1,900 | 0.15 | 1.2 | 0.1 |
| | | 30 | | 5,100 | 2,000 | 0.24 | 1.2 | 4,000 | 1,700 | 0.23 | 1.2 | 5,100 | 1,500 | 0.15 | 1.2 | 0.1 |
| | | 36 | | 4,200 | 1,800 | 0.2 | 1 | 4,000 | 1,700 | 0.19 | 1 | 4,200 | 1,250 | 0.15 | 1.2 | 0.07 |
| | | 42 | | 3,700 | 1,500 | 0.15 | 1 | 3,700 | 1,400 | 0.14 | 1 | 3,700 | 1,100 | 0.15 | 1.2 | 0.07 |
| | | 48 | | 2,600 | 1,000 | 0.13 | 0.9 | 2,600 | 900 | 0.14 | 0.9 | 2,600 | 800 | 0.15 | 1.2 | 0.05 |
| | | 54 | | 2,100 | 800 | 0.1 | 0.9 | 2,100 | 800 | 0.1 | 0.9 | 2,100 | 650 | 0.15 | 1.2 | 0.05 |
| | | 66 | | 1,900 | 700 | 0.08 | 0.9 | 1,900 | 700 | 0.08 | 0.9 | 1,900 | 550 | 0.15 | 1.2 | 0.03 |
| | | 80 | | 1,700 | 600 | 0.05 | 0.9 | 1,700 | 600 | 0.05 | 0.9 | 1,700 | 450 | 0.15 | 1.2 | 0.03 |
| | | 100 | | 1,100 | 330 | 0.04 | 0.7 | 1,100 | 330 | 0.04 | 0.7 | 1,100 | 260 | 0.12 | 1 | 0.03 |
| | | 120 | | 800 | 240 | 0.04 | 0.7 | 800 | 240 | 0.04 | 0.7 | 800 | 200 | 0.12 | 1 | 0.03 |
| | | 160 | | 800 | 200 | 0.04 | 0.7 | 800 | 200 | 0.04 | 0.7 | 800 | 160 | 0.12 | 1 | 0.03 |
| 8 | R1 | 63.3 | 0.5° | 1,900 | 880 | 0.2 | 1.3 | 1,900 | 800 | 0.2 | 1.3 | 1,900 | 700 | 0.18 | 1.6 | 0.05 |
| | | 120.6 | | 1,000 | 550 | 0.1 | 1.3 | 1,000 | 550 | 0.1 | 1.3 | 1,000 | 450 | 0.18 | 1.6 | 0.03 |
| | R2 | 30 | | 4,800 | 2,000 | 0.5 | 1.7 | 3,000 | 1,250 | 0.3 | 1.6 | 4,800 | 1,800 | 0.18 | 1.6 | 0.1 |
| | | 40 | | 3,800 | 1,900 | 0.4 | 1.6 | 3,000 | 1,250 | 0.3 | 1.6 | 3,800 | 1,400 | 0.18 | 1.6 | 0.1 |
| | | 48 | | 3,200 | 1,700 | 0.27 | 1.4 | 3,000 | 1,250 | 0.26 | 1.4 | 3,200 | 1,150 | 0.18 | 1.6 | 0.07 |
| | | 56 | | 2,700 | 1,300 | 0.2 | 1.4 | 2,700 | 1,100 | 0.2 | 1.4 | 2,700 | 1,000 | 0.18 | 1.6 | 0.07 |
| | | 64 | | 1,900 | 880 | 0.2 | 1.3 | 1,900 | 800 | 0.2 | 1.3 | 1,900 | 700 | 0.18 | 1.6 | 0.05 |
| | | 80 | | 1,500 | 700 | 0.15 | 1.3 | 1,500 | 700 | 0.15 | 1.3 | 1,500 | 550 | 0.18 | 1.6 | 0.03 |
| | | 100 | | 1,200 | 650 | 0.15 | 1.3 | 1,200 | 650 | 0.15 | 1.3 | 1,200 | 500 | 0.18 | 1.6 | 0.03 |
| | | 120 | | 1,000 | 550 | 0.1 | 1.3 | 1,000 | 550 | 0.1 | 1.3 | 1,000 | 450 | 0.18 | 1.6 | 0.03 |
| | | 160 | | 800 | 360 | 0.1 | 1.3 | 800 | 360 | 0.1 | 1.3 | 800 | 300 | 0.18 | 1.6 | 0.03 |
| 10 | R2 | 35 | 0.5° | 3,800 | 2,100 | 0.5 | 2.5 | 2,400 | 1,000 | 0.3 | 1.6 | 3,800 | 1,500 | 0.2 | 2.4 | 0.1 |
| | | 50 | | 3,100 | 1,950 | 0.4 | 2.4 | 2,400 | 1,000 | 0.3 | 1.6 | 3,100 | 1,200 | 0.2 | 2.4 | 0.1 |
| | | 60 | | 2,500 | 1,750 | 0.27 | 2 | 2,400 | 1,000 | 0.27 | 1.6 | 2,500 | 1,000 | 0.2 | 2.4 | 0.1 |
| | | 70 | | 2,200 | 1,350 | 0.2 | 2 | 2,200 | 900 | 0.2 | 1.6 | 2,200 | 900 | 0.2 | 2.4 | 0.07 |
| | | 80 | | 1,500 | 900 | 0.19 | 2 | 1,500 | 680 | 0.19 | 1.6 | 1,500 | 600 | 0.2 | 2.4 | 0.07 |
| | | 100 | | 1,200 | 720 | 0.16 | 2 | 1,200 | 550 | 0.16 | 1.6 | 1,200 | 450 | 0.2 | 2.4 | 0.05 |
| | | 120 | | 1,050 | 650 | 0.13 | 2 | 1,000 | 500 | 0.13 | 1.6 | 1,050 | 400 | 0.2 | 2.4 | 0.05 |
| | | 140 | | 850 | 550 | 0.1 | 1.5 | 800 | 450 | 0.1 | 1.4 | 850 | 350 | 0.2 | 2.4 | 0.03 |
| | | 160 | | 700 | 500 | 0.07 | 1.5 | 700 | 400 | 0.07 | 1.4 | 700 | 300 | 0.2 | 2.4 | 0.03 |
| | | 200 | | 640 | 380 | 0.07 | 1.5 | 640 | 380 | 0.07 | 1.5 | 640 | 300 | 0.2 | 2.4 | 0.03 |
| 12 | R2 | 45 | 0.5° | 3,200 | 2,200 | 0.6 | 3.4 | 2,000 | 840 | 0.3 | 1.6 | 3,200 | 1,500 | 0.24 | 3.2 | 0.15 |
| | | 60 | | 2,500 | 2,100 | 0.5 | 3.2 | 2,000 | 840 | 0.3 | 1.6 | 2,500 | 1,200 | 0.24 | 3.2 | 0.15 |
| | | 70 | | 2,100 | 1,900 | 0.4 | 2.8 | 2,000 | 840 | 0.28 | 1.6 | 2,100 | 1,000 | 0.24 | 3.2 | 0.1 |
| | | 85 | | 1,800 | 1,500 | 0.3 | 2.7 | 1,500 | 630 | 0.22 | 1.6 | 1,800 | 870 | 0.24 | 3.2 | 0.1 |

次ページへ 外径 DC 12～20 NEXT

形状寸法表 SPECIFICATION CHARTS PHX-DFR▶P387
形状寸法表 SPECIFICATION CHARTS PHX-LN-DFR▶P431
形状寸法表 SPECIFICATION CHARTS PHX-PC-DFR▶P427
形状寸法表 SPECIFICATION CHARTS PHX-CRT▶P388

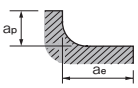
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## PHX-DFR/PHX-LN-DFR/PHX-PC-DFR/PHX-CRT

前ページより FROM 外径 DC 4～12

| 被削材質 Work Material | | | | 快削材 高能率荒取り条件 ～40HRC High feed roughing of free-cutting materials | | | | びびり抑制条件 Vibration control conditions 高じん性金型材 中荒取り条件 38～53HRC Semi-roughing in high toughness mold materials | | | | 仕上げ加工条件 ～55HRC Machining Conditions For Finishing | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | | | | | | | | | | | |
| | | | | SKT4・SKD61・NAK80・HPM1・DH ** | | | | DH **・DAC ** | | | | SKT4・SKD61・NAK80・HPM1・DH ** | | | | |
| 外径 DC | RE | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 仕上げ代 (mm) Clearance |
| | | | | | | ap | ae | | | ap | ae | | | ap | ae | |
| 12 | R2 | 100 | 0.5° | 1,300 | 1,000 | 0.2 | 2.6 | 1,200 | 500 | 0.2 | 1.6 | 1,300 | 630 | 0.24 | 3.2 | 0.1 |
| | | 120 | | 1,000 | 700 | 0.15 | 2.5 | 1,000 | 500 | 0.15 | 1.6 | 1,000 | 480 | 0.24 | 3.2 | 0.05 |
| | | 140 | | 900 | 600 | 0.15 | 2 | 900 | 400 | 0.1 | 1.6 | 900 | 440 | 0.24 | 3.2 | 0.05 |
| | | 160 | | 700 | 500 | 0.1 | 2 | 700 | 400 | 0.1 | 1.6 | 700 | 380 | 0.24 | 3.2 | 0.05 |
| 16 | R3 | 55 | 0.5° | 2,400 | 2,000 | 0.5 | 4.2 | 1,500 | 630 | 0.3 | 1.6 | 2,400 | 1,350 | 0.3 | 4 | 0.2 |
| | | 80 | | 1,900 | 1,900 | 0.47 | 4 | 1,500 | 630 | 0.3 | 1.6 | 1,900 | 1,100 | 0.3 | 4 | 0.15 |
| | | 90 | | 1,600 | 1,700 | 0.4 | 3.4 | 1,500 | 630 | 0.3 | 1.6 | 1,600 | 900 | 0.3 | 4 | 0.1 |
| | | 105 | | 1,400 | 1,300 | 0.29 | 3.3 | 1,400 | 580 | 0.28 | 1.6 | 1,400 | 800 | 0.3 | 4 | 0.07 |
| | | 120 | | 1,000 | 850 | 0.2 | 3.2 | 1,000 | 450 | 0.2 | 1.6 | 1,000 | 600 | 0.3 | 4 | 0.05 |
| 20 | R3 | 70 | 0.5° | 1,900 | 2,000 | 0.5 | 5.5 | 1,200 | 500 | 0.3 | 1.6 | 1,900 | 1,550 | 0.42 | 5.5 | 0.2 |
| | | 90 | | 1,500 | 1,900 | 0.47 | 5.3 | 1,200 | 500 | 0.3 | 1.6 | 1,500 | 1,200 | 0.42 | 5.5 | 0.15 |
| | | 110 | | 1,300 | 1,700 | 0.42 | 4.2 | 1,200 | 500 | 0.3 | 1.6 | 1,300 | 1,050 | 0.42 | 5.5 | 0.1 |
| | | 130 | | 1,100 | 1,300 | 0.31 | 3.8 | 1,100 | 450 | 0.3 | 1.6 | 1,100 | 900 | 0.42 | 5.5 | 0.07 |
| | | 150 | | 760 | 870 | 0.25 | 3.4 | 760 | 350 | 0.23 | 1.6 | 760 | 600 | 0.42 | 5.5 | 0.05 |

1. 上記の突き出し長別条件は目安です。実際の加工条件に合わせて調節をして下さい。
2. 機械、ホルダは剛性の高いものをご使用下さい。
3. 工具の振れ精度を最小限に抑えてご使用下さい。
4. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。通常エアブローを推奨致します。
5. 走査線加工を行う場合は、aeの数値を使用せずに、apの数値を参考にご使用下さい。
6. CAMや機械側でコーナ部のR挿入もしくは減速を設定することで、より安定した高送り加工が可能となります。
7. コーナ部等切削負荷が変動する場合や加工精度を要求される場合には、回転速度を抑えてご使用下さい。
8. 推奨傾斜切込み角度以上で加工される場合には、送り速度を下げてご使用下さい。
9. 切込深さが切削条件表より小さい場合、送り速度を最大１５０%を目安に調整して加工も可能です。
10. 切込深さが切削条件表より大きくなる場合は、最大６０%に減速する事で安定した加工が可能です。




1. The above mentioned conditions according to projection lengths are intended as general guidelines for reference only. Adjustments should be made based on actual milling conditions.
2. Highly rigid machines and tool holders should be used.
3. Tool vibrations should be kept at a minimum level for maximum accuracy.
4. Under general machining condition, air-blow cutting method is recommended.
5. In the case of linear machining, do not use the ae value, instead refer to the ap value.
6. More stable high-feed machining in the corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
7. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
8. When cutting at greater than the recommended cutting angle, reduce the feed.
9. When the depth of cut is less than the specified amount as listed above, the feed rate can be increased up to 150%.
10. When the depth of cut is greater than the specified amount as listed above, the feed rate can be reduced by no more than 60% to ensure stable milling.

# PHX-DBT/PHX-PC-DBT

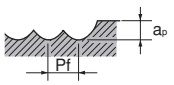
**下記は代表的な材質を掲載しております。その他の材質につきましては、当社HPの「技術 情報」を参照下さい。**

Below is a sampling of materials. For other materials, please refer to the "Technical Information" section of our Web site.

| 被削材質 Work Material | | | 快削材 高能率荒取り条件 ～40HRC High feed roughing of free-cutting materials | | | | びびり抑制条件 Vibration control conditions | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 高じん性金型材 中荒取り条件 38～53HRC Semi-roughing in high toughness mold materials | | | | 溝加工条件 ～53HRC Machining Conditions For Slotting | | | | 仕上げ加工条件 ～55HRC Machining Conditions For Finishing | | | | |
| | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | | | | | | | | | | | | | | | |
| | | | SKT4・SKD61・NAK80・HPM1・DH** | | | | DH **・DAC ** | | | | SKT4・SKD61・NAK80・HPM1・DH** | | | | SKT4・SKD61・NAK80・HPM1・DH** | | | | |
| RE | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 仕上げ代(mm) Clearance |
| R0.5 | 6 | 0.3° | 18,000 | 1,000 | 0.05 | 0.16 | 18,000 | 900 | 0.05 | 0.16 | 18,000 | 280 | 0.007 | 0.03 | 18,000 | 1,200 | 0.03 | 0.03 | 0.05 |
| | 10 | | 16,000 | 800 | 0.04 | 0.16 | 16,000 | 800 | 0.04 | 0.16 | 16,000 | 120 | 0.003 | 0.3 | 16,000 | 1,000 | 0.03 | 0.03 | 0.03 |
| | 15 | | 8,000 | 420 | 0.03 | 0.16 | 8,000 | 420 | 0.03 | 0.16 | - | - | - | - | 8,000 | 500 | 0.03 | 0.03 | 0.03 |
| | 20 | | 6,000 | 300 | 0.02 | 0.12 | 6,000 | 300 | 0.02 | 0.12 | - | - | - | - | 6,000 | 380 | 0.03 | 0.03 | 0.03 |
| | 25 | | 6,000 | 130 | 0.02 | 0.08 | 6,000 | 130 | 0.02 | 0.08 | - | - | - | - | 6,000 | 350 | 0.03 | 0.03 | 0.03 |
| | 30 | | 6,000 | 90 | 0.01 | 0.05 | 6,000 | 90 | 0.01 | 0.05 | - | - | - | - | 6,000 | 250 | 0.03 | 0.03 | 0.03 |
| | 35 | | 6,000 | 90 | 0.01 | 0.05 | 6,000 | 90 | 0.01 | 0.05 | - | - | - | - | 6,000 | 250 | 0.03 | 0.03 | 0.03 |
| | 40 | | 4,800 | 45 | 0.007 | 0.02 | 4,800 | 45 | 0.007 | 0.02 | - | - | - | - | 4,800 | 140 | 0.03 | 0.03 | 0.03 |
| | 50 | | 4,800 | 45 | 0.007 | 0.02 | 4,800 | 45 | 0.007 | 0.02 | - | - | - | - | 4,800 | 140 | 0.03 | 0.03 | 0.03 |
| | 60 | | 4,800 | 30 | 0.005 | 0.015 | 4,800 | 30 | 0.005 | 0.015 | - | - | - | - | 4,800 | 90 | 0.03 | 0.03 | 0.03 |
| R0.75 | 6 | 0.3° | 18,000 | 1,500 | 0.1 | 0.3 | 16,000 | 1,300 | 0.1 | 0.3 | 16,000 | 650 | 0.07 | 0.15 | 18,000 | 1,100 | 0.04 | 0.04 | 0.05 |
| | 10 | | 15,000 | 1,100 | 0.06 | 0.25 | 15,000 | 950 | 0.06 | 0.25 | 15,000 | 320 | 0.01 | 0.1 | 15,000 | 900 | 0.04 | 0.04 | 0.03 |
| | 16 | | 7,500 | 230 | 0.02 | 0.2 | 7,500 | 200 | 0.02 | 0.2 | 7,500 | 300 | 0.007 | 0.05 | 7,500 | 450 | 0.04 | 0.04 | 0.03 |
| | 20 | | 5,300 | 130 | 0.02 | 0.2 | 5,300 | 130 | 0.02 | 0.2 | 6,300 | 200 | 0.007 | 0.05 | 5,300 | 250 | 0.04 | 0.04 | 0.03 |
| | 25 | | 5,300 | 130 | 0.02 | 0.2 | 5,300 | 130 | 0.02 | 0.2 | - | - | - | - | 5,300 | 250 | 0.04 | 0.04 | 0.03 |
| | 30 | | 4,200 | 60 | 0.01 | 0.15 | 4,200 | 60 | 0.01 | 0.15 | - | - | - | - | 4,200 | 100 | 0.04 | 0.04 | 0.03 |
| | 40 | | 4,200 | 60 | 0.01 | 0.15 | 4,200 | 60 | 0.01 | 0.15 | - | - | - | - | 4,200 | 100 | 0.04 | 0.03 | 0.02 |
| | 50 | | 4,200 | 60 | 0.01 | 0.15 | 4,200 | 60 | 0.01 | 0.15 | - | - | - | - | 4,200 | 100 | 0.04 | 0.03 | 0.02 |
| R1 | 6 | 0.3° | 18,000 | 1,600 | 0.2 | 0.6 | 15,000 | 1,400 | 0.2 | 0.4 | 12,000 | 600 | 0.15 | 0.15 | 15,000 | 1,800 | 0.06 | 0.05 | 0.1 |
| | 10 | | 12,000 | 1,250 | 0.14 | 0.4 | 12,000 | 1,100 | 0.14 | 0.4 | 12,000 | 600 | 0.1 | 0.05 | 12,000 | 1,500 | 0.06 | 0.05 | 0.07 |
| | 15 | | 7,800 | 820 | 0.14 | 0.4 | 7,800 | 780 | 0.14 | 0.4 | 7,800 | 450 | 0.07 | 0.05 | 7,800 | 980 | 0.06 | 0.05 | 0.07 |
| | 20 | | 6,200 | 650 | 0.13 | 0.4 | 6,200 | 600 | 0.13 | 0.3 | 6,200 | 340 | 0.05 | 0.05 | 6,200 | 600 | 0.06 | 0.05 | 0.05 |
| | 25 | | 4,700 | 500 | 0.12 | 0.3 | 4,700 | 500 | 0.12 | 0.3 | - | - | - | - | 4,700 | 450 | 0.06 | 0.05 | 0.05 |
| | 30 | | 3,500 | 400 | 0.1 | 0.3 | 3,500 | 400 | 0.1 | 0.3 | - | - | - | - | 3,500 | 450 | 0.06 | 0.05 | 0.05 |
| | 35 | | 3,500 | 400 | 0.07 | 0.3 | 3,500 | 400 | 0.07 | 0.3 | - | - | - | - | 3,500 | 450 | 0.06 | 0.05 | 0.03 |
| | 40 | | 3,500 | 300 | 0.07 | 0.25 | 3,500 | 300 | 0.07 | 0.25 | - | - | - | - | 3,500 | 450 | 0.06 | 0.05 | 0.03 |
| | 45 | | 3,500 | 200 | 0.07 | 0.2 | 3,500 | 200 | 0.07 | 0.2 | - | - | - | - | 3,500 | 450 | 0.06 | 0.05 | 0.03 |
| | 50 | | 3,500 | 150 | 0.06 | 0.1 | 3,500 | 150 | 0.06 | 0.1 | - | - | - | - | 3,500 | 450 | 0.06 | 0.05 | 0.03 |
| | 60 | | 3,500 | 150 | 0.05 | 0.1 | 3,500 | 150 | 0.05 | 0.1 | - | - | - | - | 3,500 | 450 | 0.06 | 0.05 | 0.03 |
| R1.25 | 16 | 0.3° | 10,200 | 1,070 | 0.16 | 0.5 | 10,200 | 1,070 | 0.16 | 0.5 | 10,200 | 750 | 0.08 | 0.07 | 10,200 | 1,500 | 0.07 | 0.06 | 0.1 |
| | 20 | | 10,200 | 920 | 0.16 | 0.5 | 10,200 | 920 | 0.16 | 0.5 | 10,200 | 650 | 0.05 | 0.05 | 10,200 | 1,500 | 0.07 | 0.06 | 0.07 |
| | 30 | | 5,100 | 460 | 0.12 | 0.5 | 5,100 | 460 | 0.12 | 0.5 | 5,100 | 350 | 0.03 | 0.03 | 5,100 | 700 | 0.07 | 0.06 | 0.07 |
| | 40 | | 5,100 | 460 | 0.1 | 0.4 | 5,100 | 460 | 0.1 | 0.4 | - | - | - | - | 5,100 | 700 | 0.07 | 0.06 | 0.05 |
| | 50 | | 2,500 | 150 | 0.06 | 0.3 | 2,500 | 150 | 0.06 | 0.3 | - | - | - | - | 2,500 | 300 | 0.06 | 0.05 | 0.03 |
| | 60 | | 1,900 | 110 | 0.04 | 0.3 | 1,900 | 110 | 0.04 | 0.3 | - | - | - | - | 1,900 | 200 | 0.06 | 0.05 | 0.03 |
| | 80 | | 1,900 | 110 | 0.04 | 0.3 | 1,900 | 110 | 0.04 | 0.3 | - | - | - | - | 1,900 | 200 | 0.06 | 0.05 | 0.03 |
| R1.5 | 10 | 0.3° | 12,000 | 1,900 | 0.21 | 0.5 | 8,000 | 1,200 | 0.21 | 0.5 | 8,000 | 700 | 0.13 | 0.1 | 11,000 | 2,050 | 0.09 | 0.08 | 0.1 |

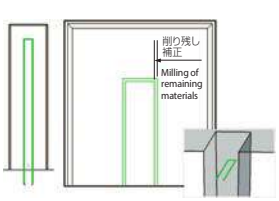
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RE 1.5～3 NEXT

1. 上記の突き出し量別条件は目安です。実際の加工条件に合わせて調節下さい。
2. R0.5～R2.5までは標準状態での首元でチャッキングした工具突き出し加工条件です。
3. 機械、ホルダは剛性の高いものをご使用下さい。
4. 工具の振れ精度を最小限に抑えてご使用下さい。
5. 走査線加工を行う場合は、Pfの数値を使用せずに、apの数値を参考にご使用下さい。
6. CAMや機械側でコーナ部のR挿入もしくは減速を設定することで、より安定した高送り加工が可能となります。
7. コーナ部等切削負荷が変動する場合や加工精度を要求される場合には、回転速度を抑えてご使用下さい。
8. 推奨傾斜切込み角度以上で加工される場合には、送り速度を下げてご使用下さい。
9. 切込深さが切削条件表より小さい場合、送り速度を最大１５０%を目安に調整して加工も可能です。
10. 切込深さが切削条件表より大きくなる場合は、最大６０%に減速する事で安定した加工が可能です。




ボールエンドミルをご使用の場合、「同工具径の」ラジアスエンドミルと比較して、前カッタパス(LAST PITCHがない状態)における削り残しが(コーナーR部の大きさによる切削抵抗による工具の倒れが大きい)多いため、荒(削り残し補正パス)・仕上げ加工の2回(右の図の2重線の様に)に分けて等高線加工をする事によってリブ溝の「加工」精度を上げることが出来ます。

In comparison to the same tool diameters of radius end mill, ball end mill machine less material per pass (large corner radius generate cutting resistance which tilt ball end mill largely). In order to improve the precision of the ribs, please separate the contour milling in roughing (correction of unmachined area)and finishing (shown as double lined area in figure on right) procedure.




1. The above mentioned conditions according to projection lengths are intended as general guidelines for reference only. Adjustments should be made based on actual milling conditions.
2. For 0.5R-2.5R, the machining conditions are based on chucking the tool up to the base of the neck.
3. Highly rigid machines and tool holders should be used.
4. Tool vibrations should be kept at a minimum level for maximum accuracy.
5. In the case of linear machining, do not use the Pf value, instead refer to the ap value.
6. More stable high-feed machining in the corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
7. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
8. When cutting at greater than the recommended cutting angle, reduce the feed.
9. When the depth of cut is less than the specified amount as listed above, the feed rate can be increased up to 150%.
10. When the depth of cut is greater than the specified amount as listed above, the feed rate can be reduced by no more than 60% to ensure stable milling.

形状寸法表 SPECIFICATION CHARTS PHX-DBT▶P335
形状寸法表 SPECIFICATION CHARTS PHX-PC-DBT▶P365

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## PHX-DBT/PHX-PC-DBT

下記は代表的な材質を掲載しております。その他の材質につきましては、当社HPの「技術情報」を参照下さい。
Below is a sampling of materials. For other materials, please refer to the "Technical Information" section of our Web site.

前ページより FROM RE 0.5～1.5

| 被削材質 Work Material | | | 快削材 高能率荒取り条件 ～40HRC High feed roughing of free-cutting materials | | | | びびり抑制条件 Vibration control conditions | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 高じん性金型材 中荒取り条件 38～53HRC Semi-roughing in high toughness mold materials | | | | 溝加工条件 ～53HRC Machining Conditions For Slotting | | | | 仕上げ加工条件 ～55HRC Machining Conditions For Finishing | | | |
| | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | | | | | | | | | | | | | | |
| | | | SKT4・SKD61・NAK80・HPM1・DH** | | | | DH **・DAC ** | | | | SKT4・SKD61・NAK80・HPM1・DH** | | | | SKT4・SKD61・NAK80・HPM1・DH** | | | |
| RE | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 仕上げ代 (mm) Clearance |
| R1.5 | 15 | 0.3° | 10,000 | 1,550 | 0.2 | 0.5 | 8,000 | 1,200 | 0.2 | 0.5 | 8,000 | 550 | 0.1 | 0.1 | 10,000 | 1,900 | 0.09 | 0.08 | 0.07 |
| | 20 | | 7,500 | 1,150 | 0.19 | 0.5 | 7,200 | 1,100 | 0.19 | 0.5 | 7,200 | 480 | 0.06 | 0.07 | 7,500 | 1,400 | 0.09 | 0.08 | 0.07 |
| | 25 | | 4,800 | 750 | 0.19 | 0.5 | 4,600 | 700 | 0.19 | 0.5 | 4,600 | 320 | 0.04 | 0.05 | 4,800 | 900 | 0.09 | 0.08 | 0.05 |
| | 30 | | 4,000 | 630 | 0.16 | 0.4 | 3,400 | 500 | 0.16 | 0.4 | 3,400 | 240 | 0.02 | 0.03 | 3,800 | 720 | 0.09 | 0.08 | 0.03 |
| | 40 | | 2,800 | 440 | 0.13 | 0.4 | 2,600 | 400 | 0.13 | 0.4 | - | - | - | - | 2,600 | 500 | 0.09 | 0.08 | 0.03 |
| | 50 | | 2,200 | 350 | 0.1 | 0.4 | 2,200 | 300 | 0.1 | 0.4 | - | - | - | - | 2,200 | 400 | 0.09 | 0.08 | 0.03 |
| | 60 | | 2,200 | 350 | 0.07 | 0.4 | 2,200 | 300 | 0.07 | 0.4 | - | - | - | - | 2,200 | 400 | 0.09 | 0.08 | 0.03 |
| | 70 | | 2,100 | 250 | 0.07 | 0.4 | 2,100 | 210 | 0.07 | 0.4 | - | - | - | - | 2,100 | 270 | 0.09 | 0.08 | 0.03 |
| | 90 | | 2,100 | 250 | 0.05 | 0.3 | 2,100 | 210 | 0.05 | 0.3 | - | - | - | - | 2,100 | 270 | 0.07 | 0.06 | 0.03 |
| R1.75 | 20 | 0.5° | 7,280 | 1,310 | 0.22 | 0.5 | 6,370 | 960 | 0.22 | 0.5 | 6,370 | 570 | 0.08 | 0.07 | 8,190 | 1,720 | 0.1 | 0.09 | 0.08 |
| | 30 | | 4,550 | 820 | 0.18 | 0.5 | 3,640 | 550 | 0.18 | 0.5 | 3,640 | 330 | 0.02 | 0.03 | 5,000 | 1,050 | 0.1 | 0.09 | 0.03 |
| | 40 | | 3,180 | 570 | 0.13 | 0.5 | 2,730 | 410 | 0.13 | 0.5 | - | - | - | - | 2,730 | 570 | 0.1 | 0.09 | 0.04 |
| | 50 | | 2,730 | 500 | 0.1 | 0.4 | 2,280 | 340 | 0.1 | 0.4 | - | - | - | - | 2,280 | 480 | 0.1 | 0.08 | 0.03 |
| | 60 | | 2,280 | 410 | 0.07 | 0.4 | 2,280 | 340 | 0.07 | 0.4 | - | - | - | - | 2,280 | 480 | 0.1 | 0.08 | 0.03 |
| | 80 | | 1,820 | 330 | 0.06 | 0.3 | 1,820 | 270 | 0.06 | 0.3 | - | - | - | - | 1,820 | 380 | 0.1 | 0.07 | 0.03 |
| | 100 | | 1,820 | 330 | 0.06 | 0.3 | 1,820 | 270 | 0.06 | 0.3 | - | - | - | - | 1,820 | 380 | 0.1 | 0.07 | 0.03 |
| R2 | 10 | 0.5° | 9,600 | 2,000 | 0.3 | 0.6 | 6,000 | 1,250 | 0.3 | 0.6 | 6,000 | 800 | 0.15 | 0.1 | 9,500 | 2,400 | 0.12 | 0.1 | 0.1 |
| | 15 | | 9,300 | 1,900 | 0.27 | 0.6 | 6,000 | 1,200 | 0.27 | 0.6 | 6,000 | 800 | 0.12 | 0.1 | 9,000 | 2,250 | 0.12 | 0.1 | 0.1 |
| | 20 | | 7,600 | 1,550 | 0.25 | 0.6 | 6,000 | 1,150 | 0.25 | 0.6 | 6,000 | 700 | 0.1 | 0.07 | 8,200 | 2,050 | 0.12 | 0.1 | 0.1 |
| | 25 | | 6,100 | 1,250 | 0.23 | 0.6 | 5,500 | 1,100 | 0.23 | 0.6 | 5,500 | 450 | 0.05 | 0.07 | 5,500 | 1,350 | 0.12 | 0.1 | 0.07 |
| | 30 | | 5,000 | 1,050 | 0.2 | 0.6 | 4,500 | 800 | 0.2 | 0.6 | 4,500 | 350 | 0.03 | 0.05 | 4,500 | 1,100 | 0.12 | 0.1 | 0.07 |
| | 35 | | 3,600 | 750 | 0.16 | 0.5 | 3,600 | 650 | 0.16 | 0.5 | 3,600 | 280 | 0.01 | 0.03 | 3,600 | 900 | 0.12 | 0.1 | 0.05 |
| | 40 | | 3,000 | 630 | 0.12 | 0.5 | 3,000 | 550 | 0.12 | 0.5 | 3,000 | 150 | 0.007 | 0.01 | 3,000 | 750 | 0.12 | 0.1 | 0.05 |
| | 45 | | 2,700 | 550 | 0.1 | 0.4 | 2,700 | 500 | 0.1 | 0.4 | - | - | - | - | 2,700 | 680 | 0.12 | 0.1 | 0.03 |
| | 50 | | 2,500 | 520 | 0.1 | 0.4 | 2,500 | 450 | 0.1 | 0.4 | - | - | - | - | 2,500 | 630 | 0.12 | 0.1 | 0.03 |
| | 60 | | 2,100 | 430 | 0.08 | 0.4 | 2,100 | 400 | 0.08 | 0.4 | - | - | - | - | 2,100 | 530 | 0.12 | 0.1 | 0.03 |
| | 70 | | 1,600 | 240 | 0.08 | 0.4 | 1,600 | 220 | 0.08 | 0.4 | - | - | - | - | 1,600 | 280 | 0.12 | 0.1 | 0.03 |
| | 90 | | 1,600 | 240 | 0.08 | 0.4 | 1,600 | 220 | 0.08 | 0.4 | - | - | - | - | 1,600 | 280 | 0.12 | 0.1 | 0.03 |
| | 100 | | 1,600 | 240 | 0.07 | 0.3 | 1,600 | 220 | 0.07 | 0.3 | - | - | - | - | 1,600 | 280 | 0.1 | 0.08 | 0.03 |
| | 120 | | 1,200 | 140 | 0.05 | 0.3 | 1,200 | 130 | 0.05 | 0.3 | - | - | - | - | 1,200 | 170 | 0.1 | 0.08 | 0.03 |
| | 150 | | 1,200 | 140 | 0.05 | 0.3 | 1,200 | 130 | 0.05 | 0.3 | - | - | - | - | 1,200 | 170 | 0.1 | 0.08 | 0.03 |
| R2.5 | 10 | 0.5° | 7,700 | 1,900 | 0.35 | 0.8 | 4,800 | 1,100 | 0.35 | 0.8 | 4,800 | 900 | 0.2 | 0.1 | 7,700 | 2,400 | 0.15 | 1.2 | 0.1 |
| | 15 | | 7,700 | 1,900 | 0.3 | 0.8 | 4,800 | 1,000 | 0.3 | 0.8 | 4,800 | 850 | 0.16 | 0.1 | 6,100 | 1,900 | 0.15 | 1.2 | 0.1 |
| | 20 | | 7,700 | 1,800 | 0.3 | 0.8 | 4,800 | 950 | 0.3 | 0.8 | 4,800 | 700 | 0.12 | 0.07 | 6,100 | 1,900 | 0.15 | 1.2 | 0.1 |
| | 25 | | 5,100 | 1,300 | 0.25 | 0.8 | 4,800 | 900 | 0.25 | 0.8 | 4,800 | 650 | 0.06 | 0.05 | 5,100 | 1,600 | 0.15 | 1.2 | 0.07 |
| | 30 | | 5,100 | 1,200 | 0.2 | 0.6 | 4,800 | 850 | 0.2 | 0.6 | 4,800 | 500 | 0.03 | 0.05 | 5,100 | 1,600 | 0.15 | 1.2 | 0.07 |
| | 35 | | 4,400 | 1,100 | 0.14 | 0.6 | 4,400 | 750 | 0.14 | 0.6 | 4,400 | 400 | 0.015 | 0.03 | 4,400 | 1,350 | 0.15 | 1.2 | 0.05 |
| | 40 | | 3,100 | 750 | 0.1 | 0.6 | 3,100 | 650 | 0.1 | 0.6 | 3,100 | 260 | 0.007 | 0.03 | 3,100 | 950 | 0.15 | 1.2 | 0.05 |
| | 60 | | 2,200 | 430 | 0.1 | 0.6 | 2,200 | 400 | 0.08 | 0.5 | - | - | - | - | 2,200 | 600 | 0.15 | 1.2 | 0.05 |
| | 80 | | 1,600 | 250 | 0.1 | 0.5 | 1,600 | 240 | 0.08 | 0.5 | - | - | - | - | 1,600 | 430 | 0.15 | 1.2 | 0.05 |
| | 90 | | 1,600 | 250 | 0.1 | 0.5 | 1,600 | 240 | 0.08 | 0.5 | - | - | - | - | 1,600 | 430 | 0.15 | 1.2 | 0.05 |
| R3 | 24 | 0.5° | 6,400 | 1,900 | 0.43 | 1.2 | 4,000 | 1,200 | 0.3 | 1 | 4,000 | 900 | 0.3 | 0.1 | 6,500 | 1,950 | 0.18 | 0.16 | 0.1 |
| | 30 | | 5,100 | 1,500 | 0.34 | 1.2 | 4,000 | 1,150 | 0.3 | 1 | 4,000 | 900 | 0.25 | 0.1 | 5,100 | 1,950 | 0.18 | 0.16 | 0.1 |
| | 36 | | 4,200 | 1,250 | 0.38 | 1.2 | 4,000 | 1,100 | 0.3 | 1 | 4,000 | 750 | 0.2 | 0.07 | 4,200 | 1,580 | 0.18 | 0.16 | 0.07 |
| | 42 | | 3,700 | 1,050 | 0.2 | 0.9 | 3,700 | 1,000 | 0.2 | 1 | 3,700 | 500 | 0.15 | 0.05 | 3,700 | 1,400 | 0.18 | 0.16 | 0.07 |
| | 48 | | 3,600 | 750 | 0.15 | 0.9 | 2,600 | 700 | 0.15 | 0.8 | 2,600 | 400 | 0.1 | 0.03 | 2,600 | 980 | 0.18 | 0.16 | 0.05 |
| | 54 | | 2,100 | 630 | 0.1 | 0.8 | 2,100 | 600 | 0.1 | 0.8 | 2,100 | 240 | 0.05 | 0.03 | 2,100 | 800 | 0.18 | 0.16 | 0.05 |
| | 66 | | 1,900 | 550 | 0.08 | 0.7 | 1,900 | 500 | 0.08 | 0.7 | - | - | - | - | 1,900 | 700 | 0.18 | 0.16 | 0.03 |
| | 80 | | 1,700 | 450 | 0.08 | 0.6 | 1,700 | 400 | 0.08 | 0.6 | - | - | - | - | 1,700 | 650 | 0.18 | 0.16 | 0.03 |
| | 90 | | 1,600 | 380 | 0.08 | 0.6 | 1,600 | 380 | 0.08 | 0.6 | - | - | - | - | 1,600 | 580 | 0.18 | 0.16 | 0.03 |
| | 120 | | 1,300 | 280 | 0.08 | 0.5 | 1,300 | 280 | 0.07 | 0.4 | - | - | - | - | 1,300 | 460 | 0.15 | 0.13 | 0.03 |
| | 150 | | 1,300 | 280 | 0.08 | 0.5 | 1,300 | 280 | 0.07 | 0.4 | - | - | - | - | 1,300 | 460 | 0.15 | 0.13 | 0.03 |

次ページへ RE 4～10 NEXT

# PHX-DBT/PHX-PC-DBT

**下記は代表的な材質を掲載しております。その他の材質につきましては、当社HPの「技術 情報」を参照下さい。**

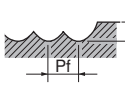
Below is a sampling of materials. For other materials, please refer to the "Technical Information" section of our Web site.

前ページより FROM RE 1.5～3

| 被削材質 Work Material | | | 快削材 高能率荒取り条件 ～40HRC High feed roughing of free-cutting materials | | | | びびり抑制条件 Vibration control conditions: 高じん性金型材 中荒取り条件 38～53HRC Semi-roughing in high toughness mold materials | | | | 溝加工条件 ～53HRC Machining Conditions For Slotting | | | | 仕上げ加工条件 ～55HRC Machining Conditions For Finishing | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | | | | | | | | | | | | | | | |
| | | | SKT4・SKD61・NAK80・HPM1・DH** | | | | DH **・DAC ** | | | | SKT4・SKD61・NAK80・HPM1・DH** | | | | SKT4・SKD61・NAK80・HPM1・DH** | | | | |
| RE | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 仕上げ代 (mm) Clearance |
| R4 | 30 | 0.5° | 4,800 | 2,300 | 0.45 | 1.5 | 3,000 | 1,260 | 0.3 | 1.5 | 3,000 | 1,050 | 0.3 | 0.15 | 4,800 | 2,400 | 0.24 | 0.21 | 0.1 |
| | 40 | | 3,800 | 1,800 | 0.38 | 1.3 | 3,000 | 1,200 | 0.3 | 1.3 | 3,000 | 1,050 | 0.3 | 0.1 | 3,800 | 1,900 | 0.24 | 0.21 | 0.1 |
| | 48 | | 3,200 | 1,500 | 0.28 | 1.2 | 3,000 | 1,100 | 0.25 | 1.2 | 3,000 | 900 | 0.25 | 0.1 | 3,200 | 1,600 | 0.24 | 0.21 | 0.07 |
| | 56 | | 2,700 | 1,300 | 0.2 | 1.1 | 2,700 | 1,000 | 0.2 | 1.1 | 2,700 | 800 | 0.2 | 0.07 | 2,700 | 1,350 | 0.24 | 0.21 | 0.07 |
| | 64 | | 1,900 | 900 | 0.2 | 1 | 1,900 | 700 | 0.17 | 1 | 1,900 | 500 | 0.17 | 0.07 | 1,900 | 950 | 0.24 | 0.21 | 0.05 |
| | 80 | | 1,500 | 700 | 0.15 | 0.8 | 1,500 | 550 | 0.14 | 0.8 | - | - | - | - | 1,500 | 750 | 0.24 | 0.21 | 0.03 |
| | 90 | | 1,400 | 670 | 0.15 | 0.8 | 1,400 | 500 | 0.12 | 0.8 | - | - | - | - | 1,400 | 700 | 0.24 | 0.21 | 0.03 |
| | 100 | | 1,200 | 600 | 0.15 | 0.8 | 1,200 | 400 | 0.1 | 0.8 | - | - | - | - | 1,200 | 600 | 0.24 | 0.21 | 0.03 |
| | 120 | | 1,000 | 500 | 0.1 | 0.7 | 1,000 | 350 | 0.07 | 0.7 | - | - | - | - | 1,000 | 500 | 0.24 | 0.21 | 0.03 |
| R5 | 35 | 0.5° | 3,800 | 2,300 | 0.65 | 1.8 | 2,400 | 1,000 | 0.4 | 1.6 | 2,400 | 850 | 0.4 | 0.15 | 3,800 | 2,400 | 0.3 | 0.27 | 0.1 |
| | 50 | | 3,100 | 1,900 | 0.55 | 1.8 | 2,400 | 1,000 | 0.3 | 1.6 | 2,400 | 850 | 0.3 | 0.15 | 3,100 | 1,950 | 0.3 | 0.27 | 0.1 |
| | 60 | | 2,500 | 1,500 | 0.46 | 1.6 | 2,400 | 1,000 | 0.3 | 1.5 | 2,400 | 850 | 0.3 | 0.1 | 2,500 | 1,550 | 0.3 | 0.27 | 0.1 |
| | 70 | | 2,200 | 1,300 | 0.34 | 1.6 | 2,200 | 900 | 0.3 | 1.5 | 2,200 | 800 | 0.3 | 0.1 | 2,200 | 1,350 | 0.3 | 0.27 | 0.07 |
| | 80 | | 1,500 | 800 | 0.24 | 1.6 | 1,500 | 600 | 0.2 | 1.5 | 1,500 | 600 | 0.2 | 0.07 | 1,500 | 950 | 0.3 | 0.27 | 0.07 |
| | 100 | | 1,200 | 600 | 0.15 | 1.5 | 1,200 | 500 | 0.12 | 1.5 | 1,200 | 500 | 0.12 | 0.07 | 1,200 | 750 | 0.3 | 0.27 | 0.05 |
| | 120 | | 1,050 | 500 | 0.1 | 1.3 | 1,000 | 400 | 0.1 | 1.3 | - | - | - | - | 1,050 | 650 | 0.3 | 0.27 | 0.05 |
| | 140 | | 850 | 400 | 0.07 | 1.3 | 800 | 350 | 0.07 | 1.3 | - | - | - | - | 850 | 500 | 0.3 | 0.27 | 0.03 |
| | 160 | | 700 | 320 | 0.07 | 1 | 700 | 300 | 0.07 | 1 | - | - | - | - | 700 | 450 | 0.3 | 0.27 | 0.03 |
| R6 | 45 | 0.5° | 3,200 | 1,700 | 0.8 | 2 | 2,000 | 800 | 0.8 | 1.8 | 2,000 | 800 | 0.6 | 0.15 | 3,200 | 2,400 | 0.36 | 0.32 | 0.15 |
| | 60 | | 2,500 | 1,300 | 0.65 | 2 | 2,000 | 800 | 0.65 | 1.8 | 2,000 | 800 | 0.5 | 0.15 | 2,500 | 1,900 | 0.36 | 0.32 | 0.15 |
| | 70 | | 2,100 | 1,100 | 0.57 | 2 | 2,000 | 800 | 0.57 | 1.8 | 2,000 | 800 | 0.5 | 0.1 | 2,100 | 1,600 | 0.36 | 0.32 | 0.1 |
| | 85 | | 1,800 | 950 | 0.42 | 1.8 | 1,500 | 600 | 0.42 | 1.7 | 1,500 | 600 | 0.4 | 0.1 | 1,800 | 1,350 | 0.36 | 0.32 | 0.1 |
| | 100 | | 1,300 | 690 | 0.3 | 1.8 | 1,200 | 500 | 0.3 | 1.7 | 1,200 | 500 | 0.3 | 0.1 | 1,300 | 980 | 0.36 | 0.32 | 0.1 |
| | 120 | | 1,000 | 530 | 0.25 | 1.5 | 1,000 | 420 | 0.25 | 1.5 | - | - | - | - | 1,000 | 750 | 0.36 | 0.32 | 0.05 |
| | 140 | | 900 | 470 | 0.2 | 1.5 | 900 | 380 | 0.2 | 1.5 | - | - | - | - | 900 | 680 | 0.36 | 0.32 | 0.05 |
| | 160 | | 700 | 370 | 0.15 | 1.3 | 700 | 300 | 0.15 | 1.3 | - | - | - | - | 700 | 530 | 0.36 | 0.32 | 0.05 |
| R8 | 55 | 0.5° | 2,400 | 1,600 | 1 | 2.2 | 1,500 | 600 | 1 | 1.8 | 1,500 | 600 | 0.8 | 0.15 | 2,400 | 2,400 | 0.48 | 0.4 | 0.2 |
| | 80 | | 1,900 | 1,250 | 0.9 | 2.2 | 1,500 | 600 | 0.9 | 1.8 | 1,500 | 600 | 0.8 | 0.15 | 1,900 | 1,900 | 0.48 | 0.4 | 0.15 |
| | 90 | | 1,600 | 1,050 | 0.75 | 2.2 | 1,500 | 600 | 0.75 | 1.8 | 1,500 | 600 | 0.7 | 0.1 | 1,600 | 1,600 | 0.48 | 0.4 | 0.1 |
| | 105 | | 1,400 | 900 | 0.55 | 2 | 1,400 | 570 | 0.55 | 1.7 | 1,400 | 570 | 0.5 | 0.07 | 1,400 | 1,400 | 0.48 | 0.4 | 0.07 |
| | 120 | | 1,000 | 650 | 0.4 | 2 | 1,000 | 420 | 0.4 | 1.7 | 1,000 | 420 | 0.4 | 0.05 | 1,000 | 1,000 | 0.48 | 0.4 | 0.05 |
| | 150 | | 800 | 500 | 0.4 | 2 | 800 | 340 | 0.4 | 1.7 | 800 | 340 | 0.4 | 0.05 | 800 | 720 | 0.48 | 0.4 | 0.05 |
| R10 | 70 | 0.5° | 1,900 | 1,500 | 1.2 | 3.6 | 1,200 | 500 | 1.2 | 1.8 | 1,200 | 500 | 0.8 | 0.15 | 1,900 | 2,400 | 0.6 | 0.5 | 0.2 |
| | 90 | | 1,500 | 1,200 | 1.1 | 3.6 | 1,200 | 500 | 1.1 | 1.8 | 1,200 | 500 | 0.8 | 0.15 | 1,500 | 1,900 | 0.6 | 0.5 | 0.15 |
| | 110 | | 1,300 | 1,000 | 0.9 | 3.5 | 1,200 | 500 | 0.9 | 1.8 | 1,200 | 500 | 0.8 | 0.1 | 1,300 | 1,600 | 0.6 | 0.5 | 0.1 |
| | 130 | | 1,100 | 850 | 0.7 | 3.4 | 1,100 | 450 | 0.7 | 1.8 | 1,100 | 450 | 0.7 | 0.1 | 1,100 | 1,400 | 0.6 | 0.5 | 0.07 |
| | 150 | | 760 | 600 | 0.5 | 3.3 | 760 | 320 | 0.5 | 1.8 | 760 | 320 | 0.5 | 0.07 | 760 | 950 | 0.6 | 0.5 | 0.05 |

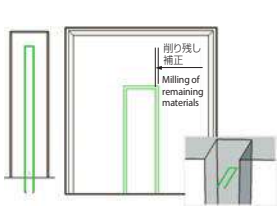
1. 上記の突き出し量別条件は目安です。実際の加工条件に合わせて調節下さい。
2. R0.5～R2.5までは標準状態での首元でチャッキングした工具突き出し加工条件です。
3. 機械、ホルダは剛性の高いものをご使用下さい。
4. 工具の振れ精度を最小限に抑えてご使用下さい。
5. 走査線加工を行う場合は、Pfの数値を使用せずに、apの数値を参考にご使用下さい。
6. CAMや機械側でコーナ部のR挿入もしくは減速を設定することで、より安定した高送り加工が可能となります。
7. コーナ部等切削負荷が変動する場合や加工精度を要求される場合には、回転速度を抑えてご使用下さい。
8. 推奨傾斜切込み角度以上で加工される場合には、送り速度を下げてご使用下さい。
9. 切込深さが切削条件表より小さい場合、送り速度を最大１５０%を目安に調整して加工も可能です。
10. 切込深さが切削条件表より大きくなる場合は、最大６０%に減速する事で安定した加工が可能です。

1. The above mentioned conditions according to projection lengths are intended as general guidelines for reference only. Adjustments should be made based on actual milling conditions.
2. For 0.5R-2.5R, the machining conditions are based on chucking the tool up to the base of the neck.
3. Highly rigid machines and tool holders should be used.
4. Tool vibrations should be kept at a minimum level for maximum accuracy.
5. In the case of linear machining, do not use the Pf value, instead refer to the ap value.
6. More stable high-feed machining in the corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
7. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
8. When cutting at greater than the recommended cutting angle, reduce the feed.
9. When the depth of cut is less than the specified amount as listed above, the feed rate can be increased up to 150%.
10. When the depth of cut is greater than the specified amount as listed above, the feed rate can be reduced by no more than 60% to ensure stable milling.




ボールエンドミルをご使用の場合、「同工具径の」ラジアスエンドミルと比較して、前カッタパス(LAST PITCHがない状態)における削り残しが(コーナーR部の大きさによる切削抵抗による工具の倒れが大きい)多いため、荒(削り残し補正パス)・仕上げ加工の２回(右の図の２重線の様に)に分けて等高線加工をする事によってリブ溝の「加工」精度を上げることが出来ます。

In comparison to the same tool diameters of radius end mill, ball end mill machine less material per pass (large corner radius generate cutting resistance which tilt ball end mill largely). In order to improve the precision of the ribs, please separate the contour milling in roughing (correction of unmachined area)and finishing (shown as double lined area in figure on right) procedure.



形状寸法表
SPECIFICATION CHARTS
PHX-LN-DBT▶P354

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

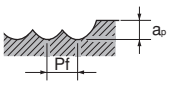
## PHX-LN-DBT

下記は代表的な材質を掲載しております。その他の材質につきましては、当社HPの「技術情報」を参照下さい。
Below is a sampling of materials. For other materials, please refer to the "Technical Information" section of our Web site.

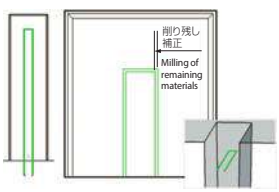
| 被削材質 Work Material | | | 快削材 高能率荒取り条件 ～40HRC High feed roughing of free-cutting materials | | | | びびり抑制条件 Vibration control conditions: 高じん性金型材 中荒取り条件 40～60HRC Semi-roughing in high toughness mold materials | | | | 微細形状 溝加工条件 ～60HRC Machining conditions for slotting | | | | 仕上げ加工条件 ～60HRC Machining conditions for finishing | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | | | | | | | | | | | | | | | |
| | | | SKT4・SKD61・NAK80・HPM1・DH**・SCM・S40C～S60C・CoCrMo | | | | DH**・DAC**・SKD61・SKD11・Ti-6Al-4V(H)・CoCr・SKT4・NAK80・HPM**・SCM** | | | | | | | | | | | | |
| RE | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Last Pitch ※1 | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | 切込深さ(mm) Depth of Cut Pf | 仕上げ代 (mm) Clearance |
| R0.3 | 1 | 0.3° | 18,000 | 1,200 | 0.05 | 0.14 | 18,000 | 1,000 | 0.05 | 0.1 | 18,000 | 300 | 0.05 | 0.05 | 18,000 | 700 | 0.018 | 0.018 | 0.03 |
| | 2 | | 18,000 | 1,000 | 0.04 | 0.12 | 18,000 | 850 | 0.04 | 0.1 | 18,000 | 255 | 0.04 | 0.05 | 18,000 | 700 | 0.018 | 0.018 | 0.03 |
| | 3 | | 18,000 | 850 | 0.03 | 0.12 | 18,000 | 700 | 0.03 | 0.08 | 18,000 | 210 | 0.03 | 0.04 | 18,000 | 700 | 0.018 | 0.018 | 0.025 |
| | 4 | | 18,000 | 700 | 0.02 | 0.1 | 18,000 | 600 | 0.02 | 0.08 | 18,000 | 180 | 0.02 | 0.04 | 18,000 | 700 | 0.018 | 0.018 | 0.02 |
| | 6 | | 18,000 | 500 | 0.01 | 0.08 | 16,000 | 400 | 0.01 | 0.06 | 16,000 | 120 | 0.01 | 0.03 | 16,000 | 620 | 0.018 | 0.018 | 0.01 |
| R0.5 | 4 | 0.3° | 18,000 | 1,200 | 0.08 | 0.2 | 18,000 | 1,100 | 0.07 | 0.16 | 18,000 | 330 | 0.07 | 0.07 | 18,000 | 900 | 0.03 | 0.03 | 0.05 |
| | 6 | | 18,000 | 1,000 | 0.05 | 0.16 | 18,000 | 900 | 0.05 | 0.16 | 18,000 | 270 | 0.05 | 0.07 | 18,000 | 900 | 0.03 | 0.03 | 0.05 |
| | 8 | | 16,000 | 800 | 0.04 | 0.16 | 16,000 | 700 | 0.04 | 0.16 | 16,000 | 210 | 0.04 | 0.05 | 16,000 | 720 | 0.03 | 0.03 | 0.03 |
| | 10 | | 12,000 | 650 | 0.04 | 0.16 | 10,000 | 550 | 0.03 | 0.15 | 10,000 | 160 | 0.03 | 0.05 | 12,000 | 540 | 0.03 | 0.03 | 0.03 |
| | 12 | | 8,000 | 420 | 0.03 | 0.15 | 8,000 | 420 | 0.03 | 0.15 | - | - | - | - | 8,000 | 360 | 0.03 | 0.03 | 0.02 |
| | 14 | | 7,000 | 350 | 0.02 | 0.13 | 7,000 | 350 | 0.02 | 0.13 | - | - | - | - | 7,000 | 320 | 0.03 | 0.03 | 0.02 |
| | 16 | | 6,000 | 260 | 0.01 | 0.1 | 6,000 | 260 | 0.01 | 0.1 | - | - | - | - | 6,000 | 270 | 0.02 | 0.02 | 0.01 |
| R0.75 | 6 | 0.3° | 18,000 | 1,500 | 0.1 | 0.3 | 16,000 | 1,300 | 0.1 | 0.23 | 16,000 | 390 | 0.1 | 0.1 | 18,000 | 1,100 | 0.04 | 0.04 | 0.05 |
| | 8 | | 16,000 | 1,300 | 0.08 | 0.3 | 16,000 | 1,150 | 0.08 | 0.23 | 16,000 | 340 | 0.08 | 0.1 | 16,000 | 960 | 0.04 | 0.04 | 0.05 |
| | 10 | | 15,000 | 1,100 | 0.06 | 0.25 | 15,000 | 950 | 0.06 | 0.23 | 15,000 | 280 | 0.06 | 0.1 | 15,000 | 900 | 0.04 | 0.04 | 0.03 |
| | 12 | | 10,000 | 700 | 0.04 | 0.2 | 10,000 | 600 | 0.03 | 0.2 | 10,000 | 180 | 0.03 | 0.1 | 10,000 | 600 | 0.04 | 0.04 | 0.02 |
| | 16 | | 7,500 | 400 | 0.025 | 0.15 | 7,500 | 400 | 0.02 | 0.15 | 7,500 | 120 | 0.02 | 0.07 | 10,000 | 600 | 0.04 | 0.04 | 0.01 |
| R1 | 6 | 0.3° | 18,000 | 1,600 | 0.2 | 0.6 | 15,000 | 1,400 | 0.2 | 0.3 | 15,000 | 420 | 0.2 | 0.1 | 15,000 | 1,800 | 0.06 | 0.05 | 0.1 |
| | 8 | | 14,000 | 1,400 | 0.18 | 0.5 | 14,000 | 1,200 | 0.15 | 0.3 | 14,000 | 360 | 0.15 | 0.1 | 12,000 | 1,500 | 0.06 | 0.05 | 0.07 |
| | 10 | | 12,000 | 1,250 | 0.16 | 0.4 | 12,000 | 1,100 | 0.12 | 0.3 | 12,000 | 330 | 0.12 | 0.1 | 12,000 | 1,500 | 0.06 | 0.05 | 0.07 |
| | 12 | | 10,000 | 1,050 | 0.14 | 0.4 | 10,000 | 900 | 0.1 | 0.3 | 10,000 | 300 | 0.1 | 0.1 | 10,000 | 1,200 | 0.06 | 0.05 | 0.07 |
| | 14 | | 8,000 | 850 | 0.12 | 0.35 | 8,000 | 700 | 0.08 | 0.3 | 8,000 | 240 | 0.08 | 0.1 | 8,000 | 1,000 | 0.06 | 0.05 | 0.05 |
| | 16 | | 7,500 | 780 | 0.12 | 0.4 | 7,500 | 650 | 0.07 | 0.25 | 7,500 | 260 | 0.07 | 0.07 | 7,500 | 950 | 0.06 | 0.05 | 0.03 |
| | 18 | | 6,800 | 700 | 0.1 | 0.4 | 6,800 | 630 | 0.06 | 0.2 | 6,800 | 250 | 0.06 | 0.07 | 6,800 | 700 | 0.06 | 0.05 | 0.03 |
| | 20 | | 6,200 | 650 | 0.1 | 0.4 | 6,200 | 600 | 0.05 | 0.2 | 6,200 | 240 | 0.05 | 0.05 | 6,200 | 600 | 0.06 | 0.05 | 0.02 |
| | 22 | | 6,000 | 600 | 0.08 | 0.3 | 6,000 | 450 | 0.05 | 0.15 | 6,000 | 180 | 0.05 | 0.05 | 6,000 | 550 | 0.06 | 0.05 | 0.02 |
| R1.5 | 12 | 0.3° | 12,000 | 1,700 | 0.3 | 0.7 | 8,000 | 1,200 | 0.25 | 0.5 | 8,000 | 480 | 0.25 | 0.15 | 11,000 | 2,050 | 0.09 | 0.08 | 0.1 |
| | 16 | | 10,000 | 1,550 | 0.25 | 0.7 | 8,000 | 1,200 | 0.2 | 0.5 | 8,000 | 480 | 0.2 | 0.15 | 10,000 | 1,900 | 0.09 | 0.08 | 0.07 |
| | 20 | | 7,500 | 1,150 | 0.2 | 0.6 | 7,200 | 1,100 | 0.2 | 0.5 | 7,200 | 440 | 0.2 | 0.15 | 7,500 | 1,400 | 0.09 | 0.08 | 0.07 |
| | 25 | | 4,800 | 750 | 0.18 | 0.6 | 4,600 | 700 | 0.18 | 0.5 | 4,600 | 280 | 0.18 | 0.15 | 4,800 | 900 | 0.09 | 0.08 | 0.05 |
| R2 | 16 | 0.5° | 9,300 | 1,900 | 0.27 | 1 | 6,000 | 1,200 | 0.27 | 0.8 | 6,000 | 480 | 0.27 | 0.2 | 9,000 | 2,250 | 0.12 | 0.1 | 0.1 |
| | 20 | | 7,600 | 1,550 | 0.25 | 1 | 6,000 | 1,150 | 0.25 | 0.8 | 6,000 | 450 | 0.25 | 0.2 | 8,200 | 2,050 | 0.12 | 0.1 | 0.1 |
| | 25 | | 6,100 | 1,250 | 0.23 | 0.8 | 5,500 | 1,100 | 0.23 | 0.6 | 5,500 | 420 | 0.23 | 0.2 | 5,500 | 1,350 | 0.12 | 0.1 | 0.07 |
| R3 | 20 | 0.5° | 8,000 | 3,000 | 0.43 | 1.5 | 4,000 | 1,200 | 0.3 | 1 | 4,000 | 480 | 0.3 | 0.2 | 8,000 | 1,800 | 0.18 | 0.16 | 0.1 |
| | 30 | | 5,100 | 1,500 | 0.34 | 1.2 | 4,000 | 1,150 | 0.3 | 1 | 4,000 | 480 | 0.3 | 0.2 | 5,100 | 1,150 | 0.18 | 0.16 | 0.07 |

※1 Last Pitch とは、溝切削、ポケット加工時の側面方向への切削抵抗による逃げや食い込みを考慮した経路つくりの場合に設定する「最終輪郭ピッチ」の目安値です。

1. 上記の突き出し量別条件は目安です。実際の加工条件に合わせて調節をして下さい。
2. 有効長でチャッキングした工具突き出し加工条件です。
3. 機械、ホルダは剛性の高いものをご使用下さい。
4. 工具の振れ精度を最小限に抑えてご使用下さい。
5. 走査線加工を行う場合は、Pfの数値を使用せずに、apの数値を参考にご使用下さい。
6. CAMや機械側でコーナ部のR挿入もしくは減速を設定することで、より安定した高送り加工が可能となります。
7. コーナ部等切削負荷が変動する場合や加工精度を要求される場合には、回転速度を抑えてご使用下さい。
8. 推奨傾斜切込み角度以上で加工される場合には、送り速度を下げてご使用下さい。
9. 切込深さが切削条件表より小さい場合、送り速度を最大１５０%を目安に調整して加工も可能です。
10. 切込深さが切削条件表より大きくなる場合は、最大６０%に減速する事で安定した加工が可能です。




ボールエンドミルをご使用の場合、「同工具径の」ラジアスエンドミルと比較して、前カッタパス(LAST PITCHがない状態)における削り残しが(コーナーR部の大きさによる切削抵抗による工具の倒れが大きい)多いため、荒(削り残し補正パス)・仕上げ加工の２回(右の図の２重線の様に)に分けて等高線加工をする事によってリブ溝の「加工」精度を上げることが出来ます。
In comparison to the same tool diameters of radius end mill, ball end mill machine less material per pass (large corner radius generate cutting resistance which tilt ball end mill largely). In order to improve the precision of the ribs, please separate the contour milling in roughing (correction of unmachined area)and finishing (shown as double lined area in figure on right) procedure.




※1. The "Last Pitch" is the standard final contour pitch value calculated based on slotting and pocket milling paths including runout and overcut caused by lateral cutting forces.

1. The above cutting conditions based on overhang length are to be used as general guideline. Adjustments may be necessary depending on actual milling condition.
2. Overhang cutting conditions based on the effective length of the tool attached to the holder.
3. Highly rigid machines and tool holders should be used.
4. Tool vibrations should be kept at a minimum level for maximum accuracy.
5. In the case of linear machining, do not use the Pf value, instead refer to the ap value.
6. More stable high-feed machining in the corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
7. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
8. When cutting at greater than the recommended cutting angle, reduce the feed.
9. When the depth of cut is less than the specified amount as listed above, the feed rate can be increased up to 150%.
10. When the depth of cut is greater than the specified amount as listed above, the feed rate can be reduced by no more than 60% to ensure stable milling.

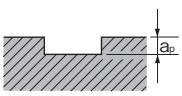
# WXL-1.5D-DE
## 溝切削

SLOTTING

| 被削材 Work Material | 銅・銅合金 Copper・Copper Alloy | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 33～41HRC | | 42～50HRC | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 0.1 | 50,000 | 120 | 40,000 | 80 | 40,000 | 75 | 40,000 | 38 |
| 0.2 | 50,000 | 170 | 40,000 | 110 | 40,000 | 90 | 40,000 | 45 |
| 0.3 | 50,000 | 210 | 40,000 | 140 | 40,000 | 100 | 40,000 | 70 |
| 0.4 | 50,000 | 230 | 40,000 | 150 | 40,000 | 110 | 34,500 | 75 |
| 0.5 | 50,000 | 250 | 38,500 | 150 | 31,000 | 110 | 27,500 | 75 |
| 0.6 | 50,000 | 280 | 33,500 | 150 | 24,500 | 110 | 21,000 | 75 |
| 0.7 | 50,000 | 310 | 30,000 | 150 | 21,500 | 110 | 18,500 | 75 |
| 0.8 | 50,000 | 360 | 27,000 | 150 | 19,500 | 110 | 17,000 | 80 |
| 0.9 | 50,000 | 400 | 23,500 | 150 | 17,000 | 110 | 15,000 | 80 |
| 1 | 50,000 | 430 | 22,000 | 150 | 15,500 | 110 | 13,500 | 80 |
| 1.1 | 50,000 | 420 | 20,000 | 150 | 14,000 | 110 | 12,500 | 80 |
| 1.2 | 50,000 | 420 | 18,500 | 150 | 13,500 | 110 | 11,500 | 80 |
| 1.3 | 47,000 | 410 | 17,500 | 150 | 12,500 | 110 | 11,000 | 80 |
| 1.4 | 44,000 | 410 | 16,000 | 150 | 11,500 | 110 | 10,000 | 80 |
| 1.5 | 40,000 | 400 | 15,500 | 150 | 11,000 | 110 | 9,900 | 80 |
| 1.6 | 39,000 | 400 | 15,000 | 150 | 10,500 | 110 | 9,400 | 80 |
| 1.7 | 36,500 | 400 | 14,000 | 150 | 9,900 | 110 | 8,800 | 80 |
| 1.8 | 34,500 | 400 | 13,500 | 160 | 9,400 | 110 | 8,500 | 80 |
| 1.9 | 32,500 | 400 | 12,500 | 160 | 8,800 | 110 | 7,900 | 85 |
| 2 | 30,000 | 380 | 12,000 | 160 | 8,700 | 110 | 7,900 | 90 |
| 2.1 | 29,000 | 410 | 11,500 | 170 | 8,300 | 110 | 7,400 | 90 |
| 2.2 | 28,000 | 410 | 11,000 | 170 | 8,200 | 110 | 7,200 | 90 |
| 2.3 | 27,500 | 410 | 11,000 | 180 | 8,000 | 110 | 7,000 | 90 |
| 2.4 | 26,000 | 430 | 10,500 | 180 | 7,900 | 110 | 6,900 | 90 |
| 2.5 | 24,500 | 430 | 10,500 | 200 | 7,600 | 110 | 6,600 | 90 |
| 2.6 | 23,500 | 470 | 9,800 | 200 | 7,400 | 125 | 6,300 | 90 |
| 2.7 | 23,000 | 470 | 9,500 | 200 | 7,100 | 125 | 6,100 | 90 |
| 2.8 | 22,000 | 470 | 9,100 | 210 | 6,900 | 125 | 5,800 | 95 |
| 2.9 | 21,500 | 470 | 8,900 | 210 | 6,800 | 125 | 5,700 | 95 |
| 3 | 21,000 | 540 | 8,800 | 225 | 6,700 | 130 | 5,700 | 100 |
| 3.1 | 20,000 | 550 | 8,700 | 240 | 6,600 | 135 | 5,600 | 100 |
| 3.2 | 19,500 | 560 | 8,400 | 240 | 6,500 | 140 | 5,400 | 105 |
| 3.3 | 19,000 | 560 | 8,100 | 250 | 6,300 | 145 | 5,200 | 105 |
| 3.4 | 18,000 | 560 | 7,900 | 250 | 6,100 | 145 | 5,100 | 105 |
| 3.5 | 18,000 | 560 | 7,800 | 250 | 6,000 | 155 | 5,000 | 105 |
| 3.6 | 17,500 | 580 | 7,600 | 270 | 5,900 | 155 | 4,900 | 110 |
| 3.7 | 16,500 | 580 | 7,400 | 270 | 5,700 | 155 | 4,700 | 110 |
| 3.8 | 16,000 | 590 | 7,300 | 280 | 5,700 | 155 | 4,600 | 110 |
| 3.9 | 15,500 | 590 | 7,100 | 280 | 5,500 | 160 | 4,500 | 110 |
| 4 | 15,500 | 600 | 7,000 | 280 | 5,500 | 160 | 4,500 | 115 |
| 4.1 | 15,500 | 640 | 6,900 | 290 | 5,400 | 160 | 4,400 | 115 |
| 4.2 | 15,000 | 640 | 6,800 | 290 | 5,300 | 160 | 4,400 | 115 |
| 4.3 | 14,000 | 640 | 6,700 | 310 | 5,200 | 160 | 4,300 | 115 |
| 4.4 | 14,000 | 670 | 6,600 | 320 | 5,100 | 170 | 4,200 | 125 |
| 4.5 | 14,000 | 670 | 6,600 | 320 | 5,100 | 170 | 4,200 | 125 |
| 4.6 | 13,500 | 700 | 6,500 | 330 | 4,900 | 170 | 4,100 | 125 |
| 4.7 | 13,500 | 700 | 6,500 | 350 | 4,900 | 170 | 4,100 | 125 |
| 4.8 | 13,500 | 710 | 6,400 | 350 | 4,800 | 170 | 4,100 | 125 |
| 4.9 | 13,500 | 710 | 6,300 | 360 | 4,700 | 170 | 4,000 | 125 |
| 5 | 12,500 | 720 | 6,200 | 370 | 4,600 | 170 | 3,900 | 130 |
| 5.1 | 12,500 | 720 | 6,100 | 370 | 4,500 | 170 | 3,900 | 130 |
| 5.2 | 12,000 | 720 | 6,000 | 370 | 4,400 | 170 | 3,800 | 130 |
| 5.3 | 12,000 | 720 | 5,900 | 370 | 4,400 | 170 | 3,800 | 130 |
| 5.4 | 11,500 | 720 | 5,800 | 370 | 4,300 | 170 | 3,600 | 130 |
| 5.5 | 11,500 | 720 | 5,700 | 370 | 4,200 | 170 | 3,500 | 130 |
| 5.6 | 11,500 | 720 | 5,600 | 370 | 4,100 | 170 | 3,500 | 130 |
| 5.7 | 11,000 | 720 | 5,500 | 370 | 4,000 | 170 | 3,400 | 130 |
| 5.8 | 11,000 | 710 | 5,400 | 370 | 3,900 | 170 | 3,300 | 130 |
| 5.9 | 10,500 | 710 | 5,300 | 370 | 3,800 | 170 | 3,300 | 130 |
| 6 | 10,000 | 710 | 5,200 | 370 | 3,800 | 170 | 3,200 | 130 |
| 8 | 7,200 | 580 | 4,000 | 320 | 2,800 | 230 | 2,400 | 140 |
| 10 | 5,700 | 580 | 3,200 | 320 | 2,200 | 230 | 1,900 | 140 |
| 12 | 4,800 | 580 | 2,700 | 320 | 1,900 | 230 | 1,600 | 140 |

切込深さ Depth of Cut

| | |
|---|---|
| DC<φ1 | 0.1D |
| φ1≦DC<φ3 | 0.3D |
| φ3≦DC | 0.5D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed at the same ratio.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

形状寸法表
SPECIFICATION CHARTS
WXL-2D-DE▶P260

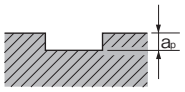
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-2D-DE
## 溝切削 SLOTTING

| 被削材 Work Material | 銅・銅合金 Copper・Copper Alloy | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH＊＊・SUS304 33～41HRC | | 42～50HRC | |
|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 0.1 | 50,000 | 100 | 32,000 | 70 | 32,000 | 60 | 32,000 | 30 |
| 0.2 | 50,000 | 140 | 32,000 | 90 | 32,000 | 75 | 32,000 | 35 |
| 0.3 | 50,000 | 170 | 32,000 | 110 | 32,000 | 80 | 32,000 | 55 |
| 0.4 | 50,000 | 190 | 32,000 | 120 | 32,000 | 90 | 27,500 | 60 |
| 0.5 | 50,000 | 200 | 31,000 | 120 | 25,000 | 90 | 22,000 | 60 |
| 0.6 | 50,000 | 230 | 27,000 | 120 | 19,500 | 90 | 17,000 | 60 |
| 0.7 | 50,000 | 250 | 24,000 | 120 | 17,000 | 90 | 15,000 | 60 |
| 0.8 | 50,000 | 290 | 21,500 | 120 | 15,500 | 90 | 13,500 | 65 |
| 0.9 | 49,000 | 320 | 19,000 | 120 | 13,500 | 90 | 12,000 | 65 |
| 1 | 47,500 | 350 | 17,500 | 120 | 12,500 | 90 | 11,000 | 65 |
| 1.1 | 43,000 | 340 | 16,000 | 120 | 11,500 | 90 | 9,900 | 65 |
| 1.2 | 40,500 | 340 | 15,000 | 120 | 10,500 | 90 | 9,300 | 65 |
| 1.3 | 38,000 | 330 | 14,000 | 120 | 9,900 | 90 | 8,700 | 65 |
| 1.4 | 35,000 | 330 | 13,000 | 120 | 9,200 | 90 | 8,100 | 65 |
| 1.5 | 32,000 | 320 | 12,500 | 120 | 8,900 | 90 | 7,900 | 65 |
| 1.6 | 31,000 | 320 | 12,000 | 120 | 8,500 | 90 | 7,500 | 65 |
| 1.7 | 29,000 | 320 | 11,000 | 120 | 7,900 | 90 | 7,000 | 65 |
| 1.8 | 28,000 | 320 | 10,500 | 130 | 7,500 | 90 | 6,800 | 68 |
| 1.9 | 26,000 | 320 | 10,000 | 130 | 7,100 | 90 | 6,300 | 68 |
| 2 | 24,000 | 310 | 9,700 | 130 | 7,000 | 90 | 6,300 | 70 |
| 2.1 | 23,000 | 330 | 9,300 | 140 | 6,600 | 90 | 5,900 | 70 |
| 2.2 | 22,500 | 330 | 9,000 | 140 | 6,500 | 90 | 5,700 | 70 |
| 2.3 | 22,000 | 330 | 8,800 | 150 | 6,400 | 90 | 5,600 | 70 |
| 2.4 | 20,500 | 350 | 8,600 | 150 | 6,300 | 90 | 5,500 | 70 |
| 2.5 | 20,000 | 350 | 8,200 | 160 | 6,100 | 90 | 5,300 | 70 |
| 2.6 | 19,000 | 380 | 7,900 | 160 | 5,900 | 100 | 5,000 | 70 |
| 2.7 | 18,000 | 380 | 7,600 | 160 | 5,700 | 100 | 4,900 | 70 |
| 2.8 | 17,500 | 380 | 7,300 | 170 | 5,500 | 100 | 4,700 | 75 |
| 2.9 | 17,000 | 380 | 7,100 | 170 | 5,300 | 100 | 4,500 | 75 |
| 3 | 16,000 | 400 | 6,900 | 170 | 5,300 | 100 | 4,400 | 75 |
| 3.1 | 15,500 | 410 | 6,700 | 180 | 5,100 | 100 | 4,300 | 75 |
| 3.2 | 15,000 | 420 | 6,500 | 180 | 5,000 | 110 | 4,200 | 80 |
| 3.3 | 14,500 | 420 | 6,300 | 190 | 4,800 | 110 | 4,000 | 80 |
| 3.4 | 14,000 | 420 | 6,100 | 190 | 4,600 | 110 | 3,900 | 80 |
| 3.5 | 14,000 | 420 | 6,000 | 190 | 4,600 | 120 | 3,800 | 80 |
| 3.6 | 13,500 | 430 | 5,900 | 200 | 4,500 | 120 | 3,700 | 85 |
| 3.7 | 12,500 | 430 | 5,700 | 200 | 4,400 | 120 | 3,600 | 85 |
| 3.8 | 12,500 | 440 | 5,600 | 210 | 4,400 | 120 | 3,600 | 85 |
| 3.9 | 12,000 | 440 | 5,500 | 210 | 4,200 | 125 | 3,500 | 85 |
| 4 | 12,000 | 450 | 5,400 | 210 | 4,200 | 125 | 3,500 | 90 |
| 4.1 | 11,500 | 480 | 5,300 | 220 | 4,100 | 125 | 3,400 | 90 |
| 4.2 | 11,500 | 480 | 5,300 | 220 | 4,100 | 125 | 3,300 | 90 |
| 4.3 | 11,000 | 480 | 5,200 | 230 | 4,000 | 125 | 3,300 | 90 |
| 4.4 | 11,000 | 500 | 5,100 | 240 | 3,900 | 130 | 3,200 | 95 |
| 4.5 | 10,500 | 500 | 5,100 | 240 | 3,900 | 130 | 3,200 | 95 |
| 4.6 | 10,500 | 520 | 5,000 | 250 | 3,800 | 130 | 3,200 | 95 |
| 4.7 | 10,500 | 520 | 5,000 | 260 | 3,800 | 130 | 3,100 | 95 |
| 4.8 | 10,500 | 530 | 4,900 | 260 | 3,700 | 130 | 3,100 | 95 |
| 4.9 | 10,000 | 530 | 4,900 | 270 | 3,600 | 130 | 3,100 | 95 |
| 5 | 9,500 | 540 | 4,800 | 270 | 3,500 | 130 | 3,000 | 100 |
| 5.1 | 9,500 | 540 | 4,700 | 270 | 3,500 | 130 | 3,000 | 100 |
| 5.2 | 9,300 | 540 | 4,600 | 270 | 3,400 | 130 | 2,900 | 100 |
| 5.3 | 9,200 | 540 | 4,600 | 270 | 3,400 | 130 | 2,900 | 100 |
| 5.4 | 9,000 | 540 | 4,500 | 270 | 3,300 | 130 | 2,800 | 100 |
| 5.5 | 8,800 | 540 | 4,400 | 270 | 3,200 | 130 | 2,700 | 100 |
| 5.6 | 8,700 | 540 | 4,300 | 270 | 3,100 | 130 | 2,600 | 100 |
| 5.7 | 8,500 | 540 | 4,200 | 270 | 3,100 | 130 | 2,600 | 100 |
| 5.8 | 8,400 | 530 | 4,200 | 270 | 3,000 | 130 | 2,600 | 100 |
| 5.9 | 8,200 | 530 | 4,100 | 270 | 2,900 | 130 | 2,500 | 100 |
| 6 | 7,900 | 530 | 4,000 | 270 | 2,900 | 130 | 2,500 | 100 |
| 6.5 | 7,500 | 530 | 3,700 | 270 | 2,700 | 130 | 2,300 | 100 |
| 7 | 6,900 | 530 | 3,400 | 270 | 2,500 | 130 | 2,100 | 100 |
| 7.5 | 6,400 | 530 | 3,200 | 270 | 2,300 | 130 | 2,000 | 100 |
| 8 | 5,900 | 520 | 3,000 | 260 | 2,200 | 125 | 1,900 | 100 |
| 8.5 | 5,600 | 520 | 2,800 | 260 | 2,000 | 125 | 1,700 | 100 |
| 9 | 5,300 | 510 | 2,600 | 260 | 1,900 | 125 | 1,600 | 100 |
| 9.5 | 5,100 | 510 | 2,500 | 260 | 1,800 | 125 | 1,450 | 95 |
| 10 | 4,700 | 500 | 2,400 | 250 | 1,700 | 125 | 1,400 | 95 |
| 11 | 4,400 | 500 | 2,200 | 250 | 1,600 | 125 | 1,250 | 95 |
| 12 | 4,000 | 510 | 2,000 | 250 | 1,400 | 125 | 1,150 | 95 |
| 16 | 3,000 | 400 | 1,500 | 200 | 1,100 | 115 | 800 | 80 |
| 18 | 2,700 | 360 | 1,300 | 180 | 900 | 100 | 700 | 70 |
| 20 | 2,400 | 300 | 1,200 | 150 | 800 | 90 | 600 | 60 |
| 25 | 1,900 | 270 | 960 | 150 | 640 | 65 | 500 | 50 |
| 30 | 1,600 | 230 | 800 | 130 | 530 | 50 | 420 | 40 |

切込深さ Depth of Cut

| | |
|---|---|
| DC＜φ1 | 0.1D |
| φ1≦DC＜φ3 | 0.3D |
| φ3≦DC | 0.5D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed at the same ratio.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

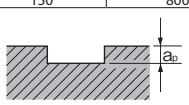
## WXL-3D-DE
## 溝切削

SLOTTING

| 被削材 Work Material | 銅・銅合金 Copper・Copper Alloy | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 33～41HRC | | 42～50HRC | |
|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 0.1 | 50,000 | 100 | 32,000 | 70 | 32,000 | 60 | 32,000 | 30 |
| 0.2 | 50,000 | 140 | 32,000 | 90 | 32,000 | 75 | 32,000 | 35 |
| 0.3 | 50,000 | 170 | 32,000 | 110 | 32,000 | 80 | 32,000 | 55 |
| 0.4 | 50,000 | 190 | 32,000 | 120 | 32,000 | 90 | 27,500 | 60 |
| 0.5 | 50,000 | 200 | 31,000 | 120 | 25,000 | 90 | 22,000 | 60 |
| 0.6 | 50,000 | 230 | 27,000 | 120 | 19,500 | 90 | 17,000 | 60 |
| 0.7 | 50,000 | 250 | 24,000 | 120 | 17,000 | 90 | 15,000 | 60 |
| 0.8 | 50,000 | 290 | 21,500 | 120 | 15,500 | 90 | 13,500 | 65 |
| 0.9 | 49,000 | 320 | 19,000 | 120 | 13,500 | 90 | 12,000 | 65 |
| 1 | 47,500 | 350 | 17,500 | 120 | 12,500 | 90 | 11,000 | 65 |
| 1.1 | 43,000 | 340 | 16,000 | 120 | 11,500 | 90 | 9,900 | 65 |
| 1.2 | 40,500 | 340 | 15,000 | 120 | 10,500 | 90 | 9,300 | 65 |
| 1.3 | 38,000 | 330 | 14,000 | 120 | 9,900 | 90 | 8,700 | 65 |
| 1.4 | 35,000 | 330 | 13,000 | 120 | 9,200 | 90 | 8,100 | 65 |
| 1.5 | 32,000 | 320 | 12,500 | 120 | 8,900 | 90 | 7,900 | 65 |
| 1.6 | 31,000 | 320 | 12,000 | 120 | 8,500 | 90 | 7,500 | 65 |
| 1.7 | 29,000 | 320 | 11,000 | 120 | 7,900 | 90 | 7,000 | 65 |
| 1.8 | 28,000 | 320 | 10,500 | 130 | 7,500 | 90 | 6,800 | 68 |
| 1.9 | 26,000 | 320 | 10,000 | 130 | 7,100 | 90 | 6,300 | 68 |
| 2 | 24,000 | 310 | 9,700 | 130 | 7,000 | 90 | 6,300 | 70 |
| 2.1 | 23,000 | 330 | 9,300 | 140 | 6,600 | 90 | 5,900 | 70 |
| 2.2 | 22,500 | 330 | 9,000 | 140 | 6,500 | 90 | 5,700 | 70 |
| 2.3 | 22,000 | 330 | 8,800 | 150 | 6,400 | 90 | 5,600 | 70 |
| 2.4 | 20,500 | 350 | 8,600 | 150 | 6,300 | 90 | 5,500 | 70 |
| 2.5 | 20,000 | 350 | 8,200 | 160 | 6,100 | 90 | 5,300 | 70 |
| 2.6 | 19,000 | 380 | 7,900 | 160 | 5,900 | 100 | 5,000 | 70 |
| 2.7 | 18,000 | 380 | 7,600 | 160 | 5,700 | 100 | 4,900 | 70 |
| 2.8 | 17,500 | 380 | 7,300 | 170 | 5,500 | 100 | 4,700 | 75 |
| 2.9 | 17,000 | 380 | 7,100 | 170 | 5,300 | 100 | 4,500 | 75 |
| 3 | 16,000 | 400 | 6,900 | 170 | 5,300 | 100 | 4,400 | 75 |
| 3.1 | 15,500 | 410 | 6,700 | 180 | 5,100 | 100 | 4,300 | 75 |
| 3.2 | 15,000 | 420 | 6,500 | 180 | 5,000 | 110 | 4,200 | 80 |
| 3.3 | 14,500 | 420 | 6,300 | 190 | 4,800 | 110 | 4,000 | 80 |
| 3.4 | 14,000 | 420 | 6,100 | 190 | 4,600 | 110 | 3,900 | 80 |
| 3.5 | 14,000 | 420 | 6,000 | 190 | 4,600 | 120 | 3,800 | 80 |
| 3.6 | 13,500 | 430 | 5,900 | 200 | 4,500 | 120 | 3,700 | 85 |
| 3.7 | 12,500 | 430 | 5,700 | 200 | 4,400 | 120 | 3,600 | 85 |
| 3.8 | 12,500 | 440 | 5,600 | 210 | 4,400 | 120 | 3,600 | 85 |
| 3.9 | 12,000 | 440 | 5,500 | 210 | 4,200 | 125 | 3,500 | 85 |
| 4 | 12,000 | 450 | 5,400 | 210 | 4,200 | 125 | 3,500 | 90 |
| 4.1 | 11,500 | 480 | 5,300 | 220 | 4,100 | 125 | 3,400 | 90 |
| 4.2 | 11,500 | 480 | 5,300 | 220 | 4,100 | 125 | 3,300 | 90 |
| 4.3 | 11,000 | 480 | 5,200 | 230 | 4,000 | 125 | 3,300 | 90 |
| 4.4 | 11,000 | 500 | 5,100 | 240 | 3,900 | 130 | 3,200 | 95 |
| 4.5 | 10,500 | 500 | 5,100 | 240 | 3,900 | 130 | 3,200 | 95 |
| 4.6 | 10,500 | 520 | 5,000 | 250 | 3,800 | 130 | 3,200 | 95 |
| 4.7 | 10,500 | 520 | 5,000 | 260 | 3,800 | 130 | 3,100 | 95 |
| 4.8 | 10,500 | 530 | 4,900 | 260 | 3,700 | 130 | 3,100 | 95 |
| 4.9 | 10,000 | 530 | 4,900 | 270 | 3,600 | 130 | 3,100 | 95 |
| 5 | 9,500 | 540 | 4,800 | 270 | 3,500 | 130 | 3,000 | 100 |
| 5.1 | 9,500 | 540 | 4,700 | 270 | 3,500 | 130 | 3,000 | 100 |
| 5.2 | 9,300 | 540 | 4,600 | 270 | 3,400 | 130 | 2,900 | 100 |
| 5.3 | 9,200 | 540 | 4,600 | 270 | 3,400 | 130 | 2,900 | 100 |
| 5.4 | 9,000 | 540 | 4,500 | 270 | 3,300 | 130 | 2,800 | 100 |
| 5.5 | 8,800 | 540 | 4,400 | 270 | 3,200 | 130 | 2,700 | 100 |
| 5.6 | 8,700 | 540 | 4,300 | 270 | 3,100 | 130 | 2,600 | 100 |
| 5.7 | 8,500 | 540 | 4,200 | 270 | 3,100 | 130 | 2,600 | 100 |
| 5.8 | 8,400 | 530 | 4,200 | 270 | 3,000 | 130 | 2,600 | 100 |
| 5.9 | 8,200 | 530 | 4,100 | 270 | 2,900 | 130 | 2,500 | 100 |
| 6 | 7,900 | 530 | 4,000 | 270 | 2,900 | 130 | 2,500 | 100 |
| 6.5 | 7,500 | 530 | 3,700 | 270 | 2,700 | 130 | 2,300 | 100 |
| 7 | 6,900 | 530 | 3,400 | 270 | 2,500 | 130 | 2,100 | 100 |
| 7.5 | 6,400 | 530 | 3,200 | 270 | 2,300 | 130 | 2,000 | 100 |
| 8 | 5,900 | 520 | 3,000 | 260 | 2,200 | 125 | 1,900 | 100 |
| 8.5 | 5,600 | 520 | 2,800 | 260 | 2,000 | 125 | 1,700 | 100 |
| 9 | 5,300 | 510 | 2,600 | 260 | 1,900 | 125 | 1,600 | 100 |
| 9.5 | 5,100 | 510 | 2,500 | 260 | 1,800 | 125 | 1,450 | 95 |
| 10 | 4,700 | 500 | 2,400 | 250 | 1,700 | 125 | 1,400 | 95 |
| 11 | 4,400 | 500 | 2,200 | 250 | 1,600 | 125 | 1,250 | 95 |
| 12 | 4,000 | 510 | 2,000 | 250 | 1,400 | 125 | 1,150 | 95 |
| 16 | 3,000 | 400 | 1,500 | 200 | 1,100 | 115 | 800 | 80 |
| 18 | 2,700 | 360 | 1,300 | 180 | 900 | 100 | 700 | 70 |
| 20 | 2,400 | 300 | 1,200 | 150 | 800 | 90 | 600 | 60 |

切込深さ Depth of Cut

| | |
|---|---|
| DC＜φ1 | 0.1D |
| φ1≦DC＜φ3 | 0.3D |
| φ3≦DC | 0.5D |



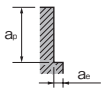
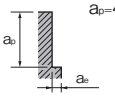

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed at the same ratio.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

形状寸法表
SPECIFICATION CHARTS
WXL-4D-DE▶P264

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-4D-DE
### 側面切削 SIDE MILLING

| 被削材 Work Material | 銅・銅合金 Copper・Copper Alloy | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH＊＊・SUS304 33～41HRC | | 42～50HRC | |
|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 0.2 | 32,000 | 90 | 22,500 | 30 | 19,000 | 30 | — | — |
| 0.3 | 32,000 | 110 | 22,500 | 40 | 19,000 | 35 | — | — |
| 0.4 | 25,000 | 110 | 16,000 | 45 | 14,500 | 35 | — | — |
| 0.5 | 20,000 | 120 | 13,000 | 45 | 13,000 | 40 | — | — |
| 0.6 | 16,000 | 120 | 11,000 | 45 | 10,000 | 40 | — | — |
| 0.7 | 16,000 | 120 | 9,400 | 45 | 6,800 | 40 | — | — |
| 0.8 | 12,000 | 120 | 8,400 | 45 | 6,000 | 40 | — | — |
| 0.9 | 12,000 | 120 | 7,500 | 45 | 5,400 | 40 | — | — |
| 1 | 9,800 | 120 | 5,700 | 45 | 5,400 | 40 | — | — |
| 1.1 | 9,500 | 140 | 5,200 | 45 | 5,000 | 40 | — | — |
| 1.2 | 8,600 | 130 | 4,800 | 45 | 4,500 | 40 | — | — |
| 1.3 | 8,100 | 130 | 4,500 | 45 | 4,200 | 40 | — | — |
| 1.4 | 7,500 | 130 | 4,200 | 45 | 3,900 | 40 | — | — |
| 1.5 | 7,000 | 130 | 3,900 | 45 | 3,600 | 40 | — | — |
| 1.6 | 6,400 | 120 | 3,700 | 45 | 3,500 | 40 | — | — |
| 1.7 | 6,200 | 120 | 3,600 | 45 | 3,400 | 40 | — | — |
| 1.8 | 5,800 | 120 | 3,300 | 45 | 3,100 | 40 | — | — |
| 1.9 | 5,500 | 120 | 3,200 | 45 | 3,000 | 40 | — | — |
| 2 | 5,200 | 120 | 3,000 | 45 | 2,800 | 40 | — | — |
| 2.1 | 4,800 | 120 | 2,900 | 45 | 2,800 | 40 | — | — |
| 2.2 | 4,600 | 130 | 2,700 | 50 | 2,600 | 40 | — | — |
| 2.3 | 4,500 | 130 | 2,700 | 50 | 2,600 | 40 | — | — |
| 2.4 | 4,400 | 130 | 2,600 | 55 | 2,500 | 40 | — | — |
| 2.5 | 4,100 | 140 | 2,500 | 55 | 2,500 | 40 | — | — |
| 2.6 | 3,900 | 140 | 2,400 | 55 | 2,400 | 40 | — | — |
| 2.7 | 3,700 | 150 | 2,300 | 55 | 2,300 | 45 | — | — |
| 2.8 | 3,600 | 150 | 2,200 | 55 | 2,200 | 45 | — | — |
| 2.9 | 3,500 | 150 | 2,100 | 60 | 2,100 | 45 | — | — |
| 3 | 3,400 | 150 | 2,100 | 60 | 2,100 | 50 | 1,900 | 30 |
| 3.1 | 3,200 | 160 | 2,000 | 60 | 2,000 | 50 | 1,800 | 30 |
| 3.2 | 3,000 | 160 | 2,000 | 65 | 2,000 | 50 | 1,800 | 30 |
| 3.3 | 2,900 | 160 | 1,900 | 65 | 1,900 | 55 | 1,700 | 30 |
| 3.4 | 2,800 | 160 | 1,800 | 70 | 1,800 | 55 | 1,700 | 30 |
| 3.5 | 2,800 | 160 | 1,800 | 70 | 1,800 | 55 | 1,600 | 30 |
| 3.6 | 2,700 | 160 | 1,800 | 70 | 1,800 | 60 | 1,600 | 30 |
| 3.7 | 2,700 | 170 | 1,700 | 70 | 1,700 | 60 | 1,500 | 35 |
| 3.8 | 2,500 | 170 | 1,700 | 70 | 1,700 | 60 | 1,500 | 35 |
| 3.9 | 2,400 | 170 | 1,600 | 75 | 1,600 | 60 | 1,500 | 35 |
| 4 | 2,400 | 170 | 1,600 | 75 | 1,600 | 65 | 1,400 | 35 |
| 4.1 | 2,400 | 180 | 1,600 | 75 | 1,600 | 65 | 1,400 | 35 |
| 4.2 | 2,300 | 190 | 1,600 | 80 | 1,600 | 65 | 1,400 | 35 |
| 4.3 | 2,300 | 190 | 1,500 | 80 | 1,500 | 65 | 1,400 | 35 |
| 4.4 | 2,100 | 190 | 1,500 | 80 | 1,500 | 65 | 1,400 | 35 |
| 4.5 | 2,100 | 200 | 1,500 | 85 | 1,500 | 65 | 1,300 | 40 |
| 4.6 | 2,100 | 200 | 1,500 | 85 | 1,500 | 65 | 1,300 | 40 |
| 4.7 | 2,100 | 200 | 1,500 | 90 | 1,500 | 65 | 1,300 | 40 |
| 4.8 | 2,100 | 200 | 1,500 | 90 | 1,500 | 65 | 1,300 | 40 |
| 4.9 | 2,000 | 210 | 1,400 | 90 | 1,400 | 65 | 1,300 | 40 |
| 5 | 2,000 | 210 | 1,400 | 95 | 1,400 | 65 | 1,300 | 40 |
| 5.1 | 1,900 | 210 | 1,400 | 95 | 1,400 | 65 | 1,200 | 40 |
| 5.2 | 1,900 | 210 | 1,400 | 95 | 1,400 | 65 | 1,200 | 40 |
| 5.3 | 1,800 | 210 | 1,300 | 95 | 1,300 | 65 | 1,200 | 40 |
| 5.4 | 1,800 | 210 | 1,300 | 95 | 1,300 | 65 | 1,200 | 40 |
| 5.5 | 1,800 | 210 | 1,300 | 95 | 1,300 | 65 | 1,100 | 40 |
| 5.6 | 1,700 | 210 | 1,300 | 95 | 1,300 | 65 | 1,100 | 40 |
| 5.7 | 1,700 | 210 | 1,300 | 95 | 1,300 | 65 | 1,100 | 40 |
| 5.8 | 1,700 | 210 | 1,200 | 95 | 1,200 | 65 | 1,100 | 40 |
| 5.9 | 1,600 | 210 | 1,200 | 95 | 1,200 | 65 | 1,000 | 40 |
| 6 | 1,600 | 210 | 1,200 | 95 | 1,200 | 65 | 1,000 | 40 |
| 8 | 1,100 | 200 | 900 | 95 | 900 | 65 | 800 | 40 |
| 10 | 900 | 200 | 700 | 90 | 700 | 65 | 630 | 40 |
| 12 | 800 | 200 | 600 | 90 | 600 | 65 | 525 | 40 |
| 切込深さ Depth of Cut |  $a_p$=4D DC＜φ1 $a_e$=0.05D φ1≦DC $a_e$=0.1D | |  $a_p$=4D $a_e$=0.015D DC＜φ0.3 $a_e$=0.03D φ0.3≦DC＜φ1 $a_e$=0.05D φ1≦DC＜φ3 $a_e$=0.1D φ3≦DC | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed at the same ratio.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

## WXL-EMS
## 側面切削

SIDE MILLING

| 被削材 Work Material | 銅・銅合金 Copper・Copper Alloy | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 33～41HRC | | 42～50HRC | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 | 50,000 | 440 | 24,000 | 210 | 14,000 | 78 | 12,500 | 70 |
| 1.5 | 50,000 | 975 | 16,000 | 310 | 9,250 | 115 | 8,400 | 105 |
| 2 | 47,500 | 1,100 | 12,000 | 295 | 7,000 | 110 | 6,350 | 100 |
| 2.5 | 38,000 | 1,400 | 9,600 | 370 | 6,200 | 120 | 5,550 | 105 |
| 3 | 32,000 | 1,600 | 8,150 | 430 | 5,300 | 125 | 4,750 | 110 |
| 4 | 24,000 | 1,700 | 6,050 | 450 | 4,250 | 135 | 3,700 | 115 |
| 5 | 19,000 | 2,000 | 4,900 | 520 | 3,550 | 140 | 3,150 | 125 |
| 6 | 16,000 | 2,000 | 4,100 | 520 | 2,950 | 145 | 2,650 | 130 |
| 8 | 12,000 | 1,900 | 3,050 | 505 | 2,200 | 145 | 1,950 | 130 |
| 10 | 9,500 | 1,900 | 2,450 | 505 | 1,750 | 145 | 1,550 | 130 |
| 12 | 7,900 | 1,900 | 2,050 | 505 | 1,450 | 145 | 1,300 | 130 |
| 14 | 6,800 | 1,900 | 1,750 | 495 | 1,250 | 145 | 1,100 | 125 |
| 15 | 6,300 | 1,900 | 1,600 | 490 | 1,150 | 135 | 1,050 | 120 |
| 16 | 5,900 | 1,800 | 1,500 | 480 | 1,100 | 130 | 995 | 115 |
| 18 | 5,300 | 1,800 | 1,350 | 470 | 990 | 115 | 880 | 105 |
| 20 | 4,700 | 1,700 | 1,200 | 445 | 890 | 105 | 795 | 95 |
| 25 | 3,800 | 1,400 | 970 | 360 | 710 | 85 | 635 | 75 |
| 30 | 3,100 | 1,100 | 815 | 300 | 590 | 70 | 530 | 60 |
| 切込深さ Depth of Cut | | | | | | | | |

| | ap | ae |
|---|---|---|
| DC＜φ3 | 1.5D | 0.05D |
| φ3≦DC | 1.5D | 0.1D |




| ap | ae |
|---|---|
| 1D | 0.02D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed at the same ratio.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

## WXL-EMS
## 高速側面切削

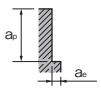
⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ず行って下さい。

HIGH-SPEED SIDE MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

| 被削材 Work Material | 銅・銅合金 Copper・Copper Alloy | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 33～41HRC | | 42～50HRC | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 6 | 26,000 | 2,900 | 20,000 | 2,300 | 13,000 | 1,500 | 7,950 | 795 |
| 8 | 19,500 | 3,000 | 14,500 | 2,300 | 9,900 | 1,450 | 5,950 | 795 |
| 10 | 15,500 | 2,900 | 12,000 | 2,300 | 7,950 | 1,450 | 4,750 | 795 |
| 12 | 13,000 | 3,000 | 9,900 | 2,300 | 6,600 | 1,450 | 3,950 | 790 |
| 14 | 11,100 | 2,800 | 8,500 | 2,200 | 5,650 | 1,350 | 3,400 | 740 |
| 15 | 10,500 | 2,800 | 7,950 | 2,150 | 5,250 | 1,350 | 3,150 | 730 |
| 16 | 9,700 | 2,700 | 7,450 | 2,100 | 4,950 | 1,350 | 2,950 | 715 |
| 18 | 8,600 | 2,700 | 6,600 | 2,100 | 4,400 | 1,300 | 2,650 | 705 |
| 20 | 7,800 | 2,600 | 5,950 | 2,000 | 3,950 | 1,300 | 2,350 | 665 |
| 25 | 6,200 | 2,000 | 4,750 | 1,600 | 3,150 | 1,050 | 1,900 | 560 |
| 30 | 5,200 | 1,700 | 3,950 | 1,350 | 2,650 | 890 | 1,550 | 455 |
| 切込深さ Depth of Cut | | | | | | | | |

| | ap | ae |
|---|---|---|
| DC＜φ8 | 1.5D | 0.01D |
| φ8≦DC | 1.5D | 0.02D |




| | ap | ae |
|---|---|---|
| DC＜φ8 | 1D | 0.01D |
| φ8≦DC | 1D | 0.02D |

1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

1. The indicated speeds and feeds are for high speed light milling with high speed/high precision machining centers.
2. Tools can cause sparks. Do not use flammable fluids.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

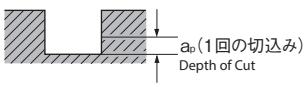
形状寸法表
SPECIFICATION CHARTS
WXL-LN-EDS▶P312

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-LN-EDS
### 溝切削 SLOTTING

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 33～41HRC | | | 42～50HRC | | |
| 外径 DC | 首下長 LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 0.1 | 0.3 | 38,500 | 150 | 0.006 | 32,000 | 120 | 0.005 | 32,000 | 70 | 0.004 | 32,000 | 45 | 0.002 |
| | 0.5 | 38,500 | 110 | 0.005 | 32,000 | 100 | 0.004 | 32,000 | 60 | 0.003 | 32,000 | 35 | 0.002 |
| | 1 | 38,500 | 70 | 0.003 | 32,000 | 60 | 0.002 | 32,000 | 30 | 0.002 | 32,000 | 20 | 0.002 |
| 0.2 | 0.5 | 35,200 | 490 | 0.022 | 32,000 | 450 | 0.018 | 32,000 | 450 | 0.015 | 29,000 | 250 | 0.012 |
| | 1 | 35,200 | 380 | 0.016 | 32,000 | 350 | 0.013 | 32,000 | 350 | 0.011 | 29,000 | 200 | 0.009 |
| | 1.5 | 31,000 | 270 | 0.01 | 28,000 | 250 | 0.008 | 28,000 | 250 | 0.007 | 25,000 | 150 | 0.005 |
| | 2 | 24,000 | 220 | 0.006 | 22,000 | 200 | 0.005 | 22,000 | 200 | 0.004 | 20,000 | 120 | 0.003 |
| | 2.5 | 22,000 | 190 | 0.005 | 20,000 | 180 | 0.004 | 20,000 | 170 | 0.004 | 20,000 | 100 | 0.003 |
| | 3 | 22,000 | 180 | 0.004 | 20,000 | 170 | 0.003 | 20,000 | 160 | 0.003 | 20,000 | 90 | 0.002 |
| | 3.5 | 22,000 | 150 | 0.004 | 20,000 | 140 | 0.003 | 20,000 | 130 | 0.003 | 20,000 | 80 | 0.002 |
| | 4 | 22,000 | 40 | 0.002 | 20,000 | 40 | 0.002 | 20,000 | 35 | 0.002 | 20,000 | 30 | 0.002 |
| 0.3 | 1 | 38,500 | 480 | 0.032 | 32,000 | 400 | 0.027 | 32,000 | 350 | 0.023 | 29,000 | 300 | 0.018 |
| | 1.5 | 38,500 | 430 | 0.028 | 32,000 | 360 | 0.023 | 32,000 | 300 | 0.02 | 29,000 | 250 | 0.015 |
| | 2 | 33,500 | 360 | 0.024 | 28,000 | 300 | 0.02 | 28,000 | 250 | 0.017 | 25,000 | 200 | 0.013 |
| | 2.5 | 33,500 | 330 | 0.017 | 28,000 | 280 | 0.014 | 28,000 | 230 | 0.012 | 25,000 | 190 | 0.008 |
| | 3 | 26,500 | 300 | 0.011 | 22,000 | 250 | 0.009 | 22,000 | 160 | 0.007 | 20,000 | 150 | 0.005 |
| | 4 | 24,000 | 220 | 0.008 | 20,000 | 190 | 0.007 | 20,000 | 150 | 0.005 | 20,000 | 130 | 0.003 |
| | 5 | 24,000 | 190 | 0.006 | 20,000 | 160 | 0.005 | 20,000 | 140 | 0.003 | 18,000 | 120 | 0.002 |
| | 6 | 24,000 | 100 | 0.002 | 20,000 | 90 | 0.002 | 20,000 | 80 | 0.002 | 16,000 | 60 | 0.002 |
| | 9 | 19,000 | 30 | 0.002 | 16,000 | 30 | 0.002 | 16,000 | 30 | 0.002 | 13,000 | 20 | 0.002 |
| 0.4 | 1.5 | 38,500 | 520 | 0.032 | 32,000 | 440 | 0.027 | 32,000 | 380 | 0.023 | 29,000 | 330 | 0.018 |
| | 2 | 38,500 | 480 | 0.031 | 32,000 | 400 | 0.026 | 32,000 | 350 | 0.022 | 29,000 | 300 | 0.018 |
| | 3 | 33,500 | 360 | 0.02 | 28,000 | 300 | 0.017 | 28,000 | 250 | 0.014 | 25,000 | 200 | 0.011 |
| | 4 | 26,500 | 300 | 0.014 | 22,000 | 250 | 0.012 | 22,000 | 200 | 0.01 | 20,000 | 150 | 0.008 |
| | 5 | 24,000 | 240 | 0.007 | 20,000 | 200 | 0.006 | 20,000 | 160 | 0.005 | 20,000 | 130 | 0.003 |
| | 6 | 24,000 | 210 | 0.006 | 20,000 | 180 | 0.005 | 20,000 | 140 | 0.004 | 20,000 | 120 | 0.002 |
| | 7 | 24,000 | 160 | 0.005 | 20,000 | 140 | 0.004 | 20,000 | 120 | 0.003 | 20,000 | 110 | 0.002 |
| | 8 | 24,000 | 150 | 0.002 | 20,000 | 130 | 0.002 | 20,000 | 110 | 0.002 | 20,000 | 100 | 0.002 |
| | 9 | 24,000 | 140 | 0.002 | 20,000 | 120 | 0.002 | 20,000 | 100 | 0.002 | 20,000 | 80 | 0.002 |
| | 10 | 24,000 | 130 | 0.002 | 20,000 | 110 | 0.002 | 20,000 | 85 | 0.002 | 18,000 | 70 | 0.002 |
| | 12 | 24,000 | 100 | 0.002 | 20,000 | 90 | 0.002 | 20,000 | 80 | 0.002 | 16,000 | 60 | 0.002 |
| 0.5 | 1.5 | 38,500 | 660 | 0.054 | 32,000 | 550 | 0.045 | 32,000 | 420 | 0.038 | 29,000 | 330 | 0.03 |
| | 2 | 38,500 | 600 | 0.054 | 32,000 | 500 | 0.045 | 32,000 | 400 | 0.038 | 29,000 | 300 | 0.03 |
| | 3 | 36,000 | 540 | 0.036 | 30,000 | 450 | 0.03 | 30,000 | 360 | 0.028 | 27,000 | 280 | 0.022 |
| | 4 | 33,500 | 480 | 0.025 | 28,000 | 400 | 0.021 | 28,000 | 320 | 0.018 | 25,000 | 250 | 0.014 |
| | 5 | 33,500 | 450 | 0.017 | 28,000 | 380 | 0.014 | 25,000 | 300 | 0.01 | 22,000 | 230 | 0.008 |
| | 6 | 26,500 | 420 | 0.007 | 22,000 | 350 | 0.006 | 22,000 | 220 | 0.005 | 20,000 | 180 | 0.004 |
| | 7 | 24,000 | 380 | 0.006 | 20,000 | 320 | 0.005 | 20,000 | 200 | 0.004 | 20,000 | 170 | 0.003 |
| | 8 | 24,000 | 320 | 0.006 | 20,000 | 270 | 0.005 | 20,000 | 180 | 0.003 | 20,000 | 150 | 0.003 |
| | 9 | 24,000 | 300 | 0.002 | 20,000 | 250 | 0.002 | 18,000 | 160 | 0.002 | 18,000 | 140 | 0.002 |
| | 10 | 24,000 | 240 | 0.002 | 20,000 | 200 | 0.002 | 18,000 | 150 | 0.002 | 18,000 | 130 | 0.002 |
| | 12 | 24,000 | 190 | 0.002 | 20,000 | 160 | 0.002 | 18,000 | 120 | 0.002 | 18,000 | 100 | 0.002 |
| | 15 | 21,500 | 100 | 0.002 | 18,000 | 90 | 0.002 | 16,000 | 80 | 0.002 | 16,000 | 70 | 0.002 |
| 0.6 | 2 | 38,500 | 720 | 0.065 | 32,000 | 600 | 0.054 | 32,000 | 400 | 0.045 | 27,000 | 300 | 0.036 |
| | 3 | 38,500 | 660 | 0.06 | 32,000 | 550 | 0.05 | 32,000 | 360 | 0.04 | 27,000 | 280 | 0.03 |
| | 4 | 33,500 | 540 | 0.048 | 28,000 | 450 | 0.04 | 28,000 | 300 | 0.033 | 25,000 | 200 | 0.026 |
| | 5 | 33,500 | 480 | 0.036 | 28,000 | 400 | 0.03 | 25,000 | 220 | 0.02 | 22,000 | 180 | 0.02 |
| | 6 | 26,500 | 300 | 0.022 | 22,000 | 250 | 0.018 | 22,000 | 200 | 0.015 | 20,000 | 150 | 0.012 |
| | 7 | 26,500 | 300 | 0.012 | 22,000 | 250 | 0.01 | 22,000 | 200 | 0.008 | 20,000 | 150 | 0.007 |
| | 8 | 26,500 | 300 | 0.008 | 22,000 | 250 | 0.007 | 22,000 | 200 | 0.006 | 20,000 | 150 | 0.005 |
| | 10 | 24,000 | 240 | 0.006 | 20,000 | 200 | 0.005 | 18,000 | 150 | 0.004 | 18,000 | 130 | 0.003 |
| | 12 | 21,500 | 220 | 0.002 | 18,000 | 190 | 0.002 | 18,000 | 150 | 0.002 | 18,000 | 120 | 0.002 |
| | 15 | 21,500 | 150 | 0.002 | 18,000 | 130 | 0.002 | 16,000 | 110 | 0.002 | 16,000 | 100 | 0.002 |
| | 18 | 18,000 | 90 | 0.002 | 15,000 | 80 | 0.002 | 14,000 | 70 | 0.002 | 14,000 | 60 | 0.002 |
| 0.7 | 2 | 38,500 | 720 | 0.076 | 32,000 | 600 | 0.063 | 32,000 | 500 | 0.053 | 26,000 | 400 | 0.042 |
| | 4 | 33,500 | 540 | 0.055 | 28,000 | 450 | 0.046 | 28,000 | 300 | 0.039 | 22,000 | 300 | 0.031 |
| | 6 | 33,500 | 540 | 0.035 | 28,000 | 450 | 0.029 | 28,000 | 200 | 0.025 | 22,000 | 200 | 0.02 |

切込深さ Depth of Cut






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外径 DC 0.7～1.2 NEXT

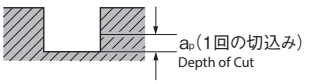
# WXL-LN-EDS
## 溝切削

SLOTTING

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FROM 外径 DC 0.1～0.7

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 33～41HRC | | | 42～50HRC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 首下長 LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 0.7 | 8 | 26,500 | 300 | 0.02 | 22,000 | 250 | 0.017 | 22,000 | 200 | 0.014 | 20,000 | 150 | 0.011 |
| | 10 | 26,500 | 300 | 0.01 | 22,000 | 250 | 0.008 | 22,000 | 200 | 0.007 | 20,000 | 150 | 0.006 |
| 0.8 | 4 | 38,500 | 720 | 0.064 | 32,000 | 600 | 0.053 | 32,000 | 600 | 0.044 | 25,000 | 400 | 0.035 |
| | 6 | 31,000 | 540 | 0.041 | 26,000 | 450 | 0.034 | 26,000 | 400 | 0.028 | 21,000 | 300 | 0.022 |
| | 8 | 26,500 | 420 | 0.029 | 22,000 | 350 | 0.024 | 22,000 | 300 | 0.02 | 18,000 | 250 | 0.016 |
| | 10 | 26,500 | 420 | 0.012 | 22,000 | 350 | 0.01 | 22,000 | 300 | 0.008 | 18,000 | 240 | 0.006 |
| | 12 | 20,500 | 360 | 0.008 | 17,000 | 300 | 0.007 | 17,000 | 300 | 0.006 | 15,000 | 200 | 0.004 |
| | 14 | 20,500 | 320 | 0.004 | 17,000 | 270 | 0.003 | 17,000 | 250 | 0.003 | 13,000 | 170 | 0.002 |
| | 16 | 19,000 | 270 | 0.002 | 16,000 | 230 | 0.002 | 16,000 | 220 | 0.002 | 12,000 | 150 | 0.002 |
| | 20 | 17,000 | 200 | 0.002 | 14,000 | 170 | 0.002 | 14,000 | 160 | 0.002 | 12,000 | 130 | 0.002 |
| | 24 | 14,500 | 100 | 0.002 | 12,000 | 90 | 0.002 | 12,000 | 80 | 0.002 | 10,000 | 70 | 0.002 |
| 0.9 | 4 | 38,500 | 1,450 | 0.072 | 32,000 | 1,200 | 0.06 | 30,000 | 860 | 0.06 | 23,000 | 650 | 0.04 |
| | 6 | 36,000 | 1,200 | 0.071 | 30,000 | 1,000 | 0.059 | 28,000 | 780 | 0.05 | 22,000 | 600 | 0.04 |
| | 8 | 31,000 | 960 | 0.046 | 26,000 | 800 | 0.038 | 25,000 | 600 | 0.032 | 19,000 | 400 | 0.025 |
| | 10 | 24,000 | 720 | 0.032 | 20,000 | 600 | 0.027 | 20,000 | 500 | 0.023 | 16,000 | 300 | 0.018 |
| | 15 | 20,500 | 360 | 0.01 | 17,000 | 300 | 0.008 | 17,000 | 300 | 0.006 | 16,000 | 300 | 0.005 |
| 1 | 3 | 36,000 | 1,450 | 0.108 | 30,000 | 1,200 | 0.09 | 30,000 | 1,100 | 0.08 | 22,000 | 800 | 0.06 |
| | 4 | 36,000 | 1,400 | 0.096 | 30,000 | 1,150 | 0.08 | 30,000 | 1,100 | 0.07 | 22,000 | 650 | 0.05 |
| | 5 | 36,000 | 1,300 | 0.096 | 30,000 | 1,100 | 0.08 | 28,000 | 950 | 0.07 | 20,000 | 600 | 0.045 |
| | 6 | 32,500 | 1,200 | 0.084 | 27,000 | 1,000 | 0.07 | 26,000 | 900 | 0.06 | 20,000 | 600 | 0.04 |
| | 7 | 30,000 | 1,200 | 0.06 | 25,000 | 1,000 | 0.05 | 24,000 | 800 | 0.05 | 20,000 | 500 | 0.03 |
| | 8 | 27,500 | 960 | 0.048 | 23,000 | 800 | 0.04 | 22,000 | 700 | 0.04 | 18,000 | 400 | 0.03 |
| | 9 | 24,000 | 840 | 0.036 | 20,000 | 700 | 0.03 | 19,000 | 600 | 0.03 | 18,000 | 400 | 0.025 |
| | 10 | 23,000 | 720 | 0.036 | 19,000 | 600 | 0.03 | 18,000 | 500 | 0.028 | 15,000 | 300 | 0.02 |
| | 12 | 23,000 | 720 | 0.024 | 19,000 | 600 | 0.02 | 18,000 | 500 | 0.019 | 15,000 | 300 | 0.01 |
| | 14 | 18,000 | 480 | 0.012 | 15,000 | 400 | 0.01 | 15,000 | 400 | 0.009 | 12,000 | 200 | 0.008 |
| | 16 | 18,000 | 360 | 0.01 | 15,000 | 300 | 0.008 | 15,000 | 300 | 0.007 | 12,000 | 200 | 0.006 |
| | 18 | 15,500 | 270 | 0.007 | 13,000 | 230 | 0.006 | 13,000 | 220 | 0.005 | 11,000 | 180 | 0.004 |
| | 20 | 14,500 | 220 | 0.005 | 12,000 | 190 | 0.004 | 11,000 | 180 | 0.004 | 10,000 | 130 | 0.003 |
| | 22 | 13,000 | 190 | 0.004 | 11,000 | 160 | 0.003 | 10,000 | 150 | 0.003 | 9,000 | 100 | 0.003 |
| | 25 | 11,000 | 100 | 0.004 | 9,000 | 90 | 0.003 | 9,000 | 85 | 0.003 | 8,500 | 80 | 0.003 |
| | 30 | 9,600 | 40 | 0.002 | 8,000 | 40 | 0.002 | 8,000 | 35 | 0.002 | 8,000 | 30 | 0.002 |
| 1.2 | 4 | 29,000 | 1,300 | 0.108 | 24,000 | 1,100 | 0.09 | 23,000 | 1,000 | 0.08 | 18,000 | 700 | 0.06 |
| | 6 | 27,500 | 1,200 | 0.096 | 23,000 | 1,000 | 0.08 | 22,000 | 900 | 0.07 | 17,000 | 600 | 0.05 |
| | 8 | 24,000 | 840 | 0.084 | 20,000 | 700 | 0.07 | 19,000 | 700 | 0.05 | 14,000 | 400 | 0.04 |
| | 10 | 24,000 | 840 | 0.06 | 20,000 | 700 | 0.05 | 19,000 | 700 | 0.04 | 14,000 | 400 | 0.03 |
| | 12 | 20,500 | 720 | 0.048 | 17,000 | 600 | 0.04 | 16,000 | 500 | 0.03 | 11,000 | 300 | 0.02 |
| | 14 | 18,000 | 540 | 0.018 | 15,000 | 450 | 0.015 | 13,000 | 380 | 0.013 | 11,000 | 250 | 0.011 |
| | 16 | 14,500 | 360 | 0.01 | 12,000 | 300 | 0.008 | 11,000 | 250 | 0.007 | 10,000 | 220 | 0.006 |
| | 20 | 12,000 | 240 | 0.006 | 10,000 | 200 | 0.005 | 10,000 | 190 | 0.005 | 9,000 | 180 | 0.004 |

切込深さ Depth of Cut




1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

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外径 DC 1.4～2.5 NEXT

形状寸法表
SPECIFICATION CHARTS
WXL-LN-EDS▶P312

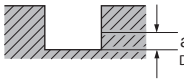
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-LN-EDS
## 溝切削 SLOTTING

前ページより
FROM 外径 DC 0.7～1.2

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 33～41HRC | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 42～50HRC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 首下長 LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 1.4 | 6 | 24,000 | 1,200 | 0.156 | 20,000 | 1,000 | 0.13 | 19,000 | 900 | 0.11 | 15,000 | 600 | 0.09 |
| | 8 | 21,500 | 960 | 0.108 | 18,000 | 800 | 0.09 | 17,000 | 700 | 0.08 | 13,000 | 400 | 0.06 |
| | 10 | 21,500 | 960 | 0.072 | 18,000 | 800 | 0.06 | 17,000 | 700 | 0.05 | 13,000 | 400 | 0.04 |
| | 12 | 21,500 | 960 | 0.06 | 18,000 | 800 | 0.05 | 17,000 | 700 | 0.04 | 13,000 | 400 | 0.03 |
| | 14 | 18,000 | 720 | 0.048 | 15,000 | 600 | 0.04 | 14,000 | 500 | 0.035 | 11,000 | 300 | 0.03 |
| | 16 | 18,000 | 720 | 0.036 | 15,000 | 600 | 0.03 | 14,000 | 500 | 0.02 | 11,000 | 300 | 0.02 |
| | 22 | 12,000 | 300 | 0.006 | 10,000 | 250 | 0.005 | 9,000 | 210 | 0.005 | 8,000 | 180 | 0.004 |
| 1.5 | 4 | 21,500 | 1,200 | 0.168 | 18,000 | 1,000 | 0.14 | 18,000 | 900 | 0.11 | 14,000 | 600 | 0.09 |
| | 6 | 21,500 | 1,200 | 0.168 | 18,000 | 1,000 | 0.14 | 18,000 | 900 | 0.11 | 14,000 | 600 | 0.09 |
| | 8 | 19,000 | 960 | 0.12 | 16,000 | 800 | 0.1 | 15,000 | 700 | 0.08 | 12,000 | 400 | 0.07 |
| | 10 | 19,000 | 960 | 0.096 | 16,000 | 800 | 0.08 | 15,000 | 700 | 0.07 | 12,000 | 400 | 0.05 |
| | 12 | 19,000 | 960 | 0.072 | 16,000 | 800 | 0.06 | 15,000 | 700 | 0.05 | 12,000 | 400 | 0.04 |
| | 14 | 19,000 | 960 | 0.06 | 16,000 | 800 | 0.05 | 15,000 | 700 | 0.045 | 12,000 | 400 | 0.035 |
| | 16 | 17,000 | 720 | 0.06 | 14,000 | 600 | 0.05 | 13,000 | 500 | 0.04 | 10,000 | 300 | 0.03 |
| | 18 | 17,000 | 720 | 0.036 | 14,000 | 600 | 0.03 | 13,000 | 500 | 0.02 | 10,000 | 300 | 0.02 |
| | 20 | 14,500 | 500 | 0.024 | 12,000 | 420 | 0.02 | 11,000 | 380 | 0.015 | 10,000 | 300 | 0.01 |
| | 25 | 12,000 | 340 | 0.01 | 10,000 | 290 | 0.008 | 9,000 | 230 | 0.007 | 8,000 | 210 | 0.006 |
| | 30 | 9,000 | 200 | 0.006 | 7,500 | 170 | 0.005 | 7,400 | 150 | 0.004 | 7,000 | 130 | 0.003 |
| | 38 | 8,150 | 100 | 0.005 | 6,800 | 90 | 0.004 | 6,700 | 85 | 0.003 | 6,000 | 75 | 0.003 |
| | 40 | 7,200 | 90 | 0.004 | 6,000 | 75 | 0.003 | 5,900 | 70 | 0.002 | 5,600 | 60 | 0.002 |
| | 45 | 6,600 | 50 | 0.004 | 5,500 | 45 | 0.003 | 5,400 | 40 | 0.002 | 5,400 | 40 | 0.001 |
| 1.6 | 6 | 20,500 | 1,200 | 0.18 | 17,000 | 1,000 | 0.15 | 17,000 | 900 | 0.13 | 13,000 | 600 | 0.1 |
| | 8 | 18,000 | 960 | 0.168 | 15,000 | 800 | 0.14 | 15,000 | 700 | 0.12 | 11,000 | 400 | 0.1 |
| | 10 | 18,000 | 960 | 0.132 | 15,000 | 800 | 0.11 | 15,000 | 700 | 0.09 | 11,000 | 400 | 0.07 |
| | 12 | 18,000 | 960 | 0.084 | 15,000 | 800 | 0.07 | 15,000 | 700 | 0.06 | 11,000 | 400 | 0.05 |
| | 14 | 18,000 | 960 | 0.072 | 15,000 | 800 | 0.06 | 15,000 | 700 | 0.05 | 11,000 | 400 | 0.04 |
| | 16 | 15,500 | 720 | 0.06 | 13,000 | 600 | 0.05 | 13,000 | 500 | 0.04 | 9,000 | 300 | 0.035 |
| | 18 | 15,500 | 720 | 0.048 | 13,000 | 600 | 0.04 | 13,000 | 500 | 0.03 | 9,000 | 300 | 0.03 |
| | 20 | 15,500 | 720 | 0.024 | 13,000 | 600 | 0.02 | 13,000 | 500 | 0.02 | 9,000 | 300 | 0.01 |
| 1.8 | 6 | 19,000 | 1,300 | 0.264 | 16,000 | 1,100 | 0.22 | 15,000 | 1,000 | 0.18 | 12,000 | 700 | 0.14 |
| | 8 | 19,000 | 1,300 | 0.252 | 16,000 | 1,100 | 0.21 | 15,000 | 1,000 | 0.17 | 12,000 | 700 | 0.13 |
| | 10 | 17,000 | 960 | 0.144 | 14,000 | 800 | 0.12 | 14,000 | 700 | 0.1 | 10,000 | 500 | 0.08 |
| | 12 | 17,000 | 960 | 0.12 | 14,000 | 800 | 0.1 | 14,000 | 700 | 0.08 | 10,000 | 500 | 0.07 |
| | 14 | 17,000 | 960 | 0.096 | 14,000 | 800 | 0.08 | 14,000 | 700 | 0.06 | 10,000 | 500 | 0.05 |
| | 16 | 17,000 | 960 | 0.084 | 14,000 | 800 | 0.07 | 14,000 | 700 | 0.05 | 10,000 | 500 | 0.04 |
| | 18 | 14,500 | 720 | 0.06 | 12,000 | 600 | 0.05 | 12,000 | 500 | 0.045 | 8,000 | 400 | 0.035 |
| | 20 | 14,500 | 720 | 0.048 | 12,000 | 600 | 0.04 | 12,000 | 500 | 0.04 | 8,000 | 400 | 0.03 |
| | 25 | 9,600 | 360 | 0.011 | 8,000 | 300 | 0.009 | 7,000 | 250 | 0.008 | 6,000 | 200 | 0.007 |
| 2 | 6 | 18,000 | 1,300 | 0.372 | 15,000 | 1,100 | 0.31 | 14,000 | 1,000 | 0.26 | 11,000 | 700 | 0.21 |
| | 8 | 18,000 | 1,300 | 0.312 | 15,000 | 1,100 | 0.26 | 14,000 | 1,000 | 0.22 | 11,000 | 700 | 0.18 |
| | 10 | 15,500 | 960 | 0.288 | 13,000 | 800 | 0.24 | 12,000 | 700 | 0.2 | 9,000 | 500 | 0.16 |
| | 12 | 15,500 | 960 | 0.156 | 13,000 | 800 | 0.13 | 12,000 | 700 | 0.11 | 9,000 | 500 | 0.09 |
| | 14 | 15,500 | 960 | 0.132 | 13,000 | 800 | 0.11 | 12,000 | 700 | 0.09 | 9,000 | 500 | 0.07 |
| | 16 | 15,500 | 960 | 0.096 | 13,000 | 800 | 0.08 | 12,000 | 700 | 0.07 | 9,000 | 500 | 0.06 |
| | 18 | 15,500 | 960 | 0.084 | 13,000 | 800 | 0.07 | 12,000 | 700 | 0.06 | 9,000 | 500 | 0.05 |
| | 20 | 13,000 | 720 | 0.06 | 11,000 | 600 | 0.05 | 10,000 | 500 | 0.05 | 7,000 | 400 | 0.04 |
| | 25 | 13,000 | 720 | 0.036 | 11,000 | 600 | 0.03 | 10,000 | 500 | 0.02 | 7,000 | 400 | 0.02 |
| | 30 | 13,000 | 720 | 0.024 | 11,000 | 600 | 0.02 | 10,000 | 500 | 0.01 | 7,000 | 400 | 0.01 |
| | 35 | 11,000 | 460 | 0.011 | 9,000 | 390 | 0.009 | 8,000 | 380 | 0.008 | 6,000 | 270 | 0.007 |
| | 40 | 7,800 | 240 | 0.006 | 6,500 | 200 | 0.005 | 6,000 | 180 | 0.004 | 6,000 | 140 | 0.003 |
| | 50 | 6,950 | 120 | 0.002 | 5,800 | 100 | 0.002 | 5,700 | 95 | 0.002 | 5,000 | 80 | 0.002 |
| | 60 | 6,000 | 60 | 0.001 | 5,000 | 50 | 0.001 | 5,000 | 45 | 0.001 | 5,000 | 40 | 0.001 |
| 2.5 | 8 | 14,500 | 1,300 | 0.468 | 12,000 | 1,100 | 0.39 | 11,000 | 1,000 | 0.33 | 9,000 | 700 | 0.26 |
| | 10 | 14,500 | 1,300 | 0.396 | 12,000 | 1,100 | 0.33 | 11,000 | 1,000 | 0.28 | 9,000 | 700 | 0.22 |

切込深さ Depth of Cut




次ページへ
外径 DC 2.5～12 NEXT

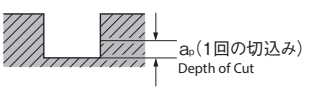
# WXL-LN-EDS
## 溝切削

SLOTTING

前ページより
FROM 外径 DC 1.4～2.5

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 33～41HRC | | | 42～50HRC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 首下長 LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 2.5 | 12 | 14,500 | 1,300 | 0.276 | 12,000 | 1,100 | 0.23 | 11,000 | 1,000 | 0.19 | 9,000 | 700 | 0.15 |
| | 14 | 12,000 | 960 | 0.204 | 10,000 | 800 | 0.17 | 9,000 | 700 | 0.14 | 7,000 | 500 | 0.11 |
| | 16 | 12,000 | 960 | 0.144 | 10,000 | 800 | 0.12 | 9,000 | 700 | 0.1 | 7,000 | 500 | 0.08 |
| | 18 | 12,000 | 960 | 0.132 | 10,000 | 800 | 0.11 | 9,000 | 700 | 0.09 | 7,000 | 500 | 0.07 |
| | 20 | 12,000 | 960 | 0.108 | 10,000 | 800 | 0.09 | 9,000 | 700 | 0.08 | 7,000 | 500 | 0.06 |
| | 25 | 9,600 | 720 | 0.096 | 8,000 | 600 | 0.08 | 8,000 | 500 | 0.06 | 6,000 | 400 | 0.05 |
| | 30 | 9,600 | 720 | 0.036 | 8,000 | 600 | 0.03 | 8,000 | 500 | 0.03 | 6,000 | 400 | 0.02 |
| | 40 | 7,800 | 330 | 0.008 | 6,500 | 280 | 0.007 | 6,000 | 270 | 0.005 | 6,000 | 240 | 0.005 |
| | 50 | 6,950 | 200 | 0.002 | 5,800 | 170 | 0.002 | 5,700 | 160 | 0.002 | 5,000 | 130 | 0.002 |
| 3 | 8 | 12,000 | 1,300 | 0.432 | 10,000 | 1,100 | 0.36 | 10,000 | 1,000 | 0.3 | 8,000 | 700 | 0.24 |
| | 10 | 12,000 | 1,300 | 0.348 | 10,000 | 1,100 | 0.29 | 10,000 | 1,000 | 0.24 | 8,000 | 700 | 0.19 |
| | 12 | 12,000 | 1,300 | 0.324 | 10,000 | 1,100 | 0.27 | 10,000 | 1,000 | 0.23 | 8,000 | 700 | 0.18 |
| | 14 | 12,000 | 1,300 | 0.3 | 10,000 | 1,100 | 0.25 | 10,000 | 1,000 | 0.21 | 8,000 | 700 | 0.17 |
| | 16 | 12,000 | 960 | 0.24 | 10,000 | 800 | 0.2 | 9,000 | 700 | 0.17 | 6,000 | 500 | 0.13 |
| | 18 | 12,000 | 960 | 0.168 | 10,000 | 800 | 0.14 | 9,000 | 700 | 0.12 | 6,000 | 500 | 0.1 |
| | 20 | 12,000 | 960 | 0.156 | 10,000 | 800 | 0.13 | 9,000 | 700 | 0.11 | 6,000 | 500 | 0.08 |
| | 25 | 12,000 | 960 | 0.132 | 10,000 | 800 | 0.11 | 9,000 | 700 | 0.09 | 6,000 | 500 | 0.07 |
| | 30 | 9,600 | 720 | 0.108 | 8,000 | 600 | 0.09 | 7,000 | 500 | 0.08 | 5,000 | 400 | 0.06 |
| | 35 | 9,600 | 720 | 0.084 | 8,000 | 600 | 0.07 | 7,000 | 500 | 0.06 | 5,000 | 400 | 0.05 |
| | 40 | 9,600 | 720 | 0.048 | 8,000 | 600 | 0.04 | 7,000 | 500 | 0.03 | 5,000 | 400 | 0.02 |
| | 50 | 6,950 | 320 | 0.011 | 5,800 | 270 | 0.009 | 5,700 | 240 | 0.005 | 5,000 | 200 | 0.004 |
| 4 | 12 | 8,550 | 1,350 | 0.456 | 7,000 | 1,100 | 0.38 | 7,000 | 1,000 | 0.32 | 6,000 | 700 | 0.26 |
| | 16 | 8,550 | 1,350 | 0.432 | 7,000 | 1,100 | 0.36 | 7,000 | 1,000 | 0.3 | 6,000 | 700 | 0.24 |
| | 20 | 8,550 | 970 | 0.408 | 7,000 | 800 | 0.34 | 6,000 | 700 | 0.28 | 5,000 | 500 | 0.22 |
| | 25 | 8,550 | 970 | 0.312 | 7,000 | 800 | 0.26 | 6,000 | 700 | 0.22 | 5,000 | 500 | 0.18 |
| | 30 | 8,550 | 970 | 0.228 | 7,000 | 800 | 0.19 | 6,000 | 700 | 0.16 | 5,000 | 500 | 0.13 |
| | 35 | 8,550 | 970 | 0.204 | 7,000 | 800 | 0.17 | 6,000 | 700 | 0.14 | 5,000 | 500 | 0.11 |
| | 40 | 7,300 | 730 | 0.168 | 6,000 | 600 | 0.14 | 5,000 | 600 | 0.12 | 4,000 | 400 | 0.1 |
| | 45 | 7,300 | 730 | 0.144 | 6,000 | 600 | 0.12 | 5,000 | 600 | 0.1 | 4,000 | 400 | 0.08 |
| | 50 | 7,300 | 730 | 0.06 | 6,000 | 600 | 0.05 | 5,000 | 600 | 0.04 | 4,000 | 400 | 0.03 |
| | 60 | 6,100 | 340 | 0.024 | 5,000 | 280 | 0.02 | 5,000 | 270 | 0.02 | 4,000 | 250 | 0.01 |
| 5 | 16 | 7,300 | 1,350 | 0.54 | 6,000 | 1,100 | 0.45 | 5,000 | 900 | 0.38 | 5,000 | 600 | 0.3 |
| | 20 | 7,300 | 1,150 | 0.516 | 6,000 | 950 | 0.43 | 5,000 | 780 | 0.36 | 5,000 | 600 | 0.29 |
| | 25 | 6,100 | 970 | 0.504 | 5,000 | 800 | 0.42 | 5,000 | 700 | 0.35 | 5,000 | 600 | 0.28 |
| | 30 | 6,100 | 970 | 0.456 | 5,000 | 800 | 0.38 | 5,000 | 700 | 0.3 | 5,000 | 600 | 0.25 |
| | 35 | 6,100 | 970 | 0.396 | 5,000 | 800 | 0.33 | 5,000 | 700 | 0.28 | 5,000 | 600 | 0.22 |
| | 40 | 6,100 | 730 | 0.34 | 5,000 | 600 | 0.28 | 4,000 | 580 | 0.2 | 4,000 | 500 | 0.18 |
| | 50 | 4,900 | 610 | 0.18 | 4,000 | 500 | 0.15 | 3,000 | 400 | 0.13 | 3,000 | 400 | 0.1 |
| | 60 | 4,900 | 420 | 0.072 | 4,000 | 350 | 0.06 | 3,000 | 330 | 0.06 | 3,000 | 300 | 0.04 |
| 6 | 20 | 5,300 | 850 | 0.6 | 5,000 | 1,000 | 0.5 | 4,200 | 780 | 0.4 | 4,200 | 600 | 0.3 |
| | 30 | 5,300 | 750 | 0.52 | 5,000 | 800 | 0.43 | 4,200 | 700 | 0.35 | 4,200 | 600 | 0.26 |
| | 40 | 5,300 | 640 | 0.38 | 5,000 | 600 | 0.32 | 4,200 | 580 | 0.25 | 4,200 | 500 | 0.2 |
| | 50 | 4,800 | 580 | 0.22 | 4,000 | 500 | 0.18 | 4,000 | 400 | 0.15 | 4,000 | 400 | 0.11 |
| | 60 | 4,200 | 460 | 0.05 | 3,600 | 400 | 0.04 | 3,200 | 330 | 0.03 | 3,200 | 300 | 0.02 |
| 8 | 40 | 2,950 | 260 | 0.8 | 3,800 | 450 | 0.68 | 3,200 | 540 | 0.54 | 3,200 | 450 | 0.43 |
| 10 | 50 | 2,350 | 245 | 1 | 3,000 | 360 | 0.85 | 2,500 | 400 | 0.68 | 2,500 | 350 | 0.54 |
| 12 | 60 | 1,950 | 250 | 1.2 | 2,500 | 300 | 1.02 | 2,100 | 340 | 0.81 | 2,100 | 300 | 0.64 |

切込深さ Depth of Cut




1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

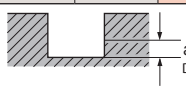
形状寸法表
SPECIFICATION CHARTS
WXL-LN-EMS▶P319

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-LN-EMS
### 溝切削 SLOTTING

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 33～41HRC | | | 42～50HRC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 首下長 LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 1 | 4 | 36,000 | 2,300 | 0.08 | 30,000 | 1,900 | 0.07 | 30,000 | 1,650 | 0.07 | 22,000 | 980 | 0.05 |
| | 6 | 32,500 | 1,900 | 0.08 | 27,000 | 1,600 | 0.07 | 26,000 | 1,350 | 0.06 | 20,000 | 900 | 0.04 |
| | 8 | 27,500 | 1,450 | 0.05 | 23,000 | 1,200 | 0.04 | 22,000 | 1,050 | 0.04 | 18,000 | 600 | 0.03 |
| | 10 | 23,000 | 1,100 | 0.04 | 19,000 | 940 | 0.03 | 18,000 | 750 | 0.028 | 15,000 | 450 | 0.02 |
| | 12 | 23,000 | 1,100 | 0.02 | 19,000 | 940 | 0.02 | 18,000 | 750 | 0.019 | 15,000 | 450 | 0.01 |
| | 16 | 18,000 | 480 | 0.01 | 15,000 | 400 | 0.008 | 15,000 | 450 | 0.007 | 12,000 | 300 | 0.006 |
| 1.2 | 6 | 27,500 | 1,900 | 0.1 | 23,000 | 1,600 | 0.08 | 22,000 | 1,350 | 0.07 | 17,000 | 900 | 0.05 |
| | 8 | 24,000 | 1,450 | 0.08 | 20,000 | 1,200 | 0.07 | 19,000 | 1,050 | 0.05 | 14,000 | 600 | 0.04 |
| | 10 | 24,000 | 1,100 | 0.06 | 20,000 | 940 | 0.05 | 19,000 | 1,050 | 0.04 | 14,000 | 600 | 0.03 |
| | 12 | 20,500 | 1,100 | 0.05 | 17,000 | 940 | 0.04 | 16,000 | 750 | 0.03 | 11,000 | 450 | 0.02 |
| | 16 | 14,500 | 600 | 0.01 | 12,000 | 500 | 0.008 | 11,000 | 370 | 0.007 | 10,000 | 330 | 0.006 |
| 1.4 | 6 | 24,000 | 1,950 | 0.14 | 20,000 | 1,600 | 0.12 | 19,000 | 1,350 | 0.11 | 15,000 | 900 | 0.09 |
| | 8 | 21,500 | 1,450 | 0.11 | 18,000 | 1,200 | 0.09 | 17,000 | 1,050 | 0.08 | 13,000 | 600 | 0.06 |
| | 10 | 21,500 | 1,450 | 0.07 | 18,000 | 1,200 | 0.06 | 17,000 | 1,050 | 0.05 | 13,000 | 600 | 0.04 |
| | 12 | 21,500 | 1,450 | 0.06 | 18,000 | 1,200 | 0.05 | 17,000 | 1,050 | 0.04 | 13,000 | 600 | 0.03 |
| | 14 | 18,000 | 1,100 | 0.05 | 15,000 | 940 | 0.04 | 14,000 | 750 | 0.035 | 11,000 | 450 | 0.03 |
| | 16 | 18,000 | 1,100 | 0.04 | 15,000 | 940 | 0.03 | 14,000 | 750 | 0.02 | 11,000 | 450 | 0.02 |
| | 22 | 12,000 | 510 | 0.01 | 10,000 | 430 | 0.005 | 9,000 | 310 | 0.005 | 8,000 | 270 | 0.004 |
| 1.5 | 6 | 21,500 | 2,050 | 0.14 | 18,000 | 1,700 | 0.12 | 18,000 | 1,350 | 0.11 | 14,000 | 900 | 0.09 |
| | 8 | 19,000 | 1,450 | 0.12 | 16,000 | 1,200 | 0.1 | 15,000 | 1,050 | 0.08 | 12,000 | 600 | 0.07 |
| | 10 | 19,000 | 1,450 | 0.1 | 16,000 | 1,200 | 0.08 | 15,000 | 1,050 | 0.07 | 12,000 | 600 | 0.05 |
| | 12 | 19,000 | 1,450 | 0.07 | 16,000 | 1,200 | 0.06 | 15,000 | 1,050 | 0.05 | 12,000 | 600 | 0.04 |
| | 14 | 19,000 | 1,450 | 0.06 | 16,000 | 1,200 | 0.05 | 15,000 | 1,050 | 0.045 | 12,000 | 600 | 0.035 |
| | 16 | 17,000 | 1,100 | 0.06 | 14,000 | 940 | 0.05 | 13,000 | 750 | 0.04 | 10,000 | 450 | 0.03 |
| | 18 | 17,000 | 1,100 | 0.04 | 14,000 | 940 | 0.03 | 13,000 | 750 | 0.02 | 10,000 | 450 | 0.02 |
| | 20 | 14,500 | 800 | 0.02 | 12,000 | 670 | 0.02 | 11,000 | 570 | 0.015 | 10,000 | 450 | 0.01 |
| 1.6 | 6 | 20,500 | 2,050 | 0.17 | 17,000 | 1,700 | 0.14 | 17,000 | 1,350 | 0.13 | 13,000 | 900 | 0.1 |
| | 8 | 18,000 | 1,550 | 0.16 | 15,000 | 1,300 | 0.13 | 15,000 | 1,050 | 0.12 | 11,000 | 600 | 0.1 |
| | 10 | 18,000 | 1,450 | 0.13 | 15,000 | 1,200 | 0.11 | 15,000 | 1,050 | 0.09 | 11,000 | 600 | 0.07 |
| | 12 | 18,000 | 1,450 | 0.08 | 15,000 | 1,200 | 0.07 | 15,000 | 1,050 | 0.06 | 11,000 | 600 | 0.05 |
| | 14 | 18,000 | 1,450 | 0.07 | 15,000 | 1,200 | 0.06 | 15,000 | 1,050 | 0.05 | 11,000 | 600 | 0.04 |
| | 16 | 15,500 | 1,100 | 0.06 | 13,000 | 940 | 0.05 | 13,000 | 750 | 0.04 | 9,000 | 450 | 0.035 |
| | 18 | 15,500 | 1,100 | 0.05 | 13,000 | 940 | 0.04 | 13,000 | 750 | 0.03 | 9,000 | 450 | 0.03 |
| | 20 | 15,500 | 1,100 | 0.02 | 13,000 | 940 | 0.02 | 13,000 | 750 | 0.02 | 9,000 | 450 | 0.01 |
| | 25 | 10,500 | 550 | 0.01 | 8,900 | 460 | 0.01 | 8,900 | 360 | 0.01 | 6,100 | 220 | 0.008 |
| 1.8 | 6 | 19,000 | 2,250 | 0.24 | 16,000 | 1,900 | 0.2 | 15,000 | 1,500 | 0.18 | 12,000 | 1,050 | 0.14 |
| | 8 | 19,000 | 2,550 | 0.23 | 16,000 | 1,900 | 0.19 | 15,000 | 1,500 | 0.17 | 12,000 | 1,050 | 0.13 |
| | 10 | 17,000 | 1,450 | 0.14 | 14,000 | 1,200 | 0.12 | 14,000 | 1,050 | 0.1 | 10,000 | 750 | 0.08 |
| | 12 | 17,000 | 1,450 | 0.12 | 14,000 | 1,200 | 0.1 | 14,000 | 1,050 | 0.08 | 10,000 | 750 | 0.07 |
| | 14 | 17,000 | 1,450 | 0.1 | 14,000 | 1,200 | 0.08 | 14,000 | 1,050 | 0.06 | 10,000 | 750 | 0.05 |
| | 16 | 17,000 | 1,450 | 0.08 | 14,000 | 1,200 | 0.07 | 14,000 | 1,050 | 0.05 | 10,000 | 750 | 0.04 |
| | 18 | 14,500 | 1,100 | 0.06 | 12,000 | 940 | 0.05 | 12,000 | 750 | 0.045 | 8,000 | 600 | 0.035 |
| | 20 | 14,500 | 1,100 | 0.05 | 12,000 | 940 | 0.04 | 12,000 | 750 | 0.04 | 8,000 | 600 | 0.03 |
| | 25 | 9,600 | 570 | 0.01 | 8,000 | 480 | 0.009 | 7,000 | 370 | 0.008 | 6,000 | 300 | 0.007 |

切込深さ Depth of Cut

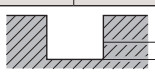



次ページへ
外径 DC 2～10 NEXT

# WXL-LN-EMS
## 溝切削

SLOTTING

前ページより
FROM 外径 DC 1～1.8

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 33～41HRC | | | 42～50HRC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 首下長 LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 2 | 6 | 18,000 | 2,350 | 0.34 | 15,000 | 1,900 | 0.28 | 14,000 | 1,500 | 0.26 | 11,000 | 1,050 | 0.21 |
| | 8 | 18,000 | 2,350 | 0.31 | 15,000 | 1,900 | 0.26 | 14,000 | 1,500 | 0.22 | 11,000 | 1,050 | 0.18 |
| | 10 | 15,500 | 1,610 | 0.29 | 13,000 | 1,300 | 0.24 | 12,000 | 1,050 | 0.2 | 9,000 | 750 | 0.16 |
| | 12 | 15,500 | 1,500 | 0.16 | 13,000 | 1,200 | 0.13 | 12,000 | 1,050 | 0.11 | 9,000 | 750 | 0.09 |
| | 14 | 15,500 | 1,500 | 0.13 | 13,000 | 1,200 | 0.11 | 12,000 | 1,050 | 0.09 | 9,000 | 750 | 0.07 |
| | 16 | 15,500 | 1,500 | 0.1 | 13,000 | 1,200 | 0.08 | 12,000 | 1,050 | 0.07 | 9,000 | 750 | 0.06 |
| | 18 | 15,500 | 1,500 | 0.08 | 13,000 | 1,200 | 0.07 | 12,000 | 1,050 | 0.06 | 9,000 | 750 | 0.05 |
| | 20 | 13,000 | 1,150 | 0.06 | 11,000 | 940 | 0.05 | 10,000 | 750 | 0.05 | 7,000 | 600 | 0.04 |
| | 25 | 13,000 | 1,150 | 0.04 | 11,000 | 940 | 0.03 | 10,000 | 750 | 0.02 | 7,000 | 600 | 0.02 |
| | 30 | 13,000 | 1,150 | 0.02 | 11,000 | 940 | 0.02 | 10,000 | 750 | 0.01 | 7,000 | 600 | 0.01 |
| 2.5 | 8 | 14,500 | 2,350 | 0.42 | 12,000 | 1,900 | 0.35 | 11,000 | 1,500 | 0.33 | 9,000 | 1,050 | 0.26 |
| | 12 | 14,500 | 2,350 | 0.28 | 12,000 | 1,900 | 0.23 | 11,000 | 1,500 | 0.19 | 9,000 | 1,050 | 0.15 |
| | 16 | 12,000 | 1,500 | 0.14 | 10,000 | 1,200 | 0.12 | 9,000 | 1,050 | 0.1 | 7,000 | 750 | 0.08 |
| | 20 | 12,000 | 1,500 | 0.11 | 10,000 | 1,200 | 0.09 | 9,000 | 1,050 | 0.08 | 7,000 | 750 | 0.06 |
| | 25 | 9,600 | 1,150 | 0.1 | 8,000 | 940 | 0.08 | 8,000 | 750 | 0.06 | 6,000 | 600 | 0.05 |
| 3 | 8 | 12,000 | 2,350 | 0.38 | 10,000 | 1,900 | 0.32 | 10,000 | 1,500 | 0.3 | 8,000 | 1,050 | 0.24 |
| | 12 | 12,000 | 2,150 | 0.32 | 10,000 | 1,750 | 0.27 | 10,000 | 1,500 | 0.23 | 8,000 | 1,050 | 0.18 |
| | 16 | 12,000 | 1,500 | 0.24 | 10,000 | 1,200 | 0.2 | 9,000 | 1,050 | 0.17 | 6,000 | 750 | 0.13 |
| | 20 | 12,000 | 1,500 | 0.16 | 10,000 | 1,200 | 0.13 | 9,000 | 1,050 | 0.11 | 6,000 | 750 | 0.08 |
| | 25 | 12,000 | 1,500 | 0.13 | 10,000 | 1,200 | 0.11 | 9,000 | 1,050 | 0.09 | 6,000 | 750 | 0.07 |
| | 30 | 9,600 | 1,150 | 0.11 | 8,000 | 940 | 0.09 | 7,000 | 750 | 0.08 | 5,000 | 600 | 0.06 |
| 4 | 12 | 8,400 | 2,400 | 0.408 | 7,000 | 1,900 | 0.34 | 7,000 | 1,500 | 0.32 | 6,000 | 1,050 | 0.26 |
| | 16 | 8,400 | 2,400 | 0.384 | 7,000 | 1,900 | 0.32 | 7,000 | 1,500 | 0.3 | 6,000 | 1,050 | 0.24 |
| | 20 | 8,400 | 1,600 | 0.36 | 7,000 | 1,300 | 0.3 | 6,000 | 1,050 | 0.28 | 5,000 | 750 | 0.22 |
| | 25 | 8,400 | 1,500 | 0.312 | 7,000 | 1,200 | 0.26 | 6,000 | 1,050 | 0.22 | 5,000 | 750 | 0.18 |
| | 30 | 8,400 | 1,500 | 0.228 | 7,000 | 1,200 | 0.19 | 6,000 | 1,050 | 0.16 | 5,000 | 750 | 0.13 |
| | 35 | 7,200 | 1,150 | 0.204 | 6,000 | 940 | 0.17 | 6,000 | 1,050 | 0.14 | 5,000 | 750 | 0.11 |
| | 40 | 7,200 | 1,050 | 0.168 | 6,000 | 860 | 0.14 | 5,000 | 900 | 0.12 | 4,000 | 600 | 0.1 |
| | 45 | 7,200 | 1,050 | 0.144 | 6,000 | 860 | 0.12 | 5,000 | 820 | 0.1 | 4,000 | 500 | 0.08 |
| | 50 | 7,200 | 1,050 | 0.06 | 6,000 | 860 | 0.05 | 5,000 | 820 | 0.04 | 4,000 | 500 | 0.03 |
| 5 | 16 | 7,200 | 2,150 | 0.48 | 6,000 | 1,720 | 0.4 | 5,000 | 1,350 | 0.38 | 5,000 | 900 | 0.3 |
| | 25 | 6,000 | 1,400 | 0.456 | 5,000 | 1,150 | 0.38 | 5,000 | 1,050 | 0.35 | 5,000 | 900 | 0.28 |
| | 35 | 6,000 | 1,300 | 0.36 | 5,000 | 1,070 | 0.3 | 5,000 | 1,050 | 0.28 | 5,000 | 900 | 0.22 |
| | 50 | 4,800 | 840 | 0.18 | 4,000 | 670 | 0.15 | 3,000 | 600 | 0.13 | 3,000 | 600 | 0.1 |
| 6 | 20 | 6,000 | 1,650 | 0.54 | 5,000 | 1,340 | 0.45 | 4,200 | 1,170 | 0.4 | 4,200 | 900 | 0.3 |
| | 30 | 6,000 | 1,450 | 0.456 | 5,000 | 1,150 | 0.38 | 4,200 | 1,050 | 0.35 | 4,200 | 900 | 0.26 |
| | 40 | 6,000 | 1,150 | 0.348 | 5,000 | 910 | 0.29 | 4,200 | 870 | 0.25 | 4,200 | 750 | 0.2 |
| | 50 | 4,800 | 900 | 0.216 | 4,000 | 720 | 0.18 | 3,800 | 600 | 0.15 | 3,800 | 600 | 0.11 |
| 8 | 30 | 4,600 | 1,300 | 0.78 | 3,800 | 1,050 | 0.65 | 3,600 | 900 | 0.56 | 3,400 | 820 | 0.45 |
| | 50 | 3,800 | 900 | 0.72 | 3,200 | 720 | 0.6 | 3,000 | 630 | 0.48 | 2,900 | 580 | 0.38 |
| | 60 | 3,400 | 700 | 0.48 | 2,800 | 570 | 0.4 | 2,700 | 530 | 0.32 | 2,600 | 490 | 0.25 |
| 10 | 40 | 3,600 | 1,300 | 0.96 | 3,000 | 1,050 | 0.8 | 2,900 | 800 | 0.64 | 2,700 | 710 | 0.51 |
| | 60 | 3,400 | 950 | 0.84 | 2,800 | 760 | 0.7 | 2,600 | 620 | 0.56 | 2,500 | 560 | 0.44 |
| | 80 | 2,400 | 580 | 0.48 | 2,000 | 460 | 0.4 | 1,800 | 400 | 0.32 | 1,600 | 340 | 0.25 |
| 切込深さ Depth of Cut | |  ap（1回の切込み） Depth of Cut | | | | | | | | | | | |

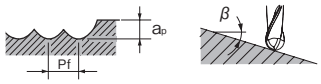
1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. L/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with an L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

形状寸法表
SPECIFICATION CHARTS
WXL-EBD▶P322

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-EBD
## 標準切削 REGULAR MILLING

| 被削材 Work Material | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel・FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK80・HPM1・DH**・SUS304 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.05 | 40,000 | 150 | 0.003 | 0.005 | 32,000 | 75 | 0.005 | 0.005 | 32,000 | 50 | 0.005 | 0.005 | 32,000 | 35 | 0.005 | 0.005 |
| 0.1 | 40,000 | 300 | 0.01 | 0.02 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.005 | 0.005 |
| 0.2 | 40,000 | 490 | 0.02 | 0.08 | 32,000 | 410 | 0.02 | 0.08 | 32,000 | 330 | 0.02 | 0.08 | 32,000 | 205 | 0.02 | 0.04 |
| 0.3 | 40,000 | 580 | 0.03 | 0.12 | 32,000 | 490 | 0.03 | 0.12 | 32,000 | 420 | 0.03 | 0.12 | 32,000 | 265 | 0.03 | 0.06 |
| 0.4 | 40,000 | 660 | 0.04 | 0.16 | 32,000 | 550 | 0.04 | 0.16 | 31,500 | 420 | 0.04 | 0.16 | 27,500 | 290 | 0.04 | 0.08 |
| 0.5 | 32,000 | 750 | 0.05 | 0.2 | 31,500 | 620 | 0.05 | 0.2 | 25,000 | 400 | 0.05 | 0.2 | 22,000 | 285 | 0.05 | 0.1 |
| 1 | 19,000 | 750 | 0.2 | 0.4 | 15,500 | 620 | 0.2 | 0.4 | 12,500 | 400 | 0.2 | 0.4 | 11,000 | 290 | 0.1 | 0.2 |
| 1.5 | 12,500 | 760 | 0.3 | 0.6 | 10,500 | 630 | 0.3 | 0.6 | 8,450 | 405 | 0.3 | 0.6 | 7,400 | 290 | 0.15 | 0.3 |
| 2 | 9,500 | 760 | 0.4 | 0.8 | 7,950 | 630 | 0.4 | 0.8 | 6,350 | 445 | 0.4 | 0.8 | 5,550 | 370 | 0.2 | 0.4 |
| 3 | 6,300 | 800 | 0.6 | 1.2 | 5,300 | 670 | 0.6 | 1.2 | 4,200 | 465 | 0.6 | 1.2 | 3,700 | 390 | 0.3 | 0.6 |
| 4 | 4,750 | 950 | 0.8 | 1.6 | 3,950 | 790 | 0.8 | 1.6 | 3,150 | 555 | 0.8 | 1.6 | 2,750 | 455 | 0.4 | 0.8 |
| 5 | 3,800 | 890 | 1 | 2 | 3,150 | 745 | 1 | 2 | 2,500 | 525 | 1 | 2 | 2,200 | 430 | 0.5 | 1 |
| 6 | 3,170 | 840 | 1.2 | 2.4 | 2,650 | 700 | 1.2 | 2.4 | 2,100 | 490 | 1.2 | 2.4 | 1,850 | 430 | 0.6 | 1.2 |
| 8 | 2,400 | 630 | 1.6 | 3.2 | 1,990 | 525 | 1.6 | 3.2 | 1,580 | 370 | 1.6 | 3.2 | 1,390 | 325 | 0.8 | 1.6 |
| 10 | 1,900 | 500 | 2 | 4 | 1,590 | 420 | 2 | 4 | 1,260 | 290 | 2 | 4 | 1,110 | 260 | 1 | 2 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | | | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
3. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

※工具突出し量が大きい場合は回転速度、送り速度を下げて下さい。
※※傾き角βが15°以下の加工では、上記表の回転速度、送り速度を1.5～2倍に上げることが可能です。

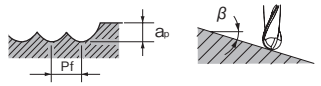
1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
3. Refer to the table above to set the milling conditions in accordance with the actual situation.

※ When the length of tool extension from the machine is long, reduce the speed and feed.
※※ When β is less than 15°, speed and feed in the above table can be increased 1.5～2 times.

## WXL-EBD
## 高速切削 HIGH-SPEED LIGHT MILLING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ず行って下さい。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

| 被削材 Work Material | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel・FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.5 | 50,000 | 3,350 | 0.02 | 0.05 | 50,000 | 2,800 | 0.02 | 0.05 | 50,000 | 2,500 | 0.02 | 0.05 | 47,500 | 2,250 | 0.02 | 0.05 |
| 1 | 31,500 | 3,350 | 0.04 | 0.1 | 25,000 | 2,800 | 0.04 | 0.1 | 24,500 | 2,500 | 0.04 | 0.1 | 23,500 | 2,250 | 0.04 | 0.1 |
| 1.5 | 21,000 | 3,350 | 0.06 | 0.15 | 16,500 | 2,800 | 0.06 | 0.15 | 16,000 | 2,500 | 0.06 | 0.15 | 15,500 | 2,250 | 0.06 | 0.15 |
| 2 | 15,500 | 4,080 | 0.08 | 0.2 | 15,500 | 3,400 | 0.08 | 0.2 | 15,000 | 2,750 | 0.08 | 0.2 | 13,500 | 2,450 | 0.08 | 0.2 |
| 3 | 10,500 | 5,160 | 0.12 | 0.3 | 13,500 | 4,300 | 0.3 | 0.6 | 11,500 | 2,750 | 0.3 | 0.6 | 9,500 | 2,250 | 0.12 | 0.3 |
| 4 | 7,900 | 3,840 | 0.16 | 0.4 | 10,000 | 3,200 | 0.4 | 0.8 | 8,950 | 2,100 | 0.4 | 0.8 | 7,150 | 1,700 | 0.16 | 0.4 |
| 5 | 6,300 | 3,120 | 0.2 | 0.5 | 8,250 | 2,600 | 0.5 | 1 | 7,150 | 1,700 | 0.5 | 1 | 5,700 | 1,350 | 0.2 | 0.5 |
| 6 | 5,250 | 2,580 | 0.24 | 0.6 | 6,850 | 2,150 | 0.5 | 2.4 | 5,950 | 1,400 | 0.5 | 2.4 | 4,750 | 1,100 | 0.24 | 0.6 |
| 8 | 4,950 | 1,550 | 0.32 | 0.8 | 4,110 | 1,290 | 0.5 | 3.2 | 4,460 | 1,050 | 0.5 | 3.2 | 3,560 | 820 | 0.32 | 0.8 |
| 10 | 3,950 | 1,240 | 0.4 | 1 | 3,290 | 1,030 | 0.5 | 4 | 3,570 | 840 | 0.5 | 4 | 2,850 | 660 | 0.32 | 1 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | | | | | |



1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

※傾き角βが15°以下の加工では、上記表の回転速度、送り速度を1.2～1.5倍に上げることが可能です。

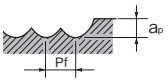
1. The indicated speeds and feeds are for high speed light milling with high speed/high precision machining centers.
2. Because tools can cause sparks, do not use flammable fluids.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

※ When β is less than 15°, speed and feed in the above table can be increased 1.2～1.5 times.

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表

## WXL-LN-EBD/WXL-LN-EBD-3
### 標準切削

REGULAR MILLING

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.05 | 0.3 | 32,000 | 150 | 0.005 | 0.005 | 32,000 | 75 | 0.005 | 0.005 | 32,000 | 50 | 0.005 | 0.005 | 32,000 | 35 | 0.005 | 0.005 |
| | 0.5 | 32,000 | 120 | 0.005 | 0.005 | 32,000 | 60 | 0.005 | 0.005 | 32,000 | 40 | 0.005 | 0.005 | 32,000 | 25 | 0.005 | 0.005 |
| 0.1 | 0.3 | 32,000 | 300 | 0.02 | 0.02 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.005 | 0.005 |
| | 0.5 | 32,000 | 300 | 0.02 | 0.02 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.005 | 0.005 |
| | 0.75 | 32,000 | 300 | 0.02 | 0.02 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 100 | 0.005 | 0.005 |
| | 1 | 32,000 | 150 | 0.02 | 0.02 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 80 | 0.005 | 0.005 |
| | 1.25 | 32,000 | 150 | 0.02 | 0.02 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 80 | 0.005 | 0.005 |
| | 1.5 | 32,000 | 150 | 0.02 | 0.02 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 80 | 0.005 | 0.005 |
| | 1.75 | 32,000 | 150 | 0.02 | 0.02 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 80 | 0.005 | 0.005 |
| | 2 | 32,000 | 150 | 0.01 | 0.01 | 32,000 | 100 | 0.005 | 0.005 | 32,000 | 100 | 0.005 | 0.005 | 32,000 | 80 | 0.005 | 0.005 |
| | 2.5 | 32,000 | 75 | 0.01 | 0.01 | 32,000 | 50 | 0.005 | 0.005 | 32,000 | 50 | 0.005 | 0.005 | 32,000 | 40 | 0.003 | 0.005 |
| | 3 | 32,000 | 75 | 0.01 | 0.01 | 32,000 | 50 | 0.005 | 0.005 | 32,000 | 50 | 0.005 | 0.005 | 32,000 | 40 | 0.003 | 0.005 |
| 0.15 | 0.5 | 32,000 | 600 | 0.02 | 0.03 | 32,000 | 400 | 0.01 | 0.015 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 300 | 0.005 | 0.005 |
| | 0.6 | 32,000 | 600 | 0.02 | 0.03 | 32,000 | 400 | 0.01 | 0.015 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 300 | 0.005 | 0.005 |
| | 0.75 | 32,000 | 600 | 0.02 | 0.03 | 32,000 | 400 | 0.01 | 0.015 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 300 | 0.005 | 0.005 |
| | 1 | 32,000 | 450 | 0.02 | 0.03 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 200 | 0.01 | 0.015 | 32,000 | 200 | 0.005 | 0.005 |
| | 1.25 | 32,000 | 450 | 0.02 | 0.03 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 200 | 0.01 | 0.015 | 32,000 | 200 | 0.005 | 0.005 |
| | 1.5 | 32,000 | 450 | 0.02 | 0.03 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 200 | 0.01 | 0.015 | 32,000 | 200 | 0.005 | 0.005 |
| | 1.75 | 32,000 | 450 | 0.02 | 0.03 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 200 | 0.01 | 0.015 | 32,000 | 200 | 0.005 | 0.005 |
| | 2 | 32,000 | 450 | 0.02 | 0.03 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 200 | 0.01 | 0.015 | 32,000 | 200 | 0.005 | 0.005 |
| | 2.25 | 32,000 | 450 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 |
| | 2.5 | 32,000 | 450 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 |
| | 2.75 | 32,000 | 450 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 |
| | 3 | 32,000 | 450 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.005 | 0.01 |
| | 3.5 | 32,000 | 270 | 0.02 | 0.02 | 32,000 | 180 | 0.01 | 0.01 | 32,000 | 120 | 0.01 | 0.01 | 32,000 | 120 | 0.005 | 0.01 |
| | 4 | 32,000 | 270 | 0.02 | 0.02 | 32,000 | 180 | 0.01 | 0.01 | 32,000 | 120 | 0.01 | 0.01 | 32,000 | 120 | 0.005 | 0.005 |
| | 4.5 | 32,000 | 270 | 0.02 | 0.02 | 32,000 | 180 | 0.01 | 0.01 | 32,000 | 120 | 0.01 | 0.01 | 32,000 | 120 | 0.003 | 0.005 |
| | 5 | 32,000 | 150 | 0.01 | 0.02 | 32,000 | 100 | 0.005 | 0.01 | 32,000 | 70 | 0.005 | 0.01 | 32,000 | 70 | 0.003 | 0.005 |
| 0.2 | 0.5 | 32,000 | 750 | 0.025 | 0.05 | 32,000 | 500 | 0.015 | 0.025 | 32,000 | 400 | 0.015 | 0.02 | 32,000 | 400 | 0.01 | 0.01 |
| | 0.75 | 32,000 | 750 | 0.025 | 0.05 | 32,000 | 500 | 0.015 | 0.025 | 32,000 | 400 | 0.015 | 0.02 | 32,000 | 400 | 0.01 | 0.01 |
| | 1 | 32,000 | 600 | 0.025 | 0.05 | 32,000 | 400 | 0.015 | 0.025 | 32,000 | 300 | 0.015 | 0.02 | 32,000 | 300 | 0.01 | 0.01 |
| | 1.5 | 32,000 | 600 | 0.025 | 0.05 | 32,000 | 400 | 0.015 | 0.025 | 32,000 | 300 | 0.015 | 0.02 | 32,000 | 300 | 0.01 | 0.01 |
| | 2 | 27,000 | 450 | 0.025 | 0.05 | 27,000 | 300 | 0.015 | 0.025 | 27,000 | 200 | 0.015 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | 2.5 | 27,000 | 450 | 0.025 | 0.05 | 27,000 | 300 | 0.015 | 0.025 | 27,000 | 200 | 0.015 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | 3 | 27,000 | 450 | 0.025 | 0.05 | 27,000 | 300 | 0.015 | 0.025 | 27,000 | 200 | 0.015 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | 3.5 | 27,000 | 450 | 0.025 | 0.05 | 27,000 | 300 | 0.015 | 0.025 | 27,000 | 200 | 0.015 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | 4 | 27,000 | 450 | 0.01 | 0.03 | 27,000 | 300 | 0.005 | 0.015 | 27,000 | 200 | 0.005 | 0.012 | 27,000 | 200 | 0.005 | 0.01 |
| | 4.5 | 24,000 | 300 | 0.01 | 0.03 | 27,000 | 200 | 0.005 | 0.015 | 27,000 | 100 | 0.005 | 0.012 | 27,000 | 100 | 0.005 | 0.01 |
| | 5 | 24,000 | 300 | 0.01 | 0.03 | 27,000 | 200 | 0.005 | 0.015 | 27,000 | 100 | 0.005 | 0.012 | 27,000 | 100 | 0.005 | 0.01 |
| | 5.5 | 21,000 | 300 | 0.01 | 0.02 | 27,000 | 200 | 0.005 | 0.01 | 27,000 | 100 | 0.005 | 0.008 | 27,000 | 100 | 0.005 | 0.005 |
| | 6 | 21,000 | 150 | 0.01 | 0.015 | 27,000 | 100 | 0.005 | 0.008 | 27,000 | 80 | 0.005 | 0.006 | 27,000 | 80 | 0.003 | 0.005 |
| 0.25 | 1 | 32,000 | 750 | 0.04 | 0.05 | 32,000 | 500 | 0.02 | 0.025 | 32,000 | 400 | 0.02 | 0.02 | 32,000 | 400 | 0.01 | 0.01 |
| | 1.5 | 32,000 | 750 | 0.04 | 0.05 | 32,000 | 500 | 0.02 | 0.025 | 32,000 | 400 | 0.02 | 0.02 | 32,000 | 400 | 0.01 | 0.01 |
| | 2 | 32,000 | 600 | 0.04 | 0.05 | 32,000 | 400 | 0.02 | 0.025 | 32,000 | 300 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 |
| | 2.5 | 27,000 | 450 | 0.04 | 0.05 | 27,000 | 300 | 0.02 | 0.025 | 27,000 | 200 | 0.02 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | 3 | 27,000 | 450 | 0.04 | 0.05 | 27,000 | 300 | 0.02 | 0.025 | 27,000 | 200 | 0.02 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | 3.5 | 27,000 | 450 | 0.04 | 0.05 | 27,000 | 300 | 0.02 | 0.025 | 27,000 | 200 | 0.02 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | 4 | 27,000 | 450 | 0.04 | 0.05 | 27,000 | 300 | 0.02 | 0.025 | 27,000 | 200 | 0.02 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | 4.5 | 21,000 | 300 | 0.04 | 0.05 | 20,000 | 200 | 0.02 | 0.025 | 20,000 | 200 | 0.02 | 0.02 | 20,000 | 200 | 0.01 | 0.01 |
| | 5 | 21,000 | 300 | 0.04 | 0.05 | 20,000 | 200 | 0.02 | 0.025 | 20,000 | 150 | 0.02 | 0.02 | 20,000 | 150 | 0.01 | 0.01 |
| | 5.5 | 21,000 | 300 | 0.02 | 0.03 | 20,000 | 200 | 0.01 | 0.015 | 20,000 | 150 | 0.01 | 0.01 | 20,000 | 150 | 0.01 | 0.01 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | | | |

次ページへ RE 0.25～0.4 NEXT

形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD▶P341
形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD-3▶P359-1

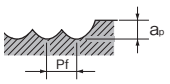
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-LN-EBD/WXL-LN-EBD-3
## 標準切削 REGULAR MILLING

前ページより FROM RE 0.05～0.25

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | |
| | | | | ap | Pf | | | ap | Pf | | | ap | Pf | | | ap | Pf |
| 0.25 | 6 | 21,000 | 300 | 0.02 | 0.03 | 20,000 | 200 | 0.01 | 0.015 | 20,000 | 150 | 0.01 | 0.01 | 20,000 | 150 | 0.01 | 0.01 |
| | 7 | 21,000 | 300 | 0.02 | 0.03 | 20,000 | 200 | 0.01 | 0.015 | 20,000 | 150 | 0.01 | 0.01 | 20,000 | 150 | 0.01 | 0.01 |
| | 8 | 21,000 | 300 | 0.02 | 0.03 | 15,000 | 200 | 0.01 | 0.015 | 15,000 | 150 | 0.01 | 0.01 | 15,000 | 150 | 0.005 | 0.01 |
| | 9 | 18,000 | 150 | 0.02 | 0.02 | 15,000 | 100 | 0.01 | 0.01 | 15,000 | 80 | 0.005 | 0.01 | 15,000 | 80 | 0.005 | 0.005 |
| | 10 | 18,000 | 150 | 0.01 | 0.01 | 15,000 | 100 | 0.005 | 0.005 | 15,000 | 80 | 0.005 | 0.005 | 15,000 | 80 | 0.003 | 0.005 |
| 0.3 | 1 | 32,000 | 900 | 0.045 | 0.12 | 32,000 | 600 | 0.03 | 0.06 | 32,000 | 500 | 0.03 | 0.05 | 32,000 | 500 | 0.03 | 0.03 |
| | 1.5 | 32,000 | 900 | 0.045 | 0.12 | 32,000 | 600 | 0.03 | 0.06 | 32,000 | 500 | 0.03 | 0.05 | 32,000 | 500 | 0.03 | 0.03 |
| | 2 | 32,000 | 675 | 0.045 | 0.12 | 32,000 | 450 | 0.03 | 0.06 | 32,000 | 300 | 0.03 | 0.05 | 32,000 | 300 | 0.03 | 0.03 |
| | 2.5 | 30,000 | 675 | 0.045 | 0.12 | 32,000 | 450 | 0.03 | 0.06 | 32,000 | 300 | 0.03 | 0.05 | 32,000 | 300 | 0.03 | 0.03 |
| | 3 | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.05 | 24,000 | 200 | 0.03 | 0.03 |
| | 3.5 | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.04 | 24,000 | 200 | 0.03 | 0.03 |
| | 4 | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.04 | 24,000 | 200 | 0.03 | 0.03 |
| | 4.5 | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.04 | 24,000 | 200 | 0.03 | 0.03 |
| | 5 | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.04 | 24,000 | 200 | 0.02 | 0.02 |
| | 5.5 | 25,000 | 300 | 0.045 | 0.12 | 20,000 | 200 | 0.03 | 0.06 | 20,000 | 200 | 0.03 | 0.04 | 20,000 | 200 | 0.02 | 0.02 |
| | 6 | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | 6.5 | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | 7 | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | 7.5 | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | 8 | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | 8.5 | 22,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.02 | 0.04 | 20,000 | 150 | 0.01 | 0.01 |
| | 9 | 22,000 | 225 | 0.03 | 0.1 | 20,000 | 150 | 0.02 | 0.05 | 20,000 | 150 | 0.02 | 0.04 | 20,000 | 150 | 0.01 | 0.01 |
| | 9.5 | 22,000 | 225 | 0.03 | 0.1 | 17,000 | 150 | 0.02 | 0.05 | 17,000 | 150 | 0.02 | 0.04 | 17,000 | 150 | 0.01 | 0.01 |
| | 10 | 20,000 | 150 | 0.025 | 0.05 | 17,000 | 100 | 0.015 | 0.025 | 17,000 | 100 | 0.015 | 0.02 | 17,000 | 100 | 0.005 | 0.005 |
| | 11 | 20,000 | 150 | 0.025 | 0.05 | 17,000 | 100 | 0.015 | 0.025 | 17,000 | 100 | 0.01 | 0.02 | 17,000 | 100 | 0.005 | 0.005 |
| | 12 | 20,000 | 120 | 0.025 | 0.05 | 17,000 | 80 | 0.015 | 0.025 | 17,000 | 80 | 0.01 | 0.012 | 17,000 | 80 | 0.005 | 0.005 |
| 0.4 | 2 | 27,000 | 675 | 0.06 | 0.16 | 23,000 | 450 | 0.04 | 0.08 | 21,000 | 300 | 0.04 | 0.06 | 21,000 | 300 | 0.04 | 0.04 |
| | 3 | 27,000 | 675 | 0.06 | 0.16 | 23,000 | 450 | 0.04 | 0.08 | 21,000 | 300 | 0.04 | 0.06 | 21,000 | 300 | 0.04 | 0.04 |
| | 4 | 27,000 | 675 | 0.06 | 0.16 | 23,000 | 450 | 0.04 | 0.08 | 21,000 | 300 | 0.04 | 0.06 | 21,000 | 300 | 0.04 | 0.04 |
| | 5 | 24,000 | 375 | 0.06 | 0.12 | 21,000 | 250 | 0.04 | 0.06 | 19,000 | 200 | 0.04 | 0.05 | 19,000 | 200 | 0.02 | 0.025 |
| | 6 | 24,000 | 375 | 0.06 | 0.12 | 21,000 | 250 | 0.04 | 0.06 | 19,000 | 200 | 0.04 | 0.05 | 19,000 | 200 | 0.02 | 0.025 |
| | 7 | 24,000 | 375 | 0.06 | 0.12 | 21,000 | 250 | 0.04 | 0.06 | 19,000 | 200 | 0.04 | 0.05 | 19,000 | 200 | 0.02 | 0.025 |
| | 8 | 22,000 | 225 | 0.06 | 0.12 | 19,000 | 150 | 0.04 | 0.06 | 17,000 | 150 | 0.04 | 0.05 | 17,000 | 150 | 0.02 | 0.025 |
| | 9 | 22,000 | 225 | 0.06 | 0.12 | 19,000 | 150 | 0.04 | 0.06 | 17,000 | 150 | 0.04 | 0.05 | 17,000 | 150 | 0.02 | 0.025 |
| | 10 | 22,000 | 225 | 0.06 | 0.12 | 19,000 | 150 | 0.04 | 0.06 | 17,000 | 150 | 0.04 | 0.05 | 17,000 | 150 | 0.02 | 0.025 |
| | 12 | 20,000 | 225 | 0.06 | 0.12 | 19,000 | 150 | 0.04 | 0.06 | 17,000 | 150 | 0.04 | 0.05 | 17,000 | 150 | 0.02 | 0.025 |

切込深さ Depth of Cut




1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5（R0.25）未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

次ページへ RE 0.5～0.9 NEXT

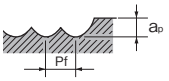
# WXL-LN-EBD/WXL-LN-EBD-3
## 標準切削

REGULAR MILLING

前ページより FROM RE 0.25～0.4

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.5 | 2.5 | 28,000 | 900 | 0.075 | 0.2 | 25,000 | 600 | 0.05 | 0.1 | 21,000 | 400 | 0.05 | 0.08 | 21,000 | 400 | 0.05 | 0.05 |
| | 3 | 28,000 | 750 | 0.075 | 0.2 | 25,000 | 500 | 0.05 | 0.1 | 21,000 | 300 | 0.05 | 0.08 | 21,000 | 300 | 0.05 | 0.05 |
| | 4 | 28,000 | 750 | 0.075 | 0.2 | 25,000 | 500 | 0.05 | 0.1 | 21,000 | 300 | 0.05 | 0.08 | 21,000 | 300 | 0.05 | 0.05 |
| | 5 | 21,000 | 450 | 0.075 | 0.2 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | 6 | 21,000 | 450 | 0.075 | 0.2 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | 7 | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.075 | 16,000 | 200 | 0.05 | 0.06 | 16,000 | 200 | 0.03 | 0.03 |
| | 8 | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.075 | 16,000 | 200 | 0.05 | 0.06 | 16,000 | 200 | 0.03 | 0.03 |
| | 9 | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.075 | 16,000 | 200 | 0.05 | 0.06 | 16,000 | 200 | 0.03 | 0.03 |
| | 10 | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.015 |
| | 12 | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.015 |
| | 14 | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.015 |
| | 16 | 16,000 | 300 | 0.06 | 0.12 | 13,000 | 200 | 0.03 | 0.05 | 10,000 | 150 | 0.03 | 0.04 | 10,000 | 150 | 0.01 | 0.015 |
| | 18 | 16,000 | 300 | 0.06 | 0.12 | 13,000 | 200 | 0.03 | 0.05 | 10,000 | 150 | 0.03 | 0.04 | 10,000 | 150 | 0.01 | 0.015 |
| | 20 | 16,000 | 300 | 0.06 | 0.12 | 13,000 | 200 | 0.03 | 0.05 | 10,000 | 150 | 0.03 | 0.04 | 10,000 | 150 | 0.01 | 0.015 |
| | 22 | 16,000 | 225 | 0.05 | 0.05 | 13,000 | 150 | 0.02 | 0.025 | 10,000 | 100 | 0.02 | 0.02 | 10,000 | 100 | 0.005 | 0.005 |
| 0.6 | 4 | 20,000 | 750 | 0.09 | 0.24 | 17,000 | 500 | 0.06 | 0.12 | 14,000 | 300 | 0.06 | 0.1 | 14,000 | 300 | 0.06 | 0.06 |
| | 6 | 20,000 | 450 | 0.09 | 0.24 | 17,000 | 300 | 0.06 | 0.12 | 14,000 | 200 | 0.06 | 0.1 | 14,000 | 200 | 0.06 | 0.06 |
| | 8 | 20,000 | 450 | 0.09 | 0.24 | 17,000 | 300 | 0.06 | 0.12 | 14,000 | 200 | 0.06 | 0.1 | 14,000 | 200 | 0.06 | 0.06 |
| | 10 | 20,000 | 450 | 0.09 | 0.18 | 17,000 | 300 | 0.06 | 0.09 | 14,000 | 200 | 0.06 | 0.07 | 14,000 | 200 | 0.03 | 0.03 |
| | 12 | 16,000 | 300 | 0.09 | 0.18 | 14,000 | 200 | 0.06 | 0.09 | 11,000 | 150 | 0.06 | 0.07 | 11,000 | 150 | 0.03 | 0.03 |
| | 14 | 16,000 | 300 | 0.09 | 0.18 | 14,000 | 200 | 0.06 | 0.09 | 11,000 | 150 | 0.06 | 0.07 | 11,000 | 150 | 0.01 | 0.03 |
| | 16 | 16,000 | 300 | 0.09 | 0.18 | 14,000 | 200 | 0.06 | 0.09 | 11,000 | 150 | 0.06 | 0.07 | 11,000 | 150 | 0.01 | 0.03 |
| | 18 | 16,000 | 300 | 0.09 | 0.18 | 14,000 | 200 | 0.06 | 0.09 | 11,000 | 150 | 0.06 | 0.07 | 11,000 | 150 | 0.01 | 0.03 |
| | 20 | 16,000 | 300 | 0.09 | 0.18 | 14,000 | 200 | 0.06 | 0.09 | 11,000 | 150 | 0.06 | 0.07 | 11,000 | 150 | 0.01 | 0.03 |
| | 24 | 16,000 | 300 | 0.09 | 0.18 | 14,000 | 200 | 0.06 | 0.09 | 11,000 | 150 | 0.06 | 0.07 | 11,000 | 150 | 0.01 | 0.03 |
| 0.7 | 8 | 18,000 | 450 | 0.1 | 0.28 | 15,500 | 300 | 0.07 | 0.14 | 12,000 | 250 | 0.07 | 0.1 | 12,000 | 250 | 0.07 | 0.07 |
| | 12 | 18,000 | 450 | 0.1 | 0.2 | 15,500 | 300 | 0.07 | 0.1 | 12,000 | 250 | 0.07 | 0.08 | 12,000 | 250 | 0.07 | 0.07 |
| | 16 | 13,000 | 300 | 0.09 | 0.18 | 12,000 | 200 | 0.06 | 0.09 | 9,000 | 150 | 0.04 | 0.07 | 9,000 | 150 | 0.01 | 0.03 |
| 0.75 | 3 | 20,000 | 900 | 0.12 | 0.3 | 15,000 | 600 | 0.08 | 0.15 | 12,000 | 500 | 0.08 | 0.12 | 12,000 | 300 | 0.08 | 0.1 |
| | 4 | 20,000 | 900 | 0.12 | 0.3 | 15,000 | 600 | 0.08 | 0.15 | 12,000 | 500 | 0.08 | 0.12 | 12,000 | 300 | 0.08 | 0.1 |
| | 6 | 18,000 | 750 | 0.12 | 0.3 | 15,000 | 500 | 0.08 | 0.15 | 12,000 | 350 | 0.08 | 0.12 | 12,000 | 300 | 0.08 | 0.1 |
| | 8 | 17,000 | 450 | 0.12 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.1 |
| | 10 | 17,000 | 450 | 0.12 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.1 |
| | 12 | 17,000 | 450 | 0.12 | 0.24 | 15,000 | 300 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.09 | 12,000 | 250 | 0.05 | 0.06 |
| | 14 | 17,000 | 450 | 0.12 | 0.24 | 15,000 | 300 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.09 | 12,000 | 250 | 0.05 | 0.06 |
| | 16 | 13,000 | 300 | 0.09 | 0.18 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.07 | 9,500 | 150 | 0.01 | 0.03 |
| | 18 | 13,000 | 300 | 0.09 | 0.18 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.07 | 9,500 | 150 | 0.01 | 0.03 |
| | 20 | 13,000 | 300 | 0.09 | 0.18 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.07 | 9,500 | 150 | 0.01 | 0.03 |
| | 22 | 13,000 | 300 | 0.09 | 0.18 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.07 | 9,500 | 150 | 0.01 | 0.03 |
| | 30 | 13,000 | 300 | 0.09 | 0.18 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.07 | 9,500 | 150 | 0.01 | 0.03 |
| 0.8 | 4 | 20,000 | 900 | 0.12 | 0.32 | 14,000 | 600 | 0.08 | 0.16 | 11,000 | 500 | 0.08 | 0.13 | 11,000 | 350 | 0.08 | 0.1 |
| | 8 | 16,500 | 450 | 0.12 | 0.32 | 14,000 | 300 | 0.08 | 0.16 | 11,000 | 250 | 0.08 | 0.13 | 11,000 | 250 | 0.08 | 0.1 |
| | 12 | 16,500 | 450 | 0.12 | 0.24 | 14,000 | 300 | 0.08 | 0.12 | 11,000 | 250 | 0.08 | 0.08 | 11,000 | 250 | 0.05 | 0.05 |
| | 16 | 11,500 | 300 | 0.12 | 0.24 | 11,000 | 200 | 0.08 | 0.12 | 9,000 | 150 | 0.08 | 0.08 | 9,000 | 150 | 0.05 | 0.05 |
| | 20 | 11,500 | 300 | 0.09 | 0.2 | 11,000 | 200 | 0.06 | 0.12 | 9,000 | 150 | 0.06 | 0.075 | 9,000 | 150 | 0.015 | 0.03 |
| 0.9 | 8 | 16,500 | 600 | 0.13 | 0.36 | 14,000 | 400 | 0.09 | 0.18 | 11,000 | 300 | 0.09 | 0.16 | 11,000 | 300 | 0.09 | 0.12 |
| | 12 | 16,500 | 600 | 0.13 | 0.36 | 14,000 | 400 | 0.09 | 0.18 | 11,000 | 300 | 0.09 | 0.16 | 11,000 | 300 | 0.09 | 0.12 |
| | 16 | 16,500 | 600 | 0.13 | 0.27 | 14,000 | 400 | 0.09 | 0.14 | 11,000 | 300 | 0.09 | 0.12 | 11,000 | 300 | 0.05 | 0.06 |

切込深さ Depth of Cut




次ページへ RE 0.9～1.75 NEXT

形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD▶P341
形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD-3▶P359-1

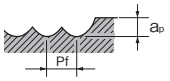
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-LN-EBD/WXL-LN-EBD-3
## 標準切削 REGULAR MILLING

前ページより FROM RE 0.5～0.9

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | |
| | | | | ap | Pf | | | ap | Pf | | | ap | Pf | | | ap | Pf |
| 0.9 | 20 | 11,000 | 300 | 0.1 | 0.22 | 11,000 | 200 | 0.06 | 0.13 | 8,000 | 200 | 0.06 | 0.08 | 8,000 | 200 | 0.02 | 0.03 |
| 1 | 3 | 16,500 | 1,350 | 0.15 | 0.56 | 16,500 | 900 | 0.1 | 0.28 | 13,500 | 800 | 0.1 | 0.28 | 13,500 | 700 | 0.1 | 0.2 |
| | 4 | 16,500 | 1,050 | 0.15 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | 6 | 16,500 | 1,050 | 0.15 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | 8 | 16,500 | 1,050 | 0.15 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | 10 | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | 12 | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | 14 | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | 16 | 14,000 | 750 | 0.15 | 0.42 | 13,000 | 500 | 0.1 | 0.21 | 10,000 | 300 | 0.1 | 0.18 | 10,000 | 300 | 0.06 | 0.1 |
| | 18 | 14,000 | 750 | 0.15 | 0.42 | 13,000 | 500 | 0.1 | 0.21 | 10,000 | 300 | 0.1 | 0.18 | 10,000 | 300 | 0.06 | 0.1 |
| | 20 | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | 22 | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | 25 | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | 30 | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | 35 | 10,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | 40 | 10,000 | 300 | 0.15 | 0.42 | 10,000 | 200 | 0.1 | 0.21 | 8,000 | 160 | 0.1 | 0.18 | 8,000 | 160 | 0.06 | 0.1 |
| 1.25 | 6 | 16,000 | 1,050 | 0.18 | 0.7 | 12,000 | 700 | 0.12 | 0.35 | 10,000 | 600 | 0.12 | 0.3 | 10,000 | 600 | 0.1 | 0.25 |
| | 10 | 14,000 | 1,050 | 0.18 | 0.7 | 12,000 | 700 | 0.12 | 0.35 | 10,000 | 600 | 0.12 | 0.3 | 10,000 | 600 | 0.1 | 0.25 |
| | 15 | 14,000 | 600 | 0.18 | 0.7 | 10,000 | 400 | 0.12 | 0.35 | 8,500 | 300 | 0.12 | 0.3 | 8,500 | 300 | 0.1 | 0.25 |
| | 20 | 12,000 | 600 | 0.18 | 0.56 | 10,000 | 400 | 0.12 | 0.28 | 8,500 | 300 | 0.12 | 0.2 | 8,500 | 300 | 0.08 | 0.15 |
| | 25 | 12,000 | 450 | 0.18 | 0.56 | 8,000 | 300 | 0.12 | 0.28 | 6,500 | 250 | 0.12 | 0.2 | 6,500 | 250 | 0.08 | 0.15 |
| | 30 | 12,000 | 375 | 0.18 | 0.56 | 8,000 | 250 | 0.12 | 0.28 | 6,500 | 200 | 0.12 | 0.2 | 6,500 | 200 | 0.08 | 0.15 |
| | 35 | 12,000 | 375 | 0.18 | 0.56 | 8,000 | 250 | 0.12 | 0.28 | 6,500 | 200 | 0.12 | 0.2 | 6,500 | 200 | 0.08 | 0.15 |
| 1.5 | 6 | 15,000 | 1,200 | 0.2 | 0.84 | 9,500 | 800 | 0.15 | 0.42 | 7,500 | 600 | 0.15 | 0.42 | 7,500 | 600 | 0.15 | 0.3 |
| | 8 | 12,000 | 900 | 0.2 | 0.84 | 9,500 | 600 | 0.15 | 0.42 | 7,500 | 400 | 0.15 | 0.36 | 7,500 | 400 | 0.15 | 0.3 |
| | 10 | 12,000 | 900 | 0.2 | 0.84 | 9,500 | 600 | 0.15 | 0.42 | 7,500 | 400 | 0.15 | 0.36 | 7,500 | 400 | 0.15 | 0.3 |
| | 12 | 10,000 | 900 | 0.2 | 0.84 | 9,500 | 600 | 0.15 | 0.42 | 7,500 | 400 | 0.15 | 0.36 | 7,500 | 400 | 0.15 | 0.3 |
| | 14 | 10,000 | 900 | 0.2 | 0.84 | 9,500 | 600 | 0.15 | 0.42 | 7,500 | 400 | 0.15 | 0.36 | 7,500 | 400 | 0.15 | 0.3 |
| | 15 | 10,000 | 600 | 0.2 | 0.84 | 8,500 | 400 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | 16 | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | 20 | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | 25 | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.3 | 6,500 | 250 | 0.09 | 0.15 |
| | 30 | 9,000 | 375 | 0.2 | 0.84 | 7,500 | 250 | 0.15 | 0.42 | 6,000 | 200 | 0.15 | 0.3 | 6,000 | 200 | 0.09 | 0.15 |
| | 35 | 9,000 | 375 | 0.2 | 0.84 | 7,500 | 250 | 0.15 | 0.42 | 6,000 | 200 | 0.15 | 0.3 | 6,000 | 200 | 0.09 | 0.15 |
| | 40 | 9,000 | 375 | 0.2 | 0.84 | 7,500 | 250 | 0.15 | 0.42 | 6,000 | 200 | 0.15 | 0.3 | 6,000 | 200 | 0.09 | 0.15 |
| 1.75 | 10 | 10,000 | 1,050 | 0.4 | 0.98 | 8,500 | 700 | 0.15 | 0.49 | 6,500 | 500 | 0.15 | 0.42 | 6,500 | 500 | 0.15 | 0.35 |
| | 15 | 10,000 | 900 | 0.4 | 0.98 | 8,500 | 600 | 0.15 | 0.49 | 6,500 | 400 | 0.15 | 0.42 | 6,500 | 400 | 0.15 | 0.35 |

切込深さ Depth of Cut




1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5（R0.25）未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

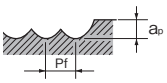
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

次ページへ RE 1.75～3 NEXT

# WXL-LN-EBD/WXL-LN-EBD-3
## 標準切削

REGULAR MILLING

前ページより FROM RE 0.9～1.75

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 1.75 | 20 | 8,000 | 750 | 0.4 | 0.98 | 7,500 | 500 | 0.15 | 0.49 | 5,500 | 300 | 0.15 | 0.42 | 5,500 | 300 | 0.15 | 0.35 |
| | 25 | 8,000 | 600 | 0.4 | 0.98 | 7,500 | 400 | 0.15 | 0.49 | 5,500 | 275 | 0.15 | 0.42 | 5,500 | 275 | 0.15 | 0.35 |
| | 30 | 8,000 | 450 | 0.4 | 0.98 | 7,500 | 300 | 0.15 | 0.49 | 5,500 | 250 | 0.15 | 0.35 | 5,500 | 250 | 0.1 | 0.2 |
| | 35 | 8,000 | 375 | 0.4 | 0.98 | 6,000 | 250 | 0.15 | 0.49 | 5,000 | 200 | 0.15 | 0.35 | 5,000 | 200 | 0.1 | 0.2 |
| | 40 | 6,000 | 375 | 0.3 | 0.98 | 6,000 | 250 | 0.15 | 0.49 | 5,000 | 200 | 0.15 | 0.35 | 5,000 | 200 | 0.1 | 0.2 |
| | 45 | 6,000 | 375 | 0.3 | 0.98 | 6,000 | 250 | 0.15 | 0.49 | 5,000 | 200 | 0.15 | 0.35 | 5,000 | 200 | 0.1 | 0.2 |
| 2 | 8 | 11,000 | 1,200 | 0.5 | 1.28 | 7,500 | 800 | 0.2 | 0.64 | 6,000 | 700 | 0.2 | 0.6 | 6,000 | 700 | 0.2 | 0.4 |
| | 10 | 9,000 | 900 | 0.5 | 1.28 | 7,500 | 600 | 0.2 | 0.64 | 6,000 | 400 | 0.2 | 0.6 | 6,000 | 400 | 0.2 | 0.4 |
| | 12 | 9,000 | 900 | 0.5 | 1.28 | 7,500 | 600 | 0.2 | 0.64 | 6,000 | 400 | 0.2 | 0.6 | 6,000 | 400 | 0.2 | 0.4 |
| | 14 | 9,000 | 900 | 0.5 | 1.28 | 7,500 | 600 | 0.2 | 0.64 | 6,000 | 400 | 0.2 | 0.6 | 6,000 | 400 | 0.2 | 0.4 |
| | 15 | 9,000 | 900 | 0.5 | 1.28 | 7,500 | 600 | 0.2 | 0.64 | 6,000 | 400 | 0.2 | 0.6 | 6,000 | 400 | 0.2 | 0.4 |
| | 16 | 9,000 | 900 | 0.5 | 1.28 | 7,500 | 600 | 0.2 | 0.64 | 6,000 | 400 | 0.2 | 0.6 | 6,000 | 400 | 0.2 | 0.4 |
| | 20 | 7,000 | 600 | 0.5 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.6 | 5,000 | 250 | 0.2 | 0.4 |
| | 25 | 7,000 | 600 | 0.5 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.6 | 5,000 | 250 | 0.2 | 0.4 |
| | 30 | 7,000 | 600 | 0.4 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.56 | 5,000 | 250 | 0.12 | 0.2 |
| | 35 | 7,000 | 600 | 0.4 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.56 | 5,000 | 250 | 0.12 | 0.2 |
| | 40 | 5,000 | 375 | 0.35 | 1.28 | 5,000 | 250 | 0.2 | 0.64 | 4,000 | 200 | 0.2 | 0.56 | 4,000 | 200 | 0.12 | 0.2 |
| | 45 | 5,000 | 375 | 0.35 | 1.28 | 5,000 | 250 | 0.2 | 0.64 | 4,000 | 200 | 0.2 | 0.56 | 4,000 | 200 | 0.12 | 0.2 |
| | 50 | 5,000 | 375 | 0.35 | 1.28 | 5,000 | 250 | 0.2 | 0.64 | 4,000 | 200 | 0.2 | 0.56 | 4,000 | 200 | 0.12 | 0.2 |
| 2.5 | 10 | 9,000 | 1,350 | 0.6 | 1.8 | 6,500 | 900 | 0.25 | 0.9 | 5,000 | 750 | 0.25 | 0.7 | 5,000 | 750 | 0.25 | 0.5 |
| | 15 | 9,000 | 1,350 | 0.6 | 1.8 | 6,500 | 900 | 0.25 | 0.9 | 5,000 | 750 | 0.25 | 0.7 | 5,000 | 750 | 0.25 | 0.5 |
| | 20 | 7,000 | 750 | 0.6 | 1.8 | 6,500 | 500 | 0.25 | 0.9 | 5,000 | 400 | 0.25 | 0.7 | 5,000 | 400 | 0.25 | 0.5 |
| | 25 | 6,000 | 750 | 0.6 | 1.8 | 5,000 | 500 | 0.25 | 0.9 | 4,000 | 250 | 0.25 | 0.7 | 4,000 | 250 | 0.25 | 0.5 |
| | 30 | 6,000 | 750 | 0.6 | 1.8 | 5,000 | 500 | 0.25 | 0.9 | 4,000 | 250 | 0.25 | 0.7 | 4,000 | 250 | 0.25 | 0.5 |
| | 35 | 6,000 | 750 | 0.6 | 1.8 | 5,000 | 500 | 0.25 | 0.9 | 4,000 | 250 | 0.25 | 0.7 | 4,000 | 250 | 0.25 | 0.5 |
| | 40 | 5,000 | 600 | 0.4 | 1.8 | 4,000 | 400 | 0.25 | 0.9 | 4,000 | 200 | 0.25 | 0.6 | 4,000 | 200 | 0.2 | 0.25 |
| | 45 | 5,000 | 600 | 0.4 | 1.8 | 4,000 | 400 | 0.25 | 0.9 | 4,000 | 200 | 0.25 | 0.6 | 4,000 | 200 | 0.2 | 0.25 |
| | 50 | 5,000 | 450 | 0.4 | 1.8 | 4,000 | 300 | 0.25 | 0.9 | 4,000 | 200 | 0.25 | 0.6 | 4,000 | 200 | 0.2 | 0.25 |
| 3 | 10 | 7,000 | 1,500 | 0.75 | 2.4 | 5,500 | 1,000 | 0.3 | 1.2 | 4,500 | 800 | 0.3 | 0.96 | 4,500 | 800 | 0.3 | 0.6 |
| | 20 | 7,000 | 1,200 | 0.75 | 2.4 | 5,500 | 800 | 0.3 | 1.2 | 4,500 | 600 | 0.3 | 0.96 | 4,500 | 600 | 0.3 | 0.6 |
| | 25 | 6,000 | 900 | 0.75 | 2.4 | 5,500 | 600 | 0.3 | 1.2 | 4,500 | 400 | 0.3 | 0.96 | 4,500 | 400 | 0.3 | 0.6 |
| | 30 | 5,000 | 600 | 0.75 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.6 |
| | 35 | 5,000 | 600 | 0.75 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.6 |
| | 40 | 5,000 | 600 | 0.6 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.6 |
| | 45 | 5,000 | 600 | 0.6 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.6 |
| | 50 | 5,000 | 600 | 0.6 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.3 |
| 切込深さ Depth of Cut | |  | | | | | | | | | | | | | | | |



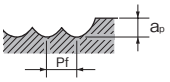
1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5（R0.25）未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD▶P341
形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD-3▶P359-1

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-LN-EBD/WXL-LN-EBD-3
### 高速切削 HIGH-SPEED LIGHT MILLING

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.05 | 0.3 | 50,000 | 280 | 0.003 | 0.005 | 50,000 | 150 | 0.003 | 0.003 | 50,000 | 100 | 0.003 | 0.003 | 50,000 | 70 | 0.003 | 0.003 |
| | 0.5 | 50,000 | 220 | 0.003 | 0.005 | 50,000 | 120 | 0.003 | 0.003 | 50,000 | 80 | 0.003 | 0.003 | 50,000 | 50 | 0.003 | 0.003 |
| 0.1 | 0.3 | 50,000 | 490 | 0.0075 | 0.01 | 50,000 | 400 | 0.005 | 0.005 | 50,000 | 380 | 0.005 | 0.005 | 50,000 | 380 | 0.005 | 0.005 |
| | 0.5 | 50,000 | 490 | 0.0075 | 0.01 | 50,000 | 400 | 0.005 | 0.005 | 50,000 | 380 | 0.005 | 0.005 | 50,000 | 380 | 0.005 | 0.005 |
| | 0.75 | 50,000 | 440 | 0.0075 | 0.01 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 |
| | 1 | 50,000 | 440 | 0.0075 | 0.01 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 |
| | 1.25 | 50,000 | 390 | 0.0075 | 0.01 | 47,000 | 320 | 0.005 | 0.005 | 47,000 | 300 | 0.005 | 0.005 | 47,000 | 300 | 0.005 | 0.005 |
| | 1.5 | 50,000 | 360 | 0.0075 | 0.01 | 45,000 | 300 | 0.005 | 0.005 | 45,000 | 280 | 0.005 | 0.005 | 45,000 | 280 | 0.005 | 0.005 |
| | 1.75 | 50,000 | 350 | 0.0075 | 0.01 | 42,000 | 260 | 0.005 | 0.005 | 42,000 | 240 | 0.005 | 0.005 | 42,000 | 240 | 0.005 | 0.005 |
| | 2 | 50,000 | 320 | 0.0075 | 0.01 | 38,000 | 230 | 0.005 | 0.005 | 38,000 | 210 | 0.005 | 0.005 | 37,000 | 200 | 0.005 | 0.005 |
| | 2.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 3 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.15 | 0.5 | 50,000 | 750 | 0.0075 | 0.02 | 50,000 | 620 | 0.005 | 0.01 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 600 | 0.005 | 0.01 |
| | 0.6 | 50,000 | 730 | 0.0075 | 0.02 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 0.75 | 50,000 | 730 | 0.0075 | 0.02 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 1 | 50,000 | 730 | 0.0075 | 0.02 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 1.25 | 50,000 | 730 | 0.0075 | 0.02 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 1.5 | 50,000 | 730 | 0.0075 | 0.02 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 1.75 | 50,000 | 610 | 0.0075 | 0.02 | 47,000 | 510 | 0.005 | 0.01 | 47,000 | 480 | 0.005 | 0.01 | 47,000 | 480 | 0.005 | 0.01 |
| | 2 | 50,000 | 580 | 0.0075 | 0.01 | 45,000 | 480 | 0.005 | 0.005 | 45,000 | 450 | 0.005 | 0.005 | 45,000 | 450 | 0.005 | 0.005 |
| | 2.25 | 50,000 | 490 | 0.0075 | 0.01 | 45,000 | 400 | 0.005 | 0.005 | 45,000 | 380 | 0.005 | 0.005 | 45,000 | 380 | 0.005 | 0.005 |
| | 2.5 | 50,000 | 360 | 0.0075 | 0.01 | 40,000 | 300 | 0.005 | 0.005 | 40,000 | 280 | 0.005 | 0.005 | 40,000 | 280 | 0.005 | 0.005 |
| | 2.75 | 50,000 | 320 | 0.0075 | 0.01 | 38,000 | 250 | 0.005 | 0.005 | 38,000 | 230 | 0.005 | 0.005 | 38,000 | 230 | 0.005 | 0.005 |
| | 3 | 50,000 | 290 | 0.0075 | 0.01 | 38,000 | 250 | 0.005 | 0.005 | 38,000 | 230 | 0.005 | 0.005 | 37,000 | 230 | 0.005 | 0.005 |
| | 3.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 4 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 4.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.2 | 0.5 | 50,000 | 1,100 | 0.015 | 0.04 | 50,000 | 920 | 0.01 | 0.02 | 50,000 | 870 | 0.01 | 0.02 | 50,000 | 870 | 0.01 | 0.02 |
| | 0.75 | 50,000 | 1,090 | 0.015 | 0.04 | 50,000 | 900 | 0.01 | 0.02 | 50,000 | 850 | 0.01 | 0.02 | 50,000 | 850 | 0.01 | 0.02 |
| | 1 | 50,000 | 1,090 | 0.015 | 0.04 | 50,000 | 900 | 0.01 | 0.02 | 50,000 | 850 | 0.01 | 0.02 | 50,000 | 850 | 0.01 | 0.02 |
| | 1.5 | 50,000 | 970 | 0.015 | 0.04 | 50,000 | 800 | 0.01 | 0.02 | 50,000 | 760 | 0.01 | 0.02 | 50,000 | 760 | 0.01 | 0.02 |
| | 2 | 50,000 | 850 | 0.015 | 0.04 | 50,000 | 700 | 0.01 | 0.02 | 50,000 | 660 | 0.01 | 0.02 | 50,000 | 660 | 0.01 | 0.02 |
| | 2.5 | 50,000 | 670 | 0.012 | 0.03 | 45,000 | 550 | 0.008 | 0.015 | 45,000 | 520 | 0.008 | 0.015 | 45,000 | 520 | 0.008 | 0.015 |
| | 3 | 48,000 | 540 | 0.0075 | 0.02 | 43,000 | 500 | 0.005 | 0.01 | 43,000 | 470 | 0.005 | 0.01 | 43,000 | 470 | 0.005 | 0.01 |
| | 3.5 | 45,000 | 460 | 0.0075 | 0.02 | 40,000 | 420 | 0.005 | 0.01 | 40,000 | 400 | 0.005 | 0.01 | 40,000 | 400 | 0.005 | 0.01 |
| | 4 | 40,000 | 400 | 0.0075 | 0.01 | 36,000 | 370 | 0.005 | 0.005 | 36,000 | 350 | 0.005 | 0.005 | 35,000 | 340 | 0.005 | 0.005 |
| | 4.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 5.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 6 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 切込深さ Depth of Cut | |  | | | | | | | | | | | | | | | |



1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5（R0.25）未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

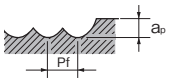
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

次ページへ
RE 0.25～0.5 NEXT

# WXL-LN-EBD/WXL-LN-EBD-3
## 高速切削

HIGH-SPEED LIGHT MILLING

前ページより FROM RE 0.05～0.2

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.25 | 1 | 50,000 | 1,420 | 0.0225 | 0.045 | 50,000 | 1,100 | 0.015 | 0.03 | 50,000 | 1,050 | 0.015 | 0.03 | 50,000 | 1,050 | 0.015 | 0.03 |
| | 1.5 | 50,000 | 1,420 | 0.0225 | 0.045 | 50,000 | 1,100 | 0.015 | 0.03 | 50,000 | 1,050 | 0.015 | 0.03 | 50,000 | 1,050 | 0.015 | 0.03 |
| | 2 | 50,000 | 1,400 | 0.0225 | 0.045 | 50,000 | 1,000 | 0.015 | 0.03 | 50,000 | 950 | 0.015 | 0.03 | 50,000 | 950 | 0.015 | 0.03 |
| | 2.5 | 50,000 | 1,380 | 0.0225 | 0.045 | 50,000 | 1,000 | 0.015 | 0.03 | 50,000 | 950 | 0.015 | 0.03 | 50,000 | 950 | 0.015 | 0.03 |
| | 3 | 50,000 | 1,190 | 0.015 | 0.04 | 48,000 | 900 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.02 |
| | 3.5 | 50,000 | 1,140 | 0.015 | 0.04 | 45,000 | 700 | 0.01 | 0.02 | 45,000 | 650 | 0.01 | 0.02 | 45,000 | 650 | 0.01 | 0.02 |
| | 4 | 45,000 | 1,000 | 0.015 | 0.02 | 43,000 | 600 | 0.01 | 0.01 | 43,000 | 570 | 0.01 | 0.01 | 43,000 | 570 | 0.01 | 0.01 |
| | 4.5 | 38,000 | 940 | 0.015 | 0.02 | 38,000 | 500 | 0.01 | 0.01 | 38,000 | 470 | 0.01 | 0.01 | 38,000 | 470 | 0.01 | 0.01 |
| | 5 | 30,000 | 760 | 0.0075 | 0.02 | 30,000 | 400 | 0.005 | 0.01 | 30,000 | 380 | 0.005 | 0.01 | 29,000 | 360 | 0.005 | 0.01 |
| | 5.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 6 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 7 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 8 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 9 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 10 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.3 | 1 | 50,000 | 1,660 | 0.045 | 0.1 | 50,000 | 1,400 | 0.03 | 0.05 | 50,000 | 1,300 | 0.03 | 0.05 | 50,000 | 1,300 | 0.03 | 0.05 |
| | 1.5 | 50,000 | 1,600 | 0.045 | 0.1 | 50,000 | 1,300 | 0.03 | 0.05 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 1,200 | 0.03 | 0.05 |
| | 2 | 50,000 | 1,600 | 0.045 | 0.1 | 50,000 | 1,300 | 0.03 | 0.05 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 1,200 | 0.03 | 0.05 |
| | 2.5 | 50,000 | 1,550 | 0.045 | 0.1 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 1,100 | 0.03 | 0.05 | 50,000 | 1,100 | 0.03 | 0.05 |
| | 3 | 50,000 | 1,550 | 0.03 | 0.06 | 50,000 | 1,200 | 0.02 | 0.03 | 50,000 | 1,100 | 0.02 | 0.03 | 50,000 | 1,100 | 0.02 | 0.03 |
| | 3.5 | 50,000 | 1,340 | 0.03 | 0.06 | 45,000 | 1,000 | 0.02 | 0.03 | 45,000 | 950 | 0.02 | 0.03 | 45,000 | 950 | 0.02 | 0.03 |
| | 4 | 50,000 | 1,200 | 0.015 | 0.04 | 40,000 | 900 | 0.01 | 0.02 | 40,000 | 850 | 0.01 | 0.02 | 40,000 | 850 | 0.01 | 0.02 |
| | 4.5 | 45,000 | 1,040 | 0.015 | 0.04 | 34,000 | 780 | 0.01 | 0.02 | 34,000 | 740 | 0.01 | 0.02 | 34,000 | 740 | 0.01 | 0.02 |
| | 5 | 30,000 | 960 | 0.015 | 0.04 | 30,000 | 680 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 |
| | 5.5 | 30,000 | 820 | 0.015 | 0.04 | 28,000 | 650 | 0.01 | 0.02 | 28,000 | 610 | 0.01 | 0.02 | 28,000 | 610 | 0.01 | 0.02 |
| | 6 | 30,000 | 720 | 0.015 | 0.04 | 26,000 | 600 | 0.01 | 0.02 | 26,000 | 570 | 0.01 | 0.02 | 25,000 | 540 | 0.01 | 0.02 |
| | 6.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 7 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 7.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 8 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 8.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 9 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 9.5 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 10 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 11 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 12 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.4 | 2 | 50,000 | 2,200 | 0.06 | 0.16 | 50,000 | 2,000 | 0.04 | 0.08 | 50,000 | 1,900 | 0.04 | 0.08 | 50,000 | 1,900 | 0.04 | 0.08 |
| | 3 | 50,000 | 1,740 | 0.06 | 0.16 | 48,000 | 1,600 | 0.04 | 0.08 | 48,000 | 1,500 | 0.04 | 0.08 | 48,000 | 1,500 | 0.04 | 0.08 |
| | 4 | 50,000 | 1,680 | 0.06 | 0.16 | 40,000 | 1,200 | 0.04 | 0.08 | 40,000 | 1,100 | 0.04 | 0.08 | 40,000 | 1,100 | 0.04 | 0.08 |
| | 5 | 43,000 | 1,600 | 0.045 | 0.1 | 34,000 | 950 | 0.03 | 0.05 | 34,000 | 900 | 0.03 | 0.05 | 34,000 | 900 | 0.03 | 0.05 |
| | 6 | 32,000 | 1,260 | 0.045 | 0.1 | 30,000 | 800 | 0.03 | 0.05 | 30,000 | 760 | 0.03 | 0.05 | 30,000 | 760 | 0.03 | 0.05 |
| | 7 | 30,000 | 1,000 | 0.02 | 0.08 | 25,000 | 600 | 0.01 | 0.02 | 25,000 | 570 | 0.01 | 0.02 | 25,000 | 570 | 0.01 | 0.02 |
| | 8 | 24,000 | 720 | 0.01 | 0.04 | 23,000 | 450 | 0.005 | 0.01 | 23,000 | 420 | 0.005 | 0.01 | 23,000 | 420 | 0.005 | 0.01 |
| | 9 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 10 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 12 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.5 | 2.5 | 50,000 | 3,270 | 0.075 | 0.2 | 50,000 | 3,400 | 0.05 | 0.1 | 50,000 | 3,200 | 0.05 | 0.1 | 50,000 | 3,200 | 0.05 | 0.1 |
| | 3 | 50,000 | 3,060 | 0.075 | 0.2 | 45,000 | 3,200 | 0.05 | 0.1 | 45,000 | 3,000 | 0.05 | 0.1 | 45,000 | 3,000 | 0.05 | 0.1 |
| 切込深さ Depth of Cut | |  | | | | | | | | | | | | | | | |



次ページへ RE 0.5～0.75 NEXT

形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD▶P341
形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD-3▶P359-1

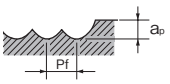
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-LN-EBD/WXL-LN-EBD-3
## 高速切削 HIGH-SPEED LIGHT MILLING

前ページより FROM RE 0.25～0.5

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | |
| | | | | ap | Pf | | | ap | Pf | | | ap | Pf | | | ap | Pf |
| 0.5 | 4 | 50,000 | 3,000 | 0.075 | 0.2 | 40,000 | 3,000 | 0.05 | 0.1 | 40,000 | 2,850 | 0.05 | 0.1 | 40,000 | 2,850 | 0.05 | 0.1 |
| | 5 | 47,000 | 2,870 | 0.075 | 0.2 | 36,000 | 2,300 | 0.05 | 0.1 | 36,000 | 2,100 | 0.05 | 0.1 | 36,000 | 2,100 | 0.05 | 0.1 |
| | 6 | 43,000 | 2,600 | 0.075 | 0.2 | 30,000 | 2,000 | 0.05 | 0.1 | 30,000 | 1,900 | 0.05 | 0.1 | 30,000 | 1,900 | 0.05 | 0.1 |
| | 7 | 30,000 | 2,350 | 0.075 | 0.15 | 27,000 | 1,700 | 0.05 | 0.1 | 27,000 | 1,600 | 0.05 | 0.1 | 27,000 | 1,600 | 0.05 | 0.1 |
| | 8 | 27,000 | 2,000 | 0.075 | 0.15 | 26,000 | 1,600 | 0.05 | 0.1 | 26,000 | 1,500 | 0.05 | 0.1 | 26,000 | 1,500 | 0.05 | 0.1 |
| | 9 | 26,000 | 1,540 | 0.045 | 0.075 | 24,000 | 1,200 | 0.03 | 0.05 | 24,000 | 1,100 | 0.03 | 0.05 | 24,000 | 1,100 | 0.03 | 0.05 |
| | 10 | 24,000 | 1,400 | 0.015 | 0.04 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,000 | 0.01 | 0.02 | 21,000 | 950 | 0.01 | 0.02 |
| | 12 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 14 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 16 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 18 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 20 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 22 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.6 | 4 | 40,000 | 3,000 | 0.12 | 0.21 | 40,000 | 3,000 | 0.06 | 0.12 | 40,000 | 2,850 | 0.06 | 0.12 | 40,000 | 2,850 | 0.06 | 0.12 |
| | 6 | 35,000 | 2,600 | 0.09 | 0.21 | 32,000 | 2,100 | 0.06 | 0.12 | 32,000 | 2,000 | 0.06 | 0.12 | 32,000 | 2,000 | 0.06 | 0.12 |
| | 8 | 30,000 | 2,000 | 0.09 | 0.21 | 25,000 | 1,700 | 0.06 | 0.12 | 25,000 | 1,600 | 0.06 | 0.12 | 25,000 | 1,600 | 0.06 | 0.12 |
| | 10 | 21,000 | 1,400 | 0.075 | 0.12 | 20,000 | 1,200 | 0.05 | 0.1 | 20,000 | 1,100 | 0.05 | 0.1 | 18,000 | 990 | 0.05 | 0.1 |
| | 12 | 20,000 | 1,000 | 0.045 | 0.1 | 19,000 | 900 | 0.03 | 0.05 | 17,000 | 850 | 0.03 | 0.05 | 16,000 | 800 | 0.03 | 0.05 |
| | 14 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 16 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 18 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 20 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 24 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.7 | 8 | 30,000 | 2,100 | 0.14 | 0.245 | 25,000 | 1,700 | 0.07 | 0.14 | 25,000 | 1,600 | 0.07 | 0.14 | 25,000 | 1,600 | 0.07 | 0.14 |
| | 12 | 22,000 | 1,210 | 0.06 | 0.14 | 19,000 | 1,000 | 0.03 | 0.07 | 19,000 | 950 | 0.03 | 0.07 | 19,000 | 950 | 0.03 | 0.07 |
| | 16 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.75 | 3 | 50,000 | 5,330 | 0.15 | 0.3 | 50,000 | 4,800 | 0.075 | 0.15 | 50,000 | 4,800 | 0.075 | 0.15 | 50,000 | 4,800 | 0.075 | 0.15 |
| | 4 | 42,000 | 4,110 | 0.15 | 0.3 | 40,000 | 3,900 | 0.075 | 0.15 | 40,000 | 3,700 | 0.075 | 0.15 | 40,000 | 3,700 | 0.075 | 0.15 |
| | 6 | 32,000 | 3,000 | 0.15 | 0.3 | 30,000 | 2,900 | 0.075 | 0.15 | 30,000 | 2,700 | 0.075 | 0.15 | 30,000 | 2,700 | 0.075 | 0.15 |
| | 8 | 30,000 | 2,650 | 0.15 | 0.3 | 24,000 | 2,300 | 0.075 | 0.15 | 24,000 | 2,100 | 0.075 | 0.15 | 24,000 | 2,100 | 0.075 | 0.15 |
| | 10 | 30,000 | 2,400 | 0.15 | 0.3 | 24,000 | 2,000 | 0.075 | 0.15 | 24,000 | 1,900 | 0.075 | 0.15 | 24,000 | 1,900 | 0.075 | 0.15 |
| | 12 | 24,000 | 1,400 | 0.15 | 0.2 | 21,000 | 1,400 | 0.075 | 0.1 | 21,000 | 1,300 | 0.075 | 0.1 | 21,000 | 1,300 | 0.075 | 0.1 |
| | 14 | 22,000 | 1,400 | 0.1 | 0.2 | 18,000 | 1,200 | 0.05 | 0.1 | 18,000 | 1,100 | 0.05 | 0.1 | 17,000 | 1,100 | 0.05 | 0.1 |
| | 16 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 18 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 20 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 22 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 30 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

切込深さ Depth of Cut




1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5（R0.25）未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

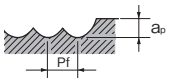
1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

次ページへ RE 0.8～1.75 NEXT

# WXL-LN-EBD/WXL-LN-EBD-3
## 高速切削

HIGH-SPEED LIGHT MILLING

前ページより FROM RE 0.5～0.75

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.8 | 4 | 40,000 | 4,500 | 0.16 | 0.32 | 38,000 | 4,000 | 0.08 | 0.16 | 38,000 | 3,800 | 0.08 | 0.16 | 38,000 | 3,600 | 0.08 | 0.16 |
| | 8 | 26,000 | 3,000 | 0.16 | 0.32 | 24,000 | 3,000 | 0.08 | 0.16 | 24,000 | 2,800 | 0.08 | 0.16 | 23,000 | 2,600 | 0.08 | 0.16 |
| | 12 | 24,000 | 2,400 | 0.12 | 0.2 | 21,000 | 1,800 | 0.05 | 0.1 | 21,000 | 1,700 | 0.05 | 0.1 | 20,000 | 1,600 | 0.05 | 0.1 |
| | 16 | 18,000 | 1,600 | 0.1 | 0.2 | 16,000 | 800 | 0.05 | 0.1 | 16,000 | 760 | 0.05 | 0.1 | 15,000 | 700 | 0.05 | 0.1 |
| | 20 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 0.9 | 8 | 25,000 | 3,200 | 0.18 | 0.54 | 24,000 | 3,000 | 0.09 | 0.27 | 24,000 | 2,800 | 0.09 | 0.27 | 23,000 | 2,600 | 0.09 | 0.27 |
| | 12 | 22,000 | 2,500 | 0.18 | 0.36 | 18,000 | 1,800 | 0.09 | 0.18 | 15,800 | 1,500 | 0.09 | 0.18 | 14,700 | 1,350 | 0.09 | 0.18 |
| | 16 | 16,000 | 1,200 | 0.1 | 0.24 | 16,000 | 980 | 0.05 | 0.12 | 14,000 | 850 | 0.05 | 0.12 | 13,000 | 780 | 0.05 | 0.12 |
| | 20 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 1 | 3 | 50,000 | 5,800 | 0.2 | 0.4 | 50,000 | 5,600 | 0.1 | 0.2 | 50,000 | 5,600 | 0.1 | 0.2 | 47,000 | 5,300 | 0.1 | 0.2 |
| | 4 | 50,000 | 5,800 | 0.2 | 0.4 | 50,000 | 5,600 | 0.1 | 0.2 | 50,000 | 5,600 | 0.1 | 0.2 | 47,000 | 5,300 | 0.1 | 0.2 |
| | 6 | 38,000 | 4,000 | 0.2 | 0.4 | 36,000 | 3,000 | 0.1 | 0.2 | 36,000 | 2,800 | 0.1 | 0.2 | 34,000 | 2,600 | 0.1 | 0.2 |
| | 8 | 27,000 | 3,360 | 0.2 | 0.4 | 25,000 | 2,600 | 0.1 | 0.2 | 25,000 | 2,400 | 0.1 | 0.2 | 23,000 | 2,200 | 0.1 | 0.2 |
| | 10 | 22,000 | 3,050 | 0.2 | 0.4 | 20,000 | 2,400 | 0.1 | 0.2 | 20,000 | 2,200 | 0.1 | 0.2 | 19,000 | 2,000 | 0.1 | 0.2 |
| | 12 | 16,000 | 2,580 | 0.2 | 0.4 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 1,900 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 |
| | 14 | 15,000 | 2,400 | 0.2 | 0.3 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 | 14,000 | 1,500 | 0.1 | 0.2 |
| | 16 | 14,000 | 2,200 | 0.2 | 0.2 | 14,000 | 1,700 | 0.1 | 0.1 | 14,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,400 | 0.1 | 0.1 |
| | 18 | 13,000 | 2,000 | 0.2 | 0.2 | 13,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,500 | 0.1 | 0.1 | 12,000 | 1,300 | 0.1 | 0.1 |
| | 20 | 12,000 | 1,200 | 0.1 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 11,000 | 1,100 | 0.05 | 0.1 | 10,000 | 1,000 | 0.05 | 0.1 |
| | 22 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 25 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 30 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 35 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 40 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 1.25 | 6 | 32,000 | 5,550 | 0.25 | 0.4 | 28,000 | 4,600 | 0.1 | 0.2 | 28,000 | 4,300 | 0.1 | 0.2 | 25,000 | 3,700 | 0.1 | 0.2 |
| | 10 | 21,000 | 4,000 | 0.25 | 0.4 | 20,000 | 3,300 | 0.1 | 0.2 | 20,000 | 3,100 | 0.1 | 0.2 | 18,000 | 2,700 | 0.1 | 0.2 |
| | 15 | 17,000 | 3,000 | 0.25 | 0.4 | 17,000 | 2,800 | 0.1 | 0.2 | 17,000 | 2,600 | 0.1 | 0.2 | 16,000 | 2,400 | 0.1 | 0.2 |
| | 20 | 15,000 | 1,800 | 0.25 | 0.4 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 | 14,000 | 1,500 | 0.1 | 0.2 |
| | 25 | 12,000 | 1,010 | 0.06 | 0.1 | 12,000 | 1,000 | 0.03 | 0.05 | 12,000 | 950 | 0.03 | 0.05 | 10,000 | 860 | 0.03 | 0.05 |
| | 30 | 10,000 | 800 | 0.06 | 0.1 | — | — | — | — | — | — | — | — | — | — | — | — |
| | 35 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 1.5 | 6 | 42,000 | 6,800 | 0.3 | 0.6 | 41,500 | 6,200 | 0.15 | 0.3 | 41,500 | 6,200 | 0.15 | 0.3 | 32,000 | 4,800 | 0.15 | 0.3 |
| | 8 | 32,000 | 4,600 | 0.3 | 0.6 | 30,000 | 4,500 | 0.15 | 0.3 | 30,000 | 4,200 | 0.15 | 0.3 | 25,000 | 3,500 | 0.15 | 0.3 |
| | 10 | 28,000 | 4,000 | 0.3 | 0.6 | 25,000 | 3,800 | 0.15 | 0.3 | 25,000 | 3,600 | 0.15 | 0.3 | 20,000 | 2,800 | 0.15 | 0.3 |
| | 12 | 24,000 | 3,100 | 0.3 | 0.6 | 20,000 | 3,000 | 0.15 | 0.3 | 20,000 | 2,800 | 0.15 | 0.3 | 18,000 | 2,500 | 0.15 | 0.3 |
| | 14 | 22,000 | 2,900 | 0.3 | 0.6 | 18,000 | 2,700 | 0.15 | 0.3 | 18,000 | 2,500 | 0.15 | 0.3 | 15,000 | 2,000 | 0.15 | 0.3 |
| | 15 | 20,000 | 2,800 | 0.25 | 0.6 | 16,000 | 2,400 | 0.1 | 0.3 | 16,000 | 2,200 | 0.1 | 0.3 | 13,000 | 1,700 | 0.1 | 0.3 |
| | 16 | 20,000 | 2,600 | 0.25 | 0.4 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 1,900 | 0.1 | 0.2 | 13,000 | 1,500 | 0.1 | 0.2 |
| | 20 | 16,000 | 2,200 | 0.25 | 0.4 | 14,000 | 1,800 | 0.1 | 0.2 | 14,000 | 1,700 | 0.1 | 0.2 | 11,000 | 1,300 | 0.1 | 0.2 |
| | 25 | 16,000 | 1,800 | 0.125 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,100 | 0.05 | 0.1 | 9,000 | 820 | 0.05 | 0.1 |
| | 30 | 12,000 | 1,000 | 0.075 | 0.1 | 10,000 | 800 | 0.03 | 0.05 | 9,000 | 760 | 0.03 | 0.05 | 7,800 | 590 | 0.03 | 0.05 |
| | 35 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 40 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 1.75 | 10 | 26,000 | 5,400 | 0.375 | 0.6 | 25,000 | 3,750 | 0.15 | 0.3 | 25,000 | 3,500 | 0.15 | 0.3 | 19,500 | 2,660 | 0.15 | 0.3 |
| | 15 | 20,000 | 4,000 | 0.3 | 0.6 | 18,000 | 3,000 | 0.1 | 0.3 | 18,000 | 2,800 | 0.1 | 0.3 | 14,000 | 2,180 | 0.1 | 0.3 |
| | 20 | 18,000 | 3,000 | 0.3 | 0.4 | 16,000 | 2,700 | 0.1 | 0.2 | 16,000 | 2,500 | 0.1 | 0.2 | 12,000 | 1,850 | 0.1 | 0.2 |
| | 25 | 14,000 | 2,800 | 0.2 | 0.2 | 12,000 | 2,000 | 0.1 | 0.1 | 12,000 | 1,900 | 0.1 | 0.1 | 9,000 | 1,400 | 0.1 | 0.1 |
| | 30 | 10,000 | 2,200 | 0.125 | 0.2 | 10,000 | 1,600 | 0.05 | 0.1 | 10,000 | 1,500 | 0.05 | 0.1 | 8,000 | 1,200 | 0.05 | 0.1 |
| 切込深さ Depth of Cut | |  | | | | | | | | | | | | | | | |



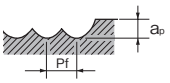
次ページへ RE 1.75～3 NEXT

形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD▶P341
形状寸法表 SPECIFICATION CHARTS WXL-LN-EBD-3▶P359-1

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-LN-EBD/WXL-LN-EBD-3
## 高速切削 HIGH-SPEED LIGHT MILLING

前ページより FROM RE 0.8～1.75

| 被削材 Work Material | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 1.75 | 35 | 10,000 | 1,200 | 0.1 | 0.1 | 10,000 | 1,000 | 0.05 | 0.05 | 10,000 | 950 | 0.05 | 0.05 | 7,000 | 670 | 0.05 | 0.05 |
| | 40 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 45 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2 | 8 | 31,000 | 5,700 | 0.4 | 1 | 31,000 | 5,700 | 0.2 | 0.5 | 31,000 | 5,700 | 0.2 | 0.5 | 24,000 | 4,400 | 0.2 | 0.5 |
| | 10 | 25,000 | 4,500 | 0.4 | 1 | 25,000 | 4,500 | 0.2 | 0.5 | 25,000 | 4,200 | 0.2 | 0.5 | 20,000 | 3,300 | 0.2 | 0.5 |
| | 12 | 20,000 | 4,000 | 0.4 | 1 | 20,000 | 3,600 | 0.2 | 0.5 | 20,000 | 3,400 | 0.2 | 0.5 | 16,000 | 2,700 | 0.2 | 0.5 |
| | 14 | 20,000 | 4,000 | 0.4 | 1 | 20,000 | 3,600 | 0.2 | 0.5 | 20,000 | 3,400 | 0.2 | 0.5 | 16,000 | 2,700 | 0.2 | 0.5 |
| | 15 | 20,000 | 4,000 | 0.4 | 1 | 20,000 | 3,600 | 0.2 | 0.5 | 20,000 | 3,400 | 0.2 | 0.5 | 16,000 | 2,700 | 0.2 | 0.5 |
| | 16 | 20,000 | 3,460 | 0.4 | 0.6 | 18,000 | 3,200 | 0.2 | 0.5 | 18,000 | 3,000 | 0.2 | 0.5 | 14,000 | 2,300 | 0.2 | 0.5 |
| | 20 | 18,000 | 3,000 | 0.4 | 0.5 | 16,000 | 2,800 | 0.2 | 0.4 | 16,000 | 2,600 | 0.2 | 0.4 | 12,000 | 1,900 | 0.2 | 0.4 |
| | 25 | 18,000 | 3,000 | 0.25 | 0.6 | 16,000 | 2,800 | 0.1 | 0.3 | 16,000 | 2,600 | 0.1 | 0.3 | 12,000 | 1,900 | 0.1 | 0.3 |
| | 30 | 16,000 | 2,850 | 0.25 | 0.4 | 14,000 | 2,400 | 0.1 | 0.2 | 14,000 | 2,200 | 0.1 | 0.2 | 11,000 | 1,700 | 0.1 | 0.2 |
| | 35 | 14,000 | 2,200 | 0.25 | 0.4 | 12,000 | 1,800 | 0.1 | 0.2 | 12,000 | 1,700 | 0.1 | 0.2 | 9,000 | 1,700 | 0.1 | 0.2 |
| | 40 | 12,000 | 1,600 | 0.125 | 0.2 | 10,000 | 1,300 | 0.05 | 0.1 | 10,000 | 1,200 | 0.05 | 0.1 | 7,000 | 840 | 0.05 | 0.1 |
| | 45 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | 50 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2.5 | 10 | 25,000 | 5,600 | 0.5 | 1.25 | 25,000 | 5,400 | 0.25 | 0.5 | 25,000 | 5,400 | 0.25 | 0.5 | 19,000 | 4,000 | 0.25 | 0.5 |
| | 15 | 20,000 | 4,400 | 0.5 | 1.25 | 20,000 | 4,200 | 0.25 | 0.5 | 20,000 | 3,900 | 0.25 | 0.5 | 16,000 | 3,100 | 0.25 | 0.5 |
| | 20 | 18,000 | 3,800 | 0.5 | 1.25 | 16,000 | 3,500 | 0.25 | 0.5 | 16,000 | 3,300 | 0.25 | 0.5 | 12,000 | 2,400 | 0.25 | 0.5 |
| | 25 | 20,000 | 3,400 | 0.4 | 0.75 | 15,000 | 3,200 | 0.2 | 0.3 | 15,000 | 3,000 | 0.2 | 0.3 | 12,000 | 2,400 | 0.2 | 0.3 |
| | 30 | 16,000 | 2,900 | 0.25 | 0.75 | 14,000 | 2,500 | 0.1 | 0.3 | 14,000 | 2,300 | 0.1 | 0.3 | 11,000 | 1,800 | 0.1 | 0.3 |
| | 35 | 14,000 | 2,200 | 0.25 | 0.75 | 12,000 | 1,600 | 0.1 | 0.3 | 12,000 | 1,500 | 0.1 | 0.3 | 9,000 | 1,100 | 0.1 | 0.3 |
| | 40 | 12,000 | 1,800 | 0.25 | 0.5 | 10,000 | 1,200 | 0.1 | 0.2 | 10,000 | 1,100 | 0.1 | 0.2 | 8,000 | 880 | 0.1 | 0.2 |
| | 45 | 9,000 | 1,200 | 0.2 | 0.25 | 9,000 | 900 | 0.1 | 0.1 | 9,000 | 850 | 0.1 | 0.1 | 7,000 | 660 | 0.1 | 0.1 |
| | 50 | 8,000 | 1,100 | 0.2 | 0.25 | 8,000 | 800 | 0.1 | 0.1 | 8,000 | 760 | 0.1 | 0.1 | 6,000 | 570 | 0.1 | 0.1 |
| 3 | 10 | 22,000 | 5,900 | 0.75 | 1.25 | 20,000 | 5,400 | 0.3 | 0.5 | 20,000 | 5,000 | 0.3 | 0.5 | 15,000 | 3,750 | 0.3 | 0.5 |
| | 20 | 18,000 | 4,400 | 0.75 | 1.25 | 16,000 | 4,200 | 0.3 | 0.5 | 16,000 | 3,900 | 0.3 | 0.5 | 12,000 | 2,900 | 0.3 | 0.5 |
| | 25 | 14,000 | 4,000 | 0.6 | 1.25 | 12,000 | 3,200 | 0.3 | 0.5 | 12,000 | 3,000 | 0.3 | 0.5 | 9,000 | 2,250 | 0.3 | 0.5 |
| | 30 | 10,000 | 3,200 | 0.6 | 1.25 | 10,000 | 2,600 | 0.3 | 0.5 | 10,000 | 2,400 | 0.3 | 0.5 | 8,000 | 1,900 | 0.3 | 0.5 |
| | 35 | 9,000 | 3,000 | 0.4 | 1 | 9,000 | 2,300 | 0.2 | 0.4 | 9,000 | 2,100 | 0.2 | 0.4 | 7,000 | 1,600 | 0.2 | 0.4 |
| | 40 | 9,000 | 2,800 | 0.4 | 0.75 | 9,000 | 2,000 | 0.2 | 0.3 | 9,000 | 1,900 | 0.2 | 0.3 | 7,000 | 1,400 | 0.2 | 0.3 |
| | 45 | 8,000 | 2,500 | 0.4 | 0.75 | 8,000 | 1,800 | 0.2 | 0.3 | 8,000 | 1,700 | 0.2 | 0.3 | 6,500 | 1,300 | 0.2 | 0.3 |
| | 50 | 7,000 | 2,300 | 0.4 | 0.75 | 7,000 | 1,600 | 0.2 | 0.3 | 7,000 | 1,500 | 0.2 | 0.3 | 5,500 | 1,100 | 0.2 | 0.3 |
| 切込深さ Depth of Cut | |  | | | | | | | | | | | | | | | |



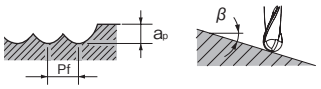
1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5（R0.25）未満あるいはL/D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of φ0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## WXL-HS-EBD

| 被削材質 Work Material | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C ～32HRC | | | | 調質鋼・プリハードン鋼・ステンレス鋼 Hardened Steel・Prehardened Steel・Stainless Steel SKT・SKD61・NAK55・NAK80・HPM1・DH**・SUS304 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 33～41HRC | | | | 42～50HRC | | | |
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut | |
| | | | ap | Pf | | | ap | Pf | | | ap | Pf | | | ap | Pf |
| 0.1 | 50,000 | 540 | 0.01 | 0.02 | 50,000 | 540 | 0.01 | 0.02 | 50,000 | 540 | 0.01 | 0.02 | 50,000 | 440 | 0.01 | 0.02 |
| 0.2 | 50,000 | 880 | 0.02 | 0.04 | 50,000 | 750 | 0.02 | 0.04 | 50,000 | 750 | 0.02 | 0.04 | 50,000 | 680 | 0.02 | 0.04 |
| 0.3 | 50,000 | 1,840 | 0.02 | 0.04 | 50,000 | 910 | 0.02 | 0.04 | 50,000 | 910 | 0.02 | 0.04 | 50,000 | 840 | 0.02 | 0.04 |
| 0.4 | 50,000 | 2,210 | 0.02 | 0.05 | 50,000 | 1,850 | 0.02 | 0.05 | 50,000 | 1,850 | 0.02 | 0.05 | 50,000 | 1,250 | 0.02 | 0.05 |
| 0.5 | 50,000 | 3,350 | 0.02 | 0.05 | 50,000 | 2,800 | 0.02 | 0.05 | 50,000 | 2,500 | 0.02 | 0.05 | 47,500 | 2,250 | 0.02 | 0.05 |
| 1 | 31,500 | 3,350 | 0.04 | 0.1 | 25,000 | 2,800 | 0.04 | 0.1 | 24,500 | 2,500 | 0.04 | 0.1 | 23,500 | 2,250 | 0.04 | 0.1 |
| 1.5 | 21,000 | 3,350 | 0.06 | 0.15 | 16,500 | 2,800 | 0.06 | 0.15 | 16,000 | 2,500 | 0.06 | 0.15 | 15,500 | 2,250 | 0.06 | 0.15 |
| 2 | 15,500 | 4,080 | 0.08 | 0.2 | 15,500 | 3,400 | 0.08 | 0.2 | 15,000 | 2,750 | 0.08 | 0.2 | 13,500 | 2,450 | 0.08 | 0.2 |
| 3 | 10,500 | 5,160 | 0.12 | 0.3 | 13,500 | 4,300 | 0.3 | 0.6 | 11,500 | 2,750 | 0.3 | 0.6 | 9,500 | 2,250 | 0.12 | 0.3 |
| 4 | 7,900 | 3,840 | 0.16 | 0.4 | 10,000 | 3,200 | 0.4 | 0.8 | 8,950 | 2,100 | 0.4 | 0.8 | 7,150 | 1,700 | 0.16 | 0.4 |
| 5 | 6,300 | 3,120 | 0.2 | 0.5 | 8,250 | 2,600 | 0.5 | 1 | 7,150 | 1,700 | 0.5 | 1 | 5,700 | 1,350 | 0.2 | 0.5 |
| 6 | 5,250 | 2,580 | 0.24 | 0.6 | 6,850 | 2,150 | 0.5 | 2.4 | 5,950 | 1,400 | 0.5 | 2.4 | 4,750 | 1,100 | 0.24 | 0.6 |
| 切込深さ Depth of Cut |   | | | | | | | | | | | | | | | |

1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

※傾き角βが15°以下の加工では、上記表の回転速度、送り速度を1.2～1.5倍に上げることが可能です。
※※お使いの工作機械が回転数に達しない場合は、使用できる最高回転数をお使い下さい。

1. The indicated speeds and feeds are for high speed light milling with high speed/high precision machining centers.
2. Because tools can cause sparks, do not use flammable fluids.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

※ When β is less than 15°, speed and feed in the above table can be increased 1.2～1.5 times.
※※ If your machine tool does not attain the indicated speed, operate it at the highest possible speed.

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ず行って下さい。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

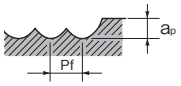
形状寸法表
SPECIFICATION CHARTS
WXL-PC-EBD▶P360

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-PC-EBD
### 標準切削 REGULAR MILLING

| 被削材 Work Material | | | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C・NAK55 ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 部テーパ半角 θn | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.1 | 0.5° | 1 | 0.3° | 32,000 | 200 | 0.02 | 0.02 | 32,000 | 150 | 0.01 | 0.01 | 32,000 | 150 | 0.01 | 0.01 | 32,000 | 100 | 0.005 | 0.005 |
| | | 1.5 | | 32,000 | 200 | 0.02 | 0.02 | 32,000 | 150 | 0.01 | 0.01 | 32,000 | 150 | 0.01 | 0.01 | 32,000 | 100 | 0.005 | 0.005 |
| | | 2 | | 32,000 | 150 | 0.02 | 0.02 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 80 | 0.005 | 0.005 |
| | | 2.5 | | 32,000 | 150 | 0.01 | 0.01 | 32,000 | 100 | 0.005 | 0.005 | 32,000 | 100 | 0.005 | 0.005 | 32,000 | 80 | 0.005 | 0.005 |
| | | 3 | | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 80 | 0.005 | 0.005 | 32,000 | 80 | 0.005 | 0.005 | 32,000 | 60 | 0.003 | 0.005 |
| | 1° | 2 | | 32,000 | 150 | 0.02 | 0.02 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 80 | 0.005 | 0.005 |
| | | 2.5 | | 32,000 | 150 | 0.02 | 0.02 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 100 | 0.01 | 0.01 | 32,000 | 80 | 0.005 | 0.005 |
| | | 3 | | 32,000 | 150 | 0.01 | 0.01 | 32,000 | 100 | 0.005 | 0.005 | 32,000 | 100 | 0.005 | 0.005 | 32,000 | 80 | 0.005 | 0.005 |
| 0.15 | 0.5° | 2 | 0.3° | 32,000 | 600 | 0.02 | 0.03 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 200 | 0.01 | 0.015 | 32,000 | 200 | 0.005 | 0.005 |
| | | 3 | | 32,000 | 450 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 |
| | 1° | 3 | | 32,000 | 450 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.015 | 32,000 | 200 | 0.01 | 0.015 | 32,000 | 200 | 0.005 | 0.005 |
| | | 4 | | 32,000 | 450 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 | 32,000 | 200 | 0.01 | 0.01 |
| 0.2 | 0.5° | 2 | 0.3° | 27,000 | 450 | 0.03 | 0.05 | 32,000 | 400 | 0.015 | 0.025 | 32,000 | 300 | 0.015 | 0.02 | 32,000 | 300 | 0.01 | 0.01 |
| | | 3 | | 27,000 | 450 | 0.025 | 0.05 | 27,000 | 300 | 0.015 | 0.025 | 27,000 | 200 | 0.015 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | | 4 | | 27,000 | 450 | 0.02 | 0.05 | 27,000 | 300 | 0.015 | 0.025 | 27,000 | 200 | 0.015 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | | 5 | | 27,000 | 400 | 0.015 | 0.05 | 27,000 | 300 | 0.005 | 0.015 | 27,000 | 200 | 0.005 | 0.012 | 27,000 | 200 | 0.005 | 0.01 |
| | | 6 | | 27,000 | 300 | 0.01 | 0.03 | 27,000 | 300 | 0.005 | 0.015 | 27,000 | 200 | 0.005 | 0.012 | 27,000 | 200 | 0.005 | 0.01 |
| | 1° | 4 | | 27,000 | 450 | 0.025 | 0.05 | 27,000 | 300 | 0.015 | 0.025 | 27,000 | 200 | 0.015 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | | 5 | | 27,000 | 450 | 0.02 | 0.05 | 27,000 | 300 | 0.015 | 0.025 | 27,000 | 200 | 0.015 | 0.02 | 27,000 | 200 | 0.01 | 0.01 |
| | | 6 | | 27,000 | 400 | 0.015 | 0.05 | 27,000 | 300 | 0.005 | 0.015 | 27,000 | 200 | 0.005 | 0.012 | 27,000 | 200 | 0.005 | 0.01 |
| 0.25 | 0.5° | 4 | 0.3° | 32,000 | 600 | 0.04 | 0.05 | 32,000 | 400 | 0.02 | 0.025 | 32,000 | 300 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.015 |
| | | 6 | | 27,000 | 450 | 0.04 | 0.05 | 20,000 | 200 | 0.02 | 0.025 | 20,000 | 150 | 0.02 | 0.02 | 20,000 | 150 | 0.01 | 0.01 |
| | | 8 | | 21,000 | 300 | 0.02 | 0.03 | 20,000 | 200 | 0.01 | 0.015 | 20,000 | 150 | 0.01 | 0.01 | 20,000 | 150 | 0.01 | 0.01 |
| | | 10 | | 21,000 | 300 | 0.02 | 0.03 | 20,000 | 200 | 0.01 | 0.015 | 20,000 | 150 | 0.01 | 0.01 | 20,000 | 150 | 0.005 | 0.01 |
| | 1° | 4 | | 32,000 | 600 | 0.04 | 0.05 | 32,000 | 400 | 0.02 | 0.025 | 32,000 | 300 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 |
| | | 6 | | 27,000 | 450 | 0.04 | 0.05 | 32,000 | 400 | 0.02 | 0.025 | 32,000 | 300 | 0.02 | 0.02 | 32,000 | 300 | 0.01 | 0.01 |
| | | 8 | | 27,000 | 450 | 0.04 | 0.05 | 20,000 | 200 | 0.02 | 0.025 | 20,000 | 150 | 0.02 | 0.02 | 20,000 | 150 | 0.01 | 0.01 |
| | | 10 | | 21,000 | 300 | 0.02 | 0.03 | 20,000 | 200 | 0.02 | 0.025 | 20,000 | 150 | 0.02 | 0.02 | 20,000 | 150 | 0.01 | 0.01 |
| | | 12 | | 21,000 | 300 | 0.02 | 0.03 | 20,000 | 200 | 0.01 | 0.015 | 20,000 | 150 | 0.01 | 0.01 | 20,000 | 150 | 0.01 | 0.01 |
| 0.3 | 0.5° | 2 | 0.3° | 32,000 | 675 | 0.045 | 0.12 | 32,000 | 450 | 0.03 | 0.06 | 32,000 | 300 | 0.03 | 0.05 | 32,000 | 300 | 0.03 | 0.03 |
| | | 4 | | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.05 | 24,000 | 200 | 0.03 | 0.03 |
| | | 6 | | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.04 | 24,000 | 200 | 0.02 | 0.02 |
| | | 8 | | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | | 10 | | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | | 12 | | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.02 | 0.04 | 20,000 | 150 | 0.01 | 0.01 |
| | | 16 | | 20,000 | 150 | 0.025 | 0.05 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.01 | 0.04 | 20,000 | 150 | 0.01 | 0.01 |
| | 1° | 4 | | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.05 | 24,000 | 200 | 0.03 | 0.03 |
| | | 6 | | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.04 | 24,000 | 200 | 0.02 | 0.02 |
| | | 8 | | 30,000 | 375 | 0.045 | 0.12 | 25,000 | 250 | 0.03 | 0.06 | 24,000 | 200 | 0.03 | 0.04 | 24,000 | 200 | 0.02 | 0.02 |
| | | 10 | | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | | 12 | | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| | | 16 | | 25,000 | 225 | 0.045 | 0.12 | 20,000 | 150 | 0.03 | 0.06 | 20,000 | 150 | 0.03 | 0.04 | 20,000 | 150 | 0.02 | 0.02 |
| 0.4 | 0.5° | 4 | 0.3° | 27,000 | 675 | 0.06 | 0.16 | 23,000 | 450 | 0.04 | 0.08 | 21,000 | 300 | 0.04 | 0.06 | 21,000 | 300 | 0.04 | 0.08 |
| | | 6 | | 24,000 | 375 | 0.06 | 0.12 | 21,000 | 250 | 0.04 | 0.06 | 19,000 | 200 | 0.04 | 0.05 | 19,000 | 200 | 0.03 | 0.05 |
| | | 8 | | 24,000 | 375 | 0.06 | 0.12 | 21,000 | 250 | 0.04 | 0.06 | 19,000 | 200 | 0.04 | 0.05 | 19,000 | 200 | 0.03 | 0.05 |
| | | 12 | | 22,000 | 225 | 0.06 | 0.12 | 19,000 | 150 | 0.04 | 0.06 | 17,000 | 150 | 0.04 | 0.05 | 17,000 | 150 | 0.02 | 0.05 |
| | 1° | 8 | | 24,000 | 375 | 0.06 | 0.12 | 21,000 | 250 | 0.04 | 0.06 | 19,000 | 200 | 0.04 | 0.05 | 19,000 | 200 | 0.03 | 0.05 |
| | | 12 | | 24,000 | 375 | 0.06 | 0.12 | 21,000 | 250 | 0.04 | 0.06 | 19,000 | 200 | 0.04 | 0.05 | 19,000 | 200 | 0.02 | 0.05 |
| | | 16 | | 22,000 | 225 | 0.06 | 0.12 | 19,000 | 150 | 0.04 | 0.06 | 17,000 | 150 | 0.04 | 0.05 | 17,000 | 150 | 0.02 | 0.02 |

切込深さ Depth of Cut




次ページへ
RE 0.5～0.75 NEXT

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

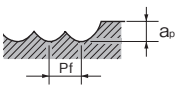
## WXL-PC-EBD
### 標準切削

REGULAR MILLING

前ページより
FROM RE 0.1～0.4

| 被削材 Work Material | | | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C・NAK55 ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 部テーパ半角 θn | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.5 | 0.5° | 6 | 0.3° | 28,000 | 750 | 0.075 | 0.2 | 25,000 | 500 | 0.05 | 0.1 | 21,000 | 300 | 0.05 | 0.08 | 21,000 | 300 | 0.05 | 0.05 |
| | | 8 | | 28,000 | 750 | 0.075 | 0.2 | 25,000 | 500 | 0.05 | 0.1 | 21,000 | 300 | 0.05 | 0.08 | 21,000 | 300 | 0.05 | 0.05 |
| | | 10 | | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | | 12 | | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | | 16 | | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.025 |
| | | 18 | | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.025 |
| | | 20 | | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.025 |
| | | 25 | | 16,000 | 300 | 0.06 | 0.12 | 13,000 | 200 | 0.03 | 0.05 | 10,000 | 150 | 0.03 | 0.04 | 10,000 | 150 | 0.01 | 0.015 |
| | | 30 | | 16,000 | 300 | 0.06 | 0.12 | 13,000 | 200 | 0.03 | 0.05 | 10,000 | 150 | 0.03 | 0.04 | 10,000 | 150 | 0.01 | 0.015 |
| | | 35 | | 13,000 | 300 | 0.04 | 0.12 | 13,000 | 200 | 0.01 | 0.05 | 10,000 | 150 | 0.01 | 0.04 | 10,000 | 150 | 0.005 | 0.015 |
| | 1° | 10 | | 28,000 | 750 | 0.075 | 0.2 | 25,000 | 500 | 0.05 | 0.1 | 21,000 | 300 | 0.05 | 0.08 | 21,000 | 300 | 0.05 | 0.05 |
| | | 16 | | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | | 20 | | 21,000 | 450 | 0.075 | 0.15 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.02 |
| | | 25 | | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.02 |
| | | 30 | | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.015 |
| | | 35 | | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.015 |
| | | 40 | | 18,000 | 300 | 0.06 | 0.12 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.015 |
| | | 50 | | 16,000 | 300 | 0.06 | 0.12 | 13,000 | 200 | 0.03 | 0.05 | 10,000 | 150 | 0.03 | 0.04 | 10,000 | 150 | 0.01 | 0.015 |
| | | 60 | | 16,000 | 300 | 0.06 | 0.12 | 13,000 | 200 | 0.03 | 0.05 | 10,000 | 150 | 0.03 | 0.04 | 10,000 | 150 | 0.01 | 0.015 |
| | | 70 | | 12,000 | 300 | 0.06 | 0.12 | 13,000 | 200 | 0.02 | 0.05 | 10,000 | 150 | 0.02 | 0.04 | 10,000 | 150 | 0.01 | 0.015 |
| | 1.5° | 8 | | 28,000 | 750 | 0.075 | 0.2 | 25,000 | 500 | 0.05 | 0.1 | 21,000 | 300 | 0.05 | 0.08 | 21,000 | 300 | 0.05 | 0.05 |
| | | 10 | | 28,000 | 750 | 0.075 | 0.2 | 25,000 | 500 | 0.05 | 0.1 | 21,000 | 300 | 0.05 | 0.08 | 21,000 | 300 | 0.05 | 0.05 |
| | | 12 | | 28,000 | 750 | 0.075 | 0.2 | 25,000 | 500 | 0.05 | 0.1 | 21,000 | 300 | 0.05 | 0.08 | 21,000 | 300 | 0.05 | 0.05 |
| | | 16 | | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | | 20 | | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | | 25 | | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | | 30 | | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| | | 35 | | 21,000 | 450 | 0.075 | 0.15 | 17,000 | 200 | 0.03 | 0.05 | 14,000 | 150 | 0.03 | 0.04 | 14,000 | 150 | 0.01 | 0.02 |
| | 2° | 45 | | 21,000 | 450 | 0.075 | 0.15 | 19,000 | 300 | 0.05 | 0.1 | 16,000 | 200 | 0.05 | 0.08 | 16,000 | 200 | 0.05 | 0.05 |
| 0.6 | 0.5° | 12 | 0.3° | 20,000 | 450 | 0.09 | 0.24 | 17,000 | 300 | 0.06 | 0.12 | 14,000 | 200 | 0.06 | 0.1 | 14,000 | 200 | 0.06 | 0.06 |
| | | 25 | | 16,000 | 300 | 0.09 | 0.18 | 14,000 | 200 | 0.06 | 0.09 | 11,000 | 150 | 0.06 | 0.07 | 11,000 | 150 | 0.02 | 0.03 |
| | 1° | 12 | | 20,000 | 450 | 0.09 | 0.24 | 17,000 | 300 | 0.06 | 0.12 | 14,000 | 200 | 0.06 | 0.1 | 14,000 | 200 | 0.06 | 0.06 |
| | | 25 | | 16,000 | 300 | 0.09 | 0.24 | 14,000 | 200 | 0.06 | 0.09 | 11,000 | 150 | 0.06 | 0.07 | 11,000 | 150 | 0.02 | 0.03 |
| | 1.5° | 12 | | 20,000 | 600 | 0.09 | 0.24 | 17,000 | 450 | 0.06 | 0.12 | 14,000 | 300 | 0.06 | 0.1 | 14,000 | 300 | 0.06 | 0.06 |
| | | 25 | | 20,000 | 450 | 0.09 | 0.24 | 17,000 | 300 | 0.06 | 0.12 | 14,000 | 200 | 0.06 | 0.1 | 14,000 | 200 | 0.06 | 0.06 |
| 0.75 | 0.5° | 8 | 0.3° | 18,000 | 750 | 0.14 | 0.3 | 15,000 | 500 | 0.08 | 0.15 | 12,000 | 350 | 0.08 | 0.15 | 12,000 | 300 | 0.08 | 0.15 |
| | | 10 | | 17,000 | 450 | 0.14 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 |
| | | 12 | | 17,000 | 450 | 0.12 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 |
| | | 16 | | 17,000 | 450 | 0.12 | 0.24 | 15,000 | 300 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.1 | 12,000 | 250 | 0.075 | 0.1 |
| | | 20 | | 13,000 | 300 | 0.12 | 0.2 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.1 | 9,500 | 150 | 0.05 | 0.1 |

切込深さ Depth of Cut




1. 機械、ホルダは剛性の高いものをご使用下さい。剛性が低い場合は切削条件を抑えて下さい。
2. 工具の振れ精度を最小限に抑えてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. コーナ部切削や取り残し加工の際には、切込深さと送り速度を70%程度下げてご使用下さい。
5. CAMや機械側でコーナ部のR挿入もしくは減速を設定することで、より安定した高送り加工が可能となります。
6. コーナ部等切削負荷が変動する場合や加工精度を要求される場合には、回転速度を抑えてご使用下さい。
7. 推奨傾斜切込み角度以上で加工される場合には、送り速度を下げてご使用下さい。
8. 切削負荷が変動する場合や、加工精度を要求される場合には、上記よりも条件を抑えてご使用下さい。
9. 回転速度が表示より上がらない場合は、回転数を機械に合わせて落とした比率分の送り速度も落としてご使用下さい。
10. 上記の条件表は加工目安です。加工条件に合わせて加工条件の調節を行って下さい。
11. 切削条件は荒取り後の中引き加工を想定した条件になります。
12. 平坦部を含めた荒取り加工が多い場合、びびりが発生し易くなります。
13. 切込深さが小さい場合は、適正な切削速度になるよう回転速度を上げてびびりを抑制下さい。

1. Highly rigid machines and tool holders should be used. If not, machining should be kept below above-mentioned conditions.
2. Tool vibrations should be kept at a minimum level for maximum accuracy.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. For the milling of corners or removal of residue, reduce the cutting depth and feed to 70%.
5. More stable high-feed machining in corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
6. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
7. When cutting at greater than the recommended cutting angle, reduce the feed.
8. When cutting load is fluctuating, or when higher milling accuracy is required, keep machining conditions below the above-mentioned values.
9. When the rotational speed does not meet the recommended conditions, reduce the feed in proportion to the RPM that is suitable for your machine.
10. The chart above is intended as general guidelines for reference only. The given values should be adjusted individually based on actual machining conditions.
11. The cutting conditions are intended for intermediate machining after roughing.
12. When the work includes extensive roughing including flat areas, chattering is more likely to occur.
13. If the cutting depth is shallow, increase the cutting speed appropriately to minimize chattering.

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RE 0.75～1.5 NEXT

形状寸法表
SPECIFICATION CHARTS
WXL-PC-EBD▶P360

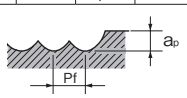
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-PC-EBD
## 標準切削 REGULAR MILLING

前ページより
FROM RE 0.5～0.75

| 被削材 Work Material | | | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C・NAK55 ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 刃部テーパ半角 θn | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.75 | 0.5° | 25 | 0.3° | 13,000 | 300 | 0.12 | 0.2 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.1 | 9,500 | 150 | 0.05 | 0.1 |
| | | 30 | | 13,000 | 300 | 0.12 | 0.2 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.1 | 9,500 | 150 | 0.035 | 0.1 |
| | | 35 | | 13,000 | 300 | 0.09 | 0.2 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.1 | 9,500 | 150 | 0.03 | 0.1 |
| | 1° | 10 | | 18,000 | 750 | 0.14 | 0.3 | 15,000 | 500 | 0.08 | 0.15 | 12,000 | 350 | 0.08 | 0.15 | 12,000 | 300 | 0.08 | 0.15 |
| | | 12 | | 17,000 | 450 | 0.14 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 |
| | | 16 | | 17,000 | 450 | 0.12 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 |
| | | 20 | | 17,000 | 450 | 0.12 | 0.24 | 15,000 | 300 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.1 | 12,000 | 250 | 0.075 | 0.1 |
| | | 25 | | 17,000 | 450 | 0.12 | 0.24 | 15,000 | 300 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.1 | 12,000 | 250 | 0.05 | 0.1 |
| | | 30 | | 13,000 | 300 | 0.09 | 0.2 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.1 | 9,500 | 150 | 0.03 | 0.1 |
| | | 35 | | 13,000 | 300 | 0.09 | 0.2 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.1 | 9,500 | 150 | 0.02 | 0.1 |
| | 1.5° | 10 | | 18,000 | 750 | 0.12 | 0.3 | 15,000 | 500 | 0.08 | 0.15 | 12,000 | 350 | 0.08 | 0.15 | 12,000 | 300 | 0.08 | 0.15 |
| | | 12 | | 17,000 | 450 | 0.12 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 |
| | | 16 | | 17,000 | 450 | 0.12 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 |
| | | 20 | | 17,000 | 450 | 0.12 | 0.3 | 15,000 | 300 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 | 12,000 | 250 | 0.08 | 0.15 |
| | | 25 | | 17,000 | 450 | 0.12 | 0.24 | 15,000 | 300 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.1 | 12,000 | 250 | 0.075 | 0.1 |
| | | 30 | | 17,000 | 450 | 0.12 | 0.24 | 15,000 | 300 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.1 | 12,000 | 250 | 0.075 | 0.1 |
| | | 35 | | 13,000 | 300 | 0.075 | 0.2 | 12,000 | 200 | 0.06 | 0.1 | 9,500 | 150 | 0.06 | 0.1 | 9,500 | 150 | 0.05 | 0.1 |
| | 2° | 38.6 | | 17,000 | 450 | 0.12 | 0.24 | 15,000 | 300 | 0.08 | 0.12 | 12,000 | 250 | 0.08 | 0.1 | 12,000 | 250 | 0.075 | 0.1 |
| 1 | 0.5° | 8 | 0.3° | 16,500 | 1,050 | 0.2 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | | 10 | | 16,500 | 1,050 | 0.2 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | | 12 | | 16,500 | 1,050 | 0.2 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | | 16 | | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | | 20 | | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | | 25 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | | 30 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | | 35 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | | 40 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | 1° | 16 | | 16,500 | 1,050 | 0.2 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | | 20 | | 14,000 | 750 | 0.2 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | | 25 | | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | | 30 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.08 | 0.1 |
| | | 35 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.08 | 0.1 |
| | | 40 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | | 50 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | | 60 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | | 70 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | 1.5° | 16 | | 16,500 | 1,050 | 0.2 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | | 20 | | 16,500 | 1,050 | 0.2 | 0.56 | 16,500 | 700 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.28 | 13,500 | 500 | 0.1 | 0.2 |
| | | 25 | | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | | 30 | | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | | 35 | | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| | | 41.4 | | 11,000 | 375 | 0.15 | 0.42 | 10,000 | 250 | 0.1 | 0.21 | 8,000 | 200 | 0.1 | 0.18 | 8,000 | 200 | 0.06 | 0.1 |
| | 2° | 31.5 | | 14,000 | 750 | 0.15 | 0.56 | 13,000 | 500 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.28 | 10,000 | 300 | 0.1 | 0.2 |
| 1.5 | 0.5° | 8 | 0.3° | 15,000 | 1,200 | 0.2 | 0.84 | 9,500 | 800 | 0.15 | 0.42 | 7,500 | 600 | 0.15 | 0.42 | 7,500 | 600 | 0.15 | 0.3 |
| | | 10 | | 15,000 | 1,200 | 0.2 | 0.84 | 9,500 | 800 | 0.15 | 0.42 | 7,500 | 600 | 0.15 | 0.42 | 7,500 | 600 | 0.15 | 0.3 |
| | | 12 | | 12,000 | 900 | 0.2 | 0.84 | 9,500 | 600 | 0.15 | 0.42 | 7,500 | 400 | 0.15 | 0.36 | 7,500 | 400 | 0.15 | 0.3 |
| | | 16 | | 10,000 | 900 | 0.2 | 0.84 | 9,500 | 600 | 0.15 | 0.42 | 7,500 | 400 | 0.15 | 0.36 | 7,500 | 400 | 0.15 | 0.3 |
| | | 20 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | | 25 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | | 30 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.3 | 6,500 | 250 | 0.09 | 0.15 |
| | | 35 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.3 | 6,500 | 250 | 0.09 | 0.15 |

切込深さ Depth of Cut




次ページへ
RE 1.5～6 NEXT

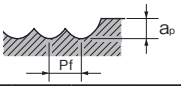
# WXL-PC-EBD
## 標準切削

REGULAR MILLING

前ページより
FROM RE 0.75～1.5

| 被削材 Work Material | | | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C・NAK55 ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 部テーパ半角 θn | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 1.5 | 0.5° | 40 | 0.3° | 9,000 | 375 | 0.2 | 0.84 | 7,500 | 250 | 0.15 | 0.42 | 6,000 | 200 | 0.15 | 0.3 | 6,000 | 200 | 0.09 | 0.15 |
| | | 50 | | 9,000 | 375 | 0.2 | 0.84 | 7,500 | 250 | 0.15 | 0.42 | 6,000 | 200 | 0.15 | 0.3 | 6,000 | 200 | 0.09 | 0.15 |
| | 1° | 20 | | 10,000 | 900 | 0.2 | 0.84 | 9,500 | 600 | 0.15 | 0.42 | 7,500 | 400 | 0.15 | 0.36 | 7,500 | 400 | 0.15 | 0.3 |
| | | 25 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | | 30 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | | 35 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.3 | 6,500 | 250 | 0.09 | 0.15 |
| | | 40 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.3 | 6,500 | 250 | 0.09 | 0.15 |
| | | 50 | | 9,000 | 375 | 0.2 | 0.84 | 7,500 | 250 | 0.15 | 0.42 | 6,000 | 200 | 0.15 | 0.3 | 6,000 | 200 | 0.09 | 0.15 |
| | | 60 | | 9,000 | 375 | 0.2 | 0.84 | 7,500 | 250 | 0.15 | 0.42 | 6,000 | 200 | 0.15 | 0.3 | 6,000 | 200 | 0.09 | 0.15 |
| | | 70 | | 9,000 | 375 | 0.2 | 0.84 | 7,500 | 250 | 0.15 | 0.42 | 6,000 | 200 | 0.15 | 0.3 | 6,000 | 200 | 0.09 | 0.15 |
| | 1.5° | 20 | | 10,000 | 900 | 0.3 | 0.84 | 9,500 | 600 | 0.15 | 0.42 | 7,500 | 400 | 0.15 | 0.36 | 7,500 | 400 | 0.15 | 0.3 |
| | | 25 | | 10,000 | 450 | 0.25 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | | 30 | | 10,000 | 450 | 0.25 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | | 35 | | 10,000 | 450 | 0.25 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | | 40 | | 10,000 | 450 | 0.25 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| | | 50 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.3 | 6,500 | 250 | 0.09 | 0.15 |
| | | 62.5 | | 10,000 | 450 | 0.2 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.3 | 6,500 | 250 | 0.09 | 0.15 |
| | 2° | 47.5 | | 10,000 | 450 | 0.25 | 0.84 | 8,500 | 300 | 0.15 | 0.42 | 6,500 | 250 | 0.15 | 0.36 | 6,500 | 250 | 0.15 | 0.3 |
| 2 | 1° | 20 | 0.5° | 9,000 | 900 | 0.5 | 1.28 | 7,500 | 600 | 0.2 | 0.64 | 6,000 | 400 | 0.2 | 0.6 | 6,000 | 400 | 0.2 | 0.4 |
| | | 30 | | 7,000 | 600 | 0.5 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.6 | 5,000 | 250 | 0.2 | 0.4 |
| | | 40 | | 7,000 | 600 | 0.4 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.56 | 5,000 | 250 | 0.12 | 0.3 |
| | | 50 | | 7,000 | 600 | 0.4 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.56 | 5,000 | 250 | 0.12 | 0.2 |
| | | 60 | | 5,000 | 375 | 0.35 | 1.28 | 5,000 | 250 | 0.2 | 0.64 | 4,000 | 200 | 0.2 | 0.56 | 4,000 | 200 | 0.12 | 0.2 |
| | 1.5° | 44.2 | | 7,000 | 600 | 0.5 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.6 | 5,000 | 250 | 0.2 | 0.4 |
| | 2° | 34 | | 7,000 | 600 | 0.5 | 1.28 | 6,000 | 400 | 0.2 | 0.64 | 5,000 | 250 | 0.2 | 0.6 | 5,000 | 250 | 0.2 | 0.5 |
| 2.5 | 1° | 30 | 0.5° | 7,000 | 750 | 0.6 | 1.8 | 6,500 | 500 | 0.25 | 0.9 | 5,000 | 400 | 0.25 | 0.7 | 5,000 | 400 | 0.25 | 0.5 |
| | | 40 | | 6,000 | 750 | 0.6 | 1.8 | 5,000 | 500 | 0.25 | 0.9 | 4,000 | 250 | 0.25 | 0.7 | 4,000 | 250 | 0.25 | 0.5 |
| | | 60 | | 5,000 | 600 | 0.4 | 1.8 | 4,000 | 400 | 0.25 | 0.9 | 4,000 | 200 | 0.25 | 0.6 | 4,000 | 200 | 0.2 | 0.25 |
| | 1.5° | 26.9 | | 9,000 | 1,350 | 0.6 | 1.8 | 6,500 | 900 | 0.25 | 0.9 | 5,000 | 750 | 0.25 | 0.7 | 5,000 | 750 | 0.25 | 0.5 |
| | | 65.1 | | 6,000 | 750 | 0.6 | 1.8 | 5,000 | 500 | 0.25 | 0.9 | 4,000 | 250 | 0.25 | 0.7 | 4,000 | 250 | 0.25 | 0.5 |
| | 2° | 50.1 | | 6,000 | 750 | 0.6 | 1.8 | 5,000 | 500 | 0.25 | 0.9 | 4,000 | 250 | 0.25 | 0.7 | 4,000 | 250 | 0.25 | 0.5 |
| 3 | 1° | 30 | 0.5° | 7,000 | 1,200 | 0.75 | 2.4 | 5,500 | 800 | 0.3 | 1.2 | 4,500 | 600 | 0.3 | 0.96 | 4,500 | 600 | 0.3 | 0.6 |
| | | 40 | | 5,000 | 600 | 0.75 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.6 |
| | | 50 | | 5,000 | 600 | 0.6 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.6 |
| | | 60 | | 5,000 | 600 | 0.6 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.6 |
| | | 70 | | 5,000 | 600 | 0.6 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.3 |
| | | 80 | | 5,000 | 600 | 0.45 | 2.4 | 4,000 | 400 | 0.2 | 1.2 | 4,000 | 300 | 0.2 | 0.96 | 4,000 | 300 | 0.2 | 0.3 |
| | 1.5° | 49 | | 5,000 | 600 | 0.6 | 2.4 | 4,000 | 400 | 0.3 | 1.2 | 4,000 | 300 | 0.3 | 0.96 | 4,000 | 300 | 0.3 | 0.6 |
| | 2° | 36 | | 7,000 | 1,200 | 0.75 | 2.4 | 5,500 | 800 | 0.3 | 1.2 | 4,500 | 600 | 0.3 | 0.96 | 4,500 | 600 | 0.3 | 0.6 |
| 4 | 3° | 35.5 | 0.5° | 4,800 | 670 | 0.8 | 3.2 | 4,000 | 480 | 0.4 | 1.6 | 3,600 | 360 | 0.4 | 1.28 | 3,600 | 290 | 0.4 | 0.85 |
| | 1.5° | 54.5 | | 4,000 | 560 | 0.8 | 3.2 | 3,200 | 380 | 0.4 | 1.6 | 3,200 | 320 | 0.4 | 1.28 | 3,200 | 260 | 0.4 | 0.85 |
| 5 | 3° | 39.5 | 0.5° | 3,800 | 610 | 1 | 4 | 3,200 | 450 | 0.5 | 2 | 2,800 | 340 | 0.5 | 1.6 | 2,800 | 280 | 0.5 | 1.07 |
| | 1.5° | 58.5 | | 3,200 | 510 | 1 | 4 | 2,500 | 350 | 0.5 | 2 | 2,500 | 300 | 0.5 | 1.6 | 2,500 | 250 | 0.5 | 1.07 |
| 6 | 3° | 60 | 0.5° | 3,200 | 580 | 1.2 | 4.8 | 2,600 | 420 | 0.6 | 2.4 | 2,400 | 340 | 0.6 | 1.92 | 2,400 | 290 | 0.6 | 1.28 |
| | 1.5° | 80 | | 2,700 | 480 | 1.2 | 4.8 | 2,100 | 340 | 0.6 | 2.4 | 2,100 | 300 | 0.6 | 1.92 | 2,100 | 250 | 0.6 | 1.28 |

切込深さ Depth of Cut




1. 機械、ホルダは剛性の高いものをご使用下さい。剛性が低い場合は切削条件を抑えて下さい。
2. 工具の振れ精度を最小限に抑えてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. コーナ部切削や取り残し加工の際には、切込深さと送り速度を70%程度下げてご使用下さい。
5. CAMや機械側でコーナ部のR挿入もしくは減速を設定することで、より安定した高送り加工が可能となります。
6. コーナ部等切削負荷が変動する場合や加工精度を要求される場合には、回転速度を抑えてご使用下さい。
7. 推奨傾斜切込み角度以上で加工される場合には、送り速度を下げてご使用下さい。
8. 切削負荷が変動する場合や、加工精度を要求される場合には、上記よりも条件を抑えてご使用下さい。
9. 回転速度が表示より上がらない場合は、回転数を機械に合わせて落とした比率分の送り速度も落としてご使用下さい。
10. 上記の条件表は加工目安です。加工条件に合わせて加工条件の調節を行って下さい。
11. 切削条件は荒取り後の中引き加工を想定した条件になります。
12. 平坦部を含めた荒取り加工が多い場合、びびりが発生し易くなります。
13. 切込深さが小さい場合は、適正な切削速度になるよう回転速度を上げてびびりを抑制下さい。

1. Highly rigid machines and tool holders should be used. If not, machining should be kept below above-mentioned conditions.
2. Tool vibrations should be kept at a minimum level for maximum accuracy.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. For the milling of corners or removal of residue, reduce the cutting depth and feed to 70%.
5. More stable high-feed machining in corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
6. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
7. When cutting at greater than the recommended cutting angle, reduce the feed.
8. When cutting load is fluctuating, or when higher milling accuracy is required, keep machining conditions below the above-mentioned values.
9. When the rotational speed does not meet the recommended conditions, reduce the feed in proportion to the RPM that is suitable for your machine.
10. The chart above is intended as general guidelines for reference only. The given values should be adjusted individually based on actual machining conditions.
11. The cutting conditions are intended for intermediate machining after roughing.
12. When the work includes extensive roughing including flat areas, chattering is more likely to occur.
13. If the cutting depth is shallow, increase the cutting speed appropriately to minimize chattering.

形状寸法表
SPECIFICATION CHARTS
WXL-PC-EBD▶P360

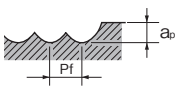
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-PC-EBD
### 高速切削

HIGH-SPEED LIGHT MILLING

| 被削材 Work Material | | | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C・NAK55 ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 首部テーパ半角 θn | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.1 | 0.5° | 1 | 0.3° | 50,000 | 440 | 0.007 | 0.01 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 |
| | | 1.5 | | 50,000 | 440 | 0.007 | 0.01 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 |
| | | 2 | | 50,000 | 360 | 0.007 | 0.01 | 45,000 | 300 | 0.005 | 0.005 | 45,000 | 280 | 0.005 | 0.005 | 45,000 | 280 | 0.005 | 0.005 |
| | | 2.5 | | 50,000 | 320 | 0.007 | 0.01 | 38,000 | 230 | 0.005 | 0.005 | 38,000 | 210 | 0.005 | 0.005 | 37,000 | 200 | 0.005 | 0.005 |
| | | 3 | | 50,000 | 250 | 0.007 | 0.01 | 38,000 | 200 | 0.005 | 0.005 | 38,000 | 180 | 0.005 | 0.005 | 37,000 | 150 | 0.003 | 0.005 |
| | 1° | 2 | | 50,000 | 440 | 0.007 | 0.01 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 |
| | | 2.5 | | 50,000 | 360 | 0.007 | 0.01 | 45,000 | 300 | 0.005 | 0.005 | 45,000 | 280 | 0.005 | 0.005 | 45,000 | 280 | 0.005 | 0.005 |
| | | 3 | | 50,000 | 320 | 0.007 | 0.01 | 38,000 | 230 | 0.005 | 0.005 | 38,000 | 210 | 0.005 | 0.005 | 37,000 | 200 | 0.005 | 0.005 |
| 0.15 | 0.5° | 2 | 0.3° | 50,000 | 730 | 0.007 | 0.02 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.005 |
| | | 3 | | 50,000 | 580 | 0.007 | 0.01 | 45,000 | 480 | 0.005 | 0.005 | 45,000 | 450 | 0.005 | 0.005 | 45,000 | 450 | 0.005 | 0.005 |
| | 1° | 3 | | 50,000 | 610 | 0.007 | 0.02 | 47,000 | 510 | 0.005 | 0.01 | 47,000 | 480 | 0.005 | 0.01 | 47,000 | 480 | 0.005 | 0.005 |
| | | 4 | | 50,000 | 580 | 0.007 | 0.01 | 45,000 | 480 | 0.005 | 0.005 | 45,000 | 450 | 0.005 | 0.005 | 45,000 | 450 | 0.005 | 0.005 |
| 0.2 | 0.5° | 2 | 0.3° | 50,000 | 970 | 0.015 | 0.04 | 50,000 | 800 | 0.01 | 0.02 | 50,000 | 760 | 0.01 | 0.02 | 50,000 | 760 | 0.01 | 0.01 |
| | | 3 | | 50,000 | 670 | 0.012 | 0.03 | 45,000 | 550 | 0.008 | 0.015 | 45,000 | 520 | 0.008 | 0.015 | 45,000 | 520 | 0.008 | 0.01 |
| | | 4 | | 48,000 | 540 | 0.007 | 0.02 | 43,000 | 500 | 0.005 | 0.01 | 43,000 | 470 | 0.005 | 0.01 | 43,000 | 470 | 0.005 | 0.01 |
| | | 5 | | 45,000 | 480 | 0.007 | 0.02 | 40,000 | 420 | 0.005 | 0.01 | 40,000 | 400 | 0.005 | 0.01 | 40,000 | 400 | 0.005 | 0.01 |
| | | 6 | | 40,000 | 400 | 0.007 | 0.01 | 36,000 | 370 | 0.005 | 0.005 | 36,000 | 350 | 0.005 | 0.005 | 35,000 | 340 | 0.005 | 0.005 |
| | 1° | 4 | | 50,000 | 670 | 0.012 | 0.03 | 45,000 | 550 | 0.008 | 0.015 | 45,000 | 520 | 0.008 | 0.015 | 45,000 | 520 | 0.008 | 0.01 |
| | | 5 | | 48,000 | 540 | 0.007 | 0.02 | 43,000 | 500 | 0.005 | 0.01 | 43,000 | 470 | 0.005 | 0.01 | 43,000 | 470 | 0.005 | 0.01 |
| | | 6 | | 45,000 | 480 | 0.007 | 0.02 | 40,000 | 420 | 0.005 | 0.01 | 40,000 | 400 | 0.005 | 0.01 | 40,000 | 400 | 0.005 | 0.01 |
| 0.25 | 0.5° | 4 | 0.3° | 50,000 | 1,200 | 0.015 | 0.04 | 48,000 | 900 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.015 |
| | | 6 | | 38,000 | 940 | 0.015 | 0.02 | 38,000 | 500 | 0.01 | 0.01 | 38,000 | 470 | 0.01 | 0.01 | 38,000 | 470 | 0.01 | 0.01 |
| | | 8 | | 30,000 | 760 | 0.007 | 0.02 | 30,000 | 400 | 0.005 | 0.01 | 30,000 | 380 | 0.005 | 0.01 | 29,000 | 360 | 0.005 | 0.01 |
| | | 10 | | 30,000 | 500 | 0.005 | 0.02 | 30,000 | 400 | 0.005 | 0.01 | 30,000 | 300 | 0.005 | 0.01 | 29,000 | 250 | 0.005 | 0.01 |
| | 1° | 4 | | 50,000 | 1,200 | 0.015 | 0.04 | 48,000 | 900 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.01 |
| | | 6 | | 50,000 | 1,200 | 0.015 | 0.04 | 48,000 | 900 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.01 |
| | | 8 | | 50,000 | 1,200 | 0.015 | 0.04 | 48,000 | 900 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.01 |
| | | 10 | | 30,000 | 760 | 0.007 | 0.02 | 30,000 | 400 | 0.005 | 0.01 | 30,000 | 380 | 0.005 | 0.01 | 29,000 | 360 | 0.005 | 0.01 |
| | | 12 | | 30,000 | 760 | 0.007 | 0.02 | 30,000 | 400 | 0.005 | 0.01 | 30,000 | 380 | 0.005 | 0.01 | 29,000 | 360 | 0.005 | 0.01 |
| 0.3 | 0.5° | 2 | 0.3° | 50,000 | 1,550 | 0.03 | 0.06 | 50,000 | 1,200 | 0.02 | 0.03 | 50,000 | 1,100 | 0.02 | 0.03 | 50,000 | 1,100 | 0.02 | 0.03 |
| | | 4 | | 50,000 | 1,350 | 0.03 | 0.06 | 45,000 | 1,000 | 0.02 | 0.03 | 45,000 | 950 | 0.02 | 0.03 | 45,000 | 950 | 0.02 | 0.03 |
| | | 6 | | 35,000 | 960 | 0.015 | 0.04 | 30,000 | 680 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 |
| | | 8 | | 30,000 | 720 | 0.015 | 0.04 | 26,000 | 600 | 0.01 | 0.02 | 26,000 | 570 | 0.01 | 0.02 | 25,000 | 540 | 0.01 | 0.02 |
| | | 10 | | 30,000 | 500 | 0.015 | 0.04 | 26,000 | 480 | 0.01 | 0.02 | 26,000 | 450 | 0.01 | 0.02 | 25,000 | 380 | 0.01 | 0.02 |
| | | 12 | | 30,000 | 500 | 0.01 | 0.04 | 26,000 | 480 | 0.007 | 0.02 | 26,000 | 450 | 0.007 | 0.02 | 25,000 | 380 | 0.007 | 0.01 |
| | | 16 | | 30,000 | 400 | 0.007 | 0.04 | 26,000 | 380 | 0.005 | 0.02 | 26,000 | 360 | 0.005 | 0.02 | 25,000 | 300 | 0.005 | 0.01 |
| | 1° | 4 | | 50,000 | 1,350 | 0.03 | 0.06 | 45,000 | 1,000 | 0.02 | 0.03 | 45,000 | 950 | 0.02 | 0.03 | 45,000 | 950 | 0.02 | 0.03 |
| | | 6 | | 35,000 | 960 | 0.015 | 0.04 | 30,000 | 680 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 |
| | | 8 | | 35,000 | 960 | 0.015 | 0.04 | 30,000 | 680 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 |
| | | 10 | | 30,000 | 720 | 0.015 | 0.04 | 26,000 | 600 | 0.01 | 0.02 | 26,000 | 570 | 0.01 | 0.02 | 25,000 | 540 | 0.01 | 0.02 |
| | | 12 | | 30,000 | 720 | 0.015 | 0.04 | 26,000 | 600 | 0.01 | 0.02 | 26,000 | 570 | 0.01 | 0.02 | 25,000 | 540 | 0.01 | 0.02 |
| | | 16 | | 30,000 | 500 | 0.015 | 0.04 | 26,000 | 480 | 0.01 | 0.02 | 26,000 | 450 | 0.01 | 0.02 | 25,000 | 380 | 0.01 | 0.02 |
| 0.4 | 0.5° | 4 | 0.3° | 50,000 | 1,750 | 0.06 | 0.16 | 48,000 | 1,600 | 0.04 | 0.08 | 48,000 | 1,500 | 0.04 | 0.06 | 48,000 | 1,500 | 0.04 | 0.04 |
| | | 6 | | 43,000 | 1,600 | 0.045 | 0.1 | 34,000 | 950 | 0.03 | 0.05 | 34,000 | 900 | 0.03 | 0.05 | 34,000 | 900 | 0.02 | 0.025 |
| | | 8 | | 32,000 | 1,250 | 0.045 | 0.1 | 30,000 | 800 | 0.03 | 0.05 | 30,000 | 760 | 0.03 | 0.05 | 30,000 | 760 | 0.02 | 0.025 |
| | | 12 | | 24,000 | 720 | 0.01 | 0.04 | 23,000 | 450 | 0.005 | 0.01 | 23,000 | 420 | 0.005 | 0.01 | 23,000 | 420 | 0.005 | 0.025 |
| | 1° | 8 | | 43,000 | 1,600 | 0.045 | 0.1 | 34,000 | 950 | 0.03 | 0.05 | 34,000 | 900 | 0.03 | 0.05 | 34,000 | 900 | 0.02 | 0.025 |
| | | 12 | | 32,000 | 1,250 | 0.045 | 0.1 | 30,000 | 800 | 0.03 | 0.05 | 30,000 | 760 | 0.03 | 0.05 | 30,000 | 760 | 0.02 | 0.025 |
| | | 16 | | 24,000 | 720 | 0.01 | 0.04 | 23,000 | 450 | 0.005 | 0.01 | 23,000 | 420 | 0.005 | 0.01 | 23,000 | 420 | 0.005 | 0.015 |

切込深さ Depth of Cut




次ページへ
RE 0.5～0.75 NEXT

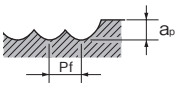
# WXL-PC-EBD
## 高速切削

HIGH-SPEED LIGHT MILLING

前ページより
FROM RE 0.1～0.4

| 被削材 Work Material | | | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C・NAK55 ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 部テーパ半角 θn | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.5 | 0.5° | 6 | 0.3° | 47,000 | 2,850 | 0.075 | 0.2 | 36,000 | 2,300 | 0.05 | 0.1 | 36,000 | 2,100 | 0.05 | 0.08 | 36,000 | 2,100 | 0.05 | 0.05 |
| | | 8 | | 30,000 | 2,350 | 0.075 | 0.15 | 27,000 | 1,700 | 0.05 | 0.1 | 27,000 | 1,600 | 0.05 | 0.08 | 27,000 | 1,600 | 0.05 | 0.05 |
| | | 10 | | 27,000 | 2,000 | 0.075 | 0.15 | 26,000 | 1,600 | 0.05 | 0.1 | 26,000 | 1,500 | 0.05 | 0.08 | 26,000 | 1,500 | 0.05 | 0.05 |
| | | 12 | | 24,000 | 1,400 | 0.015 | 0.04 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,000 | 0.01 | 0.05 | 21,000 | 950 | 0.01 | 0.02 |
| | | 16 | | 24,000 | 1,000 | 0.015 | 0.04 | 22,000 | 770 | 0.01 | 0.02 | 22,000 | 700 | 0.01 | 0.02 | 21,000 | 680 | 0.01 | 0.02 |
| | | 18 | | 24,000 | 1,000 | 0.01 | 0.04 | 22,000 | 770 | 0.007 | 0.02 | 22,000 | 700 | 0.007 | 0.02 | 21,000 | 680 | 0.007 | 0.02 |
| | | 20 | | 24,000 | 1,000 | 0.01 | 0.03 | 22,000 | 770 | 0.007 | 0.015 | 22,000 | 700 | 0.007 | 0.015 | 21,000 | 680 | 0.007 | 0.015 |
| | | 25 | | 20,000 | 800 | 0.01 | 0.03 | 18,000 | 600 | 0.007 | 0.015 | 18,000 | 480 | 0.007 | 0.015 | 17,000 | 550 | 0.007 | 0.015 |
| | | 30 | | 20,000 | 800 | 0.007 | 0.03 | 18,000 | 600 | 0.005 | 0.015 | 18,000 | 480 | 0.005 | 0.015 | 17,000 | 550 | 0.005 | 0.015 |
| | | 35 | | 15,000 | 550 | 0.005 | 0.03 | 14,000 | 450 | 0.005 | 0.01 | 12,000 | 400 | 0.005 | 0.01 | 11,000 | 350 | 0.005 | 0.01 |
| | 1° | 10 | | 30,000 | 2,350 | 0.075 | 0.15 | 27,000 | 1,700 | 0.05 | 0.1 | 27,000 | 1,600 | 0.05 | 0.05 | 27,000 | 1,600 | 0.05 | 0.05 |
| | | 16 | | 24,000 | 1,400 | 0.015 | 0.04 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,000 | 0.01 | 0.02 | 21,000 | 950 | 0.01 | 0.02 |
| | | 20 | | 24,000 | 1,000 | 0.015 | 0.04 | 22,000 | 770 | 0.01 | 0.02 | 22,000 | 700 | 0.01 | 0.02 | 21,000 | 680 | 0.01 | 0.015 |
| | | 25 | | 24,000 | 1,000 | 0.015 | 0.04 | 22,000 | 770 | 0.01 | 0.02 | 22,000 | 700 | 0.01 | 0.02 | 21,000 | 680 | 0.01 | 0.015 |
| | | 30 | | 24,000 | 1,000 | 0.01 | 0.04 | 22,000 | 770 | 0.007 | 0.02 | 22,000 | 700 | 0.007 | 0.02 | 21,000 | 680 | 0.007 | 0.015 |
| | | 35 | | 24,000 | 1,000 | 0.01 | 0.03 | 22,000 | 770 | 0.007 | 0.015 | 22,000 | 700 | 0.007 | 0.015 | 21,000 | 680 | 0.007 | 0.015 |
| | | 40 | | 22,000 | 1,000 | 0.01 | 0.03 | 20,000 | 770 | 0.007 | 0.015 | 20,000 | 700 | 0.007 | 0.015 | 19,000 | 680 | 0.007 | 0.015 |
| | | 50 | | 20,000 | 800 | 0.01 | 0.03 | 18,000 | 600 | 0.007 | 0.015 | 18,000 | 480 | 0.007 | 0.015 | 17,000 | 550 | 0.007 | 0.01 |
| | | 60 | | 18,000 | 800 | 0.007 | 0.03 | 16,000 | 600 | 0.005 | 0.015 | 16,000 | 480 | 0.005 | 0.015 | 15,000 | 550 | 0.005 | 0.015 |
| | | 70 | | 15,000 | 600 | 0.005 | 0.03 | 14,000 | 480 | 0.005 | 0.015 | 13,000 | 380 | 0.005 | 0.015 | 12,000 | 450 | 0.005 | 0.015 |
| | 1.5° | 8 | | 47,000 | 2,850 | 0.075 | 0.2 | 36,000 | 2,300 | 0.05 | 0.1 | 36,000 | 2,100 | 0.05 | 0.08 | 36,000 | 2,100 | 0.05 | 0.05 |
| | | 10 | | 30,000 | 2,350 | 0.075 | 0.15 | 27,000 | 1,700 | 0.05 | 0.1 | 27,000 | 1,600 | 0.05 | 0.08 | 27,000 | 1,600 | 0.05 | 0.05 |
| | | 12 | | 30,000 | 2,350 | 0.075 | 0.15 | 27,000 | 1,700 | 0.05 | 0.1 | 27,000 | 1,600 | 0.05 | 0.08 | 27,000 | 1,600 | 0.05 | 0.05 |
| | | 16 | | 24,000 | 1,400 | 0.015 | 0.04 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,000 | 0.01 | 0.02 | 21,000 | 950 | 0.01 | 0.02 |
| | | 20 | | 24,000 | 1,400 | 0.015 | 0.04 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,000 | 0.01 | 0.02 | 21,000 | 950 | 0.01 | 0.02 |
| | | 25 | | 24,000 | 1,400 | 0.015 | 0.04 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,000 | 0.01 | 0.02 | 21,000 | 950 | 0.01 | 0.02 |
| | | 30 | | 24,000 | 1,000 | 0.015 | 0.04 | 22,000 | 770 | 0.01 | 0.02 | 22,000 | 700 | 0.01 | 0.02 | 21,000 | 680 | 0.01 | 0.02 |
| | | 35 | | 24,000 | 1,000 | 0.015 | 0.04 | 22,000 | 770 | 0.01 | 0.02 | 22,000 | 700 | 0.01 | 0.02 | 21,000 | 680 | 0.01 | 0.02 |
| | 2° | 45 | | 24,000 | 1,400 | 0.015 | 0.04 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,000 | 0.01 | 0.02 | 21,000 | 950 | 0.01 | 0.02 |
| 0.6 | 0.5° | 12 | 0.3° | 30,000 | 2,000 | 0.09 | 0.21 | 25,000 | 1,700 | 0.06 | 0.12 | 25,000 | 1,600 | 0.06 | 0.1 | 25,000 | 1,600 | 0.06 | 0.06 |
| | | 25 | | 24,000 | 1,000 | 0.02 | 0.04 | 22,000 | 770 | 0.015 | 0.02 | 22,000 | 700 | 0.015 | 0.02 | 21,000 | 680 | 0.015 | 0.03 |
| | 1° | 12 | | 30,000 | 2,200 | 0.09 | 0.21 | 25,000 | 2,000 | 0.06 | 0.12 | 25,000 | 2,000 | 0.06 | 0.1 | 25,000 | 1,900 | 0.06 | 0.06 |
| | | 25 | | 30,000 | 2,000 | 0.04 | 0.21 | 25,000 | 1,700 | 0.06 | 0.09 | 25,000 | 1,600 | 0.06 | 0.05 | 25,000 | 1,600 | 0.02 | 0.03 |
| | 1.5° | 12 | | 30,000 | 2,200 | 0.09 | 0.21 | 25,000 | 2,000 | 0.06 | 0.12 | 25,000 | 2,000 | 0.06 | 0.1 | 25,000 | 1,900 | 0.06 | 0.06 |
| | | 25 | | 30,000 | 2,000 | 0.05 | 0.21 | 25,000 | 1,700 | 0.06 | 0.12 | 25,000 | 1,600 | 0.06 | 0.1 | 25,000 | 1,600 | 0.05 | 0.06 |
| 0.75 | 0.5° | 8 | 0.3° | 32,000 | 3,000 | 0.12 | 0.3 | 30,000 | 2,900 | 0.075 | 0.15 | 30,000 | 2,700 | 0.075 | 0.12 | 30,000 | 2,700 | 0.075 | 0.1 |
| | | 10 | | 30,000 | 2,650 | 0.12 | 0.3 | 24,000 | 2,300 | 0.075 | 0.15 | 24,000 | 2,100 | 0.075 | 0.12 | 24,000 | 2,100 | 0.075 | 0.1 |
| | | 12 | | 30,000 | 2,400 | 0.12 | 0.3 | 24,000 | 2,000 | 0.075 | 0.15 | 24,000 | 1,900 | 0.075 | 0.12 | 24,000 | 1,900 | 0.075 | 0.1 |
| | | 16 | | 24,000 | 1,400 | 0.12 | 0.2 | 21,000 | 1,400 | 0.075 | 0.1 | 21,000 | 1,300 | 0.075 | 0.09 | 21,000 | 1,300 | 0.05 | 0.06 |
| | | 20 | | 22,000 | 1,400 | 0.1 | 0.2 | 18,000 | 1,200 | 0.05 | 0.1 | 18,000 | 1,100 | 0.05 | 0.07 | 17,000 | 1,100 | 0.03 | 0.03 |
| | | 25 | | 22,000 | 1,100 | 0.1 | 0.2 | 18,000 | 1,000 | 0.05 | 0.1 | 18,000 | 900 | 0.05 | 0.07 | 17,000 | 900 | 0.02 | 0.03 |

切込深さ
Depth of Cut




1. 機械、ホルダは剛性の高いものをご使用下さい。剛性が低い場合は切削条件を抑えて下さい。
2. 工具の振れ精度を最小限に抑えてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. コーナ部切削や取り残し加工の際には、切込深さと送り速度を70%程度下げてご使用下さい。
5. CAMや機械側でコーナ部のR挿入もしくは減速を設定することで、より安定した高送り加工が可能となります。
6. コーナ部等切削負荷が変動する場合や加工精度を要求される場合には、回転速度を抑えてご使用下さい。
7. 推奨傾斜切込み角度以上で加工される場合には、送り速度を下げてご使用下さい。
8. 切削負荷が変動する場合や、加工精度を要求される場合には、上記よりも条件を抑えてご使用下さい。
9. 回転速度が表示より上がらない場合は、回転数を機械に合わせて落とした比率分の送り速度も落としてご使用下さい。
10. 上記の条件表は加工目安です。加工条件に合わせて加工条件の調節を行って下さい。
11. 切削条件は荒取り後の中引き加工を想定した条件になります。
12. 平坦部を含めた荒取り加工が多い場合、びびりが発生し易くなります。
13. 切込深さが小さい場合は、適正な切削速度になるよう回転速度を上げてびびりを抑制下さい。

1. Highly rigid machines and tool holders should be used. If not, machining should be kept below above-mentioned conditions.
2. Tool vibrations should be kept at a minimum level for maximum accuracy.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. For the milling of corners or removal of residue, reduce the cutting depth and feed to 70%.
5. More stable high-feed machining in corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
6. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
7. When cutting at greater than the recommended cutting angle, reduce the feed.
8. When cutting load is fluctuating, or when higher milling accuracy is required, keep machining conditions below the above-mentioned values.
9. When the rotational speed does not meet the recommended conditions, reduce the feed in proportion to the RPM that is suitable for your machine.
10. The chart above is intended as general guidelines for reference only. The given values should be adjusted individually based on actual machining conditions.
11. The cutting conditions are intended for intermediate machining after roughing.
12. When the work includes extensive roughing including flat areas, chattering is more likely to occur.
13. If the cutting depth is shallow, increase the cutting speed appropriately to minimize chattering.

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RE 0.75～1.5 NEXT

形状寸法表
SPECIFICATION CHARTS
WXL-PC-EBD▶P360

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

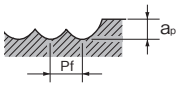
## WXL-PC-EBD
## 高速切削

HIGH-SPEED LIGHT MILLING

前ページより
FROM RE 0.5～0.75

| 被削材 Work Material | | | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C・NAK55 ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 刃部テーパ半角 θn | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 0.75 | 0.5° | 30 | 0.3° | 22,000 | 1,100 | 0.075 | 0.2 | 18,000 | 1,000 | 0.035 | 0.1 | 18,000 | 900 | 0.035 | 0.07 | 17,000 | 900 | 0.01 | 0.03 |
| | | 35 | | 20,000 | 1,000 | 0.05 | 0.2 | 17,000 | 9,000 | 0.03 | 0.1 | 17,000 | 800 | 0.03 | 0.07 | 15,000 | 800 | 0.01 | 0.03 |
| | 1° | 10 | | 32,000 | 3,000 | 0.12 | 0.3 | 30,000 | 2,900 | 0.075 | 0.15 | 30,000 | 2,700 | 0.075 | 0.12 | 30,000 | 2,700 | 0.075 | 0.1 |
| | | 12 | | 30,000 | 2,650 | 0.12 | 0.3 | 24,000 | 2,300 | 0.075 | 0.15 | 24,000 | 2,100 | 0.075 | 0.12 | 24,000 | 2,100 | 0.075 | 0.1 |
| | | 16 | | 30,000 | 2,400 | 0.12 | 0.3 | 24,000 | 2,000 | 0.075 | 0.15 | 24,000 | 1,900 | 0.075 | 0.12 | 24,000 | 1,900 | 0.075 | 0.1 |
| | | 20 | | 24,000 | 1,400 | 0.12 | 0.2 | 21,000 | 1,400 | 0.075 | 0.1 | 21,000 | 1,300 | 0.075 | 0.09 | 21,000 | 1,300 | 0.05 | 0.06 |
| | | 25 | | 22,000 | 1,400 | 0.1 | 0.2 | 18,000 | 1,200 | 0.05 | 0.1 | 18,000 | 1,100 | 0.05 | 0.09 | 17,000 | 1,100 | 0.05 | 0.06 |
| | | 30 | | 22,000 | 1,400 | 0.07 | 0.2 | 18,000 | 1,200 | 0.05 | 0.1 | 18,000 | 1,100 | 0.05 | 0.07 | 17,000 | 1,100 | 0.03 | 0.03 |
| | | 35 | | 22,000 | 1,100 | 0.07 | 0.2 | 18,000 | 1,000 | 0.05 | 0.1 | 18,000 | 900 | 0.05 | 0.07 | 17,000 | 900 | 0.02 | 0.03 |
| | 1.5° | 10 | | 32,000 | 3,000 | 0.12 | 0.3 | 30,000 | 2,900 | 0.075 | 0.15 | 30,000 | 2,700 | 0.075 | 0.12 | 30,000 | 2,700 | 0.075 | 0.1 |
| | | 12 | | 32,000 | 3,000 | 0.12 | 0.3 | 30,000 | 2,900 | 0.075 | 0.15 | 30,000 | 2,700 | 0.075 | 0.12 | 30,000 | 2,700 | 0.075 | 0.1 |
| | | 16 | | 30,000 | 2,400 | 0.12 | 0.3 | 24,000 | 2,000 | 0.075 | 0.15 | 24,000 | 1,900 | 0.075 | 0.12 | 24,000 | 1,900 | 0.075 | 0.1 |
| | | 20 | | 30,000 | 2,400 | 0.12 | 0.3 | 24,000 | 2,000 | 0.075 | 0.15 | 24,000 | 1,900 | 0.075 | 0.12 | 24,000 | 1,900 | 0.08 | 0.1 |
| | | 25 | | 24,000 | 1,400 | 0.1 | 0.2 | 21,000 | 1,400 | 0.075 | 0.1 | 21,000 | 1,300 | 0.075 | 0.09 | 21,000 | 1,300 | 0.05 | 0.06 |
| | | 30 | | 24,000 | 1,400 | 0.1 | 0.2 | 21,000 | 1,400 | 0.075 | 0.1 | 21,000 | 1,300 | 0.075 | 0.09 | 21,000 | 1,300 | 0.05 | 0.06 |
| | | 35 | | 22,000 | 1,400 | 0.05 | 0.2 | 18,000 | 1,200 | 0.05 | 0.1 | 18,000 | 1,100 | 0.05 | 0.07 | 17,000 | 1,100 | 0.02 | 0.03 |
| | 2° | 38.6 | | 24,000 | 1,400 | 0.1 | 0.2 | 21,000 | 1,400 | 0.075 | 0.1 | 21,000 | 1,300 | 0.075 | 0.09 | 21,000 | 1,300 | 0.05 | 0.06 |
| 1 | 0.5° | 8 | 0.3° | 27,000 | 3,350 | 0.15 | 0.4 | 25,000 | 2,600 | 0.1 | 0.2 | 25,000 | 2,400 | 0.1 | 0.2 | 23,000 | 2,200 | 0.1 | 0.2 |
| | | 10 | | 22,000 | 3,050 | 0.15 | 0.4 | 20,000 | 2,400 | 0.1 | 0.2 | 20,000 | 2,200 | 0.1 | 0.2 | 19,000 | 2,000 | 0.1 | 0.2 |
| | | 12 | | 22,000 | 3,050 | 0.15 | 0.4 | 20,000 | 2,400 | 0.1 | 0.2 | 20,000 | 2,200 | 0.1 | 0.2 | 19,000 | 2,000 | 0.1 | 0.2 |
| | | 16 | | 15,000 | 2,400 | 0.15 | 0.3 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 | 14,000 | 1,500 | 0.1 | 0.2 |
| | | 20 | | 15,000 | 2,200 | 0.15 | 0.2 | 14,000 | 1,700 | 0.1 | 0.1 | 14,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,400 | 0.1 | 0.1 |
| | | 25 | | 12,000 | 1,200 | 0.1 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 11,000 | 1,100 | 0.05 | 0.1 | 10,000 | 1,000 | 0.05 | 0.1 |
| | | 30 | | 12,000 | 1,000 | 0.1 | 0.2 | 12,000 | 1,000 | 0.05 | 0.1 | 11,000 | 900 | 0.05 | 0.1 | 10,000 | 800 | 0.05 | 0.1 |
| | | 35 | | 12,000 | 1,000 | 0.075 | 0.2 | 12,000 | 1,000 | 0.03 | 0.1 | 11,000 | 900 | 0.03 | 0.1 | 10,000 | 800 | 0.03 | 0.1 |
| | | 40 | | 12,000 | 800 | 0.05 | 0.2 | 12,000 | 800 | 0.02 | 0.1 | 11,000 | 800 | 0.02 | 0.1 | 10,000 | 700 | 0.02 | 0.1 |
| | 1° | 16 | | 22,000 | 3,050 | 0.15 | 0.4 | 20,000 | 2,400 | 0.1 | 0.2 | 20,000 | 2,200 | 0.1 | 0.2 | 19,000 | 2,000 | 0.1 | 0.2 |
| | | 20 | | 15,000 | 2,400 | 0.15 | 0.3 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 | 14,000 | 1,500 | 0.1 | 0.2 |
| | | 25 | | 15,000 | 2,200 | 0.15 | 0.2 | 14,000 | 1,700 | 0.1 | 0.1 | 14,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,400 | 0.1 | 0.1 |
| | | 30 | | 14,000 | 2,200 | 0.15 | 0.2 | 14,000 | 1,700 | 0.1 | 0.1 | 14,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,400 | 0.07 | 0.1 |
| | | 35 | | 12,000 | 1,200 | 0.1 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 11,000 | 1,100 | 0.05 | 0.1 | 10,000 | 1,000 | 0.05 | 0.1 |
| | | 40 | | 12,000 | 1,000 | 0.1 | 0.2 | 12,000 | 1,000 | 0.05 | 0.1 | 11,000 | 900 | 0.05 | 0.1 | 10,000 | 800 | 0.05 | 0.1 |
| | | 50 | | 12,000 | 1,000 | 0.075 | 0.2 | 12,000 | 1,000 | 0.03 | 0.1 | 11,000 | 900 | 0.03 | 0.1 | 10,000 | 800 | 0.03 | 0.1 |
| | | 60 | | 12,000 | 800 | 0.05 | 0.2 | 12,000 | 800 | 0.02 | 0.1 | 11,000 | 800 | 0.02 | 0.1 | 10,000 | 700 | 0.02 | 0.1 |
| | | 70 | | 12,000 | 800 | 0.03 | 0.1 | 12,000 | 800 | 0.01 | 0.05 | 11,000 | 800 | 0.01 | 0.05 | 10,000 | 700 | 0.01 | 0.05 |
| | 1.5° | 16 | | 22,000 | 3,050 | 0.2 | 0.4 | 20,000 | 2,400 | 0.1 | 0.2 | 20,000 | 2,200 | 0.1 | 0.2 | 19,000 | 2,000 | 0.1 | 0.2 |
| | | 20 | | 22,000 | 3,050 | 0.2 | 0.4 | 20,000 | 2,400 | 0.1 | 0.2 | 20,000 | 2,200 | 0.1 | 0.2 | 19,000 | 2,000 | 0.1 | 0.2 |
| | | 25 | | 15,000 | 2,400 | 0.15 | 0.3 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 | 14,000 | 1,500 | 0.1 | 0.2 |
| | | 30 | | 15,000 | 2,200 | 0.15 | 0.2 | 14,000 | 1,700 | 0.1 | 0.1 | 14,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,400 | 0.1 | 0.1 |
| | | 35 | | 15,000 | 2,200 | 0.15 | 0.2 | 14,000 | 1,700 | 0.1 | 0.1 | 14,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,400 | 0.1 | 0.1 |
| | | 41.4 | | 12,000 | 1,200 | 0.1 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 11,000 | 1,100 | 0.05 | 0.1 | 10,000 | 1,000 | 0.05 | 0.1 |
| | 2° | 31.5 | | 15,000 | 2,400 | 0.15 | 0.3 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 | 14,000 | 1,500 | 0.1 | 0.2 |
| 1.5 | 0.5° | 8 | 0.3° | 32,000 | 4,600 | 0.2 | 0.6 | 30,000 | 4,500 | 0.15 | 0.3 | 30,000 | 4,200 | 0.15 | 0.3 | 25,000 | 3,500 | 0.15 | 0.3 |
| | | 10 | | 28,000 | 4,000 | 0.2 | 0.6 | 25,000 | 3,800 | 0.15 | 0.3 | 25,000 | 3,600 | 0.15 | 0.3 | 20,000 | 2,800 | 0.15 | 0.3 |
| | | 12 | | 28,000 | 4,000 | 0.2 | 0.6 | 25,000 | 3,800 | 0.15 | 0.3 | 25,000 | 3,600 | 0.15 | 0.3 | 20,000 | 2,800 | 0.15 | 0.3 |
| | | 16 | | 22,000 | 2,900 | 0.2 | 0.6 | 18,000 | 2,700 | 0.15 | 0.3 | 18,000 | 2,500 | 0.15 | 0.3 | 15,000 | 2,000 | 0.15 | 0.3 |
| | | 20 | | 20,000 | 2,600 | 0.15 | 0.4 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 1,900 | 0.1 | 0.2 | 13,000 | 1,500 | 0.1 | 0.2 |
| | | 25 | | 16,000 | 2,200 | 0.15 | 0.4 | 14,000 | 1,800 | 0.1 | 0.2 | 14,000 | 1,700 | 0.1 | 0.2 | 11,000 | 1,300 | 0.1 | 0.2 |
| | | 30 | | 16,000 | 1,800 | 0.125 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,100 | 0.05 | 0.1 | 9,000 | 820 | 0.05 | 0.1 |
| | | 35 | | 12,000 | 1,000 | 0.075 | 0.1 | 10,000 | 800 | 0.03 | 0.05 | 9,000 | 760 | 0.03 | 0.05 | 7,800 | 590 | 0.03 | 0.05 |
| | | 40 | | 12,000 | 800 | 0.075 | 0.1 | 10,000 | 600 | 0.03 | 0.05 | 9,000 | 600 | 0.03 | 0.05 | 7,800 | 480 | 0.03 | 0.05 |
| | | 50 | | 10,000 | 650 | 0.05 | 0.1 | 8,000 | 500 | 0.02 | 0.05 | 7,500 | 500 | 0.02 | 0.05 | 6,200 | 400 | 0.02 | 0.05 |

切込深さ Depth of Cut




次ページへ
RE 1.5～6 NEXT

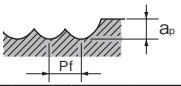
# WXL-PC-EBD
## 高速切削

HIGH-SPEED LIGHT MILLING

前ページより
FROM RE 0.75～1.5

| 被削材 Work Material | | | | 銅・銅合金 Copper・Copper Alloy | | | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel FC250・SS400・S55C・NAK55 ～32HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 33～41HRC | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD61・NAK55・NAK80・HPM1・DH** 42～50HRC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE | 部テーパ半角 θn | 首下長 LU | 推奨傾斜切込角度 Recommended Cutting Angle | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 切込深さ(mm) Depth of Cut ap | Pf |
| 1.5 | 1° | 20 | 0.3° | 22,000 | 2,900 | 0.2 | 0.6 | 18,000 | 2,700 | 0.15 | 0.3 | 18,000 | 2,500 | 0.15 | 0.3 | 15,000 | 2,000 | 0.15 | 0.3 |
| | | 25 | | 20,000 | 2,600 | 0.2 | 0.4 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 1,900 | 0.1 | 0.2 | 13,000 | 1,500 | 0.1 | 0.2 |
| | | 30 | | 16,000 | 2,200 | 0.2 | 0.4 | 14,000 | 1,800 | 0.1 | 0.2 | 14,000 | 1,700 | 0.1 | 0.2 | 11,000 | 1,300 | 0.1 | 0.2 |
| | | 35 | | 16,000 | 1,800 | 0.125 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,100 | 0.05 | 0.1 | 9,000 | 820 | 0.05 | 0.1 |
| | | 40 | | 16,000 | 1,800 | 0.125 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,100 | 0.05 | 0.1 | 9,000 | 820 | 0.05 | 0.1 |
| | | 50 | | 12,000 | 1,000 | 0.075 | 0.1 | 10,000 | 800 | 0.03 | 0.05 | 9,000 | 760 | 0.03 | 0.05 | 7,800 | 590 | 0.03 | 0.05 |
| | | 60 | | 12,000 | 800 | 0.075 | 0.1 | 10,000 | 600 | 0.03 | 0.05 | 9,000 | 600 | 0.03 | 0.05 | 7,800 | 480 | 0.03 | 0.05 |
| | | 70 | | 10,000 | 650 | 0.05 | 0.1 | 8,000 | 500 | 0.02 | 0.05 | 7,500 | 500 | 0.02 | 0.05 | 6,200 | 400 | 0.02 | 0.05 |
| | 1.5° | 20 | | 22,000 | 2,900 | 0.25 | 0.6 | 18,000 | 2,700 | 0.15 | 0.3 | 18,000 | 2,500 | 0.15 | 0.3 | 15,000 | 2,000 | 0.15 | 0.3 |
| | | 25 | | 20,000 | 2,600 | 0.2 | 0.4 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 1,900 | 0.1 | 0.2 | 13,000 | 1,500 | 0.1 | 0.2 |
| | | 30 | | 20,000 | 2,600 | 0.2 | 0.4 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 1,900 | 0.1 | 0.2 | 13,000 | 1,500 | 0.1 | 0.2 |
| | | 35 | | 16,000 | 2,200 | 0.2 | 0.4 | 14,000 | 1,800 | 0.1 | 0.2 | 14,000 | 1,700 | 0.1 | 0.2 | 11,000 | 1,300 | 0.1 | 0.2 |
| | | 40 | | 16,000 | 2,200 | 0.2 | 0.4 | 14,000 | 1,800 | 0.1 | 0.2 | 14,000 | 1,700 | 0.1 | 0.2 | 11,000 | 1,300 | 0.1 | 0.2 |
| | | 50 | | 16,000 | 1,800 | 0.125 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,100 | 0.05 | 0.1 | 9,000 | 820 | 0.05 | 0.1 |
| | | 62.5 | | 12,000 | 1,000 | 0.075 | 0.1 | 10,000 | 800 | 0.03 | 0.05 | 9,000 | 760 | 0.03 | 0.05 | 7,800 | 590 | 0.03 | 0.05 |
| | 2° | 47.5 | | 16,000 | 2,200 | 0.25 | 0.4 | 14,000 | 1,800 | 0.1 | 0.2 | 14,000 | 1,700 | 0.1 | 0.2 | 11,000 | 1,300 | 0.1 | 0.2 |
| 2 | 1° | 20 | 0.5° | 20,000 | 3,450 | 0.4 | 0.6 | 18,000 | 3,200 | 0.2 | 0.5 | 18,000 | 3,000 | 0.2 | 0.5 | 14,000 | 2,300 | 0.2 | 0.4 |
| | | 30 | | 18,000 | 3,000 | 0.4 | 0.5 | 16,000 | 2,800 | 0.2 | 0.4 | 16,000 | 2,600 | 0.2 | 0.4 | 12,000 | 1,900 | 0.2 | 0.4 |
| | | 40 | | 18,000 | 3,000 | 0.25 | 0.6 | 16,000 | 2,800 | 0.1 | 0.3 | 16,000 | 2,600 | 0.1 | 0.3 | 12,000 | 1,900 | 0.1 | 0.3 |
| | | 50 | | 14,000 | 2,200 | 0.25 | 0.4 | 12,000 | 1,800 | 0.1 | 0.2 | 12,000 | 1,700 | 0.1 | 0.2 | 9,000 | 1,700 | 0.1 | 0.2 |
| | | 60 | | 16,000 | 1,800 | 0.125 | 0.2 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,100 | 0.05 | 0.1 | 9,000 | 820 | 0.05 | 0.1 |
| | 1.5° | 44.2 | | 18,000 | 3,000 | 0.25 | 0.6 | 16,000 | 2,800 | 0.1 | 0.3 | 16,000 | 2,600 | 0.1 | 0.3 | 12,000 | 1,900 | 0.1 | 0.3 |
| | 2° | 34 | | 20,000 | 3,450 | 0.4 | 0.6 | 18,000 | 3,200 | 0.2 | 0.5 | 18,000 | 3,000 | 0.2 | 0.5 | 14,000 | 2,300 | 0.2 | 0.5 |
| 2.5 | 1° | 30 | 0.5° | 20,000 | 3,400 | 0.4 | 0.75 | 15,000 | 3,200 | 0.2 | 0.3 | 15,000 | 3,000 | 0.2 | 0.3 | 12,000 | 2,400 | 0.2 | 0.3 |
| | | 40 | | 16,000 | 2,900 | 0.25 | 0.75 | 14,000 | 2,500 | 0.1 | 0.3 | 14,000 | 2,300 | 0.1 | 0.3 | 11,000 | 1,800 | 0.1 | 0.3 |
| | | 60 | | 12,000 | 1,800 | 0.25 | 0.5 | 10,000 | 1,200 | 0.1 | 0.2 | 10,000 | 1,100 | 0.1 | 0.2 | 8,000 | 880 | 0.1 | 0.2 |
| | 1.5° | 26.9 | | 18,000 | 3,800 | 0.5 | 1.25 | 16,000 | 3,500 | 0.25 | 0.5 | 16,000 | 3,300 | 0.25 | 0.5 | 12,000 | 2,400 | 0.25 | 0.5 |
| | | 65.1 | | 14,000 | 2,200 | 0.25 | 0.75 | 12,000 | 1,600 | 0.1 | 0.3 | 12,000 | 1,500 | 0.1 | 0.3 | 9,000 | 1,100 | 0.1 | 0.3 |
| | 2° | 50.1 | | 16,000 | 2,900 | 0.25 | 0.75 | 14,000 | 2,500 | 0.1 | 0.3 | 14,000 | 2,300 | 0.1 | 0.3 | 11,000 | 1,800 | 0.1 | 0.3 |
| 3 | 1° | 30 | 0.5° | 14,000 | 4,000 | 0.6 | 1.25 | 12,000 | 3,200 | 0.3 | 0.5 | 12,000 | 3,000 | 0.3 | 0.5 | 9,000 | 2,250 | 0.3 | 0.5 |
| | | 40 | | 10,000 | 3,200 | 0.6 | 1.25 | 10,000 | 2,600 | 0.3 | 0.5 | 10,000 | 2,400 | 0.3 | 0.5 | 8,000 | 1,900 | 0.3 | 0.5 |
| | | 50 | | 9,000 | 3,000 | 0.4 | 1 | 9,000 | 2,300 | 0.2 | 0.4 | 9,000 | 2,100 | 0.2 | 0.4 | 7,000 | 1,600 | 0.2 | 0.4 |
| | | 60 | | 9,000 | 2,800 | 0.4 | 0.75 | 9,000 | 2,000 | 0.2 | 0.3 | 9,000 | 1,900 | 0.2 | 0.3 | 7,000 | 1,400 | 0.2 | 0.3 |
| | | 70 | | 7,000 | 2,300 | 0.4 | 0.75 | 7,000 | 1,600 | 0.2 | 0.3 | 7,000 | 1,500 | 0.2 | 0.3 | 5,500 | 1,100 | 0.2 | 0.3 |
| | | 80 | | 6,000 | 2,000 | 0.3 | 0.75 | 6,000 | 1,300 | 0.15 | 0.3 | 6,000 | 1,200 | 0.15 | 0.3 | 5,000 | 900 | 0.15 | 0.3 |
| | 1.5° | 49 | | 10,000 | 3,200 | 0.6 | 1.25 | 10,000 | 2,600 | 0.3 | 0.5 | 10,000 | 2,400 | 0.3 | 0.5 | 8,000 | 1,900 | 0.3 | 0.5 |
| | 2° | 36 | | 14,000 | 4,000 | 0.6 | 1.25 | 12,000 | 3,200 | 0.3 | 0.5 | 12,000 | 3,000 | 0.3 | 0.5 | 9,000 | 2,250 | 0.3 | 0.5 |
| 4 | 3° | 35.5 | 0.5° | 9,500 | 3,000 | 0.8 | 1.2 | 8,000 | 2,200 | 0.4 | 0.6 | 8,000 | 2,000 | 0.4 | 0.6 | 7,200 | 1,500 | 0.4 | 0.6 |
| | 1.5° | 54.5 | | 8,000 | 2,500 | 0.8 | 1.2 | 7,200 | 2,000 | 0.4 | 0.6 | 7,200 | 1,800 | 0.4 | 0.6 | 6,400 | 1,400 | 0.4 | 0.6 |
| 5 | 3° | 39.5 | 0.5° | 7,600 | 2,700 | 1 | 1.5 | 6,400 | 2,000 | 0.5 | 0.8 | 6,400 | 1,800 | 0.5 | 0.8 | 5,700 | 1,400 | 0.5 | 0.8 |
| | 1.5° | 58.5 | | 6,400 | 2,300 | 1 | 1.5 | 5,700 | 1,800 | 0.5 | 0.8 | 5,700 | 1,600 | 0.5 | 0.8 | 5,100 | 1,300 | 0.5 | 0.8 |
| 6 | 3° | 60 | 0.5° | 6,400 | 2,500 | 1.2 | 1.8 | 5,300 | 1,900 | 0.6 | 0.96 | 5,300 | 1,700 | 0.6 | 0.96 | 4,800 | 1,300 | 0.6 | 0.96 |
| | 1.5° | 80 | | 5,300 | 2,100 | 1.2 | 1.8 | 4,700 | 1,700 | 0.6 | 0.96 | 4,700 | 1,500 | 0.6 | 0.96 | 4,200 | 1,200 | 0.6 | 0.96 |

切込深さ Depth of Cut




1. 機械、ホルダは剛性の高いものをご使用下さい。剛性が低い場合は切削条件を抑えて下さい。
2. 工具の振れ精度を最小限に抑えてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. コーナ部切削や取り残し加工の際には、切込深さと送り速度を70%程度下げてご使用下さい。
5. CAMや機械側でコーナ部のR挿入もしくは減速を設定することで、より安定した高送り加工が可能となります。
6. コーナ部等切削負荷が変動する場合や加工精度を要求される場合には、回転速度を抑えてご使用下さい。
7. 推奨傾斜切込み角度以上で加工される場合には、送り速度を下げてご使用下さい。
8. 切削負荷が変動する場合や、加工精度を要求される場合には、上記よりも条件を抑えてご使用下さい。
9. 回転速度が表示より上がらない場合は、回転数を機械に合わせて落とした比率分の送り速度も落としてご使用下さい。
10. 上記の条件表は加工目安です。加工条件に合わせて加工条件の調節を行って下さい。
11. 切削条件は荒取り後の中引き加工を想定した条件になります。
12. 平坦部を含めた荒取り加工が多い場合、びびりが発生し易くなります。
13. 切込深さが小さい場合は、適正な切削速度になるよう回転速度を上げてびびりを抑制下さい。

1. Highly rigid machines and tool holders should be used. If not, machining should be kept below above-mentioned conditions.
2. Tool vibrations should be kept at a minimum level for maximum accuracy.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. For the milling of corners or removal of residue, reduce the cutting depth and feed to 70%.
5. More stable high-feed machining in corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
6. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
7. When cutting at greater than the recommended cutting angle, reduce the feed.
8. When cutting load is fluctuating, or when higher milling accuracy is required, keep machining conditions below the above-mentioned values.
9. When the rotational speed does not meet the recommended conditions, reduce the feed in proportion to the RPM that is suitable for your machine.
10. The chart above is intended as general guidelines for reference only. The given values should be adjusted individually based on actual machining conditions.
11. The cutting conditions are intended for intermediate machining after roughing.
12. When the work includes extensive roughing including flat areas, chattering is more likely to occur.
13. If the cutting depth is shallow, increase the cutting speed appropriately to minimize chattering.

形状寸法表
SPECIFICATION CHARTS
VU-TBR▶P445

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## VU-TBR
## 外周R（RE2）使用

USING PERIPHERAL EDGE R (RE2)

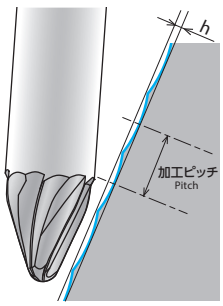
| 被削材 Work Material | 炭素鋼・合金鋼 Carbon Steel・Alloy Steel S55C・SCM・SKT (～30HRC) | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD・NAK55・HPM1 (30～45HRC) | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel (45～55HRC) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE1×RE2×α/2 | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 加工ピッチ Pitch | 切込深さ Depth of Cut (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 加工ピッチ Pitch | 切込深さ Depth of Cut (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 加工ピッチ Pitch | 切込深さ Depth of Cut (mm) |
| R0.5×R150×20° | 10,700 | 3,400 | カスプハイト量による（下図参照） Based on cusp height (See chart below) | 0.3 | 8,800 | 2,500 | カスプハイト量による（下図参照） Based on cusp height (See chart below) | 0.3 | 6,800 | 1,600 | カスプハイト量による（下図参照） Based on cusp height (See chart below) | 0.3 |
| R1 ×R150×20° | 7,300 | 2,300 | | 0.3 | 6,000 | 1,700 | | 0.3 | 4,700 | 1,100 | | 0.3 |
| R1.5×R300×20° | 5,600 | 1,800 | | 0.3 | 4,600 | 1,300 | | 0.3 | 3,600 | 900 | | 0.3 |
| R2 ×R300×20° | 4,500 | 2,200 | | 0.3 | 3,700 | 1,600 | | 0.3 | 2,900 | 1,000 | | 0.3 |
| R2.5×R500×20° | 3,400 | 1,600 | | 0.3 | 2,800 | 1,200 | | 0.3 | 2,200 | 800 | | 0.3 |
| R3 ×R500×20° | 3,300 | 1,600 | | 0.3 | 2,700 | 1,100 | | 0.3 | 2,100 | 800 | | 0.3 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨します。
3. 「外周R（RE2）使用」は外周刃R中間位置を使用する際の目安です。
   加工形状、機械剛性、ワーク、保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 回転速度を変更する場合、回転速度と送り速度を同じ比率で変更下さい。

1. Use a rigid and precise machine and holder.
2. Use a coolant with low air-blow or fuming property according to the work material. MQL (oil mist coolant) is recommended for cutting hardened steels.
3. "Using peripheral edge R (RE2)" is the guide to use the intermediate position of peripheral edge R. Please adjust the rotation speed, feed rate and cutting pitch based on the cutting shape, machine rigidity, workpiece and holding conditions.
4. When chattering, vibration or abnormal cutting noise occurs, please adjust the rotation speed, feed rate and cutting pitch.
5. In order to change the feed rotation speed, both the rotation speed and the feed rate should be changed at the same ratio.

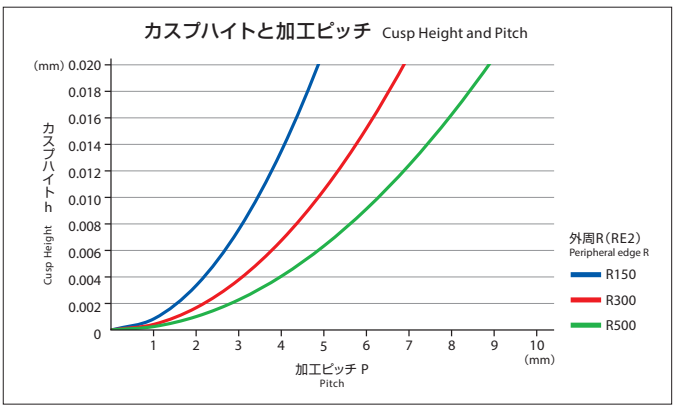
### ■理論上のカスプハイト Theoretical Cusp Height

**テーパバレル型（VU-TBR）** Taper Barrel Type




$$h = 0.5 \times \left(2 \times RE2 - \sqrt{(2 \times RE2)^2 - P^2}\right)$$

h：カスプハイト Cusp height　P：加工ピッチ Pitch　RE2：外周R Peripheral edge R



# VU-TBR
## 先端R（RE1）使用

USING TIP R (RE1)

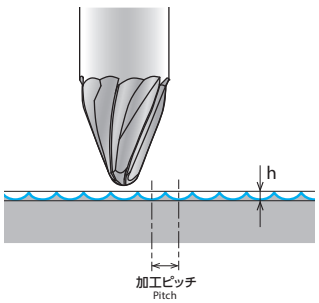
| 被削材 Work Material | 炭素鋼・合金鋼 Carbon Steel・Alloy Steel S55C・SCM・SKT （～30HRC） | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT・SKD・NAK55・HPM1 （30～45HRC） | | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel （45～55HRC） | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RE1×RE2×α/2 | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 加工ピッチ Pitch | 切込深さ Depth of Cut (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 加工ピッチ Pitch | 切込深さ Depth of Cut (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 加工ピッチ Pitch | 切込深さ Depth of Cut (mm) |
| R0.5×R150×20° | 19,500 | 6,200 | カスプハイト量による（下図参照） Based on cusp height (See chart below) | ～0.1 | 15,600 | 4,400 | カスプハイト量による（下図参照） Based on cusp height (See chart below) | ～0.1 | 13,600 | 3,300 | カスプハイト量による（下図参照） Based on cusp height (See chart below) | ～0.1 |
| R1 ×R150×20° | 13,300 | 4,300 | | ～0.2 | 10,700 | 3,000 | | ～0.2 | 9,300 | 2,200 | | ～0.2 |
| R1.5×R300×20° | 10,300 | 3,300 | | ～0.25 | 8,200 | 2,300 | | ～0.25 | 7,200 | 1,700 | | ～0.25 |
| R2 ×R300×20° | 8,300 | 4,000 | | ～0.3 | 6,600 | 2,800 | | ～0.3 | 5,800 | 2,100 | | ～0.3 |
| R2.5×R500×20° | 6,300 | 3,000 | | ～0.3 | 5,000 | 2,100 | | ～0.3 | 4,400 | 1,600 | | ～0.3 |
| R3 ×R500×20° | 6,000 | 2,900 | | ～0.3 | 4,800 | 2,000 | | ～0.3 | 4,200 | 1,500 | | ～0.3 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
   調質鋼の切削では、MQL（オイルミストクーラント）を推奨します。
3. 「先端R（RE1）使用」は先端Rを使用する際の目安です。
   加工形状、機械剛性、ワーク、保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 回転速度を変更する場合、回転速度と送り速度を同じ比率で変更下さい。

1. Use a rigid and precise machine and holder.
2. Use a coolant with low air-blow or fuming property according to the work material. MQL (oil mist coolant) is recommended for cutting hardened steels.
3. "Using tip R (RE1)" is the guide to use the tip R. Please adjust the rotation speed, feed rate and cutting pitch based on the cutting shape, machine rigidity, workpiece and holding conditions.
4. When chattering, vibration or abnormal cutting noise occurs, please adjust the rotation speed, feed rate and cutting pitch.
5. In order to change the rotation speed, both the rotation speed and the feed rate should be changed at the same ratio.

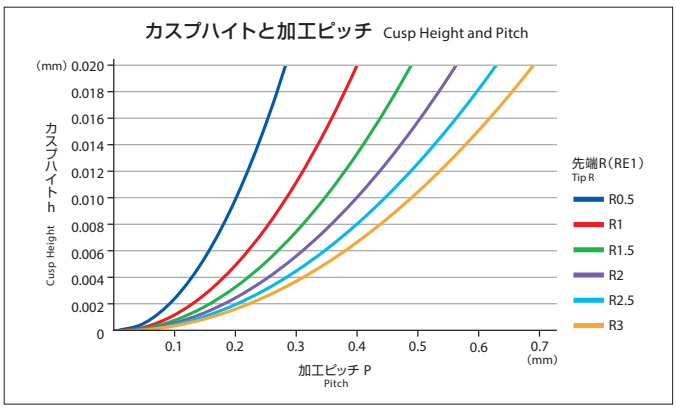
## ■理論上のカスプハイト Theoretical Cusp Height

### テーパバレル型（VU-TBR） Taper Barrel Type




$$h = 0.5 \times \left(2 \times RE1 - \sqrt{(2 \times RE1)^2 - P^2}\right)$$

h：カスプハイト Cusp height　P：加工ピッチ Pitch　RE1：先端R Tip R

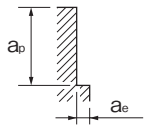


形状寸法表
SPECIFICATION CHARTS
WXL-REBM▶P438-3

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXL-REBM
### 側面切削 SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼(30～38HRC)・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼(38～45HRC) Hardened Steel SKD | | ステンレス鋼 Stainless Steel SUS304 | | チタン合金 Titanium Alloy Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100～140m/min | | 80～120m/min | | 70～100m/min | | 50～80m/min | | 35～65m/min | | 35～65m/min | | 30～50m/min | |
| ボール半径×外径 RE×DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R3 × 6 | 6,350 | 600 | 5,300 | 510 | 4,500 | 280 | 3,450 | 220 | 2,650 | 160 | 2,650 | 160 | 1,800 | 90 |
| R4 × 8 | 4,750 | 600 | 4,000 | 510 | 3,400 | 320 | 2,600 | 240 | 2,000 | 190 | 2,000 | 190 | 1,350 | 120 |
| R5 ×10 | 3,800 | 600 | 3,200 | 510 | 2,700 | 340 | 2,050 | 260 | 1,600 | 200 | 1,600 | 200 | 1,100 | 130 |
| R6 ×12 | 3,200 | 610 | 2,650 | 510 | 2,250 | 360 | 1,700 | 270 | 1,350 | 210 | 1,350 | 210 | 920 | 140 |
| R8 ×16 | 2,400 | 610 | 2,000 | 510 | 1,700 | 380 | 1,300 | 280 | 1,000 | 220 | 1,000 | 220 | 700 | 150 |
| R10×20 | 1,900 | 600 | 1,600 | 480 | 1,350 | 370 | 1,050 | 280 | 800 | 200 | 800 | 200 | 560 | 140 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.4D | | | | | | ap 1.5D / ae 0.3D | | | | | | | |

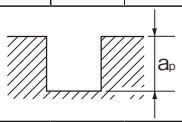



1. エアブローでご使用下さい。切削油剤を使用する場合は発煙の少ないものを選定して下さい。尚、ステンレス鋼、チタン合金の切削には切削油剤をご使用下さい。
2. びびりを発生する場合は回転速度、送り量を同じ割合で下げてご使用下さい。または、切込深さを減らすか、切込深さ、回転速度、送り量のすべてを減じてご使用下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。

1. Use air blow. When using cutting fluids, use high-quality fluid with high smoke retardant properties. Use a cutting fluid for cutting stainless steel and titanium alloy steels.
2. When chattering occurs, reduce the speed and feed simultaneously. Alternatively, use it at a reduced cutting depth. Or, reduce the cutting depth, speed, and feed rate.
3. Use a rigid and precision machine and holder.

## WXL-REBM
### 溝切削 SLOTTING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼(30～38HRC)・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼(38～45HRC) Hardened Steel SKD | | ステンレス鋼 Stainless Steel SUS304 | | チタン合金 Titanium Alloy | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80～120m/min | | 70～100m/min | | 55～85m/min | | 40～70m/min | | 30～60m/min | | 30～60m/min | | 20～40m/min | |
| ボール半径×外径 RE×DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R3 × 6 | 5,300 | 510 | 4,500 | 430 | 3,700 | 240 | 2,900 | 180 | 2,400 | 150 | 2,400 | 150 | 1,500 | 80 |
| R4 × 8 | 4,000 | 510 | 3,400 | 430 | 2,800 | 270 | 2,200 | 200 | 1,800 | 170 | 1,800 | 170 | 1,150 | 100 |
| R5 ×10 | 3,200 | 510 | 2,700 | 430 | 2,250 | 280 | 1,750 | 220 | 1,450 | 180 | 1,450 | 180 | 950 | 120 |
| R6 ×12 | 2,650 | 510 | 2,250 | 430 | 1,850 | 290 | 1,450 | 230 | 1,200 | 190 | 1,200 | 190 | 800 | 120 |
| R8 ×16 | 2,000 | 510 | 1,700 | 430 | 1,400 | 310 | 1,100 | 240 | 900 | 200 | 900 | 200 | 600 | 130 |
| R10×20 | 1,600 | 510 | 1,350 | 400 | 1,100 | 310 | 900 | 240 | 700 | 180 | 700 | 180 | 480 | 120 |
| 切込深さ Depth of Cut | ap 0.75D<br>ap Max=15mm | | | | | | ap 0.5D | | | | | | | |




1. エアブローでご使用下さい。切削油剤を使用する場合は発煙の少ないものを選定して下さい。尚、ステンレス鋼、チタン合金の切削には切削油剤をご使用下さい。
2. びびりを発生する場合は回転速度、送り量を同じ割合で下げてご使用下さい。または、切込深さを減らすか、切込深さ、回転速度、送り量のすべてを減じてご使用下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。

1. Use air blow. When using cutting fluids, use high-quality fluid with high smoke retardant properties. Use a cutting fluid for cutting stainless steel and titanium alloy steels.
2. When chattering occurs, reduce the speed and feed simultaneously. Alternatively, use it at a reduced cutting depth. Or, reduce the cutting depth, speed, and feed rate.
3. Use a rigid and precision machine and holder.



Pro カタログ

# オーエスジー公式アプリ
# Pro カタログ

## デジタルカタログ

カタログ

最新の総合カタログや製品カタログを時間・場所問わず閲覧できます。しおりを挟んだり、メールでカタログを共有することも可能です。




### 総合カタログ

いつでもどこでもカタログを。

### 製品カタログ

最新カタログをいち早く。




## コードスキャン

コードスキャン

アプリ限定

バーコード・二次元コードに対応したスキャン機能です。工具のスペック情報や切削条件、検査成績表などの各種データを取得することができます。



※二次元コードは一部製品に限ります

## CADデータダウンロード

CADデータダウンロード

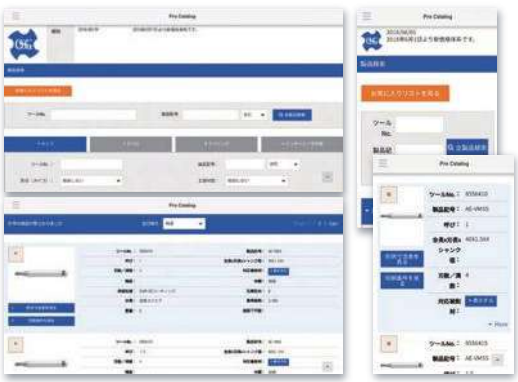
工具のDXFファイル・STEPファイルをパソコンやスマートフォンからいつでもダウンロードできます。



## 製品検索

製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



アプリの使い方・ダウンロードはこちら

**さらに、製品動画やFAQサイトなどOSG情報が満載！**

**最新情報を掲載中　今すぐダウンロード！**

形状寸法表
SPECIFICATION CHARTS
WXS-CPR▶P419

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXS-CPR
### 標準切削 REGULAR MILLING

| 外径 DC | 有効勾配角 α° | 首下長 LU | 基準切込深さ Depth of Cut 軸方向 ap R0.05 | R0.1 | R0.2 | R0.3 | R0.5 | R1 | 径方向 ae | 被削材 WORK MATERIAL 調質鋼・プリハードン鋼 (～45HRC) Hardened Steel Prehardened Steel SKD61・NAK55・NAK80・HPM1 ap=120% ae=120% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 調質鋼・プリハードン鋼 (45～55HRC) Hardened Steel Prehardened Steel SKD61・STAVAX・HPM38 ap=100% ae=100% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 調質鋼 (55～65HRC) Hardened Steel ap=60% ae=80% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.2 | 0° | 0.5 | 0.005 | — | — | — | — | — | 0.06 | 40,000 | 560 | 36,000 | 460 | 31,500 | 380 |
| | | 1 | 0.004 | — | — | — | — | — | 0.06 | 38,000 | 530 | 34,000 | 435 | 30,000 | 355 |
| | 1° | 1 | 0.005 | — | — | — | — | — | 0.06 | 40,000 | 560 | 40,000 | 510 | 35,000 | 420 |
| | | 2 | 0.004 | — | — | — | — | — | 0.054 | 40,000 | 505 | 36,000 | 415 | 31,500 | 340 |
| | 3° | 1 | 0.005 | — | — | — | — | — | 0.06 | 40,000 | 560 | 40,000 | 510 | 35,000 | 420 |
| | | 2 | 0.005 | — | — | — | — | — | 0.06 | 40,000 | 560 | 36,000 | 460 | 31,500 | 380 |
| | 5° | 1 | 0.005 | — | — | — | — | — | 0.06 | 40,000 | 560 | 40,000 | 510 | 35,000 | 420 |
| | | 2 | 0.005 | — | — | — | — | — | 0.06 | 40,000 | 560 | 36,000 | 460 | 31,500 | 380 |
| 0.3 | 0° | 1 | 0.005 | — | — | — | — | — | 0.09 | 36,500 | 720 | 32,500 | 545 | 30,500 | 475 |
| | | 2 | 0.002 | — | — | — | — | — | 0.061 | 30,000 | 510 | 27,000 | 385 | 25,500 | 340 |
| | 1° | 2 | 0.005 | — | — | — | — | — | 0.09 | 38,500 | 720 | 34,500 | 545 | 32,500 | 480 |
| | | 3 | 0.004 | — | — | — | — | — | 0.081 | 36,500 | 645 | 32,500 | 490 | 30,500 | 430 |
| | 3° | 2 | 0.005 | — | — | — | — | — | 0.09 | 38,500 | 765 | 34,500 | 580 | 32,500 | 510 |
| | | 3 | 0.005 | — | — | — | — | — | 0.09 | 36,500 | 720 | 32,500 | 545 | 30,500 | 475 |
| | 5° | 2 | 0.005 | — | — | — | — | — | 0.09 | 38,500 | 765 | 32,500 | 580 | 32,500 | 510 |
| | | 3 | 0.005 | — | — | — | — | — | 0.09 | 38,500 | 720 | 32,500 | 545 | 30,500 | 475 |
| 0.4 | 0° | 1 | 0.007 | — | — | — | — | — | 0.12 | 29,500 | 750 | 26,000 | 580 | 24,500 | 470 |
| | | 1.5 | 0.007 | — | — | — | — | — | 0.12 | 29,500 | 750 | 26,000 | 580 | 24,500 | 470 |
| | | 2 | 0.005 | 0.008 | — | — | — | — | 0.102 | 27,500 | 675 | 24,500 | 520 | 23,000 | 420 |
| | | 3 | 0.002 | 0.003 | — | — | — | — | 0.075 | 23,000 | 470 | 20,000 | 360 | 19,000 | 290 |
| | | 4 | 0.001 | 0.002 | — | — | — | — | 0.036 | 21,000 | 380 | 18,500 | 290 | 17,500 | 235 |
| | 1° | 3 | 0.006 | 0.009 | — | — | — | — | 0.12 | 31,000 | 755 | 27,000 | 580 | 25,500 | 470 |
| | | 4 | 0.005 | 0.007 | — | — | — | — | 0.108 | 29,500 | 680 | 26,000 | 520 | 24,500 | 420 |
| | 3° | 3 | 0.007 | 0.01 | — | — | — | — | 0.12 | 31,000 | 795 | 27,000 | 610 | 25,500 | 495 |
| | | 4 | 0.007 | 0.01 | — | — | — | — | 0.12 | 29,500 | 750 | 26,000 | 580 | 24,500 | 470 |
| | 5° | 3 | 0.007 | 0.01 | — | — | — | — | 0.12 | 31,000 | 795 | 27,000 | 610 | 25,500 | 495 |
| | | 4 | 0.007 | 0.01 | — | — | — | — | 0.12 | 29,500 | 750 | 26,000 | 580 | 24,500 | 470 |
| 0.5 | 0° | 1 | 0.007 | 0.01 | — | — | — | — | 0.15 | 29,000 | 820 | 26,000 | 670 | 26,000 | 620 |
| | | 2 | 0.007 | 0.01 | — | — | — | — | 0.15 | 29,000 | 820 | 26,000 | 670 | 26,000 | 620 |
| | | 3 | 0.003 | 0.005 | — | — | — | — | 0.105 | 27,500 | 695 | 24,500 | 570 | 24,500 | 525 |
| | | 4 | 0.002 | 0.003 | — | — | — | — | 0.09 | 22,500 | 510 | 20,000 | 420 | 20,000 | 385 |
| | | 5 | 0.001 | 0.002 | — | — | — | — | 0.045 | 21,000 | 415 | 18,500 | 340 | 18,500 | 315 |
| | | 6 | 0.001 | 0.001 | — | — | — | — | 0.03 | 19,500 | 360 | 17,000 | 295 | 17,000 | 270 |
| | 1° | 3 | 0.007 | 0.01 | — | — | — | — | 0.15 | 32,500 | 910 | 28,500 | 745 | 28,500 | 690 |
| | | 5 | 0.005 | 0.007 | — | — | — | — | 0.15 | 29,000 | 735 | 26,000 | 605 | 26,000 | 560 |
| | | 8 | 0.003 | 0.004 | — | — | — | — | 0.052 | 25,500 | 560 | 22,500 | 460 | 22,500 | 425 |
| | | 10 | 0.002 | 0.003 | — | — | — | — | 0.022 | 22,500 | 475 | 20,000 | 390 | 20,000 | 360 |
| | | 12 | 0.001 | 0.002 | — | — | — | — | 0.016 | 21,000 | 415 | 18,500 | 340 | 18,500 | 315 |

次ページへ
外径 DC 0.5～1 NEXT

# WXS-CPR
## 標準切削

REGULAR MILLING

前ページより
FROM 外径 DC 0.2～0.5

| 外径 DC | 有効勾配角 α° | 首下長 LU | 基準切込深さ Depth of Cut | | | | | | | 被削材 WORK MATERIAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 調質鋼・プリハードン鋼 (～45HRC) Hardened Steel Prehardened Steel SKD61・NAK55・NAK80・HPM1 | | 調質鋼・プリハードン鋼 (45～55HRC) Hardened Steel Prehardened Steel SKD61・STAVAX・HPM38 | | 調質鋼 (55～65HRC) Hardened Steel | |
| | | | | | | | | | | ap=120% | ae =120% | ap=100% | ae =100% | ap=60% | ae =80% |
| | | | 軸方向 ap | | | | | | 径方向 ae | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| | | | R0.05 | R0.1 | R0.2 | R0.3 | R0.5 | R1 | | | | | | | |
| 0.5 | 3° | 3 | 0.007 | 0.01 | — | — | — | — | 0.15 | 32,500 | 910 | 28,500 | 745 | 28,500 | 690 |
| | | 5 | 0.007 | 0.01 | — | — | — | — | 0.15 | 29,000 | 820 | 26,000 | 670 | 26,000 | 620 |
| | | 8 | 0.006 | 0.009 | — | — | — | — | 0.067 | 25,500 | 710 | 22,500 | 580 | 22,500 | 535 |
| | | 10 | 0.001 | 0.002 | — | — | — | — | 0.037 | 22,500 | 575 | 20,000 | 470 | 20,000 | 435 |
| | | 12 | 0.001 | 0.002 | — | — | — | — | 0.031 | 21,000 | 475 | 18,500 | 390 | 18,500 | 360 |
| | 5° | 3 | 0.007 | 0.01 | — | — | — | — | 0.15 | 32,500 | 910 | 28,500 | 745 | 28,500 | 690 |
| | | 5 | 0.007 | 0.01 | — | — | — | — | 0.15 | 29,000 | 820 | 26,000 | 670 | 26,000 | 620 |
| | | 8 | 0.006 | 0.009 | — | — | — | — | 0.142 | 25,500 | 710 | 22,500 | 580 | 22,500 | 535 |
| | | 10 | 0.005 | 0.007 | — | — | — | — | 0.112 | 22,500 | 635 | 20,000 | 520 | 20,000 | 480 |
| 0.6 | 0° | 2 | — | 0.012 | — | — | — | — | 0.18 | 29,000 | 980 | 26,000 | 805 | 21,500 | 620 |
| | | 4 | — | 0.005 | — | — | — | — | 0.122 | 24,500 | 695 | 21,500 | 570 | 18,000 | 440 |
| | | 6 | — | 0.002 | — | — | — | — | 0.054 | 21,000 | 495 | 18,500 | 410 | 15,500 | 315 |
| 0.8 | 0° | 4 | — | 0.016 | 0.032 | — | — | — | 0.24 | 23,500 | 1,000 | 20,500 | 800 | 17,000 | 565 |
| | | 6 | — | 0.007 | 0.014 | — | — | — | 0.24 | 19,500 | 700 | 16,500 | 555 | 14,000 | 390 |
| | | 8 | — | — | 0.008 | — | — | — | 0.216 | 18,000 | 570 | 15,500 | 450 | 13,000 | 320 |
| | 1° | 5 | 0.01 | 0.02 | 0.04 | — | — | — | 0.24 | 26,500 | 1,150 | 26,500 | 1,050 | 26,500 | 905 |
| | | 8 | 0.007 | 0.015 | 0.03 | — | — | — | 0.24 | 25,000 | 1,000 | 25,000 | 940 | 25,000 | 795 |
| | 3° | 5 | 0.01 | 0.02 | 0.04 | — | — | — | 0.24 | 26,500 | 1,200 | 26,500 | 1,100 | 26,500 | 940 |
| | | 8 | 0.01 | 0.02 | 0.04 | — | — | — | 0.24 | 25,000 | 1,100 | 25,000 | 1,050 | 25,000 | 880 |
| 1 | 0° | 4 | 0.01 | 0.02 | 0.04 | 0.05 | — | — | 0.3 | 23,000 | 1,300 | 20,000 | 1,050 | 17,000 | 755 |
| | | 6 | 0.005 | 0.01 | 0.02 | 0.025 | — | — | 0.21 | 20,500 | 1,050 | 18,000 | 835 | 15,500 | 605 |
| | | 8 | 0.003 | 0.006 | 0.012 | 0.015 | — | — | 0.18 | 18,000 | 800 | 15,500 | 650 | 13,500 | 470 |
| | | 10 | 0.002 | 0.004 | 0.008 | 0.01 | — | — | 0.09 | 16,500 | 650 | 14,500 | 530 | 12,500 | 380 |
| | | 12 | 0.001 | 0.003 | 0.006 | 0.007 | — | — | 0.06 | 15,500 | 565 | 13,500 | 460 | 11,500 | 335 |
| | | 16 | — | — | 0.004 | — | — | — | 0.03 | 12,000 | 400 | 10,500 | 325 | 9,150 | 235 |
| | | 20 | — | — | 0.003 | — | — | — | 0.024 | 10,000 | 285 | 8,900 | 230 | 7,650 | 170 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。

1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties. When machining carbon steels or hardened steels, using MQL(Minimum Qiantity Lubrication / oil mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.

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外径 DC 1～2 NEXT

形状寸法表
SPECIFICATION CHARTS
WXS-CPR▶P419

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXS-CPR
### 標準切削 REGULAR MILLING

前ページより
FROM 外径 DC 0.5～1

| 外径 DC | 有効勾配角 α° | 首下長 LU | 基準切込深さ Depth of Cut 軸方向 ap R0.05 | R0.1 | R0.2 | R0.3 | R0.5 | R1 | 径方向 ae | 被削材 WORK MATERIAL 調質鋼・プリハードン鋼 (～45HRC) Hardened Steel Prehardened Steel SKD61・NAK55・NAK80・HPM1 ap=120% ae=120% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 調質鋼・プリハードン鋼 (45～55HRC) Hardened Steel Prehardened Steel SKD61・STAVAX・HPM38 ap=100% ae=100% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 調質鋼 (55～65HRC) Hardened Steel ap=60% ae=80% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1° | 6 | 0.01 | 0.02 | 0.04 | 0.05 | — | — | 0.3 | 25,500 | 1,250 | 22,500 | 1,150 | 19,000 | 840 |
| | | 10 | 0.007 | 0.015 | 0.03 | 0.037 | — | — | 0.27 | 23,000 | 1,150 | 20,000 | 940 | 17,000 | 680 |
| | | 15 | 0.005 | 0.01 | 0.02 | 0.025 | — | — | 0.12 | 20,500 | 915 | 18,000 | 740 | 15,500 | 540 |
| | | 20 | 0.003 | 0.006 | 0.012 | 0.015 | — | — | 0.045 | 18,000 | 750 | 15,500 | 610 | 13,500 | 440 |
| | | 25 | 0.002 | 0.002 | 0.004 | 0.005 | — | — | 0.03 | 16,500 | 650 | 14,500 | 530 | 12,500 | 380 |
| | | 30 | 0.002 | 0.001 | 0.002 | 0.003 | — | — | 0.021 | 12,500 | 465 | 11,000 | 380 | 9,550 | 275 |
| | | 35 | 0.002 | 0.001 | 0.002 | 0.002 | — | — | 0.015 | 11,500 | 385 | 10,000 | 315 | 8,600 | 230 |
| | 3° | 6 | 0.01 | 0.02 | 0.04 | 0.05 | — | — | 0.3 | 25,500 | 1,450 | 22,500 | 1,150 | 19,000 | 840 |
| | | 10 | 0.01 | 0.02 | 0.04 | 0.05 | — | — | 0.3 | 23,000 | 1,300 | 20,000 | 1,050 | 17,000 | 755 |
| 1.2 | 0° | 6 | — | — | 0.032 | 0.04 | — | — | 0.36 | 19,000 | 1,200 | 18,000 | 1,050 | 14,500 | 735 |
| | | 8 | — | — | 0.018 | 0.022 | — | — | 0.252 | 17,000 | 965 | 16,000 | 845 | 13,000 | 580 |
| | | 10 | — | — | 0.011 | 0.014 | — | — | 0.216 | 16,000 | 850 | 15,000 | 740 | 12,000 | 510 |
| 1.5 | 0° | 6 | — | — | 0.04 | 0.06 | — | — | 0.45 | 17,000 | 1,450 | 16,000 | 1,250 | 13,500 | 880 |
| | | 8 | — | — | 0.026 | 0.039 | — | — | 0.382 | 16,000 | 1,250 | 15,500 | 1,100 | 12,500 | 750 |
| | | 10 | — | — | 0.018 | 0.027 | — | — | 0.292 | 14,500 | 1,000 | 13,500 | 900 | 11,000 | 625 |
| | | 12 | — | — | 0.012 | 0.018 | — | — | 0.27 | 13,500 | 900 | 12,500 | 790 | 10,500 | 550 |
| | | 16 | — | — | 0.007 | 0.01 | — | — | 0.112 | 9,150 | 525 | 8,650 | 460 | 7,150 | 320 |
| | 1° | 10 | — | 0.019 | 0.039 | 0.049 | — | — | 0.45 | 18,500 | 1,500 | 17,500 | 1,300 | 14,500 | 905 |
| | | 15 | — | 0.015 | 0.03 | 0.037 | — | — | 0.405 | 17,000 | 1,150 | 16,000 | 1,000 | 13,500 | 705 |
| | | 20 | — | 0.01 | 0.02 | 0.025 | — | — | 0.27 | 15,500 | 1,100 | 15,000 | 970 | 12,000 | 675 |
| | | 25 | — | 0.008 | 0.008 | 0.01 | — | — | 0.135 | 14,500 | 950 | 13,500 | 835 | 11,500 | 580 |
| | | 30 | — | 0.003 | 0.006 | 0.007 | — | — | 0.067 | 13,500 | 840 | 12,500 | 740 | 10,500 | 515 |
| | 3° | 10 | — | 0.02 | 0.04 | 0.05 | — | — | 0.45 | 18,500 | 1,550 | 17,500 | 1,350 | 14,500 | 940 |
| | | 15 | — | 0.02 | 0.04 | 0.05 | — | — | 0.45 | 17,000 | 1,450 | 16,000 | 1,250 | 13,500 | 880 |
| 2 | 0° | 8 | — | 0.02 | 0.04 | 0.06 | 0.075 | — | 0.6 | 13,000 | 1,450 | 13,000 | 1,300 | 11,500 | 1,000 |
| | | 10 | — | 0.016 | 0.032 | 0.048 | 0.06 | — | 0.51 | 12,000 | 1,300 | 12,000 | 1,150 | 11,000 | 905 |
| | | 12 | — | 0.01 | 0.02 | 0.03 | 0.037 | — | 0.42 | 11,500 | 1,150 | 11,500 | 1,050 | 10,000 | 810 |
| | | 16 | — | 0.006 | 0.012 | 0.018 | 0.022 | — | 0.36 | 10,000 | 900 | 10,000 | 800 | 8,900 | 630 |
| | | 20 | — | 0.004 | 0.008 | 0.012 | 0.015 | — | 0.18 | 9,300 | 730 | 9,300 | 650 | 8,250 | 510 |
| | | 25 | — | 0.002 | 0.004 | 0.007 | 0.009 | — | 0.12 | 8,600 | 625 | 8,600 | 560 | 7,650 | 440 |
| | 1° | 15 | — | 0.018 | 0.036 | 0.046 | 0.064 | — | 0.6 | 13,500 | 1,450 | 13,500 | 1,300 | 12,000 | 1,000 |
| | | 20 | — | 0.015 | 0.03 | 0.037 | 0.052 | — | 0.54 | 13,000 | 1,300 | 13,000 | 1,150 | 11,500 | 910 |
| | | 25 | — | 0.012 | 0.024 | 0.03 | 0.04 | — | 0.39 | 12,000 | 1,150 | 12,000 | 1,050 | 11,000 | 810 |
| | | 30 | — | 0.01 | 0.02 | 0.025 | 0.03 | — | 0.24 | 11,500 | 1,050 | 11,500 | 920 | 10,000 | 720 |
| | | 40 | — | 0.006 | 0.012 | 0.015 | 0.02 | — | 0.09 | 10,000 | 840 | 10,000 | 750 | 8,900 | 590 |
| | | 50 | — | 0.005 | 0.01 | 0.01 | 0.01 | — | 0.06 | 9,300 | 730 | 9,300 | 650 | 8,250 | 510 |

次ページへ
外径 DC 2～4 NEXT

# WXS-CPR
## 標準切削

REGULAR MILLING

前ページより
FROM 外径 DC 1～2

| 外径 DC | 有効勾配角 α° | 首下長 LU | 基準切込深さ Depth of Cut | | | | | | | 被削材 WORK MATERIAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 調質鋼・プリハードン鋼 (～45HRC) Hardened Steel Prehardened Steel SKD61・NAK55・NAK80・HPM1 | | 調質鋼・プリハードン鋼 (45～55HRC) Hardened Steel Prehardened Steel SKD61・STAVAX・HPM38 | | 調質鋼 (55～65HRC) Hardened Steel | |
| | | | | | | | | | | ap=120% | ae =120% | ap=100% | ae =100% | ap=60% | ae =80% |
| | | | 軸方向 ap | | | | | | 径方向 ae | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| | | | R0.05 | R0.1 | R0.2 | R0.3 | R0.5 | R1 | | | | | | | |
| 2 | 3° | 15 | — | 0.02 | 0.04 | 0.06 | 0.075 | — | 0.6 | 13,500 | 1,500 | 13,500 | 1,350 | 12,000 | 1,050 |
| | | 20 | — | 0.02 | 0.04 | 0.06 | 0.075 | — | 0.6 | 13,000 | 1,450 | 13,000 | 1,300 | 11,500 | 1,000 |
| 2.5 | 0° | 10 | — | — | 0.04 | — | 0.075 | — | 0.75 | 11,500 | 1,600 | 10,500 | 1,200 | 9,150 | 1,000 |
| | | 20 | — | — | 0.02 | — | 0.037 | — | 0.45 | 8,900 | 1,000 | 8,000 | 740 | 7,150 | 630 |
| | | 30 | — | — | 0.006 | — | 0.011 | — | 0.15 | 7,650 | 700 | 6,850 | 520 | 6,100 | 445 |
| 3 | 0° | 8 | — | — | 0.04 | — | — | — | 0.9 | 9,550 | 1,500 | 8,600 | 1,150 | 7,650 | 825 |
| | | 12 | — | — | 0.04 | 0.06 | 0.075 | — | 0.9 | 9,550 | 1,500 | 8,600 | 1,150 | 7,650 | 825 |
| | | 16 | — | — | 0.028 | 0.042 | 0.052 | — | 0.72 | 8,500 | 1,200 | 7,650 | 910 | 6,800 | 660 |
| | | 20 | — | — | 0.018 | 0.027 | 0.033 | — | 0.612 | 7,400 | 985 | 6,700 | 750 | 5,950 | 545 |
| | | 25 | — | — | 0.012 | 0.018 | 0.022 | — | 0.54 | 7,100 | 830 | 6,400 | 635 | 5,700 | 460 |
| | | 30 | — | — | 0.008 | 0.012 | 0.015 | — | 0.27 | 6,900 | 755 | 6,200 | 575 | 5,500 | 420 |
| | | 35 | — | — | 0.006 | 0.009 | 0.011 | — | 0.18 | 6,350 | 655 | 5,700 | 500 | 5,100 | 365 |
| | 1° | 15 | — | — | 0.04 | — | 0.075 | — | 0.9 | 10,500 | 1,650 | 9,550 | 1,250 | 8,500 | 920 |
| | | 20 | — | — | 0.039 | — | 0.07 | — | 0.9 | 9,950 | 1,500 | 8,950 | 1,150 | 7,950 | 830 |
| | | 30 | — | — | 0.03 | — | 0.05 | — | 0.81 | 9,550 | 1,350 | 8,600 | 1,000 | 7,650 | 745 |
| | | 40 | — | — | 0.022 | — | 0.04 | — | 0.522 | 8,900 | 1,150 | 8,000 | 890 | 7,150 | 650 |
| | | 50 | — | — | 0.016 | — | 0.03 | — | 0.297 | 8,050 | 980 | 7,250 | 750 | 6,450 | 545 |
| | | 60 | — | — | 0.012 | — | 0.02 | — | 0.135 | 7,400 | 870 | 6,700 | 660 | 5,950 | 480 |
| 4 | 0° | 16 | — | — | 0.04 | 0.06 | 0.075 | 0.12 | 1.2 | 7,150 | 2,050 | 6,450 | 1,550 | 5,000 | 965 |
| | | 20 | — | — | 0.032 | 0.048 | 0.06 | 0.2 | 1.02 | 6,750 | 1,950 | 6,100 | 1,450 | 4,750 | 910 |
| | | 25 | — | — | 0.02 | 0.03 | 0.037 | 0.06 | 0.816 | 5,950 | 1,700 | 5,350 | 1,300 | 4,150 | 800 |
| | | 30 | — | — | 0.014 | 0.021 | 0.026 | 0.04 | 0.744 | 5,550 | 1,600 | 5,000 | 1,200 | 3,900 | 750 |
| | | 40 | — | — | 0.008 | 0.012 | 0.015 | 0.024 | 0.36 | 5,150 | 1,500 | 4,650 | 1,100 | 3,600 | 695 |
| | | 50 | — | — | 0.004 | 0.007 | 0.009 | 0.014 | 0.216 | 4,550 | 1,300 | 4,100 | 980 | 3,150 | 610 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。

1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties. When machining carbon steels or hardened steels, using MQL(Minimum Qiantity Lubrication / oil mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.

形状寸法表
SPECIFICATION CHARTS
WXS-CPR▶P419

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXS-CPR
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

| 外径 DC | 有効勾配角 α° | 首下長 LU | 基準切込深さ Depth of Cut 軸方向 ap R0.05 | R0.1 | R0.2 | R0.3 | R0.5 | R1 | 径方向 ae | 被削材 WORK MATERIAL 調質鋼・プリハードン鋼（～45HRC）Hardened Steel Prehardened Steel SKD61・NAK55・NAK80・HPM1 ap=120% ae=120% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 調質鋼・プリハードン鋼（45～55HRC）Hardened Steel Prehardened Steel SKD61・STAVAX・HPM38 ap=100% ae=100% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 調質鋼（55～65HRC）Hardened Steel ap=60% ae=80% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.2 | 0° | 0.5 | 0.005 | — | — | — | — | — | 0.006 | 50,000 | 700 | 43,000 | 550 | 43,000 | 515 |
| | | 1 | 0.005 | — | — | — | — | — | 0.006 | 47,500 | 665 | 40,500 | 520 | 40,500 | 485 |
| | 1° | 1 | 0.005 | — | — | — | — | — | 0.006 | 50,000 | 700 | 47,500 | 610 | 47,500 | 575 |
| | | 2 | 0.005 | — | — | — | — | — | 0.005 | 50,000 | 630 | 43,000 | 495 | 43,000 | 465 |
| | 3° | 1 | 0.005 | — | — | — | — | — | 0.006 | 50,000 | 700 | 47,500 | 610 | 47,500 | 575 |
| | | 2 | 0.005 | — | — | — | — | — | 0.006 | 50,000 | 700 | 43,000 | 550 | 43,000 | 515 |
| | 5° | 1 | 0.005 | — | — | — | — | — | 0.006 | 50,000 | 700 | 47,500 | 610 | 47,500 | 575 |
| | | 2 | 0.005 | — | — | — | — | — | 0.006 | 50,000 | 700 | 43,000 | 550 | 43,000 | 515 |
| 0.3 | 0° | 1 | 0.005 | — | — | — | — | — | 0.009 | 43,000 | 850 | 38,000 | 690 | 33,500 | 520 |
| | | 2 | 0.004 | — | — | — | — | — | 0.008 | 36,000 | 605 | 32,000 | 485 | 28,000 | 370 |
| | 1° | 2 | 0.005 | — | — | — | — | — | 0.009 | 46,000 | 855 | 40,500 | 690 | 35,500 | 525 |
| | | 3 | 0.005 | — | — | — | — | — | 0.009 | 43,000 | 765 | 38,000 | 620 | 33,500 | 470 |
| | 3° | 2 | 0.005 | — | — | — | — | — | 0.009 | 46,000 | 910 | 40,500 | 735 | 35,500 | 555 |
| | | 3 | 0.005 | — | — | — | — | — | 0.009 | 43,000 | 850 | 38,000 | 690 | 33,500 | 520 |
| | 5° | 2 | 0.005 | — | — | — | — | — | 0.009 | 46,000 | 910 | 40,500 | 735 | 35,500 | 555 |
| | | 3 | 0.005 | — | — | — | — | — | 0.009 | 43,000 | 850 | 38,000 | 690 | 33,500 | 520 |
| 0.4 | 0° | 1 | 0.006 | — | — | — | — | — | 0.012 | 39,500 | 1,000 | 32,000 | 775 | 28,500 | 550 |
| | | 1.5 | 0.006 | — | — | — | — | — | 0.012 | 39,500 | 1,000 | 32,000 | 775 | 28,500 | 550 |
| | | 2 | 0.006 | 0.01 | — | — | — | — | 0.012 | 37,000 | 905 | 30,500 | 695 | 27,000 | 495 |
| | | 3 | 0.004 | 0.007 | — | — | — | — | 0.008 | 30,500 | 630 | 25,000 | 480 | 22,500 | 340 |
| | | 4 | 0.002 | 0.004 | — | — | — | — | 0.006 | 28,500 | 510 | 23,500 | 390 | 20,500 | 280 |
| | 1° | 3 | 0.006 | 0.01 | — | — | — | — | 0.012 | 41,500 | 1,000 | 34,000 | 775 | 30,000 | 550 |
| | | 4 | 0.006 | 0.01 | — | — | — | — | 0.012 | 39,500 | 910 | 32,000 | 695 | 28,500 | 495 |
| | 3° | 3 | 0.006 | 0.01 | — | — | — | — | 0.012 | 41,500 | 1,050 | 34,000 | 815 | 30,000 | 580 |
| | | 4 | 0.006 | 0.01 | — | — | — | — | 0.012 | 39,500 | 1,000 | 32,000 | 775 | 28,500 | 550 |
| | 5° | 3 | 0.006 | 0.01 | — | — | — | — | 0.012 | 41,500 | 1,050 | 34,000 | 815 | 30,000 | 580 |
| | | 4 | 0.006 | 0.01 | — | — | — | — | 0.012 | 39,500 | 1,000 | 32,000 | 775 | 28,500 | 550 |
| 0.5 | 0° | 1 | 0.006 | 0.01 | — | — | — | — | 0.015 | 34,500 | 965 | 28,500 | 775 | 24,000 | 580 |
| | | 2 | 0.006 | 0.01 | — | — | — | — | 0.015 | 34,500 | 965 | 28,500 | 775 | 24,000 | 580 |
| | | 3 | 0.006 | 0.01 | — | — | — | — | 0.013 | 32,500 | 820 | 27,000 | 660 | 22,500 | 490 |
| | | 4 | 0.003 | 0.006 | — | — | — | — | 0.01 | 26,500 | 600 | 22,500 | 480 | 18,500 | 360 |
| | | 5 | 0.002 | 0.004 | — | — | — | — | 0.007 | 25,000 | 490 | 20,500 | 390 | 17,500 | 290 |
| | | 6 | 0.001 | 0.003 | — | — | — | — | 0.006 | 23,000 | 425 | 19,000 | 340 | 16,000 | 255 |
| | 1° | 3 | 0.006 | 0.01 | — | — | — | — | 0.015 | 38,000 | 1,050 | 32,000 | 860 | 26,500 | 640 |
| | | 5 | 0.006 | 0.01 | — | — | — | — | 0.015 | 34,500 | 865 | 28,500 | 695 | 24,000 | 520 |
| | | 8 | 0.004 | 0.007 | — | — | — | — | 0.01 | 30,000 | 660 | 25,000 | 530 | 21,000 | 395 |
| | | 10 | 0.003 | 0.005 | — | — | — | — | 0.009 | 26,500 | 560 | 22,500 | 450 | 18,500 | 340 |
| | | 12 | 0.002 | 0.004 | — | — | — | — | 0.006 | 25,000 | 490 | 20,500 | 390 | 17,500 | 290 |
| | 3° | 3 | 0.006 | 0.01 | — | — | — | — | 0.015 | 38,000 | 1,050 | 32,000 | 860 | 26,500 | 640 |
| | | 5 | 0.006 | 0.01 | — | — | — | — | 0.015 | 34,500 | 965 | 28,500 | 775 | 24,000 | 580 |
| | | 8 | 0.004 | 0.008 | — | — | — | — | 0.015 | 30,000 | 835 | 25,000 | 670 | 21,000 | 500 |
| | | 10 | 0.003 | 0.005 | — | — | — | — | 0.012 | 26,500 | 675 | 22,500 | 540 | 18,500 | 400 |
| | | 12 | 0.002 | 0.004 | — | — | — | — | 0.01 | 25,000 | 555 | 20,500 | 450 | 17,500 | 335 |

次ページへ
外径 DC 0.5～1 NEXT

# WXS-CPR
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 0.2～0.5

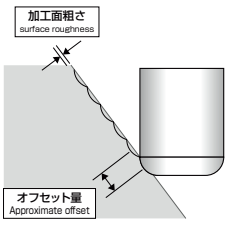
| 外径 DC | 有効勾配角 α° | 首下長 LU | 基準切込深さ Depth of Cut | | | | | | | 被削材 WORK MATERIAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 調質鋼・プリハードン鋼 （～45HRC） Hardened Steel Prehardened Steel SKD61・NAK55・NAK80・HPM1 | | 調質鋼・プリハードン鋼 (45～55HRC) Hardened Steel Prehardened Steel SKD61・STAVAX・HPM38 | | 調質鋼 (55～65HRC) Hardened Steel | |
| | | | | | | | | | | ap=120% | ae =120% | ap=100% | ae =100% | ap=60% | ae =80% |
| | | | 軸方向 ap | | | | | | 径方向 ae | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| | | | R0.05 | R0.1 | R0.2 | R0.3 | R0.5 | R1 | | | | | | | |
| 0.5 | 5° | 3 | 0.006 | 0.01 | — | — | — | — | 0.015 | 38,000 | 1,050 | 32,000 | 860 | 26,500 | 640 |
| | | 5 | 0.006 | 0.01 | — | — | — | — | 0.015 | 34,500 | 965 | 28,500 | 775 | 24,000 | 580 |
| | | 8 | 0.006 | 0.01 | — | — | — | — | 0.015 | 30,000 | 835 | 25,000 | 670 | 21,000 | 500 |
| | | 10 | 0.004 | 0.008 | — | — | — | — | 0.012 | 26,500 | 750 | 22,500 | 600 | 18,500 | 450 |
| 0.6 | 0° | 2 | — | 0.012 | — | — | — | — | 0.018 | 31,000 | 1,050 | 26,500 | 850 | 24,000 | 690 |
| | | 4 | — | 0.009 | — | — | — | — | 0.012 | 26,000 | 740 | 22,000 | 600 | 20,000 | 490 |
| | | 6 | — | 0.004 | — | — | — | — | 0.009 | 22,500 | 530 | 19,000 | 430 | 17,000 | 350 |
| 0.8 | 0° | 4 | — | 0.015 | 0.02 | — | — | — | 0.02 | 29,000 | 1,200 | 25,500 | 1,050 | 23,500 | 790 |
| | | 6 | — | 0.012 | 0.016 | — | — | — | 0.014 | 23,500 | 850 | 21,000 | 720 | 19,500 | 550 |
| | | 8 | — | — | 0.008 | — | — | — | 0.01 | 22,000 | 690 | 19,500 | 590 | 18,000 | 445 |
| | 1° | 5 | 0.006 | 0.015 | 0.02 | — | — | — | 0.02 | 26,500 | 1,150 | 26,500 | 1,100 | 26,500 | 905 |
| | | 8 | 0.006 | 0.015 | 0.02 | — | — | — | 0.02 | 25,000 | 1,000 | 25,000 | 975 | 25,000 | 795 |
| | 3° | 5 | 0.006 | 0.015 | 0.02 | — | — | — | 0.02 | 26,500 | 1,200 | 26,500 | 1,150 | 26,500 | 940 |
| | | 8 | 0.006 | 0.015 | 0.02 | — | — | — | 0.02 | 25,000 | 1,100 | 25,000 | 1,100 | 25,000 | 880 |
| 1 | 0° | 4 | 0.006 | 0.015 | 0.02 | 0.03 | — | — | 0.03 | 27,000 | 1,500 | 24,500 | 1,250 | 22,500 | 995 |
| | | 6 | 0.006 | 0.015 | 0.02 | 0.03 | — | — | 0.027 | 24,000 | 1,200 | 21,500 | 1,000 | 20,000 | 800 |
| | | 8 | 0.003 | 0.009 | 0.012 | 0.018 | — | — | 0.021 | 21,000 | 950 | 19,000 | 790 | 17,500 | 620 |
| | | 10 | 0.003 | 0.006 | 0.008 | 0.012 | — | — | 0.015 | 19,500 | 770 | 17,500 | 640 | 16,500 | 505 |
| | | 12 | 0.003 | 0.004 | 0.006 | 0.009 | — | — | 0.013 | 18,000 | 670 | 16,000 | 560 | 15,000 | 440 |
| | | 16 | — | — | 0.004 | — | — | — | 0.01 | 14,500 | 470 | 13,000 | 390 | 12,000 | 310 |
| | | 20 | — | — | 0.003 | — | — | — | 0.009 | 12,000 | 340 | 11,000 | 280 | 10,000 | 220 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。調質鋼の切削では、MQL（オイルミストクーラント）を推奨いたします。
3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
4. びびり、振動、異常な切削音が発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
6. 加工精度を要求される場合は、回転速度、送り速度、切込量を抑えて使用下さい。
7. 形状精度を必要とする場合、ゼロカットをお勧めします。

1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties. When machining carbon steels or hardened steels, using MQL(Minimum Qiantity Lubrication / oil mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
7. When the workpiece requires precision shaping, re-running the end mill in the identical tool path is recommended.

## 加工面精度（加工面粗さ）に対するオフセット量目安（mm） Approximate offset for workpiece surface precision (surface roughness)

| コーナ半径 (mm) | 加工面粗さ（μm） Surface Roughness | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 | 1.75 | 2 | 2.5 | 3 | 3.5 | 4 | 5 |
| R0.05 | 0.006 | 0.01 | 0.014 | 0.017 | 0.02 | 0.022 | 0.024 | 0.026 | 0.028 | — | — | — | — | — |
| R0.1 | 0.009 | 0.014 | 0.02 | 0.024 | 0.028 | 0.032 | 0.035 | 0.037 | 0.04 | 0.045 | 0.049 | — | — | — |
| R0.2 | 0.012 | 0.02 | 0.028 | 0.035 | 0.04 | 0.045 | 0.049 | 0.053 | 0.057 | 0.063 | 0.07 | 0.075 | 0.08 | 0.9 |
| R0.3 | 0.015 | 0.025 | 0.035 | 0.042 | 0.049 | 0.055 | 0.06 | 0.065 | 0.07 | 0.077 | 0.085 | 0.092 | 0.098 | 0.11 |
| R0.5 | 0.02 | 0.032 | 0.045 | 0.055 | 0.065 | 0.07 | 0.078 | 0.084 | 0.09 | 0.1 | 0.11 | 0.118 | 0.125 | 0.141 |
| R1 | 0.028 | 0.045 | 0.063 | 0.078 | 0.09 | 0.1 | 0.11 | 0.118 | 0.125 | 0.142 | 0.155 | 0.168 | 0.18 | 0.2 |




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外径 DC 1～2.5 NEXT

形状寸法表
SPECIFICATION CHARTS
WXS-CPR▶P419

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXS-CPR
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 0.5～1

| 外径 DC | 有効勾配角 α° | 首下長 LU | 基準切込深さ Depth of Cut 軸方向 ap R0.05 | R0.1 | R0.2 | R0.3 | R0.5 | R1 | 径方向 ae | 被削材 WORK MATERIAL 調質鋼・プリハードン鋼（～45HRC）Hardened Steel Prehardened Steel SKD61・NAK55・NAK80・HPM1 ap=120% ae=120% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 調質鋼・プリハードン鋼（45～55HRC）Hardened Steel Prehardened Steel SKD61・STAVAX・HPM38 ap=100% ae=100% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 調質鋼（55～65HRC）Hardened Steel ap=60% ae=80% 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1° | 6 | 0.006 | 0.015 | 0.02 | 0.03 | — | — | 0.03 | 30,000 | 1,700 | 27,000 | 1,400 | 25,000 | 1,100 |
| | | 10 | 0.006 | 0.015 | 0.02 | 0.03 | — | — | 0.03 | 27,000 | 1,350 | 24,500 | 1,150 | 22,500 | 895 |
| | | 15 | 0.004 | 0.01 | 0.014 | 0.021 | — | — | 0.021 | 24,000 | 1,100 | 21,500 | 900 | 20,000 | 710 |
| | | 20 | 0.003 | 0.007 | 0.01 | 0.015 | — | — | 0.018 | 21,000 | 890 | 19,000 | 740 | 17,500 | 580 |
| | | 25 | 0.002 | 0.006 | 0.008 | 0.012 | — | — | 0.012 | 19,500 | 770 | 17,500 | 640 | 16,500 | 505 |
| | | 30 | 0.002 | 0.003 | 0.004 | 0.006 | — | — | 0.009 | 15,000 | 550 | 13,500 | 460 | 12,500 | 360 |
| | | 35 | 0.002 | 0.001 | 0.002 | 0.003 | — | — | 0.007 | 13,500 | 460 | 12,000 | 380 | 11,500 | 300 |
| | 3° | 6 | 0.006 | 0.015 | 0.02 | 0.03 | — | — | 0.03 | 30,000 | 1,700 | 27,000 | 1,400 | 25,000 | 1,100 |
| | | 10 | 0.006 | 0.015 | 0.02 | 0.03 | — | — | 0.015 | 27,000 | 1,500 | 24,500 | 1,250 | 22,500 | 995 |
| 1.2 | 0° | 6 | — | — | 0.016 | 0.024 | — | — | 0.036 | 22,500 | 1,450 | 21,000 | 1,250 | 19,000 | 960 |
| | | 8 | — | — | 0.009 | 0.013 | — | — | 0.028 | 20,000 | 1,150 | 18,500 | 980 | 17,000 | 760 |
| | | 10 | — | — | 0.005 | 0.008 | — | — | 0.021 | 18,500 | 1,000 | 17,500 | 860 | 16,000 | 670 |
| 1.5 | 0° | 6 | — | — | 0.02 | 0.03 | — | — | 0.045 | 21,000 | 1,750 | 18,500 | 1,450 | 16,000 | 1,050 |
| | | 8 | — | — | 0.02 | 0.03 | — | — | 0.045 | 20,000 | 1,500 | 17,500 | 1,250 | 15,500 | 910 |
| | | 10 | — | — | 0.018 | 0.027 | — | — | 0.036 | 17,500 | 1,250 | 15,500 | 1,050 | 13,500 | 760 |
| | | 12 | — | — | 0.012 | 0.018 | — | — | 0.031 | 16,500 | 1,100 | 14,500 | 910 | 12,500 | 670 |
| | | 16 | — | — | 0.008 | 0.012 | — | — | 0.022 | 11,000 | 640 | 10,000 | 530 | 8,650 | 390 |
| | 1° | 10 | — | 0.015 | 0.02 | 0.03 | — | — | 0.045 | 22,500 | 1,800 | 20,000 | 1,500 | 17,500 | 1,100 |
| | | 15 | — | 0.015 | 0.02 | 0.03 | — | — | 0.045 | 21,000 | 1,400 | 18,500 | 1,150 | 16,000 | 860 |
| | | 20 | — | 0.012 | 0.016 | 0.024 | — | — | 0.036 | 19,000 | 1,350 | 17,000 | 1,100 | 15,000 | 820 |
| | | 25 | — | 0.01 | 0.014 | 0.021 | — | — | 0.031 | 17,500 | 1,150 | 16,000 | 960 | 13,500 | 705 |
| | | 30 | — | 0.007 | 0.01 | 0.015 | — | — | 0.027 | 16,500 | 1,050 | 14,500 | 850 | 12,500 | 625 |
| | 3° | 10 | — | 0.015 | 0.02 | 0.03 | — | — | 0.045 | 22,500 | 1,900 | 20,000 | 1,550 | 17,500 | 1,150 |
| | | 15 | — | 0.015 | 0.02 | 0.03 | — | — | 0.045 | 21,000 | 1,750 | 18,500 | 1,450 | 16,000 | 1,050 |
| 2 | 0° | 8 | — | 0.015 | 0.02 | 0.03 | 0.05 | — | 0.06 | 16,500 | 1,850 | 16,000 | 1,600 | 15,000 | 1,350 |
| | | 10 | — | 0.015 | 0.02 | 0.03 | 0.05 | — | 0.06 | 15,500 | 1,650 | 15,500 | 1,450 | 14,500 | 1,200 |
| | | 12 | — | 0.015 | 0.02 | 0.03 | 0.05 | — | 0.054 | 14,500 | 1,500 | 14,500 | 1,300 | 13,500 | 1,050 |
| | | 16 | — | 0.009 | 0.012 | 0.018 | 0.03 | — | 0.042 | 13,000 | 1,150 | 12,500 | 1,000 | 12,000 | 830 |
| | | 20 | — | 0.006 | 0.008 | 0.012 | 0.02 | — | 0.03 | 12,000 | 935 | 11,500 | 820 | 11,000 | 675 |
| | | 25 | — | 0.004 | 0.006 | 0.009 | 0.015 | — | 0.027 | 11,000 | 800 | 11,000 | 700 | 10,000 | 580 |
| | 1° | 15 | — | 0.015 | 0.02 | 0.03 | 0.05 | — | 0.06 | 17,500 | 1,850 | 17,000 | 1,600 | 16,000 | 1,350 |
| | | 20 | — | 0.015 | 0.02 | 0.03 | 0.05 | — | 0.06 | 16,500 | 1,650 | 16,000 | 1,450 | 15,000 | 1,200 |
| | | 25 | — | 0.012 | 0.017 | 0.025 | 0.042 | — | 0.054 | 15,500 | 1,500 | 15,500 | 1,300 | 14,500 | 1,050 |
| | | 30 | — | 0.012 | 0.016 | 0.024 | 0.04 | — | 0.048 | 14,500 | 1,300 | 14,500 | 1,150 | 13,500 | 950 |
| | | 40 | — | 0.007 | 0.01 | 0.015 | 0.025 | — | 0.036 | 13,000 | 1,100 | 12,500 | 945 | 12,000 | 780 |
| | | 50 | — | 0.006 | 0.008 | 0.012 | 0.02 | — | 0.024 | 12,000 | 935 | 11,500 | 820 | 11,000 | 675 |
| | 3° | 15 | — | 0.015 | 0.02 | 0.03 | 0.05 | — | 0.06 | 17,500 | 1,950 | 17,000 | 1,700 | 16,000 | 1,400 |
| | | 20 | — | 0.015 | 0.02 | 0.03 | 0.05 | — | 0.06 | 16,500 | 1,850 | 16,000 | 1,600 | 15,000 | 1,350 |
| 2.5 | 0° | 10 | — | — | 0.02 | — | 0.05 | — | 0.075 | 13,000 | 1,850 | 13,000 | 1,400 | 12,000 | 1,350 |
| | | 20 | — | — | 0.012 | — | 0.03 | — | 0.052 | 10,000 | 1,150 | 10,000 | 885 | 9,450 | 830 |
| | | 30 | — | — | 0.006 | — | 0.015 | — | 0.033 | 8,800 | 800 | 8,650 | 630 | 8,100 | 590 |

次ページへ
外径 DC 3～4 NEXT

# WXS-CPR
## 側面切削（等高線仕上げ加工）

SIDE MILLING (CONTOUR LINE FINISH MILLING)

前ページより
FROM 外径 DC 1～2.5

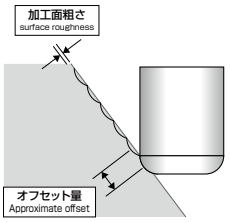
| 外径 DC | 有効勾配角 α° | 首下長 LU | 基準切込深さ Depth of Cut | | | | | | | 被削材 WORK MATERIAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 調質鋼・プリハードン鋼 (～45HRC) Hardened Steel Prehardened Steel SKD61・NAK55・NAK80・HPM1 | | 調質鋼・プリハードン鋼 (45～55HRC) Hardened Steel Prehardened Steel SKD61・STAVAX・HPM38 | | 調質鋼 (55～65HRC) Hardened Steel | |
| | | | | | | | | | | ap=120% | ae =120% | ap=100% | ae =100% | ap=60% | ae =80% |
| | | | 軸方向 ap | | | | | | 径方向 ae | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| | | | R0.05 | R0.1 | R0.2 | R0.3 | R0.5 | R1 | | | | | | | |
| 3 | 0° | 8 | — | — | 0.02 | — | — | — | 0.08 | 12,000 | 2,000 | 11,000 | 1,400 | 10,000 | 1,100 |
| | | 12 | — | — | 0.02 | 0.03 | 0.05 | — | 0.08 | 12,000 | 2,000 | 11,000 | 1,400 | 10,000 | 1,100 |
| | | 16 | — | — | 0.02 | 0.03 | 0.05 | — | 0.08 | 10,500 | 1,600 | 9,600 | 1,150 | 9,000 | 875 |
| | | 20 | — | — | 0.02 | 0.03 | 0.05 | — | 0.064 | 9,300 | 1,350 | 8,400 | 940 | 7,850 | 725 |
| | | 25 | — | — | 0.012 | 0.018 | 0.03 | — | 0.048 | 8,900 | 1,100 | 8,050 | 795 | 7,550 | 610 |
| | | 30 | — | — | 0.008 | 0.012 | 0.02 | — | 0.04 | 8,600 | 1,000 | 7,800 | 720 | 7,300 | 555 |
| | | 35 | — | — | 0.006 | 0.009 | 0.015 | — | 0.036 | 7,950 | 880 | 7,200 | 630 | 6,750 | 480 |
| | 1° | 15 | — | — | 0.02 | — | 0.05 | — | 0.08 | 13,500 | 2,250 | 12,000 | 1,600 | 11,000 | 1,200 |
| | | 20 | — | — | 0.02 | — | 0.05 | — | 0.08 | 12,500 | 2,000 | 11,500 | 1,450 | 10,500 | 1,100 |
| | | 30 | — | — | 0.02 | — | 0.05 | — | 0.08 | 12,000 | 1,800 | 11,000 | 1,300 | 10,000 | 985 |
| | | 40 | — | — | 0.018 | — | 0.045 | — | 0.064 | 11,000 | 1,550 | 10,000 | 1,100 | 9,450 | 860 |
| | | 50 | — | — | 0.014 | — | 0.035 | — | 0.056 | 10,000 | 1,300 | 9,100 | 940 | 8,550 | 720 |
| | | 60 | — | — | 0.01 | — | 0.025 | — | 0.048 | 9,300 | 1,150 | 8,400 | 830 | 7,850 | 640 |
| 4 | 0° | 16 | — | — | 0.02 | 0.03 | 0.05 | 0.08 | 0.08 | 7,900 | 2,500 | 7,150 | 2,050 | 6,450 | 1,450 |
| | | 20 | — | — | 0.02 | 0.03 | 0.05 | 0.08 | 0.08 | 7,450 | 2,400 | 6,750 | 1,950 | 6,100 | 1,350 |
| | | 25 | — | — | 0.02 | 0.03 | 0.05 | 0.08 | 0.072 | 6,550 | 2,000 | 5,950 | 1,650 | 5,350 | 1,150 |
| | | 30 | — | — | 0.014 | 0.021 | 0.035 | 0.056 | 0.056 | 6,100 | 1,650 | 5,550 | 1,350 | 5,000 | 955 |
| | | 40 | — | — | 0.008 | 0.012 | 0.02 | 0.032 | 0.04 | 5,700 | 1,300 | 5,150 | 1,050 | 4,650 | 730 |
| | | 50 | — | — | 0.006 | 0.009 | 0.015 | 0.024 | 0.036 | 5,000 | 960 | 4,550 | 785 | 4,100 | 550 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
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3. 上表は、等高線加工（側面）の負荷の少ない加工形状での目安です。加工形状、機械剛性、ワーク保持等の状況により、回転速度、送り速度、切込深さを調整下さい。
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5. Z切込時のアプローチ方法として、円弧（ヘリカル）、傾斜（ランプ）での加工をお勧めします。
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7. 形状精度を必要とする場合、ゼロカットをお勧めします。

1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties. When machining carbon steels or hardened steels, using MQL(Minimum Qiantity Lubrication / oil mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
7. When the workpiece requires precision shaping, re-running the end mill in the identical tool path is recommended.

## 加工面精度（加工面粗さ）に対するオフセット量目安（mm） Approximate offset for workpiece surface precision (surface roughness)

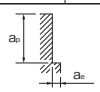
| コーナ半径 (mm) | 加工面粗さ（μm） Surface Roughness | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 | 0.25 | 0.5 | 0.75 | 1 | 1.25 | 1.5 | 1.75 | 2 | 2.5 | 3 | 3.5 | 4 | 5 |
| R0.05 | 0.006 | 0.01 | 0.014 | 0.017 | 0.02 | 0.022 | 0.024 | 0.026 | 0.028 | — | — | — | — | — |
| R0.1 | 0.009 | 0.014 | 0.02 | 0.024 | 0.028 | 0.032 | 0.035 | 0.037 | 0.04 | 0.045 | 0.049 | — | — | — |
| R0.2 | 0.012 | 0.02 | 0.028 | 0.035 | 0.04 | 0.045 | 0.049 | 0.053 | 0.057 | 0.063 | 0.07 | 0.075 | 0.08 | 0.9 |
| R0.3 | 0.015 | 0.025 | 0.035 | 0.042 | 0.049 | 0.055 | 0.06 | 0.065 | 0.07 | 0.077 | 0.085 | 0.092 | 0.098 | 0.11 |
| R0.5 | 0.02 | 0.032 | 0.045 | 0.055 | 0.065 | 0.07 | 0.078 | 0.084 | 0.09 | 0.1 | 0.11 | 0.118 | 0.125 | 0.141 |
| R1 | 0.028 | 0.045 | 0.063 | 0.078 | 0.09 | 0.1 | 0.11 | 0.118 | 0.125 | 0.142 | 0.155 | 0.168 | 0.18 | 0.2 |



形状寸法表
SPECIFICATION CHARTS
WXS-EMS▶P291

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WXS-EMS
### 側面切削 SIDE MILLING

| 被削材 Work Material | 調質鋼（～40HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel NAK55、HPM1、SKT | | 工具鋼・調質鋼（40～45HRC）・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD11、SKD61、NAK80 | | 調質鋼（45～55HRC） Hardened Steel | | 調質鋼（55～60HRC） Hardened Steel | | 調質鋼（60～65HRC） Hardened Steel | | 調質鋼（65～70HRC） Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 | 20,000 | 800 | 20,000 | 800 | 20,000 | 800 | 20,000 | 560 | 20,000 | 480 | 16,000 | 335 |
| 2 | 20,000 | 1,600 | 20,000 | 1,600 | 16,000 | 1,250 | 12,000 | 670 | 11,000 | 535 | 7,950 | 335 |
| 3 | 15,000 | 1,800 | 13,500 | 1,600 | 10,500 | 1,250 | 7,950 | 670 | 7,450 | 535 | 5,300 | 335 |
| 4 | 11,000 | 1,800 | 9,950 | 1,600 | 7,950 | 1,250 | 5,950 | 670 | 5,550 | 535 | 4,000 | 335 |
| 5 | 8,900 | 1,800 | 7,950 | 1,600 | 6,350 | 1,250 | 4,800 | 670 | 4,450 | 535 | 3,200 | 335 |
| 6 | 7,450 | 2,650 | 6,650 | 2,400 | 5,300 | 1,900 | 4,000 | 1,000 | 3,700 | 800 | 2,650 | 505 |
| 8 | 5,550 | 2,650 | 4,950 | 2,400 | 4,000 | 1,900 | 3,000 | 1,000 | 2,800 | 800 | 2,000 | 505 |
| 10 | 4,450 | 2,650 | 4,000 | 2,400 | 3,200 | 1,900 | 2,400 | 1,000 | 2,250 | 800 | 1,600 | 505 |
| 12 | 3,700 | 2,650 | 3,300 | 2,400 | 2,650 | 1,900 | 2,000 | 1,000 | 1,850 | 800 | 1,350 | 505 |
| 14 | 3,100 | 2,500 | 2,800 | 2,250 | 2,250 | 1,800 | 1,700 | 1,000 | 1,550 | 800 | 1,100 | 505 |
| 15 | 2,850 | 2,400 | 2,600 | 2,200 | 2,100 | 1,750 | 1,550 | 950 | 1,450 | 800 | 1,050 | 505 |
| 16 | 2,700 | 2,400 | 2,400 | 2,100 | 1,950 | 1,700 | 1,450 | 930 | 1,350 | 800 | 995 | 505 |
| 18 | 2,400 | 2,250 | 2,200 | 2,000 | 1,750 | 1,600 | 1,300 | 895 | 1,200 | 800 | 885 | 505 |
| 20 | 2,200 | 2,150 | 1,950 | 1,900 | 1,550 | 1,500 | 1,150 | 845 | 1,100 | 695 | 800 | 505 |
| 25 | 1,700 | 2,450 | 1,550 | 2,100 | 1,250 | 1,500 | 955 | 915 | 890 | 750 | 635 | 505 |
| 30 | 1,400 | 2,300 | 1,300 | 1,750 | 1,050 | 1,250 | 795 | 760 | 740 | 620 | 620 | 430 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | |

| | ap | ae |
|---|---|---|
| DC≦φ1.5 | 1.5D | 0.02D |
| φ1.5＜DC≦φ2.5 | 1.5D | 0.05D |
| φ2.5＜DC | 1.5D | 0.1D |

ae Max=1mm以下

| ap | ae |
|---|---|
| 1.5D | 0.05D |

ae Max=1mm以下

| ap | ae |
|---|---|
| 1.5D | 0.03D |

ae Max=0.5mm以下

| ap | ae |
|---|---|
| 1D | 0.02D |

ae Max=0.5mm以下

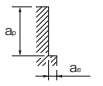
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

## WXS-EMS
### 高速側面切削 HIGH-SPEED SIDE MILLING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ず行って下さい。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

| 被削材 Work Material | 調質鋼（～40HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel NAK55、HPM1、SKT | | 工具鋼・調質鋼（40～45HRC）・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD11、SKD61、NAK80 | | 調質鋼（45～55HRC） Hardened Steel | | 調質鋼（55～60HRC） Hardened Steel | | 調質鋼（60～65HRC） Hardened Steel | | 調質鋼（65～70HRC） Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 | 50,000 | 1,600 | 50,000 | 2,000 | 50,000 | 2,000 | 50,000 | 1,600 | 47,500 | 1,350 | 32,000 | 715 |
| 2 | 47,500 | 3,250 | 47,500 | 3,800 | 40,000 | 3,200 | 25,500 | 1,650 | 24,000 | 1,350 | 16,000 | 800 |
| 3 | 32,000 | 3,450 | 32,000 | 3,800 | 26,500 | 3,200 | 17,000 | 1,650 | 16,000 | 1,350 | 10,500 | 800 |
| 4 | 24,000 | 3,900 | 24,000 | 3,800 | 20,000 | 3,200 | 12,500 | 1,650 | 12,000 | 1,350 | 7,950 | 800 |
| 5 | 19,000 | 4,100 | 19,000 | 3,800 | 16,000 | 3,200 | 10,000 | 1,650 | 9,550 | 1,350 | 6,350 | 800 |
| 6 | 16,000 | 5,750 | 16,000 | 5,750 | 13,500 | 4,800 | 8,500 | 2,450 | 7,950 | 2,000 | 5,300 | 1,200 |
| 8 | 12,000 | 5,750 | 12,000 | 5,750 | 9,950 | 4,800 | 6,350 | 2,450 | 5,950 | 2,000 | 4,000 | 1,200 |
| 10 | 9,550 | 5,750 | 9,550 | 5,750 | 7,950 | 4,800 | 5,100 | 2,450 | 4,800 | 2,000 | 3,200 | 1,200 |
| 12 | 7,950 | 5,750 | 7,950 | 5,750 | 6,650 | 4,800 | 4,250 | 2,450 | 4,000 | 2,000 | 2,650 | 1,200 |
| 14 | 6,800 | 5,400 | 6,800 | 5,400 | 5,650 | 4,500 | 3,600 | 2,400 | 3,400 | 2,000 | 2,250 | 1,200 |
| 15 | 6,350 | 5,300 | 6,350 | 5,300 | 5,250 | 4,350 | 3,350 | 2,300 | 3,150 | 1,950 | 2,100 | 1,200 |
| 16 | 5,950 | 5,150 | 5,950 | 5,150 | 4,950 | 4,250 | 3,150 | 2,250 | 2,950 | 1,850 | 1,950 | 1,200 |
| 18 | 5,300 | 4,850 | 5,300 | 4,850 | 4,400 | 4,050 | 2,800 | 2,200 | 2,650 | 1,750 | 1,750 | 1,200 |
| 20 | 4,750 | 4,600 | 4,750 | 4,600 | 3,950 | 3,650 | 2,500 | 2,050 | 2,350 | 1,550 | 1,550 | 1,100 |
| 25 | 3,800 | 5,350 | 3,800 | 5,050 | 3,150 | 3,800 | 2,000 | 2,000 | 1,900 | 1,250 | 1,250 | 1,050 |
| 30 | 3,150 | 4,950 | 3,150 | 4,250 | 2,650 | 3,150 | 1,650 | 1,800 | 1,550 | 1,050 | 1,050 | 1,000 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | |

| ap | ae |
|---|---|
| 1D | 0.05D |

ae Max=0.5mm以下

| ap | ae |
|---|---|
| 1D | 0.03D |

ae Max=0.5mm以下

| ap | ae |
|---|---|
| 1D | 0.02D |

ae Max=0.2mm以下

| ap | ae |
|---|---|
| 1D | 0.01D |

ae Max=0.2mm以下

1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. The indicated speeds and feeds are for high speed light milling with high speed / high precision machining centers.
2. Tools can cause sparks. Do not use flammable fluids.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

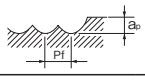
# WXS-EBD

## 標準切削

●加工パスは等高線加工を前提としています。

STANDARD MILLING

The machining path is on condition of contouring line operation.

| 被削材 Work Material | 工具鋼・調質鋼（～45HRC）・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD、NAK80、HPM50 | | 調質鋼（45～55HRC） Hardened Steel | | 調質鋼（55～60HRC） Hardened Steel | | 調質鋼（60～65HRC） Hardened Steel | | 調質鋼（65～70HRC） Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 0.5 | 32,000 | 2,350 | 32,000 | 2,350 | 32,000 | 2,000 | 32,000 | 1,600 | 32,000 | 1,450 |
| 0.75 | 32,000 | 3,050 | 32,000 | 3,050 | 32,000 | 2,500 | 26,500 | 1,900 | 21,000 | 1,400 |
| 1 | 32,000 | 3,600 | 32,000 | 3,550 | 24,000 | 2,200 | 20,000 | 1,750 | 16,000 | 1,250 |
| 1.5 | 26,500 | 4,000 | 21,000 | 3,200 | 16,000 | 2,000 | 13,500 | 1,600 | 10,500 | 1,200 |
| 2 | 20,000 | 3,650 | 16,000 | 2,950 | 12,000 | 1,900 | 9,950 | 1,500 | 7,950 | 1,150 |
| 2.5 | 16,000 | 3,500 | 12,500 | 2,650 | 9,550 | 1,700 | 7,950 | 1,350 | 6,350 | 1,000 |
| 3 | 13,500 | 3,350 | 10,500 | 2,300 | 7,950 | 1,550 | 6,650 | 1,250 | 5,300 | 955 |
| 4 | 9,950 | 2,850 | 7,950 | 2,050 | 5,950 | 1,350 | 4,950 | 1,050 | 4,000 | 830 |
| 5 | 7,950 | 2,550 | 6,350 | 1,800 | 4,800 | 1,150 | 4,000 | 875 | 3,200 | 700 |
| 6 | 6,650 | 2,400 | 5,300 | 1,650 | 4,000 | 955 | 3,300 | 795 | 2,650 | 635 |
| 8 | 4,950 | 1,800 | 4,000 | 1,250 | 3,000 | 775 | 2,500 | 595 | 2,000 | 475 |
| 10 | 4,000 | 1,450 | 3,200 | 1,000 | 2,400 | 620 | 2,000 | 475 | 1,600 | 380 |
| 12.5 | 3,200 | 1,150 | 2,550 | 815 | 1,900 | 495 | 1,600 | 380 | 1,250 | 305 |
| 切込深さ Depth of Cut |  | | ap 0.05D / Pf 0.1D ap Max=0.6mm以下 | | ap 0.03D / Pf 0.1D ap Max=0.5mm以下 | | ap 0.02D / Pf 0.05D ap Max=0.3mm以下 | | | |

1. 機械、ホルダは剛性のある、精度の高いものをご使用下さい。
2. エアブローまたはMQL(オイルミストクーラント)でご使用下さい。
3. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。
   加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. 切込深さが小さい場合、回転速度、送り速度をさらに上げることが可能です。
   ●エンドミルの選定ガイドライン
   切込みを増したい場合は、FX重切削用強力ボールシリーズ(FX-HS-EBDS)を、送り速度を高めたい場合は、FX多刃ボールシリーズ（FXS-EBT,FXS-EBM)をご使用下さい。

1. Use a rigid and precise machine and holder.
2. Using air brow or MQL (oil mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibrationor chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc.,please adjust the speed, feed and the depth of cut.
4. Cutting speed and feed rate can be increased in case of lower depth of cut.
   ● As a guideline in selecting end mills,
   To increase the depth of cut, use the FX Heavy Cutting Strong Ball Series (FX-HS-EBDS).
   To increase the feed rate, use the FX Multiple Flute Ball Series (FX-EBT, FXS-EBM).

# WXS-EBD

## 高速切削

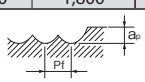
⚠ 加工時に発生する火花や破損による発熱で引火、火災の危険性があります。
防火対策を必ず行って下さい。高速、高精度のマシニングセンタを利用した場合の基準条件表です。

HIGH-SPEED LIGHT MILLING

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed/high precision machining centers.

●加工パスは等高線加工を前提としています。

The machining path is on condition of contouring line operation.

| 被削材 Work Material | 工具鋼・調質鋼（～45HRC）・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD、NAK80、HPM50 | | 調質鋼（45～55HRC） Hardened Steel | | 調質鋼（55～60HRC） Hardened Steel | | 調質鋼（60～65HRC） Hardened Steel | | 調質鋼（65～70HRC） Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 0.5 | 50,000 | 3,700 | 50,000 | 3,700 | 50,000 | 3,100 | 50,000 | 2,600 | 47,500 | 2,400 |
| 0.75 | 50,000 | 4,800 | 50,000 | 4,800 | 50,000 | 3,900 | 42,500 | 3,050 | 32,000 | 2,300 |
| 1 | 50,000 | 5,600 | 47,500 | 5,350 | 40,000 | 3,650 | 32,000 | 2,800 | 24,000 | 2,100 |
| 1.5 | 41,500 | 6,200 | 32,000 | 4,800 | 26,500 | 3,350 | 21,000 | 2,550 | 16,000 | 1,900 |
| 2 | 31,000 | 5,700 | 24,000 | 4,400 | 20,000 | 3,200 | 16,000 | 2,400 | 12,000 | 1,800 |
| 2.5 | 25,000 | 5,450 | 19,000 | 4,000 | 16,000 | 2,850 | 13,000 | 2,150 | 9,550 | 1,600 |
| 3 | 20,500 | 5,200 | 16,000 | 3,450 | 13,500 | 2,550 | 10,500 | 2,050 | 7,950 | 1,550 |
| 4 | 15,500 | 4,450 | 12,000 | 3,050 | 9,950 | 2,250 | 7,950 | 1,800 | 5,950 | 1,350 |
| 5 | 12,500 | 3,950 | 9,550 | 2,650 | 7,950 | 1,900 | 6,350 | 1,550 | 4,800 | 1,150 |
| 6 | 10,500 | 3,700 | 7,950 | 2,500 | 6,650 | 1,600 | 5,300 | 1,350 | 4,000 | 995 |
| 8 | 7,750 | 2,800 | 5,950 | 1,900 | 4,950 | 1,300 | 4,000 | 1,050 | 3,000 | 775 |
| 10 | 6,200 | 2,250 | 4,800 | 1,550 | 4,000 | 1,050 | 3,200 | 830 | 2,400 | 620 |
| 12.5 | 4,950 | 1,800 | 3,800 | 1,200 | 3,200 | 830 | 2,550 | 660 | 1,900 | 495 |
| 切込深さ Depth of Cut |  | | ap 0.02D / Pf 0.05D ap Max=0.3mm以下 | | ap 0.02D / Pf 0.05D ap Max=0.2mm以下 | | ap 0.01D / Pf 0.05D ap Max=0.1mm以下 | | | |

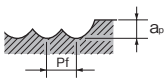
1. 機械、ホルダは剛性のある、精度の高いものをご使用下さい。
2. エアブローまたはMQL(オイルミストクーラント)でご使用下さい。
3. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。
   加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. 切込深さが小さい場合、回転速度、送り速度をさらに上げることが可能です。
   ●エンドミルの選定ガイドライン
   切込みを増したい場合は、FX重切削用強力ボールシリーズ(FX-HS-EBDS)を、送り速度を高めたい場合は、FX多刃ボールシリーズ（FXS-EBT,FXS-EBM)をご使用下さい。

1. Use a rigid and precise machine and holder.
2. Using air brow or MQL (oil mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibrationor chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc.,please adjust the speed, feed and the depth of cut.
4. Cutting speed and feed rate can be increased in case of lower depth of cut.
   ● As a guideline in selecting end mills,
   To increase the depth of cut, use the FX Heavy Cutting Strong Ball Series (FX-HS-EBDS).
   To increase the feed rate, use the FX Multiple Flute Ball Series (FX-EBT, FXS-EBM).

形状寸法表 SPECIFICATION CHARTS CBN-SXB▶P330
形状寸法表 SPECIFICATION CHARTS CBN-LN-SXB▶P359

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## CBN-SXB

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardend Steel SKT・SKD・NAK80・HPM50 (30～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～68HRC) | |
|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 300m/min | | 300m/min | | 250m/min | | 200m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| R0.2×1.2 | 50,000 | 2,000 | 50,000 | 2,000 | 50,000 | 2,000 | 50,000 | 2,000 |
| R0.3×1.8 | 50,000 | 2,000 | 50,000 | 2,000 | 50,000 | 2,000 | 50,000 | 2,000 |
| R0.5×2.5 | 50,000 | 3,000 | 50,000 | 3,000 | 50,000 | 3,000 | 50,000 | 3,000 |
| R1 ×5 | 50,000 | 4,000 | 50,000 | 4,000 | 40,000 | 3,200 | 32,000 | 2,500 |
| R1.5×6 | 32,000 | 2,550 | 32,000 | 2,550 | 26,500 | 2,100 | 21,500 | 1,700 |
| 切込深さ Depth of Cut | | | ap: 0.015D, Pf: 0.04D | |  | | ap: 0.01D, Pf: 0.03D | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミスト）でご使用下さい。
3. 機械の回転速度が上がらない場合は、できるだけ最高回転速度で使用し、送り速度を調整して下さい。
4. コーナ部等負荷が大きい加工には、回転速度、送り速度ともに下げて使用下さい。
5. エンドミル取付け時の刃先の振れは、10μm未満に抑えて下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. When using low speed machines, use the maximum speed and adjust the feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10μm after chucking.

## CBN-LN-SXB

| 被削材 Work Material | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardend Steel SKT・SKD・NAK80・HPM50 (～50HRC) | | 調質鋼 Hardened Steel (50～60HRC) | | 調質鋼 Hardened Steel (60～68HRC) | |
|---|---|---|---|---|---|---|---|---|
| 送り速度 Feed(mm/min) | | | 120% | | 100% | | 80% | |
| 切込深さ Depth of Cut | | | ap | Pf | ap | Pf | ap | Pf |
| R×首下長 RE×LU (mm) | 回転速度 Speed($min^{-1}$) | 基準送り速度 Standard Feed Rate (mm/min) | | | | | | |
| R0.2 × 2 | 50,000 | 800 | 0.005 | 0.01 | 0.005 | 0.01 | 0.005 | 0.005 |
| R0.2 × 3 | 50,000 | 600 | 0.005 | 0.01 | 0.005 | 0.01 | 0.005 | 0.005 |
| R0.3 × 3 | 40,000 | 1,200 | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 |
| R0.3 × 4.5 | 30,000 | 900 | 0.01 | 0.01 | 0.005 | 0.01 | 0.005 | 0.005 |
| R0.5 × 4 | 40,000 | 2,400 | 0.03 | 0.03 | 0.02 | 0.03 | 0.02 | 0.02 |
| R0.5 × 5 | 32,000 | 1,900 | 0.03 | 0.03 | 0.02 | 0.03 | 0.01 | 0.02 |
| R0.5 × 6 | 25,000 | 1,500 | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 |
| R0.5 × 7.5 | 16,000 | 1,000 | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 |
| R0.75 × 7.5 | 32,000 | 1,900 | 0.03 | 0.03 | 0.02 | 0.03 | 0.01 | 0.01 |
| R1 × 6 | 40,000 | 3,200 | 0.04 | 0.04 | 0.03 | 0.03 | 0.02 | 0.03 |
| R1 × 8 | 32,000 | 2,600 | 0.03 | 0.04 | 0.02 | 0.03 | 0.01 | 0.02 |
| R1 × 10 | 24,000 | 1,400 | 0.02 | 0.03 | 0.01 | 0.03 | 0.01 | 0.02 |
| R1.5 × 12 | 21,000 | 1,700 | 0.02 | 0.03 | 0.02 | 0.02 | 0.01 | 0.02 |
| R1.5 × 15 | 16,000 | 1,100 | 0.02 | 0.03 | 0.01 | 0.02 | 0.01 | 0.01 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミスト）でご使用下さい。
3. 機械の回転速度が上がらない場合は、できるだけ最高回転速度で使用し、送り速度を調整して下さい。
4. コーナ部等負荷が大きい加工には、回転速度、送り速度ともに下げて使用下さい。
5. エンドミル取付け時の刃先の振れは、10μm未満に抑えて下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. When using low speed machines, use the maximum speed and adjust the feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10μm after chucking.

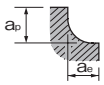
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## CBN-CR-EDS

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardend Steel SKT・SKD・NAK80・HPM50 (30～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～68HRC) | | 鋳鉄 Cast Iron FC | |
|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 600m/min | | 300m/min | | 250m/min | | 200m/min | | 500～2,000m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 50,000 | 1,000 | 32,000 | 600 | 26,500 | 500 | 21,000 | 400 | 50,000 | — |
| 4 | 48,000 | 1,900 | 24,000 | 1,000 | 20,000 | 800 | 16,000 | 600 | 40,000～50,000 | — |
| 5 | 38,000 | 2,300 | 19,000 | 1,100 | 16,000 | 1,000 | 12,500 | 800 | 32,000～50,000 | — |
| 6 | 32,000 | 2,500 | 16,000 | 1,300 | 13,500 | 1,100 | 10,500 | 800 | 26,500～50,000 | — |
| 8 | 24,000 | 1,900 | 12,000 | 1,000 | 10,000 | 800 | 8,000 | 600 | 20,000～50,000 | — |
| 10 | 19,000 | 1,900 | 9,600 | 1,000 | 8,000 | 600 | 6,400 | 500 | 16,000～50,000 | 2,400～ 7,500 |
| 12 | 16,000 | 1,600 | 8,000 | 800 | 6,600 | 500 | 5,300 | 400 | 13,500～50,000 | 2,000～ 7,500 |
| 14 | 13,500 | 1,400 | 6,800 | 700 | 5,700 | 600 | 4,500 | 500 | 11,500～45,500 | 2,300～ 9,100 |
| 16 | 12,000 | 1,200 | 6,000 | 600 | 5,000 | 500 | 4,000 | 400 | 10,000～40,000 | 2,000～ 8,000 |
| 18 | 10,500 | 1,100 | 5,300 | 500 | 4,400 | 400 | 3,500 | 400 | 8,800～35,500 | 2,600～10,500 |
| 20 | 9,600 | 1,200 | 4,800 | 600 | 4,000 | 500 | 3,200 | 400 | 8,000～32,000 | 3,200～12,500 |
| 25 | 7,600 | 900 | 3,800 | 500 | 3,200 | 400 | 2,500 | 300 | 6,400～25,500 | 3,800～15,500 |
| 30 | 6,400 | 1,000 | 3,200 | 500 | 2,700 | 300 | 2,100 | 300 | 5,300～21,000 | 4,200～17,000 |
| 切込深さ Depth of Cut | ap 0.1D / ae 0.01D | | | | | | | | ap <1D / ae <0.02D | |

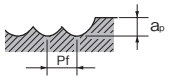



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミスト）でご使用下さい。
3. 機械の回転速度が上がらない場合は、できるだけ最高回転速度で使用し、送り速度を調整して下さい。
4. コーナ部等負荷が大きい加工には、回転速度、送り速度ともに下げて使用下さい。
5. エンドミル取付け時の刃先の振れは、10μm未満に抑えて下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. When using low speed machines, use the maximum speed and adjust the feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10μm after chucking.

## CBN-EBD

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardend Steel SKT・SKD・NAK80・HPM50 (30～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 鋳鉄 Cast Iron FC | |
|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 300～1,500m/min | | 250～1,200m/min | | 200～1,000m/min | | 500～2,000m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R3× 6 | 16,000～50,000 | 960～8,000 | 13,000～50,000 | 780～8,000 | 11,000～50,000 | 440～5,000 | 27,000～50,000 | 2,150～14,000 |
| R4× 8 | 12,000～50,000 | 960～9,000 | 10,000～50,000 | 800～9,000 | 8,000～40,000 | 480～4,800 | 20,000～50,000 | 2,400～16,000 |
| R5×10 | 10,000～48,000 | 1,000～9,600 | 8,000～38,000 | 800～7,600 | 6,000～32,000 | 360～3,850 | 16,000～50,000 | 3,200～20,000 |
| R6×12 | 8,000～40,000 | 960～9,600 | 7,000～32,000 | 840～7,700 | 5,000～27,000 | 400～4,300 | 13,000～50,000 | 3,100～20,000 |
| 切込深さ Depth of Cut | ap 0.01D / Pf 0.02D | | | | | | | |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミスト）でご使用下さい。
3. 機械の回転速度が上がらない場合は、できるだけ最高回転速度で使用し、送り速度を調整して下さい。
4. コーナ部等負荷が大きい加工には、回転速度、送り速度ともに下げて使用下さい。
5. エンドミル取付け時の刃先の振れは、10μm未満に抑えて下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. When using low speed machines, use the maximum speed and adjust the feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10μm after chucking.

形状寸法表
SPECIFICATION CHARTS
WX-G-EDSS▶P265

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-G-EDSS
## 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼・超耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 19,500 | 130 | 14,500 | 125 | 12,500 | 90 | 11,000 | 65 | 7,000 | 30 | 5,050 | 25 |
| 1.5 | 14,000 | 130 | 10,500 | 125 | 8,900 | 90 | 7,950 | 65 | 5,050 | 40 | 3,550 | 25 |
| 2 | 11,000 | 135 | 8,400 | 125 | 7,000 | 90 | 6,350 | 70 | 3,950 | 40 | 2,750 | 25 |
| 2.5 | 8,900 | 170 | 7,250 | 135 | 6,000 | 95 | 5,600 | 70 | 3,250 | 40 | 2,300 | 25 |
| 3 | 7,450 | 200 | 7,200 | 230 | 5,850 | 125 | 5,300 | 100 | 3,200 | 45 | 2,100 | 25 |
| 3.5 | 6,650 | 225 | 6,200 | 230 | 5,000 | 125 | 4,550 | 100 | 2,750 | 45 | 1,800 | 25 |
| 4 | 6,000 | 235 | 5,400 | 230 | 4,400 | 125 | 4,000 | 100 | 2,400 | 45 | 1,600 | 25 |
| 4.5 | 5,650 | 270 | 4,800 | 230 | 3,900 | 125 | 3,550 | 100 | 2,100 | 45 | 1,400 | 25 |
| 5 | 5,300 | 315 | 4,350 | 235 | 3,500 | 130 | 3,200 | 100 | 1,900 | 55 | 1,300 | 30 |
| 5.5 | 4,800 | 310 | 3,950 | 235 | 3,250 | 130 | 2,750 | 100 | 1,750 | 55 | 1,150 | 30 |
| 6 | 4,400 | 310 | 3,600 | 235 | 2,900 | 130 | 2,650 | 100 | 1,600 | 55 | 1,050 | 25 |
| 8 | 3,300 | 295 | 2,700 | 235 | 2,200 | 125 | 2,000 | 100 | 1,200 | 50 | 795 | 25 |
| 10 | 2,650 | 280 | 2,150 | 230 | 1,750 | 125 | 1,600 | 95 | 955 | 50 | 635 | 25 |
| 12 | 2,200 | 280 | 1,800 | 230 | 1,450 | 125 | 1,350 | 95 | 795 | 45 | 530 | 20 |
| 切込深さ Depth of Cut | | | ap<br>DC≦φ6: 0.3D<br>φ6< DC: 0.5D | |  | | | | ap<br>DC≦φ6: 0.1D<br>φ6< DC: 0.2D | | ap<br>DC≦φ6: 0.05D<br>φ6< DC: 0.1D | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. この切削条件表は、エンドミルの突出し量が、(外径×3倍以下)を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。

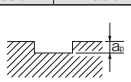
1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. These milling conditions are for an mill where the tool extension length is 3 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.

## WX-G-EDSS
## 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 30,200 | 545 | 28,600 | 515 | 25,500 | 405 | 19,100 | 275 | 12,700 | 120 |
| 1.5 | 20,800 | 550 | 20,200 | 530 | 17,500 | 405 | 12,900 | 270 | 8,700 | 120 |
| 2 | 15,900 | 550 | 15,500 | 530 | 13,500 | 405 | 9,900 | 270 | 6,700 | 120 |
| 2.5 | 13,100 | 550 | 12,700 | 535 | 11,100 | 405 | 8,000 | 265 | 5,450 | 125 |
| 3 | 10,600 | 605 | 10,600 | 575 | 8,500 | 410 | 6,350 | 285 | 4,800 | 145 |
| 3.5 | 9,550 | 600 | 9,550 | 570 | 7,750 | 405 | 5,700 | 280 | 4,200 | 140 |
| 4 | 8,750 | 560 | 8,750 | 560 | 7,150 | 400 | 5,150 | 270 | 3,750 | 135 |
| 4.5 | 8,150 | 550 | 8,150 | 550 | 6,700 | 390 | 4,800 | 255 | 3,400 | 130 |
| 5 | 7,650 | 535 | 7,650 | 535 | 6,400 | 380 | 4,450 | 250 | 3,200 | 130 |
| 5.5 | 6,900 | 535 | 6,950 | 535 | 5,800 | 380 | 4,050 | 250 | 2,900 | 130 |
| 6 | 6,350 | 535 | 6,350 | 535 | 5,300 | 380 | 3,700 | 250 | 2,650 | 130 |
| 8 | 4,800 | 535 | 4,800 | 535 | 4,000 | 380 | 2,800 | 250 | 2,000 | 130 |
| 10 | 3,800 | 535 | 3,800 | 535 | 3,200 | 380 | 2,250 | 250 | 1,600 | 130 |
| 12 | 3,200 | 535 | 3,200 | 535 | 2,650 | 380 | 1,850 | 250 | 1,350 | 130 |
| 切込深さ Depth of Cut | | | ap<br>DC≦φ3: 0.15D<br>φ3< DC: 0.2D | |  | | | | ap<br>DC≦φ6: 0.1D<br>φ6< DC: 0.15D | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL(ミストクーラント)でご使用下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. この切削条件表は、エンドミルの突出し量が、(外径×3倍以下)を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. These milling conditions are for an mill where the tool extension length is 3 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## WX-G-EMSS
## 側面切削

SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼・超耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 610 | 8,800 | 505 | 7,450 | 355 | 5,850 | 135 | 3,200 | 65 | 2,100 | 35 |
| 4 | 7,950 | 635 | 6,600 | 550 | 5,550 | 390 | 4,400 | 135 | 2,400 | 65 | 1,600 | 35 |
| 5 | 6,350 | 715 | 5,300 | 590 | 4,450 | 430 | 3,500 | 140 | 1,900 | 65 | 1,250 | 35 |
| 6 | 5,300 | 715 | 4,400 | 590 | 3,700 | 430 | 2,900 | 140 | 1,600 | 65 | 1,050 | 35 |
| 8 | 4,000 | 715 | 3,300 | 590 | 2,800 | 430 | 2,200 | 140 | 1,200 | 65 | 795 | 35 |
| 10 | 3,200 | 715 | 2,650 | 590 | 2,250 | 430 | 1,750 | 140 | 955 | 65 | 635 | 35 |
| 12 | 2,650 | 715 | 2,200 | 590 | 1,850 | 430 | 1,450 | 140 | 795 | 65 | 530 | 35 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 1.2D | 0.1D |




| ap | ae |
|---|---|
| 1.2D | 0.05D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. この切削条件表は、エンドミルの突出し量が、(外径×3倍以下)を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.

## WX-G-EMSS
## 高速切削用

HIGH-SPEED LIGHT MILLING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 17,000 | 1,950 | 14,900 | 1,600 | 14,900 | 1,450 | 12,700 | 1,050 | 10,600 | 635 |
| 4 | 12,700 | 1,850 | 11,100 | 1,500 | 11,100 | 1,350 | 9,550 | 990 | 7,950 | 570 |
| 5 | 10,200 | 1,650 | 8,900 | 1,450 | 8,900 | 1,250 | 7,650 | 915 | 6,350 | 540 |
| 6 | 8,500 | 1,550 | 7,450 | 1,350 | 7,450 | 1,150 | 6,350 | 840 | 5,300 | 510 |
| 8 | 6,350 | 1,450 | 5,550 | 1,250 | 5,550 | 1,050 | 4,800 | 765 | 4,000 | 510 |
| 10 | 5,100 | 1,450 | 4,450 | 1,250 | 4,450 | 1,050 | 3,800 | 765 | 3,200 | 510 |
| 12 | 4,250 | 1,450 | 3,700 | 1,250 | 3,700 | 1,050 | 3,200 | 765 | 2,650 | 510 |

切込深さ Depth of Cut

| | ap | ae |
|---|---|---|
| DC＜φ6 | 1.0D | 0.02D |
| φ6≦ DC | 1.0D | 0.05D |




| | ap | ae |
|---|---|---|
| DC＜φ6 | 1.0D | 0.01D |
| φ6≦ DC | 1.0D | 0.02D |

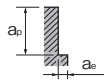
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL(ミストクーラント)でご使用下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. この切削条件表は、エンドミルの突出し量が、(外径×3倍以下)を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.

形状寸法表
SPECIFICATION CHARTS
UP-PHS▶P303

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

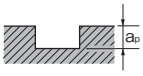
## UP-PHS
## 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼、鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・チタン合金 Hardened Steel・Titanium Alloy Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100m/min | | 78m/min | | 66m/min | | 62m/min | | 60m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 1,170 | 8,300 | 900 | 7,000 | 650 | 6,600 | 670 | 6,350 | 580 |
| 4 | 7,950 | 1,200 | 6,200 | 980 | 5,250 | 650 | 4,950 | 700 | 4,750 | 620 |
| 5 | 6,350 | 1,260 | 4,950 | 1,000 | 4,200 | 700 | 3,950 | 750 | 3,800 | 640 |
| 6 | 5,300 | 1,500 | 4,150 | 1,100 | 3,500 | 840 | 3,300 | 800 | 3,200 | 650 |
| 8 | 4,000 | 1,500 | 3,100 | 1,100 | 2,650 | 790 | 2,450 | 770 | 2,400 | 660 |
| 10 | 3,200 | 1,320 | 2,500 | 1,000 | 2,100 | 720 | 1,950 | 700 | 1,900 | 630 |
| 12 | 2,650 | 1,320 | 2,050 | 1,000 | 1,750 | 680 | 1,650 | 650 | 1,600 | 570 |
| 切込深さ Depth of Cut |  | | ap 1.5D / ae 0.2D | | | | ap 1.5D / ae 0.1D | | ap 1D / ae 0.05D | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

## UP-PHS
## 溝切削 SLOTTING

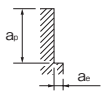
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・チタン合金 Hardened Steel・Titanium Alloy Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 72m/min | | 54m/min | | 41m/min | | 47m/min | | 42m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 7,600 | 570 | 5,700 | 480 | 4,400 | 315 | 4,950 | 360 | 4,450 | 380 |
| 4 | 5,700 | 570 | 4,300 | 480 | 3,300 | 315 | 3,750 | 400 | 3,350 | 430 |
| 5 | 4,600 | 650 | 3,400 | 500 | 2,600 | 330 | 2,950 | 430 | 2,650 | 460 |
| 6 | 3,800 | 650 | 2,900 | 500 | 2,200 | 350 | 2,500 | 450 | 2,250 | 480 |
| 8 | 2,900 | 660 | 2,200 | 520 | 1,650 | 380 | 1,850 | 465 | 1,650 | 480 |
| 10 | 2,300 | 610 | 1,700 | 480 | 1,300 | 330 | 1,500 | 430 | 1,350 | 450 |
| 12 | 1,900 | 610 | 1,400 | 430 | 1,100 | 315 | 1,200 | 400 | 1,100 | 420 |
| 切込深さ Depth of Cut |  ap=1D | | | | | | | | ap=0.2D | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

## WX-PHSS
## 側面切削

SIDE MILLING

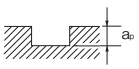
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・チタン合金 Hardened Steel・Titanium Alloy Steel (45～55HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100m/min | | 78m/min | | 66m/min | | 62m/min | | 60m/min | | 30m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 975 | 8,300 | 760 | 7,000 | 560 | 6,600 | 555 | 6,350 | 485 | 3,200 | 190 |
| 4 | 7,950 | 1,000 | 6,200 | 820 | 5,250 | 565 | 4,950 | 590 | 4,750 | 515 | 2,400 | 190 |
| 5 | 6,350 | 1,050 | 4,950 | 845 | 4,200 | 590 | 3,950 | 630 | 3,800 | 535 | 1,900 | 190 |
| 6 | 5,300 | 1,250 | 4,150 | 945 | 3,500 | 700 | 3,300 | 660 | 3,200 | 545 | 1,600 | 190 |
| 8 | 4,000 | 1,250 | 3,100 | 895 | 2,650 | 660 | 2,450 | 640 | 2,400 | 555 | 1,200 | 175 |
| 10 | 3,200 | 1,100 | 2,500 | 855 | 2,100 | 605 | 1,950 | 590 | 1,900 | 525 | 955 | 160 |
| 12 | 2,650 | 1,100 | 2,050 | 850 | 1,750 | 565 | 1,650 | 535 | 1,600 | 475 | 795 | 160 |
| 16 | 2,000 | 955 | 1,550 | 745 | 1,300 | 500 | 1,250 | 445 | 1,200 | 400 | 595 | 160 |
| 20 | 1,600 | 765 | 1,250 | 595 | 1,050 | 455 | 985 | 395 | 955 | 355 | 475 | 160 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.2D  | | | | | | ap 1.5D / ae 0.1D | | ap 1D / ae 0.05D | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

## WX-PHSS
## 溝切削

SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・チタン合金 Hardened Steel・Titanium Alloy Steel (45～55HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80m/min | | 60m/min | | 55m/min | | 52m/min | | 42m/min | | 20m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 8,500 | 705 | 6,350 | 595 | 5,850 | 455 | 5,500 | 400 | 4,450 | 320 | 2,100 | 110 |
| 4 | 6,350 | 705 | 4,750 | 675 | 4,400 | 455 | 4,150 | 450 | 3,350 | 360 | 1,600 | 120 |
| 5 | 5,100 | 715 | 3,800 | 660 | 3,500 | 475 | 3,300 | 475 | 2,650 | 385 | 1,250 | 125 |
| 6 | 4,250 | 715 | 3,200 | 560 | 2,900 | 500 | 2,750 | 495 | 2,250 | 400 | 1,050 | 125 |
| 8 | 3,200 | 660 | 2,400 | 550 | 2,200 | 545 | 2,050 | 515 | 1,650 | 415 | 795 | 125 |
| 10 | 2,550 | 610 | 1,900 | 535 | 1,750 | 475 | 1,650 | 470 | 1,350 | 380 | 635 | 115 |
| 12 | 2,100 | 610 | 1,600 | 475 | 1,450 | 450 | 1,400 | 440 | 1,100 | 355 | 530 | 115 |
| 16 | 1,600 | 610 | 1,200 | 430 | 1,100 | 370 | 1,050 | 370 | 835 | 300 | 400 | 88 |
| 20 | 1,250 | 510 | 955 | 380 | 875 | 350 | 830 | 330 | 670 | 265 | 320 | 89 |
| 切込深さ Depth of Cut | ap 0.5D  | | | | | | | | ap 0.05D | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

形状寸法表
SPECIFICATION CHARTS
WX-PHSS▶P299

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-PHSS

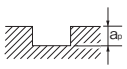
### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 高速溝切削 HIGH-SPEED SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel 38～45HRC (60～70m/min) | |
|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 120m/min | | 110m/min | | 90～100m/min | | 62m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 12,700 | 1,050 | 10,600 | 935 | 9,550 | 745 | 6,350 | 460 |
| 4 | 9,550 | 1,150 | 7,950 | 1,000 | 7,150 | 745 | 5,150 | 560 |
| 5 | 7,650 | 1,200 | 7,000 | 1,100 | 6,350 | 865 | 4,150 | 595 |
| 6 | 6,350 | 1,550 | 5,850 | 1,150 | 5,300 | 910 | 3,700 | 670 |
| 8 | 4,750 | 1,450 | 4,400 | 1,300 | 4,000 | 985 | 2,800 | 690 |
| 10 | 3,800 | 1,400 | 3,500 | 1,200 | 3,200 | 865 | 2,250 | 635 |
| 12 | 3,200 | 1,250 | 2,900 | 1,150 | 2,650 | 815 | 1,850 | 595 |
| 16 | 2,400 | 1,050 | 2,200 | 965 | 2,000 | 675 | 1,400 | 500 |
| 20 | 1,900 | 840 | 1,750 | 770 | 1,600 | 635 | 1,100 | 445 |
| 切込深さ Depth of Cut | $a_p$ 0.2D $a_p$ Max=3mm  | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度,送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

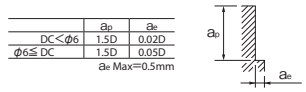
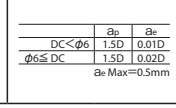
1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

## WX-PHSS

高速高精度のマシニングセンタを利用した場合の基準条件表です。

The conditions below are for high speed / high precision machining centers.

### 高速側面切削 HIGH-SPEED SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・チタン合金 Hardened Steel・Titanium Alloy Steel (45～55HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 200m/min | | 200m/min | | 200m/min | | 150m/min | | 100m/min | | 80m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 21,200 | 2,150 | 21,200 | 2,400 | 21,200 | 1,300 | 15,900 | 1,150 | 10,600 | 680 | 8,500 | 440 |
| 4 | 15,900 | 2,050 | 15,900 | 2,300 | 15,900 | 1,300 | 11,900 | 1,250 | 7,950 | 795 | 6,350 | 460 |
| 5 | 12,700 | 1,900 | 12,700 | 2,150 | 12,700 | 1,250 | 9,550 | 1,350 | 6,350 | 840 | 5,100 | 510 |
| 6 | 10,600 | 3,050 | 10,600 | 2,650 | 10,600 | 2,000 | 7,950 | 1,450 | 5,300 | 910 | 4,250 | 610 |
| 8 | 7,950 | 2,800 | 7,950 | 2,400 | 7,950 | 1,900 | 5,950 | 1,400 | 4,000 | 860 | 3,200 | 575 |
| 10 | 6,350 | 2,550 | 6,350 | 2,200 | 6,350 | 1,850 | 4,750 | 1,350 | 3,200 | 830 | 2,550 | 510 |
| 12 | 5,300 | 2,550 | 5,300 | 2,200 | 5,300 | 1,800 | 4,000 | 1,350 | 2,650 | 830 | 2,100 | 510 |
| 16 | 4,000 | 1,900 | 4,000 | 1,900 | 4,000 | 1,700 | 3,000 | 1,350 | 2,000 | 830 | 1,600 | 510 |
| 20 | 3,200 | 1,550 | 3,200 | 1,550 | 3,200 | 1,550 | 2,400 | 1,150 | 1,600 | 730 | 1,250 | 510 |
| 切込深さ Depth of Cut |  | | | |  | |  | | | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度,送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



## WX-PHN

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Prehardened Steel・Hardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼 (38～45HRC)・ステンレス鋼 Hardened Steel・Stainless Steel SUS304、SKD | | 調質鋼 (45～55HRC) Hardened Steel | | 調質鋼 (55～60HRC) Hardened Steel | | Ti合金・耐熱合金 Titanium Alloy・Heat Resistant Alloy Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100m/min | | 78m/min | | 66m/min | | 62m/min | | 60m/min | | 30m/min | | 50m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 975 | 8,300 | 760 | 7,000 | 560 | 6,600 | 555 | 6,350 | 485 | 3,200 | 190 | 5,300 | 405 |
| 4 | 7,950 | 1,000 | 6,200 | 820 | 5,250 | 565 | 4,950 | 590 | 4,750 | 515 | 2,400 | 190 | 4,000 | 435 |
| 5 | 6,350 | 1,050 | 4,950 | 845 | 4,200 | 590 | 3,950 | 630 | 3,800 | 535 | 1,900 | 190 | 3,200 | 445 |
| 6 | 5,300 | 1,250 | 4,150 | 945 | 3,500 | 700 | 3,300 | 660 | 3,200 | 545 | 1,600 | 190 | 2,650 | 450 |
| 8 | 4,000 | 1,250 | 3,100 | 895 | 2,650 | 660 | 2,450 | 640 | 2,400 | 555 | 1,200 | 175 | 2,000 | 460 |
| 10 | 3,200 | 1,100 | 2,500 | 855 | 2,100 | 605 | 1,950 | 590 | 1,900 | 525 | 955 | 160 | 1,600 | 440 |
| 12 | 2,650 | 1,100 | 2,050 | 850 | 1,750 | 565 | 1,650 | 535 | 1,600 | 475 | 795 | 160 | 1,350 | 395 |
| 16 | 2,000 | 955 | 1,550 | 745 | 1,300 | 500 | 1,250 | 445 | 1,200 | 400 | 595 | 160 | 995 | 330 |
| 20 | 1,600 | 765 | 1,250 | 595 | 1,050 | 455 | 985 | 395 | 955 | 355 | 475 | 160 | 795 | 295 |
| 切込深さ Depth of Cut | ap 2D / ae 0.1D | |  | | ap 2D / ae 0.1D | | ap 2D / ae 0.05D | | ap 2D / ae 0.02D | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

## WX-PHL

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼 (38～45HRC)・ステンレス鋼 Hardened Steel・Stainless Steel SUS304、SKD | | 調質鋼 (45～55HRC) Hardened Steel | | Ti合金・耐熱合金 Titanium Alloy・Heat Resistant Alloy Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 75m/min | | 60m/min | | 50m/min | | 45m/min | | 40m/min | | 30m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 7,950 | 590 | 6,350 | 465 | 5,300 | 340 | 4,800 | 320 | 4,250 | 260 | 3,200 | 195 |
| 4 | 5,950 | 605 | 4,750 | 505 | 4,000 | 345 | 3,600 | 340 | 3,200 | 275 | 2,400 | 220 |
| 5 | 4,750 | 635 | 3,800 | 520 | 3,200 | 355 | 2,850 | 365 | 2,550 | 285 | 1,900 | 215 |
| 6 | 4,000 | 750 | 3,200 | 580 | 2,650 | 420 | 2,400 | 380 | 2,100 | 290 | 1,600 | 215 |
| 8 | 3,000 | 750 | 2,400 | 550 | 2,000 | 395 | 1,800 | 375 | 1,600 | 295 | 1,200 | 230 |
| 10 | 2,400 | 650 | 1,900 | 525 | 1,600 | 365 | 1,450 | 350 | 1,250 | 280 | 955 | 220 |
| 12 | 2,000 | 650 | 1,600 | 525 | 1,350 | 340 | 1,200 | 310 | 1,050 | 255 | 795 | 190 |
| 16 | 1,500 | 575 | 1,200 | 560 | 995 | 305 | 895 | 255 | 795 | 210 | 595 | 170 |
| 20 | 1,200 | 460 | 955 | 365 | 795 | 275 | 715 | 230 | 635 | 185 | 475 | 140 |
| 切込深さ Depth of Cut | ap 2.5D / ae 0.05D | |  | | | | ap 2.5D / ae 0.02D | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

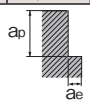
形状寸法表
SPECIFICATION CHARTS
SI-WC-RESF▶P438

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## SI-WC-RESF
## 側面切削 SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC250 | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400・S50C | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKT・SKS・SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKD・NAK80 (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | | チタン合金 Titanium Alloy Steel Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 5 | 5,730 | 430 | 7,640 | 500 | 5,730 | 280 | 5,090 | 240 | 4,460 | 210 | 3,180 | 130 |
| 6 | 4,770 | 610 | 6,370 | 710 | 4,770 | 400 | 4,240 | 330 | 3,710 | 290 | 2,650 | 180 |
| 8 | 3,580 | 940 | 4,770 | 1,090 | 3,580 | 610 | 3,180 | 510 | 2,790 | 450 | 1,990 | 270 |
| 10 | 2,860 | 950 | 3,820 | 1,100 | 2,860 | 620 | 2,550 | 510 | 2,230 | 450 | 1,590 | 270 |
| 12 | 2,390 | 860 | 3,180 | 990 | 2,390 | 560 | 2,120 | 460 | 1,860 | 410 | 1,330 | 250 |
| 16 | 1,790 | 820 | 2,390 | 960 | 1,790 | 540 | 1,590 | 450 | 1,390 | 390 | 990 | 240 |
| 20 | 1,430 | 770 | 1,910 | 890 | 1,430 | 500 | 1,270 | 420 | 1,110 | 360 | 800 | 220 |
| 切込深さ Depth of Cut | | | | | | | | | | | | |

| $a_p$ | $a_e$ |
|---|---|
| ≦1.5D | ≦0.3D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

## SI-WC-RESF
## 溝切削 SLOTTING

| 被削材 Work Material | 鋳鉄 Cast Iron FC250 | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400・S50C | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKT・SKS・SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKD・NAK80 (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | | チタン合金 Titanium Alloy Steel Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 5 | 4,460 | 280 | 7,000 | 380 | 5,090 | 210 | 4,460 | 170 | 3,820 | 140 | 2,550 | 80 |
| 6 | 3,710 | 430 | 5,840 | 580 | 4,240 | 320 | 3,710 | 260 | 3,180 | 220 | 2,120 | 130 |
| 8 | 2,790 | 470 | 4,380 | 650 | 3,180 | 350 | 2,790 | 290 | 2,390 | 250 | 1,590 | 140 |
| 10 | 2,230 | 510 | 3,500 | 700 | 2,550 | 380 | 2,230 | 310 | 1,910 | 270 | 1,270 | 150 |
| 12 | 1,860 | 470 | 2,920 | 640 | 2,120 | 350 | 1,860 | 290 | 1,590 | 240 | 1,060 | 140 |
| 16 | 1,390 | 460 | 2,190 | 630 | 1,590 | 340 | 1,390 | 280 | 1,190 | 240 | 800 | 140 |
| 20 | 1,110 | 440 | 1,750 | 610 | 1,270 | 330 | 1,110 | 270 | 950 | 230 | 640 | 130 |
| 切込深さ Depth of Cut | | | | | | | | | | | | |

$a_p$≦1D
$a_p$ Max=12mm




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

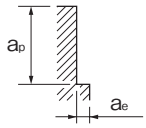
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## WX-RESF/SXL-RESF/WXL-MG-NC-RESF
## 側面切削

SIDE MILLING

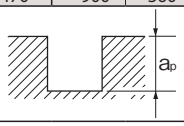
| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼(30～38HRC)・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼(38～45HRC) Hardened Steel SKD | | ステンレス鋼 Stainless Steel SUS304 | | チタン合金 Titanium Alloy Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100～140m/min | | 80～120m/min | | 70～100m/min | | 50～80m/min | | 35～65m/min | | 35～65m/min | | 30～50m/min | |
| 標準ねじれタイプ (30°ねじれ) Standard Twisted Type | ◎ | | ○ | | ◎ | | ◎ | | ○ | | ○ | | ○ | |
| 強ねじれタイプ (43°ねじれ) High Helix Type | ○ | | ◎ | | ○ | | ○ | | — | | ◎ | | ◎ | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 6,350 | 760 | 5,300 | 640 | 4,500 | 360 | 3,450 | 280 | 2,650 | 210 | 2,650 | 210 | 1,800 | 120 |
| 8 | 4,750 | 760 | 4,000 | 640 | 3,400 | 410 | 2,600 | 310 | 2,000 | 240 | 2,000 | 240 | 1,350 | 160 |
| 10 | 3,800 | 760 | 3,200 | 640 | 2,700 | 430 | 2,050 | 330 | 1,600 | 260 | 1,600 | 260 | 1,100 | 170 |
| 12 | 3,200 | 770 | 2,650 | 640 | 2,250 | 450 | 1,700 | 340 | 1,350 | 270 | 1,350 | 270 | 920 | 180 |
| 14 | 2,750 | 770 | 2,250 | 650 | 1,950 | 470 | 1,500 | 360 | 1,150 | 280 | 1,150 | 280 | 800 | 190 |
| 16 | 2,400 | 770 | 2,000 | 640 | 1,700 | 480 | 1,300 | 360 | 1,000 | 280 | 1,000 | 280 | 700 | 190 |
| 18 | 2,100 | 760 | 1,750 | 630 | 1,500 | 480 | 1,150 | 350 | 900 | 270 | 900 | 270 | 620 | 190 |
| 20 | 1,900 | 760 | 1,600 | 610 | 1,350 | 470 | 1,050 | 350 | 800 | 260 | 800 | 260 | 560 | 180 |
| 22 | 1,750 | 770 | 1,450 | 580 | 1,250 | 470 | 950 | 340 | 750 | 260 | 750 | 260 | 510 | 170 |
| 25 | 1,550 | 740 | 1,300 | 550 | 1,100 | 440 | 850 | 330 | 650 | 240 | 650 | 240 | 450 | 160 |
| 切込深さ Depth of Cut | ap 1.5D, ae 0.4D  | | | | | | ap 1.5D, ae 0.3D | | | | | | | |

1. エアブローでご使用下さい。切削油剤を使用する場合は発煙の少ないものを選定して下さい。尚、ステンレス鋼、チタン合金の切削には切削油剤をご使用下さい。
2. びびりを発生する場合は回転速度、送り量を同じ割合で下げてご使用下さい。または、切込深さを減らすか、切込深さ、回転速度、送り量のすべてを減じてご使用下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 標準(30°)ねじれタイプと強(43°)ねじれタイプの使い分けは上表内の選定基準を参考にして下さい。

1. Use air blow. When using cutting fluids, use high-quality fluid with high smoke retardant properties. Use a cutting fluid for cutting stainless steel and titanium alloy steels.
2. When chattering occurs, reduce the speed and feed simultaneously. Alternatively, use it at a reduced cutting depth. Or, reduce the cutting depth, speed, and feed rate.
3. Use a rigid and precision machine and holder.
4. Refer to the selection criteria in the table above in order to determine whether to use the standard(30°) or high(43°) twisted type.

## WX-RESF/SXL-RESF/WXL-MG-NC-RESF
## 溝切削

SLOTTING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼(30～38HRC)・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼(38～45HRC) Hardened Steel SKD | | ステンレス鋼 Stainless Steel SUS304 | | チタン合金 Titanium Alloy | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80～120m/min | | 70～100m/min | | 55～85m/min | | 40～70m/min | | 30～60m/min | | 30～60m/min | | 20～40m/min | |
| 標準ねじれタイプ (30°ねじれ) Standard Twisted Type | ◎ | | ○ | | ◎ | | ◎ | | ○ | | ○ | | ○ | |
| 強ねじれタイプ (43°ねじれ) High Helix Type | ○ | | ◎ | | ○ | | ○ | | — | | ◎ | | ◎ | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 5,300 | 640 | 4,500 | 540 | 3,700 | 300 | 2,900 | 230 | 2,400 | 190 | 2,400 | 190 | 1,500 | 100 |
| 8 | 4,000 | 640 | 3,400 | 540 | 2,800 | 340 | 2,200 | 260 | 1,800 | 220 | 1,800 | 220 | 1,150 | 130 |
| 10 | 3,200 | 640 | 2,700 | 540 | 2,250 | 360 | 1,750 | 280 | 1,450 | 230 | 1,450 | 230 | 950 | 150 |
| 12 | 2,650 | 640 | 2,250 | 540 | 1,850 | 370 | 1,450 | 290 | 1,200 | 240 | 1,200 | 240 | 800 | 160 |
| 14 | 2,250 | 630 | 1,950 | 570 | 1,600 | 380 | 1,250 | 300 | 1,000 | 240 | 1,000 | 240 | 700 | 170 |
| 16 | 2,000 | 640 | 1,700 | 540 | 1,400 | 390 | 1,100 | 310 | 900 | 250 | 900 | 250 | 600 | 170 |
| 18 | 1,750 | 630 | 1,500 | 540 | 1,250 | 400 | 950 | 290 | 800 | 240 | 800 | 240 | 540 | 160 |
| 20 | 1,600 | 640 | 1,350 | 510 | 1,100 | 390 | 900 | 300 | 700 | 230 | 700 | 230 | 480 | 150 |
| 22 | 1,450 | 640 | 1,250 | 500 | 1,000 | 380 | 800 | 290 | 650 | 220 | 650 | 220 | 440 | 150 |
| 25 | 1,300 | 620 | 1,100 | 470 | 900 | 360 | 700 | 270 | 600 | 220 | 600 | 220 | 390 | 140 |
| 切込深さ Depth of Cut | ap 0.75D, ap Max=15mm  | | | | | | ap 0.5D | | | | | | | |

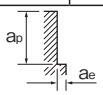
1. エアブローでご使用下さい。切削油剤を使用する場合は発煙の少ないものを選定して下さい。尚、ステンレス鋼、チタン合金の切削には切削油剤をご使用下さい。
2. びびりを発生する場合は回転速度、送り量を同じ割合で下げてご使用下さい。または、切込深さを減らすか、切込深さ、回転速度、送り量のすべてを減じてご使用下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 標準(30°)ねじれタイプと強(43°)ねじれタイプの使い分けは上表内の選定基準を参考にして下さい。

1. Use air blow. When using cutting fluids, use high-quality fluid with high smoke retardant properties. Use a cutting fluid for cutting stainless steel and titanium alloy steels.
2. When chattering occurs, reduce the speed and feed simultaneously. Alternatively, use it at a reduced cutting depth. Or, reduce the cutting depth, speed, and feed rate.
3. Use a rigid and precision machine and holder.
4. Refer to the selection criteria in the table above in order to determine whether to use the standard(30°) or high(43°) twisted type.

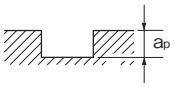
形状寸法表
SPECIFICATION CHARTS
WX-SHTSS▶P308

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-SHTSS
## 側面切削 SIDE MILLING

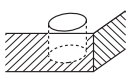
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼 (30～38HRC)・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼 (38～45HRC)・ステンレス鋼 Hardened Steel・Stainless Steel SUS304、SKD | | 調質鋼 (45～55HRC)・Ti合金・耐熱合金 Hardened Steel・Titanium Alloy・Heat Resistant Alloy Steel | | 調質鋼 (55～60HRC) Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100m/min | | 80m/min | | 80m/min | | 60m/min | | 60m/min | | 30m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 870 | 8,500 | 575 | 8,500 | 460 | 6,350 | 265 | 6,350 | 210 | 3,200 | 105 |
| 4 | 7,950 | 905 | 6,350 | 605 | 6,350 | 480 | 4,750 | 275 | 4,750 | 230 | 2,400 | 110 |
| 5 | 6,350 | 955 | 5,100 | 650 | 5,100 | 510 | 3,800 | 290 | 3,800 | 240 | 1,900 | 115 |
| 6 | 5,300 | 955 | 4,250 | 695 | 4,250 | 550 | 3,200 | 305 | 3,200 | 245 | 1,600 | 120 |
| 8 | 4,000 | 890 | 3,200 | 680 | 3,200 | 535 | 2,400 | 275 | 2,400 | 225 | 1,200 | 110 |
| 10 | 3,200 | 795 | 2,550 | 650 | 2,550 | 520 | 1,900 | 240 | 1,900 | 195 | 955 | 95 |
| 12 | 2,650 | 795 | 2,100 | 610 | 2,100 | 495 | 1,600 | 240 | 1,600 | 195 | 795 | 95 |
| 切込深さ Depth of Cut |  | | ap 1.5D / ae 0.2D | | | | ap 1.5D / ae 0.1D | | | | ap 1D / ae 0.05D | |

## WX-SHTSS
## 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼 (30～38HRC)・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼 (38～45HRC)・ステンレス鋼 Hardened Steel・Stainless Steel SUS304、SKD | | 調質鋼 (45～55HRC)・Ti合金・耐熱合金 Hardened Steel・Titanium Alloy・Heat Resistant Alloy Steel | | 調質鋼 (55～60HRC) Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80m/min | | 60m/min | | 65m/min | | 55m/min | | 45m/min | | 20m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 8,500 | 695 | 6,350 | 430 | 6,900 | 370 | 5,850 | 240 | 4,750 | 160 | 2,100 | 70 |
| 4 | 6,350 | 725 | 4,750 | 455 | 5,150 | 390 | 4,400 | 250 | 3,600 | 170 | 1,600 | 75 |
| 5 | 5,100 | 765 | 3,800 | 485 | 4,150 | 415 | 3,500 | 270 | 2,850 | 180 | 1,250 | 75 |
| 6 | 4,250 | 795 | 3,200 | 520 | 3,450 | 445 | 2,900 | 285 | 2,400 | 185 | 1,050 | 80 |
| 8 | 3,200 | 710 | 2,400 | 510 | 2,600 | 435 | 2,200 | 260 | 1,800 | 170 | 795 | 75 |
| 10 | 2,550 | 670 | 1,900 | 485 | 2,050 | 420 | 1,750 | 245 | 1,450 | 145 | 635 | 65 |
| 12 | 2,100 | 635 | 1,600 | 460 | 1,700 | 405 | 1,450 | 235 | 1,200 | 145 | 530 | 65 |
| 切込深さ Depth of Cut |  | | ap=0.5D | | | | | | ap=0.05D | | | |

キー溝加工の場合には、上記表の回転速度、送り速度を30～60%に下げて切削油剤を用いてご使用下さい。
When milling a key slot, reduce the above speed and feed to 30～60% of the above conditions and use cutting fluid.

## WX-SHTSS
## 突込み切削 PLUNGING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼 (30～38HRC)・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼 (38～45HRC)・ステンレス鋼 Hardened Steel・Stainless Steel SUS304、SKD | |
|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80m/min | | 60m/min | | 55m/min | | 55m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 8,500 | 350 | 6,350 | 210 | 5,850 | 120 | 5,850 | 120 |
| 4 | 6,350 | 365 | 4,750 | 220 | 4,400 | 125 | 4,400 | 125 |
| 5 | 5,100 | 380 | 3,800 | 230 | 3,500 | 130 | 3,500 | 135 |
| 6 | 4,250 | 395 | 3,200 | 240 | 2,900 | 140 | 2,900 | 140 |
| 8 | 3,200 | 355 | 2,400 | 220 | 2,200 | 125 | 2,200 | 125 |
| 10 | 2,550 | 315 | 1,900 | 190 | 1,750 | 110 | 1,750 | 110 |
| 12 | 2,100 | 315 | 1,600 | 190 | 1,450 | 110 | 1,450 | 110 |
| 切込深さ Depth of Cut |  | | 突込み深さ 0.5D以下<br>Plunging Depth ≦0.5D | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込み量、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
When the chips wind around the end mill, reduce the speed and feed.

# WX-SHTSS

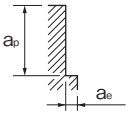
## 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

HIGH-SPEED LIGHT MILLING
Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

## 高速側面切削

HIGH SPEED SIDE MILLING

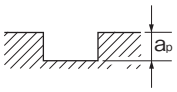
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼 (30～38HRC)・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼 (38～45HRC)・ステンレス鋼 Hardened Steel・Stainless Steel SUS304、SKD | | 調質鋼 (45～55HRC)・Ti合金・耐熱合金 Hardened Steel・Titanium Alloy・Heat Resistant Alloy Steel | | 調質鋼 (55～60HRC) Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 200m/min | | 200m/min | | 200m/min | | 150m/min | | 150m/min | | 100m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 21,200 | 1,750 | 21,200 | 1,400 | 21,200 | 880 | 15,900 | 600 | 15,900 | 530 | 10,600 | 345 |
| 4 | 15,900 | 1,800 | 15,900 | 1,450 | 15,900 | 915 | 11,900 | 690 | 11,900 | 575 | 7,960 | 365 |
| 5 | 12,700 | 1,900 | 12,700 | 1,550 | 12,700 | 955 | 9,550 | 730 | 9,550 | 600 | 6,350 | 380 |
| 6 | 10,600 | 2,000 | 10,600 | 1,600 | 10,600 | 1,050 | 7,950 | 790 | 7,950 | 615 | 5,300 | 400 |
| 8 | 7,950 | 1,800 | 7,950 | 1,450 | 7,950 | 995 | 5,950 | 775 | 5,950 | 560 | 4,000 | 365 |
| 10 | 6,350 | 1,600 | 6,350 | 1,300 | 6,350 | 975 | 4,750 | 745 | 4,750 | 530 | 3,200 | 315 |
| 12 | 5,300 | 1,600 | 5,300 | 1,300 | 5,300 | 955 | 4,000 | 730 | 4,000 | 500 | 2,650 | 315 |
| 切込み深さ Depth of Cut |  | | | | ap / ae<br>DC＜φ6: 1.5D / 0.02D<br>φ6≦DC: 1.5D / 0.05D | | ap / ae<br>1.5D / 0.02D<br>ae Max=0.5mm | | ap / ae<br>1D / 0.02D<br>ae Max=0.5mm | | | |

# WX-SHTSS

高速高精度のマシニングセンタを利用した場合の基準条件表です。
The conditions below are for high speed / high precision machining centers.

## 高速溝切削

HIGH SPEED SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼 (30～38HRC)・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 | | 調質鋼 (38～45HRC)・ステンレス鋼 Hardened Steel・Stainless Steel SUS304、SKD | |
|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 120m/min | | 100m/min | | 90m/min | | 65m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 12,700 | 1,050 | 10,600 | 695 | 9,550 | 395 | 6,900 | 285 |
| 4 | 9,550 | 1,100 | 7,950 | 725 | 7,150 | 415 | 5,150 | 300 |
| 5 | 7,650 | 1,150 | 6,350 | 765 | 5,750 | 430 | 4,150 | 315 |
| 6 | 6,350 | 1,200 | 5,300 | 830 | 4,750 | 455 | 3,450 | 330 |
| 8 | 4,750 | 1,050 | 4,000 | 810 | 3,600 | 440 | 2,600 | 300 |
| 10 | 3,800 | 950 | 4,000 | 785 | 2,850 | 420 | 2,050 | 260 |
| 12 | 3,200 | 950 | 2,650 | 735 | 2,400 | 405 | 1,700 | 260 |
| 切込み深さ Depth of Cut |  | | | | ap=0.3D<br>ap Max=3mm | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込み量、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

キー溝加工の場合には、[標準条件一溝切削] (p.635中段) 条件表の回転速度、送り速度を30～60%に下げて切削油剤を用いてご使用下さい。
When milling a key slot, reduce the speed and feed to 30～60% of the above conditions in the "STANDARD MILLING-SLOTTING" chart on p.635 and use cutting fluid.

形状寸法表
SPECIFICATION CHARTS
WX-CRE▶P387

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

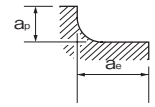
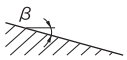
## WX-CRE

### 標準条件（低速高送り）

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

REGULAR MILLING(LOW-SPEED, HIGH-FEED MILLING)

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼（38～45HRC）・ステンレス鋼・プリハードン鋼 Hardened Steel・Stainless Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | 調質鋼（45～55HRC） Hardened Steel | | 調質鋼（55～60HRC） Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 × R0.5 | 16,000 | 5,250 | 16,000 | 4,750 | 12,500 | 3,800 | 11,000 | 3,350 | 7,950 | 2,150 | 4,750 | 860 |
| 3 × R0.75 | 10,500 | 6,250 | 10,500 | 5,600 | 8,500 | 4,500 | 7,450 | 3,900 | 5,300 | 2,600 | 3,200 | 995 |
| 4 × R1 | 7,950 | 6,600 | 7,950 | 6,000 | 6,350 | 4,800 | 5,550 | 4,200 | 4,000 | 2,750 | 2,400 | 1,050 |
| 5 × R1.2 | 6,350 | 7,000 | 6,350 | 6,350 | 5,100 | 5,100 | 4,450 | 4,450 | 3,200 | 2,850 | 1,900 | 1,150 |
| 6 × R1.5 | 5,300 | 7,000 | 5,300 | 6,350 | 4,250 | 5,100 | 3,700 | 4,450 | 2,650 | 2,850 | 1,600 | 1,150 |
| 7 × R1.5 | 4,550 | 6,000 | 4,550 | 5,450 | 3,650 | 4,350 | 3,200 | 3,800 | 2,250 | 2,450 | 1,350 | 980 |
| 8 × R2 | 4,000 | 7,000 | 4,000 | 6,350 | 3,200 | 5,100 | 2,800 | 4,450 | 2,000 | 2,850 | 1,200 | 1,150 |
| 9 × R2 | 3,550 | 6,200 | 3,550 | 5,650 | 2,850 | 4,550 | 2,500 | 3,950 | 1,750 | 2,550 | 1,050 | 1,000 |
| 10 × R2 | 3,200 | 7,000 | 3,200 | 6,350 | 2,550 | 5,100 | 2,250 | 4,450 | 1,600 | 2,850 | 955 | 1,150 |
| 11 × R2 | 2,900 | 6,350 | 2,900 | 5,800 | 2,300 | 4,650 | 2,050 | 4,050 | 1,450 | 2,600 | 870 | 1,050 |
| 12 × R3 | 2,650 | 7,000 | 2,650 | 6,350 | 2,100 | 5,100 | 1,850 | 4,450 | 1,350 | 2,850 | 795 | 1,150 |
| 13 × R3 | 2,450 | 6,450 | 2,450 | 5,900 | 1,950 | 4,700 | 1,700 | 4,100 | 1,200 | 2,650 | 735 | 1,050 |
| 切込深さ Depth of Cut |  | |  | | | | | | | | | |



| | ap | ae |
|---|---|---|
| RE≦2 | 0.2×コーナ半径(RE) | 0.5D |
| 2<RE | 0.5mm | 0.5D |

| | ap | ae |
|---|---|---|
| RE≦2 | 0.2×コーナ半径(RE) | 0.5D |
| 2<RE | 0.4mm | 0.5D |

| | ap | ae |
|---|---|---|
| RE≦2 | 0.1×コーナ半径(RE) | 0.5D |
| 2<RE | 0.2mm | 0.5D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 上表はコーナ部円弧補間の動きを前提とした条件表です。コーナ部円弧補間のない加工（直角曲がりなど）では、上表の回転速度50～70%、切込深さ50～80%として下さい。
3. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
4. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調整下さい。
5. Z軸の進入は、加工傾斜角度（β）がβ≦2°で、上表の送り速度30～60%に下げてご使用下さい。
6. 上表は、等高線加工、工具の突出し量が4D（外径x 4倍以下）の場合の目安です。突出し量が大きな場合は、びびりが発生しやすくなりますので係数を参考に、回転速度、送り速度、切込深さを調整下さい。

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WX-CRE enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle (β) ≦ 2°.
6. These milling conditions are for a tool extension length: less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

### 工具突出し量による係数（%） Tool extension coefficients

| 工具突出し量 Overhang Length | 切削速度 Cutting Speed | 軸方向切込み ap | 送り速度 Feed |
|---|---|---|---|
| L／D≦4 | 100 | 100 | 100 |
| L／D=5 | 80～100 | 70～ 90 | 80～ 90 |
| L／D=6 | 60～ 80 | 50～ 70 | 60～ 80 |

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## WX-CRE

### 高速条件用

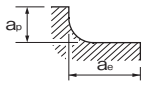
⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

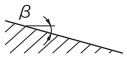
### HIGH SPEED MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼 (30～38HRC)・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | 調質鋼 (38～45HRC)・ステンレス鋼・プリハードン鋼 Hardened Steel・Stainless Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | 調質鋼 (45～55HRC) Hardened Steel | | 調質鋼 (55～60HRC) Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 × R0.5 | 31,850 | 10,500 | 32,000 | 9,550 | 32,000 | 9,550 | 24,000 | 7,150 | 24,000 | 6,450 | 16,000 | 2,850 |
| 3 × R0.75 | 21,000 | 12,500 | 21,000 | 11,000 | 21,000 | 12,000 | 16,000 | 8,400 | 16,000 | 7,850 | 10,500 | 3,300 |
| 4 × R1 | 16,000 | 13,000 | 16,000 | 12,000 | 16,000 | 12,000 | 12,000 | 9,000 | 12,000 | 8,200 | 7,950 | 3,550 |
| 5 × R1.2 | 12,500 | 14,000 | 12,500 | 12,500 | 12,500 | 12,500 | 9,550 | 9,550 | 9,550 | 8,600 | 6,350 | 3,800 |
| 6 × R1.5 | 10,600 | 14,000 | 10,600 | 12,700 | 10,600 | 12,700 | 7,950 | 9,550 | 7,950 | 8,600 | 5,300 | 3,800 |
| 7 × R1.5 | 9,100 | 12,000 | 9,100 | 10,900 | 9,100 | 10,900 | 6,800 | 8,200 | 6,800 | 7,350 | 4,550 | 3,250 |
| 8 × R2 | 7,950 | 14,000 | 7,950 | 12,700 | 7,950 | 12,700 | 5,950 | 9,550 | 5,950 | 8,600 | 4,000 | 3,800 |
| 9 × R2 | 7,050 | 12,400 | 7,050 | 11,300 | 7,050 | 11,300 | 5,300 | 8,500 | 5,300 | 7,650 | 3,550 | 3,400 |
| 10 × R2 | 6,350 | 14,000 | 6,350 | 12,700 | 6,350 | 12,700 | 4,750 | 9,550 | 4,750 | 8,600 | 3,200 | 3,800 |
| 11 × R2 | 5,800 | 12,700 | 5,800 | 11,600 | 5,800 | 11,600 | 4,350 | 8,700 | 4,350 | 7,800 | 2,900 | 3,500 |
| 12 × R3 | 5,300 | 14,000 | 5,300 | 12,700 | 5,300 | 12,700 | 4,000 | 9,550 | 4,000 | 8,600 | 2,650 | 3,800 |
| 13 × R3 | 4,900 | 12,900 | 4,900 | 11,800 | 4,900 | 11,800 | 3,650 | 8,800 | 3,650 | 7,950 | 2,450 | 3,550 |

切込深さ Depth of Cut




| ap | ae |
|---|---|
| 0.1×コーナ半径(RE) | 0.3D |

| | ap | ae |
|---|---|---|
| RE≦2 | 0.1×コーナ半径(RE) | 0.3D |
| 2<RE | 0.2mm | 0.3D |

| | ap | ae |
|---|---|---|
| RE≦2 | 0.05×コーナ半径(RE) | 0.3D |
| 2<RE | 0.1mm | 0.3D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 上表はコーナ部円弧補間の動きを前提とした条件表です。コーナ部円弧補間のない加工(直角曲がりなど)では、上表の回転速度50～70%、切込深さ50～80%として下さい。
3. エアブローまたはMQL(オイルミストクーラント)でご使用下さい。
4. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調整下さい。
5. Z軸の進入は、加工傾斜角度(β)がβ≦2°で、上表の送り速度30～60%に下げてご使用下さい。
6. 上表は、等高線加工、工具の突出し量が4D(外径x4倍以下)の場合の目安です。突出し量が大きな場合は、びびりが発生しやすくなりますので係数を参考に、回転速度、送り速度、切込深さを調整下さい。

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WX-CRE enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle (β) ≦ 2°.
6. These milling conditions are for a tool extension length: less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

## 工具突出し量による係数(%) Tool extension coefficients

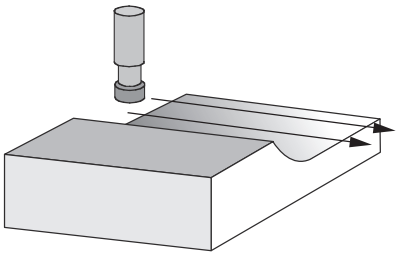
| 工具突出し量 Overhang Length | 切削速度 Cutting Speed | 軸方向切込み ap | 送り速度 Feed |
|---|---|---|---|
| L／D≦4 | 100 | 100 | 100 |
| L／D=5 | 60～ 80 | 60～ 80 | 70～ 90 |
| L／D=6 | 40～ 60 | 40～ 60 | 60～ 80 |

## 超高速条件用

## Ultra-high speed conditions

●負荷の安定した右図のような平坦部の加工では、高速条件の回転速度、送り速度をさらに150～200%に上げることが可能です。
●工具の突出し量が4D(外径x4倍以下)を基準としたものです。工具の突出し量が4D(外径x4倍)を超える場合は、推奨致しません。

●When milling flat areas with a stable load, the speed and the feed rate of the high-speed conditions can be further increased to 150 - 200%.
●The ultra-high speed conditions are for a tool extension length: less than 4 x D. If the tool extension length is over 4 x D, do not refer to it.



形状寸法表
SPECIFICATION CHARTS
SXLE-EBD▶P340-2

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## SXLE-EBD

### 高速仕上切削

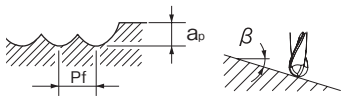
⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

### HIGH-SPEED FINISHING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed/high precision machining centers.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S50C、FC、FCD | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼 (30～38HRC)・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | 調質鋼 (38～45HRC)・プリハードン鋼 Hardened Steel・Prehardened Steel SKD、NAK80、HPM50 | | 調質鋼 (45～55HRC) Hardened Steel | | 調質鋼 (55～60HRC) Hardened Steel | | 調質鋼 (60～65HRC) Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R3 | 20,000 | 5,850 | 20,000 | 5,200 | 20,000 | 4,350 | 19,700 | 4,250 | 13,800 | 2,900 | 11,100 | 1,650 | 10,100 | 1,450 |
| R4 | 15,500 | 4,700 | 15,500 | 4,450 | 15,100 | 3,650 | 14,800 | 3,550 | 10,300 | 2,400 | 8,350 | 1,550 | 7,550 | 1,350 |
| R5 | 12,400 | 3,850 | 12,400 | 3,700 | 12,100 | 2,900 | 11,800 | 2,850 | 8,300 | 1,900 | 6,700 | 1,350 | 6,050 | 1,200 |
| R6 | 10,300 | 3,300 | 10,300 | 3,250 | 10,100 | 2,800 | 9,850 | 2,500 | 6,900 | 1,650 | 5,550 | 1,250 | 5,050 | 1,150 |

切込深さ Depth of Cut




| RE | ap | Pf |
|---|---|---|
| R3 | 0.12 | 0.2 |
| R4 | 0.16 | 0.25 |
| R5 | 0.2 | 0.3 |
| R6 | 0.2 | 0.35 |

| RE | ap | Pf |
|---|---|---|
| R3 | 0.06 | 0.2 |
| R4 | 0.08 | 0.25 |
| R5 | 0.1 | 0.3 |
| R6 | 0.1 | 0.35 |

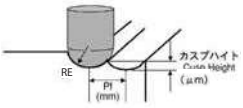
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
3. この切削条件表は、エンドミルの突出し量が、（外径X４倍以下）を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。
加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 傾き角15°（β）を超える加工では、回転速度、送り速度を上表の50～80%に下げてご使用下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. These milling conditions are for an mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is longer, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration, or chattering occurs; depending on the machining shape, cutting amount, rigidity of the machine/ workholding condition, etc, please adjust the speed, feed, and depth of cut.
5. When β is more than 15°, please decrease the speeds and feeds in the above table by 50～80%.

## [カスプハイトの値(μm) The value of cusp height(μm)]

カスプハイト 単位：μm
Cusp Height Unit：μm

| カスプハイト Cusp height (μm) / ピックフィード Pf(mm) / RE(mm) | 0.05 | 0.075 | 0.1 | 0.15 | 0.2 | 0.25 | 0.3 | 0.35 | 0.4 | 0.5 | 0.6 | 0.8 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R3 | 0.10 | 0.23 | 0.42 | 0.94 | 1.67 | 2.61 | 3.75 | 5.11 | 6.67 | 10.43 | 15.04 | 26.79 | 41.96 |
| R4 | 0.08 | 0.18 | 0.31 | 0.70 | 1.25 | 1.95 | 2.81 | 3.83 | 5.00 | 7.82 | 11.27 | 20.05 | 31.37 |
| R5 | 0.06 | 0.14 | 0.25 | 0.56 | 1.00 | 1.56 | 2.25 | 3.06 | 4.00 | 6.25 | 9.01 | 16.03 | 25.06 |
| R6 | 0.05 | 0.12 | 0.21 | 0.47 | 0.83 | 1.30 | 1.88 | 2.55 | 3.33 | 5.21 | 7.50 | 13.35 | 20.87 |




ピックフィードの変化によるカスプハイト（理論面粗さ）の変化量を示します。
Based on the changes in pick feed, changes in cusp height (theoretical surface finish) will occur.



Pro カタログ

# オーエスジー公式アプリ
# Pro カタログ

## デジタルカタログ

カタログ

最新の総合カタログや製品カタログを時間・場所問わず閲覧できます。しおりを挟んだり、メールでカタログを共有することも可能です。




### 総合カタログ

いつでもどこでもカタログを。

### 製品カタログ

最新カタログをいち早く。




## コードスキャン

コードスキャン

アプリ限定

バーコード・二次元コードに対応したスキャン機能です。工具のスペック情報や切削条件、検査成績表などの各種データを取得することができます。



※二次元コードは一部製品に限ります

## CADデータダウンロード

DXF STEP

CADデータダウンロード

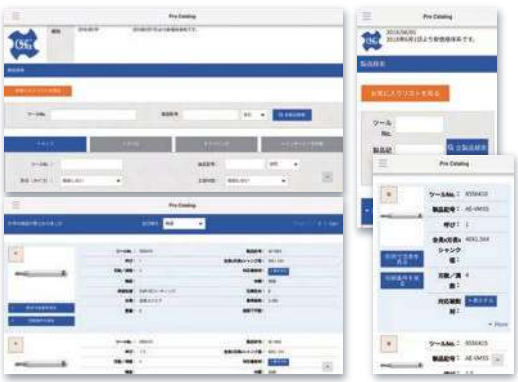
工具のDXFファイル・STEPファイルをパソコンやスマートフォンからいつでもダウンロードできます。



## 製品検索

製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



アプリの使い方・ダウンロードはこちら

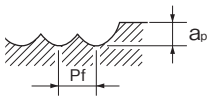
**さらに、製品動画やFAQサイトなどOSG情報が満載！**

**最新情報を掲載中　今すぐダウンロード！**

形状寸法表
SPECIFICATION CHARTS
WX-LN-EBD▶P359-2

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EBD

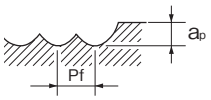
| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | | 調質鋼 (30～38HRC)・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WX-LN-EBD | | | | | | | | | | | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf |
| 0.05 | 0.3 | 50,000 | 70 | 0.003 | 0.003 | 50,000 | 70 | 0.003 | 0.003 | 50,000 | 70 | 0.003 | 0.003 |
| | 0.5 | 50,000 | 50 | 0.003 | 0.003 | 50,000 | 50 | 0.003 | 0.003 | 50,000 | 50 | 0.003 | 0.003 |
| 0.1 | 0.5 | 50,000 | 400 | 0.005 | 0.005 | 50,000 | 400 | 0.005 | 0.005 | 50,000 | 380 | 0.005 | 0.005 |
| | 0.75 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 |
| | 1 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 360 | 0.005 | 0.005 | 50,000 | 340 | 0.005 | 0.005 |
| | 1.25 | 47,000 | 320 | 0.005 | 0.005 | 47,000 | 320 | 0.005 | 0.005 | 47,000 | 300 | 0.005 | 0.005 |
| | 1.5 | 45,000 | 300 | 0.005 | 0.005 | 45,000 | 300 | 0.005 | 0.005 | 45,000 | 280 | 0.005 | 0.005 |
| | 1.75 | 42,000 | 260 | 0.005 | 0.005 | 42,000 | 260 | 0.005 | 0.005 | 42,000 | 240 | 0.005 | 0.005 |
| | 2 | 38,000 | 230 | 0.005 | 0.005 | 38,000 | 230 | 0.005 | 0.005 | 38,000 | 210 | 0.005 | 0.005 |
| | 2.5 | 32,000 | 170 | 0.004 | 0.005 | 32,000 | 170 | 0.005 | 0.004 | 32,000 | 160 | 0.004 | 0.005 |
| | 3 | 32,000 | 150 | 0.004 | 0.005 | 32,000 | 150 | 0.005 | 0.004 | 32,000 | 140 | 0.004 | 0.005 |
| 0.15 | 0.6 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 1 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 1.25 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 1.5 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 600 | 0.005 | 0.01 | 50,000 | 570 | 0.005 | 0.01 |
| | 1.75 | 47,000 | 510 | 0.005 | 0.01 | 47,000 | 510 | 0.005 | 0.01 | 47,000 | 480 | 0.005 | 0.01 |
| | 2 | 45,000 | 480 | 0.005 | 0.005 | 45,000 | 480 | 0.005 | 0.005 | 45,000 | 450 | 0.005 | 0.005 |
| | 2.25 | 45,000 | 400 | 0.005 | 0.005 | 45,000 | 400 | 0.005 | 0.005 | 45,000 | 380 | 0.005 | 0.005 |
| | 2.5 | 40,000 | 300 | 0.005 | 0.005 | 40,000 | 300 | 0.005 | 0.005 | 40,000 | 280 | 0.005 | 0.005 |
| | 3 | 38,000 | 250 | 0.005 | 0.005 | 38,000 | 250 | 0.005 | 0.005 | 38,000 | 230 | 0.005 | 0.005 |
| | 3.5 | 34,000 | 200 | 0.004 | 0.005 | 34,000 | 200 | 0.004 | 0.005 | 34,000 | 190 | 0.005 | 0.004 |
| | 4 | 32,000 | 150 | 0.004 | 0.005 | 32,000 | 150 | 0.004 | 0.005 | 32,000 | 140 | 0.005 | 0.004 |
| | 4.5 | 32,000 | 130 | 0.004 | 0.005 | 32,000 | 130 | 0.004 | 0.005 | 32,000 | 120 | 0.005 | 0.004 |
| | 5 | 29,000 | 100 | 0.004 | 0.005 | 29,000 | 100 | 0.004 | 0.005 | 29,000 | 95 | 0.005 | 0.004 |
| 0.2 | 0.8 | 50,000 | 900 | 0.01 | 0.02 | 50,000 | 900 | 0.01 | 0.02 | 50,000 | 850 | 0.01 | 0.02 |
| | 1 | 50,000 | 900 | 0.01 | 0.02 | 50,000 | 900 | 0.01 | 0.02 | 50,000 | 850 | 0.01 | 0.02 |
| | 1.5 | 50,000 | 800 | 0.01 | 0.02 | 50,000 | 800 | 0.01 | 0.02 | 50,000 | 760 | 0.01 | 0.02 |
| | 2 | 50,000 | 700 | 0.01 | 0.02 | 50,000 | 700 | 0.01 | 0.02 | 50,000 | 660 | 0.01 | 0.02 |
| | 2.5 | 45,000 | 550 | 0.008 | 0.015 | 45,000 | 550 | 0.008 | 0.015 | 45,000 | 520 | 0.008 | 0.015 |
| | 3 | 43,000 | 500 | 0.005 | 0.01 | 43,000 | 500 | 0.005 | 0.01 | 43,000 | 470 | 0.005 | 0.01 |
| | 3.5 | 40,000 | 420 | 0.005 | 0.01 | 40,000 | 420 | 0.005 | 0.01 | 40,000 | 400 | 0.005 | 0.01 |
| | 4 | 36,000 | 370 | 0.005 | 0.005 | 36,000 | 370 | 0.005 | 0.005 | 36,000 | 350 | 0.005 | 0.005 |
| | 4.5 | 32,000 | 290 | 0.004 | 0.005 | 32,000 | 290 | 0.004 | 0.005 | 32,000 | 270 | 0.004 | 0.005 |
| | 5 | 32,000 | 280 | 0.004 | 0.005 | 32,000 | 280 | 0.004 | 0.005 | 32,000 | 260 | 0.004 | 0.005 |
| | 5.5 | 30,000 | 230 | 0.004 | 0.005 | 30,000 | 230 | 0.004 | 0.005 | 30,000 | 210 | 0.004 | 0.005 |
| | 6 | 30,000 | 200 | 0.004 | 0.005 | 30,000 | 200 | 0.004 | 0.005 | 30,000 | 190 | 0.004 | 0.005 |
| 0.25 | 1 | 50,000 | 1,100 | 0.015 | 0.03 | 50,000 | 1,100 | 0.015 | 0.03 | 50,000 | 1,050 | 0.015 | 0.03 |
| | 1.5 | 50,000 | 1,100 | 0.015 | 0.03 | 50,000 | 1,100 | 0.015 | 0.03 | 50,000 | 1,050 | 0.015 | 0.03 |
| | 2 | 50,000 | 1,000 | 0.015 | 0.03 | 50,000 | 1,000 | 0.015 | 0.03 | 50,000 | 950 | 0.015 | 0.03 |
| | 2.5 | 50,000 | 1,000 | 0.015 | 0.03 | 50,000 | 1,000 | 0.015 | 0.03 | 50,000 | 950 | 0.015 | 0.03 |
| | 3 | 48,000 | 900 | 0.01 | 0.02 | 48,000 | 900 | 0.01 | 0.02 | 48,000 | 850 | 0.01 | 0.02 |
| | 3.5 | 45,000 | 700 | 0.01 | 0.02 | 45,000 | 700 | 0.01 | 0.02 | 45,000 | 650 | 0.01 | 0.02 |
| | 4 | 43,000 | 600 | 0.01 | 0.01 | 43,000 | 600 | 0.01 | 0.01 | 43,000 | 570 | 0.01 | 0.01 |
| | 4.5 | 38,000 | 500 | 0.01 | 0.01 | 38,000 | 500 | 0.01 | 0.01 | 38,000 | 470 | 0.01 | 0.01 |
| | 5 | 30,000 | 400 | 0.005 | 0.01 | 30,000 | 400 | 0.005 | 0.01 | 30,000 | 380 | 0.005 | 0.01 |
| | 5.5 | 28,000 | 300 | 0.004 | 0.005 | 28,000 | 300 | 0.004 | 0.005 | 28,000 | 280 | 0.004 | 0.005 |
| | 6 | 26,000 | 250 | 0.004 | 0.005 | 26,000 | 250 | 0.004 | 0.005 | 26,000 | 230 | 0.004 | 0.005 |
| | 7 | 24,000 | 200 | 0.004 | 0.005 | 24,000 | 200 | 0.004 | 0.005 | 24,000 | 190 | 0.004 | 0.005 |
| | 8 | 22,000 | 160 | 0.004 | 0.005 | 22,000 | 160 | 0.004 | 0.005 | 22,000 | 150 | 0.004 | 0.005 |
| | 9 | 20,000 | 120 | 0.004 | 0.005 | 20,000 | 120 | 0.004 | 0.005 | 20,000 | 110 | 0.004 | 0.005 |
| | 10 | 20,000 | 100 | 0.004 | 0.005 | 20,000 | 100 | 0.004 | 0.005 | 20,000 | 95 | 0.004 | 0.005 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削剤に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5（R0.25）未満あるいはL／D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



| ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | | 調質鋼（45～55HRC） Hardened Steel | | | | 調質鋼（55～60HRC） Hardened Steel | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | WX-LN-EBD |
| 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf |
| 50,000 | 70 | 0.003 | 0.003 | 50,000 | 60 | 0.003 | 0.003 | — | — | — | — |
| 50,000 | 50 | 0.003 | 0.003 | 50,000 | 40 | 0.003 | 0.003 | — | — | — | — |
| 50,000 | 380 | 0.005 | 0.005 | 50,000 | 260 | 0.005 | 0.005 | 50,000 | 200 | 0.004 | 0.005 |
| 50,000 | 340 | 0.005 | 0.005 | 50,000 | 230 | 0.005 | 0.005 | 50,000 | 180 | 0.004 | 0.005 |
| 50,000 | 340 | 0.005 | 0.005 | 50,000 | 230 | 0.005 | 0.005 | 50,000 | 180 | 0.004 | 0.005 |
| 47,000 | 300 | 0.005 | 0.005 | 47,000 | 210 | 0.005 | 0.005 | 43,000 | 150 | 0.004 | 0.005 |
| 45,000 | 280 | 0.005 | 0.005 | 45,000 | 190 | 0.005 | 0.005 | 41,000 | 130 | 0.004 | 0.005 |
| 42,000 | 240 | 0.005 | 0.005 | 42,000 | 170 | 0.005 | 0.005 | 38,000 | 120 | 0.004 | 0.005 |
| 38,000 | 210 | 0.005 | 0.005 | 37,000 | 140 | 0.005 | 0.005 | 33,000 | 100 | 0.004 | 0.005 |
| 32,000 | 160 | 0.004 | 0.005 | 31,000 | 100 | 0.004 | 0.005 | 31,000 | 80 | 0.004 | 0.005 |
| 32,000 | 140 | 0.004 | 0.005 | 31,000 | 90 | 0.004 | 0.005 | 31,000 | 70 | 0.004 | 0.005 |
| 50,000 | 570 | 0.005 | 0.01 | 50,000 | 390 | 0.005 | 0.01 | 50,000 | 300 | 0.005 | 0.01 |
| 50,000 | 570 | 0.005 | 0.01 | 50,000 | 390 | 0.005 | 0.01 | 50,000 | 310 | 0.005 | 0.01 |
| 50,000 | 570 | 0.005 | 0.01 | 50,000 | 380 | 0.005 | 0.01 | 50,000 | 300 | 0.005 | 0.01 |
| 50,000 | 570 | 0.005 | 0.01 | 50,000 | 370 | 0.005 | 0.01 | 50,000 | 290 | 0.005 | 0.01 |
| 47,000 | 480 | 0.005 | 0.01 | 47,000 | 310 | 0.005 | 0.01 | 43,000 | 220 | 0.005 | 0.01 |
| 45,000 | 450 | 0.005 | 0.005 | 45,000 | 290 | 0.005 | 0.005 | 41,000 | 210 | 0.004 | 0.005 |
| 45,000 | 380 | 0.005 | 0.005 | 45,000 | 250 | 0.005 | 0.005 | 41,000 | 180 | 0.004 | 0.005 |
| 40,000 | 280 | 0.005 | 0.005 | 40,000 | 190 | 0.005 | 0.005 | 36,000 | 130 | 0.004 | 0.005 |
| 38,000 | 230 | 0.005 | 0.005 | 37,000 | 150 | 0.005 | 0.005 | 33,000 | 100 | 0.004 | 0.005 |
| 34,000 | 190 | 0.004 | 0.005 | 33,000 | 120 | 0.004 | 0.005 | 33,000 | 95 | 0.004 | 0.005 |
| 32,000 | 140 | 0.004 | 0.005 | 31,000 | 90 | 0.004 | 0.005 | 31,000 | 70 | 0.004 | 0.005 |
| 32,000 | 120 | 0.004 | 0.005 | 31,000 | 80 | 0.004 | 0.005 | 31,000 | 60 | 0.004 | 0.005 |
| 29,000 | 95 | 0.004 | 0.005 | 28,000 | 60 | 0.004 | 0.005 | 28,000 | 50 | 0.004 | 0.005 |
| 50,000 | 850 | 0.01 | 0.02 | 50,000 | 590 | 0.01 | 0.02 | 50,000 | 470 | 0.008 | 0.015 |
| 50,000 | 850 | 0.01 | 0.02 | 50,000 | 550 | 0.01 | 0.02 | 50,000 | 440 | 0.008 | 0.015 |
| 50,000 | 760 | 0.01 | 0.02 | 50,000 | 520 | 0.01 | 0.02 | 50,000 | 410 | 0.008 | 0.015 |
| 50,000 | 660 | 0.01 | 0.02 | 50,000 | 460 | 0.01 | 0.02 | 45,000 | 330 | 0.008 | 0.015 |
| 45,000 | 520 | 0.008 | 0.015 | 45,000 | 360 | 0.008 | 0.015 | 41,000 | 260 | 0.008 | 0.015 |
| 43,000 | 470 | 0.005 | 0.01 | 43,000 | 320 | 0.005 | 0.01 | 38,000 | 220 | 0.005 | 0.01 |
| 40,000 | 400 | 0.005 | 0.01 | 40,000 | 280 | 0.005 | 0.01 | 36,000 | 200 | 0.005 | 0.01 |
| 36,000 | 350 | 0.005 | 0.005 | 35,000 | 230 | 0.005 | 0.005 | 31,000 | 160 | 0.005 | 0.005 |
| 32,000 | 270 | 0.004 | 0.005 | 31,000 | 180 | 0.004 | 0.005 | 28,000 | 130 | 0.004 | 0.005 |
| 32,000 | 260 | 0.004 | 0.005 | 31,000 | 170 | 0.004 | 0.005 | 28,000 | 120 | 0.004 | 0.005 |
| 30,000 | 210 | 0.004 | 0.005 | 29,000 | 140 | 0.004 | 0.005 | 26,000 | 100 | 0.004 | 0.005 |
| 30,000 | 190 | 0.004 | 0.005 | 29,000 | 120 | 0.004 | 0.005 | 26,000 | 100 | 0.004 | 0.005 |
| 50,000 | 1,050 | 0.015 | 0.03 | 50,000 | 730 | 0.015 | 0.03 | 50,000 | 580 | 0.01 | 0.02 |
| 50,000 | 1,050 | 0.015 | 0.03 | 50,000 | 700 | 0.015 | 0.03 | 50,000 | 560 | 0.01 | 0.02 |
| 50,000 | 950 | 0.015 | 0.03 | 50,000 | 650 | 0.015 | 0.03 | 50,000 | 520 | 0.01 | 0.02 |
| 50,000 | 950 | 0.015 | 0.03 | 50,000 | 600 | 0.015 | 0.03 | 45,000 | 430 | 0.01 | 0.02 |
| 48,000 | 850 | 0.01 | 0.02 | 48,000 | 550 | 0.01 | 0.02 | 43,000 | 390 | 0.01 | 0.02 |
| 45,000 | 650 | 0.01 | 0.02 | 45,000 | 450 | 0.01 | 0.02 | 40,000 | 320 | 0.01 | 0.02 |
| 43,000 | 570 | 0.01 | 0.01 | 43,000 | 390 | 0.01 | 0.01 | 38,000 | 270 | 0.01 | 0.01 |
| 38,000 | 470 | 0.01 | 0.01 | 38,000 | 320 | 0.01 | 0.01 | 34,000 | 220 | 0.01 | 0.01 |
| 30,000 | 380 | 0.005 | 0.01 | 29,000 | 250 | 0.005 | 0.01 | 26,000 | 170 | 0.005 | 0.01 |
| 28,000 | 280 | 0.004 | 0.005 | 27,000 | 180 | 0.004 | 0.005 | 24,000 | 120 | 0.004 | 0.005 |
| 26,000 | 230 | 0.004 | 0.005 | 25,000 | 150 | 0.004 | 0.005 | 22,000 | 100 | 0.004 | 0.005 |
| 24,000 | 190 | 0.004 | 0.005 | 23,000 | 130 | 0.004 | 0.005 | 20,000 | 100 | 0.004 | 0.005 |
| 22,000 | 150 | 0.004 | 0.005 | 21,000 | 110 | 0.004 | 0.005 | 20,000 | 100 | 0.004 | 0.005 |
| 20,000 | 110 | 0.004 | 0.005 | 21,000 | 100 | 0.004 | 0.005 | 20,000 | 90 | 0.004 | 0.005 |
| 20,000 | 95 | 0.004 | 0.005 | 21,000 | 100 | 0.004 | 0.005 | 20,000 | 90 | 0.004 | 0.005 |




1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$0.5 (R0.25) or less, or L / D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

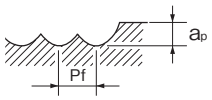
次ページへ
RE 0.3～0.6 NEXT

形状寸法表
SPECIFICATION CHARTS
WX-LN-EBD▶P359-2

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EBD

前ページより
FROM RE 0.05～0.25

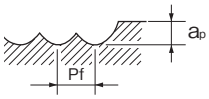
| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | | 調質鋼（30～38HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WX-LN-EBD | | | | | | | | | | | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf |
| 0.3 | 1.2 | 50,000 | 1,350 | 0.03 | 0.05 | 50,000 | 1,350 | 0.03 | 0.05 | 50,000 | 1,200 | 0.03 | 0.05 |
| | 2 | 50,000 | 1,300 | 0.03 | 0.05 | 50,000 | 1,300 | 0.03 | 0.05 | 50,000 | 1,200 | 0.03 | 0.05 |
| | 2.5 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 1,100 | 0.03 | 0.05 |
| | 3 | 50,000 | 1,200 | 0.02 | 0.03 | 50,000 | 1,200 | 0.02 | 0.03 | 50,000 | 1,100 | 0.02 | 0.03 |
| | 3.5 | 45,000 | 1,000 | 0.02 | 0.03 | 45,000 | 1,000 | 0.02 | 0.03 | 45,000 | 950 | 0.02 | 0.03 |
| | 4 | 40,000 | 900 | 0.01 | 0.02 | 40,000 | 900 | 0.01 | 0.02 | 40,000 | 850 | 0.01 | 0.02 |
| | 4.5 | 34,000 | 780 | 0.01 | 0.02 | 34,000 | 780 | 0.01 | 0.02 | 34,000 | 740 | 0.01 | 0.02 |
| | 5 | 30,000 | 680 | 0.01 | 0.02 | 30,000 | 680 | 0.01 | 0.02 | 30,000 | 640 | 0.01 | 0.02 |
| | 5.5 | 28,000 | 650 | 0.01 | 0.02 | 28,000 | 650 | 0.01 | 0.02 | 28,000 | 610 | 0.01 | 0.02 |
| | 6 | 26,000 | 600 | 0.01 | 0.02 | 26,000 | 600 | 0.01 | 0.02 | 26,000 | 570 | 0.01 | 0.02 |
| | 6.5 | 24,000 | 550 | 0.01 | 0.01 | 24,000 | 550 | 0.01 | 0.01 | 24,000 | 520 | 0.01 | 0.01 |
| | 7 | 23,000 | 450 | 0.01 | 0.01 | 23,000 | 450 | 0.01 | 0.01 | 23,000 | 420 | 0.01 | 0.01 |
| | 7.5 | 23,000 | 400 | 0.01 | 0.01 | 23,000 | 400 | 0.01 | 0.01 | 23,000 | 380 | 0.01 | 0.01 |
| | 8 | 20,000 | 320 | 0.005 | 0.01 | 20,000 | 320 | 0.005 | 0.01 | 20,000 | 300 | 0.005 | 0.01 |
| | 8.5 | 20,000 | 300 | 0.005 | 0.01 | 20,000 | 300 | 0.005 | 0.01 | 20,000 | 280 | 0.005 | 0.01 |
| | 9 | 20,000 | 280 | 0.005 | 0.01 | 20,000 | 280 | 0.005 | 0.01 | 20,000 | 260 | 0.005 | 0.01 |
| | 9.5 | 20,000 | 240 | 0.005 | 0.008 | 20,000 | 240 | 0.005 | 0.008 | 20,000 | 220 | 0.005 | 0.008 |
| | 10 | 20,000 | 200 | 0.005 | 0.008 | 20,000 | 200 | 0.005 | 0.008 | 20,000 | 190 | 0.005 | 0.008 |
| | 11 | 18,000 | 150 | 0.005 | 0.008 | 18,000 | 150 | 0.005 | 0.008 | 18,000 | 140 | 0.005 | 0.008 |
| | 12 | 18,000 | 120 | 0.005 | 0.005 | 18,000 | 120 | 0.005 | 0.005 | 18,000 | 110 | 0.005 | 0.005 |
| 0.4 | 2 | 50,000 | 2,000 | 0.04 | 0.08 | 50,000 | 2,000 | 0.04 | 0.08 | 50,000 | 1,900 | 0.04 | 0.08 |
| | 3 | 48,000 | 1,600 | 0.04 | 0.08 | 48,000 | 1,600 | 0.04 | 0.08 | 48,000 | 1,500 | 0.04 | 0.08 |
| | 4 | 40,000 | 1,200 | 0.04 | 0.08 | 40,000 | 1,200 | 0.04 | 0.08 | 40,000 | 1,100 | 0.04 | 0.08 |
| | 5 | 34,000 | 950 | 0.03 | 0.05 | 34,000 | 950 | 0.03 | 0.05 | 34,000 | 900 | 0.03 | 0.05 |
| | 6 | 30,000 | 800 | 0.03 | 0.05 | 30,000 | 800 | 0.03 | 0.05 | 30,000 | 760 | 0.03 | 0.05 |
| | 7 | 25,000 | 600 | 0.01 | 0.02 | 25,000 | 600 | 0.01 | 0.02 | 25,000 | 570 | 0.01 | 0.02 |
| | 8 | 23,000 | 450 | 0.005 | 0.01 | 23,000 | 450 | 0.005 | 0.01 | 23,000 | 420 | 0.005 | 0.01 |
| | 10 | 18,000 | 320 | 0.005 | 0.008 | 18,000 | 320 | 0.005 | 0.008 | 18,000 | 300 | 0.005 | 0.008 |
| | 12 | 17,000 | 250 | 0.005 | 0.005 | 17,000 | 250 | 0.005 | 0.005 | 17,000 | 230 | 0.005 | 0.005 |
| 0.5 | 2 | 50,000 | 3,700 | 0.05 | 0.1 | 50,000 | 3,700 | 0.05 | 0.1 | 50,000 | 3,700 | 0.05 | 0.1 |
| | 3 | 45,000 | 3,200 | 0.05 | 0.1 | 45,000 | 3,200 | 0.05 | 0.1 | 45,000 | 3,000 | 0.05 | 0.1 |
| | 4 | 40,000 | 3,000 | 0.05 | 0.1 | 40,000 | 3,000 | 0.05 | 0.1 | 40,000 | 2,850 | 0.05 | 0.1 |
| | 5 | 36,000 | 2,300 | 0.05 | 0.1 | 36,000 | 2,300 | 0.05 | 0.1 | 36,000 | 2,100 | 0.05 | 0.1 |
| | 6 | 30,000 | 2,000 | 0.05 | 0.1 | 30,000 | 2,000 | 0.05 | 0.1 | 30,000 | 1,900 | 0.05 | 0.1 |
| | 7 | 27,000 | 1,700 | 0.05 | 0.1 | 27,000 | 1,700 | 0.05 | 0.1 | 27,000 | 1,600 | 0.05 | 0.1 |
| | 8 | 26,000 | 1,600 | 0.05 | 0.1 | 26,000 | 1,600 | 0.05 | 0.1 | 26,000 | 1,500 | 0.05 | 0.1 |
| | 9 | 24,000 | 1,200 | 0.03 | 0.05 | 24,000 | 1,200 | 0.03 | 0.05 | 24,000 | 1,100 | 0.03 | 0.05 |
| | 10 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,100 | 0.01 | 0.02 | 22,000 | 1,000 | 0.01 | 0.02 |
| | 12 | 20,000 | 800 | 0.01 | 0.01 | 20,000 | 800 | 0.01 | 0.01 | 20,000 | 760 | 0.01 | 0.01 |
| | 14 | 18,000 | 600 | 0.005 | 0.01 | 18,000 | 600 | 0.005 | 0.01 | 18,000 | 570 | 0.005 | 0.01 |
| | 16 | 16,000 | 420 | 0.005 | 0.01 | 16,000 | 420 | 0.005 | 0.01 | 16,000 | 400 | 0.005 | 0.01 |
| | 18 | 14,000 | 320 | 0.005 | 0.005 | 14,000 | 320 | 0.005 | 0.005 | 14,000 | 300 | 0.005 | 0.005 |
| | 20 | 13,000 | 300 | 0.005 | 0.005 | 13,000 | 300 | 0.005 | 0.005 | 13,000 | 285 | 0.005 | 0.005 |
| | 22 | 12,000 | 200 | 0.005 | 0.005 | 12,000 | 200 | 0.005 | 0.005 | 12,000 | 190 | 0.005 | 0.005 |
| 0.6 | 2.4 | 50,000 | 3,800 | 0.06 | 0.12 | 50,000 | 3,800 | 0.06 | 0.12 | 50,000 | 3,600 | 0.06 | 0.12 |
| | 4 | 40,000 | 3,000 | 0.06 | 0.12 | 40,000 | 3,000 | 0.06 | 0.12 | 40,000 | 2,850 | 0.06 | 0.12 |
| | 6 | 32,000 | 2,100 | 0.06 | 0.12 | 32,000 | 2,100 | 0.06 | 0.12 | 32,000 | 2,000 | 0.06 | 0.12 |
| | 8 | 25,000 | 1,700 | 0.06 | 0.12 | 25,000 | 1,700 | 0.06 | 0.12 | 25,000 | 1,600 | 0.06 | 0.12 |
| | 10 | 20,000 | 1,200 | 0.05 | 0.1 | 20,000 | 1,200 | 0.05 | 0.1 | 20,000 | 1,100 | 0.05 | 0.1 |
| | 12 | 19,000 | 900 | 0.03 | 0.05 | 19,000 | 900 | 0.03 | 0.05 | 19,000 | 850 | 0.03 | 0.05 |
| | 14 | 18,000 | 650 | 0.03 | 0.05 | 18,000 | 650 | 0.03 | 0.05 | 18,000 | 610 | 0.03 | 0.05 |
| | 16 | 16,000 | 450 | 0.02 | 0.05 | 16,000 | 450 | 0.02 | 0.05 | 16,000 | 420 | 0.02 | 0.05 |
| | 18 | 16,000 | 350 | 0.005 | 0.005 | 16,000 | 350 | 0.005 | 0.005 | 16,000 | 330 | 0.005 | 0.005 |
| | 20 | 14,000 | 320 | 0.005 | 0.005 | 14,000 | 320 | 0.005 | 0.005 | 14,000 | 300 | 0.005 | 0.005 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削剤に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL／D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



| | ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | | 調質鋼（45～55HRC） Hardened Steel | | | | 調質鋼（55～60HRC） Hardened Steel | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | WX-LN-EBD |
| | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf |
| | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 840 | 0.03 | 0.05 | 50,000 | 670 | 0.01 | 0.02 |
| | 50,000 | 1,200 | 0.03 | 0.05 | 50,000 | 820 | 0.03 | 0.05 | 50,000 | 650 | 0.01 | 0.02 |
| | 50,000 | 1,100 | 0.03 | 0.05 | 50,000 | 770 | 0.03 | 0.05 | 50,000 | 610 | 0.01 | 0.02 |
| | 50,000 | 1,100 | 0.02 | 0.03 | 50,000 | 750 | 0.02 | 0.03 | 45,000 | 540 | 0.01 | 0.02 |
| | 45,000 | 950 | 0.02 | 0.03 | 45,000 | 660 | 0.02 | 0.03 | 41,000 | 480 | 0.01 | 0.02 |
| | 40,000 | 850 | 0.01 | 0.02 | 40,000 | 590 | 0.01 | 0.02 | 36,000 | 420 | 0.01 | 0.02 |
| | 34,000 | 740 | 0.01 | 0.02 | 34,000 | 510 | 0.01 | 0.02 | 31,000 | 370 | 0.01 | 0.02 |
| | 30,000 | 640 | 0.01 | 0.02 | 30,000 | 440 | 0.01 | 0.02 | 27,000 | 310 | 0.01 | 0.02 |
| | 28,000 | 610 | 0.01 | 0.02 | 28,000 | 420 | 0.01 | 0.02 | 25,000 | 300 | 0.01 | 0.02 |
| | 26,000 | 570 | 0.01 | 0.02 | 25,000 | 380 | 0.01 | 0.02 | 22,000 | 260 | 0.01 | 0.02 |
| | 24,000 | 520 | 0.01 | 0.01 | 23,000 | 340 | 0.01 | 0.01 | 20,000 | 230 | 0.01 | 0.01 |
| | 23,000 | 420 | 0.01 | 0.01 | 22,000 | 280 | 0.01 | 0.01 | 19,000 | 190 | 0.01 | 0.01 |
| | 23,000 | 380 | 0.01 | 0.01 | 22,000 | 250 | 0.01 | 0.01 | 19,000 | 170 | 0.01 | 0.01 |
| | 20,000 | 300 | 0.005 | 0.01 | 19,000 | 200 | 0.005 | 0.01 | 17,000 | 140 | 0.005 | 0.01 |
| | 20,000 | 280 | 0.005 | 0.01 | 19,000 | 180 | 0.005 | 0.01 | 17,000 | 130 | 0.005 | 0.01 |
| | 20,000 | 260 | 0.005 | 0.01 | 19,000 | 170 | 0.005 | 0.01 | 17,000 | 120 | 0.005 | 0.01 |
| | 20,000 | 220 | 0.005 | 0.008 | 19,000 | 140 | 0.005 | 0.008 | 17,000 | 110 | 0.005 | 0.008 |
| | 20,000 | 190 | 0.005 | 0.008 | 19,000 | 120 | 0.005 | 0.008 | 17,000 | 100 | 0.005 | 0.008 |
| | 18,000 | 140 | 0.005 | 0.008 | 17,000 | 90 | 0.005 | 0.008 | 17,000 | 80 | 0.005 | 0.008 |
| | 18,000 | 110 | 0.005 | 0.005 | 17,000 | 80 | 0.005 | 0.005 | 17,000 | 70 | 0.004 | 0.005 |
| | 50,000 | 1,900 | 0.04 | 0.08 | 50,000 | 1,600 | 0.04 | 0.08 | 50,000 | 1,200 | 0.015 | 0.03 |
| | 48,000 | 1,500 | 0.04 | 0.08 | 48,000 | 1,100 | 0.04 | 0.08 | 45,000 | 820 | 0.015 | 0.03 |
| | 40,000 | 1,100 | 0.04 | 0.08 | 40,000 | 1,000 | 0.04 | 0.08 | 38,000 | 760 | 0.015 | 0.03 |
| | 34,000 | 900 | 0.03 | 0.05 | 34,000 | 800 | 0.03 | 0.05 | 31,000 | 580 | 0.015 | 0.03 |
| | 30,000 | 760 | 0.03 | 0.05 | 30,000 | 650 | 0.03 | 0.05 | 27,000 | 460 | 0.015 | 0.03 |
| | 25,000 | 570 | 0.01 | 0.02 | 25,000 | 450 | 0.01 | 0.02 | 22,000 | 310 | 0.01 | 0.02 |
| | 23,000 | 420 | 0.005 | 0.01 | 23,000 | 300 | 0.005 | 0.01 | 20,000 | 200 | 0.005 | 0.01 |
| | 18,000 | 300 | 0.005 | 0.008 | 17,000 | 200 | 0.005 | 0.008 | 17,000 | 170 | 0.005 | 0.008 |
| | 17,000 | 230 | 0.005 | 0.005 | 16,000 | 160 | 0.005 | 0.005 | 16,000 | 110 | 0.005 | 0.005 |
| | 50,000 | 3,700 | 0.05 | 0.1 | 50,000 | 3,700 | 0.05 | 0.1 | 50,000 | 3,000 | 0.02 | 0.05 |
| | 45,000 | 3,000 | 0.05 | 0.1 | 45,000 | 2,400 | 0.05 | 0.1 | 45,000 | 1,900 | 0.02 | 0.05 |
| | 40,000 | 2,850 | 0.05 | 0.1 | 40,000 | 2,200 | 0.05 | 0.1 | 40,000 | 1,700 | 0.02 | 0.05 |
| | 36,000 | 2,100 | 0.05 | 0.1 | 36,000 | 1,600 | 0.05 | 0.1 | 36,000 | 1,200 | 0.02 | 0.05 |
| | 30,000 | 1,900 | 0.05 | 0.1 | 30,000 | 1,500 | 0.05 | 0.1 | 30,000 | 1,200 | 0.02 | 0.05 |
| | 27,000 | 1,600 | 0.05 | 0.1 | 27,000 | 1,300 | 0.05 | 0.1 | 27,000 | 1,000 | 0.02 | 0.05 |
| | 26,000 | 1,500 | 0.05 | 0.1 | 26,000 | 1,200 | 0.05 | 0.1 | 26,000 | 960 | 0.02 | 0.05 |
| | 24,000 | 1,100 | 0.03 | 0.05 | 24,000 | 880 | 0.03 | 0.05 | 24,000 | 700 | 0.02 | 0.05 |
| | 22,000 | 1,000 | 0.01 | 0.02 | 21,000 | 760 | 0.01 | 0.02 | 18,000 | 520 | 0.01 | 0.02 |
| | 20,000 | 760 | 0.01 | 0.01 | 19,000 | 570 | 0.01 | 0.01 | 17,000 | 400 | 0.01 | 0.01 |
| | 18,000 | 570 | 0.005 | 0.01 | 17,000 | 430 | 0.005 | 0.01 | 15,000 | 300 | 0.005 | 0.01 |
| | 16,000 | 400 | 0.005 | 0.01 | 15,000 | 300 | 0.005 | 0.01 | 13,000 | 200 | 0.005 | 0.01 |
| | 14,000 | 300 | 0.005 | 0.005 | 13,000 | 220 | 0.005 | 0.005 | 12,000 | 160 | 0.004 | 0.005 |
| | 13,000 | 285 | 0.005 | 0.005 | 12,000 | 180 | 0.005 | 0.005 | 12,000 | 140 | 0.004 | 0.005 |
| | 12,000 | 190 | 0.005 | 0.005 | 12,000 | 110 | 0.005 | 0.005 | 12,000 | 100 | 0.004 | 0.005 |
| | 50,000 | 3,600 | 0.06 | 0.12 | 50,000 | 3,600 | 0.06 | 0.12 | 50,000 | 3,000 | 0.02 | 0.05 |
| | 40,000 | 2,850 | 0.06 | 0.12 | 40,000 | 2,300 | 0.06 | 0.12 | 38,000 | 1,750 | 0.02 | 0.05 |
| | 32,000 | 2,000 | 0.06 | 0.12 | 32,000 | 1,600 | 0.06 | 0.12 | 30,000 | 1,200 | 0.02 | 0.05 |
| | 25,000 | 1,600 | 0.06 | 0.12 | 25,000 | 1,200 | 0.06 | 0.12 | 25,000 | 960 | 0.02 | 0.05 |
| | 20,000 | 1,100 | 0.05 | 0.1 | 18,000 | 800 | 0.05 | 0.1 | 16,000 | 560 | 0.02 | 0.05 |
| | 17,000 | 850 | 0.03 | 0.05 | 16,000 | 640 | 0.03 | 0.05 | 14,000 | 440 | 0.02 | 0.05 |
| | 16,000 | 610 | 0.03 | 0.05 | 15,000 | 450 | 0.03 | 0.05 | 13,000 | 310 | 0.02 | 0.05 |
| | 15,000 | 420 | 0.02 | 0.05 | 14,000 | 300 | 0.02 | 0.05 | 12,000 | 200 | 0.02 | 0.05 |
| | 15,000 | 330 | 0.005 | 0.005 | 14,000 | 200 | 0.005 | 0.005 | 12,000 | 130 | 0.004 | 0.005 |
| | 13,000 | 300 | 0.005 | 0.005 | 12,000 | 180 | 0.005 | 0.005 | 10,000 | 120 | 0.004 | 0.005 |




1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$0.5 (R0.25) or less, or L / D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

次ページへ
RE 0.7～1.5 NEXT

形状寸法表
SPECIFICATION CHARTS
WX-LN-EBD▶P359-2

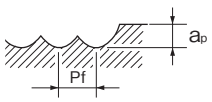
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EBD

前ページより
FROM RE 0.3～0.6

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | | 調質鋼（30～38HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WX-LN-EBD | | | | | | | | | | | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf |
| 0.7 | 8 | 25,000 | 1,700 | 0.07 | 0.14 | 25,000 | 1,700 | 0.07 | 0.14 | 25,000 | 1,600 | 0.07 | 0.14 |
| | 12 | 19,000 | 1,000 | 0.03 | 0.07 | 19,000 | 1,000 | 0.03 | 0.07 | 19,000 | 950 | 0.03 | 0.07 |
| | 16 | 14,000 | 500 | 0.02 | 0.05 | 14,000 | 500 | 0.02 | 0.05 | 14,000 | 470 | 0.02 | 0.05 |
| 0.75 | 3 | 50,000 | 4,800 | 0.075 | 0.15 | 50,000 | 4,800 | 0.075 | 0.15 | 50,000 | 4,800 | 0.075 | 0.15 |
| | 4 | 40,000 | 3,900 | 0.075 | 0.15 | 40,000 | 3,900 | 0.075 | 0.15 | 40,000 | 3,700 | 0.075 | 0.15 |
| | 6 | 30,000 | 2,900 | 0.075 | 0.15 | 30,000 | 2,900 | 0.075 | 0.15 | 30,000 | 2,700 | 0.075 | 0.15 |
| | 8 | 24,000 | 2,300 | 0.075 | 0.15 | 24,000 | 2,300 | 0.075 | 0.15 | 24,000 | 2,100 | 0.075 | 0.15 |
| | 10 | 24,000 | 2,000 | 0.075 | 0.15 | 24,000 | 2,000 | 0.075 | 0.15 | 24,000 | 1,900 | 0.075 | 0.15 |
| | 12 | 21,000 | 1,400 | 0.075 | 0.1 | 21,000 | 1,400 | 0.075 | 0.1 | 21,000 | 1,300 | 0.075 | 0.1 |
| | 14 | 18,000 | 1,200 | 0.05 | 0.1 | 18,000 | 1,200 | 0.05 | 0.1 | 18,000 | 1,100 | 0.05 | 0.1 |
| | 16 | 16,000 | 800 | 0.05 | 0.1 | 16,000 | 800 | 0.05 | 0.1 | 16,000 | 760 | 0.05 | 0.1 |
| | 18 | 14,000 | 500 | 0.03 | 0.05 | 14,000 | 500 | 0.03 | 0.05 | 14,000 | 470 | 0.03 | 0.05 |
| | 20 | 13,000 | 360 | 0.02 | 0.05 | 13,000 | 360 | 0.02 | 0.05 | 13,000 | 340 | 0.02 | 0.05 |
| | 22 | 13,000 | 320 | 0.02 | 0.05 | 13,000 | 320 | 0.02 | 0.05 | 13,000 | 300 | 0.02 | 0.05 |
| | 30 | 12,000 | 200 | 0.005 | 0.01 | 12,000 | 200 | 0.005 | 0.01 | 12,000 | 190 | 0.005 | 0.01 |
| 0.8 | 8 | 24,000 | 3,000 | 0.08 | 0.16 | 24,000 | 3,000 | 0.08 | 0.16 | 24,000 | 2,800 | 0.08 | 0.16 |
| | 12 | 21,000 | 1,800 | 0.05 | 0.1 | 21,000 | 1,800 | 0.05 | 0.1 | 21,000 | 1,700 | 0.05 | 0.1 |
| | 16 | 16,000 | 800 | 0.05 | 0.1 | 16,000 | 800 | 0.05 | 0.1 | 16,000 | 760 | 0.05 | 0.1 |
| | 20 | 13,000 | 380 | 0.03 | 0.05 | 13,000 | 380 | 0.03 | 0.05 | 13,000 | 360 | 0.03 | 0.05 |
| 0.9 | 8 | 21,000 | 3,000 | 0.09 | 0.27 | 21,000 | 3,000 | 0.09 | 0.27 | 21,000 | 2,800 | 0.09 | 0.27 |
| | 12 | 18,000 | 1,800 | 0.09 | 0.18 | 18,000 | 1,800 | 0.09 | 0.18 | 18,000 | 1,700 | 0.09 | 0.18 |
| | 16 | 16,000 | 900 | 0.05 | 0.12 | 16,000 | 900 | 0.05 | 0.12 | 16,000 | 850 | 0.05 | 0.12 |
| | 20 | 12,000 | 380 | 0.04 | 0.05 | 12,000 | 380 | 0.04 | 0.05 | 12,000 | 360 | 0.04 | 0.05 |
| 1 | 4 | 50,000 | 5,600 | 0.1 | 0.2 | 50,000 | 5,600 | 0.1 | 0.2 | 50,000 | 5,600 | 0.1 | 0.2 |
| | 6 | 36,000 | 3,000 | 0.1 | 0.2 | 36,000 | 3,000 | 0.1 | 0.2 | 36,000 | 2,800 | 0.1 | 0.2 |
| | 8 | 25,000 | 2,600 | 0.1 | 0.2 | 25,000 | 2,600 | 0.1 | 0.2 | 25,000 | 2,400 | 0.1 | 0.2 |
| | 10 | 20,000 | 2,400 | 0.1 | 0.2 | 20,000 | 2,400 | 0.1 | 0.2 | 20,000 | 2,200 | 0.1 | 0.2 |
| | 12 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 1,900 | 0.1 | 0.2 |
| | 14 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 |
| | 16 | 14,000 | 1,700 | 0.1 | 0.1 | 14,000 | 1,700 | 0.1 | 0.1 | 14,000 | 1,600 | 0.1 | 0.1 |
| | 18 | 13,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,500 | 0.1 | 0.1 |
| | 20 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,100 | 0.05 | 0.1 |
| | 22 | 10,000 | 1,000 | 0.05 | 0.1 | 10,000 | 1,000 | 0.05 | 0.1 | 10,000 | 950 | 0.05 | 0.1 |
| | 25 | 10,000 | 800 | 0.03 | 0.05 | 10,000 | 800 | 0.03 | 0.05 | 10,000 | 760 | 0.03 | 0.05 |
| | 30 | 10,000 | 500 | 0.02 | 0.05 | 10,000 | 500 | 0.02 | 0.05 | 10,000 | 470 | 0.02 | 0.05 |
| | 35 | 8,000 | 250 | 0.02 | 0.03 | 8,000 | 250 | 0.02 | 0.03 | 8,000 | 230 | 0.02 | 0.03 |
| | 40 | 7,000 | 150 | 0.02 | 0.03 | 7,000 | 150 | 0.02 | 0.03 | 7,000 | 140 | 0.02 | 0.03 |
| 1.25 | 10 | 20,000 | 3,300 | 0.1 | 0.2 | 20,000 | 3,300 | 0.1 | 0.2 | 20,000 | 3,100 | 0.1 | 0.2 |
| | 15 | 17,000 | 2,800 | 0.1 | 0.2 | 17,000 | 2,800 | 0.1 | 0.2 | 17,000 | 2,600 | 0.1 | 0.2 |
| | 20 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,800 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 |
| | 25 | 12,000 | 1,000 | 0.03 | 0.05 | 12,000 | 1,000 | 0.03 | 0.05 | 12,000 | 950 | 0.03 | 0.05 |
| | 30 | 10,000 | 800 | 0.03 | 0.05 | 10,000 | 800 | 0.03 | 0.05 | 10,000 | 760 | 0.03 | 0.05 |
| | 35 | 8,000 | 500 | 0.02 | 0.03 | 8,000 | 500 | 0.02 | 0.03 | 8,000 | 470 | 0.02 | 0.03 |
| 1.5 | 6 | 41,500 | 6,200 | 0.15 | 0.3 | 41,500 | 6,200 | 0.15 | 0.3 | 41,500 | 6,200 | 0.15 | 0.3 |
| | 8 | 30,000 | 4,500 | 0.15 | 0.3 | 30,000 | 4,500 | 0.15 | 0.3 | 30,000 | 4,200 | 0.15 | 0.3 |
| | 10 | 25,000 | 3,800 | 0.15 | 0.3 | 25,000 | 3,800 | 0.15 | 0.3 | 25,000 | 3,600 | 0.15 | 0.3 |
| | 12 | 20,000 | 3,000 | 0.15 | 0.3 | 20,000 | 3,000 | 0.15 | 0.3 | 20,000 | 2,800 | 0.15 | 0.3 |
| | 14 | 18,000 | 2,700 | 0.15 | 0.3 | 18,000 | 2,700 | 0.15 | 0.3 | 18,000 | 2,500 | 0.15 | 0.3 |
| | 15 | 16,000 | 2,400 | 0.1 | 0.3 | 16,000 | 2,400 | 0.1 | 0.3 | 16,000 | 2,200 | 0.1 | 0.3 |
| | 16 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 2,000 | 0.1 | 0.2 | 16,000 | 1,900 | 0.1 | 0.2 |
| | 20 | 14,000 | 1,800 | 0.1 | 0.2 | 14,000 | 1,800 | 0.1 | 0.2 | 14,000 | 1,700 | 0.1 | 0.2 |
| | 25 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,200 | 0.05 | 0.1 | 12,000 | 1,100 | 0.05 | 0.1 |
| | 30 | 10,000 | 800 | 0.03 | 0.05 | 10,000 | 800 | 0.03 | 0.05 | 10,000 | 760 | 0.03 | 0.05 |
| | 35 | 8,000 | 600 | 0.02 | 0.05 | 8,000 | 600 | 0.02 | 0.05 | 8,000 | 570 | 0.02 | 0.05 |
| | 40 | 7,000 | 500 | 0.02 | 0.03 | 7,000 | 500 | 0.02 | 0.03 | 7,000 | 470 | 0.02 | 0.03 |

切込深さ Depth of Cut

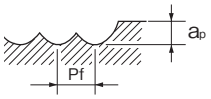



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削剤に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25)未満あるいはL／D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



| | ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | | 調質鋼（45～55HRC） Hardened Steel | | | | 調質鋼（55～60HRC） Hardened Steel | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | WX-LN-EBD |
| | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf |
| | 25,000 | 1,600 | 0.07 | 0.14 | 25,000 | 1,200 | 0.07 | 0.14 | 25,000 | 960 | 0.03 | 0.07 |
| | 19,000 | 950 | 0.03 | 0.07 | 19,000 | 760 | 0.03 | 0.07 | 17,000 | 540 | 0.03 | 0.07 |
| | 13,000 | 470 | 0.02 | 0.05 | 12,000 | 340 | 0.02 | 0.05 | 10,000 | 220 | 0.02 | 0.05 |
| | 50,000 | 4,800 | 0.075 | 0.15 | 50,000 | 4,800 | 0.075 | 0.15 | 50,000 | 3,900 | 0.03 | 0.06 |
| | 40,000 | 3,700 | 0.075 | 0.15 | 40,000 | 2,900 | 0.075 | 0.15 | 38,000 | 2,200 | 0.03 | 0.06 |
| | 30,000 | 2,700 | 0.075 | 0.15 | 30,000 | 2,200 | 0.075 | 0.15 | 27,000 | 1,500 | 0.03 | 0.06 |
| | 24,000 | 2,100 | 0.075 | 0.15 | 24,000 | 1,700 | 0.075 | 0.15 | 21,000 | 1,100 | 0.03 | 0.06 |
| | 24,000 | 1,900 | 0.075 | 0.15 | 24,000 | 1,500 | 0.075 | 0.15 | 21,000 | 1,000 | 0.03 | 0.06 |
| | 21,000 | 1,300 | 0.075 | 0.1 | 21,000 | 1,000 | 0.075 | 0.1 | 18,000 | 680 | 0.03 | 0.06 |
| | 17,000 | 1,100 | 0.05 | 0.1 | 17,000 | 900 | 0.05 | 0.1 | 15,000 | 630 | 0.03 | 0.06 |
| | 14,000 | 760 | 0.05 | 0.1 | 13,000 | 560 | 0.05 | 0.1 | 10,000 | 340 | 0.03 | 0.05 |
| | 13,000 | 470 | 0.03 | 0.05 | 12,000 | 350 | 0.03 | 0.05 | 10,000 | 230 | 0.03 | 0.05 |
| | 12,000 | 340 | 0.02 | 0.05 | 11,000 | 240 | 0.02 | 0.05 | 9,000 | 150 | 0.02 | 0.05 |
| | 12,000 | 300 | 0.02 | 0.05 | 11,000 | 220 | 0.02 | 0.05 | 9,000 | 140 | 0.02 | 0.05 |
| | 11,000 | 190 | 0.005 | 0.01 | 10,000 | 120 | 0.005 | 0.01 | 9,000 | 90 | 0.005 | 0.01 |
| | 24,000 | 2,800 | 0.08 | 0.16 | 23,000 | 2,100 | 0.08 | 0.16 | 20,000 | 1,400 | 0.03 | 0.08 |
| | 21,000 | 1,700 | 0.05 | 0.1 | 20,000 | 1,380 | 0.05 | 0.1 | 18,000 | 990 | 0.03 | 0.08 |
| | 14,000 | 760 | 0.05 | 0.1 | 13,000 | 600 | 0.05 | 0.1 | 11,000 | 400 | 0.03 | 0.08 |
| | 12,000 | 360 | 0.03 | 0.05 | 11,000 | 280 | 0.03 | 0.05 | 10,000 | 200 | 0.03 | 0.05 |
| | 24,000 | 2,800 | 0.09 | 0.27 | 23,000 | 2,280 | 0.09 | 0.27 | 20,000 | 1,500 | 0.03 | 0.08 |
| | 21,000 | 1,700 | 0.09 | 0.18 | 20,000 | 1,380 | 0.09 | 0.18 | 18,000 | 990 | 0.03 | 0.08 |
| | 14,000 | 850 | 0.05 | 0.12 | 13,000 | 670 | 0.05 | 0.12 | 11,000 | 450 | 0.03 | 0.08 |
| | 11,000 | 360 | 0.04 | 0.05 | 10,000 | 280 | 0.04 | 0.05 | 9,000 | 200 | 0.03 | 0.05 |
| | 50,000 | 5,600 | 0.1 | 0.2 | 47,000 | 5,300 | 0.1 | 0.2 | 40,000 | 3,600 | 0.05 | 0.1 |
| | 36,000 | 2,800 | 0.1 | 0.2 | 35,000 | 2,700 | 0.1 | 0.2 | 30,000 | 1,800 | 0.05 | 0.1 |
| | 25,000 | 2,400 | 0.1 | 0.2 | 24,000 | 2,300 | 0.1 | 0.2 | 20,000 | 1,500 | 0.05 | 0.1 |
| | 20,000 | 2,200 | 0.1 | 0.2 | 19,000 | 2,000 | 0.1 | 0.2 | 17,000 | 1,400 | 0.05 | 0.1 |
| | 16,000 | 1,900 | 0.1 | 0.2 | 15,000 | 1,700 | 0.1 | 0.2 | 13,000 | 1,100 | 0.05 | 0.1 |
| | 15,000 | 1,700 | 0.1 | 0.2 | 14,000 | 1,500 | 0.1 | 0.2 | 12,000 | 1,000 | 0.05 | 0.1 |
| | 14,000 | 1,600 | 0.1 | 0.1 | 13,000 | 1,400 | 0.1 | 0.1 | 11,000 | 950 | 0.05 | 0.1 |
| | 13,000 | 1,500 | 0.1 | 0.1 | 12,000 | 1,200 | 0.1 | 0.1 | 10,000 | 800 | 0.05 | 0.1 |
| | 11,000 | 1,100 | 0.05 | 0.1 | 10,000 | 890 | 0.05 | 0.1 | 9,000 | 640 | 0.05 | 0.1 |
| | 9,000 | 950 | 0.05 | 0.1 | 9,000 | 860 | 0.05 | 0.1 | 7,500 | 570 | 0.05 | 0.1 |
| | 9,000 | 760 | 0.03 | 0.05 | 9,000 | 680 | 0.03 | 0.05 | 7,500 | 450 | 0.03 | 0.05 |
| | 9,000 | 470 | 0.02 | 0.05 | 9,000 | 360 | 0.02 | 0.05 | 7,500 | 240 | 0.02 | 0.05 |
| | 7,500 | 230 | 0.02 | 0.03 | 7,000 | 130 | 0.02 | 0.03 | 6,000 | 100 | 0.02 | 0.03 |
| | 6,000 | 140 | 0.02 | 0.03 | 6,000 | 100 | 0.02 | 0.03 | 6,000 | 90 | 0.02 | 0.03 |
| | 20,000 | 3,100 | 0.1 | 0.2 | 19,000 | 2,900 | 0.1 | 0.2 | 16,000 | 1,900 | 0.05 | 0.1 |
| | 17,000 | 2,600 | 0.1 | 0.2 | 16,000 | 2,400 | 0.1 | 0.2 | 14,000 | 1,600 | 0.05 | 0.1 |
| | 15,000 | 1,700 | 0.1 | 0.2 | 14,000 | 1,600 | 0.1 | 0.2 | 12,000 | 1,000 | 0.05 | 0.1 |
| | 11,000 | 950 | 0.03 | 0.05 | 10,000 | 830 | 0.03 | 0.05 | 9,000 | 590 | 0.03 | 0.05 |
| | 9,000 | 760 | 0.03 | 0.05 | 8,000 | 650 | 0.03 | 0.05 | 7,000 | 450 | 0.03 | 0.05 |
| | 7,500 | 470 | 0.02 | 0.03 | 7,000 | 430 | 0.02 | 0.03 | 6,000 | 290 | 0.02 | 0.03 |
| | 41,500 | 6,200 | 0.15 | 0.3 | 32,000 | 4,800 | 0.15 | 0.3 | 26,500 | 3,300 | 0.06 | 0.15 |
| | 30,000 | 4,200 | 0.15 | 0.3 | 25,000 | 3,500 | 0.15 | 0.3 | 22,000 | 2,400 | 0.06 | 0.15 |
| | 25,000 | 3,600 | 0.15 | 0.3 | 20,000 | 2,800 | 0.15 | 0.3 | 18,000 | 2,000 | 0.06 | 0.15 |
| | 20,000 | 2,800 | 0.15 | 0.3 | 18,000 | 2,500 | 0.15 | 0.3 | 16,000 | 1,700 | 0.06 | 0.15 |
| | 18,000 | 2,500 | 0.15 | 0.3 | 15,000 | 2,000 | 0.15 | 0.3 | 13,000 | 1,300 | 0.06 | 0.15 |
| | 16,000 | 2,200 | 0.1 | 0.3 | 13,000 | 1,800 | 0.1 | 0.3 | 11,000 | 1,200 | 0.06 | 0.15 |
| | 16,000 | 1,900 | 0.1 | 0.2 | 13,000 | 1,500 | 0.1 | 0.2 | 11,000 | 1,100 | 0.06 | 0.15 |
| | 14,000 | 1,700 | 0.1 | 0.2 | 11,000 | 1,600 | 0.1 | 0.2 | 10,000 | 1,000 | 0.06 | 0.15 |
| | 12,000 | 1,100 | 0.05 | 0.1 | 9,000 | 820 | 0.05 | 0.1 | 8,000 | 580 | 0.05 | 0.1 |
| | 9,000 | 760 | 0.03 | 0.05 | 7,000 | 590 | 0.03 | 0.05 | 6,000 | 400 | 0.03 | 0.05 |
| | 7,500 | 570 | 0.02 | 0.05 | 6,000 | 460 | 0.02 | 0.05 | 5,000 | 300 | 0.02 | 0.05 |
| | 6,500 | 470 | 0.02 | 0.03 | 5,000 | 360 | 0.02 | 0.03 | 4,000 | 230 | 0.02 | 0.03 |




1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of ϕ0.5 (R0.25) or less, or L / D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

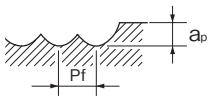
次ページへ
RE 1.75～3 NEXT

形状寸法表
SPECIFICATION CHARTS
WX-LN-EBD▶P359-2

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EBD

前ページより
FROM RE 0.7～1.5

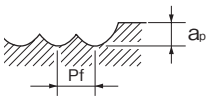
| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | | 調質鋼（30～38HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WX-LN-EBD | | | | | | | | | | | | | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | Pf |
| 1.75 | 15 | 18,000 | 3,000 | 0.1 | 0.3 | 18,000 | 3,000 | 0.1 | 0.3 | 18,000 | 2,800 | 0.1 | 0.3 |
| | 20 | 16,000 | 2,700 | 0.1 | 0.2 | 16,000 | 2,700 | 0.1 | 0.2 | 16,000 | 2,500 | 0.1 | 0.2 |
| | 25 | 12,000 | 2,000 | 0.1 | 0.1 | 12,000 | 2,000 | 0.1 | 0.1 | 12,000 | 1,900 | 0.1 | 0.1 |
| | 30 | 10,000 | 1,600 | 0.05 | 0.1 | 10,000 | 1,600 | 0.05 | 0.1 | 10,000 | 1,500 | 0.05 | 0.1 |
| | 35 | 10,000 | 1,000 | 0.05 | 0.05 | 10,000 | 1,000 | 0.05 | 0.05 | 10,000 | 950 | 0.05 | 0.05 |
| | 40 | 8,000 | 800 | 0.05 | 0.05 | 8,000 | 800 | 0.05 | 0.05 | 8,000 | 760 | 0.05 | 0.05 |
| | 45 | 7,000 | 600 | 0.03 | 0.03 | 7,000 | 600 | 0.03 | 0.03 | 7,000 | 570 | 0.03 | 0.03 |
| 2 | 8 | 31,000 | 5,700 | 0.2 | 0.5 | 31,000 | 5,700 | 0.2 | 0.5 | 31,000 | 5,700 | 0.2 | 0.5 |
| | 10 | 25,000 | 4,500 | 0.2 | 0.5 | 25,000 | 4,500 | 0.2 | 0.5 | 25,000 | 4,200 | 0.2 | 0.5 |
| | 12 | 20,000 | 3,600 | 0.2 | 0.5 | 20,000 | 3,600 | 0.2 | 0.5 | 20,000 | 3,400 | 0.2 | 0.5 |
| | 15 | 20,000 | 3,600 | 0.2 | 0.5 | 20,000 | 3,600 | 0.2 | 0.5 | 20,000 | 3,400 | 0.2 | 0.5 |
| | 16 | 18,000 | 3,200 | 0.2 | 0.5 | 18,000 | 3,200 | 0.2 | 0.5 | 18,000 | 3,000 | 0.2 | 0.5 |
| | 20 | 16,000 | 2,800 | 0.2 | 0.4 | 16,000 | 2,800 | 0.2 | 0.4 | 16,000 | 2,600 | 0.2 | 0.4 |
| | 25 | 16,000 | 2,800 | 0.1 | 0.3 | 16,000 | 2,800 | 0.1 | 0.3 | 16,000 | 2,600 | 0.1 | 0.3 |
| | 30 | 14,000 | 2,400 | 0.1 | 0.2 | 14,000 | 2,400 | 0.1 | 0.2 | 14,000 | 2,200 | 0.1 | 0.2 |
| | 35 | 12,000 | 1,800 | 0.1 | 0.2 | 12,000 | 1,800 | 0.1 | 0.2 | 12,000 | 1,700 | 0.1 | 0.2 |
| | 40 | 10,000 | 1,300 | 0.05 | 0.1 | 10,000 | 1,300 | 0.05 | 0.1 | 10,000 | 1,200 | 0.05 | 0.1 |
| | 45 | 8,000 | 1,000 | 0.05 | 0.05 | 8,000 | 1,000 | 0.05 | 0.05 | 8,000 | 950 | 0.05 | 0.05 |
| | 50 | 7,000 | 700 | 0.02 | 0.05 | 7,000 | 700 | 0.02 | 0.05 | 7,000 | 660 | 0.02 | 0.05 |
| 2.5 | 10 | 25,000 | 5,400 | 0.25 | 0.5 | 25,000 | 5,400 | 0.25 | 0.5 | 25,000 | 5,400 | 0.25 | 0.5 |
| | 15 | 20,000 | 4,200 | 0.25 | 0.5 | 20,000 | 4,200 | 0.25 | 0.5 | 20,000 | 3,900 | 0.25 | 0.5 |
| | 20 | 16,000 | 3,500 | 0.25 | 0.5 | 16,000 | 3,500 | 0.25 | 0.5 | 16,000 | 3,300 | 0.25 | 0.5 |
| | 25 | 15,000 | 3,200 | 0.2 | 0.3 | 15,000 | 3,200 | 0.2 | 0.3 | 15,000 | 3,000 | 0.2 | 0.3 |
| | 30 | 14,000 | 2,500 | 0.1 | 0.3 | 14,000 | 2,500 | 0.1 | 0.3 | 14,000 | 2,300 | 0.1 | 0.3 |
| | 35 | 12,000 | 1,600 | 0.1 | 0.3 | 12,000 | 1,600 | 0.1 | 0.3 | 12,000 | 1,500 | 0.1 | 0.3 |
| | 40 | 10,000 | 1,200 | 0.1 | 0.2 | 10,000 | 1,200 | 0.1 | 0.2 | 10,000 | 1,100 | 0.1 | 0.2 |
| | 45 | 9,000 | 900 | 0.1 | 0.1 | 9,000 | 900 | 0.1 | 0.1 | 9,000 | 850 | 0.1 | 0.1 |
| | 50 | 8,000 | 800 | 0.1 | 0.1 | 8,000 | 800 | 0.1 | 0.1 | 8,000 | 760 | 0.1 | 0.1 |
| 3 | 12 | 20,000 | 5,200 | 0.3 | 0.5 | 20,000 | 5,200 | 0.3 | 0.5 | 20,000 | 5,200 | 0.3 | 0.5 |
| | 20 | 16,000 | 4,200 | 0.3 | 0.5 | 16,000 | 4,200 | 0.3 | 0.5 | 16,000 | 3,900 | 0.3 | 0.5 |
| | 25 | 12,000 | 3,200 | 0.3 | 0.5 | 12,000 | 3,200 | 0.3 | 0.5 | 12,000 | 3,000 | 0.3 | 0.5 |
| | 30 | 10,000 | 2,600 | 0.3 | 0.5 | 10,000 | 2,600 | 0.3 | 0.5 | 10,000 | 2,400 | 0.3 | 0.5 |
| | 35 | 9,000 | 2,300 | 0.2 | 0.4 | 9,000 | 2,300 | 0.2 | 0.4 | 9,000 | 2,100 | 0.2 | 0.4 |
| | 40 | 9,000 | 2,000 | 0.2 | 0.3 | 9,000 | 2,000 | 0.2 | 0.3 | 9,000 | 1,900 | 0.2 | 0.3 |
| | 45 | 8,000 | 1,800 | 0.2 | 0.3 | 8,000 | 1,800 | 0.2 | 0.3 | 8,000 | 1,700 | 0.2 | 0.3 |
| | 50 | 7,000 | 1,600 | 0.2 | 0.3 | 7,000 | 1,600 | 0.2 | 0.3 | 7,000 | 1,500 | 0.2 | 0.3 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤は被削剤に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 上表は等高線加工における負荷の少ない安定した状況を基準としたものです。値は目安ですので実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5(R0.25) 未満あるいはL／D（アスペクト比）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



| | ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | | 調質鋼（45～55HRC） Hardened Steel | | | | 調質鋼（55～60HRC） Hardened Steel | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | WX-LN-EBD |
| | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | Pf |
| | 18,000 | 2,800 | 0.1 | 0.3 | 14,000 | 2,000 | 0.1 | 0.3 | 12,000 | 1,300 | 0.07 | 0.15 |
| | 16,000 | 2,500 | 0.1 | 0.2 | 12,000 | 1,800 | 0.1 | 0.2 | 10,000 | 1,200 | 0.07 | 0.15 |
| | 12,000 | 1,900 | 0.1 | 0.1 | 9,000 | 1,300 | 0.1 | 0.1 | 8,000 | 920 | 0.07 | 0.15 |
| | 10,000 | 1,500 | 0.05 | 0.1 | 8,000 | 1,100 | 0.05 | 0.1 | 7,000 | 770 | 0.05 | 0.1 |
| | 9,000 | 950 | 0.05 | 0.05 | 7,000 | 700 | 0.05 | 0.05 | 5,000 | 400 | 0.05 | 0.05 |
| | 7,500 | 760 | 0.05 | 0.05 | 6,000 | 580 | 0.05 | 0.05 | 4,000 | 300 | 0.05 | 0.05 |
| | 6,500 | 570 | 0.03 | 0.03 | 5,000 | 420 | 0.03 | 0.03 | 4,000 | 260 | 0.03 | 0.03 |
| | 31,000 | 5,700 | 0.2 | 0.5 | 24,000 | 4,400 | 0.2 | 0.5 | 20,000 | 3,200 | 0.08 | 0.2 |
| | 25,000 | 4,200 | 0.2 | 0.5 | 20,000 | 3,300 | 0.2 | 0.5 | 18,000 | 2,300 | 0.08 | 0.2 |
| | 20,000 | 3,400 | 0.2 | 0.5 | 17,000 | 2,900 | 0.2 | 0.5 | 14,000 | 1,900 | 0.08 | 0.2 |
| | 20,000 | 3,400 | 0.2 | 0.5 | 16,000 | 2,700 | 0.2 | 0.5 | 12,000 | 1,600 | 0.08 | 0.2 |
| | 18,000 | 3,000 | 0.2 | 0.5 | 15,000 | 2,500 | 0.2 | 0.5 | 10,000 | 1,300 | 0.08 | 0.2 |
| | 16,000 | 2,600 | 0.2 | 0.4 | 14,000 | 2,300 | 0.2 | 0.4 | 8,000 | 1,000 | 0.08 | 0.2 |
| | 16,000 | 2,600 | 0.1 | 0.3 | 13,000 | 2,200 | 0.1 | 0.3 | 6,000 | 810 | 0.08 | 0.2 |
| | 14,000 | 2,200 | 0.1 | 0.2 | 12,000 | 1,900 | 0.1 | 0.2 | 5,000 | 630 | 0.08 | 0.2 |
| | 12,000 | 1,700 | 0.1 | 0.2 | 9,000 | 1,200 | 0.1 | 0.2 | 4,000 | 420 | 0.08 | 0.2 |
| | 9,000 | 1,200 | 0.05 | 0.1 | 8,000 | 1,000 | 0.05 | 0.1 | 4,000 | 400 | 0.05 | 0.1 |
| | 7,500 | 950 | 0.05 | 0.05 | 7,000 | 890 | 0.05 | 0.05 | 3,600 | 360 | 0.05 | 0.05 |
| | 6,500 | 660 | 0.02 | 0.05 | 6,000 | 600 | 0.02 | 0.05 | 3,600 | 280 | 0.02 | 0.05 |
| | 25,000 | 5,400 | 0.25 | 0.5 | 19,000 | 4,000 | 0.25 | 0.5 | 16,000 | 2,800 | 0.1 | 0.25 |
| | 20,000 | 3,900 | 0.25 | 0.5 | 17,000 | 3,300 | 0.25 | 0.5 | 13,000 | 2,000 | 0.1 | 0.25 |
| | 16,000 | 3,300 | 0.25 | 0.5 | 13,000 | 2,700 | 0.25 | 0.5 | 8,000 | 1,300 | 0.1 | 0.25 |
| | 15,000 | 3,000 | 0.2 | 0.3 | 12,000 | 2,400 | 0.2 | 0.3 | 6,000 | 960 | 0.1 | 0.25 |
| | 14,000 | 2,300 | 0.1 | 0.3 | 11,000 | 1,800 | 0.1 | 0.3 | 4,000 | 520 | 0.1 | 0.25 |
| | 12,000 | 1,500 | 0.1 | 0.3 | 10,000 | 1,100 | 0.1 | 0.3 | 3,200 | 280 | 0.1 | 0.25 |
| | 10,000 | 1,100 | 0.1 | 0.2 | 9,000 | 990 | 0.1 | 0.2 | 3,000 | 260 | 0.1 | 0.2 |
| | 9,000 | 850 | 0.1 | 0.1 | 8,000 | 660 | 0.1 | 0.1 | 3,000 | 200 | 0.1 | 0.1 |
| | 7,500 | 760 | 0.1 | 0.1 | 7,000 | 610 | 0.1 | 0.1 | 2,800 | 190 | 0.1 | 0.1 |
| | 20,000 | 5,200 | 0.3 | 0.5 | 16,000 | 3,400 | 0.3 | 0.5 | 13,500 | 2,500 | 0.1 | 0.2 |
| | 16,000 | 3,900 | 0.3 | 0.5 | 12,000 | 3,000 | 0.3 | 0.5 | 8,000 | 1,600 | 0.1 | 0.2 |
| | 12,000 | 3,000 | 0.3 | 0.5 | 10,000 | 2,500 | 0.3 | 0.5 | 6,000 | 1,200 | 0.1 | 0.2 |
| | 10,000 | 2,400 | 0.3 | 0.5 | 9,000 | 2,100 | 0.3 | 0.5 | 4,000 | 740 | 0.1 | 0.2 |
| | 9,000 | 2,100 | 0.2 | 0.4 | 9,000 | 2,000 | 0.2 | 0.4 | 3,500 | 620 | 0.1 | 0.2 |
| | 9,000 | 1,900 | 0.2 | 0.3 | 9,000 | 1,800 | 0.2 | 0.3 | 3,000 | 480 | 0.1 | 0.2 |
| | 8,000 | 1,700 | 0.2 | 0.3 | 8,000 | 1,600 | 0.2 | 0.3 | 2,800 | 440 | 0.1 | 0.2 |
| | 7,000 | 1,500 | 0.2 | 0.3 | 7,000 | 1,400 | 0.2 | 0.3 | 2,500 | 400 | 0.1 | 0.2 |




1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$0.5 (R0.25) or less, or L / D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at the same ratio as listed above.

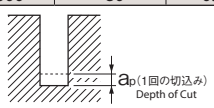
形状寸法表
SPECIFICATION CHARTS
WX-LN-EDS▶P321-1

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EDS
### 溝切削

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼 (30～38HRC)・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC (mm) | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap |
| 0.1 | 0.3 | 32,000 | 120 | 0.005 | 32,000 | 80 | 0.005 | 32,000 | 70 | 0.004 |
| | 0.5 | 32,000 | 100 | 0.004 | 32,000 | 65 | 0.004 | 32,000 | 60 | 0.003 |
| | 1 | 32,000 | 60 | 0.002 | 32,000 | 40 | 0.002 | 32,000 | 30 | 0.002 |
| 0.2 | 0.5 | 32,000 | 700 | 0.02 | 32,000 | 450 | 0.018 | 32,000 | 450 | 0.015 |
| | 1 | 32,000 | 500 | 0.014 | 32,000 | 350 | 0.013 | 32,000 | 350 | 0.011 |
| | 1.5 | 28,000 | 400 | 0.009 | 28,000 | 250 | 0.008 | 28,000 | 250 | 0.007 |
| | 2 | 22,000 | 300 | 0.005 | 22,000 | 200 | 0.005 | 22,000 | 200 | 0.004 |
| | 2.5 | 20,000 | 270 | 0.004 | 20,000 | 180 | 0.004 | 20,000 | 170 | 0.004 |
| | 3 | 20,000 | 250 | 0.003 | 20,000 | 170 | 0.003 | 20,000 | 160 | 0.003 |
| | 3.5 | 20,000 | 200 | 0.003 | 20,000 | 140 | 0.003 | 20,000 | 130 | 0.003 |
| | 4 | 20,000 | 50 | 0.002 | 20,000 | 40 | 0.002 | 20,000 | 35 | 0.002 |
| 0.3 | 1 | 32,000 | 600 | 0.029 | 32,000 | 400 | 0.027 | 32,000 | 350 | 0.023 |
| | 1.5 | 32,000 | 520 | 0.025 | 32,000 | 360 | 0.023 | 32,000 | 300 | 0.02 |
| | 2 | 28,000 | 450 | 0.021 | 28,000 | 300 | 0.02 | 28,000 | 250 | 0.017 |
| | 2.5 | 28,000 | 400 | 0.015 | 28,000 | 280 | 0.014 | 28,000 | 230 | 0.012 |
| | 3 | 22,000 | 350 | 0.01 | 22,000 | 250 | 0.009 | 22,000 | 160 | 0.007 |
| | 4 | 20,000 | 280 | 0.008 | 20,000 | 190 | 0.007 | 20,000 | 150 | 0.005 |
| | 5 | 20,000 | 240 | 0.006 | 20,000 | 160 | 0.005 | 20,000 | 140 | 0.003 |
| | 6 | 20,000 | 90 | 0.002 | 20,000 | 90 | 0.002 | 20,000 | 80 | 0.002 |
| | 9 | 16,000 | 30 | 0.002 | 16,000 | 30 | 0.002 | 16,000 | 30 | 0.002 |
| 0.4 | 1.5 | 32,000 | 650 | 0.03 | 32,000 | 440 | 0.027 | 32,000 | 380 | 0.023 |
| | 2 | 32,000 | 600 | 0.029 | 32,000 | 400 | 0.026 | 32,000 | 350 | 0.022 |
| | 3 | 28,000 | 450 | 0.018 | 28,000 | 300 | 0.017 | 28,000 | 250 | 0.014 |
| | 4 | 22,000 | 350 | 0.013 | 22,000 | 250 | 0.012 | 22,000 | 200 | 0.01 |
| | 5 | 20,000 | 300 | 0.007 | 20,000 | 200 | 0.006 | 20,000 | 160 | 0.005 |
| | 6 | 20,000 | 250 | 0.005 | 20,000 | 180 | 0.005 | 20,000 | 140 | 0.004 |
| | 7 | 20,000 | 200 | 0.004 | 20,000 | 140 | 0.004 | 20,000 | 120 | 0.003 |
| | 8 | 20,000 | 190 | 0.002 | 20,000 | 130 | 0.002 | 20,000 | 110 | 0.002 |
| | 9 | 20,000 | 180 | 0.002 | 20,000 | 120 | 0.002 | 20,000 | 100 | 0.002 |
| | 10 | 20,000 | 160 | 0.002 | 20,000 | 110 | 0.002 | 20,000 | 85 | 0.002 |
| | 12 | 20,000 | 100 | 0.002 | 20,000 | 90 | 0.002 | 20,000 | 80 | 0.002 |
| 0.5 | 1.5 | 32,000 | 750 | 0.05 | 32,000 | 550 | 0.045 | 32,000 | 420 | 0.038 |
| | 2 | 32,000 | 700 | 0.049 | 32,000 | 500 | 0.045 | 32,000 | 400 | 0.038 |
| | 3 | 30,000 | 600 | 0.035 | 30,000 | 450 | 0.03 | 30,000 | 360 | 0.028 |
| | 4 | 28,000 | 500 | 0.023 | 28,000 | 400 | 0.021 | 28,000 | 320 | 0.018 |
| | 5 | 28,000 | 450 | 0.015 | 28,000 | 380 | 0.014 | 25,000 | 300 | 0.01 |
| | 6 | 22,000 | 400 | 0.007 | 22,000 | 350 | 0.006 | 22,000 | 220 | 0.005 |
| | 7 | 20,000 | 350 | 0.006 | 20,000 | 320 | 0.005 | 20,000 | 200 | 0.004 |
| | 8 | 20,000 | 300 | 0.005 | 20,000 | 270 | 0.005 | 20,000 | 180 | 0.003 |
| | 9 | 20,000 | 280 | 0.003 | 20,000 | 250 | 0.002 | 18,000 | 160 | 0.002 |
| | 10 | 20,000 | 240 | 0.002 | 20,000 | 200 | 0.002 | 18,000 | 150 | 0.002 |
| | 12 | 20,000 | 180 | 0.002 | 20,000 | 160 | 0.002 | 18,000 | 120 | 0.002 |
| | 15 | 20,000 | 100 | 0.002 | 18,000 | 90 | 0.002 | 16,000 | 80 | 0.002 |
| 0.6 | 2 | 32,000 | 700 | 0.059 | 32,000 | 600 | 0.054 | 32,000 | 400 | 0.045 |
| | 3 | 32,000 | 600 | 0.05 | 32,000 | 550 | 0.05 | 32,000 | 360 | 0.04 |
| | 4 | 28,000 | 500 | 0.043 | 28,000 | 450 | 0.04 | 28,000 | 300 | 0.033 |
| | 5 | 28,000 | 450 | 0.038 | 28,000 | 400 | 0.03 | 25,000 | 220 | 0.02 |
| | 6 | 22,000 | 400 | 0.02 | 22,000 | 250 | 0.018 | 22,000 | 200 | 0.015 |
| | 7 | 22,000 | 400 | 0.012 | 22,000 | 250 | 0.01 | 22,000 | 200 | 0.008 |
| | 8 | 22,000 | 400 | 0.008 | 22,000 | 250 | 0.007 | 22,000 | 200 | 0.006 |
| | 10 | 20,000 | 300 | 0.005 | 20,000 | 200 | 0.005 | 18,000 | 150 | 0.004 |
| | 12 | 20,000 | 240 | 0.003 | 18,000 | 190 | 0.002 | 18,000 | 150 | 0.002 |
| | 15 | 18,000 | 180 | 0.002 | 18,000 | 130 | 0.002 | 16,000 | 110 | 0.002 |
| | 18 | 16,000 | 100 | 0.002 | 15,000 | 80 | 0.002 | 14,000 | 70 | 0.002 |

切込深さ Depth of Cut



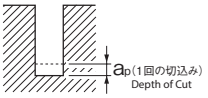

1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤を使用する場合は、被削材ならびに加工内容に適したものをご使用下さい。
4. 上表は直線加工における負荷の少ない安定した状況を基準としたものです。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5未満あるいは有効長／外径（L／D）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



SLOTTING

| ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | 調質鋼（45～55HRC） Hardened Steel | | | 調質鋼（55～60HRC） Hardened Steel | | |
|---|---|---|---|---|---|---|---|---|
| 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 32,000 | 45 | 0.002 | — | — | — | — | — | — |
| 32,000 | 35 | 0.002 | — | — | — | — | — | — |
| 32,000 | 20 | 0.002 | — | — | — | — | — | — |
| 29,000 | 250 | 0.012 | 24,000 | 150 | 0.008 | 18,000 | 100 | 0.002 |
| 29,000 | 200 | 0.009 | 24,000 | 100 | 0.006 | 18,000 | 50 | 0.002 |
| 25,000 | 150 | 0.005 | 21,000 | 80 | 0.003 | — | — | — |
| 20,000 | 120 | 0.003 | — | — | — | — | — | — |
| 20,000 | 100 | 0.003 | — | — | — | — | — | — |
| 20,000 | 90 | 0.002 | — | — | — | — | — | — |
| 20,000 | 80 | 0.002 | — | — | — | — | — | — |
| 20,000 | 30 | 0.002 | — | — | — | — | — | — |
| 29,000 | 300 | 0.018 | 24,000 | 100 | 0.011 | 18,000 | 50 | 0.004 |
| 29,000 | 250 | 0.015 | 24,000 | 90 | 0.01 | 18,000 | 40 | 0.004 |
| 25,000 | 200 | 0.013 | 21,000 | 80 | 0.008 | 16,000 | 40 | 0.003 |
| 25,000 | 190 | 0.008 | 21,000 | 70 | 0.005 | 16,000 | 30 | 0.002 |
| 20,000 | 150 | 0.005 | — | — | — | — | — | — |
| 20,000 | 130 | 0.003 | — | — | — | — | — | — |
| 18,000 | 120 | 0.002 | — | — | — | — | — | — |
| 16,000 | 60 | 0.002 | — | — | — | — | — | — |
| 13,000 | 20 | 0.002 | — | — | — | — | — | — |
| 29,000 | 330 | 0.018 | 24,000 | 160 | 0.011 | 18,000 | 50 | 0.006 |
| 29,000 | 300 | 0.018 | 24,000 | 150 | 0.011 | 18,000 | 50 | 0.004 |
| 25,000 | 200 | 0.011 | 21,000 | 100 | 0.007 | — | — | — |
| 20,000 | 150 | 0.008 | — | — | — | — | — | — |
| 20,000 | 130 | 0.003 | — | — | — | — | — | — |
| 20,000 | 120 | 0.002 | — | — | — | — | — | — |
| 20,000 | 110 | 0.002 | — | — | — | — | — | — |
| 20,000 | 100 | 0.002 | — | — | — | — | — | — |
| 20,000 | 80 | 0.002 | — | — | — | — | — | — |
| 18,000 | 70 | 0.002 | — | — | — | — | — | — |
| 16,000 | 60 | 0.002 | — | — | — | — | — | — |
| 29,000 | 330 | 0.03 | 24,000 | 160 | 0.019 | 17,000 | 50 | 0.009 |
| 29,000 | 300 | 0.03 | 24,000 | 150 | 0.019 | 17,000 | 50 | 0.007 |
| 27,000 | 280 | 0.022 | 22,000 | 120 | 0.014 | — | — | — |
| 25,000 | 250 | 0.014 | 21,000 | 100 | 0.009 | — | — | — |
| 22,000 | 230 | 0.008 | — | — | — | — | — | — |
| 20,000 | 180 | 0.004 | — | — | — | — | — | — |
| 20,000 | 170 | 0.003 | — | — | — | — | — | — |
| 20,000 | 150 | 0.003 | — | — | — | — | — | — |
| 18,000 | 140 | 0.002 | — | — | — | — | — | — |
| 18,000 | 130 | 0.002 | — | — | — | — | — | — |
| 18,000 | 100 | 0.002 | — | — | — | — | — | — |
| 16,000 | 70 | 0.002 | — | — | — | — | — | — |
| 27,000 | 300 | 0.036 | 23,000 | 200 | 0.023 | 16,000 | 100 | 0.011 |
| 27,000 | 280 | 0.03 | 22,000 | 180 | 0.02 | 14,000 | 80 | 0.009 |
| 25,000 | 200 | 0.026 | 20,000 | 150 | 0.017 | — | — | — |
| 22,000 | 180 | 0.02 | 20,000 | 130 | 0.015 | — | — | — |
| 20,000 | 150 | 0.012 | — | — | — | — | — | — |
| 20,000 | 150 | 0.007 | — | — | — | — | — | — |
| 20,000 | 150 | 0.005 | — | — | — | — | — | — |
| 18,000 | 130 | 0.003 | — | — | — | — | — | — |
| 18,000 | 120 | 0.002 | — | — | — | — | — | — |
| 16,000 | 100 | 0.002 | — | — | — | — | — | — |
| 14,000 | 60 | 0.002 | — | — | — | — | — | — |




1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) or air blow is recommended.
3. When using cutting fluid, choose based on work material and cutting conditions.
4. The cutting conditions shown for straight milling are low-load, safe conditions for reference.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of ϕ0.5 or less, or an L / D (effective length / tool diameter) ratio of greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When the available RPM are insufficient, please reduce the RPM and feed rates in proportion.

次ページへ
外径 DC 0.7～1.4 NEXT

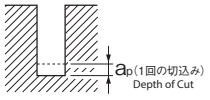
形状寸法表
SPECIFICATION CHARTS
WX-LN-EDS▶P321-1

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EDS
### 溝切削

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FROM 外径 DC 0.1～0.6

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼（30～38HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC (mm) | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap |
| 0.7 | 2 | 32,000 | 800 | 0.068 | 32,000 | 600 | 0.063 | 32,000 | 500 | 0.053 |
| | 4 | 28,000 | 600 | 0.05 | 28,000 | 450 | 0.046 | 28,000 | 300 | 0.039 |
| | 6 | 28,000 | 600 | 0.032 | 28,000 | 450 | 0.029 | 28,000 | 200 | 0.025 |
| | 8 | 22,000 | 250 | 0.018 | 22,000 | 250 | 0.017 | 22,000 | 200 | 0.014 |
| | 10 | 22,000 | 250 | 0.009 | 22,000 | 250 | 0.008 | 22,000 | 200 | 0.007 |
| 0.8 | 4 | 32,000 | 900 | 0.057 | 32,000 | 600 | 0.053 | 32,000 | 600 | 0.044 |
| | 6 | 26,000 | 700 | 0.036 | 26,000 | 450 | 0.034 | 26,000 | 400 | 0.028 |
| | 8 | 22,000 | 500 | 0.026 | 22,000 | 350 | 0.024 | 22,000 | 300 | 0.02 |
| | 10 | 22,000 | 500 | 0.01 | 22,000 | 350 | 0.01 | 22,000 | 300 | 0.008 |
| | 12 | 22,000 | 500 | 0.007 | 17,000 | 300 | 0.007 | 17,000 | 300 | 0.006 |
| | 14 | 20,000 | 320 | 0.004 | 17,000 | 270 | 0.003 | 17,000 | 250 | 0.003 |
| | 16 | 16,000 | 240 | 0.003 | 16,000 | 230 | 0.002 | 16,000 | 220 | 0.002 |
| | 20 | 14,000 | 180 | 0.002 | 14,000 | 170 | 0.002 | 14,000 | 160 | 0.002 |
| | 24 | 12,000 | 100 | 0.002 | 12,000 | 90 | 0.002 | 12,000 | 80 | 0.002 |
| 0.9 | 4 | 32,000 | 1,300 | 0.07 | 32,000 | 1,200 | 0.06 | 30,000 | 860 | 0.06 |
| | 6 | 30,000 | 1,000 | 0.064 | 30,000 | 1,000 | 0.059 | 28,000 | 780 | 0.05 |
| | 8 | 26,000 | 900 | 0.041 | 26,000 | 800 | 0.038 | 25,000 | 600 | 0.032 |
| | 10 | 21,000 | 700 | 0.029 | 20,000 | 600 | 0.027 | 20,000 | 500 | 0.023 |
| | 15 | 18,000 | 400 | 0.007 | 17,000 | 300 | 0.008 | 17,000 | 300 | 0.006 |
| 1 | 3 | 32,000 | 1,350 | 0.09 | 30,000 | 1,200 | 0.09 | 30,000 | 1,100 | 0.08 |
| | 4 | 32,000 | 1,320 | 0.08 | 30,000 | 1,150 | 0.08 | 30,000 | 1,100 | 0.07 |
| | 5 | 32,000 | 1,300 | 0.08 | 30,000 | 1,100 | 0.08 | 28,000 | 950 | 0.07 |
| | 6 | 29,000 | 1,200 | 0.07 | 27,000 | 1,000 | 0.07 | 26,000 | 900 | 0.06 |
| | 7 | 27,000 | 1,100 | 0.06 | 25,000 | 1,000 | 0.05 | 24,000 | 800 | 0.05 |
| | 8 | 24,000 | 900 | 0.05 | 23,000 | 800 | 0.04 | 22,000 | 700 | 0.04 |
| | 9 | 22,000 | 800 | 0.04 | 20,000 | 700 | 0.03 | 19,000 | 600 | 0.03 |
| | 10 | 20,000 | 700 | 0.03 | 19,000 | 600 | 0.03 | 18,000 | 500 | 0.028 |
| | 12 | 20,000 | 700 | 0.02 | 19,000 | 600 | 0.02 | 18,000 | 500 | 0.019 |
| | 14 | 18,000 | 500 | 0.015 | 15,000 | 400 | 0.01 | 15,000 | 400 | 0.009 |
| | 16 | 18,000 | 300 | 0.01 | 15,000 | 300 | 0.008 | 15,000 | 300 | 0.007 |
| | 18 | 14,000 | 240 | 0.008 | 13,000 | 230 | 0.006 | 13,000 | 220 | 0.005 |
| | 20 | 12,500 | 200 | 0.004 | 12,000 | 190 | 0.004 | 11,000 | 180 | 0.004 |
| | 22 | 12,500 | 180 | 0.003 | 11,000 | 160 | 0.003 | 10,000 | 150 | 0.003 |
| | 25 | 10,000 | 120 | 0.003 | 9,000 | 90 | 0.003 | 9,000 | 85 | 0.003 |
| | 30 | 10,000 | 50 | 0.002 | 8,000 | 40 | 0.002 | 8,000 | 35 | 0.002 |
| 1.2 | 4 | 26,000 | 1,200 | 0.09 | 24,000 | 1,100 | 0.09 | 23,000 | 1,000 | 0.08 |
| | 6 | 25,000 | 1,100 | 0.09 | 23,000 | 1,000 | 0.08 | 22,000 | 900 | 0.07 |
| | 8 | 21,000 | 900 | 0.07 | 20,000 | 700 | 0.07 | 19,000 | 700 | 0.05 |
| | 10 | 19,000 | 700 | 0.06 | 20,000 | 700 | 0.05 | 19,000 | 700 | 0.04 |
| | 12 | 18,000 | 700 | 0.04 | 17,000 | 600 | 0.04 | 16,000 | 500 | 0.03 |
| | 14 | 18,000 | 600 | 0.02 | 15,000 | 450 | 0.015 | 13,000 | 380 | 0.013 |
| | 16 | 13,500 | 380 | 0.01 | 12,000 | 300 | 0.008 | 11,000 | 250 | 0.007 |
| | 20 | 12,000 | 290 | 0.005 | 10,000 | 200 | 0.005 | 10,000 | 190 | 0.005 |
| 1.4 | 6 | 21,000 | 1,200 | 0.14 | 20,000 | 1,000 | 0.13 | 19,000 | 900 | 0.11 |
| | 8 | 19,000 | 900 | 0.09 | 18,000 | 800 | 0.09 | 17,000 | 700 | 0.08 |
| | 10 | 19,000 | 900 | 0.06 | 18,000 | 800 | 0.06 | 17,000 | 700 | 0.05 |
| | 12 | 19,000 | 900 | 0.05 | 18,000 | 800 | 0.05 | 17,000 | 700 | 0.04 |
| | 14 | 16,000 | 700 | 0.04 | 15,000 | 600 | 0.04 | 14,000 | 500 | 0.035 |
| | 16 | 16,000 | 700 | 0.03 | 15,000 | 600 | 0.03 | 14,000 | 500 | 0.02 |
| | 22 | 12,000 | 320 | 0.007 | 10,000 | 250 | 0.005 | 9,000 | 210 | 0.005 |
| 切込深さ Depth of Cut | |  ap（1回の切込み） Depth of Cut | | | | | | | | |

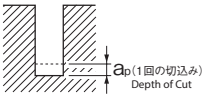
1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤を使用する場合は、被削材ならびに加工内容に適したものをご使用下さい。
4. 上表は直線加工における負荷の少ない安定した状況を基準としたものです。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5未満あるいは有効長／外径（L／D）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



## SLOTTING

| ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | 調質鋼（45～55HRC） Hardened Steel | | | 調質鋼（55～60HRC） Hardened Steel | | |
|---|---|---|---|---|---|---|---|---|
| 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 26,000 | 400 | 0.042 | 21,000 | 200 | 0.026 | 15,000 | 100 | 0.013 |
| 22,000 | 300 | 0.031 | 19,000 | 150 | 0.019 | 13,000 | 80 | 0.01 |
| 22,000 | 200 | 0.02 | 19,000 | 100 | 0.012 | — | — | — |
| 20,000 | 150 | 0.011 | — | — | — | — | — | — |
| 20,000 | 150 | 0.006 | — | — | — | — | — | — |
| 25,000 | 400 | 0.035 | 20,000 | 200 | 0.022 | 14,000 | 100 | 0.011 |
| 21,000 | 300 | 0.022 | 18,000 | 150 | 0.014 | — | — | — |
| 18,000 | 250 | 0.016 | — | — | — | — | — | — |
| 18,000 | 240 | 0.006 | — | — | — | — | — | — |
| 15,000 | 200 | 0.004 | — | — | — | — | — | — |
| 13,000 | 170 | 0.002 | — | — | — | — | — | — |
| 12,000 | 150 | 0.002 | — | — | — | — | — | — |
| 12,000 | 130 | 0.002 | — | — | — | — | — | — |
| 10,000 | 70 | 0.002 | — | — | — | — | — | — |
| 23,000 | 650 | 0.04 | 18,000 | 360 | 0.025 | 13,000 | 100 | 0.012 |
| 22,000 | 600 | 0.04 | 18,000 | 300 | 0.025 | 13,000 | 100 | 0.012 |
| 19,000 | 400 | 0.025 | 16,000 | 200 | 0.016 | — | — | — |
| 16,000 | 300 | 0.018 | — | — | — | — | — | — |
| 16,000 | 300 | 0.005 | — | — | — | — | — | — |
| 22,000 | 800 | 0.06 | 20,000 | 500 | 0.04 | 12,000 | 100 | 0.015 |
| 22,000 | 650 | 0.05 | 20,000 | 500 | 0.03 | 12,000 | 100 | 0.014 |
| 20,000 | 600 | 0.045 | 18,000 | 450 | 0.03 | 12,000 | 100 | 0.014 |
| 20,000 | 600 | 0.04 | 17,000 | 400 | 0.03 | 12,000 | 100 | 0.012 |
| 20,000 | 500 | 0.03 | 17,000 | 350 | 0.02 | — | — | — |
| 18,000 | 400 | 0.03 | 15,000 | 300 | 0.02 | — | — | — |
| 18,000 | 400 | 0.025 | 13,000 | 230 | 0.016 | — | — | — |
| 15,000 | 300 | 0.02 | — | — | — | — | — | — |
| 15,000 | 300 | 0.01 | — | — | — | — | — | — |
| 12,000 | 200 | 0.008 | — | — | — | — | — | — |
| 12,000 | 200 | 0.006 | — | — | — | — | — | — |
| 11,000 | 180 | 0.004 | — | — | — | — | — | — |
| 10,000 | 130 | 0.003 | — | — | — | — | — | — |
| 9,000 | 100 | 0.003 | — | — | — | — | — | — |
| 8,500 | 80 | 0.003 | — | — | — | — | — | — |
| 8,000 | 30 | 0.002 | — | — | — | — | — | — |
| 18,000 | 700 | 0.06 | 15,000 | 450 | 0.03 | 10,000 | 100 | 0.02 |
| 17,000 | 600 | 0.05 | 14,000 | 400 | 0.03 | 10,000 | 100 | 0.017 |
| 14,000 | 400 | 0.04 | 12,000 | 300 | 0.03 | 10,000 | 100 | 0.014 |
| 14,000 | 400 | 0.03 | 12,000 | 300 | 0.02 | — | — | — |
| 11,000 | 300 | 0.02 | — | — | — | — | — | — |
| 11,000 | 250 | 0.011 | — | — | — | — | — | — |
| 10,000 | 220 | 0.006 | — | — | — | — | — | — |
| 9,000 | 180 | 0.004 | — | — | — | — | — | — |
| 15,000 | 600 | 0.09 | 12,000 | 400 | 0.05 | 8,000 | 100 | 0.025 |
| 13,000 | 400 | 0.06 | 10,000 | 300 | 0.04 | 7,000 | 80 | 0.019 |
| 13,000 | 400 | 0.04 | 10,000 | 300 | 0.03 | — | — | — |
| 13,000 | 400 | 0.03 | 10,000 | 300 | 0.02 | — | — | — |
| 11,000 | 300 | 0.03 | — | — | — | — | — | — |
| 11,000 | 300 | 0.02 | — | — | — | — | — | — |
| 8,000 | 180 | 0.004 | — | — | — | — | — | — |




1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) or air blow is recommended.
3. When using cutting fluid, choose based on work material and cutting conditions.
4. The cutting conditions shown for straight milling are low-load, safe conditions for reference.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$0.5 or less, or an L / D (effective length / tool diameter) ratio of greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When the available RPM are insufficient, please reduce the RPM and feed rates in proportion.

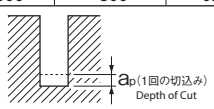
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外径 DC 1.5～2.5 NEXT

形状寸法表
SPECIFICATION CHARTS
WX-LN-EDS▶P321-1

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EDS
### 溝切削

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FROM 外径 DC 0.7～1.4

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼（30～38HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC (mm) | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap |
| 1.5 | 4 | 20,000 | 1,200 | 0.14 | 18,000 | 1,000 | 0.14 | 18,000 | 900 | 0.11 |
| | 6 | 20,000 | 1,200 | 0.14 | 18,000 | 1,000 | 0.14 | 18,000 | 900 | 0.11 |
| | 8 | 19,000 | 900 | 0.1 | 16,000 | 800 | 0.1 | 15,000 | 700 | 0.08 |
| | 10 | 19,000 | 900 | 0.08 | 16,000 | 800 | 0.08 | 15,000 | 700 | 0.07 |
| | 12 | 19,000 | 900 | 0.06 | 16,000 | 800 | 0.06 | 15,000 | 700 | 0.05 |
| | 14 | 19,000 | 900 | 0.05 | 16,000 | 800 | 0.05 | 15,000 | 700 | 0.045 |
| | 16 | 16,000 | 700 | 0.05 | 14,000 | 600 | 0.05 | 13,000 | 500 | 0.04 |
| | 18 | 16,000 | 700 | 0.03 | 14,000 | 600 | 0.03 | 13,000 | 500 | 0.02 |
| | 20 | 14,000 | 500 | 0.02 | 12,000 | 420 | 0.02 | 11,000 | 380 | 0.015 |
| | 25 | 12,000 | 350 | 0.009 | 10,000 | 290 | 0.008 | 9,000 | 230 | 0.007 |
| | 30 | 9,000 | 220 | 0.005 | 7,500 | 170 | 0.005 | 7,400 | 150 | 0.004 |
| | 38 | 8,000 | 110 | 0.004 | 6,800 | 90 | 0.004 | 6,700 | 85 | 0.003 |
| | 40 | 7,000 | 90 | 0.003 | 6,000 | 75 | 0.003 | 5,900 | 70 | 0.002 |
| | 45 | 6,000 | 50 | 0.003 | 5,500 | 45 | 0.003 | 5,400 | 40 | 0.002 |
| 1.6 | 6 | 19,000 | 1,200 | 0.15 | 17,000 | 1,000 | 0.15 | 17,000 | 900 | 0.13 |
| | 8 | 17,000 | 900 | 0.14 | 15,000 | 800 | 0.14 | 15,000 | 700 | 0.12 |
| | 10 | 17,000 | 900 | 0.11 | 15,000 | 800 | 0.11 | 15,000 | 700 | 0.09 |
| | 12 | 17,000 | 900 | 0.07 | 15,000 | 800 | 0.07 | 15,000 | 700 | 0.06 |
| | 14 | 17,000 | 900 | 0.06 | 15,000 | 800 | 0.06 | 15,000 | 700 | 0.05 |
| | 16 | 14,000 | 700 | 0.05 | 13,000 | 600 | 0.05 | 13,000 | 500 | 0.04 |
| | 18 | 14,000 | 700 | 0.04 | 13,000 | 600 | 0.04 | 13,000 | 500 | 0.03 |
| | 20 | 14,000 | 700 | 0.02 | 13,000 | 600 | 0.02 | 13,000 | 500 | 0.02 |
| 1.8 | 6 | 18,000 | 1,300 | 0.22 | 16,000 | 1,100 | 0.22 | 15,000 | 1,000 | 0.18 |
| | 8 | 18,000 | 1,300 | 0.21 | 16,000 | 1,100 | 0.21 | 15,000 | 1,000 | 0.17 |
| | 10 | 15,000 | 900 | 0.12 | 14,000 | 800 | 0.12 | 14,000 | 700 | 0.1 |
| | 12 | 15,000 | 900 | 0.1 | 14,000 | 800 | 0.1 | 14,000 | 700 | 0.08 |
| | 14 | 15,000 | 900 | 0.08 | 14,000 | 800 | 0.08 | 14,000 | 700 | 0.06 |
| | 16 | 15,000 | 900 | 0.07 | 14,000 | 800 | 0.07 | 14,000 | 700 | 0.05 |
| | 18 | 13,000 | 700 | 0.05 | 12,000 | 600 | 0.05 | 12,000 | 500 | 0.045 |
| | 20 | 13,000 | 700 | 0.04 | 12,000 | 600 | 0.04 | 12,000 | 500 | 0.04 |
| | 25 | 9,000 | 360 | 0.01 | 8,000 | 300 | 0.009 | 7,000 | 250 | 0.008 |
| 2 | 6 | 16,000 | 1,300 | 0.31 | 15,000 | 1,100 | 0.31 | 14,000 | 1,000 | 0.26 |
| | 8 | 16,000 | 1,300 | 0.26 | 15,000 | 1,100 | 0.26 | 14,000 | 1,000 | 0.22 |
| | 10 | 14,000 | 900 | 0.24 | 13,000 | 800 | 0.24 | 12,000 | 700 | 0.2 |
| | 12 | 14,000 | 900 | 0.13 | 13,000 | 800 | 0.13 | 12,000 | 700 | 0.11 |
| | 14 | 14,000 | 900 | 0.11 | 13,000 | 800 | 0.11 | 12,000 | 700 | 0.09 |
| | 16 | 14,000 | 900 | 0.08 | 13,000 | 800 | 0.08 | 12,000 | 700 | 0.07 |
| | 18 | 14,000 | 900 | 0.07 | 13,000 | 800 | 0.07 | 12,000 | 700 | 0.06 |
| | 20 | 12,000 | 700 | 0.06 | 11,000 | 600 | 0.05 | 10,000 | 500 | 0.05 |
| | 25 | 12,000 | 700 | 0.03 | 11,000 | 600 | 0.03 | 10,000 | 500 | 0.02 |
| | 30 | 12,000 | 700 | 0.02 | 11,000 | 600 | 0.02 | 10,000 | 500 | 0.01 |
| | 35 | 10,000 | 400 | 0.01 | 9,000 | 390 | 0.009 | 8,000 | 380 | 0.008 |
| | 40 | 7,000 | 220 | 0.006 | 6,500 | 200 | 0.005 | 6,000 | 180 | 0.004 |
| | 50 | 6,000 | 120 | 0.002 | 5,800 | 100 | 0.002 | 5,700 | 95 | 0.002 |
| | 60 | 5,000 | 50 | 0.001 | 5,000 | 50 | 0.001 | 5,000 | 45 | 0.001 |
| 2.5 | 8 | 13,000 | 1,300 | 0.39 | 12,000 | 1,100 | 0.39 | 11,000 | 1,000 | 0.33 |
| | 10 | 13,000 | 1,300 | 0.33 | 12,000 | 1,100 | 0.33 | 11,000 | 1,000 | 0.28 |
| | 12 | 13,000 | 1,300 | 0.23 | 12,000 | 1,100 | 0.23 | 11,000 | 1,000 | 0.19 |
| | 14 | 12,000 | 900 | 0.17 | 10,000 | 800 | 0.17 | 9,000 | 700 | 0.14 |
| | 16 | 12,000 | 900 | 0.12 | 10,000 | 800 | 0.12 | 9,000 | 700 | 0.1 |
| | 18 | 12,000 | 900 | 0.11 | 10,000 | 800 | 0.11 | 9,000 | 700 | 0.09 |
| 切込深さ Depth of Cut | |  ap（1回の切込み） Depth of Cut | | | | | | | | |

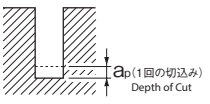
1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤を使用する場合は、被削材ならびに加工内容に適したものをご使用下さい。
4. 上表は直線加工における負荷の少ない安定した状況を基準としたものです。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5未満あるいは有効長／外径（L／D）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



## SLOTTING

| | ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | 調質鋼（45～55HRC） Hardened Steel | | | 調質鋼（55～60HRC） Hardened Steel | | |
|---|---|---|---|---|---|---|---|---|---|
| | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | $a_p$ | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | $a_p$ | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | $a_p$ |
| | 14,000 | 600 | 0.09 | 12,000 | 400 | 0.06 | 8,000 | 200 | 0.03 |
| | 14,000 | 600 | 0.09 | 12,000 | 400 | 0.06 | 8,000 | 200 | 0.028 |
| | 12,000 | 400 | 0.07 | 10,000 | 300 | 0.04 | 7,000 | 150 | 0.021 |
| | 12,000 | 400 | 0.05 | 10,000 | 300 | 0.03 | 7,000 | 150 | 0.017 |
| | 12,000 | 400 | 0.04 | 10,000 | 300 | 0.025 | — | — | — |
| | 12,000 | 400 | 0.035 | 10,000 | 300 | 0.02 | — | — | — |
| | 10,000 | 300 | 0.03 | — | — | — | — | — | — |
| | 10,000 | 300 | 0.02 | — | — | — | — | — | — |
| | 10,000 | 300 | 0.01 | — | — | — | — | — | — |
| | 8,000 | 210 | 0.006 | — | — | — | — | — | — |
| | 7,000 | 130 | 0.003 | — | — | — | — | — | — |
| | 6,000 | 75 | 0.003 | — | — | — | — | — | — |
| | 5,600 | 60 | 0.002 | — | — | — | — | — | — |
| | 5,400 | 40 | 0.001 | — | — | — | — | — | — |
| | 13,000 | 600 | 0.1 | 11,000 | 400 | 0.065 | 7,000 | 200 | 0.035 |
| | 11,000 | 400 | 0.1 | 9,000 | 300 | 0.06 | 6,000 | 150 | 0.03 |
| | 11,000 | 400 | 0.07 | 9,000 | 300 | 0.04 | 6,000 | 150 | 0.02 |
| | 11,000 | 400 | 0.05 | 9,000 | 300 | 0.03 | — | — | — |
| | 11,000 | 400 | 0.04 | 9,000 | 300 | 0.02 | — | — | — |
| | 9,000 | 300 | 0.035 | — | — | — | — | — | — |
| | 9,000 | 300 | 0.03 | — | — | — | — | — | — |
| | 9,000 | 300 | 0.01 | — | — | — | — | — | — |
| | 12,000 | 700 | 0.14 | 10,000 | 400 | 0.09 | 7,000 | 200 | 0.035 |
| | 12,000 | 700 | 0.13 | 10,000 | 400 | 0.085 | 7,000 | 200 | 0.03 |
| | 10,000 | 500 | 0.08 | 8,000 | 300 | 0.05 | 7,000 | 150 | 0.02 |
| | 10,000 | 500 | 0.07 | 8,000 | 300 | 0.04 | 7,000 | 150 | 0.02 |
| | 10,000 | 500 | 0.05 | 8,000 | 300 | 0.03 | — | — | — |
| | 10,000 | 500 | 0.04 | 8,000 | 300 | 0.025 | — | — | — |
| | 8,000 | 400 | 0.035 | — | — | — | — | — | — |
| | 8,000 | 400 | 0.03 | — | — | — | — | — | — |
| | 6,000 | 200 | 0.007 | — | — | — | — | — | — |
| | 11,000 | 700 | 0.21 | 9,000 | 400 | 0.13 | 6,000 | 300 | 0.035 |
| | 11,000 | 700 | 0.18 | 9,000 | 400 | 0.11 | 6,000 | 300 | 0.03 |
| | 9,000 | 500 | 0.16 | 7,000 | 300 | 0.1 | 6,000 | 200 | 0.02 |
| | 9,000 | 500 | 0.09 | 7,000 | 300 | 0.06 | 6,000 | 200 | 0.02 |
| | 9,000 | 500 | 0.07 | 7,000 | 300 | 0.04 | — | — | — |
| | 9,000 | 500 | 0.06 | 7,000 | 300 | 0.035 | — | — | — |
| | 9,000 | 500 | 0.05 | 7,000 | 300 | 0.03 | — | — | — |
| | 7,000 | 400 | 0.04 | — | — | — | — | — | — |
| | 7,000 | 400 | 0.02 | — | — | — | — | — | — |
| | 7,000 | 400 | 0.01 | — | — | — | — | — | — |
| | 6,000 | 270 | 0.007 | — | — | — | — | — | — |
| | 6,000 | 140 | 0.003 | — | — | — | — | — | — |
| | 5,000 | 80 | 0.002 | — | — | — | — | — | — |
| | 5,000 | 40 | 0.001 | — | — | — | — | — | — |
| | 9,000 | 700 | 0.26 | 8,000 | 400 | 0.16 | 5,000 | 300 | 0.035 |
| | 9,000 | 700 | 0.22 | 8,000 | 400 | 0.14 | 5,000 | 300 | 0.03 |
| | 9,000 | 700 | 0.15 | 8,000 | 400 | 0.09 | 5,000 | 300 | 0.025 |
| | 7,000 | 500 | 0.11 | 6,000 | 300 | 0.07 | 5,000 | 200 | 0.02 |
| | 7,000 | 500 | 0.08 | 6,000 | 300 | 0.05 | 5,000 | 200 | 0.02 |
| | 7,000 | 500 | 0.07 | 6,000 | 300 | 0.045 | — | — | — |




1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) or air blow is recommended.
3. When using cutting fluid, choose based on work material and cutting conditions.
4. The cutting conditions shown for straight milling are low-load, safe conditions for reference.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$0.5 or less, or an L / D (effective length / tool diameter) ratio of greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When the available RPM are insufficient, please reduce the RPM and feed rates in proportion.

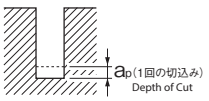
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外径 DC 2.5～6 NEXT

形状寸法表
SPECIFICATION CHARTS
WX-LN-EDS▶P321-1

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EDS
### 溝切削

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FROM 外径 DC 1.5～2.5

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼（30～38HRC）・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC (mm) | 首下長 LU (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap |
| 2.5 | 20 | 12,000 | 900 | 0.09 | 10,000 | 800 | 0.09 | 9,000 | 700 | 0.08 |
| | 25 | 10,000 | 700 | 0.08 | 8,000 | 600 | 0.08 | 8,000 | 500 | 0.06 |
| | 30 | 10,000 | 700 | 0.03 | 8,000 | 600 | 0.03 | 8,000 | 500 | 0.03 |
| | 40 | 7,000 | 320 | 0.008 | 6,500 | 280 | 0.007 | 6,000 | 270 | 0.005 |
| | 50 | 6,000 | 190 | 0.002 | 5,800 | 170 | 0.002 | 5,700 | 160 | 0.002 |
| 3 | 8 | 11,000 | 1,300 | 0.36 | 10,000 | 1,100 | 0.36 | 10,000 | 1,000 | 0.3 |
| | 10 | 11,000 | 1,300 | 0.29 | 10,000 | 1,100 | 0.29 | 10,000 | 1,000 | 0.24 |
| | 12 | 11,000 | 1,300 | 0.27 | 10,000 | 1,100 | 0.27 | 10,000 | 1,000 | 0.23 |
| | 14 | 11,000 | 1,300 | 0.25 | 10,000 | 1,100 | 0.25 | 10,000 | 1,000 | 0.21 |
| | 16 | 10,000 | 900 | 0.2 | 10,000 | 800 | 0.2 | 9,000 | 700 | 0.17 |
| | 18 | 10,000 | 900 | 0.14 | 10,000 | 800 | 0.14 | 9,000 | 700 | 0.12 |
| | 20 | 10,000 | 900 | 0.13 | 10,000 | 800 | 0.13 | 9,000 | 700 | 0.11 |
| | 25 | 10,000 | 900 | 0.11 | 10,000 | 800 | 0.11 | 9,000 | 700 | 0.09 |
| | 30 | 8,000 | 700 | 0.09 | 8,000 | 600 | 0.09 | 7,000 | 500 | 0.08 |
| | 35 | 8,000 | 700 | 0.07 | 8,000 | 600 | 0.07 | 7,000 | 500 | 0.06 |
| | 40 | 8,000 | 700 | 0.04 | 8,000 | 600 | 0.04 | 7,000 | 500 | 0.03 |
| | 50 | 6,000 | 300 | 0.008 | 5,800 | 270 | 0.009 | 5,700 | 240 | 0.005 |
| 4 | 12 | 8,000 | 1,300 | 0.38 | 7,000 | 1,100 | 0.38 | 7,000 | 1,000 | 0.32 |
| | 16 | 8,000 | 1,300 | 0.36 | 7,000 | 1,100 | 0.36 | 7,000 | 1,000 | 0.3 |
| | 20 | 7,000 | 900 | 0.34 | 7,000 | 800 | 0.34 | 6,000 | 700 | 0.28 |
| | 25 | 7,000 | 900 | 0.26 | 7,000 | 800 | 0.26 | 6,000 | 700 | 0.22 |
| | 30 | 7,000 | 900 | 0.19 | 7,000 | 800 | 0.19 | 6,000 | 700 | 0.16 |
| | 35 | 7,000 | 900 | 0.17 | 7,000 | 800 | 0.17 | 6,000 | 700 | 0.14 |
| | 40 | 6,000 | 700 | 0.14 | 6,000 | 600 | 0.14 | 5,000 | 600 | 0.12 |
| | 45 | 6,000 | 700 | 0.12 | 6,000 | 600 | 0.12 | 5,000 | 600 | 0.1 |
| | 50 | 6,000 | 700 | 0.05 | 6,000 | 600 | 0.05 | 5,000 | 600 | 0.04 |
| | 60 | 5,000 | 350 | 0.02 | 5,000 | 280 | 0.02 | 5,000 | 270 | 0.02 |
| 5 | 16 | 6,000 | 1,200 | 0.45 | 6,000 | 1,100 | 0.45 | 5,000 | 900 | 0.38 |
| | 20 | 6,000 | 1,000 | 0.43 | 6,000 | 950 | 0.43 | 5,000 | 780 | 0.06 |
| | 25 | 5,000 | 800 | 0.42 | 5,000 | 800 | 0.42 | 5,000 | 700 | 0.35 |
| | 30 | 5,000 | 800 | 0.38 | 5,000 | 800 | 0.38 | 5,000 | 700 | 0.3 |
| | 35 | 5,000 | 800 | 0.33 | 5,000 | 800 | 0.33 | 5,000 | 700 | 0.28 |
| | 40 | 5,000 | 600 | 0.28 | 5,000 | 600 | 0.28 | 4,000 | 580 | 0.2 |
| | 50 | 4,000 | 500 | 0.15 | 4,000 | 500 | 0.15 | 3,000 | 400 | 0.13 |
| | 60 | 4,000 | 400 | 0.07 | 4,000 | 350 | 0.06 | 3,000 | 330 | 0.06 |
| 6 | 20 | 5,000 | 1,000 | 0.5 | 5,000 | 950 | 0.5 | 4,200 | 780 | 0.4 |
| | 30 | 5,000 | 800 | 0.43 | 5,000 | 800 | 0.43 | 4,200 | 700 | 0.35 |
| | 40 | 5,000 | 600 | 0.32 | 5,000 | 600 | 0.32 | 4,200 | 580 | 0.25 |
| | 50 | 4,000 | 500 | 0.18 | 4,000 | 500 | 0.18 | 4,000 | 400 | 0.15 |
| | 60 | 3,600 | 400 | 0.04 | 3,600 | 350 | 0.04 | 3,200 | 330 | 0.03 |
| 切込深さ Depth of Cut | |   | | | | | | | | |

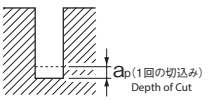
1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤を使用する場合は、被削材ならびに加工内容に適したものをご使用下さい。
4. 上表は直線加工における負荷の少ない安定した状況を基準としたものです。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5未満あるいは有効長／外径（L／D）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



## SLOTTING

| ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | 調質鋼（45～55HRC） Hardened Steel | | | 調質鋼（55～60HRC） Hardened Steel | | |
|---|---|---|---|---|---|---|---|---|
| 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | $a_p$ | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | $a_p$ | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | $a_p$ |
| 7,000 | 500 | 0.06 | 6,000 | 300 | 0.04 | — | — | — |
| 6,000 | 400 | 0.05 | — | — | — | — | — | — |
| 6,000 | 400 | 0.02 | — | — | — | — | — | — |
| 6,000 | 240 | 0.005 | — | — | — | — | — | — |
| 5,000 | 130 | 0.002 | — | — | — | — | — | — |
| 8,000 | 700 | 0.24 | 7,000 | 400 | 0.15 | 5,000 | 300 | 0.05 |
| 8,000 | 700 | 0.19 | 7,000 | 400 | 0.12 | 5,000 | 300 | 0.05 |
| 8,000 | 700 | 0.18 | 7,000 | 400 | 0.11 | 5,000 | 300 | 0.04 |
| 8,000 | 700 | 0.17 | 7,000 | 400 | 0.1 | 5,000 | 300 | 0.035 |
| 6,000 | 500 | 0.13 | 6,000 | 300 | 0.08 | 5,000 | 200 | 0.03 |
| 6,000 | 500 | 0.1 | 6,000 | 300 | 0.06 | 5,000 | 200 | 0.025 |
| 6,000 | 500 | 0.08 | 6,000 | 300 | 0.05 | 5,000 | 200 | 0.025 |
| 6,000 | 500 | 0.07 | 6,000 | 300 | 0.045 | — | — | — |
| 5,000 | 400 | 0.06 | — | — | — | — | — | — |
| 5,000 | 400 | 0.05 | — | — | — | — | — | — |
| 5,000 | 400 | 0.02 | — | — | — | — | — | — |
| 5,000 | 200 | 0.004 | — | — | — | — | — | — |
| 6,000 | 700 | 0.26 | 4,500 | 400 | 0.16 | 4,000 | 300 | 0.05 |
| 6,000 | 700 | 0.24 | 4,500 | 400 | 0.15 | 4,000 | 300 | 0.04 |
| 5,000 | 500 | 0.22 | 4,000 | 300 | 0.14 | 4,000 | 300 | 0.035 |
| 5,000 | 500 | 0.18 | 4,000 | 300 | 0.11 | 4,000 | 300 | 0.03 |
| 5,000 | 500 | 0.13 | 4,000 | 300 | 0.08 | 4,000 | 300 | 0.025 |
| 5,000 | 500 | 0.11 | 4,000 | 300 | 0.07 | 4,000 | 300 | 0.02 |
| 4,000 | 400 | 0.1 | 4,000 | 300 | 0.07 | 4,000 | 300 | 0.015 |
| 4,000 | 400 | 0.08 | 4,000 | 300 | 0.07 | 4,000 | 300 | 0.01 |
| 4,000 | 400 | 0.03 | 4,000 | 300 | 0.07 | — | — | — |
| 4,000 | 250 | 0.01 | 4,000 | 200 | 0.01 | — | — | — |
| 5,000 | 600 | 0.3 | 4,000 | 400 | 0.19 | 3,000 | 300 | 0.06 |
| 5,000 | 600 | 0.29 | 4,000 | 400 | 0.18 | 3,000 | 300 | 0.055 |
| 5,000 | 600 | 0.28 | 4,000 | 400 | 0.18 | 3,000 | 300 | 0.05 |
| 5,000 | 600 | 0.25 | 4,000 | 400 | 0.16 | 3,000 | 300 | 0.04 |
| 5,000 | 600 | 0.22 | 4,000 | 400 | 0.14 | 3,000 | 300 | 0.03 |
| 4,000 | 500 | 0.18 | 4,000 | 400 | 0.1 | 3,000 | 300 | 0.02 |
| 3,000 | 400 | 0.1 | 3,000 | 300 | 0.08 | 3,000 | 300 | 0.01 |
| 3,000 | 300 | 0.04 | 3,000 | 300 | 0.03 | 3,000 | 250 | 0.005 |
| 4,200 | 600 | 0.3 | 3,400 | 400 | 0.18 | 2,600 | 300 | 0.06 |
| 4,200 | 600 | 0.26 | 3,400 | 400 | 0.16 | 2,600 | 300 | 0.05 |
| 4,200 | 500 | 0.2 | 3,400 | 400 | 0.1 | 2,600 | 300 | 0.03 |
| 4,000 | 400 | 0.11 | 3,200 | 300 | 0.08 | 2,600 | 300 | 0.015 |
| 3,200 | 300 | 0.04 | 3,000 | 300 | 0.03 | 2,600 | 250 | 0.008 |

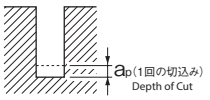



1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) or air blow is recommended.
3. When using cutting fluid, choose based on work material and cutting conditions.
4. The cutting conditions shown for straight milling are low-load, safe conditions for reference.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$0.5 or less, or an L / D (effective length / tool diameter) ratio of greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When the available RPM are insufficient, please reduce the RPM and feed rates in proportion.

形状寸法表
SPECIFICATION CHARTS
WX-LN-EMS▶P321-11

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

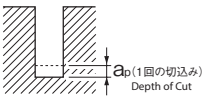
## WX-LN-EMS

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼 (30～38HRC)・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC (mm) | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 1 | 4 | 32,000 | 1,980 | 0.07 | 30,000 | 1,900 | 0.07 | 30,000 | 1,650 | 0.07 |
| | 6 | 29,000 | 1,680 | 0.07 | 27,000 | 1,600 | 0.07 | 26,000 | 1,350 | 0.06 |
| | 8 | 24,000 | 1,260 | 0.05 | 23,000 | 1,200 | 0.04 | 22,000 | 1,050 | 0.04 |
| | 10 | 20,000 | 980 | 0.03 | 19,000 | 940 | 0.03 | 18,000 | 750 | 0.028 |
| | 12 | 20,000 | 980 | 0.02 | 19,000 | 940 | 0.02 | 18,000 | 750 | 0.019 |
| | 16 | 18,000 | 420 | 0.01 | 15,000 | 400 | 0.008 | 15,000 | 450 | 0.007 |
| 1.2 | 6 | 25,000 | 1,650 | 0.08 | 23,000 | 1,580 | 0.08 | 22,000 | 1,350 | 0.07 |
| | 8 | 21,000 | 1,260 | 0.07 | 20,000 | 1,200 | 0.07 | 19,000 | 1,050 | 0.05 |
| | 10 | 19,000 | 980 | 0.06 | 20,000 | 940 | 0.05 | 19,000 | 1,050 | 0.04 |
| | 12 | 18,000 | 980 | 0.04 | 17,000 | 940 | 0.04 | 16,000 | 750 | 0.03 |
| | 16 | 13,500 | 530 | 0.01 | 12,000 | 500 | 0.008 | 11,000 | 370 | 0.007 |
| 1.4 | 6 | 21,000 | 1,680 | 0.12 | 20,000 | 1,610 | 0.12 | 19,000 | 1,350 | 0.11 |
| | 8 | 19,000 | 1,260 | 0.09 | 18,000 | 1,200 | 0.09 | 17,000 | 1,050 | 0.08 |
| | 10 | 19,000 | 1,260 | 0.06 | 18,000 | 1,200 | 0.06 | 17,000 | 1,050 | 0.05 |
| | 12 | 19,000 | 1,260 | 0.05 | 18,000 | 1,200 | 0.05 | 17,000 | 1,050 | 0.04 |
| | 14 | 16,000 | 980 | 0.04 | 15,000 | 940 | 0.04 | 14,000 | 750 | 0.035 |
| | 16 | 16,000 | 980 | 0.03 | 15,000 | 940 | 0.03 | 14,000 | 750 | 0.02 |
| | 22 | 12,000 | 448 | 0.007 | 10,000 | 430 | 0.005 | 9,000 | 310 | 0.005 |
| 1.5 | 6 | 20,000 | 1,800 | 0.12 | 18,000 | 1,720 | 0.12 | 18,000 | 1,350 | 0.11 |
| | 8 | 19,000 | 1,260 | 0.1 | 16,000 | 1,200 | 0.1 | 15,000 | 1,050 | 0.08 |
| | 10 | 19,000 | 1,260 | 0.08 | 16,000 | 1,200 | 0.08 | 15,000 | 1,050 | 0.07 |
| | 12 | 19,000 | 1,260 | 0.06 | 16,000 | 1,200 | 0.06 | 15,000 | 1,050 | 0.05 |
| | 14 | 19,000 | 1,260 | 0.05 | 16,000 | 1,200 | 0.05 | 15,000 | 1,050 | 0.045 |
| | 16 | 16,000 | 980 | 0.05 | 14,000 | 940 | 0.05 | 13,000 | 750 | 0.04 |
| | 18 | 16,000 | 980 | 0.03 | 14,000 | 940 | 0.03 | 13,000 | 750 | 0.02 |
| | 20 | 14,000 | 700 | 0.02 | 12,000 | 670 | 0.02 | 11,000 | 570 | 0.015 |
| 1.6 | 6 | 19,000 | 1,800 | 0.14 | 17,000 | 1,720 | 0.14 | 17,000 | 1,350 | 0.13 |
| | 8 | 17,000 | 1,350 | 0.13 | 15,000 | 1,290 | 0.13 | 15,000 | 1,050 | 0.12 |
| | 10 | 17,000 | 1,260 | 0.11 | 15,000 | 1,200 | 0.11 | 15,000 | 1,050 | 0.09 |
| | 12 | 17,000 | 1,260 | 0.07 | 15,000 | 1,200 | 0.07 | 15,000 | 1,050 | 0.06 |
| | 14 | 17,000 | 1,260 | 0.06 | 15,000 | 1,200 | 0.06 | 15,000 | 1,050 | 0.05 |
| | 16 | 14,000 | 980 | 0.05 | 13,000 | 940 | 0.05 | 13,000 | 750 | 0.04 |
| | 18 | 14,000 | 980 | 0.04 | 13,000 | 940 | 0.04 | 13,000 | 750 | 0.03 |
| | 20 | 14,000 | 980 | 0.02 | 13,000 | 940 | 0.02 | 13,000 | 750 | 0.02 |
| | 25 | 9,600 | 480 | 0.01 | 8,900 | 460 | 0.01 | 8,900 | 360 | 0.01 |
| 1.8 | 6 | 18,000 | 1,950 | 0.2 | 16,000 | 1,870 | 0.2 | 15,000 | 1,500 | 0.18 |
| | 8 | 18,000 | 1,950 | 0.19 | 16,000 | 1,870 | 0.19 | 15,000 | 1,500 | 0.17 |
| | 10 | 15,000 | 1,260 | 0.12 | 14,000 | 1,200 | 0.12 | 14,000 | 1,050 | 0.1 |
| | 12 | 15,000 | 1,260 | 0.1 | 14,000 | 1,200 | 0.1 | 14,000 | 1,050 | 0.08 |
| | 14 | 15,000 | 1,260 | 0.08 | 14,000 | 1,200 | 0.08 | 14,000 | 1,050 | 0.06 |
| | 16 | 15,000 | 1,260 | 0.07 | 14,000 | 1,200 | 0.07 | 14,000 | 1,050 | 0.05 |
| | 18 | 13,000 | 980 | 0.05 | 12,000 | 940 | 0.05 | 12,000 | 750 | 0.045 |
| | 20 | 13,000 | 980 | 0.04 | 12,000 | 940 | 0.04 | 12,000 | 750 | 0.04 |
| | 25 | 9,000 | 500 | 0.01 | 8,000 | 480 | 0.009 | 7,000 | 370 | 0.008 |
| 切込深さ Depth of Cut | |   | | | | | | | | |

1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤を使用する場合は、被削材ならびに加工内容に適したものをご使用下さい。
4. 上表は直線加工における負荷の少ない安定した状況を基準としたものです。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5未満あるいは有効長／外径（L／D）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表

| | ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | 調質鋼（45～55HRC） Hardened Steel | | | 調質鋼（55～60HRC） Hardened Steel | | |
|---|---|---|---|---|---|---|---|---|---|
| | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| | 22,000 | 980 | 0.05 | 20,000 | 800 | 0.03 | 12,000 | 160 | 0.014 |
| | 20,000 | 900 | 0.04 | 17,000 | 600 | 0.03 | 12,000 | 150 | 0.012 |
| | 18,000 | 600 | 0.03 | 15,000 | 450 | 0.02 | — | — | — |
| | 15,000 | 450 | 0.02 | — | — | — | — | — | — |
| | 15,000 | 450 | 0.01 | — | — | — | — | — | — |
| | 12,000 | 300 | 0.006 | — | — | — | — | — | — |
| | 17,000 | 900 | 0.05 | 14,000 | 640 | 0.03 | 10,000 | 160 | 0.017 |
| | 14,000 | 600 | 0.04 | 12,000 | 450 | 0.03 | 10,000 | 150 | 0.014 |
| | 14,000 | 600 | 0.03 | 12,000 | 450 | 0.02 | — | — | — |
| | 11,000 | 450 | 0.02 | — | — | — | — | — | — |
| | 10,000 | 330 | 0.006 | — | — | — | — | — | — |
| | 15,000 | 900 | 0.09 | 12,000 | 640 | 0.05 | 8,000 | 160 | 0.025 |
| | 13,000 | 600 | 0.06 | 10,000 | 450 | 0.04 | 7,000 | 120 | 0.019 |
| | 13,000 | 600 | 0.04 | 10,000 | 450 | 0.03 | — | — | — |
| | 13,000 | 600 | 0.03 | 10,000 | 450 | 0.02 | — | — | — |
| | 11,000 | 450 | 0.03 | — | — | — | — | — | — |
| | 11,000 | 450 | 0.02 | — | — | — | — | — | — |
| | 8,000 | 270 | 0.004 | — | — | — | — | — | — |
| | 14,000 | 900 | 0.09 | 12,000 | 640 | 0.06 | 8,000 | 320 | 0.028 |
| | 12,000 | 600 | 0.07 | 10,000 | 450 | 0.04 | 7,000 | 230 | 0.021 |
| | 12,000 | 600 | 0.05 | 10,000 | 450 | 0.03 | 7,000 | 230 | 0.017 |
| | 12,000 | 600 | 0.04 | 10,000 | 450 | 0.025 | — | — | — |
| | 12,000 | 600 | 0.035 | 10,000 | 450 | 0.02 | — | — | — |
| | 10,000 | 450 | 0.03 | — | — | — | — | — | — |
| | 10,000 | 450 | 0.02 | — | — | — | — | — | — |
| | 10,000 | 450 | 0.01 | — | — | — | — | — | — |
| | 13,000 | 900 | 0.1 | 11,000 | 640 | 0.065 | 7,000 | 320 | 0.035 |
| | 11,000 | 600 | 0.1 | 9,000 | 450 | 0.06 | 6,000 | 230 | 0.03 |
| | 11,000 | 600 | 0.07 | 9,000 | 450 | 0.04 | 6,000 | 230 | 0.02 |
| | 11,000 | 600 | 0.05 | 9,000 | 450 | 0.03 | — | — | — |
| | 11,000 | 600 | 0.04 | 9,000 | 450 | 0.02 | — | — | — |
| | 9,000 | 450 | 0.035 | — | — | — | — | — | — |
| | 9,000 | 450 | 0.03 | — | — | — | — | — | — |
| | 9,000 | 450 | 0.01 | — | — | — | — | — | — |
| | 6,100 | 220 | 0.008 | — | — | — | — | — | — |
| | 12,000 | 1,050 | 0.14 | 10,000 | 640 | 0.09 | 7,000 | 320 | 0.035 |
| | 12,000 | 1,050 | 0.13 | 10,000 | 600 | 0.085 | 7,000 | 300 | 0.03 |
| | 10,000 | 750 | 0.08 | 8,000 | 450 | 0.05 | 7,000 | 230 | 0.02 |
| | 10,000 | 750 | 0.07 | 8,000 | 450 | 0.04 | 7,000 | 230 | 0.02 |
| | 10,000 | 750 | 0.05 | 8,000 | 450 | 0.03 | — | — | — |
| | 10,000 | 750 | 0.04 | 8,000 | 450 | 0.025 | — | — | — |
| | 8,000 | 600 | 0.035 | — | — | — | — | — | — |
| | 8,000 | 600 | 0.03 | — | — | — | — | — | — |
| | 6,000 | 300 | 0.007 | — | — | — | — | — | — |




1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) or air blow is recommended.
3. When using cutting fluid, choose based on work material and cutting conditions.
4. The cutting conditions shown for straight milling are low-load, safe conditions for reference.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of ϕ0.5 or less, or an L / D (effective length / tool diameter) ratio of greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When the available RPM are insufficient, please reduce the RPM and feed rates in proportion.

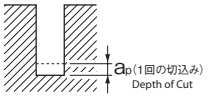
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外径 DC 2～10 NEXT

形状寸法表
SPECIFICATION CHARTS
WX-LN-EMS▶P321-11

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## WX-LN-EMS

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FROM 外径 DC 1～1.8

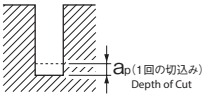
| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼 (30～38HRC)・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC (mm) | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| 2 | 6 | 16,000 | 1,950 | 0.28 | 15,000 | 1,870 | 0.28 | 14,000 | 1,500 | 0.26 |
| | 8 | 16,000 | 1,950 | 0.26 | 15,000 | 1,870 | 0.26 | 14,000 | 1,500 | 0.22 |
| | 10 | 14,000 | 1,350 | 0.24 | 13,000 | 1,290 | 0.24 | 12,000 | 1,050 | 0.2 |
| | 12 | 14,000 | 1,260 | 0.13 | 13,000 | 1,200 | 0.13 | 12,000 | 1,050 | 0.11 |
| | 14 | 14,000 | 1,260 | 0.11 | 13,000 | 1,200 | 0.11 | 12,000 | 1,050 | 0.09 |
| | 16 | 14,000 | 1,260 | 0.08 | 13,000 | 1,200 | 0.08 | 12,000 | 1,050 | 0.07 |
| | 18 | 14,000 | 1,260 | 0.07 | 13,000 | 1,200 | 0.07 | 12,000 | 1,050 | 0.06 |
| | 20 | 12,000 | 980 | 0.06 | 11,000 | 940 | 0.05 | 10,000 | 750 | 0.05 |
| | 25 | 12,000 | 980 | 0.03 | 11,000 | 940 | 0.03 | 10,000 | 750 | 0.02 |
| | 30 | 12,000 | 980 | 0.02 | 11,000 | 940 | 0.02 | 10,000 | 750 | 0.01 |
| 2.5 | 8 | 13,000 | 1,950 | 0.35 | 12,000 | 1,870 | 0.35 | 11,000 | 1,500 | 0.33 |
| | 12 | 13,000 | 1,950 | 0.23 | 12,000 | 1,870 | 0.23 | 11,000 | 1,500 | 0.19 |
| | 16 | 12,000 | 1,260 | 0.12 | 10,000 | 1,200 | 0.12 | 9,000 | 1,050 | 0.1 |
| | 20 | 12,000 | 1,260 | 0.09 | 10,000 | 1,200 | 0.09 | 9,000 | 1,050 | 0.08 |
| | 25 | 10,000 | 980 | 0.08 | 8,000 | 940 | 0.08 | 8,000 | 750 | 0.06 |
| 3 | 8 | 11,000 | 1,950 | 0.32 | 10,000 | 1,870 | 0.32 | 10,000 | 1,500 | 0.3 |
| | 12 | 11,000 | 1,820 | 0.27 | 10,000 | 1,740 | 0.27 | 10,000 | 1,500 | 0.23 |
| | 16 | 10,000 | 1,260 | 0.2 | 10,000 | 1,200 | 0.2 | 9,000 | 1,050 | 0.17 |
| | 20 | 10,000 | 1,260 | 0.13 | 10,000 | 1,200 | 0.13 | 9,000 | 1,050 | 0.11 |
| | 25 | 10,000 | 1,260 | 0.11 | 10,000 | 1,200 | 0.11 | 9,000 | 1,050 | 0.09 |
| | 30 | 8,000 | 980 | 0.09 | 8,000 | 940 | 0.09 | 7,000 | 750 | 0.08 |
| 4 | 12 | 8,000 | 1,950 | 0.34 | 7,000 | 1,870 | 0.34 | 7,000 | 1,500 | 0.32 |
| | 16 | 8,000 | 1,950 | 0.32 | 7,000 | 1,870 | 0.32 | 7,000 | 1,500 | 0.3 |
| | 20 | 7,000 | 1,350 | 0.3 | 7,000 | 1,290 | 0.3 | 6,000 | 1,050 | 0.28 |
| | 25 | 7,000 | 1,260 | 0.26 | 7,000 | 1,200 | 0.26 | 6,000 | 1,050 | 0.22 |
| | 30 | 7,000 | 1,260 | 0.19 | 7,000 | 1,200 | 0.19 | 6,000 | 1,050 | 0.16 |
| | 35 | 7,000 | 1,260 | 0.17 | 7,000 | 1,200 | 0.17 | 6,000 | 1,050 | 0.14 |
| | 40 | 6,000 | 980 | 0.14 | 6,000 | 940 | 0.14 | 5,000 | 900 | 0.12 |
| | 45 | 6,000 | 900 | 0.12 | 6,000 | 860 | 0.12 | 5,000 | 820 | 0.1 |
| | 50 | 6,000 | 900 | 0.05 | 6,000 | 860 | 0.05 | 5,000 | 820 | 0.04 |
| 5 | 16 | 6,000 | 1,800 | 0.4 | 6,000 | 1,720 | 0.4 | 5,000 | 1,350 | 0.38 |
| | 25 | 5,000 | 1,200 | 0.38 | 5,000 | 1,150 | 0.38 | 5,000 | 1,050 | 0.35 |
| | 35 | 5,000 | 1,120 | 0.3 | 5,000 | 1,070 | 0.3 | 5,000 | 1,050 | 0.28 |
| | 50 | 4,000 | 700 | 0.15 | 4,000 | 670 | 0.15 | 3,000 | 600 | 0.13 |
| 6 | 20 | 5,000 | 1,400 | 0.45 | 5,000 | 1,340 | 0.45 | 4,200 | 1,170 | 0.4 |
| | 30 | 5,000 | 1,200 | 0.38 | 5,000 | 1,150 | 0.38 | 4,200 | 1,050 | 0.35 |
| | 40 | 5,000 | 950 | 0.29 | 5,000 | 910 | 0.29 | 4,200 | 870 | 0.25 |
| | 50 | 4,000 | 750 | 0.18 | 4,000 | 720 | 0.18 | 3,800 | 600 | 0.15 |
| 8 | 30 | 3,800 | 1,100 | 0.65 | 3,800 | 1,050 | 0.65 | 3,600 | 900 | 0.56 |
| | 50 | 3,200 | 750 | 0.6 | 3,200 | 720 | 0.6 | 3,000 | 630 | 0.48 |
| | 60 | 2,800 | 600 | 0.4 | 2,800 | 570 | 0.4 | 2,700 | 530 | 0.32 |
| 10 | 40 | 3,000 | 1,100 | 0.8 | 3,000 | 1,050 | 0.8 | 2,900 | 800 | 0.64 |
| | 60 | 2,800 | 800 | 0.7 | 2,800 | 760 | 0.7 | 2,600 | 620 | 0.56 |
| | 80 | 2,000 | 470 | 0.4 | 2,000 | 460 | 0.4 | 1,800 | 400 | 0.32 |
| 切込深さ Depth of Cut | |  ap(1回の切込み) Depth of Cut | | | | | | | | |

1. 機械、コレット等は精度の高いものをご使用下さい。
2. 炭素鋼や焼入れ鋼の切削では、MQL（オイルミストクーラント）またはエアブローを推奨いたします。
3. 切削油剤を使用する場合は、被削材ならびに加工内容に適したものをご使用下さい。
4. 上表は直線加工における負荷の少ない安定した状況を基準としたものです。
5. 加工精度、加工形状、加工パスによって条件の調整を行って下さい。
6. φ0.5未満あるいは有効長／外径（L／D）が10以上では、わずかな負荷の増大で折損することがありますので、切削状況を見て切削条件の調整を行って下さい。
7. 回転速度が不足する場合は、回転速度と送り速度を上表に対して同じ比率で下げて下さい。

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



| | ステンレス鋼・調質鋼（38～45HRC）・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | | 調質鋼（45～55HRC） Hardened Steel | | | 調質鋼（55～60HRC） Hardened Steel | | |
|---|---|---|---|---|---|---|---|---|---|
| | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | ap |
| | 11,000 | 1,050 | 0.21 | 9,000 | 680 | 0.13 | 6,000 | 510 | 0.035 |
| | 11,000 | 1,050 | 0.18 | 9,000 | 640 | 0.11 | 6,000 | 480 | 0.03 |
| | 9,000 | 750 | 0.16 | 7,000 | 450 | 0.1 | 6,000 | 300 | 0.02 |
| | 9,000 | 750 | 0.09 | 7,000 | 450 | 0.06 | 6,000 | 300 | 0.02 |
| | 9,000 | 750 | 0.07 | 7,000 | 450 | 0.04 | — | — | — |
| | 9,000 | 750 | 0.06 | 7,000 | 450 | 0.035 | — | — | — |
| | 9,000 | 750 | 0.05 | 7,000 | 450 | 0.03 | — | — | — |
| | 7,000 | 600 | 0.04 | — | — | — | — | — | — |
| | 7,000 | 600 | 0.02 | — | — | — | — | — | — |
| | 7,000 | 600 | 0.01 | — | — | — | — | — | — |
| | 9,000 | 1,050 | 0.26 | 8,000 | 640 | 0.16 | 5,000 | 480 | 0.035 |
| | 9,000 | 1,050 | 0.15 | 8,000 | 600 | 0.09 | 5,000 | 450 | 0.025 |
| | 7,000 | 750 | 0.08 | 6,000 | 450 | 0.05 | 5,000 | 300 | 0.02 |
| | 7,000 | 750 | 0.06 | 6,000 | 450 | 0.04 | — | — | — |
| | 6,000 | 600 | 0.05 | — | — | — | — | — | — |
| | 8,000 | 1,050 | 0.24 | 7,000 | 680 | 0.15 | 5,000 | 510 | 0.05 |
| | 8,000 | 1,050 | 0.18 | 7,000 | 640 | 0.11 | 5,000 | 480 | 0.04 |
| | 6,000 | 750 | 0.13 | 6,000 | 450 | 0.08 | 5,000 | 300 | 0.03 |
| | 6,000 | 750 | 0.08 | 6,000 | 450 | 0.05 | 5,000 | 300 | 0.025 |
| | 6,000 | 750 | 0.07 | 6,000 | 450 | 0.045 | — | — | — |
| | 5,000 | 600 | 0.06 | — | — | — | — | — | — |
| | 6,000 | 1,050 | 0.26 | 4,500 | 680 | 0.16 | 4,000 | 510 | 0.05 |
| | 6,000 | 1,050 | 0.24 | 4,500 | 640 | 0.15 | 4,000 | 480 | 0.04 |
| | 5,000 | 750 | 0.22 | 4,000 | 450 | 0.14 | 4,000 | 450 | 0.035 |
| | 5,000 | 750 | 0.18 | 4,000 | 450 | 0.11 | 4,000 | 450 | 0.03 |
| | 5,000 | 750 | 0.13 | 4,000 | 450 | 0.08 | 4,000 | 450 | 0.025 |
| | 5,000 | 750 | 0.11 | 4,000 | 410 | 0.07 | 4,000 | 400 | 0.02 |
| | 4,000 | 600 | 0.1 | 4,000 | 380 | 0.07 | 4,000 | 380 | 0.015 |
| | 4,000 | 500 | 0.08 | 4,000 | 380 | 0.07 | 4,000 | 380 | 0.01 |
| | 4,000 | 500 | 0.03 | 4,000 | 380 | 0.07 | — | — | — |
| | 5,000 | 900 | 0.3 | 4,000 | 640 | 0.19 | 3,000 | 480 | 0.06 |
| | 5,000 | 900 | 0.28 | 4,000 | 600 | 0.18 | 3,000 | 450 | 0.05 |
| | 5,000 | 900 | 0.22 | 4,000 | 600 | 0.14 | 3,000 | 450 | 0.03 |
| | 3,000 | 600 | 0.1 | 3,000 | 450 | 0.08 | 3,000 | 380 | 0.01 |
| | 4,200 | 900 | 0.3 | 3,400 | 640 | 0.18 | 2,600 | 480 | 0.06 |
| | 4,200 | 900 | 0.26 | 3,400 | 600 | 0.16 | 2,600 | 450 | 0.05 |
| | 4,200 | 750 | 0.2 | 3,400 | 600 | 0.1 | 2,600 | 450 | 0.03 |
| | 3,800 | 600 | 0.11 | 3,200 | 450 | 0.08 | 2,600 | 390 | 0.015 |
| | 3,400 | 820 | 0.45 | 2,600 | 570 | 0.27 | 1,900 | 400 | 0.08 |
| | 2,900 | 580 | 0.38 | 2,400 | 450 | 0.22 | 1,900 | 340 | 0.06 |
| | 2,600 | 490 | 0.25 | 2,000 | 340 | 0.15 | 1,900 | 310 | 0.04 |
| | 2,700 | 710 | 0.51 | 2,100 | 500 | 0.3 | 1,500 | 340 | 0.09 |
| | 2,500 | 560 | 0.44 | 2,000 | 400 | 0.26 | 1,500 | 290 | 0.07 |
| | 1,600 | 340 | 0.25 | 1,300 | 250 | 0.15 | 1,300 | 240 | 0.04 |

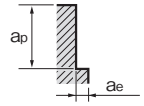



1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / mist coolant) or air blow is recommended.
3. When using cutting fluid, choose based on work material and cutting conditions.
4. The cutting conditions shown for straight milling are low-load, safe conditions for reference.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of $\phi$0.5 or less, or an L / D (effective length / tool diameter) ratio of greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When the available RPM are insufficient, please reduce the RPM and feed rates in proportion.

形状寸法表 SPECIFICATION CHARTS NEO-EMS▶P291
形状寸法表 SPECIFICATION CHARTS NEO-CR-EMS▶P382

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## NEO-EMS/NEO-CR-EMS
### 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼（45～55HRC） Hardened Steel チタン合金 Titanium Alloy | | 超耐熱合金鋼 インコネル Heat Resistant Alloy Steel・Inconel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 7,100 | 2,300 | 5,500 | 1,750 | 4,700 | 1,300 | 4,400 | 1,250 | 4,300 | 1,050 | 2,200 | 360 |
| 8 | 5,350 | 2,250 | 4,150 | 1,600 | 3,500 | 1,200 | 3,300 | 1,200 | 3,200 | 1,000 | 1,650 | 330 |
| 10 | 4,300 | 2,100 | 3,350 | 1,550 | 2,850 | 1,100 | 2,650 | 1,050 | 2,600 | 925 | 1,350 | 310 |
| 12 | 3,600 | 2,000 | 2,800 | 1,500 | 2,350 | 1,050 | 2,250 | 980 | 2,150 | 875 | 1,100 | 305 |
| 16 | 2,700 | 1,750 | 2,100 | 1,350 | 1,750 | 925 | 1,650 | 805 | 1,600 | 735 | 835 | 305 |
| 20 | 2,150 | 1,450 | 1,650 | 1,100 | 1,400 | 850 | 1,350 | 745 | 1,300 | 665 | 670 | 300 |
| 25 | 1,700 | 1,300 | 1,350 | 975 | 1,150 | 775 | 1,050 | 705 | 1,050 | 575 | 535 | 265 |
| 切込深さ Depth of Cut |  | | ap ≦1.5D | ae ≦0.2D | | | ap ≦1.5D | ae ≦0.1D | | ap ≦1.5D | ae ≦0.05D | |



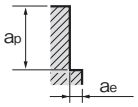
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During Dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

## NEO-EMS/NEO-CR-EMS
### 高速側面切削 HIGH-SPEED SIDE MILLING

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

⚠ Caution: Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

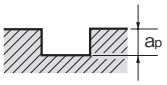
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼（45～55HRC） Hardened Steel チタン合金 Titanium Alloy | | 超耐熱合金鋼 インコネル Heat Resistant Alloy Steel・Inconel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 14,000 | 4,750 | 11,000 | 3,550 | 9,150 | 2,650 | 8,600 | 2,500 | 8,350 | 2,100 | 4,300 | 745 |
| 8 | 10,500 | 4,600 | 8,050 | 3,300 | 6,850 | 2,450 | 6,450 | 2,400 | 6,250 | 2,050 | 3,250 | 675 |
| 10 | 8,400 | 3,900 | 6,500 | 3,000 | 5,550 | 2,200 | 5,200 | 2,100 | 5,050 | 1,900 | 2,600 | 640 |
| 12 | 7,000 | 3,800 | 5,450 | 2,900 | 4,600 | 2,150 | 4,350 | 2,000 | 4,200 | 1,800 | 2,150 | 625 |
| 16 | 5,250 | 3,550 | 4,100 | 2,800 | 3,450 | 1,900 | 3,250 | 1,650 | 3,150 | 1,500 | 1,650 | 620 |
| 20 | 4,200 | 2,900 | 3,250 | 2,250 | 2,750 | 1,750 | 2,600 | 1,550 | 2,550 | 1,350 | 1,300 | 610 |
| 25 | 3,350 | 2,600 | 2,600 | 2,000 | 2,200 | 1,600 | 2,100 | 1,450 | 2,000 | 1,150 | 1,050 | 550 |
| 切込深さ Depth of Cut |  | | ap ≦1.5D | ae ≦0.05D ∂e MAX=0.5mm | | | ap ≦1.5D | ae ≦0.02D ∂e MAX=0.5mm | | ap ≦1D | ae ≦0.02D ∂e MAX=0.5mm | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During Dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

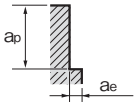
## NEO-PHS/NEO-CR-PHS
## 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼（45～55HRC） Hardened Steel チタン合金 Titanium Alloy | | 超耐熱合金鋼 インコネル Heat Resistant Alloy Steel・Inconel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 10,500 | 730 | 8,550 | 680 | 7,850 | 520 | 7,450 | 460 | 7,200 | 440 | 2,500 | 125 |
| 4 | 7,750 | 730 | 6,400 | 775 | 5,900 | 520 | 5,550 | 515 | 5,400 | 495 | 1,900 | 135 |
| 5 | 6,200 | 735 | 5,100 | 755 | 4,700 | 545 | 4,450 | 545 | 4,300 | 535 | 1,500 | 145 |
| 6 | 5,150 | 740 | 4,250 | 635 | 3,950 | 575 | 3,700 | 570 | 3,600 | 545 | 1,250 | 145 |
| 8 | 3,850 | 600 | 3,200 | 550 | 2,950 | 550 | 2,800 | 525 | 2,700 | 510 | 945 | 155 |
| 10 | 3,100 | 580 | 2,550 | 540 | 2,350 | 480 | 2,250 | 475 | 2,150 | 455 | 760 | 145 |
| 12 | 2,600 | 560 | 2,150 | 475 | 1,950 | 460 | 1,850 | 440 | 1,800 | 435 | 630 | 145 |
| 16 | 1,950 | 555 | 1,600 | 430 | 1,500 | 370 | 1,400 | 370 | 1,350 | 365 | 475 | 110 |
| 20 | 1,550 | 475 | 1,300 | 380 | 1,200 | 355 | 1,100 | 330 | 1,100 | 330 | 380 | 110 |
| 25 | 1,250 | 450 | 1,000 | 365 | 945 | 315 | 890 | 285 | 865 | 235 | 300 | 105 |
| 切込深さ Depth of Cut |  | | ap ≦1D ap MAX=12mm | | | | ap ≦0.5D | | ap ≦0.2D | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. During Dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

## NEO-PHS/NEO-CR-PHS
## 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼（45～55HRC） Hardened Steel チタン合金 Titanium Alloy | | 超耐熱合金鋼 インコネル Heat Resistant Alloy Steel・Inconel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 12,500 | 1,100 | 9,550 | 840 | 8,100 | 625 | 7,650 | 615 | 7,400 | 545 | 3,800 | 220 |
| 4 | 9,750 | 1,200 | 7,550 | 985 | 6,400 | 680 | 6,050 | 710 | 5,850 | 630 | 3,000 | 240 |
| 5 | 7,950 | 1,300 | 6,150 | 1,050 | 5,250 | 725 | 4,950 | 775 | 4,800 | 670 | 2,450 | 245 |
| 6 | 6,750 | 1,600 | 5,250 | 1,200 | 4,450 | 890 | 4,200 | 835 | 4,050 | 695 | 2,100 | 250 |
| 8 | 5,050 | 1,550 | 3,950 | 1,100 | 3,350 | 815 | 3,150 | 810 | 3,050 | 675 | 1,600 | 225 |
| 10 | 4,100 | 1,450 | 3,200 | 1,050 | 2,700 | 725 | 2,550 | 715 | 2,450 | 635 | 1,250 | 215 |
| 12 | 3,400 | 1,400 | 2,650 | 1,000 | 2,250 | 720 | 2,100 | 675 | 2,050 | 605 | 1,050 | 210 |
| 16 | 2,550 | 1,200 | 2,000 | 940 | 1,700 | 635 | 1,600 | 555 | 1,550 | 505 | 765 | 210 |
| 20 | 2,050 | 985 | 1,600 | 755 | 1,350 | 590 | 1,250 | 515 | 1,250 | 460 | 635 | 200 |
| 25 | 1,650 | 880 | 1,250 | 675 | 1,100 | 535 | 1,000 | 485 | 990 | 395 | 510 | 185 |
| 切込深さ Depth of Cut |  | | ap ≦1.5D ae ≦0.2D | | | | ap ≦1.5D ae ≦0.1D | | ap ≦1.5D ae ≦0.05D | | | |

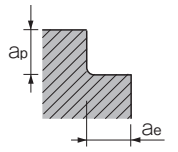
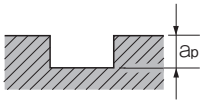
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. During Dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

形状寸法表 SPECIFICATION CHARTS UVX-TI-4FL▶P372
形状寸法表 SPECIFICATION CHARTS UVX-TI-5FL▶P373

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

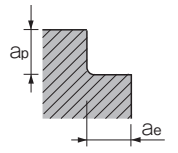
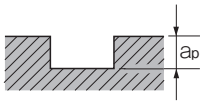
## UVX-TI-4FL/UVX-TI-4FL（SAFE-LOCK®溝付き）

| 被削材 Work Material | チタン合金 Titanium Alloy Ti-6Al-4V | | | | | |
|---|---|---|---|---|---|---|
| 加工方法 Milling Method | 側面加工 Side Milling | | | 溝加工 Slot Milling | | |
| 切削速度 Cutting Speed | 60～80m/min | | | 30～50m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 ($min^{-1}$) Speed | 送り速度 (mm/min) Feed | 切込深さ Depth of Cut | 回転速度 ($min^{-1}$) Speed | 送り速度 (mm/min) Feed | 切込深さ Depth of Cut |
| 12 | 1,900 | 680 | ap ≦1.8DC / ae 0.2DC  | 1,350 | 270 | ap ≦1DC  |
| 16 | 1,400 | 500 | | 990 | 200 | |
| 20 | 1,100 | 480 | | 800 | 190 | |
| 25 | 900 | 400 | | 640 | 150 | |

1. 上記の加工条件は目安です。実際の加工環境に合わせて調節をして下さい。
2. チタン合金の加工には水溶性クーラントを推奨します。

1. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual milling condition.
2. Using water soluble coolant is highly recommended for milling titanium alloys.

## UVX-TI-5FL/UVX-TI-5FL（SAFE-LOCK®溝付き）

| 被削材 Work Material | チタン合金 Titanium Alloy Ti-6Al-4V | | | | | |
|---|---|---|---|---|---|---|
| 加工方法 Milling Method | 側面加工 Side Milling | | | 溝加工 Slot Milling | | |
| 切削速度 Cutting Speed | 60～80m/min | | | 30～50m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 ($min^{-1}$) Speed | 送り速度 (mm/min) Feed | 切込深さ Depth of Cut | 回転速度 ($min^{-1}$) Speed | 送り速度 (mm/min) Feed | 切込深さ Depth of Cut |
| 12 | 1,900 | 855 | ap ≦1.8DC / ae 0.2DC  | 1,350 | 340 | ap ≦1DC  |
| 16 | 1,400 | 630 | | 990 | 250 | |
| 20 | 1,100 | 600 | | 800 | 240 | |
| 25 | 900 | 500 | | 640 | 192 | |

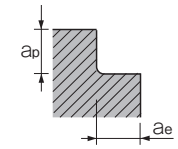
1. 上記の加工条件は目安です。実際の加工環境に合わせて調節をして下さい。
2. チタン合金の加工には水溶性クーラントを推奨します。

1. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual milling condition.
2. Using water soluble coolant is highly recommended for milling titanium alloys.

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



## UVXL-TI-5FL/UVXL-TI-5FL（SAFE-λOCK®溝付き）

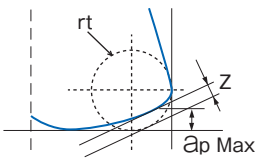
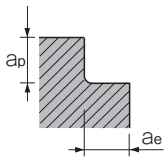
| 被削材 Work Material | チタン合金 Titanium Alloy Ti-6Al-4V | | |
|---|---|---|---|
| 加工方法 Milling Method | 側面加工 Side Milling | | |
| 切削速度 Cutting Speed | 60～80m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 (min-1) Speed | 送り速度 (mm/min) Feed | 切込深さ Depth of Cut |
| 12 | 2,100 | 1,050 | ap ≦3.75DC / ae ≦0.1DC  |
| 16 | 1,600 | 920 | |
| 20 | 1,270 | 760 | |
| 25 | 1,020 | 587 | |



1. 上記の加工条件は目安です。実際の加工環境に合わせて調節をして下さい。
2. チタン合金の加工には水溶性クーラントを推奨します。

1. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual milling condition.
2. Using water soluble coolant is highly recommended for milling titanium alloys.

## HFC-TI

| 被削材 Work Material | チタン合金 Titanium Alloy Ti-6Al-4V | | | | | |
|---|---|---|---|---|---|---|
| 加工方法 Milling Method | 等高線加工 Contour Milling | | | | | |
| 切削速度 Cutting Speed | 50～100m/min | | | | | |
| 外径 Mill Dia. (mm) | 回転速度 (min-1) Speed | 送り速度 (mm/min) Feed | ランピング角度 Ramping Angle | 擬似R rt | 削り残し量 Remainder Z | |
| 16 | 1,490 | 4,500 | 2° | 0.86 | 0.46 |  |
| 20 | 1,190 | 3,600 | | 1.01 | 0.58 | |
| 25 | 850 | 4,860 | | 1.2 | 0.74 | |
| 切込深さ Depth of Cut | ap≦0.035DC ae≦0.39DC  | | | | | |





＊加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

1. 上記の加工条件は目安です。実際の加工環境に合わせて調節をして下さい。
2. チタン合金の加工には水溶性クーラントを推奨します。

1. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual milling condition.
2. Using water soluble coolant is highly recommended for milling titanium alloys.

形状寸法表 SPECIFICATION CHARTS FX-MG-EDSS▶P311-4
形状寸法表 SPECIFICATION CHARTS FX-MG-EDS▶P311-1
形状寸法表 SPECIFICATION CHARTS FX-CR-MG-EDS▶P379

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

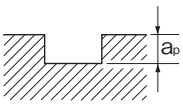
## FX-MG-EDSS/FX-MG-EDS/FX-CR-MG-EDS

### 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼・超耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 0.2 | 32,000 | 90 | 32,000 | 90 | 32,000 | 75 | 32,000 | 35 | 32,000 | 30 | 25,000 | 25 |
| 0.3 | 32,000 | 115 | 32,000 | 115 | 32,000 | 80 | 32,000 | 55 | 23,000 | 30 | 16,500 | 25 |
| 0.4 | 32,000 | 125 | 32,000 | 125 | 32,000 | 90 | 27,500 | 60 | 17,500 | 30 | 12,500 | 25 |
| 0.5 | 32,000 | 125 | 29,500 | 125 | 25,000 | 90 | 22,000 | 60 | 14,000 | 30 | 10,000 | 25 |
| 0.6 | 32,000 | 125 | 24,500 | 125 | 21,000 | 90 | 18,500 | 60 | 11,500 | 30 | 8,450 | 25 |
| 0.8 | 24,500 | 125 | 18,500 | 125 | 15,500 | 90 | 13,500 | 65 | 8,750 | 30 | 6,350 | 25 |
| 1 | 19,500 | 130 | 14,500 | 125 | 12,500 | 90 | 11,000 | 65 | 7,000 | 30 | 5,050 | 25 |
| 1.5 | 14,000 | 130 | 10,500 | 125 | 8,900 | 90 | 7,950 | 65 | 5,050 | 40 | 3,550 | 25 |
| 2 | 11,000 | 135 | 8,400 | 125 | 7,000 | 90 | 6,350 | 70 | 3,950 | 40 | 2,750 | 25 |
| 3 | 7,400 | 200 | 6,350 | 150 | 5,300 | 100 | 4,450 | 75 | 2,750 | 45 | 2,000 | 30 |
| 4 | 5,950 | 235 | 4,900 | 185 | 4,250 | 125 | 3,500 | 90 | 2,200 | 50 | 1,550 | 30 |
| 5 | 5,300 | 315 | 4,300 | 235 | 3,550 | 130 | 3,050 | 100 | 1,900 | 55 | 1,250 | 30 |
| 6 | 4,450 | 310 | 3,600 | 235 | 2,950 | 130 | 2,500 | 100 | 1,550 | 55 | 1,050 | 25 |
| 8 | 3,300 | 295 | 2,700 | 235 | 2,200 | 125 | 1,900 | 100 | 1,150 | 50 | 795 | 25 |
| 10 | 2,650 | 280 | 2,150 | 230 | 1,750 | 125 | 1,500 | 95 | 955 | 50 | 635 | 25 |
| 12 | 2,200 | 280 | 1,800 | 230 | 1,450 | 125 | 1,250 | 95 | 795 | 45 | 530 | 20 |
| 14 | 1,900 | 280 | 1,500 | 215 | 1,250 | 110 | 1,050 | 95 | 680 | 40 | 455 | 18 |
| 16 | 1,650 | 260 | 1,350 | 200 | 1,100 | 100 | 955 | 85 | 595 | 35 | 395 | 16 |
| 18 | 1,450 | 230 | 1,200 | 180 | 990 | 90 | 845 | 75 | 530 | 30 | 350 | 14 |
| 20 | 1,300 | 205 | 1,050 | 155 | 890 | 80 | 760 | 65 | 475 | 30 | 315 | 13 |
| 22 | 1,200 | 190 | 980 | 145 | 810 | 70 | 690 | 60 | 430 | 25 | 285 | 11 |
| 24 | 1,100 | 175 | 900 | 135 | 740 | 65 | 635 | 55 | 395 | 25 | 265 | 11 |
| 25 | 1,050 | 165 | 865 | 130 | 710 | 65 | 610 | 55 | 380 | 20 | 255 | 10 |
| 30 | 890 | 140 | 720 | 105 | 590 | 50 | 505 | 45 | 315 | 20 | 210 | 10 |

切込深さ Depth of Cut

| | ap |
|---|---|
| DC＜φ1 | 0.1D |
| φ1≦DC＜φ3 | 0.3D |
| φ3≦DC | 0.5D |




| | ap |
|---|---|
| DC＜φ1 | 0.02D |
| φ1≦DC | 0.05D |

| | ap |
|---|---|
| DC＜φ1 | 0.01D |
| φ1≦DC＜φ3 | 0.02D |
| φ3≦DC | 0.05D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

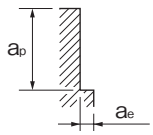
## FX-MG-EDL/FX-CR-MG-EDL
### 側面切削

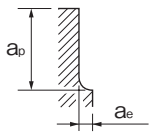
SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 19,000 | 190 | 14,000 | 140 | 11,000 | 80 | 9,500 | 60 | 6,350 | 30 |
| 2 | 9,500 | 190 | 7,150 | 140 | 5,550 | 80 | 4,750 | 60 | 3,150 | 30 |
| 3 | 6,350 | 190 | 4,750 | 140 | 3,700 | 80 | 3,150 | 60 | 2,100 | 30 |
| 4 | 4,750 | 190 | 3,550 | 140 | 2,750 | 80 | 2,350 | 60 | 1,550 | 30 |
| 5 | 3,800 | 190 | 2,850 | 140 | 2,200 | 80 | 1,900 | 60 | 1,250 | 30 |
| 6 | 3,150 | 190 | 2,350 | 140 | 1,850 | 80 | 1,550 | 60 | 1,050 | 30 |
| 8 | 2,350 | 190 | 1,950 | 155 | 1,550 | 90 | 1,350 | 70 | 995 | 40 |
| 10 | 1,900 | 190 | 1,550 | 155 | 1,250 | 90 | 1,100 | 70 | 795 | 40 |
| 12 | 1,550 | 185 | 1,300 | 155 | 1,050 | 90 | 925 | 70 | 660 | 40 |
| 14 | 1,350 | 185 | 1,100 | 150 | 905 | 80 | 795 | 70 | 565 | 35 |
| 16 | 1,150 | 180 | 995 | 135 | 795 | 70 | 695 | 60 | 495 | 30 |
| 18 | 1,050 | 165 | 880 | 120 | 705 | 60 | 615 | 55 | 440 | 30 |
| 20 | 955 | 150 | 795 | 110 | 635 | 55 | 555 | 50 | 395 | 25 |
| 22 | 865 | 135 | 720 | 100 | 575 | 50 | 505 | 45 | 360 | 20 |
| 24 | 795 | 125 | 660 | 90 | 530 | 50 | 460 | 40 | 330 | 20 |
| 25 | 760 | 120 | 635 | 90 | 505 | 45 | 445 | 40 | 315 | 20 |

切込深さ Depth of Cut

| | ap | ae |
|---|---|---|
| DC≦φ20 | 2.5D | 0.05D |
| φ20<DC | 2.5D | 1mm |




| | ap | ae |
|---|---|---|
| DC≦φ10 | 2.5D | 0.05D |
| φ10<DC | 2.5D | 0.5mm |

| ap | ae |
|---|---|
| 2.5D | 0.02D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

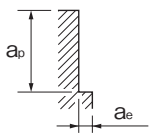
## FX-MG-EXDL
### 側面切削

SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 4,200 | 100 | 3,700 | 85 | 2,950 | 50 | 2,400 | 40 |
| 4 | 3,150 | 100 | 2,750 | 85 | 2,200 | 50 | 1,800 | 40 |
| 5 | 2,500 | 100 | 2,200 | 85 | 1,750 | 50 | 1,450 | 40 |
| 6 | 2,100 | 100 | 1,850 | 85 | 1,450 | 50 | 1,200 | 40 |
| 8 | 1,550 | 100 | 1,350 | 85 | 1,100 | 50 | 915 | 40 |
| 10 | 1,250 | 100 | 1,100 | 85 | 890 | 50 | 730 | 40 |
| 12 | 1,050 | 100 | 925 | 85 | 740 | 50 | 610 | 40 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 6D | 0.01D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

形状寸法表 SPECIFICATION CHARTS FX-MG-EML▶P294
形状寸法表 SPECIFICATION CHARTS FX-CR-MG-EML▶P382
形状寸法表 SPECIFICATION CHARTS FX-MG-EXML▶P294

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-MG-EML/FX-CR-MG-EML
### 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 6,350 | 225 | 5,300 | 190 | 4,200 | 150 | 3,700 | 130 | 2,100 | 75 |
| 4 | 4,750 | 225 | 3,950 | 190 | 3,150 | 150 | 2,750 | 130 | 1,550 | 75 |
| 5 | 3,800 | 225 | 3,150 | 190 | 2,500 | 150 | 2,200 | 130 | 1,250 | 75 |
| 6 | 3,150 | 225 | 2,650 | 190 | 2,100 | 150 | 1,850 | 130 | 1,050 | 75 |
| 8 | 2,350 | 225 | 1,950 | 190 | 1,550 | 150 | 1,350 | 130 | 995 | 80 |
| 10 | 1,900 | 225 | 1,550 | 190 | 1,250 | 150 | 1,100 | 130 | 795 | 60 |
| 12 | 1,550 | 225 | 1,300 | 190 | 1,050 | 125 | 925 | 110 | 660 | 50 |
| 14 | 1,350 | 225 | 1,100 | 190 | 905 | 105 | 795 | 95 | 565 | 45 |
| 16 | 1,150 | 225 | 995 | 190 | 795 | 95 | 695 | 80 | 495 | 40 |
| 18 | 1,050 | 225 | 880 | 190 | 705 | 85 | 615 | 70 | 440 | 35 |
| 20 | 955 | 225 | 795 | 190 | 635 | 75 | 555 | 65 | 395 | 30 |
| 22 | 865 | 225 | 720 | 190 | 575 | 65 | 505 | 60 | 360 | 25 |
| 24 | 795 | 220 | 660 | 180 | 530 | 60 | 460 | 55 | 330 | 25 |
| 25 | 760 | 210 | 635 | 170 | 505 | 60 | 445 | 50 | 315 | 25 |

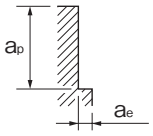
切込深さ Depth of Cut

FX-MG-EML

| | ap | ae |
|---|---|---|
| DC＜φ20 | 2.5D | 0.05D |
| φ20＜DC | 2.5D | 1mm |

FX-CR-MG-EML

| ap | ae |
|---|---|
| 2.5D | 0.05D |




FX-MG-EML

| | ap | ae |
|---|---|---|
| DC≦φ10 | 2.5D | 0.05D |
| φ10＜DC | 2.5D | 0.5mm |

FX-CR-MG-EML

| ap | ae |
|---|---|
| 2.5D | 0.05D |

| ap | ae |
|---|---|
| 2.5D | 0.02D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
4. FX-CR-MG-EDLの場合は、上記送り速度を半分に下げてご使用下さい。

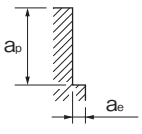
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. When FX-CR-MG-EDL are used, please reduce the feed rate to half of the above.

## FX-MG-EXML
### 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | |
|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 4,200 | 150 | 2,950 | 85 | 2,650 | 80 |
| 4 | 3,150 | 150 | 2,200 | 85 | 1,950 | 80 |
| 5 | 2,500 | 150 | 1,750 | 85 | 1,550 | 80 |
| 6 | 2,100 | 150 | 1,450 | 85 | 1,300 | 80 |
| 8 | 1,550 | 150 | 1,100 | 85 | 995 | 80 |
| 10 | 1,250 | 150 | 890 | 85 | 795 | 80 |
| 12 | 1,050 | 150 | 740 | 85 | 660 | 80 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 6D | 0.01D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

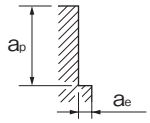
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FX-CR-MG-EHS/SXL-MG-EHS/SXL-CR-MG-EHS
## 側面切削

SIDE MILLING

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3枚刃 3 Flutes | 3×3F | 8,900 | 665 | 6,650 | 595 | 5,900 | 350 | 3,800 | 90 | 3,150 | 55 | 2,000 | 30 |
| | 4×3F | 6,650 | 695 | 5,000 | 675 | 4,450 | 400 | 2,850 | 100 | 2,350 | 70 | 1,550 | 35 |
| | 5×3F | 5,300 | 715 | 4,000 | 660 | 3,550 | 360 | 2,250 | 105 | 1,900 | 70 | 1,250 | 35 |
| | 6×3F | 5,300 | 755 | 4,000 | 660 | 3,550 | 315 | 2,200 | 150 | 1,900 | 90 | 1,250 | 30 |
| | 8×3F | 3,950 | 700 | 3,000 | 595 | 2,650 | 205 | 1,650 | 155 | 1,400 | 100 | 955 | 35 |
| | 10×3F | 3,150 | 640 | 2,400 | 565 | 2,100 | 260 | 1,300 | 140 | 1,100 | 100 | 760 | 35 |
| | 12×3F | 2,650 | 605 | 2,000 | 515 | 1,750 | 235 | 1,100 | 125 | 955 | 85 | 635 | 30 |
| | 14×3F | 2,250 | 570 | 1,700 | 450 | 1,500 | 205 | 955 | 105 | 815 | 75 | 545 | 25 |
| | 16×3F | 1,950 | 520 | 1,500 | 415 | 1,300 | 180 | 835 | 95 | 715 | 70 | 475 | 20 |
| | 18×3F | 1,750 | 480 | 1,300 | 370 | 1,150 | 170 | 740 | 85 | 635 | 70 | 420 | 20 |
| | 20×3F | 1,550 | 445 | 1,200 | 340 | 1,050 | 160 | 665 | 80 | 570 | 70 | 380 | 20 |
| | 25×3F | 1,250 | 415 | 965 | 280 | 850 | 140 | 535 | 85 | 455 | 70 | 305 | 20 |
| 4枚刃 4 Flutes | 3×4F | 8,900 | 890 | 6,650 | 795 | 5,900 | 470 | 3,800 | 120 | 3,150 | 75 | 2,000 | 40 |
| | 4×4F | 6,650 | 930 | 5,000 | 900 | 4,450 | 530 | 2,850 | 135 | 2,350 | 90 | 1,550 | 50 |
| | 5×4F | 5,300 | 950 | 4,000 | 880 | 3,550 | 480 | 2,250 | 140 | 1,900 | 95 | 1,250 | 50 |
| | 6×4F | 5,300 | 900 | 4,000 | 800 | 3,550 | 220 | 2,200 | 175 | 1,900 | 110 | 1,250 | 50 |
| | 8×4F | 3,950 | 835 | 3,000 | 710 | 2,650 | 445 | 1,650 | 185 | 1,400 | 120 | 955 | 55 |
| | 10×4F | 3,150 | 760 | 2,400 | 680 | 2,100 | 310 | 1,300 | 165 | 1,100 | 115 | 760 | 55 |
| | 12×4F | 2,650 | 730 | 2,000 | 620 | 1,750 | 285 | 1,100 | 145 | 955 | 105 | 635 | 45 |
| | 14×4F | 2,250 | 675 | 1,700 | 550 | 1,500 | 245 | 955 | 125 | 815 | 95 | 545 | 40 |
| | 16×4F | 1,950 | 615 | 1,500 | 500 | 1,300 | 215 | 835 | 110 | 715 | 85 | 475 | 35 |
| | 18×4F | 1,750 | 580 | 1,300 | 440 | 1,150 | 195 | 740 | 100 | 635 | 85 | 420 | 35 |
| | 20×4F | 1,550 | 530 | 1,200 | 410 | 1,050 | 185 | 665 | 95 | 570 | 85 | 380 | 35 |
| | 25×4F | 1,250 | 500 | 965 | 340 | 850 | 170 | 535 | 100 | 455 | 85 | 305 | 35 |
| 切込深さ Depth of Cut | | ap 1.5D / ae 0.2D | |  | | | | ap 1.5D / ae 0.1D | | ap 1D / ae 0.05D | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

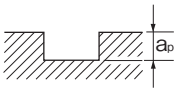
1. Use a rigid and precise machine and holder.
2. Adjust speeds and feeds according to cutting conditions, cutting depth, and rigidity of the machine.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. When dry milling, use an air blow to avoid chip packing.

形状寸法表 SPECIFICATION CHARTS FX-CR-MG-EHS▶P390
形状寸法表 SPECIFICATION CHARTS SXL-MG-EHS▶P311-40
形状寸法表 SPECIFICATION CHARTS SXL-CR-MG-EHS▶P436-7

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-CR-MG-EHS/SXL-MG-EHS/SXL-CR-MG-EHS

### 溝切削 SLOTTING

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3枚刃 4枚刃 兼用 3 Flutes 4 Flutes | 3 | 8,900 | 665 | 6,650 | 595 | 5,900 | 350 | 3,800 | 90 | 3,150 | 55 | 2,000 | 30 |
| | 4 | 6,650 | 695 | 5,000 | 675 | 4,450 | 400 | 2,850 | 100 | 2,350 | 70 | 1,550 | 35 |
| | 5 | 5,300 | 715 | 4,000 | 660 | 3,550 | 360 | 2,250 | 105 | 1,900 | 70 | 1,250 | 35 |
| | 6 | 4,450 | 740 | 3,300 | 550 | 2,950 | 345 | 1,900 | 110 | 1,550 | 70 | 1,050 | 35 |
| | 8 | 3,300 | 660 | 2,500 | 500 | 2,200 | 360 | 1,400 | 115 | 1,150 | 75 | 795 | 35 |
| | 10 | 2,650 | 630 | 2,000 | 475 | 1,750 | 325 | 1,100 | 115 | 955 | 75 | 635 | 35 |
| | 12 | 2,200 | 590 | 1,650 | 440 | 1,450 | 300 | 955 | 110 | 795 | 75 | 530 | 35 |
| | 14 | 1,900 | 560 | 1,400 | 445 | 1,250 | 270 | 815 | 95 | 680 | 70 | 455 | 30 |
| | 16 | 1,650 | 525 | 1,250 | 400 | 1,100 | 245 | 715 | 85 | 595 | 65 | 395 | 25 |
| | 18 | 1,450 | 480 | 1,100 | 365 | 990 | 225 | 635 | 80 | 530 | 60 | 350 | 25 |
| | 20 | 1,300 | 450 | 1,000 | 345 | 890 | 205 | 570 | 75 | 475 | 55 | 315 | 25 |
| | 25 | 1,050 | 395 | 800 | 300 | 710 | 170 | 455 | 60 | 380 | 50 | 255 | 25 |
| 切込深さ Depth of Cut | | $\frac{a_p}{0.5D}$ | |  | | | | | | $\frac{a_p}{0.05D}$ | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
4. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Adjust speeds and feeds according to cutting conditions, cutting depth, and rigidity of the machine.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. When dry milling, use an air blow to avoid chip packing.

形状寸法表 SPECIFICATION CHARTS FX-CR-MG-EHS▶P390
形状寸法表 SPECIFICATION CHARTS SXL-MG-EHS▶P311-40
形状寸法表 SPECIFICATION CHARTS SXL-CR-MG-EHS▶P436-7





# FX-CR-MG-EHS/SXL-MG-EHS/SXL-CR-MG-EHS

## 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

## HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

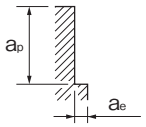
## 高速側面切削 HIGH-SPEED SIDE MILLING

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S50C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、CENA1 (30～38HRC) | | ステンレス鋼・調質鋼・プリハードン鋼 Stainless Steel・Hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼・チタン合金 Hardened Steel・Titanium Alloy Ti-6Al-4V (45～55HRC) | | 超耐熱合金・インコネル・ハステロイ Heat Resistant Alloy Steel・Inconel・Hastelloy | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3枚刃 3 Flutes | 3 | 21,200 | 1,350 | 19,100 | 1,200 | 19,100 | 1,100 | 15,900 | 930 | 10,600 | 620 | 8,500 | 385 |
| | 4 | 16,000 | 1,450 | 14,300 | 1,300 | 14,300 | 1,200 | 12,000 | 1,000 | 8,000 | 670 | 6,400 | 385 |
| | 5 | 12,700 | 1,450 | 11,500 | 1,300 | 11,500 | 1,200 | 9,600 | 1,000 | 6,400 | 670 | 5,100 | 385 |
| | 6 | 10,600 | 1,450 | 9,500 | 1,300 | 9,500 | 1,100 | 8,000 | 935 | 5,300 | 620 | 4,200 | 385 |
| | 8 | 8,000 | 1,350 | 7,200 | 1,200 | 7,200 | 1,050 | 6,000 | 865 | 4,000 | 575 | 3,200 | 385 |
| | 10 | 6,400 | 1,350 | 5,700 | 1,200 | 5,700 | 1,050 | 4,800 | 865 | 3,200 | 575 | 2,600 | 380 |
| | 12 | 5,300 | 1,350 | 4,800 | 1,200 | 4,800 | 1,050 | 4,000 | 865 | 2,700 | 585 | 2,100 | 380 |
| | 14 | 4,500 | 1,350 | 4,100 | 1,200 | 4,100 | 1,050 | 3,400 | 865 | 2,300 | 580 | 1,800 | 380 |
| | 16 | 4,000 | 1,350 | 3,600 | 1,200 | 3,600 | 1,050 | 3,000 | 865 | 2,000 | 580 | 1,600 | 380 |
| | 18 | 3,500 | 1,250 | 3,200 | 1,150 | 3,200 | 1,050 | 2,700 | 865 | 1,800 | 580 | 1,400 | 380 |
| | 20 | 3,200 | 1,150 | 2,900 | 1,050 | 2,900 | 960 | 2,400 | 790 | 1,600 | 530 | 1,300 | 380 |
| | 25 | 2,500 | 900 | 2,300 | 830 | 2,300 | 760 | 1,900 | 630 | 1,300 | 430 | 1,000 | 300 |
| 4枚刃 4 Flutes | 3 | 21,200 | 1,800 | 19,100 | 1,600 | 19,100 | 1,500 | 15,900 | 1,250 | 10,600 | 830 | 8,500 | 510 |
| | 4 | 16,000 | 1,900 | 14,300 | 1,700 | 14,300 | 1,600 | 12,000 | 1,350 | 8,000 | 900 | 6,400 | 510 |
| | 5 | 12,700 | 1,900 | 11,500 | 1,750 | 11,500 | 1,600 | 9,600 | 1,350 | 6,400 | 900 | 5,100 | 510 |
| | 6 | 10,600 | 1,900 | 9,500 | 1,700 | 9,500 | 1,500 | 8,000 | 1,250 | 5,300 | 830 | 4,200 | 510 |
| | 8 | 8,000 | 1,800 | 7,200 | 1,600 | 7,200 | 1,400 | 6,000 | 1,150 | 4,000 | 770 | 3,200 | 510 |
| | 10 | 6,400 | 1,800 | 5,700 | 1,600 | 5,700 | 1,400 | 4,800 | 1,150 | 3,200 | 770 | 2,600 | 520 |
| | 12 | 5,300 | 1,800 | 4,800 | 1,600 | 4,800 | 1,400 | 4,000 | 1,150 | 2,700 | 750 | 2,100 | 505 |
| | 14 | 4,500 | 1,750 | 4,100 | 1,600 | 4,100 | 1,400 | 3,400 | 1,150 | 2,300 | 775 | 1,800 | 505 |
| | 16 | 4,000 | 1,800 | 3,600 | 1,600 | 3,600 | 1,400 | 3,000 | 1,150 | 2,000 | 770 | 1,600 | 505 |
| | 18 | 3,500 | 1,700 | 3,200 | 1,550 | 3,200 | 1,400 | 2,700 | 1,150 | 1,800 | 780 | 1,400 | 505 |
| | 20 | 3,200 | 1,550 | 2,900 | 1,400 | 2,900 | 1,300 | 2,400 | 1,050 | 1,600 | 705 | 1,300 | 520 |
| | 25 | 2,500 | 1,200 | 2,300 | 1,100 | 2,300 | 1,000 | 1,900 | 835 | 1,300 | 570 | 1,000 | 400 |

切込深さ Depth of Cut

| | ap | ae |
|---|---|---|
| DC＜φ6 | 1.5D | 0.02D |
| φ6≦DC | 1.5D | 0.05D |

Max ae = 0.5mm




| | ap | ae |
|---|---|---|
| DC＜φ6 | 1.0D | 0.01D |
| φ6≦DC | 1.0D | 0.02D |

Max ae = 0.5mm

1. 機械、ホルダは剛性のある、精度の高いものをご使用下さい。
2. エアブローまたはMQL(ミストクーラント)でご使用下さい。ステンレス鋼、チタン合金、超耐熱鋼には発煙の少ないクーラントをご使用下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調整下さい。
4. 上表はエンドミルの突出し長さが工具径の3倍以下の場合の目安です。突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow or MQL (mist). For milling stainless steels, titanium alloys and heat resistant alloys, use a coolant with high smoke retardant properties.
3. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
4. These milling conditions are for an end mill where the tool overhang length is less than 3×D (mill dia.). When the tool overhang length is longer, please adjust the speed, feed and cutting depth.

形状寸法表 SPECIFICATION CHARTS FX-CR-MG-EHS▶P390
形状寸法表 SPECIFICATION CHARTS SXL-MG-EHS▶P311-40
形状寸法表 SPECIFICATION CHARTS SXL-CR-MG-EHS▶P436-7

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-CR-MG-EHS/SXL-MG-EHS/SXL-CR-MG-EHS

### 高速切削用

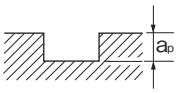
⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 高速溝切削 HIGH-SPEED SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel Carbon Steel Cast Iron SS400、S50C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼・プリハードン鋼 Stainless Steel・hardened Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 (38～45HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 3 | 10,600 | 765 | 9,600 | 690 | 8,500 | 610 | 6,400 | 385 |
| 4 | 8,400 | 875 | 7,600 | 790 | 6,800 | 705 | 5,000 | 440 |
| 5 | 7,000 | 980 | 6,400 | 895 | 5,700 | 800 | 4,100 | 490 |
| 6 | 6,100 | 950 | 5,600 | 875 | 5,000 | 780 | 3,600 | 475 |
| 8 | 4,800 | 920 | 4,400 | 845 | 4,000 | 780 | 2,800 | 450 |
| 10 | 3,800 | 920 | 3,500 | 840 | 3,200 | 780 | 2,200 | 440 |
| 12 | 3,200 | 920 | 2,900 | 840 | 2,700 | 780 | 1,900 | 450 |
| 14 | 2,700 | 910 | 2,500 | 840 | 2,300 | 780 | 1,600 | 450 |
| 16 | 2,400 | 910 | 2,200 | 845 | 2,000 | 780 | 1,400 | 450 |
| 18 | 2,100 | 910 | 1,950 | 840 | 1,800 | 780 | 1,200 | 440 |
| 20 | 1,900 | 760 | 1,750 | 710 | 1,600 | 640 | 1,100 | 440 |
| 25 | 1,500 | 600 | 1,400 | 560 | 1,300 | 520 | 900 | 360 |
| 切込深さ Depth of Cut | ap ≦ 0.2D, ap Max= 3mm | | | | | | | |




1. 機械、ホルダは剛性のある、精度の高いものをご使用下さい。
2. エアブローまたはMQL（ミストクーラント）でご使用下さい。ステンレス鋼には発煙の少ないクーラントをご使用下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調整下さい。
4. 上表はエンドミルの突出し長さが工具径の3倍以下の場合の目安です。突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。

※ 上表は4枚刃の基準条件です。3枚刃の場合は、上記送り速度の60～70%でご使用下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow or MQL (mist). For milling stainless steels, titanium alloys and heat resistant alloys, use a coolant with high smoke retardant properties.
3. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
4. These milling conditions are for an end mill where the tool overhang length is less than 3×D (mill dia.). When the tool overhang length is longer, please adjust the speed, feed and cutting depth.

※ These milling conditions are for 4-flutes type. In cace of 3-flutes type, please reduce the feed rate to 60 - 70%.

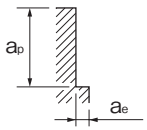
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## FX-MG-EHL/SXL-MG-EHL
### 側面切削

SIDE MILLING

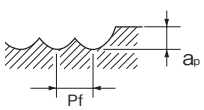
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・超耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 3,150 | 525 | 2,300 | 275 | 2,100 | 245 | 1,300 | 75 | 1,100 | 50 |
| 8 | 2,350 | 470 | 1,750 | 315 | 1,550 | 250 | 995 | 80 | 835 | 55 |
| 10 | 1,900 | 450 | 1,400 | 295 | 1,250 | 235 | 795 | 85 | 665 | 50 |
| 12 | 1,550 | 415 | 1,150 | 275 | 1,050 | 215 | 660 | 75 | 555 | 50 |
| 切込深さ Depth of Cut | ap 2.5D / ae 0.05D | |  | | | | | | ap 2.5D / ae 0.02D | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものを選定して下さい。
4. ステンレス鋼やインコネル等耐熱合金の切削には、不水溶性切削油剤を推奨します。
5. 乾式の場合には、切りくず詰まりが無いよう、エアブローにて切くずを除去して下さい。

1. Use a rigid and precise machine and holder.
2. Adjust speeds and feeds according to cutting conditions, cutting depth, and rigidity of the machine.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. For milling stainless steels and heat resistant alloy steels (e.g. INCONEL), non water-soluble fluids are recommended.
5. When dry milling, use an air blow to avoid chip packing.

## FX-MG-EBD/FX-LS-MG-EBD※/FX-SS-EBD※

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・超耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R 0.5× 1 | 32,000 | 765 | 32,000 | 765 | 31,500 | 620 | 25,000 | 400 | 22,000 | 285 | 19,000 | 210 | 14,000 | 140 |
| R 1 × 2 | 23,500 | 940 | 19,000 | 765 | 15,500 | 620 | 12,500 | 400 | 11,000 | 290 | 9,500 | 210 | 7,150 | 140 |
| R 1.5× 3 | 15,500 | 940 | 12,500 | 765 | 10,500 | 630 | 8,450 | 405 | 7,400 | 290 | 6,350 | 210 | 4,750 | 140 |
| R 2 × 4 | 11,500 | 940 | 9,500 | 765 | 7,950 | 630 | 6,350 | 445 | 5,550 | 370 | 4,750 | 270 | 3,550 | 175 |
| R 2.5× 5 | 9,500 | 1,050 | 7,600 | 855 | 6,350 | 635 | 5,050 | 445 | 4,450 | 370 | 3,800 | 285 | 2,850 | 175 |
| R 3 × 6 | 7,950 | 1,050 | 6,350 | 855 | 5,300 | 670 | 4,200 | 465 | 3,700 | 390 | 3,150 | 295 | 2,350 | 185 |
| R 4 × 8 | 5,950 | 1,300 | 4,750 | 1,050 | 3,950 | 790 | 3,150 | 555 | 2,750 | 455 | 2,350 | 325 | 1,750 | 210 |
| R 5 ×10 | 4,750 | 1,200 | 3,800 | 960 | 3,150 | 745 | 2,500 | 525 | 2,200 | 430 | 1,900 | 335 | 1,400 | 210 |
| R 6 ×12 | 3,950 | 1,100 | 3,150 | 890 | 2,650 | 700 | 2,100 | 490 | 1,850 | 430 | 1,550 | 310 | 1,150 | 195 |
| R 7 ×14 | 3,400 | 1,050 | 2,700 | 865 | 2,250 | 675 | 1,800 | 475 | 1,550 | 390 | 1,350 | 300 | 1,000 | 190 |
| R 8 ×16 | 2,950 | 1,050 | 2,350 | 840 | 1,950 | 645 | 1,550 | 475 | 1,350 | 380 | 1,150 | 270 | 895 | 185 |
| R 9 ×18 | 2,650 | 1,000 | 2,100 | 795 | 1,750 | 610 | 1,400 | 475 | 1,200 | 380 | 1,050 | 260 | 795 | 175 |
| R10 ×20 | 2,350 | 940 | 1,900 | 765 | 1,550 | 570 | 1,250 | 450 | 1,100 | 370 | 955 | 250 | 715 | 170 |
| R12.5×25 | 1,900 | 760 | 1,500 | 670 | 1,250 | 465 | 1,000 | 360 | 890 | 295 | 760 | 210 | 570 | 145 |
| R15 ×30 | 1,550 | 650 | 1,250 | 630 | 1,050 | 435 | 845 | 310 | 740 | 250 | 635 | 175 | 475 | 115 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.2D | | | |  | | | | | | ap 0.05D / Pf 0.1D | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
※ 工具突出し量が大きな場合は回転速度、送り速度を下げて下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
※ When the length of tool extension from the machine is long, reduce the speed and feed.

形状寸法表
SPECIFICATION CHARTS
FX-MG-EBD▶P340-3

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-MG-EBD

### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。

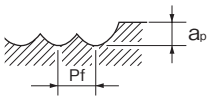
### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R 0.5× 1 | 50,000 | 2,800 | 50,000 | 2,800 | 50,000 | 2,500 | 47,500 | 2,250 | 32,000 | 1,450 | 25,000 | 1,000 |
| R 1 × 2 | 31,500 | 3,500 | 25,000 | 2,800 | 24,500 | 2,500 | 23,500 | 2,250 | 17,000 | 1,550 | 12,500 | 1,000 |
| R 1.5× 3 | 21,000 | 3,500 | 16,500 | 2,800 | 16,000 | 2,500 | 15,500 | 2,250 | 11,000 | 1,550 | 8,450 | 1,000 |
| R 2 × 4 | 18,000 | 3,700 | 15,500 | 3,400 | 15,000 | 2,750 | 13,500 | 2,450 | 11,000 | 1,900 | 7,950 | 1,100 |
| R 2.5× 5 | 15,500 | 4,000 | 15,000 | 4,050 | 14,000 | 2,900 | 11,000 | 2,300 | 10,000 | 2,100 | 7,600 | 1,200 |
| R 3 × 6 | 15,000 | 4,800 | 13,500 | 4,300 | 11,500 | 2,750 | 9,500 | 2,250 | 9,500 | 2,250 | 6,600 | 1,150 |
| R 4 × 8 | 11,500 | 3,650 | 10,000 | 3,200 | 8,950 | 2,100 | 7,150 | 1,700 | 7,150 | 1,700 | 4,950 | 890 |
| R 5 ×10 | 9,500 | 3,000 | 8,250 | 2,600 | 7,150 | 1,700 | 5,700 | 1,350 | 5,700 | 1,350 | 3,950 | 710 |
| R 6 ×12 | 7,950 | 2,500 | 6,850 | 2,150 | 5,950 | 1,400 | 4,750 | 1,100 | 4,750 | 1,100 | 3,300 | 590 |
| R 7 ×14 | 6,800 | 2,150 | 5,900 | 1,850 | 5,100 | 1,200 | 4,050 | 970 | 4,050 | 970 | 2,800 | 500 |
| R 8 ×16 | 5,950 | 1,900 | 5,150 | 1,600 | 4,450 | 1,050 | 3,550 | 850 | 3,550 | 850 | 2,450 | 440 |
| R 9 ×18 | 5,300 | 1,650 | 4,550 | 1,450 | 3,950 | 945 | 3,150 | 755 | 3,150 | 755 | 2,200 | 395 |
| R10 ×20 | 4,750 | 1,500 | 4,100 | 1,300 | 3,550 | 850 | 2,850 | 680 | 2,850 | 680 | 1,950 | 350 |
| R12.5×25 | 3,800 | 1,200 | 3,300 | 1,050 | 2,850 | 680 | 2,250 | 540 | 2,250 | 540 | 1,550 | 275 |
| R15 ×30 | 3,150 | 1,000 | 2,750 | 880 | 2,350 | 560 | 1,900 | 455 | 1,900 | 455 | 1,300 | 230 |

切込深さ Depth of Cut

| | ap | Pf |
|---|---|---|
| RE≦12.5 | 0.02D | 0.05D |
| 12.5<RE | 0.5mm | 0.05D |




| | ap | Pf |
|---|---|---|
| RE≦8 | 0.02D | 0.05D |
| 8<RE | 0.32mm | 0.05D |

1. 高速高精度のマシニングセンタを利用した場合の、軽切込の切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. エアブローをご使用下さい。切削油剤を使用される場合は、発煙性の少ないものを選定して下さい。
4. エンドミルの選定の目安として、比較的柔らかい被削材の場合では、通常のFXエンドミルを優先して使用して下さい。
硬い被削材では、FXスーパーエンドミル(FXS-EBDS)を使用して下さい。

1. The indicated speeds and feeds are for high speed light milling with high speed / high precision machining centers.
2. Because tools can cause sparks, do not use flammable fluids.
3. We recommend using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant properties.
4. In general, use FX End Mills for milling less hard materials. For extremely hard materials, use FXS End Mills (FXS-EBDS).

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## CBN-SXR

| 外径 Mill Dia. (mm) | 基準切込深さ Standard Depth of Cut | | 被削材 Work Material | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardend Steel (～50HRC) | | 調質鋼 Hardened Steel (50 ～60HRC) | | 調質鋼 Hardened Steel (60 ～68HRC) | |
| | | | ap=100% ae=100% | | ap=80% ae=80% | | ap=50% ae=50% | |
| | ap | ae | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) |
| 0.5 | 0.02 | 0.2 | 50,000 | 1,000 | 50,000 | 1,000 | 38,000 | 780 |
| 1 | 0.02 | 0.2 | 50,000 | 1,500 | 48,000 | 1,450 | 38,500 | 1,150 |
| 1.5 | 0.03 | 0.4 | 38,500 | 1,550 | 32,000 | 1,300 | 25,500 | 1,000 |
| 2 | 0.04 | 0.4 | 29,000 | 1,200 | 24,000 | 1,000 | 19,000 | 700 |
| 3 | 0.05 | 0.6 | 19,000 | 770 | 16,000 | 640 | 12,500 | 500 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミスト）でご使用下さい。
3. 機械の回転速度が上がらない場合は、できるだけ最高回転速度で使用し、送り速度を調整して下さい。
4. コーナ部等負荷が大きい加工には、回転速度、送り速度ともに下げて使用下さい。
5. エンドミル取付け時の刃先の振れは、10μm未満に抑えて下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. When using low speed machines, use the maximum speed and adjust the feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10μm after chucking.

## CBN-LN-SXR

| 外径 Mill Dia. (mm) | 基準切込深さ Standard Depth of Cut | | 被削材 Work Material | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardend Steel (～50HRC) | | 調質鋼 Hardened Steel (50 ～60HRC) | | 調質鋼 Hardened Steel (60 ～68HRC) | |
| | | | ap=100% ae=100% | | ap=60% ae=60% | | ap=40% ae=40% | |
| | ap | ae | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) |
| 0.5 | 0.02 | 0.1 | 30,000 | 600 | 30,000 | 600 | 23,000 | 470 |
| 1 | 0.02 | 0.1 | 30,000 | 900 | 30,000 | 870 | 23,000 | 690 |
| 1.5 | 0.03 | 0.2 | 23,000 | 930 | 19,000 | 780 | 15,500 | 600 |
| 2 | 0.03 | 0.2 | 17,500 | 720 | 14,500 | 600 | 11,500 | 420 |
| 3 | 0.05 | 0.3 | 11,500 | 460 | 9,600 | 380 | 7,600 | 300 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミスト）でご使用下さい。
3. 機械の回転速度が上がらない場合は、できるだけ最高回転速度で使用し、送り速度を調整して下さい。
4. コーナ部等負荷が大きい加工には、回転速度、送り速度ともに下げて使用下さい。
5. エンドミル取付け時の刃先の振れは、10μm未満に抑えて下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. When using low speed machines, use the maximum speed and adjust the feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10μm after chucking.

形状寸法表
SPECIFICATION CHARTS
FX-H-EBD▶P340-11

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-H-EBD

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

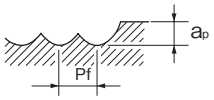
Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 仕上げ加工 FINISHING

●加工パスは等高線加工を前提としています。

●The machining path is on condition of contouring line operation.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼 (30～38HRC)・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 | | 調質鋼 (38～45HRC)・ステンレス鋼・プリハードン鋼 Hardened Steel・Stainless Steel・Prehardened Steel SUS304、SKD、NAK80、HPM50 | | 調質鋼 (45～55HRC) Hardened Steel チタン合金 Titanium Alloy | | 調質鋼 (55～60HRC) Hardened Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R 0.5 | 50,000 | 2,800 | 50,000 | 2,800 | 50,000 | 2,500 | 50,000 | 2,400 | 50,000 | 2,300 | 40,000 | 1,600 |
| R 0.75 | 50,000 | 4,200 | 50,000 | 4,200 | 47,500 | 3,600 | 42,500 | 3,050 | 38,000 | 2,650 | 26,500 | 1,600 |
| R 1 | 47,500 | 5,350 | 41,500 | 4,650 | 36,000 | 3,600 | 32,000 | 3,050 | 28,500 | 2,650 | 20,000 | 1,600 |
| R 1.5 | 31,800 | 5,350 | 27,600 | 4,650 | 23,900 | 3,600 | 21,200 | 3,050 | 19,100 | 2,650 | 13,300 | 1,600 |
| R 2 | 23,900 | 5,150 | 20,700 | 4,450 | 17,900 | 3,300 | 15,900 | 2,950 | 14,300 | 2,500 | 9,950 | 1,450 |
| R 2.5 | 19,100 | 4,950 | 16,500 | 4,300 | 14,300 | 3,000 | 12,700 | 2,650 | 11,500 | 2,400 | 7,950 | 1,250 |
| R 3 | 15,900 | 4,950 | 13,800 | 4,300 | 11,900 | 2,850 | 10,600 | 2,550 | 5,950 | 2,300 | 6,650 | 1,150 |
| R 4 | 11,900 | 3,800 | 10,300 | 3,300 | 8,950 | 2,150 | 7,950 | 1,900 | 7,150 | 1,700 | 4,950 | 895 |
| R 5 | 9,550 | 3,050 | 8,300 | 2,650 | 7,150 | 1,700 | 6,350 | 1,550 | 5,750 | 1,400 | 4,000 | 715 |
| R 6 | 7,950 | 2,550 | 6,900 | 2,200 | 5,950 | 1,450 | 5,300 | 1,250 | 4,750 | 1,150 | 3,300 | 595 |
| 切込深さ Depth of Cut | ap 0.02D / Pf 0.05D | | | | | | | | | | | |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
4. ステンレス鋼、チタン合金の加工には水溶性クーラントでご使用下さい。
5. 主軸端面からの突出し量が大きなホルダをご使用の場合は、回転速度、送り速度、切込深さを上表より下げ、調整を行って下さい。
6. シュリンクフィット超硬アーバと組み合わせて使用する場合、組み合わせ後の突出し量、剛性に合わせて、上表の回転速度、送り速度を下げてご使用下さい。
7. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

1. Use a rigid and precise machine and holder.
2. Because tools can cause sparks, do not use flammable fluids.
3. We suggest using air blow or MQL(mist).
4. Use a water-soluble coolant for working in stainless steel or titanium alloy.
5. When using a toolholder with an extended gage length; reduce the speed, feed, and depth of cut from the conditions listed above.
6. When using these tools in Shrink fit holders, reduce the speeds and feed rates indicated in the table above in accordance with the projection length & rigidity of the cutting tool / toolholder assembly.
7. If the cutting depth is small, it is possible to further increase the speed and feed.



Pro カタログ

# オーエスジー公式アプリ
# Pro カタログ

## デジタルカタログ

カタログ

最新の総合カタログや製品カタログを時間・場所問わず閲覧できます。しおりを挟んだり、メールでカタログを共有することも可能です。




### 総合カタログ

いつでもどこでもカタログを。

### 製品カタログ

最新カタログをいち早く。




## コードスキャン

コードスキャン

アプリ限定

バーコード・二次元コードに対応したスキャン機能です。工具のスペック情報や切削条件、検査成績表などの各種データを取得することができます。



※二次元コードは一部製品に限ります

## CADデータダウンロード

CADデータダウンロード

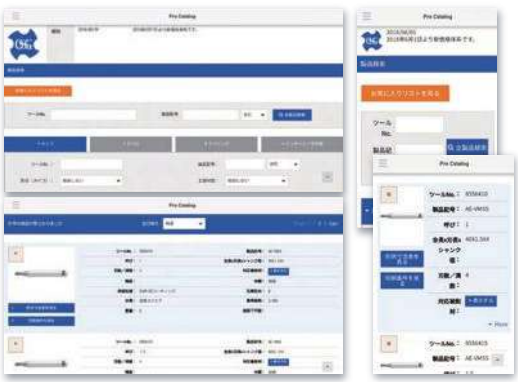
工具のDXFファイル・STEPファイルをパソコンやスマートフォンからいつでもダウンロードできます。



## 製品検索

製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



アプリの使い方・ダウンロードはこちら

**さらに、製品動画やFAQサイトなどOSG情報が満載！**

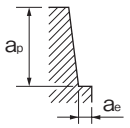
**最新情報を掲載中　今すぐダウンロード！**

形状寸法表
SPECIFICATION CHARTS
FX-MG-TPDS▶P439

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-MG-TPDS
### 側面切削 SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 17,500 | 185 | 15,500 | 155 | 15,500 | 130 | 13,000 | 90 | 12,000 | 90 | 10,500 | 40 |
| 1.5 | 11,500 | 185 | 10,500 | 155 | 10,500 | 130 | 8,900 | 90 | 8,250 | 90 | 7,000 | 40 |
| 2 | 8,900 | 190 | 7,950 | 155 | 7,950 | 130 | 6,650 | 90 | 6,200 | 90 | 5,250 | 40 |
| 2.5 | 7,100 | 190 | 6,200 | 145 | 6,200 | 125 | 5,300 | 90 | 4,950 | 90 | 4,200 | 40 |
| 3 | 5,900 | 190 | 5,150 | 145 | 5,150 | 125 | 4,450 | 90 | 4,100 | 90 | 3,500 | 40 |
| 4 | 4,450 | 190 | 3,850 | 145 | 3,850 | 125 | 3,300 | 90 | 3,100 | 85 | 2,600 | 40 |
| 5 | 3,550 | 190 | 3,100 | 145 | 3,100 | 125 | 2,650 | 90 | 2,450 | 85 | 2,100 | 40 |
| 6 | 2,950 | 190 | 2,600 | 145 | 2,600 | 125 | 2,200 | 90 | 2,050 | 85 | 1,750 | 40 |
| 8 | 2,200 | 180 | 1,950 | 145 | 1,950 | 125 | 1,650 | 90 | 1,550 | 85 | 1,300 | 40 |
| 10 | 1,750 | 175 | 1,550 | 145 | 1,550 | 120 | 1,300 | 90 | 1,200 | 85 | 1,050 | 40 |
| 切込深さ Depth of Cut | ap 2.5D / ae 0.02D | | | | | | | | | | | |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. ビビリを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

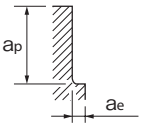
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## FXS-PKE/SXL-PKE
## 側面切削

SIDE MILLING

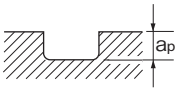
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100m/min | | 75m/min | | 65m/mim | | 50m/min | | 40m/min | | 25m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 8,900 | 890 | 6,650 | 795 | 5,900 | 470 | 3,800 | 120 | 3,400 | 80 | 2,000 | 40 |
| 4 | 6,650 | 930 | 5,000 | 900 | 4,450 | 530 | 2,850 | 135 | 2,650 | 100 | 1,550 | 50 |
| 5 | 5,300 | 950 | 4,000 | 880 | 3,550 | 480 | 2,250 | 140 | 2,150 | 110 | 1,250 | 50 |
| 6 | 5,300 | 900 | 4,000 | 800 | 3,550 | 220 | 2,200 | 175 | 2,100 | 130 | 1,250 | 50 |
| 8 | 3,950 | 835 | 3,000 | 710 | 2,650 | 445 | 1,650 | 185 | 1,600 | 140 | 955 | 55 |
| 10 | 3,150 | 760 | 2,400 | 680 | 2,100 | 310 | 1,300 | 165 | 1,300 | 135 | 760 | 55 |
| 12 | 2,650 | 730 | 2,000 | 620 | 1,750 | 285 | 1,100 | 145 | 1,000 | 125 | 635 | 45 |
| 16 | 1,700 | 680 | 1,500 | 600 | 1,300 | 310 | 840 | 170 | 800 | 135 | 477 | 55 |
| 20 | 1,350 | 540 | 1,200 | 480 | 1,050 | 310 | 670 | 170 | 640 | 135 | 382 | 55 |
| 切込深さ Depth of Cut | ap 1.2D / ae 0.2D | |  | | | | ap 1D / ae 0.1D | | | | ap 1D / ae 0.05D | |

1. この切削条件表は、エンドミルの突出し量が、(外径×3倍)を基準としたものです。
   突出し量が(外径×5倍)の場合は、上表の切込深さaeを1/3以下にし、回転速度、送り速度ともに60～70%程下げてご使用下さい。
   突出し量が(外径×6倍)の場合は、上表の切込深さaeを1/4以下にし、回転速度、送り速度ともに70～80%程下げてご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式切削の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
   When the length of tool extension is 5 times the end mill diameter, please reduce the above values for speed and feed by 60% to 70% and use 1/3 of the amount of cut.
   When the length of tool extension is 6 times the end mill diameter, please reduce the above values for speed and feed by 70% to 80% and use 1/4 of the amount of cut.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

## FXS-PKE/SXL-PKE
## 溝切削

SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80m/min | | 60m/min | | 50m/min | | 40m/min | | 30m/min | | 20m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 8,900 | 665 | 6,650 | 595 | 5,900 | 350 | 3,800 | 90 | 3,150 | 55 | 2,000 | 30 |
| 4 | 6,650 | 695 | 5,000 | 675 | 4,450 | 400 | 2,850 | 100 | 2,350 | 70 | 1,550 | 35 |
| 5 | 5,300 | 715 | 4,000 | 660 | 3,550 | 360 | 2,250 | 105 | 1,900 | 70 | 1,250 | 35 |
| 6 | 4,450 | 740 | 3,300 | 550 | 2,950 | 345 | 1,900 | 110 | 1,600 | 90 | 1,050 | 35 |
| 8 | 3,300 | 660 | 2,500 | 500 | 2,200 | 360 | 1,400 | 115 | 1,200 | 95 | 795 | 35 |
| 10 | 2,650 | 630 | 2,000 | 475 | 1,750 | 325 | 1,100 | 115 | 955 | 95 | 635 | 35 |
| 12 | 2,200 | 590 | 1,650 | 440 | 1,450 | 300 | 955 | 110 | 800 | 95 | 530 | 35 |
| 16 | 1,650 | 640 | 1,250 | 480 | 1,100 | 335 | 720 | 120 | 600 | 95 | 400 | 40 |
| 20 | 1,350 | 535 | 1,000 | 400 | 875 | 280 | 570 | 120 | 480 | 80 | 320 | 40 |
| 切込深さ Depth of Cut | ap 0.5D | |  | | | | | | ap 0.05D | | | |

1. この切削条件表は、エンドミルの突出し量が、(外径×3倍)を基準としたものです。
   突出し量が(外径×5倍)の場合は、回転速度、送り速度ともに50～60%程下げてご使用下さい。
   突出し量が(外径×6倍)の場合は、上表の切込深さを1/2以下にし、回転速度を50～60%、送り速度を70～80%程下げてご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式切削の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
   When the length of tool extension is 5 times the end mill diameter, please reduce the above values for speed and feed by 50% to 60%.
   When the length of tool extension is 6 times the end mill diameter, please reduce the above values for speed by 50% to 60%, feed by 70% to 80%, and use 1/2 of the amount of cut.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

形状寸法表 SPECIFICATION CHARTS FXS-PKE▶P391
形状寸法表 SPECIFICATION CHARTS SXL-PKE▶P436-12

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FXS-PKE/SXL-PKE

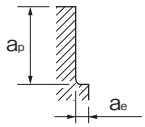
### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 高速側面切削 HIGH-SPEED SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 200m/min | | 200m/min | | 200m/min | | 150m/min | | 150m/min | | 100m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 10,600 | 2,650 | 10,600 | 2,200 | 10,600 | 1,350 | 8,000 | 1,000 | 8,000 | 800 | 5,300 | 530 |
| 8 | 8,000 | 2,650 | 8,000 | 2,200 | 8,000 | 1,350 | 6,000 | 1,000 | 6,000 | 800 | 4,000 | 530 |
| 10 | 6,400 | 2,100 | 6,400 | 1,700 | 6,400 | 1,050 | 4,800 | 800 | 4,800 | 640 | 3,200 | 420 |
| 12 | 5,300 | 2,100 | 5,300 | 1,700 | 5,300 | 1,050 | 4,000 | 800 | 4,000 | 640 | 2,650 | 420 |
| 16 | 4,000 | 2,150 | 4,000 | 1,700 | 4,000 | 1,100 | 3,000 | 805 | 3,000 | 655 | 2,000 | 420 |
| 20 | 3,200 | 2,100 | 3,200 | 1,700 | 3,200 | 1,100 | 2,400 | 805 | 2,400 | 655 | 1,600 | 420 |
| 切込深さ Depth of Cut | ap 1D / ae 0.1D | |  | | | | | | | | ap 1D / ae 0.02D | |



1. この切削条件表は、エンドミルの突出し量が、(外径×3倍) を基準としたものです。
突出し量が (外径×5倍) の場合は、上表の切込深さapを1/2以下にし、回転速度、送り速度ともに30～40%程下げてご使用下さい。
突出し量が (外径×6倍) の場合は、上表の切込深さapを1/4以下にし、回転速度、送り速度ともに40～60%程下げてご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式切削の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

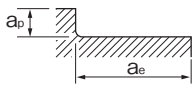
1. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
When the length of tool extension is 5 times the end mill diameter, please reduce the above values for speed and feed by 30% to 40% and use 1/2 of the amount of cut.
When the length of tool extension is 6 times the end mill diameter, please reduce the above values for speed and feed by 40% to 60% and use 1/4 of the amount of cut.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

## FXS-PKE/SXL-PKE

高速高精度のマシニングセンタを利用した場合の基準条件表です。

The conditions below are for high speed / high precision machining centers.

### 高速彫込み加工 HIGH-SPEED CONTOURING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 200m/min | | 200m/min | | 200m/min | | 150m/min | | 150m/min | | 100m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 10,600 | 1,600 | 10,600 | 1,300 | 10,600 | 1,000 | 8,000 | 1,000 | 8,000 | 500 | 5,300 | 310 |
| 8 | 8,000 | 1,600 | 8,000 | 1,300 | 8,000 | 1,000 | 6,000 | 1,000 | 6,000 | 500 | 4,000 | 310 |
| 10 | 6,400 | 1,300 | 6,400 | 1,000 | 6,400 | 800 | 4,800 | 700 | 4,800 | 400 | 3,200 | 250 |
| 12 | 5,300 | 1,300 | 5,300 | 1,000 | 5,300 | 800 | 4,000 | 700 | 4,000 | 400 | 2,650 | 250 |
| 16 | 4,000 | 1,300 | 4,000 | 1,050 | 4,000 | 795 | 3,000 | 690 | 3,000 | 405 | 2,000 | 255 |
| 20 | 3,200 | 1,050 | 3,200 | 1,050 | 3,200 | 795 | 2,400 | 580 | 2,400 | 405 | 1,600 | 255 |
| 切込深さ Depth of Cut | ap 0.1D / ae 0.3D～0.5D | |  | | | | | | ap 0.05D / ae 0.2D～0.3D | | ap 0.02D / ae 0.2D～0.3D | |



1. この切削条件表は、エンドミルの突出し量が、(外径×3倍) を基準としたものです。
突出し量が (外径×5倍) の場合は、回転速度、送り速度ともに40～50%程下げてご使用下さい。
突出し量が (外径×6倍) の場合は、上表の切込深さapを1/2以下にし、回転速度、送り速度ともに40～50%程下げてご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式切削の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

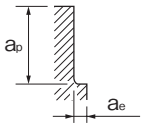
1. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
When the length of tool extension is 5 times the end mill diameter, please reduce the above values for speed and feed by 40% to 50%.
When the length of tool extension is 6 times the end mill diameter, please reduce the above values for speed and feed by 40% to 50% and use 1/2 of the amount of cut.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FXS-HS-PKE
## 側面切削

SIDE MILLING

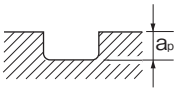
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 6 | 4,500 | 905 | 4,000 | 805 | 3,500 | 410 | 2,250 | 195 | 2,100 | 125 | 1,250 | 50 |
| 8 | 3,400 | 940 | 3,000 | 730 | 2,650 | 400 | 1,650 | 180 | 1,600 | 140 | 955 | 55 |
| 10 | 2,700 | 755 | 2,400 | 670 | 2,100 | 310 | 1,350 | 175 | 1,250 | 130 | 760 | 55 |
| 12 | 2,250 | 896 | 2,000 | 670 | 1,750 | 310 | 1,100 | 175 | 1,050 | 125 | 635 | 45 |
| 16 | 1,700 | 680 | 1,500 | 600 | 1,300 | 310 | 850 | 175 | 800 | 135 | 475 | 35 |
| 20 | 1,350 | 540 | 1,200 | 480 | 1,050 | 310 | 650 | 165 | 650 | 135 | 380 | 35 |
| 切込深さ Depth of Cut | $a_p$ 1.2D, $a_e$ 0.2D  | | | | | | $a_p$ 1D, $a_e$ 0.1D | | $a_p$ 1D, $a_e$ 0.05D | | | |

1. この切削条件表は、エンドミルの突出し量が、外径×3倍以下を基準としたものです。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式切削の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

## FXS-HS-PKE
## 溝切削

SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 6 | 4,450 | 770 | 3,350 | 580 | 2,900 | 400 | 1,900 | 120 | 1,600 | 95 | 1,050 | 40 |
| 8 | 3,350 | 710 | 2,500 | 530 | 2,200 | 350 | 1,450 | 120 | 1,200 | 95 | 800 | 40 |
| 10 | 2,700 | 650 | 2,000 | 480 | 1,750 | 350 | 1,150 | 120 | 950 | 95 | 650 | 40 |
| 12 | 2,250 | 650 | 1,650 | 475 | 1,450 | 350 | 950 | 120 | 800 | 95 | 530 | 40 |
| 16 | 1,650 | 635 | 1,250 | 480 | 1,100 | 350 | 700 | 120 | 600 | 95 | 400 | 40 |
| 20 | 1,350 | 540 | 1,000 | 400 | 900 | 300 | 550 | 115 | 500 | 85 | 300 | 40 |
| 切込深さ Depth of Cut | $a_p$ 0.5D  | | | | | | | | $a_p$ 0.05D | | | |

1. この切削条件表は、エンドミルの突出し量が、外径×3倍以下を基準としたものです。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式切削の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

形状寸法表
SPECIFICATION CHARTS
FXS-HS-PKE▶P392

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FXS-HS-PKE

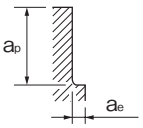
### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 高速側面切削 HIGH-SPEED SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT・SKD・NAK55・HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304・SKD (38～45HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 10,600 | 2,650 | 10,600 | 2,150 | 10,600 | 1,600 | 8,000 | 1,000 | 8,000 | 825 | 5,300 | 535 |
| 8 | 8,000 | 2,400 | 8,000 | 1,950 | 8,000 | 1,450 | 6,000 | 920 | 6,000 | 750 | 4,000 | 485 |
| 10 | 6,350 | 2,100 | 6,350 | 1,700 | 6,350 | 1,300 | 4,800 | 805 | 4,800 | 655 | 3,200 | 420 |
| 12 | 5,300 | 2,100 | 5,300 | 1,700 | 5,300 | 1,350 | 4,000 | 805 | 4,000 | 655 | 2,650 | 420 |
| 16 | 4,000 | 2,150 | 4,000 | 1,700 | 4,000 | 1,350 | 3,000 | 805 | 3,000 | 655 | 2,000 | 420 |
| 20 | 3,200 | 2,150 | 3,200 | 1,700 | 3,200 | 1,350 | 2,400 | 805 | 2,400 | 655 | 1,600 | 420 |
| 切込深さ Depth of Cut | ap 1D / ae 0.1D | |  | | | | | | ap 1D / ae 0.05D | | | |



1. この切削条件表は、エンドミルの突出し量が、外径×3倍以下を基準としたものです。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式切削の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

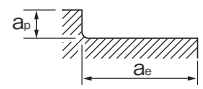
1. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

## FXS-HS-PKE

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 高速彫込み加工 HIGH-SPEED CONTOURING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT・SKD・NAK55・HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304・SKD (38～45HRC) | | 調質鋼・耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 10,600 | 1,650 | 10,600 | 1,250 | 10,600 | 1,000 | 8,000 | 900 | 8,000 | 520 | 5,300 | 310 |
| 8 | 8,000 | 1,500 | 8,000 | 1,150 | 8,000 | 920 | 6,000 | 790 | 6,000 | 460 | 4,000 | 290 |
| 10 | 6,400 | 1,300 | 6,400 | 1,050 | 6,400 | 795 | 4,800 | 690 | 4,800 | 405 | 3,200 | 260 |
| 12 | 5,300 | 1,300 | 5,300 | 1,000 | 5,300 | 790 | 4,000 | 690 | 4,000 | 405 | 2,700 | 260 |
| 16 | 4,000 | 1,280 | 4,000 | 1,050 | 4,000 | 795 | 3,000 | 690 | 3,000 | 405 | 2,000 | 255 |
| 20 | 3,200 | 1,050 | 3,200 | 1,050 | 3,200 | 795 | 2,400 | 580 | 2,400 | 405 | 1,600 | 255 |
| 切込深さ Depth of Cut | ap 0.1D / ae 0.3D～0.5D | |  | | | | | | ap 0.05D / ae 0.2D～0.3D | | ap 0.05D / ae 0.2D～0.3D | |



1. この切削条件表は、エンドミルの突出し量が、外径×3倍以下を基準としたものです。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 切削油剤は被削材に適したもので、発煙性のないものをご使用下さい。
4. 乾式切削の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。

1. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use an air blow to remove disposable chips from the milling area and to eliminate chip packing.

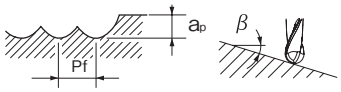
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FXS-EBT

### 荒加工 ●加工パスは等高線加工を前提としています。

●The machining path is on condition of contouring line operation. ROUGHING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳物・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400、S55C、FC SCM、SKT、SKS、SKD | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| R 1 | 33,400 | 3,700 | 25,100 | 2,800 | 23,900 | 2,200 | 19,100 | 1,650 | 15,900 | 1,200 | 12,700 | 885 | 7,950 | 555 |
| R 1.5 | 22,300 | 3,700 | 16,800 | 2,800 | 15,900 | 2,200 | 12,700 | 1,650 | 10,600 | 1,200 | 8,500 | 885 | 5,300 | 555 |
| R 2 | 16,700 | 3,550 | 12,600 | 2,650 | 11,900 | 2,100 | 9,550 | 1,550 | 7,950 | 1,200 | 6,350 | 885 | 4,000 | 535 |
| R 2.5 | 13,400 | 3,350 | 10,100 | 2,550 | 9,550 | 2,000 | 7,650 | 1,450 | 6,350 | 1,150 | 5,100 | 825 | 3,200 | 515 |
| R 3 | 11,100 | 3,050 | 8,400 | 2,300 | 7,950 | 1,950 | 6,350 | 1,400 | 5,300 | 1,050 | 4,250 | 795 | 2,650 | 495 |
| R 4 | 8,350 | 2,950 | 6,300 | 2,250 | 5,950 | 1,900 | 4,750 | 1,350 | 4,000 | 1,050 | 3,200 | 765 | 2,000 | 475 |
| R 5 | 6,700 | 2,900 | 5,050 | 2,200 | 4,750 | 1,850 | 3,800 | 1,300 | 3,200 | 995 | 2,550 | 735 | 1,600 | 460 |
| R 6 | 5,550 | 2,650 | 4,200 | 2,000 | 4,000 | 1,600 | 3,200 | 1,200 | 2,650 | 915 | 2,100 | 610 | 1,350 | 380 |
| R 8 | 4,200 | 2,000 | 3,150 | 1,500 | 3,000 | 1,300 | 2,400 | 915 | 2,000 | 715 | 1,600 | 460 | 995 | 285 |
| R10 | 3,350 | 1,600 | 2,500 | 1,200 | 2,400 | 1,050 | 1,900 | 735 | 1,600 | 570 | 1,250 | 365 | 795 | 230 |
| 切込深さ Depth of Cut |  | | | | | | ap / Pf<br>DC<φ6: 0.15D / 0.2D<br>φ6≦DC: 0.1D / 0.2D<br>apMax=1mm以下 | | ap / Pf<br>DC<φ4: 0.1D / 0.1D<br>φ4≦DC: 0.05D / 0.1D<br>apMax=0.5mm以下 | | ap / Pf<br>0.05D / 0.1D<br>apMax=0.5mm以下 | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
3. この切削条件表は、エンドミルの突出し量が、（外径×4倍以下）を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 走査線加工でご使用の場合、加工傾斜角度（$\beta$）が$15^\circ \leqq \beta$の場合は、上表の回転速度40～60%、送り速度30～50%、軸方向切込深さ30～80%程度に下げてご使用下さい。
7. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

1. Use a rigid and precise machine and holder.
2. We suggest using air bolow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50 － 80%, the feed rate to 50 － 80%, and the pick feed to 20 － 60% of the above shown cutting conditions.
6. When the machining incline angle ($\beta$) is more than $15^\circ$, please reduce the speed to 40 － 60%, the feed 30 － 50%, and the axial cutting depth to 30 － 60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

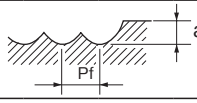
形状寸法表
SPECIFICATION CHARTS
FXS-EBT▶P336

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FXS-EBT
## 仕上げ加工 FINISHING

●加工パスは等高線加工を前提としています。

●The machining path is on condition of contouring line operation.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳物・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400、S55C、FC SCM、SKT、SKS、SKD | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| R 1 | 35,800 | 4,650 | 27,900 | 3,500 | 26,300 | 3,150 | 21,500 | 2,600 | 19,900 | 2,200 | 17,500 | 1,680 | 11,100 | 965 |
| R 1.5 | 23,900 | 4,650 | 18,600 | 3,500 | 17,500 | 3,150 | 14,300 | 2,600 | 13,300 | 2,200 | 11,700 | 1,680 | 7,450 | 965 |
| R 2 | 17,900 | 4,300 | 13,900 | 3,200 | 13,100 | 2,900 | 10,700 | 2,350 | 9,950 | 2,000 | 8,750 | 1,500 | 5,550 | 910 |
| R 2.5 | 14,300 | 4,150 | 11,100 | 3,050 | 10,500 | 2,750 | 8,600 | 2,100 | 7,950 | 1,800 | 7,000 | 1,450 | 4,450 | 855 |
| R 3 | 11,900 | 3,950 | 9,300 | 2,950 | 8,750 | 2,650 | 7,150 | 1,950 | 6,650 | 1,600 | 5,850 | 1,350 | 3,700 | 800 |
| R 4 | 8,950 | 3,450 | 6,950 | 2,650 | 6,550 | 2,250 | 5,350 | 1,650 | 4,950 | 1,450 | 4,400 | 1,200 | 2,800 | 695 |
| R 5 | 7,150 | 3,100 | 5,550 | 2,400 | 5,250 | 2,000 | 4,300 | 1,450 | 4,000 | 1,250 | 3,500 | 1,000 | 2,250 | 640 |
| R 6 | 5,950 | 2,850 | 4,650 | 2,250 | 4,400 | 1,900 | 3,600 | 1,350 | 3,300 | 1,150 | 2,900 | 840 | 1,850 | 535 |
| R 8 | 4,500 | 2,150 | 3,500 | 1,650 | 3,300 | 1,400 | 2,700 | 1,050 | 2,500 | 895 | 2,200 | 630 | 1,400 | 400 |
| R10 | 3,600 | 1,700 | 2,800 | 1,350 | 2,650 | 1,150 | 2,150 | 825 | 2,000 | 715 | 1,750 | 505 | 1,100 | 320 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | | | |



| ap | Pf |
|---|---|
| 0.02D | 0.05D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
3. この切削条件表は、エンドミルの突出し量が、(外径×4倍以下)を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工(側面加工)の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 走査線加工でご使用の場合、加工傾斜角度(β)が15°≦βの場合は、上表の回転速度40～60%、送り速度30～50%、軸方向切込深さ30～80%程度に下げてご使用下さい。
7. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

●エンドミルの選定の目安として、
・さらに仕上面の向上をご希望の場合、一般材においてはFX(WX)エンドミルシリーズ(FX-MG-EBD、FX-EBD-6、WX-EBD)をご使用下さい。また、高硬度材においては、FXSエンドミルシリーズ(FXS-EBDS)をご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50 － 80%, the feed rate to 50 － 80%, and the pick feed to 20 － 60% of the above shown cutting conditions.
6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40 － 60%, the feed 30 － 50%, and the axial cutting depth to 30 － 60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

● As a guideline in selecting end mills,
・If the better surface finish is required, please use the FX or WX End Mill series for general materials (i.e. FX-MG-EBD, FX-EBD-6, or WX-EBD), and the FXS end mill series for high hardened materials (FXS-EBDS).

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FXS-EBT

### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件です。

### HIGH-SPEED LIGHT MILLING

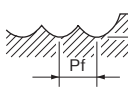
Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 高速荒加工

●加工パスは等高線加工を前提としています。

●The machining path is on condition of contouring line operation.

### HIGH-SPEED ROUGHING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳物・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400、S55C、FC SCM、SKT、SKS、SKD | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 1 | 50,000 | 5,520 | 48,500 | 5,350 | 47,500 | 4,350 | 40,000 | 3,450 | 30,000 | 2,300 | 27,000 | 1,900 | 19,000 | 1,350 |
| R 1.5 | 33,500 | 5,550 | 32,500 | 5,350 | 32,000 | 4,350 | 26,500 | 3,450 | 20,000 | 2,300 | 18,000 | 1,900 | 12,500 | 1,350 |
| R 2 | 25,000 | 5,300 | 24,500 | 5,150 | 24,000 | 4,250 | 20,000 | 3,250 | 15,000 | 2,250 | 13,500 | 1,800 | 9,550 | 1,300 |
| R 2.5 | 20,000 | 5,050 | 19,500 | 4,900 | 19,000 | 4,000 | 16,000 | 3,050 | 12,000 | 2,200 | 11,000 | 1,750 | 7,650 | 1,250 |
| R 3 | 16,500 | 4,550 | 16,000 | 4,450 | 16,000 | 3,900 | 13,500 | 2,850 | 10,000 | 2,050 | 9,000 | 1,700 | 6,350 | 1,200 |
| R 4 | 12,500 | 4,450 | 12,000 | 4,300 | 12,000 | 3,800 | 9,950 | 2,750 | 7,550 | 1,950 | 6,750 | 1,600 | 4,750 | 1,150 |
| R 5 | 10,000 | 4,350 | 9,700 | 4,200 | 9,550 | 3,650 | 7,950 | 2,650 | 6,050 | 1,900 | 5,400 | 1,550 | 3,800 | 1,100 |
| R 6 | 8,350 | 4,000 | 8,100 | 3,900 | 7,950 | 3,200 | 6,650 | 2,500 | 5,050 | 1,750 | 4,500 | 1,300 | 3,200 | 915 |
| R 8 | 6,250 | 3,000 | 6,050 | 2,900 | 5,950 | 2,600 | 4,950 | 1,900 | 3,800 | 1,350 | 3,400 | 975 | 2,480 | 685 |
| R10 | 5,000 | 2,400 | 4,850 | 2,350 | 4,750 | 2,050 | 4,000 | 1,550 | 3,000 | 1,100 | 2,700 | 780 | 1,900 | 550 |
| 切込深さ Depth of Cut |  | | ap: 0.1D, Pf: 0.2D apMax=1mm以下 | | ap: 0.08D, Pf: 0.2D apMax=0.8mm以下 | | ap: 0.05D, Pf: 0.1D apMax=0.5mm以下 | | | | | | ap: 0.03D, Pf: 0.1D apMax=0.3mm以下 | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
3. この切削条件表は、エンドミルの突出し量が、（外径×4倍以下）を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

1. Use a rigid and precise machine and holder.
2. We suggest using air bolow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50 － 80%, the feed rate to 50 － 80%, and the pick feed to 20 － 60% of the above shown cutting conditions.
6. If the cutting depth is small, it is possible to further increase the speed and feed.

形状寸法表
SPECIFICATION CHARTS
FXS-EBT▶P336

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FXS-EBT

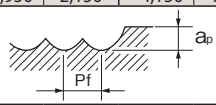
### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 高速仕上げ加工 ●加工パスは等高線加工を前提としています。 ●The machining path is on condition of contouring line operation. HIGH-SPEED FINISHING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳物・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400、S55C、FC SCM、SKT、SKS、SKD | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 1 | 50,000 | 6,480 | 50,000 | 7,000 | 49,500 | 5,900 | 41,500 | 4,950 | 33,500 | 3,700 | 30,000 | 2,900 | 20,500 | 1,800 |
| R 1.5 | 36,000 | 7,000 | 34,000 | 6,750 | 33,000 | 5,900 | 27,500 | 4,950 | 22,500 | 3,700 | 20,000 | 2,900 | 14,000 | 1,800 |
| R 2 | 27,000 | 6,500 | 25,500 | 5,850 | 24,500 | 5,450 | 20,500 | 4,550 | 16,500 | 3,350 | 15,000 | 2,600 | 10,500 | 1,700 |
| R 2.5 | 21,500 | 6,200 | 20,500 | 5,600 | 19,500 | 5,200 | 16,500 | 4,050 | 13,500 | 3,050 | 12,000 | 2,450 | 8,300 | 1,600 |
| R 3 | 18,000 | 5,950 | 17,000 | 5,400 | 16,500 | 4,950 | 14,000 | 3,750 | 11,000 | 2,750 | 10,000 | 2,300 | 6,900 | 1,500 |
| R 4 | 13,500 | 5,200 | 12,500 | 4,900 | 12,500 | 4,250 | 10,500 | 3,200 | 8,350 | 2,400 | 7,550 | 2,050 | 5,150 | 1,300 |
| R 5 | 11,000 | 4,700 | 10,000 | 4,400 | 9,850 | 3,800 | 8,300 | 2,800 | 6,700 | 2,100 | 6,050 | 1,750 | 4,150 | 1,200 |
| R 6 | 9,000 | 4,350 | 8,500 | 4,050 | 8,200 | 3,550 | 6,900 | 2,600 | 5,550 | 1,950 | 5,050 | 1,450 | 3,450 | 995 |
| R 8 | 6,750 | 3,250 | 6,350 | 3,050 | 6,150 | 2,650 | 5,150 | 1,950 | 4,200 | 1,500 | 3,800 | 1,100 | 2,600 | 745 |
| R10 | 5,400 | 2,600 | 5,100 | 2,450 | 4,950 | 2,150 | 4,150 | 1,600 | 3,350 | 1,200 | 3,000 | 870 | 2,050 | 595 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | | | |



| ap | Pf |
|---|---|
| 0.02D | 0.05D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
3. この切削条件表は、エンドミルの突出し量が、（外径×4倍以下）を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

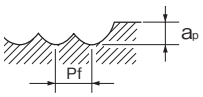
● エンドミルの選定の目安として、
・さらに仕上面の向上をご希望の場合、一般材においてはFX（WX）エンドミルシリーズ（FX-MG-EBD、FX-EBD-6、WX-EBD）をご使用下さい。また、高硬度材においては、FXSエンドミルシリーズ（FXS-EBDS）をご使用下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air bolow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50 － 80%, the feed rate to 50 － 80%, and the pick feed to 20 － 60% of the above shown cutting conditions.
6. If the cutting depth is small, it is possible to further increase the speed and feed.

● As a guideline in selecting end mills,
・If the better surface finish is required, please use the FX or WX End Mill series for general materials (i.e. FX-MG-EBD, FX-EBD-6, or WX-EBD), and the FXS end mill series for high hardened materials (FXS-EBDS).

# 超硬エンドミル切削条件基準表

## FXS-PC-EBT

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400・S55C・FC250・SCM・SKT・SKD（～30HRC） | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1（30～38HRC） | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD（38～45HRC） | | 調質鋼 Hardened Steel（45～55HRC） | | 調質鋼 Hardened Steel（55～60HRC） | | 調質鋼 Hardened Steel（60～65HRC） | | 調質鋼 Hardened Steel（65～70HRC） | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 首下長 LU (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| R1 | 20 | 28,600 | 3,200 | 22,000 | 2,400 | 21,000 | 2,200 | 17,000 | 1,800 | 15,500 | 1,500 | 14,000 | 1,150 | 8,900 | 670 |
| | 40 | 17,900 | 1,350 | 13,500 | 1,000 | 13,000 | 940 | 10,700 | 770 | 9,900 | 650 | 8,750 | 500 | 5,550 | 280 |
| R1.5 | 30 | 19,000 | 3,200 | 14,500 | 2,400 | 14,000 | 2,200 | 11,000 | 1,800 | 10,500 | 1,500 | 9,300 | 1,150 | 5,900 | 670 |
| | 50 | 14,300 | 1,850 | 11,000 | 1,350 | 10,500 | 1,250 | 8,550 | 1,000 | 7,950 | 870 | 7,000 | 670 | 4,450 | 380 |
| R2 | 25.6 | 16,100 | 3,400 | 12,500 | 2,550 | 11,500 | 2,300 | 9,650 | 1,850 | 8,950 | 1,600 | 7,850 | 1,200 | 5,000 | 720 |
| | 44.7 | 14,300 | 2,550 | 11,000 | 1,900 | 10,500 | 1,700 | 8,550 | 1,400 | 7,950 | 1,200 | 7,000 | 900 | 4,450 | 540 |
| R2.5 | 36.1 | 12,800 | 3,300 | 10,000 | 2,450 | 9,450 | 2,200 | 7,700 | 1,650 | 7,150 | 1,450 | 6,300 | 1,100 | 4,000 | 680 |
| | 60 | 10,000 | 2,050 | 8,000 | 1,500 | 7,350 | 1,350 | 6,000 | 1,050 | 5,550 | 900 | 4,900 | 710 | 3,100 | 420 |
| R3 | 27.6 | 11,900 | 4,700 | 9,000 | 3,500 | 8,750 | 3,150 | 7,100 | 2,350 | 6,600 | 1,900 | 5,800 | 1,600 | 3,700 | 960 |
| | 46.7 | 10,700 | 3,150 | 8,300 | 2,350 | 7,850 | 2,100 | 6,400 | 1,550 | 5,950 | 1,250 | 5,250 | 1,050 | 3,300 | 640 |
| | 52 | 10,700 | 2,750 | 8,300 | 2,050 | 7,850 | 1,850 | 6,400 | 1,350 | 5,950 | 1,100 | 5,250 | 940 | 3,300 | 560 |
| R4 | 48.7 | 8,950 | 2,750 | 6,900 | 2,100 | 6,550 | 1,800 | 5,350 | 1,300 | 4,950 | 1,100 | 4,350 | 940 | 2,750 | 550 |
| | 57 | 8,000 | 2,400 | 6,250 | 1,850 | 5,900 | 1,550 | 4,800 | 1,150 | 4,450 | 1,000 | 3,900 | 820 | 2,500 | 480 |
| R5 | 31.6 | 7,850 | 3,700 | 6,100 | 2,850 | 5,750 | 2,400 | 4,700 | 1,700 | 4,350 | 1,450 | 3,850 | 1,200 | 2,450 | 770 |
| | 50.7 | 7,150 | 2,750 | 5,550 | 2,150 | 5,250 | 1,800 | 4,250 | 1,300 | 3,950 | 1,100 | 3,500 | 900 | 2,200 | 570 |
| | 57 | 7,150 | 2,150 | 5,550 | 1,650 | 5,250 | 1,400 | 4,250 | 1,000 | 3,950 | 860 | 3,500 | 700 | 2,200 | 440 |
| R6 | 85 | 5,950 | 2,000 | 4,600 | 1,550 | 4,350 | 1,300 | 3,550 | 930 | 3,300 | 800 | 2,900 | 580 | 1,850 | 370 |
| 切込深さ Depth of Cut | |   ap 0.1D Pf 0.2D Max=1mm | | | | | | ap 0.05D Pf 0.1D Max=0.5mm | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
3. 突出し量が大きな場合は、びびりが発生しやすくなりますので回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

●エンドミルの選定の目安として、
・さらに仕上面の向上をご希望の場合、一般材においてはFX（WX）エンドミルシリーズ（FX-MG-EBD、FX-EBD-6、WX-EBD）をご使用下さい。また、高硬度材においては、FXSエンドミルシリーズ（FXS-EBDS）をご使用下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using air bolow or MQL (mist).
3. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50 － 80%, the feed rate to 50 － 80%, and the pick feed to 20 － 60% of the above shown cutting conditions.
6. If the cutting depth is small, it is possible to further increase the speed and feed.

● As a guideline in selecting end mills,
・If the better surface finish is required, please use the FX or WX End Mill series for general materials (i.e. FX-MG-EBD, FX-EBD-6, or WX-EBD), and the FXS end mill series for high hardened materials (FXS-EBDS).

形状寸法表
SPECIFICATION CHARTS
FXS-PC-EBT▶P369

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

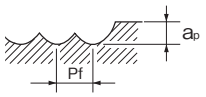
## FXS-PC-EBT

### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400・S55C・FC250・SCM・SKT・SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 | 20 | 40,000 | 4,500 | 40,000 | 4,500 | 39,000 | 4,100 | 33,000 | 3,450 | 26,500 | 2,550 | 24,000 | 2,000 | 16,500 | 1,250 |
| | 40 | 25,000 | 1,900 | 25,000 | 1,900 | 24,500 | 1,750 | 20,500 | 1,450 | 16,500 | 1,100 | 15,000 | 870 | 10,000 | 530 |
| R1.5 | 30 | 28,500 | 4,900 | 27,000 | 4,700 | 26,000 | 4,100 | 22,000 | 3,450 | 17,500 | 2,550 | 16,000 | 2,000 | 11,000 | 1,250 |
| | 50 | 21,500 | 2,800 | 20,000 | 2,700 | 19,500 | 2,350 | 16,500 | 1,950 | 13,000 | 1,450 | 12,000 | 1,150 | 8,250 | 710 |
| R2 | 25.6 | 24,000 | 5,150 | 22,500 | 4,650 | 22,000 | 4,350 | 18,500 | 3,650 | 15,000 | 2,650 | 13,500 | 2,050 | 9,300 | 1,350 |
| | 44.7 | 21,500 | 3,850 | 20,000 | 3,500 | 19,500 | 3,250 | 16,500 | 2700 | 13,000 | 2,000 | 12,000 | 1,550 | 8,250 | 1,000 |
| R2.5 | 36.1 | 19,000 | 4,950 | 18,000 | 4,450 | 17,500 | 4,150 | 14,500 | 3,250 | 12,000 | 2,400 | 10,500 | 1,950 | 7,400 | 1,250 |
| | 60 | 15,000 | 3,100 | 14,000 | 2,800 | 13,500 | 2,600 | 11,500 | 2,000 | 9,350 | 1,500 | 8,450 | 1,200 | 5,750 | 790 |
| R3 | 27.6 | 18,000 | 7,150 | 16,500 | 6,450 | 16,000 | 5,950 | 13,500 | 4,500 | 11,000 | 3,250 | 10,000 | 2,750 | 6,850 | 1,750 |
| | 46.7 | 16,000 | 4,750 | 15,000 | 4,300 | 14,500 | 3,950 | 12,000 | 3,000 | 10,000 | 2,150 | 9,050 | 1,850 | 6,200 | 1,150 |
| | 52 | 16,000 | 4,150 | 15,000 | 3,750 | 14,500 | 3,450 | 12,000 | 2,600 | 10,000 | 1,900 | 9,050 | 1,600 | 6,200 | 1,000 |
| R4 | 48.7 | 13,500 | 4,150 | 12,500 | 3,900 | 12,000 | 3,400 | 10,000 | 2,500 | 8,350 | 1,900 | 7,550 | 1,600 | 5,150 | 1,000 |
| | 57 | 12,000 | 3,600 | 11,000 | 3,400 | 11,000 | 2,950 | 9,300 | 2,200 | 7,500 | 1,650 | 6,800 | 1,400 | 4,650 | 900 |
| R5 | 31.6 | 11,500 | 5,600 | 11,000 | 5,250 | 10,500 | 4,500 | 9,100 | 3,300 | 7,350 | 2,500 | 6,650 | 2,000 | 4,550 | 1,400 |
| | 50.7 | 10,500 | 4,200 | 10,000 | 3,950 | 9,850 | 3,400 | 8,250 | 2,500 | 6,650 | 1,850 | 6,000 | 1,550 | 4,100 | 1,050 |
| | 57 | 10,500 | 3,250 | 10,000 | 3,050 | 9,850 | 2,650 | 8,250 | 1,900 | 6,650 | 1,450 | 6,000 | 1,200 | 4,100 | 800 |
| R6 | 85 | 9,000 | 3,000 | 8,450 | 2,850 | 8,200 | 2,450 | 6,850 | 1,800 | 5,550 | 1,300 | 5,000 | 1,000 | 3,400 | 690 |
| 切込深さ Depth of Cut | |   | | | | | | | | | | | | | |

| ap | Pf |
|---|---|
| 0.02D | 0.05D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL（オイルミストクーラント）でご使用下さい。
3. 突出し量が大きな場合は、びびりが発生しやすくなりますので回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

●エンドミルの選定の目安として、
・さらに仕上面の向上をご希望の場合、一般材においてはFX（WX）エンドミルシリーズ（FX-MG-EBD、FX-EBD-6、WX-EBD）をご使用下さい。また、高硬度材においては、FXSエンドミルシリーズ（FXS-EBDS）をご使用下さい。

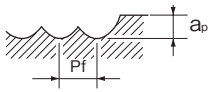
1. Use a rigid and precise machine and holder.
2. We suggest using air bolow or MQL (mist).
3. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50 — 80%, the feed rate to 50 — 80%, and the pick feed to 20 — 60% of the above shown cutting conditions.
6. If the cutting depth is small, it is possible to further increase the speed and feed.

● As a guideline in selecting end mills,
・If the better surface finish is required, please use the FX or WX End Mill series for general materials (i.e. FX-MG-EBD, FX-EBD-6, or WX-EBD), and the FXS end mill series for high hardened materials (FXS-EBDS).

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FXS-LS-EBT

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400・S55C・FC250・SCM・SKT・SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 3 | 7,150 | 1,950 | 5,550 | 1,450 | 5,250 | 1,300 | 4,250 | 980 | 3,950 | 810 | 3,500 | 670 |
| R 4 | 5,350 | 1,700 | 4,150 | 1,300 | 3,900 | 1,100 | 3,200 | 820 | 2,950 | 710 | 2,600 | 580 |
| R 5 | 4,250 | 1,500 | 3,300 | 1,200 | 3,150 | 1,000 | 2,550 | 720 | 2,350 | 620 | 2,100 | 500 |
| R 6 | 3,550 | 1,400 | 2,750 | 1,100 | 2,600 | 940 | 2,100 | 670 | 1,950 | 570 | 1,750 | 420 |
| R 8 | 2,650 | 1,050 | 2,050 | 830 | 1,950 | 700 | 1,600 | 510 | 1,450 | 440 | 1,300 | 310 |
| R10 | 2,100 | 860 | 1,650 | 660 | 1,550 | 560 | 1,250 | 410 | 1,150 | 350 | 1,050 | 250 |
| 切込深さ Depth of Cut |   ap 0.1D Pf 0.2D Max=1.5mm | | | | | | | | ap 0.05D Pf 0.1D Max=1mm | | | |

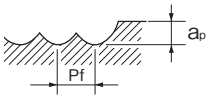
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油は被削材に適したもので、発煙性の少ないものを選定して下さい。
3. この切削条件表は、エンドミルの突出し量が、(外径×10倍以下)を基準としたものです。突出し量が大きな場合は、びびりが発生しやすくなりますので回転速度、送り速度、切込深さを調整下さい。
4. 上表は、等高線加工(側面加工)の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
5. 等高線加工でコーナ部の曲率半径が外径の1.5倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
6. 突出し量が外径×10倍以下の場合や切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

●エンドミルの選定の目安として、
・さらに仕上面の向上をご希望の場合、一般材においてはFX(WX)エンドミルシリーズ(FX-MG-EBD、FX-EBD-6、WX-EBD)をご使用下さい。また、高硬度材においては、FXSエンドミルシリーズ(FXS-EBDS)をご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. These milling conditions are for an end mill where the tool extension length is 10 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50 － 80%, the feed rate to 50 － 80%, and the pick feed to 20 － 60% of the above shown cutting conditions.
6. If the length of the tool extention is less than 10 times the diameter of the end mill and the cutting depth is small, it is possible to further increase the speed and feed.

● As a guideline in selecting end mills,
・If the better surface finish is required, please use the FX or WX End Mill series for general materials (i.e. FX-MG-EBD, FX-EBD-6, or WX-EBD), and the FXS end mill series for high hardened materials (FXS-EBDS).

## FXS-EQD

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm2) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 0.5 | 32,000 | 860 | 32,000 | 860 | 32,000 | 860 | 32,000 | 860 | 32,000 | 860 | 32,000 | 765 |
| R 1 | 31,500 | 2,250 | 24,000 | 1,350 | 24,000 | 1,350 | 24,000 | 1,350 | 24,000 | 1,350 | 22,000 | 1,200 |
| R 2 | 17,500 | 2,500 | 15,500 | 1,800 | 14,000 | 1,550 | 13,500 | 1,450 | 12,500 | 1,350 | 11,000 | 1,150 |
| R 3 | 11,500 | 2,150 | 10,500 | 1,850 | 9,500 | 1,700 | 9,000 | 1,600 | 8,450 | 1,500 | 7,400 | 1,300 |
| R 4 | 8,750 | 1,800 | 7,950 | 1,400 | 7,150 | 1,250 | 6,850 | 1,200 | 6,350 | 1,100 | 5,550 | 995 |
| R 5 | 7,000 | 1,500 | 6,350 | 1,100 | 5,700 | 1,000 | 5,500 | 980 | 5,050 | 905 | 4,450 | 800 |
| R 6 | 6,650 | 1,170 | 5,950 | 1,050 | 4,750 | 840 | 4,550 | 800 | 4,200 | 745 | 3,800 | 680 |
| 切込深さ Depth of Cut | ap 0.05D Pf 0.1D | | | |   | | | | ap 0.02D Pf 0.1D | | | |

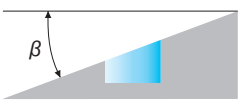
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.

形状寸法表 SPECIFICATION CHARTS FX-ZDS▶P446
形状寸法表 SPECIFICATION CHARTS FX-LS-ZDS▶P450
形状寸法表 SPECIFICATION CHARTS FX-ZDN▶P452
形状寸法表 SPECIFICATION CHARTS FX-HO-ZDN▶P449
形状寸法表 SPECIFICATION CHARTS SXL-CR-ZDS▶P458-7

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-ZDS/FX-LS-ZDS/FX-ZDN/FX-HO-ZDN/SXL-CR-ZDS

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKT・SKS・SKD (～30HRC) | | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel(Free-Cutting) SKT・SKD・NAK55・HPM1 (30～40HRC) | | | 調質鋼・ステンレス鋼 Hardened Steel・Stainless Steel SKD・SUS304 (40～45HRC) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 60～80m/min | | | 40～63m/min | | | 30～50m/min | | | 20～40m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) |
| 0.5 | 20,000 | 150 | 0.004～0.01 | 20,000 | 150 | 0.004～0.01 | — | — | — | — | — | — |
| 1 | 19,000 | 290 | 0.012～0.018 | 19,000 | 285 | 0.012～0.018 | 15,600 | 230 | 0.012～0.018 | — | — | — |
| 2 | 11,000 | 330 | 0.024～0.036 | 9,500 | 285 | 0.024～0.036 | 7,900 | 235 | 0.024～0.036 | — | — | — |
| 3 | 7,950 | 360 | 0.035～0.055 | 6,550 | 295 | 0.035～0.055 | 5,300 | 240 | 0.035～0.055 | 4,250 | 155 | 0.028～0.044 |
| 4 | 5,950 | 360 | 0.045～0.075 | 4,900 | 295 | 0.045～0.075 | 4,000 | 240 | 0.045～0.075 | 3,200 | 155 | 0.036～0.06 |
| 5 | 4,800 | 360 | 0.055～0.095 | 3,900 | 295 | 0.055～0.095 | 3,200 | 240 | 0.055～0.095 | 2,550 | 155 | 0.044～0.076 |
| 6 | 3,950 | 360 | 0.07 ～0.11 | 3,250 | 295 | 0.07 ～0.11 | 2,600 | 240 | 0.07 ～0.11 | 2,100 | 155 | 0.055～0.09 |
| 8 | 3,000 | 360 | 0.09 ～0.14 | 2,450 | 295 | 0.09 ～0.14 | 2,000 | 240 | 0.09 ～0.14 | 1,600 | 155 | 0.07 ～0.11 |
| 10 | 2,350 | 360 | 0.12 ～0.18 | 1,950 | 295 | 0.12 ～0.18 | 1,600 | 240 | 0.12 ～0.18 | 1,250 | 155 | 0.09 ～0.15 |
| 12 | 1,950 | 360 | 0.15 ～0.21 | 1,600 | 295 | 0.15 ～0.21 | 1,300 | 240 | 0.15 ～0.21 | 1,050 | 155 | 0.12 ～0.18 |
| 14 | 1,700 | 360 | 0.17 ～0.24 | 1,400 | 295 | 0.17 ～0.24 | 1,150 | 240 | 0.17 ～0.24 | 910 | 155 | 0.13 ～0.2 |
| 16 | 1,500 | 360 | 0.2 ～0.27 | 1,200 | 295 | 0.2 ～0.27 | 990 | 240 | 0.2 ～0.27 | 795 | 155 | 0.15 ～0.23 |
| 18 | 1,300 | 360 | 0.21 ～0.3 | 1,100 | 295 | 0.21 ～0.3 | 880 | 240 | 0.21 ～0.3 | 700 | 155 | 0.16 ～0.25 |
| 20 | 1,200 | 360 | 0.24 ～0.34 | 985 | 295 | 0.24 ～0.34 | 795 | 240 | 0.24 ～0.34 | 635 | 155 | 0.19 ～0.28 |
| 切込深さ Depth of Cut |   H=1D以下 H≦1D 下穴無し Without pilot hole   | | | | | | | | | | | |

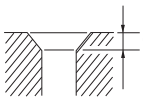
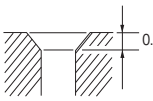
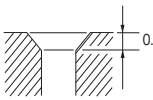
注) FX-LS-ZDS、FX-ZDNをご使用の場合は、上表の回転速度、送り速度を70%～90%として下さい。
When using FX-LS-ZDS or FX-ZDN, please decrease the RPM and feed rate to 70 - 90% of the figures in the above table.

1 .上表は、ワーク上面が平坦でフライス前加工がしてあることを前提としたものです。
2 .上表は、穴深さが１D以下の場合のものです。
3 . 2Dを超す加工深さの場合は、ステップ加工を推奨します。
4 .機械、ホルダは剛性のある精度の高いものをご使用下さい。
5 .加工物の形状や保持方法の状況によって切削条件を調整して下さい。
6 .エンドミル取り付け時の刃先の振れは、10μm以下に抑えて下さい。
7 .切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
8 .工具径φ３未満を被削材【合金鋼・工具鋼】、【調質鋼・プリハードン鋼（快削材）】でご使用の場合は、水溶性切削油剤の使用環境を推奨します。
水溶性環境でのご使用の際は、上表の回転速度、送り速度を60%～80%として下さい。
9 .乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。
10.工具径φ１未満は、斜面へのご使用は推奨しません。
11.斜面部への加工の場合は、加工面傾斜角度(β)により、回転速度、送り速度を調整下さい。
加工面傾斜角度（β）が30°以下の斜面への加工では、上表の送り速度40～60%を目安にご使用下さい。
加工面傾斜角度（β）が30°を超える加工では、上表の回転速度60～80%、送り速度20～40%を目安にご使用下さい。
12.下穴がある場合、切りくずが分断されませんのでステップ加工を行って下さい。
13.加工穴の位置決め精度を必要とする場合は、加工精度に合わせ上記回転速度、送り速度を調整下さい。
14.マグネシウム合金切削において、切削油剤を使用する場合は、切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理に注意下さい。発火の恐れがあります。

1. This machining condition table applies to milling workpieces that have been flattened at the top through the removal of the forged surface (on a milling machine).
2. These machining conditions apply to hole depths of 1D or less. (D=outer diameter)
3. For hole depth of 2D or more, step milling is recommended.
4. Use a rigid and precise machine and holder.
5. Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
6. When chucking an end mill, keep the runout at the cutting edge below 10μm.
7. Please use a suitable fluid with high smoke retardant properties.
8. Water-soluble coolant is recommended when milling alloy steels, tool steels and hardened steels (free cutting steels) if the tool diameter is less than 3mm.
9. During Dry (no fluid) milling, please use air blow to remove cutting chips from the milling area and to eliminate chip packing.
10. Incline milling is not recommended if the tool diameter is less than 1 mm.
11. When machining an inclined plane, adjust the rotational speed and the feed rate in accordance with the angle of the incline (β).
When the machining incline angle (β) is less than 30°, please reduce the feed to 40～60%.
When the machining incline angle (β) is over 30°, please reduce the speed to 60～80% , the feed to 20～40%.
12. To avoid chip packing, step milling is recommended with pilot holes.
13. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed rate as indicated above (in accordance with the machining precision requirement).
14. When machining magnesium alloy materials, please use the coolant oil recommended by the coolant oil manufacturer. Please also properly dispose the cutting chips to prevent fire hazards.

## FX-SCC
## 穴面取り（突込み加工）

COUNTER SINKING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | | アルミニウム合金 Aluminum Alloy | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70～100m/min | | | 35～65m/min | | | 20～40m/min | | | 20～50m/min | | | 100～180m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) |
| 3 | 9,000 | 900 | 0.04～0.16 | 5,300 | 480 | 0.04～0.14 | 3,200 | 290 | 0.04～0.14 | 3,700 | 330 | 0.04～0.14 | 15,000 | 2,750 | 0.1 ～0.27 |
| 4 | 6,750 | 840 | 0.05～0.2 | 4,000 | 460 | 0.05～0.18 | 2,400 | 280 | 0.05～0.18 | 2,800 | 320 | 0.05～0.18 | 11,000 | 2,400 | 0.12～0.31 |
| 6 | 4,500 | 680 | 0.06～0.24 | 2,650 | 370 | 0.06～0.22 | 1,600 | 220 | 0.06～0.22 | 1,850 | 260 | 0.06～0.22 | 7,450 | 1,850 | 0.14～0.35 |
| 8 | 3,400 | 650 | 0.08～0.3 | 2,000 | 350 | 0.08～0.27 | 1,200 | 210 | 0.08～0.27 | 1,400 | 250 | 0.08～0.27 | 5,550 | 1,650 | 0.18～0.41 |
| 10 | 2,700 | 620 | 0.1 ～0.36 | 1,600 | 340 | 0.1 ～0.33 | 950 | 200 | 0.1 ～0.33 | 1,100 | 240 | 0.1 ～0.33 | 4,450 | 1,550 | 0.22～0.47 |
| 12 | 2,250 | 610 | 0.12～0.42 | 1,350 | 340 | 0.12～0.38 | 800 | 200 | 0.12～0.38 | 950 | 240 | 0.12～0.38 | 3,700 | 1,450 | 0.25～0.53 |
| 切込深さ Depth of Cut |  0.2D | | | | | |  0.1D | | | | | |  0.3D | | |

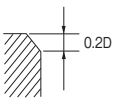
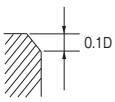
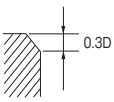
＊Dは呼びの寸法　D=Mill Dia.

1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量apを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30～40%程度下げてご使用下さい。
3. 切削時に振動やびびり音が発生した場合は、回転数を下げてから送りを調整して下さい。
4. バリが発生する場合は、送り速度を下げて下さい。角面取り（側面切削）で送りを下げてもバリの発生が改善されない場合は、切込みを数回に分けて対応下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30～40 % and use 1/2 of amount of cut ap (maximum 0.5mm).
3. Please reduce the speed and adjust the feed if vibration and chattering occur while machining.
4. Please reduce the feed if burr occurs. If burr still occurs even reduce the feed while side milling, please reduce the depth of cut.

## FX-SCC
## 角面取り（側面切削）

CHAMFERING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | | アルミニウム合金 Aluminum Alloy | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70～100m/min | | | 35～65m/min | | | 20～40m/min | | | 20～50m/min | | | 100～180m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) |
| 3 | 9,000 | 380 | 0.021 | 5,300 | 210 | 0.02 | 3,200 | 130 | 0.02 | 3,700 | 130 | 0.018 | 15,000 | 650 | 0.022 |
| 4 | 6,750 | 410 | 0.03 | 4,000 | 210 | 0.026 | 2,400 | 120 | 0.026 | 2,800 | 150 | 0.027 | 11,000 | 710 | 0.032 |
| 6 | 4,500 | 540 | 0.06 | 2,650 | 230 | 0.043 | 1,600 | 140 | 0.043 | 1,850 | 170 | 0.045 | 7,450 | 940 | 0.063 |
| 8 | 3,400 | 510 | 0.075 | 2,000 | 250 | 0.062 | 1,200 | 150 | 0.062 | 1,400 | 170 | 0.062 | 5,550 | 890 | 0.080 |
| 10 | 2,700 | 490 | 0.09 | 1,600 | 220 | 0.068 | 950 | 130 | 0.068 | 1,100 | 160 | 0.071 | 4,450 | 890 | 0.1 |
| 12 | 2,250 | 450 | 0.1 | 1,350 | 210 | 0.077 | 800 | 120 | 0.077 | 950 | 150 | 0.08 | 3,700 | 890 | 0.12 |
| 切込深さ Depth of Cut |  0.2D | | | | | |  0.1D | | | | | |  0.3D | | |

＊Dは呼びの寸法　D=Mill Dia.

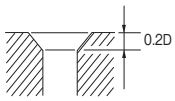
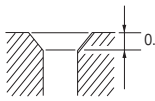
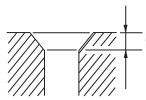
1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量apを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30～40%程度下げてご使用下さい。
3. 切削時に振動やびびり音が発生した場合は、回転数を下げてから送りを調整して下さい。
4. バリが発生する場合は、送り速度を下げて下さい。角面取り（側面切削）で送りを下げてもバリの発生が改善されない場合は、切込みを数回に分けて対応下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30～40 % and use 1/2 of amount of cut ap (maximum 0.5mm).
3. Please reduce the speed and adjust the feed if vibration and chattering occur while machining.
4. Please reduce the feed if burr occurs. If burr still occurs even reduce the feed while side milling, please reduce the depth of cut.

形状寸法表
SPECIFICATION CHARTS
FX-LS-SCC▶P464

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-LS-SCC
## 穴面取り（突込み加工） COUNTER SINKING

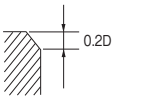
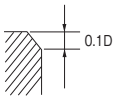
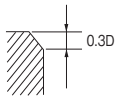
| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | | アルミニウム合金 Aluminum Alloy | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70～100m/min | | | 35～65m/min | | | 20～40m/min | | | 20～50m/min | | | 100～180m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) |
| 3 | 9,000 | 900 | 0.04～0.16 | 5,300 | 480 | 0.04～0.14 | 3,200 | 290 | 0.04～0.14 | 3,700 | 330 | 0.04～0.14 | 15,000 | 2,750 | 0.1 ～0.27 |
| 4 | 6,750 | 840 | 0.05～0.2 | 4,000 | 460 | 0.05～0.18 | 2,400 | 280 | 0.05～0.18 | 2,800 | 320 | 0.05～0.18 | 11,000 | 2,400 | 0.12～0.31 |
| 6 | 4,500 | 680 | 0.06～0.24 | 2,650 | 370 | 0.06～0.22 | 1,600 | 220 | 0.06～0.22 | 1,850 | 260 | 0.06～0.22 | 7,450 | 1,850 | 0.14～0.35 |
| 8 | 3,400 | 650 | 0.08～0.3 | 2,000 | 350 | 0.08～0.27 | 1,200 | 210 | 0.08～0.27 | 1,400 | 250 | 0.08～0.27 | 5,550 | 1,650 | 0.18～0.41 |
| 10 | 2,700 | 620 | 0.1 ～0.36 | 1,600 | 340 | 0.1 ～0.33 | 950 | 200 | 0.1 ～0.33 | 1,100 | 240 | 0.1 ～0.33 | 4,450 | 1,550 | 0.22～0.47 |
| 12 | 2,250 | 610 | 0.12～0.42 | 1,350 | 340 | 0.12～0.38 | 800 | 200 | 0.12～0.38 | 950 | 240 | 0.12～0.38 | 3,700 | 1,450 | 0.25～0.53 |
| 切込深さ Depth of Cut |  | | |  | | |  | | | | | | | | |

＊Dは呼びの寸法 D=Mill Dia.

1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量apを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30～40%程度下げてご使用下さい。
3. 切削時に振動やびびり音が発生した場合は、回転数を下げてから送りを調整して下さい。
4. バリが発生する場合は、送り速度を下げて下さい。角面取り（側面切削）で送りを下げてもバリの発生が改善されない場合は、切込みを数回に分けて対応下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30～40 % and use 1/2 of amount of cut ap (maximum 0.5mm).
3. Please reduce the speed and adjust the feed if vibration and chattering occur while machining.
4. Please reduce the feed if burr occurs. If burr still occurs even reduce the feed while side milling, please reduce the depth of cut.

## FX-LS-SCC
## 角面取り（側面切削） CHAMFERING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | | アルミニウム合金 Aluminum Alloy | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70～100m/min | | | 35～65m/min | | | 20～40m/min | | | 20～50m/min | | | 100～180m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) |
| 3 | 9,000 | 380 | 0.021 | 5,300 | 210 | 0.02 | 3,200 | 130 | 0.02 | 3,700 | 130 | 0.018 | 15,000 | 650 | 0.022 |
| 4 | 6,750 | 410 | 0.03 | 4,000 | 210 | 0.026 | 2,400 | 120 | 0.026 | 2,800 | 150 | 0.027 | 11,000 | 710 | 0.032 |
| 6 | 4,500 | 540 | 0.06 | 2,650 | 230 | 0.043 | 1,600 | 140 | 0.043 | 1,850 | 170 | 0.045 | 7,450 | 940 | 0.063 |
| 8 | 3,400 | 510 | 0.075 | 2,000 | 250 | 0.062 | 1,200 | 150 | 0.062 | 1,400 | 170 | 0.062 | 5,550 | 890 | 0.080 |
| 10 | 2,700 | 490 | 0.09 | 1,600 | 220 | 0.068 | 950 | 130 | 0.068 | 1,100 | 160 | 0.071 | 4,450 | 890 | 0.1 |
| 12 | 2,250 | 450 | 0.1 | 1,350 | 210 | 0.077 | 800 | 120 | 0.077 | 950 | 150 | 0.08 | 3,700 | 890 | 0.12 |
| 切込深さ Depth of Cut |  | | |  | | |  | | | | | | | | |

＊Dは呼びの寸法 D=Mill Dia.

1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量apを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30～40%程度下げてご使用下さい。
3. 切削時に振動やびびり音が発生した場合は、回転数を下げてから送りを調整して下さい。
4. バリが発生する場合は、送り速度を下げて下さい。角面取り（側面切削）で送りを下げてもバリの発生が改善されない場合は、切込みを数回に分けて対応下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30～40 % and use 1/2 of amount of cut ap (maximum 0.5mm).
3. Please reduce the speed and adjust the feed if vibration and chattering occur while machining.
4. Please reduce the feed if burr occurs. If burr still occurs even reduce the feed while side milling, please reduce the depth of cut.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FX-MG-EMSS/FX-MG-EMS
### 側面切削

SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・超耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 2 | 15,500 | 370 | 13,000 | 310 | 11,000 | 280 | 7,000 | 110 | 6,350 | 100 | 3,950 | 60 | 2,750 | 40 |
| 3 | 10,500 | 595 | 8,900 | 505 | 7,400 | 355 | 5,300 | 125 | 4,750 | 110 | 2,750 | 60 | 2,000 | 45 |
| 4 | 7,950 | 635 | 6,650 | 530 | 5,550 | 370 | 4,250 | 135 | 3,700 | 115 | 2,200 | 70 | 1,550 | 45 |
| 5 | 6,350 | 740 | 5,300 | 620 | 4,450 | 425 | 3,550 | 140 | 3,150 | 125 | 1,900 | 75 | 1,250 | 40 |
| 6 | 5,300 | 735 | 4,450 | 615 | 3,700 | 425 | 2,950 | 145 | 2,650 | 130 | 1,550 | 70 | 1,050 | 40 |
| 8 | 3,950 | 710 | 3,300 | 590 | 2,750 | 420 | 2,200 | 145 | 1,950 | 130 | 1,150 | 65 | 795 | 35 |
| 10 | 3,150 | 710 | 2,650 | 590 | 2,200 | 420 | 1,750 | 145 | 1,550 | 130 | 955 | 65 | 635 | 35 |
| 12 | 2,650 | 710 | 2,200 | 590 | 1,850 | 420 | 1,450 | 145 | 1,300 | 130 | 795 | 60 | 530 | 30 |
| 14 | 2,250 | 680 | 1,900 | 575 | 1,550 | 415 | 1,250 | 145 | 1,100 | 125 | 680 | 50 | 455 | 25 |
| 16 | 1,950 | 655 | 1,650 | 550 | 1,350 | 415 | 1,100 | 130 | 995 | 115 | 595 | 45 | 395 | 20 |
| 18 | 1,750 | 655 | 1,450 | 540 | 1,200 | 405 | 990 | 115 | 880 | 105 | 530 | 40 | 350 | 20 |
| 20 | 1,550 | 620 | 1,300 | 520 | 1,100 | 370 | 890 | 105 | 795 | 95 | 475 | 35 | 315 | 19 |
| 22 | 1,400 | 560 | 1,200 | 480 | 1,000 | 340 | 810 | 95 | 720 | 85 | 430 | 30 | 285 | 17 |
| 24 | 1,300 | 520 | 1,100 | 440 | 925 | 315 | 740 | 85 | 660 | 75 | 395 | 30 | 265 | 16 |
| 25 | 1,250 | 500 | 1,050 | 420 | 890 | 300 | 710 | 85 | 635 | 75 | 380 | 30 | 255 | 15 |
| 30 | 1,050 | 420 | 890 | 355 | 740 | 250 | 590 | 70 | 530 | 60 | 315 | 25 | 210 | 13 |

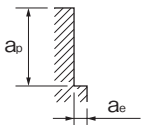
切込深さ Depth of Cut

FX-MG-EMS

| | ap | ae |
|---|---|---|
| DC＜φ3 | 1.5D | 0.05D |
| φ3≦DC | 1.5D | 0.1D |

FX-MG-EMSS

| ap | ae |
|---|---|
| 1.2D | 0.1D |




| ap | ae |
|---|---|
| 1D | 0.02D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
4. FX-MG-EDSS、FX-MG-EDS、FX-CR-MG-EDSの場合は、上記送り速度を半分に下げてご使用下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. When FX-MG-EDSS, FX-MG-EDS and FX-CR-MG-EDS are used, please reduce the feed rate to half of the above.

形状寸法表 SPECIFICATION CHARTS FX-MG-EMSS▶P311-27
形状寸法表 SPECIFICATION CHARTS FX-MG-EMS▶P311-26

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-MG-EMSS/FX-MG-EMS

### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。

### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 6 | 21,000 | 2,450 | 18,500 | 2,150 | 13,000 | 1,500 | 7,950 | 795 | 4,200 | 420 |
| 8 | 15,500 | 2,450 | 13,500 | 2,100 | 9,900 | 1,450 | 5,950 | 795 | 3,150 | 425 |
| 10 | 12,500 | 2,500 | 11,000 | 2,100 | 7,950 | 1,450 | 4,750 | 800 | 2,500 | 420 |
| 12 | 10,500 | 2,450 | 9,250 | 2,100 | 6,600 | 1,450 | 3,950 | 790 | 2,100 | 410 |
| 14 | 9,050 | 2,350 | 7,950 | 2,000 | 5,650 | 1,350 | 3,400 | 740 | 1,800 | 390 |
| 16 | 7,950 | 2,250 | 6,950 | 1,950 | 4,950 | 1,350 | 2,950 | 715 | 1,550 | 375 |
| 18 | 7,050 | 2,250 | 6,150 | 1,900 | 4,400 | 1,300 | 2,650 | 705 | 1,400 | 375 |
| 20 | 6,350 | 2,100 | 5,550 | 1,850 | 3,950 | 1,300 | 2,350 | 665 | 1,250 | 355 |
| 22 | 5,750 | 1,950 | 5,050 | 1,700 | 3,600 | 1,200 | 2,150 | 635 | 1,150 | 325 |
| 24 | 5,300 | 1,800 | 4,600 | 1,550 | 3,300 | 1,100 | 1,950 | 575 | 1,050 | 295 |
| 25 | 5,050 | 1,700 | 4,450 | 1,500 | 3,150 | 1,050 | 1,900 | 560 | 1,000 | 280 |
| 30 | 4,200 | 1,400 | 3,700 | 1,250 | 2,650 | 890 | 1,550 | 455 | 845 | 240 |

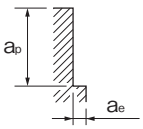
切込深さ Depth of Cut

FX-MG-EMS

| | ap | ae |
|---|---|---|
| DC≦φ8 | 1.5D | 0.01D |
| φ8<DC≦φ16 | 1.5D | 0.02D |
| φ16<DC | 1.5D | 0.05D |

FX-MG-EMSS

| | ap | ae |
|---|---|---|
| DC≦φ8 | 1.2D | 0.01D |
| φ8<DC | 1.2D | 0.02D |




FX-MG-EMS

| | ap | ae |
|---|---|---|
| DC≦φ8 | 1D | 0.01D |
| φ8<DC | 1D | 0.02D |

FX-MG-EMSS

| | ap | ae |
|---|---|---|
| DC≦φ8 | 1D | 0.01D |
| φ8<DC | 1D | 0.02D |

1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. エアブローをご使用下さい。切削油剤を使用される場合は、発煙性の少ないものを選定して下さい。
4. エンドミルの選定の目安として、比較的柔らかい被削材の場合では、通常のFXエンドミルを優先して使用して下さい。
硬い被削材では、FXスーパーエンドミル(FXS-EMS)を使用して下さい。

1. The indicated speeds and feeds are for high speed light milling with high speed / high precision machining centers.
2. Tools can cause sparks. Do not use flammable fluids.
3. We recommend using an air blow. When using cutting fluids, use a high-quality fluid with high smoke retardant properties.
4. In general, use FX End Mills for milling less hard materials. For harder materials, use FXS End Mills (FXS-EMS).

CUTTING CONDITIONS FOR CARBIDE END MILLS

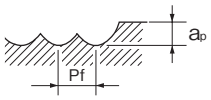
# 超硬エンドミル切削条件基準表

## FX-MG-EBD-3

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.2×0.4 | 32,000 | 460 | 32,000 | 460 | 32,000 | 410 | 32,000 | 330 | 32,000 | 205 | 24,500 | 135 | 24,500 | 115 |
| R0.3×0.6 | 32,000 | 535 | 32,000 | 535 | 31,500 | 490 | 32,000 | 420 | 32,000 | 265 | 24,500 | 175 | 23,500 | 150 |
| R0.4×0.8 | 32,000 | 610 | 32,000 | 610 | 31,500 | 550 | 32,000 | 460 | 27,500 | 285 | 23,500 | 210 | 17,500 | 140 |
| R0.5×1 | 32,000 | 765 | 32,000 | 765 | 31,500 | 630 | 25,000 | 400 | 22,000 | 285 | 19,000 | 210 | 14,000 | 140 |
| R0.6×1.2 | 32,000 | 765 | 31,500 | 755 | 26,500 | 635 | 21,000 | 400 | 18,500 | 285 | 15,500 | 210 | 11,500 | 140 |
| R0.7×1.4 | 32,000 | 895 | 27,000 | 755 | 22,500 | 630 | 18,000 | 400 | 15,500 | 285 | 13,500 | 210 | 10,000 | 140 |
| R0.8×1.6 | 29,500 | 940 | 23,500 | 755 | 19,500 | 630 | 15,500 | 400 | 13,500 | 285 | 11,500 | 210 | 8,950 | 140 |
| R0.9×1.8 | 26,500 | 950 | 21,000 | 755 | 17,500 | 630 | 14,000 | 400 | 12,000 | 285 | 10,500 | 210 | 7,950 | 140 |
| R1 ×2 | 23,500 | 945 | 19,000 | 755 | 15,500 | 620 | 12,500 | 400 | 11,000 | 285 | 9,500 | 210 | 7,150 | 140 |
| R1.1×2.2 | 21,500 | 945 | 17,000 | 755 | 14,000 | 620 | 11,500 | 400 | 10,000 | 285 | 8,650 | 210 | 6,500 | 140 |
| R1.2×2.4 | 19,500 | 935 | 15,500 | 755 | 13,000 | 620 | 10,500 | 400 | 9,250 | 285 | 7,950 | 210 | 5,950 | 140 |
| R1.3×2.6 | 18,000 | 935 | 14,500 | 755 | 12,000 | 620 | 9,750 | 400 | 8,550 | 285 | 7,300 | 210 | 5,500 | 140 |
| R1.4×2.8 | 17,000 | 935 | 13,500 | 755 | 11,000 | 620 | 9,050 | 400 | 7,950 | 285 | 6,800 | 210 | 5,100 | 140 |
| R1.5×3 | 15,500 | 930 | 12,500 | 750 | 10,500 | 620 | 8,450 | 400 | 7,400 | 280 | 6,350 | 210 | 4,750 | 140 |

切込深さ Depth of Cut

| | ap | Pf |
|---|---|---|
| RE＜0.5 | 0.05D | 0.2D |
| 0.5≦RE | 0.1D | 0.2D |




| ap | Pf |
|---|---|
| 0.05D | 0.1D |

1. 機械の回転速度が上がらない場合は、できるだけ最高回転速度で使用し、送り速度を調整して下さい。
2. エンドミル取り付け時の刃先の振れは、10μm未満に抑えて下さい。
3. 切削油剤をご使用下さい。

1. When using low speed machines, use the maximum speed and adjust the feed rate.
2. The run out of the end mill should be within 10μm after chucking.
3. Use cutting fluids.

形状寸法表
SPECIFICATION CHARTS
FX-HS-EBDS▶P340-10

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

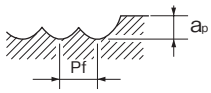
## FX-HS-EBDS

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 荒加工 ●加工パスは等高線加工を前提としています。

●The machining path is on condition of contouring line operation. ROUGHING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳物・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400、S55C、FC SCM、SKT、SKS、SKD | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 0.5 | 50,000 | 2,300 | 50,000 | 2,300 | 50,000 | 1,900 | 50,000 | 1,800 | 50,000 | 1,600 | 50,000 | 1,450 | 38,000 | 1,100 |
| R 0.75 | 50,000 | 3,450 | 50,000 | 3,450 | 50,000 | 2,850 | 50,000 | 2,700 | 40,500 | 1,950 | 36,000 | 1,550 | 25,500 | 1,100 |
| R 1 | 50,000 | 4,600 | 48,500 | 4,450 | 47,500 | 3,650 | 39,800 | 2,850 | 30,000 | 1,950 | 27,000 | 1,550 | 19,000 | 1,100 |
| R 1.5 | 33,400 | 4,600 | 32,400 | 4,450 | 31,800 | 3,650 | 26,500 | 2,850 | 20,200 | 1,950 | 18,000 | 1,550 | 12,700 | 1,100 |
| R 2 | 25,100 | 4,400 | 24,300 | 4,250 | 23,900 | 3,550 | 19,900 | 2,700 | 15,100 | 1,850 | 13,500 | 1,500 | 9,550 | 1,050 |
| R 2.5 | 20,100 | 4,200 | 19,400 | 4,100 | 19,100 | 3,350 | 15,900 | 2,550 | 12,100 | 1,800 | 10,800 | 1,450 | 7,650 | 1,050 |
| R 3 | 16,700 | 3,800 | 16,200 | 3,700 | 15,900 | 3,250 | 13,300 | 2,400 | 10,100 | 1,700 | 9,000 | 1,400 | 6,350 | 995 |
| R 4 | 12,500 | 3,700 | 12,100 | 3,600 | 11,900 | 3,150 | 9,950 | 2,300 | 7,550 | 1,650 | 6,750 | 1,350 | 4,750 | 955 |
| R 5 | 10,000 | 3,600 | 9,700 | 3,500 | 9,550 | 3,050 | 7,950 | 2,250 | 6,050 | 1,550 | 5,400 | 1,300 | 3,800 | 915 |
| R 6 | 8,350 | 3,350 | 8,100 | 3,250 | 7,950 | 2,650 | 6,650 | 2,050 | 5,050 | 1,450 | 4,500 | 1,100 | 3,200 | 765 |
| 切込深さ Depth of Cut |  | | | | ap 0.1D / Pf 0.2D apMax=1mm以下 | | ap 0.08D / Pf 0.2D apMax=0.8mm以下 | | ap 0.05D / Pf 0.1D apMax=0.5mm以下 | | | | ap 0.03D / Pf 0.1D apMax=0.3mm以下 | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL(オイルミストクーラント)でご使用下さい。
3. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。
加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. 等高線加工でコーナ部の曲率半径が外径の1.8倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
5. 主軸端面からの突出し量が大きなホルダをご使用の場合は、回転速度、送り速度、切込深さを上表より下げ、調整を行って下さい。
6. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

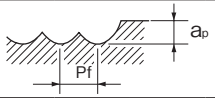
1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration, or chattering occurs; depending on the machining shape, cutting amount, rigidity of the machine/ workholding condition, etc, please adjust the speed, feed, and depth of cut.
4. When the radius of curvature is less than 1.8 times the tool diameter, please reduce the speed to 50 — 80%, the feed rate to 50 — 80%, and the pick feed to 20 — 60% of the above shown cutting conditions.
5. When using a toolholder with an extended gage length; reduce the speed,feed,and depth of cut from the conditions listed above.
6. If the cutting depth is small, it is possible to further increase the speed and feed.

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

### 仕上げ加工 ●加工パスは等高線加工を前提としています。

●The machining path is on condition of contouring line operation. FINISHING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳物・合金鋼・工具鋼 Mild Steel・Carbon Steel・Cast Iron・Alloy Steel・Tool Steel SS400、S55C、FC SCM、SKT、SKS、SKD | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 0.5 | 50,000 | 3,900 | 50,000 | 3,800 | 50,000 | 3,700 | 50,000 | 3,700 | 50,000 | 3,100 | 50,000 | 2,600 | 41,500 | 1,900 |
| R 0.75 | 50,000 | 5,100 | 50,000 | 3,450 | 50,000 | 4,800 | 50,000 | 4,800 | 44,500 | 3,750 | 40,500 | 2,900 | 27,500 | 1,750 |
| R 1 | 50,000 | 6,000 | 50,000 | 5,800 | 49,500 | 5,550 | 41,500 | 4,650 | 33,500 | 3,350 | 30,000 | 2,650 | 20,500 | 1,550 |
| R 1.5 | 36,100 | 5,850 | 34,000 | 5,300 | 32,900 | 4,950 | 27,600 | 4,150 | 22,300 | 3,050 | 20,100 | 2,400 | 13,800 | 1,500 |
| R 2 | 27,100 | 5,400 | 25,500 | 4,900 | 24,700 | 4,550 | 20,700 | 3,800 | 16,700 | 2,800 | 15,100 | 2,200 | 10,300 | 1,400 |
| R 2.5 | 21,600 | 5,200 | 20,400 | 4,700 | 19,700 | 4,350 | 16,500 | 3,400 | 13,400 | 2,550 | 12,100 | 2,050 | 8,280 | 1,300 |
| R 3 | 18,000 | 5,000 | 17,000 | 4,500 | 16,400 | 4,150 | 13,800 | 3,150 | 11,100 | 2,270 | 10,100 | 1,950 | 6,900 | 1,250 |
| R 4 | 13,500 | 4,350 | 12,700 | 4,050 | 12,300 | 3,550 | 10,300 | 2,650 | 8,350 | 2,000 | 7,550 | 1,700 | 5,150 | 1,100 |
| R 5 | 10,800 | 3,900 | 10,200 | 3,650 | 9,850 | 3,150 | 8,300 | 2,300 | 6,700 | 1,750 | 6,050 | 1,450 | 4,150 | 995 |
| R 6 | 9,000 | 3,600 | 8,500 | 3,400 | 8,000 | 2,850 | 6,900 | 2,150 | 5,550 | 1,600 | 5,050 | 1,200 | 3,450 | 830 |
| 切込深さ Depth of Cut |  | | | | ap 0.02D / Pf 0.05D | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローまたはMQL(オイルミストクーラント)でご使用下さい。
3. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。
加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. 等高線加工でコーナ部の曲率半径が外径の1.8倍以下の場合は、上表の回転速度50～80%、送り速度50～80%、ピックフィード20～60%程度に下げてご使用下さい。
5. 主軸端面からの突出し量が大きなホルダをご使用の場合は、回転速度、送り速度、切込深さを上表より下げ、調整を行って下さい。
6. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL(mist).
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration, or chattering occurs; depending on the machining shape, cutting amount, rigidity of the machine/ workholding condition, etc, please adjust the speed, feed, and depth of cut.
4. When the radius of curvature is less than 1.8 times the tool diameter, please reduce the speed to 50 — 80%, the feed rate to 50 — 80%, and the pick feed to 20 — 60% of the above shown cutting conditions.
5. When using a toolholder with an extended gage length; reduce the speed,feed,and depth of cut from the conditions listed above.
6. If the cutting depth is small, it is possible to further increase the speed and feed.

CUTTING CONDITIONS FOR CARBIDE END MILLS

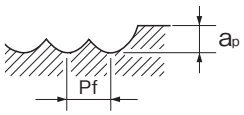
# 超硬エンドミル切削条件基準表

## FX-HO-MG-EBD

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・超耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R 3× 6 | 7,950 | 1,050 | 6,350 | 850 | 5,300 | 670 | 4,200 | 465 | 3,700 | 390 | 3,150 | 295 | 2,350 | 185 |
| R 4× 8 | 5,950 | 1,300 | 4,750 | 1,050 | 3,950 | 790 | 3,150 | 555 | 2,750 | 455 | 2,350 | 325 | 1,750 | 210 |
| R 5×10 | 4,750 | 1,200 | 3,800 | 960 | 3,150 | 745 | 2,500 | 525 | 2,200 | 430 | 1,900 | 335 | 1,400 | 210 |
| R 6×12 | 3,950 | 1,100 | 3,150 | 890 | 2,650 | 700 | 2,100 | 490 | 1,850 | 430 | 1,550 | 310 | 1,150 | 195 |
| R 8×16 | 2,950 | 1,050 | 2,350 | 840 | 1,950 | 645 | 1,550 | 465 | 1,350 | 380 | 1,150 | 270 | 895 | 185 |
| R10×20 | 2,350 | 940 | 1,900 | 765 | 1,550 | 570 | 1,250 | 450 | 1,100 | 370 | 955 | 250 | 715 | 170 |

切込深さ Depth of Cut

| ap | Pf |
|---|---|
| 0.1D | 0.2D |




| ap | Pf |
|---|---|
| 0.05D | 0.1D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
3. 工具突出し量が大きな場合は回転速度、送り速度を下げて下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. When length of the tool extension from the machine is long, reduce the speed and feed.

## FX-HO-MG-EBD

### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。

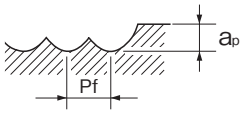
### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼(非快削) Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R 3× 6 | 21,000 | 6,700 | 17,500 | 5,600 | 15,500 | 4,950 | 14,500 | 3,450 | 14,500 | 3,450 | 11,000 | 2,600 | 7,950 | 1,350 |
| R 4× 8 | 15,500 | 4,950 | 13,000 | 4,150 | 11,500 | 3,650 | 11,000 | 2,600 | 11,000 | 2,600 | 8,350 | 2,000 | 5,950 | 1,050 |
| R 5×10 | 12,500 | 4,000 | 10,500 | 3,350 | 9,500 | 3,000 | 8,900 | 2,100 | 8,900 | 2,100 | 6,650 | 1,550 | 4,750 | 855 |
| R 6×12 | 10,500 | 3,350 | 8,750 | 2,800 | 7,950 | 2,500 | 7,400 | 1,750 | 7,400 | 1,750 | 5,550 | 1,300 | 3,950 | 710 |
| R 8×16 | 7,950 | 2,500 | 6,550 | 2,050 | 5,950 | 1,900 | 5,550 | 1,300 | 5,550 | 1,300 | 4,150 | 995 | 2,950 | 530 |
| R10×20 | 6,350 | 2,000 | 5,250 | 1,650 | 4,750 | 1,500 | 4,450 | 1,050 | 4,450 | 1,050 | 3,300 | 790 | 2,350 | 420 |

切込深さ Depth of Cut

| ap | Pf |
|---|---|
| 0.02D | 0.05D |




| | ap | Pf |
|---|---|---|
| 3≦DC≦8 | 0.02D | 0.05D |
| 8<DC | 0.32mm | 0.05D |

1. スピンドルスルーによるクーラント、エアーの供給装置を備えた高速高精度の機械での、高速軽切削加工の場合の基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. エアブローをご使用下さい。切削油剤を使用される場合は、発煙性の少ないものを選定して下さい。
4. エンドミルの選定の目安として、比較的柔らかい被削材の場合では、通常のFXエンドミルを優先して使用して下さい。
硬い被削材では、FXスーパーエンドミル(FXS-EBDS)を使用して下さい。

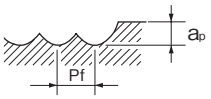
1. These conditions are for light milling with precise, high speed / feed machines that supply air and coolant through the spindle.
2. Tools can cause sparks. Do not use flammable fluids.
3. We recommend using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant properties.
4. In general, use FX End Mills for milling hard work materials. For extremely hard materials, use FXS End Mills (FXS-EBDS).

形状寸法表
SPECIFICATION CHARTS
FX-PC-MG-EBD▶P369-4

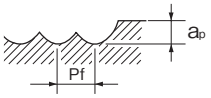
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-PC-MG-EBD

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | |
|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R0.5 × 1 | 32,000 | 410～ 610 | 25,000～32,000 | 360～610 | 25,000～31,500 | 300～500 | 20,000～25,000 | 190～320 |
| R1 × 2 | 19,000～23,500 | 410～ 675 | 15,500～19,000 | 370～610 | 12,500～15,500 | 300～500 | 10,000～12,500 | 190～320 |
| R1.5 × 3 | 12,500～15,500 | 450～ 710 | 10,500～12,500 | 375～610 | 8,450～10,500 | 300～500 | 6,750～ 8,450 | 190～320 |
| R2 × 4 | 9,500～11,500 | 450～ 725 | 7,950～ 9,500 | 380～610 | 6,350～ 7,950 | 300～505 | 5,050～ 6,350 | 210～355 |
| R2.5 × 5 | 7,600～ 9,500 | 510～ 850 | 6,350～ 7,600 | 425～680 | 5,050～ 6,350 | 300～505 | 4,050～ 5,050 | 215～360 |
| R3 × 6 | 6,350～ 7,950 | 510～ 850 | 5,300～ 6,350 | 425～680 | 4,200～ 5,300 | 315～535 | 3,350～ 4,200 | 215～365 |
| R4 × 8 | 4,750～ 5,950 | 640～1,050 | 3,950～ 4,750 | 510～820 | 3,150～ 3,950 | 375～630 | 2,500～ 3,150 | 265～445 |
| R5 × 10 | 3,800～ 4,750 | 575～ 960 | 3,150～ 3,800 | 475～770 | 2,500～ 3,150 | 355～595 | 2,000～ 2,500 | 250～420 |
| R6 × 12 | 3,150～ 3,950 | 540～ 900 | 2,650～ 3,150 | 450～710 | 2,100～ 2,650 | 330～560 | 1,650～ 2,100 | 230～395 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.2D | | | | | | | |




| 被削材 Work Material | ステンレス鋼・調質鋼 Stainless Steel・Hardended Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardended Steel (45～55HRC) | | 調質鋼 Hardended Steel (55～60HRC) | |
|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R0.5 × 1 | 14,500～22,000 | 110～225 | 14,500～19,000 | 95～170 | 11,000～14,000 | 65～110 |
| R1 × 2 | 8,900～11,000 | 140～235 | 7,600～ 9,500 | 100～170 | 5,700～ 7,150 | 65～110 |
| R1.5 × 3 | 5,900～ 7,400 | 140～235 | 5,050～ 6,350 | 100～170 | 3,800～ 4,750 | 65～110 |
| R2 × 4 | 4,450～ 5,550 | 175～295 | 3,800～ 4,750 | 130～215 | 2,850～ 3,550 | 85～140 |
| R2.5 × 5 | 3,550～ 4,450 | 175～295 | 3,050～ 3,800 | 135～230 | 2,250～ 2,850 | 85～140 |
| R3 × 6 | 2,950～ 3,700 | 185～310 | 2,500～ 3,150 | 140～235 | 1,900～ 2,350 | 90～145 |
| R4 × 8 | 2,200～ 2,750 | 215～360 | 1,900～ 2,350 | 160～260 | 1,400～ 1,750 | 100～165 |
| R5 × 10 | 1,750～ 2,200 | 205～345 | 1,500～ 1,900 | 160～270 | 1,100～ 1,400 | 100～170 |
| R6 × 12 | 1,450～ 1,850 | 190～330 | 1,250～ 1,550 | 150～245 | 955～ 1,150 | 95～155 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.2D | | ap 0.05D / Pf 0.1D | | | |



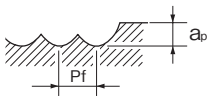

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
3. 工具突出し量が大きな場合は回転速度、送り速度を下げて下さい。

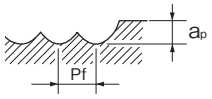
1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. When tool extension from the machine is long, reduce the speed and feed.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FX-PCL-EBD

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30 ～38HRC) | |
|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R2 × 4 | 7,950 | 370 | 7,000 | 340 | 5,550 | 260 | 4,750 | 200 |
| R3 × 6 | 5,300 | 430 | 4,250 | 340 | 3,700 | 280 | 3,200 | 200 |
| R4 × 8 | 4,000 | 540 | 3,200 | 410 | 2,800 | 330 | 2,400 | 250 |
| R5 × 10 | 3,200 | 480 | 2,550 | 380 | 2,250 | 320 | 1,900 | 240 |
| R6 × 12 | 2,650 | 450 | 2,100 | 360 | 1,850 | 290 | 1,600 | 220 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.2D   | | | | | | | |

| 被削材 Work Material | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38 ～45HRC) | | 調質鋼 Hardened Steel (45 ～55HRC) | |
|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R2 × 4 | 3,200 | 125 | 2,400 | 80 |
| R3 × 6 | 2,100 | 130 | 1,600 | 90 |
| R4 × 8 | 1,600 | 160 | 1,200 | 100 |
| R5 × 10 | 1,250 | 150 | 950 | 100 |
| R6 × 12 | 1,050 | 140 | 800 | 90 |
| 切込深さ Depth of Cut | ap 0.05D / Pf 0.1D   | | | |

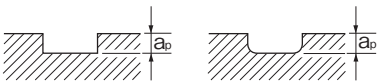
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。
3. 工具突出し量が大きな場合は回転速度、送り速度を下げて下さい。
4. 機械剛性等ご使用の状況により、回転速度と送り速度の調整を行って下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. When tool extension from the machine is long, reduce the speed and feed.
4. Please adjust the speed and feed depending on machine rigidity and operation conditions.

形状寸法表 SPECIFICATION CHARTS FX-EDS-6▶P311-5
形状寸法表 SPECIFICATION CHARTS FX-CR-EDS-6▶P436-1
形状寸法表 SPECIFICATION CHARTS FX-LN-EDS-6▶P321-6

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

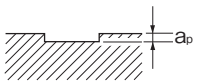
## FX-EDS-6/FX-CR-EDS-6
### 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼・超耐熱合金 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 0.2 | 32,000 | 125 | 32,000 | 115 | 32,000 | 100 | 32,000 | 90 | 32,000 | 60 | 24,500 | 30 |
| 0.3 | 32,000 | 190 | 32,000 | 170 | 32,000 | 150 | 32,000 | 135 | 32,000 | 90 | 18,000 | 40 |
| 0.4 | 32,000 | 250 | 32,000 | 230 | 32,000 | 200 | 32,000 | 180 | 32,000 | 120 | 14,000 | 40 |
| 0.5 | 32,000 | 320 | 32,000 | 290 | 32,000 | 250 | 32,000 | 225 | 26,000 | 130 | 12,000 | 40 |
| 0.6 | 32,000 | 380 | 32,000 | 345 | 32,000 | 310 | 27,500 | 250 | 22,000 | 130 | 10,500 | 40 |
| 0.8 | 32,000 | 512 | 32,000 | 460 | 29,000 | 370 | 22,000 | 280 | 17,500 | 130 | 8,750 | 45 |
| 1 | 30,000 | 600 | 27,000 | 480 | 25,000 | 400 | 19,000 | 300 | 14,000 | 130 | 7,600 | 50 |
| 1.2 | 26,500 | 630 | 23,500 | 510 | 21,000 | 400 | 15,500 | 300 | 11,500 | 130 | 6,600 | 55 |
| 1.4 | 22,500 | 630 | 20,000 | 510 | 18,000 | 400 | 13,500 | 300 | 10,000 | 130 | 5,900 | 55 |
| 1.5 | 21,000 | 630 | 19,000 | 510 | 16,500 | 400 | 12,500 | 300 | 9,500 | 130 | 5,700 | 60 |
| 1.6 | 19,500 | 630 | 17,500 | 510 | 15,500 | 400 | 11,500 | 300 | 8,950 | 130 | 5,550 | 60 |
| 1.8 | 17,500 | 630 | 15,500 | 510 | 14,000 | 400 | 10,500 | 300 | 7,950 | 130 | 5,300 | 65 |
| 2 | 15,500 | 630 | 14,000 | 510 | 12,500 | 400 | 9,500 | 300 | 7,150 | 130 | 4,750 | 65 |
| 2.5 | 12,500 | 630 | 11,000 | 510 | 10,000 | 400 | 7,600 | 300 | 5,700 | 130 | 3,800 | 65 |
| 切込深さ Depth of Cut | DC＜φ1: ap 0.1D<br>φ1≦DC: ap 0.3D | |  | | | | | | DC＜φ1: ap 0.02D<br>φ1≦DC: ap 0.05D | | DC＜φ1: ap 0.01D<br>φ1≦DC: ap 0.02D | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. ビビリを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

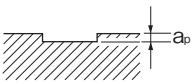
## FX-LN-EDS-6
### 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 0.5 | 32,000 | 250 | 32,000 | 230 | 32,000 | 200 | 30,500 | 150 | 19,000 | 80 | 10,000 | 30 |
| 0.6 | 32,000 | 300 | 32,000 | 270 | 29,500 | 250 | 25,000 | 200 | 15,500 | 80 | 8,450 | 30 |
| 0.8 | 32,000 | 410 | 27,000 | 350 | 22,000 | 250 | 19,000 | 200 | 11,500 | 80 | 6,350 | 30 |
| 1 | 26,500 | 600 | 21,500 | 500 | 17,500 | 400 | 15,000 | 250 | 9,500 | 80 | 5,050 | 30 |
| 1.5 | 17,500 | 600 | 14,000 | 500 | 11,500 | 400 | 10,000 | 250 | 6,350 | 80 | 3,350 | 30 |
| 2 | 13,000 | 600 | 10,500 | 500 | 8,900 | 400 | 7,600 | 250 | 4,750 | 80 | 2,500 | 30 |
| 2.5 | 10,400 | 600 | 8,400 | 500 | 7,100 | 400 | 6,100 | 250 | 3,800 | 80 | 2,000 | 30 |
| 切込深さ Depth of Cut | DC＜φ1: ap 0.05D<br>φ1≦DC: ap 0.1D | |  | | | | | | ap 0.02D | | DC＜φ1: ap 0.01D<br>φ1≦DC: ap 0.02D | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. ビビリを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

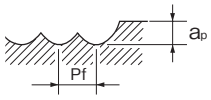
## FX-LN-EMS-6
### 溝切削 SLOTTING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 26,500 | 1,000 | 21,500 | 700 | 17,500 | 500 | 15,000 | 400 | 9,500 | 160 | 6,350 | 60 |
| 1.5 | 17,500 | 1,000 | 14,000 | 700 | 11,500 | 500 | 10,000 | 400 | 6,350 | 160 | 4,250 | 60 |
| 2 | 13,000 | 1,000 | 10,500 | 700 | 8,900 | 500 | 7,600 | 400 | 4,750 | 160 | 3,200 | 60 |
| 2.5 | 10,400 | 1,000 | 8,400 | 700 | 7,100 | 500 | 6,100 | 400 | 3,800 | 160 | 2,550 | 60 |
| 3 | 8,900 | 1,000 | 7,200 | 700 | 5,900 | 500 | 5,050 | 400 | 3,150 | 160 | 2,100 | 60 |
| 4 | 6,650 | 1,000 | 5,400 | 700 | 4,450 | 500 | 3,800 | 400 | 2,350 | 160 | 1,550 | 60 |
| 5 | 5,300 | 1,000 | 4,300 | 700 | 3,550 | 500 | 3,050 | 400 | 1,900 | 160 | 1,250 | 60 |
| 6 | 4,450 | 1,000 | 3,600 | 700 | 2,950 | 500 | 2,500 | 400 | 1,550 | 160 | 1,050 | 60 |
| 切込深さ Depth of Cut | ap 0.1D | |   | | | | | | ap 0.02D | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. ビビリを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

## FX-EBD-6

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R0.1 | 50,000 | 890 | 50,000 | 820 | 50,000 | 800 | 50,000 | 760 | 40,000 | 570 | 40,000 | 500 |
| R0.15 | 50,000 | 1,150 | 50,000 | 1,050 | 50,000 | 1,050 | 50,000 | 980 | 40,000 | 740 | 40,000 | 650 |
| R0.2 | 50,000 | 1,400 | 50,000 | 1,300 | 50,000 | 1,300 | 50,000 | 1,200 | 40,000 | 910 | 40,000 | 800 |
| R0.25 | 50,000 | 1,700 | 50,000 | 1,550 | 50,000 | 1,500 | 50,000 | 1,450 | 40,000 | 1,100 | 40,000 | 950 |
| R0.3 | 50,000 | 1,950 | 50,000 | 1,800 | 50,000 | 1,750 | 50,000 | 1,650 | 40,000 | 1,250 | 40,000 | 1,100 |
| R0.4 | 50,000 | 2,500 | 50,000 | 2,300 | 50,000 | 2,250 | 50,000 | 2,100 | 40,000 | 1,600 | 40,000 | 1,400 |
| R0.5 | 50,000 | 3,000 | 50,000 | 2,800 | 50,000 | 2,700 | 50,000 | 2,550 | 40,000 | 1,950 | 32,000 | 1,450 |
| R0.75 | 50,000 | 4,350 | 50,000 | 4,050 | 46,500 | 3,650 | 46,500 | 3,450 | 32,000 | 2,250 | 25,000 | 1,650 |
| R1 | 44,500 | 4,950 | 41,000 | 4,550 | 35,000 | 3,500 | 35,000 | 3,350 | 25,000 | 2,600 | 20,000 | 1,800 |
| R1.5 | 29,500 | 4,950 | 27,500 | 4,600 | 23,000 | 3,500 | 23,000 | 3,350 | 19,000 | 2,600 | 13,000 | 1,800 |
| R2 | 22,000 | 4,900 | 20,500 | 4,600 | 17,500 | 3,500 | 17,500 | 3,350 | 14,000 | 2,600 | 9,900 | 1,800 |
| R2.5 | 17,500 | 4,900 | 16,500 | 4,600 | 14,000 | 3,500 | 14,000 | 3,350 | 11,000 | 2,600 | 7,950 | 1,800 |
| R3 | 14,500 | 4,850 | 13,500 | 4,500 | 11,500 | 3,450 | 11,500 | 3,300 | 9,500 | 2,600 | 6,600 | 1,800 |
| 切込深さ Depth of Cut | ap 0.02D / Pf 0.05D | |   | | | | | | | | | |

1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。

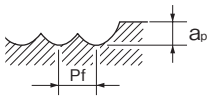
1. The indicated speeds and feeds are for high speed light milling with high speed / high precision machining centers.
2. Tools can cause sparks. Do not use flammable fluids.

形状寸法表
SPECIFICATION CHARTS
FX-LN-EBD-6▶P359-5

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-LN-EBD-6

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R0.25 | 32,000 | 480 | 32,000 | 460 | 32,000 | 440 | 32,000 | 400 | 26,500 | 320 | 22,900 | 200 |
| R0.3 | 32,000 | 560 | 32,000 | 530 | 28,000 | 440 | 27,000 | 400 | 23,000 | 320 | 19,000 | 200 |
| R0.4 | 32,000 | 710 | 27,000 | 570 | 23,000 | 460 | 21,000 | 400 | 19,000 | 340 | 14,300 | 200 |
| R0.5 | 29,000 | 790 | 23,500 | 600 | 20,500 | 500 | 17,500 | 400 | 16,500 | 350 | 11,500 | 200 |
| R0.75 | 21,000 | 820 | 17,500 | 650 | 15,500 | 540 | 12,000 | 400 | 12,000 | 370 | 7,650 | 200 |
| R1 | 16,000 | 820 | 14,000 | 680 | 12,500 | 570 | 10,000 | 430 | 9,200 | 370 | 5,750 | 200 |
| R1.5 | 11,000 | 820 | 9,500 | 680 | 8,450 | 570 | 6,750 | 430 | 6,150 | 370 | 3,800 | 200 |
| R2 | 8,000 | 820 | 7,150 | 680 | 6,350 | 570 | 5,050 | 430 | 4,600 | 370 | 2,900 | 200 |
| R2.5 | 6,400 | 820 | 5,700 | 680 | 5,050 | 570 | 4,050 | 430 | 3,650 | 370 | 2,300 | 200 |
| R3 | 5,500 | 820 | 4,750 | 680 | 4,200 | 570 | 3,350 | 430 | 3,050 | 370 | 1,900 | 200 |
| 切込深さ Depth of Cut | ap 0.02D / Pf 0.05D | | | | | | | | | | | |




1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。

1. The indicated speeds and feeds are for high speed light milling with high speed / high precision machining centers.
2. Tools can cause sparks. Do not use flammable fluids.

CUTTING CONDITIONS FOR CARBIDE END MILLS

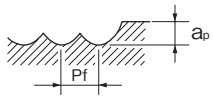
# 超硬エンドミル切削条件基準表

## FX-PCS-EBD-6

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R0.1 | 1 | 40,000 | 640 | 40,000 | 610 | 40,000 | 570 | 40,000 | 540 | 40,000 | 510 | 40,000 | 440 |
| | 1.5 | 40,000 | 520 | 40,000 | 490 | 40,000 | 470 | 40,000 | 440 | 40,000 | 410 | 40,000 | 360 |
| R0.15 | 1 | 40,000 | 1,000 | 40,000 | 960 | 40,000 | 910 | 40,000 | 860 | 40,000 | 810 | 40,000 | 710 |
| | 2 | 40,000 | 710 | 40,000 | 680 | 40,000 | 640 | 40,000 | 610 | 40,000 | 570 | 40,000 | 500 |
| R0.2 | 2 | 40,000 | 1,000 | 40,000 | 960 | 40,000 | 910 | 40,000 | 860 | 40,000 | 810 | 38,000 | 670 |
| | 3 | 40,000 | 830 | 40,000 | 790 | 40,000 | 750 | 40,000 | 700 | 40,000 | 660 | 31,000 | 450 |
| | 5 | 40,000 | 640 | 40,000 | 610 | 40,000 | 580 | 40,000 | 540 | 36,000 | 460 | 24,000 | 270 |
| R0.25 | 3 | 40,000 | 1,100 | 40,000 | 1,050 | 40,000 | 990 | 40,000 | 930 | 40,000 | 880 | 27,000 | 520 |
| | 5 | 40,000 | 850 | 40,000 | 810 | 40,000 | 770 | 37,000 | 670 | 32,000 | 540 | 21,000 | 310 |
| R0.3 | 3 | 40,000 | 1,400 | 40,000 | 1,300 | 40,000 | 1,250 | 40,000 | 1,200 | 40,000 | 1,100 | 27,000 | 660 |
| | 5 | 40,000 | 1,100 | 40,000 | 1,050 | 40,000 | 970 | 37,000 | 850 | 32,000 | 690 | 21,000 | 390 |
| R0.4 | 3 | 40,000 | 2,050 | 40,000 | 1,950 | 40,000 | 1,850 | 40,000 | 1,750 | 38,000 | 1,550 | 25,500 | 910 |
| | 5 | 40,000 | 1,600 | 40,000 | 1,500 | 39,000 | 1,400 | 34,000 | 1,150 | 29,000 | 920 | 19,000 | 520 |
| | 7 | 40,000 | 1,350 | 37,000 | 1,200 | 33,000 | 990 | 29,000 | 820 | 25,000 | 670 | 16,500 | 380 |
| R0.5 | 3 | 40,000 | 2,800 | 40,000 | 2,650 | 40,000 | 2,500 | 40,000 | 2,350 | 35,000 | 1,950 | 23,500 | 1,150 |
| | 5 | 40,000 | 2,150 | 40,000 | 2,050 | 36,000 | 1,750 | 32,000 | 1,450 | 27,000 | 1,150 | 18,000 | 680 |
| | 7 | 39,000 | 1,800 | 35,000 | 1,500 | 31,000 | 1,250 | 27,000 | 1,050 | 23,000 | 840 | 15,500 | 490 |
| | 9 | 34,000 | 1,350 | 30,000 | 1,150 | 27,000 | 970 | 24,000 | 820 | 20,000 | 640 | 13,500 | 380 |
| R1 | 10 | 28,000 | 2,850 | 25,000 | 2,400 | 22,000 | 2,000 | 20,000 | 1,750 | 17,000 | 1,400 | 11,000 | 780 |
| | 15 | 23,000 | 1,900 | 21,000 | 1,650 | 18,000 | 1,350 | 16,000 | 1,150 | 14,000 | 930 | 9,300 | 540 |
| R1.5 | 15 | 19,000 | 2,850 | 17,000 | 2,400 | 15,000 | 2,050 | 13,500 | 1,700 | 11,500 | 1,400 | 7,800 | 820 |
| | 20 | 17,000 | 2,200 | 15,000 | 1,850 | 13,000 | 1,500 | 11,500 | 1,250 | 10,000 | 1,050 | 6,800 | 620 |
| | 25 | 15,500 | 1,800 | 14,000 | 1,550 | 12,000 | 1,250 | 11,000 | 1,100 | 9,500 | 880 | 6,000 | 480 |
| R2 | 20 | 15,500 | 3,100 | 14,000 | 2,650 | 12,000 | 2,150 | 11,000 | 1,850 | 9,500 | 1,500 | 6,200 | 860 |
| | 30 | 12,500 | 2,050 | 11,000 | 1,700 | 10,000 | 1,450 | 8,850 | 1,200 | 7,600 | 990 | 5,000 | 560 |

切込深さ Depth of Cut

| ap | Pf |
|---|---|
| 0.02D | 0.05D |



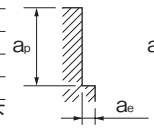

1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. この切削条件表は、首部勾配角 1° を基準に設定しております。首部勾配角 1° 30′、2° の場合には上記送り速度を20%～40%程度高く設定できます。切込みは加工精度に応じて調整下さい。
4. エンドミル取り付け時の刃先の振れは、10μm未満に抑えて下さい。
5. コーナ部等負荷が大きい加工には変動する場合においては、回転速度、送り速度ともに下げて使用下さい。
6. 機械の回転速度が上がらない場合は、できるだけ最高回転速度で使用し、送り速度を調整下さい。

1. The indicated speeds and feeds are for high speed light milling with high speed /high precision machining centers.
2. Tools can cause sparks. Do not use flammable fluids.
3. In this cutting condition table, the neck angle is set 1 ° as a standard.
   If the neck angle is set 1 ° 30′ or 2 ° , the above feed rate can be increased by approximately 20% to 40% higher.
   Adjust the depth of cut according to the required machining accuracy.
4. The run out of the end mill should be within 10μm after chucking.
5. During heavy load operations such as corner processing, reduce the speed and feed.
6. When using low speed machines, use the maximum speed and adjust the feed rate.

形状寸法表 SPECIFICATION CHARTS FXS-EMSS▶P311-29
形状寸法表 SPECIFICATION CHARTS FXS-EMS▶P311-29
形状寸法表 SPECIFICATION CHARTS FXS-LS-EMS▶P311-30
形状寸法表 SPECIFICATION CHARTS FXS-CR-EMS▶P436-6

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FXS-EMSS/FXS-EMS/FXS-LS-EMS※/FXS-CR-EMS
### 側面切削 SIDE MILLING

| 被削材 Work Material | 炭素鋼 Carbon Steel S55C (～750N/mm²) | | 合金鋼 Alloy Steel SKD、SKS、SNCM (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel NAK55、HPM1、SKT (30～40HRC) | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD11、SKD61、NAK80 (40～45HRC) | | 調質鋼・超耐熱鋼 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 20,000 | 800 | 20,000 | 800 | 20,000 | 800 | 20,000 | 800 | 20,000 | 800 | 20,000 | 560 | 20,000 | 480 | 16,000 | 340 |
| 2 | 20,000 | 1,600 | 20,000 | 1,600 | 20,000 | 1,600 | 20,000 | 1,600 | 16,000 | 1,250 | 12,000 | 670 | 11,000 | 535 | 7,950 | 340 |
| 3 | 15,000 | 1,800 | 15,000 | 1,800 | 15,000 | 1,800 | 13,500 | 1,600 | 10,500 | 1,250 | 7,950 | 670 | 7,450 | 535 | 5,300 | 340 |
| 4 | 11,000 | 1,800 | 11,000 | 1,800 | 11,000 | 1,800 | 9,950 | 1,600 | 7,950 | 1,250 | 5,950 | 670 | 5,550 | 535 | 4,000 | 340 |
| 5 | 8,900 | 1,800 | 8,900 | 1,800 | 8,900 | 1,800 | 7,950 | 1,600 | 6,350 | 1,250 | 4,750 | 670 | 4,450 | 535 | 3,200 | 340 |
| 6 | 7,450 | 2,650 | 7,450 | 2,650 | 7,450 | 2,650 | 6,650 | 2,400 | 5,300 | 1,900 | 4,000 | 1,000 | 3,700 | 800 | 2,650 | 505 |
| 8 | 5,550 | 2,650 | 5,550 | 2,650 | 5,550 | 2,650 | 4,950 | 2,400 | 4,000 | 1,900 | 3,000 | 1,000 | 2,800 | 800 | 2,000 | 505 |
| 10 | 4,450 | 2,650 | 4,450 | 2,650 | 4,450 | 2,650 | 4,000 | 2,400 | 3,200 | 1,900 | 2,400 | 1,000 | 2,250 | 800 | 1,600 | 505 |
| 12 | 3,700 | 2,650 | 3,700 | 2,650 | 3,700 | 2,650 | 3,300 | 2,400 | 2,650 | 1,900 | 2,000 | 1,000 | 1,850 | 800 | 1,350 | 505 |
| 14 | 3,200 | 2,550 | 3,200 | 2,550 | 3,200 | 2,550 | 2,850 | 2,250 | 2,250 | 1,800 | 1,700 | 1,000 | 1,600 | 800 | 1,150 | 505 |
| 16 | 2,800 | 2,400 | 2,800 | 2,400 | 2,800 | 2,400 | 2,500 | 2,150 | 2,000 | 1,700 | 1,500 | 930 | 1,400 | 800 | 995 | 505 |
| 18 | 2,500 | 2,250 | 2,500 | 2,250 | 2,500 | 2,250 | 2,200 | 2,050 | 1,750 | 1,600 | 1,350 | 895 | 1,250 | 800 | 885 | 505 |
| 20 | 2,250 | 2,150 | 2,250 | 2,150 | 2,250 | 2,150 | 2,000 | 1,900 | 1,600 | 1,450 | 1,200 | 845 | 1,100 | 695 | 795 | 480 |
| 25 | 1,800 | 2,500 | 1,800 | 2,500 | 1,800 | 2,500 | 1,600 | 2,100 | 1,250 | 1,550 | 955 | 920 | 890 | 750 | 640 | 510 |
| 30 | 1,500 | 2,300 | 1,500 | 2,300 | 1,500 | 2,300 | 1,350 | 1,800 | 1,050 | 1,250 | 795 | 765 | 745 | 625 | 530 | 435 |
| 切込深さ Depth of Cut | ap / ae<br>DC≦φ1.5: 1.5D / 0.02D<br>φ1.5<DC≦φ2.5: 1.5D / 0.05D<br>φ2.5<DC: 1.5D / 0.1D<br>aeMax=1mm以下  | | | | | | | | ap / ae<br>1.5D / 0.05D<br>aeMax=1mm以下 | | ap / ae<br>1.5D / 0.03D<br>aeMax=0.5mm以下 | | ap / ae<br>1D / 0.02D<br>aeMax=0.5mm以下 | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローをご使用下さい。切削油剤を使用する場合は、発煙性の少ないものを選定して下さい。
※ 工具突出し量が大きな場合は回転速度、送り速度を下げて下さい。

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant properties.
※ When the length of tool extension from the machine is long, reduce the speed and feed.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FXS-EMSS/FXS-EMS/FXS-CR-EMS

### 高速切削用

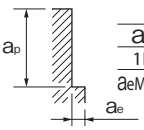
⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。

HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

### 高速側面切削

HIGH-SPEED SIDE MILLING

| 被削材 Work Material | 炭素鋼 Carbon Steel S55C (～750N/mm²) | | 合金鋼 Alloy Steel SKD、SKS、SNCM (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel NAK55、HPM1、SKT (30～40HRC) | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD11、SKD61、NAK80 (40～45HRC) | | 調質鋼・超耐熱鋼 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | | 調質鋼 Hardened Steel (65～70HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 50,000 | 1,600 | 50,000 | 1,600 | 50,000 | 1,600 | 50,000 | 2,000 | 50,000 | 2,000 | 50,000 | 1,600 | 47,500 | 1,350 | 32,000 | 715 |
| 2 | 50,000 | 3,400 | 47,500 | 3,250 | 47,500 | 3,250 | 47,500 | 3,800 | 40,000 | 3,200 | 25,500 | 1,650 | 24,000 | 1,350 | 16,000 | 800 |
| 3 | 34,000 | 3,650 | 32,000 | 3,450 | 32,000 | 3,450 | 32,000 | 3,800 | 26,500 | 3,200 | 17,000 | 1,650 | 16,000 | 1,350 | 10,500 | 800 |
| 4 | 25,500 | 4,200 | 24,000 | 3,900 | 24,000 | 3,900 | 24,000 | 3,800 | 20,000 | 3,200 | 12,500 | 1,650 | 12,000 | 1,350 | 7,950 | 800 |
| 5 | 20,500 | 4,400 | 19,000 | 4,100 | 19,000 | 4,100 | 19,000 | 3,800 | 16,000 | 3,200 | 10,000 | 1,650 | 9,550 | 1,350 | 6,350 | 800 |
| 6 | 17,000 | 6,100 | 16,000 | 5,750 | 16,000 | 5,750 | 16,000 | 5,750 | 13,500 | 4,800 | 8,500 | 2,450 | 7,950 | 2,000 | 5,300 | 1,200 |
| 8 | 12,500 | 6,100 | 12,000 | 5,750 | 12,000 | 5,750 | 12,000 | 5,750 | 9,950 | 4,800 | 6,350 | 2,450 | 5,950 | 2,000 | 4,000 | 1,200 |
| 10 | 10,000 | 6,100 | 9,550 | 5,750 | 9,550 | 5,750 | 9,550 | 5,750 | 7,950 | 4,800 | 5,100 | 2,450 | 4,800 | 2,000 | 3,200 | 1,200 |
| 12 | 8,500 | 6,100 | 7,950 | 5,750 | 7,950 | 5,750 | 7,950 | 5,750 | 6,650 | 4,800 | 4,250 | 2,450 | 4,000 | 2,000 | 2,650 | 1,200 |
| 14 | 7,300 | 5,800 | 6,800 | 5,450 | 6,800 | 5,450 | 6,800 | 5,450 | 5,700 | 4,550 | 3,650 | 2,450 | 3,400 | 2,000 | 2,250 | 1,200 |
| 16 | 6,350 | 5,500 | 5,950 | 5,150 | 5,950 | 5,150 | 5,950 | 5,150 | 4,950 | 4,300 | 3,200 | 2,300 | 3,000 | 1,850 | 2,000 | 1,200 |
| 18 | 5,650 | 5,200 | 5,300 | 4,850 | 5,300 | 4,850 | 5,300 | 4,850 | 4,400 | 4,050 | 2,850 | 2,200 | 2,650 | 1,800 | 1,750 | 1,200 |
| 20 | 5,100 | 4,900 | 4,800 | 4,600 | 4,800 | 4,600 | 4,800 | 4,600 | 4,000 | 3,700 | 2,550 | 2,100 | 2,400 | 1,700 | 1,600 | 1,150 |
| 25 | 4,050 | 5,700 | 3,800 | 5,350 | 3,800 | 5,350 | 3,800 | 5,050 | 3,200 | 3,800 | 2,050 | 2,050 | 1,900 | 1,700 | 1,250 | 1,050 |
| 30 | 3,400 | 5,300 | 3,200 | 4,950 | 3,200 | 4,950 | 3,200 | 4,300 | 2,650 | 3,200 | 1,700 | 1,850 | 1,600 | 1,700 | 1,050 | 1,000 |
| 切込深さ Depth of Cut |  ap / ae | | | | | | | | | | | | | | | |
| | ap: 1D, ae: 0.05D<br>aeMax=0.8mm以下 | | | | ap: 1D, ae: 0.05D<br>aeMax=0.5mm以下 | | | | ap: 1D, ae: 0.03D<br>aeMax=0.5mm以下 | | ap: 1D, ae: 0.02D<br>aeMax=0.2mm以下 | | | | ap: 1D, ae: 0.01D<br>aeMax=0.2mm以下 | |

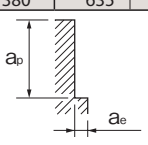
1. 高速高精度のマシニングセンタを利用した場合の、軽切込みの切削における基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. エアブローをご使用下さい。切削油剤を使用される場合は、発煙性の少ないものを選定して下さい。
4. エンドミルの選定の目安として、比較的柔らかい被削材の場合では、通常のFXエンドミルを優先して使用して下さい。
   硬い被削材では、FXスーパーエンドミル(FXS-EMS)を使用して下さい。

1. The indicated speeds and feeds are for high speed light milling with high speed / high precision machining centers.
2. Because tools can cause sparks, do not use flammable fluids.
3. Use an air blow. When using cutting fluids, use a high-quality fluid with high smoke retardant properties.
4. In general, use FX End Mills for milling less hard materials. For harder materials, use FXS End Mills (FXS-EMS).

## FXS-EML

### 側面切削

SIDE MILLING

| 被削材 Work Material | 炭素鋼 Carbon Steel S55C (～750N/mm²) | | 合金鋼 Alloy Steel SKD、SKS、SNCM (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel NAK55、HPM1、SKT (30～40HRC) | | 工具鋼・調質鋼・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD11、SKD61、NAK80 (40～45HRC) | | 調質鋼・超耐熱鋼 Hardened Steel・Heat Resistant Alloy Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 3,200 | 880 | 2,650 | 735 | 2,100 | 535 | 2,100 | 535 | 1,500 | 300 | 1,350 | 240 | 795 | 145 |
| 8 | 2,800 | 1,000 | 2,200 | 780 | 1,800 | 560 | 1,800 | 560 | 1,200 | 315 | 1,100 | 250 | 715 | 155 |
| 10 | 2,400 | 1,050 | 1,900 | 835 | 1,600 | 575 | 1,600 | 575 | 1,150 | 345 | 955 | 260 | 635 | 155 |
| 12 | 1,950 | 975 | 1,600 | 800 | 1,350 | 525 | 1,350 | 525 | 955 | 290 | 795 | 230 | 530 | 145 |
| 16 | 1,400 | 800 | 1,200 | 700 | 995 | 475 | 995 | 475 | 715 | 240 | 595 | 200 | 400 | 120 |
| 20 | 1,100 | 670 | 955 | 575 | 795 | 380 | 795 | 380 | 575 | 220 | 475 | 170 | 320 | 115 |
| 25 | 890 | 715 | 765 | 610 | 635 | 380 | 635 | 380 | 460 | 255 | 380 | 190 | 255 | 125 |
| 切込深さ Depth of Cut | ap: 3D, ae: 0.01D<br>aeMax=0.2mm以下  ap / ae | | | | | | | | | | ap: 3D, ae: 0.005D<br>aeMax=0.1mm以下 | | | |

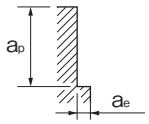
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. エアブローをご使用下さい。切削油剤を使用する場合は、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. We recommend using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant properties.

形状寸法表
SPECIFICATION CHARTS
DUR-SMF▶P311-31

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DUR-SMF
### 側面切削 SIDE MILLING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・合金工具鋼 Alloy Steel・Tool Steel SCM・SKS・SKD (～30HRC) | | プリハードン鋼・焼入れ鋼 Prehardened Steel・Hardened Steel PX5・NAK80 (30～45HRC) | | 調質鋼 Hardened Steel ～55HRC | | ～60HRC | | ～65HRC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 200～300m/min | | 200～300m/min | | 160～200m/min | | 120～160m/min | | 120～160m/min | | 90～110m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 13,260 | 8,900 | 13,260 | 8,900 | 9,540 | 4,000 | 7,420 | 1,860 | 7,420 | 1,860 | 5,300 | 1,330 |
| 8 | 9,940 | 11,400 | 9,940 | 11,400 | 7,160 | 5,150 | 5,570 | 2,400 | 5,570 | 2,400 | 3,970 | 1,710 |
| 10 | 7,950 | 13,900 | 7,950 | 13,900 | 5,720 | 6,290 | 4,450 | 2,930 | 4,450 | 2,930 | 3,180 | 2,090 |
| 12 | 6,630 | 16,500 | 6,630 | 16,500 | 4,770 | 7,440 | 3,710 | 3,470 | 3,710 | 3,470 | 2,650 | 2,480 |
| 16 | 4,970 | 16,500 | 4,970 | 16,500 | 3,580 | 7,440 | 2,780 | 3,470 | 2,780 | 3,470 | 1,980 | 2,480 |
| 20 | 3,970 | 16,500 | 3,970 | 16,500 | 2,860 | 7,440 | 2,220 | 3,470 | 2,220 | 3,470 | 1,590 | 2,480 |
| 切込深さ Depth of Cut |  | | | | ap 1.5D / ae 0.04D | | | | ap 1.5D / ae 0.03D | | ap 1.5D / ae 0.02D | |

| 被削材 Work Material | ステンレス鋼 Stainless Steel SUS304・SUS420 | | チタン合金 Titanium Alloy Ti-6Al-4V | | Ni基合金 Ni-Based Alloy Inconel 718 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70～90m/min | | 120～160m/min | | 40～60m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 4,240 | 1,420 | 7,420 | 1,550 | 2,650 | 220 |
| 8 | 3,180 | 1,830 | 5,570 | 2,000 | 1,980 | 280 |
| 10 | 2,540 | 2,230 | 4,450 | 2,440 | 1,590 | 350 |
| 12 | 2,120 | 2,640 | 3,710 | 2,890 | 1,320 | 410 |
| 16 | 1,590 | 2,640 | 2,780 | 3,780 | 990 | 530 |
| 20 | 1,270 | 2,640 | 2,220 | 3,780 | 790 | 660 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.04D | | ap 1.5D / ae 0.02D | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. チタン合金，Ni 基合金の加工には、水溶性切削油剤の使用を推奨します。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Please use water-soluble coolant when machining titanium alloy, Ni-based alloy.



Pro カタログ

# オーエスジー公式アプリ
# Pro カタログ

## デジタルカタログ

カタログ

最新の総合カタログや製品カタログを時間・場所問わず閲覧できます。しおりを挟んだり、メールでカタログを共有することも可能です。




### 総合カタログ

いつでもどこでもカタログを。

### 製品カタログ

最新カタログをいち早く。




## コードスキャン

コードスキャン

アプリ限定

バーコード・二次元コードに対応したスキャン機能です。工具のスペック情報や切削条件、検査成績表などの各種データを取得することができます。



※二次元コードは一部製品に限ります

## CADデータダウンロード

CADデータダウンロード

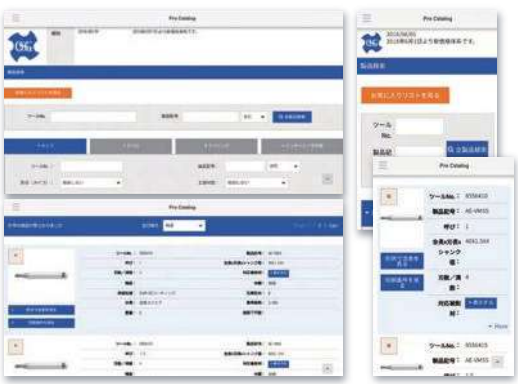
工具のDXFファイル・STEPファイルをパソコンやスマートフォンからいつでもダウンロードできます。



## 製品検索

製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



アプリの使い方・ダウンロードはこちら

**さらに、製品動画やFAQサイトなどOSG情報が満載！**

**最新情報を掲載中　今すぐダウンロード！**

形状寸法表
SPECIFICATION CHARTS
FXS-HO-EBDS▶P340-13

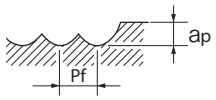
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FXS-HO-EBDS

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKD、SKT、NAK55 (30～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 3× 6 | 14,500 | 3,000 | 14,500 | 2,900 | 13,000 | 2,600 | 12,000 | 2,400 | 10,500 | 2,100 | 9,500 | 1,900 | 5,300 | 635 |
| R 4× 8 | 11,000 | 2,500 | 11,000 | 2,200 | 9,900 | 1,950 | 9,150 | 1,800 | 7,950 | 1,550 | 7,150 | 1,400 | 3,950 | 470 |
| R 5×10 | 8,900 | 2,100 | 8,900 | 1,750 | 7,950 | 1,550 | 7,300 | 1,450 | 6,350 | 1,250 | 5,700 | 1,100 | 3,150 | 375 |
| R 6×12 | 7,400 | 1,750 | 7,400 | 1,450 | 6,600 | 1,300 | 6,100 | 1,200 | 5,300 | 1,050 | 4,750 | 950 | 2,650 | 315 |
| R 8×16 | 5,550 | 1,300 | 5,550 | 1,100 | 4,950 | 990 | 4,550 | 910 | 3,950 | 790 | 3,550 | 710 | 1,950 | 230 |
| R10×20 | 4,450 | 1,050 | 4,450 | 890 | 3,950 | 790 | 3,650 | 730 | 3,150 | 630 | 2,850 | 570 | 1,550 | 185 |

切込深さ Depth of Cut

| | ap | Pf |
|---|---|---|
| RE≦8 | 0.05D | 0.1D |
| 8<RE | 0.8mm | 0.1D |




| ap | Pf |
|---|---|
| 0.02D | 0.1D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.

## FXS-HO-EBDS

### 高速切削用

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。

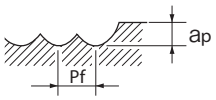
### HIGH-SPEED LIGHT MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKD、SKT、NAK55 (30～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 3× 6 | 25,000 | 8,000 | 21,000 | 6,700 | 18,500 | 5,900 | 17,500 | 4,200 | 13,000 | 3,100 | 10,000 | 2,000 |
| R 4× 8 | 19,000 | 6,050 | 15,500 | 4,950 | 13,500 | 4,300 | 13,000 | 3,100 | 9,900 | 2,350 | 7,550 | 1,500 |
| R 5×10 | 15,000 | 4,800 | 12,500 | 4,000 | 11,000 | 3,500 | 10,500 | 2,500 | 7,950 | 1,900 | 6,000 | 1,200 |
| R 6×12 | 12,500 | 4,000 | 10,500 | 3,350 | 9,250 | 2,950 | 8,750 | 2,100 | 6,600 | 1,550 | 5,000 | 1,000 |
| R 8×16 | 9,500 | 3,000 | 7,950 | 2,500 | 6,950 | 2,200 | 6,550 | 1,550 | 4,950 | 1,150 | 3,750 | 750 |
| R10×20 | 7,600 | 2,400 | 6,350 | 2,000 | 5,550 | 1,750 | 5,250 | 1,250 | 3,950 | 945 | 3,000 | 600 |

切込深さ Depth of Cut

| ap | Pf |
|---|---|
| 0.02D | 0.05D |

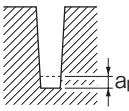
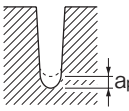


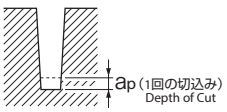
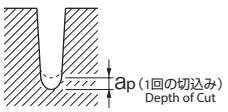

| | ap | Pf |
|---|---|---|
| RE≦8 | 0.02D | 0.05D |
| 8<RE | 0.32mm | 0.05D |

1. スピンドルスルーによるクーラント、エアーの供給装置を備えた高速高精度の機械での、高速軽切削加工の場合の基準条件表です。
2. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
3. エアブローをご使用下さい。切削油剤を使用される場合は、発煙性の少ないものを選定して下さい。
4. エンドミルの選定の目安として、比較的柔らかい被削材の場合では、通常のFXエンドミルを優先して使用して下さい。

1. These conditions are for light milling with precise, high speed / feed machines that supply air and coolant through the spindle.
2. Because tools can cause sparks, do not use flammable fluids.
3. We recommend using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant properties.
4. In general, use FX End Mills for milling less hard materials.

## FXS-RB-TPE/FXS-RB-TPB/FXS-RB-TPCR

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | |
|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap |
| 0.5 | 31,500 | 630 | 0.01 ～0.025 | 31,500 | 565 | 0.01 ～0.025 | 31,500 | 475 | 0.01 ～0.025 |
| 0.6 | 31,500 | 755 | 0.012～0.03 | 31,500 | 680 | 0.012～0.03 | 29,500 | 530 | 0.012～0.03 |
| 0.7 | 29,000 | 940 | 0.014～0.035 | 27,000 | 680 | 0.014～0.035 | 25,000 | 530 | 0.014～0.035 |
| 0.8 | 25,000 | 935 | 0.016～0.04 | 23,500 | 680 | 0.016～0.04 | 22,000 | 530 | 0.016～0.04 |
| 0.9 | 22,500 | 935 | 0.018～0.045 | 21,000 | 680 | 0.018～0.045 | 19,500 | 530 | 0.018～0.045 |
| 1 | 20,000 | 930 | 0.02 ～0.05 | 19,000 | 680 | 0.02 ～0.05 | 17,500 | 530 | 0.02 ～0.05 |
| 1.2 | 16,500 | 930 | 0.024～0.06 | 15,500 | 680 | 0.024～0.06 | 14,500 | 530 | 0.024～0.06 |
| 1.5 | 13,500 | 930 | 0.03 ～0.075 | 12,500 | 680 | 0.03 ～0.075 | 11,500 | 530 | 0.03 ～0.075 |
| 1.6 | 12,500 | 930 | 0.032～0.08 | 11,500 | 680 | 0.032～0.08 | 11,000 | 530 | 0.032～0.08 |
| 1.8 | 11,000 | 930 | 0.036～0.09 | 10,500 | 680 | 0.036～0.09 | 9,900 | 530 | 0.036～0.09 |
| 2 | 10,000 | 930 | 0.04 ～0.1 | 9,500 | 680 | 0.04 ～0.1 | 8,900 | 530 | 0.04 ～0.1 |
| 2.5 | 8,100 | 930 | 0.05 ～0.125 | 7,600 | 680 | 0.05 ～0.125 | 7,100 | 530 | 0.05 ～0.125 |
| 3 | 6,750 | 930 | 0.06 ～0.15 | 6,350 | 680 | 0.06 ～0.15 | 5,900 | 530 | 0.06 ～0.15 |
| 切込深さ Depth of Cut |  ap（1回の切込み） Depth of Cut | | |  ap（1回の切込み） Depth of Cut | | | | | |

| 被削材 Work Material | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304、SKD (38～45HRC) | | | 調質鋼 Hardened Steel (45～55HRC) | | |
|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | ap |
| 0.5 | 31,500 | 440 | 0.01 ～0.025 | 19,000 | 250 | 0.005～0.01 |
| 0.6 | 26,500 | 445 | 0.012～0.03 | 15,500 | 260 | 0.006～0.012 |
| 0.7 | 22,500 | 445 | 0.014～0.035 | 13,500 | 260 | 0.007～0.014 |
| 0.8 | 19,500 | 445 | 0.016～0.04 | 11,500 | 260 | 0.008～0.016 |
| 0.9 | 17,500 | 445 | 0.018～0.045 | 10,500 | 260 | 0.009～0.018 |
| 1 | 15,500 | 445 | 0.02 ～0.05 | 9,500 | 260 | 0.01 ～0.02 |
| 1.2 | 13,000 | 445 | 0.024～0.06 | 7,950 | 260 | 0.012～0.024 |
| 1.5 | 10,500 | 445 | 0.03 ～0.075 | 6,350 | 260 | 0.015～0.03 |
| 1.6 | 9,900 | 445 | 0.032～0.08 | 5,950 | 260 | 0.016～0.032 |
| 1.8 | 8,800 | 445 | 0.036～0.09 | 5,300 | 260 | 0.018～0.036 |
| 2 | 7,950 | 445 | 0.04 ～0.1 | 4,750 | 260 | 0.02 ～0.04 |
| 2.5 | 6,350 | 445 | 0.05 ～0.125 | 3,800 | 260 | 0.025～0.05 |
| 3 | 5,300 | 445 | 0.06 ～0.15 | 3,150 | 260 | 0.03 ～0.06 |
| 切込深さ Depth of Cut |  ap（1回の切込み） Depth of Cut | | |  ap（1回の切込み） Depth of Cut | | |

1. 溝深さに合わせ、首下長さは短いものより順次使用するほうが効果的です。
2. コーナ部の加工は、送り速度を約1/2に下げて下さい。
3. 切削油剤をご使用下さい。

1. To achieve flute depth, sequential one neck length at a time is most effective.
2. When corner processing, reduce the feed rate by approximately half.
3. Use cutting fluid.

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



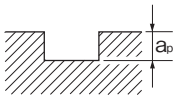
## MG-EDS
### 溝切削

SLOTTING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 14,000 | 140 | 12,500 | 95 | 10,500 | 40 | 8,900 | 30 | 7,000 | 25 | 31,500 | 200 |
| 1.5 | 9,500 | 140 | 8,450 | 100 | 7,200 | 45 | 5,900 | 30 | 4,650 | 25 | 21,000 | 200 |
| 2 | 7,150 | 150 | 6,350 | 100 | 5,400 | 60 | 4,450 | 30 | 3,500 | 25 | 15,500 | 200 |
| 3 | 4,750 | 160 | 4,200 | 100 | 3,600 | 80 | 2,950 | 30 | 2,300 | 25 | 10,500 | 300 |
| 4 | 3,550 | 160 | 3,150 | 100 | 2,700 | 80 | 2,200 | 30 | 1,750 | 25 | 7,950 | 300 |
| 5 | 2,850 | 165 | 2,500 | 100 | 2,150 | 80 | 1,750 | 30 | 1,400 | 25 | 6,350 | 300 |
| 6 | 2,350 | 195 | 2,100 | 100 | 1,800 | 80 | 1,450 | 30 | 1,150 | 25 | 5,300 | 300 |
| 8 | 1,750 | 230 | 1,550 | 100 | 1,350 | 80 | 1,100 | 30 | 875 | 25 | 3,950 | 300 |
| 10 | 1,400 | 230 | 1,250 | 100 | 1,050 | 80 | 890 | 30 | 700 | 25 | 3,150 | 300 |
| 12 | 1,150 | 230 | 1,050 | 100 | 900 | 80 | 740 | 30 | 580 | 25 | 2,650 | 300 |
| 14 | 1,000 | 230 | 905 | 100 | 770 | 80 | 635 | 30 | 500 | 25 | 2,250 | 300 |
| 16 | 895 | 235 | 795 | 100 | 675 | 80 | 555 | 35 | 435 | 25 | 1,950 | 300 |
| 18 | 795 | 235 | 705 | 100 | 600 | 80 | 495 | 35 | 385 | 25 | 1,750 | 300 |
| 20 | 715 | 235 | 635 | 100 | 540 | 80 | 445 | 35 | 350 | 25 | 1,550 | 300 |
| 22 | 650 | 235 | 575 | 100 | 490 | 80 | 405 | 35 | 315 | 25 | 1,400 | 300 |
| 24 | 595 | 230 | 530 | 100 | 450 | 80 | 370 | 35 | 290 | 25 | 1,300 | 300 |
| 25 | 570 | 230 | 505 | 100 | 430 | 80 | 355 | 35 | 280 | 25 | 1,250 | 300 |

切込深さ Depth of Cut

| | ap |
|---|---|
| DC＜φ3 | 0.3D |
| φ3≦DC | 0.5D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

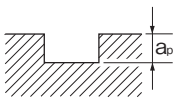
## MG-EDN
### 溝切削

SLOTTING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 4,200 | 125 | 3,800 | 90 | 3,150 | 70 | 2,650 | 30 | 2,100 | 25 | 10,500 | 185 |
| 4 | 3,150 | 135 | 2,850 | 90 | 2,350 | 70 | 1,950 | 30 | 1,550 | 25 | 7,950 | 190 |
| 5 | 2,500 | 135 | 2,250 | 90 | 1,900 | 70 | 1,550 | 30 | 1,250 | 25 | 6,350 | 190 |
| 6 | 2,100 | 160 | 1,900 | 90 | 1,550 | 70 | 1,300 | 30 | 1,050 | 25 | 5,300 | 200 |
| 8 | 1,550 | 160 | 1,400 | 90 | 1,150 | 70 | 995 | 30 | 795 | 25 | 3,950 | 245 |
| 10 | 1,250 | 175 | 1,100 | 90 | 955 | 70 | 795 | 30 | 635 | 25 | 3,150 | 245 |
| 12 | 1,050 | 175 | 955 | 90 | 795 | 70 | 660 | 30 | 530 | 25 | 2,650 | 245 |

切込深さ Depth of Cut

| ap |
|---|
| 0.5D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

形状寸法表 SPECIFICATION CHARTS MG-EDS-3▶P266
形状寸法表 SPECIFICATION CHARTS MG-EDL▶P276

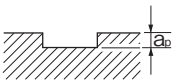
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## MG-EDS-3
## 溝切削 SLOTTING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 (非快削) Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 0.1 | 31,500 | 15 | 31,500 | 15 | 31,500 | 15 | 31,500 | 10 | — | — | 32,000 | 20 | 31,500 | 15 |
| 0.2 | 31,500 | 30 | 31,500 | 30 | 31,500 | 25 | 31,500 | 20 | 25,000 | 15 | 32,000 | 40 | 31,500 | 30 |
| 0.4 | 31,500 | 60 | 31,500 | 60 | 27,000 | 40 | 22,000 | 25 | 17,500 | 20 | 32,000 | 80 | 31,500 | 60 |
| 0.6 | 23,500 | 75 | 21,000 | 65 | 18,000 | 40 | 14,500 | 25 | 11,500 | 20 | 32,000 | 120 | 21,000 | 65 |
| 0.8 | 17,500 | 80 | 15,500 | 70 | 13,500 | 40 | 11,000 | 25 | 8,750 | 20 | 32,000 | 160 | 15,500 | 70 |
| 1 | 14,000 | 95 | 12,500 | 85 | 10,500 | 40 | 8,900 | 30 | 7,000 | 25 | 32,000 | 205 | 12,500 | 85 |
| 1.2 | 11,500 | 95 | 10,500 | 85 | 9,000 | 40 | 7,400 | 30 | 5,800 | 25 | 26,500 | 200 | 10,500 | 85 |
| 1.4 | 10,000 | 95 | 9,050 | 85 | 7,700 | 45 | 6,350 | 30 | 5,000 | 25 | 22,500 | 200 | 9,050 | 85 |
| 1.6 | 8,950 | 100 | 7,950 | 90 | 6,750 | 45 | 5,550 | 30 | 4,350 | 25 | 19,500 | 200 | 7,950 | 90 |
| 1.8 | 7,950 | 105 | 7,050 | 95 | 6,000 | 55 | 4,950 | 30 | 3,850 | 25 | 17,500 | 200 | 7,050 | 95 |
| 2 | 7,150 | 110 | 6,350 | 100 | 5,400 | 60 | 4,450 | 30 | 3,500 | 25 | 15,500 | 200 | 6,350 | 100 |
| 2.2 | 6,500 | 110 | 5,750 | 100 | 4,900 | 65 | 4,050 | 30 | 3,150 | 25 | 14,000 | 245 | 5,750 | 100 |
| 2.4 | 5,950 | 110 | 5,300 | 100 | 4,500 | 65 | 3,700 | 30 | 2,900 | 25 | 13,000 | 285 | 5,300 | 100 |
| 2.6 | 5,500 | 110 | 4,850 | 100 | 4,150 | 70 | 3,400 | 30 | 2,650 | 25 | 12,000 | 300 | 4,850 | 100 |
| 2.8 | 5,100 | 110 | 4,500 | 100 | 3,850 | 75 | 3,150 | 30 | 2,500 | 25 | 11,000 | 300 | 4,500 | 100 |
| 3 | 4,750 | 110 | 4,200 | 100 | 3,600 | 80 | 2,950 | 30 | 2,300 | 25 | 10,500 | 300 | 4,200 | 100 |

切込深さ Depth of Cut

| | ap |
|---|---|
| DC＜φ1 | 0.1D |
| φ1≦DC | 0.3D |



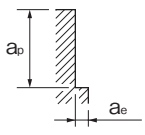

1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。
1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

## MG-EDL
## 側面切削 SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 (非快削) Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 4,750 | 160 | 3,350 | 80 | 2,850 | 65 | 2,300 | 25 | 1,900 | 20 | 8,450 | 240 |
| 4 | 3,550 | 160 | 2,500 | 80 | 2,100 | 65 | 1,750 | 25 | 1,400 | 20 | 6,350 | 240 |
| 5 | 2,850 | 165 | 2,000 | 80 | 1,700 | 65 | 1,400 | 25 | 1,100 | 20 | 5,050 | 240 |
| 6 | 2,350 | 195 | 1,650 | 80 | 1,400 | 65 | 1,150 | 25 | 955 | 20 | 4,200 | 240 |
| 8 | 1,750 | 230 | 1,250 | 80 | 1,050 | 65 | 875 | 25 | 715 | 20 | 3,150 | 240 |
| 10 | 1,400 | 230 | 1,000 | 80 | 855 | 65 | 700 | 25 | 570 | 20 | 2,500 | 240 |
| 12 | 1,150 | 230 | 845 | 80 | 715 | 65 | 580 | 25 | 475 | 20 | 2,100 | 240 |
| 14 | 1,000 | 230 | 725 | 80 | 610 | 65 | 500 | 25 | 405 | 20 | 1,800 | 240 |
| 16 | 895 | 235 | 635 | 80 | 535 | 65 | 435 | 25 | 355 | 20 | 1,550 | 240 |
| 18 | 795 | 235 | 565 | 80 | 475 | 65 | 385 | 25 | 315 | 20 | 1,400 | 240 |
| 20 | 715 | 235 | 505 | 80 | 430 | 65 | 350 | 25 | 285 | 20 | 1,250 | 240 |
| 22 | 650 | 235 | 460 | 80 | 390 | 65 | 315 | 25 | 260 | 20 | 1,150 | 240 |
| 24 | 595 | 230 | 420 | 80 | 355 | 65 | 290 | 25 | 235 | 20 | 1,050 | 240 |
| 25 | 570 | 230 | 405 | 80 | 340 | 65 | 280 | 25 | 225 | 20 | 1,000 | 240 |

切込深さ Depth of Cut

| ap | ap |
|---|---|
| 2.5D | 0.05D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。
1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

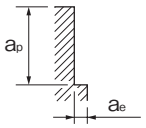
## MG-EXDL
### 側面切削

SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 2,650 | 80 | 2,300 | 55 | 2,100 | 50 | 1,650 | 30 | 1,450 | 25 | 3,700 | 110 |
| 4 | 1,950 | 80 | 1,750 | 55 | 1,550 | 50 | 1,250 | 30 | 1,100 | 25 | 2,750 | 110 |
| 5 | 1,550 | 80 | 1,400 | 55 | 1,250 | 50 | 1,000 | 30 | 890 | 25 | 2,200 | 110 |
| 6 | 1,300 | 80 | 1,150 | 55 | 1,050 | 50 | 845 | 30 | 740 | 25 | 1,850 | 110 |
| 8 | 995 | 80 | 875 | 55 | 795 | 50 | 635 | 30 | 555 | 25 | 1,350 | 110 |
| 10 | 795 | 80 | 700 | 55 | 635 | 50 | 505 | 30 | 445 | 25 | 1,100 | 110 |
| 12 | 660 | 75 | 580 | 55 | 530 | 50 | 420 | 30 | 370 | 25 | 925 | 110 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 6D | 0.01D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

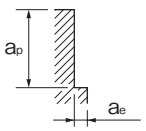
## MG-EMS
### 側面切削

SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 2 | 6,650 | 505 | 7,000 | 250 | 5,250 | 230 | 4,750 | 95 | 3,800 | 75 | 19,000 | 835 |
| 3 | 4,450 | 505 | 4,650 | 295 | 3,500 | 230 | 3,150 | 90 | 2,500 | 70 | 12,500 | 900 |
| 4 | 3,300 | 595 | 3,500 | 350 | 2,600 | 230 | 2,350 | 90 | 1,900 | 70 | 9,500 | 950 |
| 5 | 2,650 | 595 | 2,800 | 370 | 2,100 | 250 | 1,900 | 90 | 1,500 | 70 | 7,600 | 970 |
| 6 | 2,200 | 595 | 2,300 | 385 | 1,750 | 250 | 1,550 | 90 | 1,250 | 70 | 6,350 | 990 |
| 8 | 1,650 | 595 | 1,750 | 390 | 1,300 | 250 | 1,150 | 90 | 955 | 70 | 4,750 | 1,000 |
| 10 | 1,300 | 610 | 1,400 | 445 | 1,050 | 250 | 955 | 90 | 760 | 70 | 3,800 | 1,000 |
| 12 | 1,100 | 620 | 1,150 | 450 | 875 | 250 | 795 | 90 | 635 | 70 | 3,150 | 1,100 |
| 14 | 955 | 720 | 1,000 | 525 | 750 | 275 | 680 | 90 | 545 | 70 | 2,700 | 1,100 |
| 16 | 835 | 755 | 875 | 545 | 655 | 295 | 595 | 90 | 475 | 70 | 2,350 | 1,100 |
| 18 | 740 | 835 | 775 | 550 | 580 | 295 | 530 | 90 | 420 | 70 | 2,100 | 1,100 |
| 20 | 665 | 835 | 700 | 560 | 525 | 295 | 475 | 85 | 380 | 70 | 1,900 | 1,100 |
| 22 | 605 | 760 | 635 | 505 | 475 | 270 | 430 | 80 | 345 | 65 | 1,700 | 1,050 |
| 24 | 555 | 695 | 580 | 460 | 435 | 245 | 395 | 70 | 315 | 55 | 1,550 | 965 |
| 25 | 535 | 670 | 560 | 445 | 420 | 235 | 380 | 70 | 305 | 55 | 1,500 | 935 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 1.5D | 0.1D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

形状寸法表 SPECIFICATION CHARTS MG-EML▶P295
形状寸法表 SPECIFICATION CHARTS MG-EXML▶P295

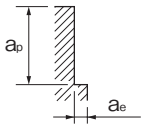
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## MG-EML
## 側面切削 SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 3,600 | 410 | 3,700 | 140 | 2,750 | 105 | 2,650 | 75 | 2,100 | 60 | 10,500 | 755 |
| 4 | 2,700 | 485 | 2,750 | 165 | 2,050 | 105 | 1,950 | 75 | 1,550 | 60 | 7,950 | 795 |
| 5 | 2,150 | 485 | 2,200 | 175 | 1,650 | 115 | 1,550 | 75 | 1,250 | 60 | 6,350 | 810 |
| 6 | 1,800 | 485 | 1,850 | 185 | 1,350 | 115 | 1,300 | 75 | 1,050 | 60 | 5,300 | 825 |
| 8 | 1,350 | 485 | 1,350 | 185 | 1,000 | 115 | 995 | 75 | 795 | 60 | 3,950 | 835 |
| 10 | 1,050 | 495 | 1,100 | 210 | 825 | 115 | 795 | 75 | 635 | 60 | 3,150 | 840 |
| 12 | 900 | 510 | 925 | 210 | 690 | 115 | 660 | 75 | 530 | 60 | 2,650 | 940 |
| 14 | 770 | 605 | 795 | 250 | 590 | 130 | 565 | 75 | 455 | 60 | 2,250 | 935 |
| 16 | 675 | 625 | 695 | 260 | 515 | 140 | 495 | 75 | 395 | 60 | 1,950 | 935 |
| 18 | 600 | 675 | 615 | 245 | 460 | 140 | 440 | 75 | 350 | 60 | 1,750 | 935 |
| 20 | 540 | 680 | 555 | 220 | 410 | 135 | 395 | 70 | 315 | 55 | 1,550 | 920 |
| 22 | 490 | 615 | 505 | 200 | 375 | 125 | 360 | 65 | 285 | 50 | 1,400 | 870 |
| 24 | 450 | 565 | 460 | 180 | 345 | 115 | 330 | 60 | 265 | 50 | 1,300 | 810 |
| 25 | 430 | 540 | 445 | 175 | 330 | 110 | 315 | 55 | 255 | 45 | 1,250 | 780 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 2.5D | 0.05D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

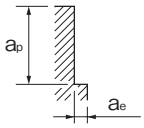
1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

## MG-EXML
## 側面切削 SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 2,650 | 125 | 2,300 | 80 | 2,000 | 70 | 1,650 | 50 | 1,450 | 40 | 3,700 | 175 |
| 4 | 1,950 | 125 | 1,750 | 80 | 1,550 | 75 | 1,250 | 50 | 1,100 | 40 | 2,750 | 175 |
| 5 | 1,550 | 125 | 1,400 | 80 | 1,250 | 75 | 1,000 | 50 | 890 | 45 | 2,200 | 175 |
| 6 | 1,300 | 125 | 1,150 | 80 | 1,050 | 75 | 845 | 50 | 740 | 45 | 1,850 | 175 |
| 8 | 995 | 125 | 875 | 80 | 795 | 75 | 635 | 50 | 555 | 45 | 1,350 | 175 |
| 10 | 795 | 125 | 700 | 80 | 635 | 75 | 505 | 50 | 445 | 45 | 1,100 | 175 |
| 12 | 660 | 125 | 580 | 80 | 530 | 75 | 420 | 50 | 370 | 40 | 925 | 175 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 6D | 0.01D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表

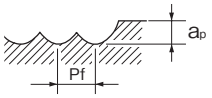


## MG-EBD

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 (非快削) Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R 0.5 × 1 | 13,000 | 105 | 13,000 | 100 | 9,500 | 60 | 7,950 | 30 | 6,350 | 20 | 32,000 | 150 |
| R 0.75 × 1.5 | 8,900 | 125 | 8,900 | 115 | 6,350 | 70 | 5,300 | 30 | 4,200 | 25 | 26,500 | 150 |
| R 1 × 2 | 6,650 | 135 | 6,650 | 115 | 4,750 | 80 | 3,950 | 40 | 3,150 | 30 | 19,500 | 250 |
| R 1.5 × 3 | 4,450 | 145 | 4,450 | 130 | 3,150 | 90 | 2,650 | 40 | 2,100 | 30 | 13,000 | 250 |
| R 2 × 4 | 3,300 | 185 | 3,300 | 135 | 2,350 | 90 | 1,950 | 40 | 1,550 | 30 | 9,900 | 250 |
| R 2.5 × 5 | 2,650 | 210 | 2,650 | 150 | 1,900 | 95 | 1,550 | 40 | 1,250 | 30 | 7,950 | 300 |
| R 3 × 6 | 2,200 | 230 | 2,200 | 150 | 1,550 | 90 | 1,300 | 40 | 1,050 | 30 | 6,600 | 300 |
| R 4 × 8 | 1,650 | 290 | 1,650 | 125 | 1,150 | 85 | 995 | 40 | 795 | 30 | 4,950 | 350 |
| R 5 ×10 | 1,300 | 290 | 1,300 | 120 | 955 | 85 | 795 | 40 | 635 | 30 | 3,950 | 350 |
| R 6 ×12 | 1,100 | 290 | 1,100 | 110 | 795 | 75 | 660 | 40 | 530 | 30 | 3,300 | 400 |
| R 7 ×14 | 955 | 295 | 955 | 110 | 680 | 75 | 565 | 40 | 455 | 30 | 2,800 | 400 |
| R 8 ×16 | 835 | 295 | 835 | 110 | 595 | 75 | 495 | 40 | 395 | 30 | 2,450 | 350 |
| R 9 ×18 | 740 | 295 | 740 | 110 | 530 | 75 | 440 | 40 | 350 | 30 | 2,200 | 350 |
| R10 ×20 | 665 | 265 | 665 | 110 | 475 | 75 | 395 | 40 | 315 | 30 | 1,950 | 350 |
| R12.5 ×25 | 535 | 210 | 535 | 110 | 380 | 75 | 315 | 35 | 255 | 30 | 1,550 | 350 |

切込深さ Depth of Cut

| | ap | Pf |
|---|---|---|
| RE＜1.5 | 0.1D | 0.2D |
| 1.5≦RE | 0.3D | 0.7D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

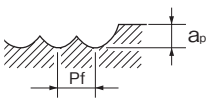
1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

## MG-EBD-3

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼 (快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼 (非快削) Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| R0.05 ×0.1 | 32,000 | 25 | 32,000 | 25 | 32,000 | 20 | 32,000 | 10 | — | — | 49,500 | 30 |
| R0.1 ×0.2 | 32,000 | 50 | 32,000 | 50 | 32,000 | 40 | 32,000 | 20 | — | — | 49,500 | 60 |
| R0.2 ×0.4 | 32,000 | 100 | 32,000 | 100 | 23,000 | 60 | 19,800 | 30 | — | — | 49,500 | 120 |
| R0.4 ×0.8 | 16,500 | 110 | 16,500 | 105 | 11,500 | 60 | 9,900 | 30 | 7,950 | 20 | 49,500 | 245 |
| R0.5 ×1 | 13,000 | 110 | 13,000 | 105 | 9,500 | 60 | 7,950 | 30 | 6,350 | 20 | 39,500 | 245 |
| R0.6 ×1.2 | 11,000 | 115 | 11,000 | 105 | 7,950 | 65 | 6,600 | 30 | 5,300 | 20 | 33,000 | 255 |
| R0.7 ×1.4 | 9,500 | 120 | 9,500 | 110 | 6,800 | 65 | 5,650 | 30 | 4,500 | 25 | 28,000 | 260 |
| R0.8 ×1.6 | 8,350 | 125 | 8,350 | 115 | 5,950 | 70 | 4,950 | 30 | 3,950 | 25 | 24,500 | 270 |
| R0.9 ×1.8 | 7,400 | 130 | 7,400 | 115 | 5,300 | 75 | 4,400 | 35 | 3,500 | 25 | 22,000 | 280 |
| R1 ×2 | 6,650 | 135 | 6,650 | 115 | 4,750 | 80 | 3,950 | 40 | 3,150 | 30 | 19,500 | 290 |
| R1.1 ×2.2 | 6,050 | 140 | 6,050 | 120 | 4,300 | 85 | 3,600 | 40 | 2,850 | 30 | 18,000 | 295 |
| R1.2 ×2.4 | 5,550 | 140 | 5,550 | 120 | 3,950 | 85 | 3,300 | 40 | 2,650 | 30 | 16,500 | 295 |
| R1.3 ×2.6 | 5,100 | 140 | 5,100 | 120 | 3,650 | 85 | 3,050 | 40 | 2,400 | 30 | 15,000 | 295 |
| R1.4 ×2.8 | 4,750 | 145 | 4,750 | 125 | 3,400 | 90 | 2,800 | 40 | 2,250 | 30 | 14,000 | 295 |
| R1.5 ×3 | 4,450 | 145 | 4,450 | 130 | 3,150 | 90 | 2,650 | 40 | 2,100 | 30 | 13,000 | 295 |

切込深さ Depth of Cut

| ap | Pf |
|---|---|
| 0.1D | 0.2D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

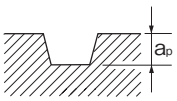
1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

形状寸法表 SPECIFICATION CHARTS MG-TRC▶P443
形状寸法表 SPECIFICATION CHARTS MG-EKD▶P269

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## MG-TRC
### 溝切削 SLOTTING

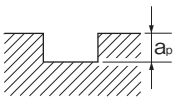
| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 2 | 5,250 | 130 | 4,600 | 110 | 3,650 | 90 | 2,850 | 70 | 2,500 | 60 | 10,000 | 180 |
| 2.5 | 4,200 | 130 | 3,650 | 110 | 2,900 | 85 | 2,250 | 65 | 2,000 | 55 | 8,250 | 190 |
| 3 | 3,500 | 130 | 3,050 | 110 | 2,400 | 85 | 1,900 | 65 | 1,650 | 55 | 6,850 | 190 |
| 3.5 | 3,000 | 130 | 2,600 | 110 | 2,050 | 85 | 1,600 | 60 | 1,450 | 55 | 5,900 | 190 |
| 4 | 2,600 | 130 | 2,300 | 110 | 1,800 | 85 | 1,400 | 60 | 1,250 | 55 | 5,150 | 190 |
| 4.5 | 2,300 | 125 | 2,050 | 105 | 1,600 | 80 | 1,250 | 60 | 1,100 | 55 | 4,550 | 185 |
| 5 | 2,100 | 120 | 1,800 | 100 | 1,450 | 80 | 1,100 | 55 | 1,000 | 50 | 4,100 | 185 |
| 6 | 1,750 | 105 | 1,500 | 90 | 1,200 | 70 | 955 | 50 | 845 | 40 | 3,400 | 185 |
| 切込深さ Depth of Cut | ap 1D | | | | | | | | | | | |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。
1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

## MG-EKD
### 溝切削 SLOTTING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 3,800 | 90 | 3,350 | 60 | 2,950 | 55 | 2,300 | 20 | 1,900 | 18 | 8,450 | 190 |
| 4 | 2,850 | 125 | 2,500 | 60 | 2,200 | 55 | 1,750 | 20 | 1,400 | 18 | 6,350 | 190 |
| 5 | 2,250 | 120 | 2,000 | 60 | 1,750 | 55 | 1,400 | 20 | 1,100 | 18 | 5,050 | 190 |
| 6 | 1,900 | 125 | 1,650 | 60 | 1,450 | 55 | 1,150 | 20 | 955 | 18 | 4,200 | 190 |
| 8 | 1,400 | 125 | 1,250 | 60 | 1,100 | 55 | 875 | 20 | 715 | 18 | 3,150 | 190 |
| 10 | 1,100 | 125 | 1,000 | 60 | 890 | 55 | 700 | 20 | 570 | 18 | 2,500 | 190 |
| 12 | 955 | 125 | 845 | 65 | 740 | 55 | 580 | 20 | 475 | 18 | 2,100 | 190 |
| 切込深さ Depth of Cut | ap 0.5D | | | | | | | | | | | |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。
1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



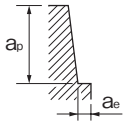
## MG-TPDS
### 側面切削

SIDE MILLING

| 被削材 work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 12,500 | 110 | 11,000 | 75 | 9,500 | 30 | 7,950 | 25 | 6,350 | 15 | 31,500 | 155 |
| 1.5 | 8,450 | 110 | 7,600 | 75 | 6,350 | 40 | 5,300 | 25 | 4,200 | 16 | 21,000 | 160 |
| 2 | 6,350 | 120 | 5,700 | 90 | 4,750 | 50 | 3,950 | 25 | 3,150 | 16 | 15,500 | 170 |
| 2.5 | 5,050 | 120 | 4,550 | 90 | 3,800 | 55 | 3,150 | 25 | 2,500 | 16 | 12,500 | 175 |
| 3 | 4,200 | 125 | 3,800 | 90 | 3,150 | 60 | 2,650 | 25 | 2,100 | 16 | 10,500 | 190 |
| 4 | 3,150 | 125 | 2,850 | 90 | 2,350 | 60 | 1,950 | 25 | 1,550 | 17 | 7,950 | 195 |
| 5 | 2,500 | 145 | 2,250 | 90 | 1,900 | 60 | 1,550 | 25 | 1,250 | 17 | 6,350 | 210 |
| 6 | 2,100 | 155 | 1,900 | 90 | 1,550 | 65 | 1,300 | 25 | 1,050 | 19 | 5,300 | 225 |
| 8 | 1,550 | 150 | 1,400 | 90 | 1,150 | 65 | 995 | 25 | 795 | 19 | 3,950 | 225 |
| 10 | 1,250 | 175 | 1,100 | 90 | 955 | 70 | 795 | 25 | 635 | 20 | 3,150 | 245 |
| 12 | 1,050 | 175 | 955 | 90 | 795 | 70 | 660 | 25 | 530 | 20 | 2,650 | 245 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 2.5D | 0.05D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

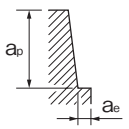
## MG-TPMS
### 側面切削

SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (Mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 2 | 6,350 | 245 | 5,700 | 160 | 4,750 | 100 | 3,950 | 50 | 3,150 | 30 | 15,500 | 325 |
| 2.5 | 5,050 | 245 | 4,550 | 160 | 3,800 | 115 | 3,150 | 50 | 2,500 | 30 | 12,500 | 330 |
| 3 | 4,200 | 255 | 3,800 | 165 | 3,150 | 115 | 2,650 | 50 | 2,100 | 30 | 10,500 | 335 |
| 4 | 3,150 | 275 | 2,850 | 175 | 2,350 | 115 | 1,950 | 50 | 1,550 | 30 | 7,950 | 335 |
| 5 | 2,500 | 280 | 2,250 | 175 | 1,900 | 130 | 1,550 | 50 | 1,250 | 30 | 6,350 | 350 |
| 6 | 2,100 | 295 | 1,900 | 180 | 1,550 | 130 | 1,300 | 50 | 1,050 | 30 | 5,300 | 370 |
| 8 | 1,550 | 300 | 1,400 | 180 | 1,150 | 135 | 995 | 50 | 795 | 40 | 3,950 | 375 |
| 10 | 1,250 | 340 | 1,100 | 180 | 955 | 140 | 795 | 50 | 635 | 40 | 3,150 | 375 |
| 12 | 1,050 | 340 | 955 | 180 | 795 | 140 | 660 | 50 | 530 | 40 | 2,650 | 380 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 2.5D | 0.05D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

形状寸法表
SPECIFICATION CHARTS
MG-EHS▶P311-39

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

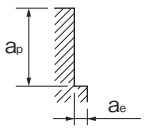
## MG-EHS
## 側面切削

SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 2,100 | 495 | 2,100 | 295 | 1,550 | 185 | 1,050 | 60 | 955 | 55 | 6,350 | 635 |
| 8 | 1,550 | 725 | 1,550 | 295 | 1,150 | 185 | 795 | 60 | 715 | 55 | 4,750 | 675 |
| 10 | 1,250 | 705 | 1,250 | 295 | 955 | 190 | 635 | 60 | 570 | 55 | 3,800 | 675 |
| 12 | 1,050 | 675 | 1,050 | 295 | 795 | 190 | 530 | 60 | 475 | 55 | 3,150 | 670 |
| 14 | 905 | 670 | 905 | 295 | 680 | 190 | 455 | 60 | 405 | 55 | 2,700 | 670 |
| 16 | 795 | 640 | 795 | 300 | 595 | 190 | 395 | 60 | 355 | 55 | 2,350 | 670 |
| 18 | 705 | 600 | 705 | 300 | 530 | 190 | 350 | 60 | 315 | 55 | 2,100 | 670 |
| 20 | 635 | 570 | 635 | 300 | 475 | 190 | 315 | 60 | 285 | 55 | 1,900 | 675 |
| 25 | 505 | 635 | 505 | 395 | 380 | 250 | 255 | 80 | 225 | 70 | 1,500 | 890 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 1.5D | 0.2D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

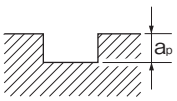
## MG-EHS
## 溝切削

SLOTTING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | 調質鋼・プリハードン鋼（非快削） Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKT、SKD、NAK80、HPM50 (38～45HRC) | | アルミニウム合金 Aluminum Alloy A7075 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 2,100 | 245 | 2,100 | 155 | 1,550 | 95 | 1,050 | 30 | 955 | 25 | 5,300 | 130 |
| 8 | 1,550 | 290 | 1,550 | 155 | 1,150 | 95 | 795 | 30 | 715 | 25 | 3,950 | 130 |
| 10 | 1,250 | 325 | 1,250 | 155 | 955 | 100 | 635 | 30 | 570 | 25 | 3,150 | 130 |
| 12 | 1,050 | 330 | 1,050 | 155 | 795 | 100 | 530 | 30 | 475 | 25 | 2,650 | 130 |
| 14 | 905 | 330 | 905 | 155 | 680 | 100 | 455 | 30 | 405 | 25 | 2,250 | 130 |
| 16 | 795 | 335 | 795 | 160 | 595 | 100 | 395 | 30 | 355 | 25 | 1,950 | 130 |
| 18 | 705 | 335 | 705 | 160 | 530 | 100 | 350 | 30 | 315 | 25 | 1,750 | 130 |
| 20 | 635 | 335 | 635 | 160 | 475 | 100 | 315 | 30 | 285 | 25 | 1,550 | 130 |
| 25 | 505 | 440 | 505 | 210 | 380 | 130 | 255 | 40 | 225 | 35 | 1,250 | 175 |

切込深さ Depth of Cut

| ap |
|---|
| 0.5D |




1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

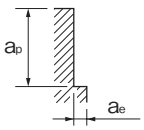
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## MG-STDN
### 側面切削 SIDE MILLING

| 被削材 Work Material | 鋳鉄 Cast Iron FC、FCD | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 11,000 | 85 | 10,500 | 85 | 9,500 | 35 | 7,600 | 30 |
| 1.5 | 7,600 | 90 | 7,200 | 90 | 6,350 | 40 | 5,050 | 30 |
| 2 | 5,700 | 105 | 5,400 | 105 | 4,750 | 45 | 3,800 | 30 |
| 2.5 | 4,550 | 105 | 4,300 | 105 | 3,800 | 50 | 3,050 | 30 |
| 3 | 3,800 | 105 | 3,600 | 105 | 3,150 | 55 | 2,500 | 30 |
| 4 | 2,850 | 105 | 2,700 | 105 | 2,350 | 70 | 1,900 | 30 |
| 5 | 2,250 | 105 | 2,150 | 105 | 1,900 | 85 | 1,500 | 30 |
| 6 | 1,900 | 105 | 1,800 | 105 | 1,550 | 85 | 1,250 | 30 |
| 8 | 1,400 | 110 | 1,350 | 110 | 1,150 | 90 | 955 | 30 |
| 10 | 1,100 | 110 | 1,050 | 110 | 955 | 90 | 760 | 30 |
| 12 | 955 | 110 | 900 | 110 | 795 | 90 | 635 | 30 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.1D | | | | | | | |

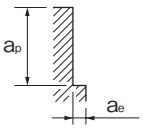


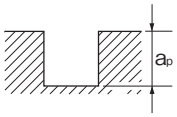

1. 切削油剤は、鋼切削は油性を使用し、鋳鉄、非鉄金属はエアブローまたは水溶性を使用下さい。

1. Use an oil-based cutting fluid for milling steels. Water soluble oil or dry milling is recommended for cutting cast iron or non-ferrous metals.

## CA-RG-EDS

| 被削材 Work Material | 側面切削 Side Milling | | | | 溝切削 Slotting | | | |
|---|---|---|---|---|---|---|---|---|
| | アルミニウム合金 Aluminum Alloy A7075 | | 銅合金 Copper Alloy C1100 | | アルミニウム合金 Aluminum Alloy A7075 | | 銅合金 Copper Alloy C1100 | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 32,000 | 220 | 23,500 | 220 | 32,000 | 220 | 23,500 | 220 |
| 2 | 32,000 | 420 | 11,500 | 215 | 23,500 | 310 | 11,500 | 215 |
| 3 | 21,000 | 700 | 7,950 | 250 | 15,500 | 515 | 7,950 | 250 |
| 4 | 15,500 | 725 | 5,950 | 280 | 11,500 | 540 | 5,950 | 280 |
| 5 | 12,500 | 760 | 4,750 | 295 | 9,500 | 575 | 4,750 | 295 |
| 6 | 10,500 | 830 | 3,950 | 310 | 7,950 | 630 | 3,950 | 310 |
| 8 | 7,950 | 890 | 2,950 | 350 | 5,950 | 665 | 2,950 | 350 |
| 10 | 6,350 | 995 | 2,350 | 365 | 4,750 | 745 | 2,350 | 365 |
| 12 | 5,300 | 1,050 | 1,950 | 390 | 3,950 | 790 | 1,950 | 390 |
| 14 | 4,500 | 1,050 | 1,700 | 395 | 3,400 | 795 | 1,700 | 395 |
| 16 | 3,950 | 1,050 | 1,450 | 390 | 2,950 | 795 | 1,450 | 390 |
| 18 | 3,500 | 1,050 | 1,300 | 390 | 2,650 | 795 | 1,300 | 390 |
| 20 | 3,150 | 1,050 | 1,150 | 385 | 2,350 | 785 | 1,150 | 385 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.1D | | | | ap 1D | | | |



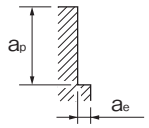

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.

形状寸法表 SPECIFICATION CHARTS CA-ETS▶P282
形状寸法表 SPECIFICATION CHARTS CA-CR-ETS▶P394

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## CA-ETS/CA-CR-ETS
## 側面切削 SIDE MILLING

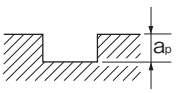
| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | アルミニウム合金鋳物 Aluminum Alloy Casting <Si13% | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 21,000 | 950 | 21,000 | 950 | 7,950 | 320 |
| 4 | 15,500 | 1,100 | 15,500 | 1,100 | 5,950 | 350 |
| 5 | 12,500 | 1,100 | 12,500 | 1,100 | 4,750 | 380 |
| 6 | 10,500 | 1,200 | 10,500 | 1,200 | 3,950 | 400 |
| 8 | 7,950 | 1,300 | 7,950 | 1,300 | 2,950 | 450 |
| 10 | 6,350 | 1,500 | 6,350 | 1,500 | 2,350 | 480 |
| 12 | 5,300 | 1,550 | 5,300 | 1,550 | 1,950 | 510 |
| 16 | 3,950 | 1,550 | 3,950 | 1,550 | 1,450 | 510 |
| 20 | 3,150 | 1,550 | 3,150 | 1,550 | 1,150 | 510 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.1D | |  | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

## CA-ETS/CA-CR-ETS
## 溝切削 SLOTTING

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | アルミニウム合金鋳物 Aluminum Alloy Casting <Si13% | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 21,000 | 670 | 21,000 | 670 | 7,950 | 325 |
| 4 | 15,500 | 700 | 15,500 | 700 | 5,950 | 365 |
| 5 | 12,500 | 745 | 12,500 | 745 | 4,750 | 385 |
| 6 | 10,500 | 820 | 10,500 | 820 | 3,950 | 405 |
| 8 | 7,950 | 865 | 7,950 | 865 | 2,950 | 455 |
| 10 | 6,350 | 970 | 6,350 | 970 | 2,350 | 475 |
| 12 | 5,300 | 1,050 | 5,300 | 1,050 | 1,950 | 510 |
| 16 | 3,950 | 1,050 | 3,950 | 1,050 | 1,450 | 510 |
| 20 | 3,150 | 1,050 | 3,150 | 1,050 | 1,150 | 500 |
| 切込深さ Depth of Cut | ap 0.5D | |  | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

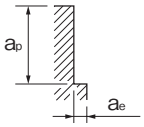
## CA-RG-EDL
## 側面切削

SIDE MILLING

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A7075 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 3 | 13,000 | 390 | 6,350 | 195 |
| 4 | 9,900 | 400 | 4,750 | 210 |
| 5 | 7,950 | 400 | 3,800 | 245 |
| 6 | 6,600 | 450 | 3,150 | 260 |
| 8 | 4,950 | 500 | 2,350 | 275 |
| 10 | 3,950 | 600 | 1,900 | 295 |
| 12 | 3,300 | 630 | 1,550 | 305 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 2.5D | 0.1D |




1. 側面切削は要求精度により送り速度を0.5～1.5倍の範囲で調整して下さい。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 乾式切削、または水溶性切削油剤を使用して下さい。

1. For side milling, alter the feed rate ($^1/_2$ to $1^1/_2$ times the listed rate) to meet surface roughness requirements.
2. Use a rigid and precise machine and holder.
3. We recommend dry milling or using a water soluble fluid.

形状寸法表
SPECIFICATION CHARTS
CAP-EBD▶P331

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

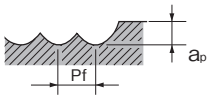
## CAP-EBD

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

### 側面切削 SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting <Si13% | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 0.5× 1 | 32,000 | 845 | 50,000 | 1,200 | 32,000 | 845 | 50,000 | 1,200 | 32,000 | 845 | 50,000 | 1,200 |
| R 1 × 2 | 31,800 | 1,550 | 50,000 | 2,200 | 31,800 | 1,550 | 47,700 | 2,100 | 23,900 | 1,150 | 39,800 | 1,750 |
| R 1.5× 3 | 21,200 | 1,550 | 50,000 | 3,300 | 21,200 | 1,550 | 31,800 | 2,100 | 15,900 | 1,150 | 26,500 | 1,750 |
| R 2 × 4 | 15,900 | 1,550 | 39,800 | 3,500 | 15,900 | 1,550 | 23,800 | 2,100 | 11,900 | 1,150 | 19,900 | 1,750 |
| R 3 × 6 | 10,600 | 1,600 | 26,500 | 3,550 | 10,600 | 1,600 | 15,900 | 2,150 | 7,950 | 1,150 | 13,000 | 1,800 |
| R 4 × 8 | 7,950 | 1,950 | 19,500 | 4,500 | 7,950 | 1,950 | 11,900 | 2,650 | 5,950 | 1,450 | 9,900 | 2,250 |
| R 5 ×10 | 6,350 | 1,750 | 15,500 | 4,050 | 6,350 | 1,750 | 9,550 | 2,450 | 4,750 | 1,300 | 7,950 | 2,000 |
| R 6 ×12 | 5,300 | 1,650 | 13,000 | 3,750 | 5,300 | 1,650 | 7,950 | 2,250 | 3,950 | 1,200 | 6,600 | 1,900 |
| R 8 ×16 | 3,950 | 1,500 | 9,900 | 3,550 | 3,950 | 1,500 | 5,950 | 2,100 | 2,950 | 1,150 | 4,950 | 1,800 |
| R10 ×20 | 3,150 | 1,350 | 7,950 | 3,200 | 3,150 | 1,350 | 4,750 | 1,900 | 2,350 | 1,000 | 3,950 | 1,600 |
| 切込深さ Depth of Cut | ap 0.1D | Pf 0.2D | ap 0.05D | Pf 0.1D | ap 0.1D | Pf 0.2D | ap 0.05D | Pf 0.1D | ap 0.1D | Pf 0.2D | ap 0.02D | Pf 0.05D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. ビビリが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
4. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid
3. When chattering occurs, reduce the speed and feed simultaneously.
4. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.

# CA-MFE
## 側面切削

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

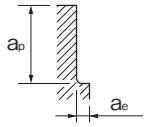
## SIDE MILLING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting <Si13% | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 8 | 7,950 | 1,500 | 20,000 | 3,750 | 7,950 | 1,500 | 12,000 | 2,250 | 2,950 | 460 | 8,000 | 1,150 |
| 10 | 6,350 | 1,700 | 16,000 | 4,300 | 6,350 | 1,700 | 9,600 | 2,600 | 2,350 | 475 | 6,350 | 1,150 |
| 12 | 5,300 | 1,750 | 13,300 | 4,400 | 5,300 | 1,750 | 8,000 | 2,650 | 1,950 | 510 | 5,300 | 1,250 |
| 14 | 4,550 | 1,750 | 11,500 | 4,400 | 4,550 | 1,750 | 6,900 | 2,650 | 1,600 | 510 | 4,500 | 1,250 |
| 16 | 3,950 | 1,750 | 10,000 | 4,400 | 3,950 | 1,750 | 6,000 | 2,650 | 1,450 | 510 | 4,000 | 1,250 |
| 18 | 3,550 | 1,750 | 8,850 | 4,400 | 3,550 | 1,750 | 5,300 | 2,650 | 1,250 | 510 | 3,500 | 1,250 |
| 20 | 3,150 | 1,750 | 8,000 | 4,400 | 3,150 | 1,750 | 4,800 | 2,650 | 1,150 | 510 | 3,200 | 1,250 |
| 22 | 2,900 | 1,750 | 7,400 | 4,000 | 2,900 | 1,750 | 4,500 | 2,400 | 1,000 | 510 | 3,000 | 1,200 |

切込深さ Depth of Cut

| ap | ae |
|---|---|
| 1.2D | 0.1D |




※補正値
この条件表は、エンドミルの突出し量が（外径×４倍）以下を基準としたものです。
突出し量が大きくなる場合は、
右記の係数を参考に条件を下げて下さい。

The cutting conditions in this table are obtainable when the extension of the end mill is less than (D×4). If the tool extension increases, refer to the following coefficients and reduce the conditions accordingly.

■工具突出し量による切込深さ、回転速度、送り速度の係数

| 工具突出し量 Depth of Cut | 切込深さ Depth of Cut | | 回転速度 Speed | 送り速度 Feed |
|---|---|---|---|---|
| | ap | ae | 比率 | 比率 |
| 外径×4倍 D×4 | 1.2D | 0.1D | 100% | 100% |
| 外径×5倍 D×5 | 1.2D | 0.05D | 60～80% | 60～80% |
| 外径×6倍 D×6 | 1.2D | 0.025D | 40～60% | 40～60% |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
4. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
4. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.

# CA-MFE
## 溝切削

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

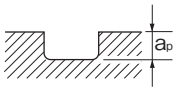
## SLOTTING

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting <Si13% | | | |
|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 8 | 8,000 | 1,000 | 20,000 | 2,500 | 8,000 | 1,000 | 12,000 | 1,500 |
| 10 | 6,350 | 1,150 | 16,000 | 2,800 | 6,350 | 1,150 | 9,600 | 1,700 |
| 12 | 5,300 | 1,200 | 13,300 | 2,950 | 5,300 | 1,200 | 8,000 | 1,750 |
| 14 | 4,550 | 1,200 | 11,500 | 3,000 | 4,550 | 1,200 | 6,800 | 1,800 |
| 16 | 3,950 | 1,200 | 10,000 | 3,000 | 3,950 | 1,200 | 6,000 | 1,800 |
| 18 | 3,550 | 1,200 | 8,850 | 3,000 | 3,550 | 1,200 | 5,300 | 1,800 |
| 20 | 3,150 | 1,200 | 8,000 | 3,000 | 3,150 | 1,200 | 4,800 | 1,800 |
| 22 | 2,900 | 1,200 | 7,400 | 3,000 | 2,900 | 1,200 | 4,450 | 1,800 |

切込深さ Depth of Cut

ap=0.1D




※補正値
この条件表は、エンドミルの突出し量が（外径×４倍）以下を基準としたものです。
突出し量が大きくなる場合は、
右記の係数を参考に条件を下げて下さい。

The cutting conditions in this table are obtainable when the extension of the end mill is less than (D×4). If the tool extension increases, refer to the following coefficients and reduce the conditions accordingly.

■工具突出し量による切込深さ、回転速度、送り速度の係数

| 工具突出し量 Depth of Cut | 切込深さ Depth of Cut | 回転速度 Speed | 送り速度 Feed |
|---|---|---|---|
| | ap | 比率 | 比率 |
| 外径×4倍 D×4 | 0.1D | 100% | 100% |
| 外径×5倍 D×5 | 0.05D | 60～80% | 60～80% |
| 外径×6倍 D×6 | 0.025D | 40～60% | 40～60% |

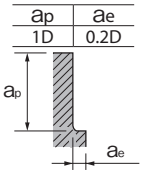
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

形状寸法表
SPECIFICATION CHARTS
CA-PKE▶P402

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

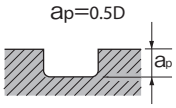
## CA-PKE
## 側面切削 SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting <Si13% | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 21,000 | 1,100 | 40,000 | 2,100 | 21,000 | 1,100 | 24,000 | 1,250 | 7,950 | 325 | 17,000 | 625 |
| 4 | 15,500 | 1,250 | 32,000 | 2,550 | 15,500 | 1,250 | 19,200 | 1,550 | 5,950 | 365 | 14,300 | 800 |
| 5 | 12,500 | 1,300 | 32,000 | 3,250 | 12,500 | 1,275 | 19,200 | 1,950 | 4,750 | 385 | 12,700 | 925 |
| 6 | 10,500 | 1,400 | 26,500 | 3,500 | 10,500 | 1,400 | 15,900 | 2,150 | 3,950 | 400 | 10,600 | 960 |
| 8 | 7,950 | 1,500 | 20,000 | 3,750 | 7,950 | 1,500 | 12,000 | 2,250 | 2,950 | 460 | 8,000 | 1,130 |
| 10 | 6,350 | 1,700 | 16,000 | 4,300 | 6,350 | 1,700 | 9,600 | 2,580 | 2,350 | 475 | 6,350 | 1,150 |
| 12 | 5,300 | 1,750 | 13,300 | 4,400 | 5,300 | 1,750 | 8,000 | 2,650 | 1,950 | 510 | 5,300 | 1,250 |
| 16 | 3,950 | 1,750 | 10,000 | 4,400 | 3,950 | 1,750 | 6,000 | 2,650 | 1,450 | 510 | 4,000 | 1,250 |
| 20 | 3,150 | 1,750 | 8,000 | 4,400 | 3,150 | 1,750 | 4,800 | 2,650 | 1,150 | 510 | 3,200 | 1,250 |
| 切込深さ Depth of Cut | ap 1D / ae 0.2D  | | ap 1D / ae 0.1D | | ap 1D / ae 0.2D | | ap 1D / ae 0.1D | | ap 1D / ae 0.2D | | ap 1D / ae 0.1D | |

※ワークの仕上げ状態よりも、切りくず排出量を重視される場合は、送り速度を1.5倍程度でご使用いただけます。
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
4. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。

※ If the chip disposal is a greater concern than the surface finish on work material, the feeding speed should be increased by 50%.
1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
4. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.

## 溝切削 SLOTTING

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting <Si13% | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 21,000 | 770 | 40,000 | 1,450 | 21,000 | 770 | 24,000 | 880 | 7,950 | 325 |
| 4 | 15,500 | 810 | 32,000 | 1,700 | 15,500 | 810 | 19,200 | 1,000 | 5,950 | 375 |
| 5 | 12,500 | 860 | 32,000 | 2,200 | 12,500 | 860 | 19,200 | 1,350 | 4,750 | 385 |
| 6 | 10,500 | 950 | 26,500 | 2,400 | 10,500 | 950 | 15,900 | 1,450 | 3,950 | 400 |
| 8 | 8,000 | 1,000 | 20,000 | 2,500 | 8,000 | 1,000 | 12,000 | 1,500 | 2,950 | 460 |
| 10 | 6,350 | 1,150 | 16,000 | 2,800 | 6,350 | 1,150 | 9,600 | 1,700 | 2,350 | 475 |
| 12 | 5,300 | 1,200 | 13,300 | 2,950 | 5,300 | 1,200 | 8,000 | 1,800 | 1,950 | 510 |
| 16 | 3,950 | 1,200 | 10,000 | 3,000 | 3,950 | 1,200 | 6,000 | 1,800 | 1,450 | 510 |
| 20 | 3,150 | 1,200 | 8,000 | 3,000 | 3,150 | 1,200 | 4,800 | 1,800 | 1,150 | 510 |
| 切込深さ Depth of Cut | ap=0.5D  | | ap=0.25D | | ap=0.5D | | ap=0.25D | | ap=0.5D | |

※ ワークの仕上げ状態よりも、切りくず排出量を重視される場合は、送り速度を1.5倍程度でご使用いただけます。
＜標準条件＞
ランピング加工でご使用される場合、最大ランピング角度30°以内でご使用下さい。

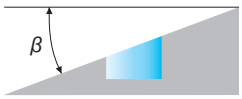
＜高速条件＞
ランピング加工でご使用される場合、送り速度2,000mm/min以下、最大ランピング角度30°以内でご使用下さい。
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
4. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。

※ If the chip disposal is a greater concern than the surface finish on work material, the feeding speed should be increased by 50%.
＜ Regular Milling ＞
The recommended maximum ramping angle is 30 degrees or lower when using for ramping machining.
＜ High Speed Milling ＞
The recommended feeding speed for ramping machining is less than 2000mm/min, and the recommended maximum ramping angle is 30 degrees or lower.
1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
4. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## CA-ZDS/CA-LS-ZDS/DLC-ZDS/DLC-LS-ZDS/DLC-CR-ZDS/DLC-CR-LS-ZDS

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A7075 | | | アルミニウム合金鋳物 Aluminum Alloy Casting <Si 13% | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | |
|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80～200m/min | | | 50～150m/min | | | 50～100m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) |
| 0.5 | 20,000 | 150 | 0.004～0.011 | 20,000 | 140 | 0.004～0.01 | 20,000 | 140 | 0.004～0.01 |
| 1 | 20,000 | 350 | 0.014～0.021 | 20,000 | 300 | 0.012～0.018 | 20,000 | 300 | 0.012～0.018 |
| 2 | 20,000 | 710 | 0.028～0.043 | 19,000 | 530 | 0.022～0.034 | 15,400 | 430 | 0.022～0.034 |
| 3 | 17,000 | 915 | 0.042～0.066 | 12,500 | 575 | 0.035～0.055 | 10,000 | 450 | 0.035～0.055 |
| 4 | 12,500 | 915 | 0.054～0.09 | 9,550 | 575 | 0.045～0.075 | 7,500 | 450 | 0.045～0.075 |
| 5 | 10,000 | 915 | 0.066～0.114 | 7,650 | 575 | 0.055～0.095 | 6,000 | 450 | 0.055～0.095 |
| 6 | 8,500 | 915 | 0.08 ～0.13 | 6,350 | 575 | 0.07 ～0.11 | 5,000 | 450 | 0.07 ～0.11 |
| 8 | 6,350 | 915 | 0.1 ～0.17 | 4,750 | 575 | 0.09 ～0.14 | 3,750 | 450 | 0.09 ～0.14 |
| 10 | 5,100 | 915 | 0.14 ～0.22 | 3,800 | 575 | 0.12 ～0.18 | 3,000 | 450 | 0.12 ～0.18 |
| 12 | 4,250 | 915 | 0.18 ～0.26 | 3,200 | 575 | 0.15 ～0.21 | 2,500 | 450 | 0.15 ～0.21 |
| 14 | 3,650 | 915 | 0.2 ～0.29 | 2,750 | 575 | 0.17 ～0.24 | 2,150 | 450 | 0.17 ～0.24 |
| 16 | 3,200 | 915 | 0.24 ～0.33 | 2,400 | 575 | 0.2 ～0.27 | 1,850 | 450 | 0.2 ～0.27 |
| 18 | 2,850 | 915 | 0.25 ～0.36 | 2,100 | 575 | 0.21 ～0.3 | 1,650 | 450 | 0.21 ～0.3 |
| 20 | 2,550 | 915 | 0.27 ～0.39 | 1,900 | 575 | 0.24 ～0.34 | 1,450 | 450 | 0.24 ～0.34 |
| 切込深さ Depth of Cut |  | | | H=1D以下<br>H≦1D<br>下穴無し<br>Without pilot hole | | |  | | |

注) CA-LS-ZDS、DLC-LS-ZDS、DLC-CR-LS-ZDSをご使用の場合は、上表の回転速度、送り速度を70%～90%として下さい。
When using CA-LS-ZDS,DLC-LS-ZDS,DLC-CR-LS-ZDS please decrease the RPM and feed rate to 70 - 90% of the figures in the above table.

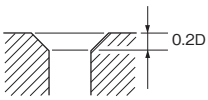
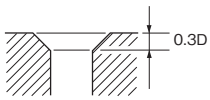
1 .上表は、ワーク上面が平坦でフライス前加工がしてあることを前提としたものです。
2 .上表は、穴深さが1D以下の場合のものです。
3 .機械、ホルダは剛性のある精度の高いものをご使用下さい。
4 .加工物の形状や保持方法の状況によって切削条件を調整して下さい。
5 .エンドミル取り付け時の刃先の振れは、10μm以下に抑えて下さい。
6 .切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
7 .乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。
8 .斜面部への加工の場合は、加工面傾斜角度(β)により、回転速度、送り速度を調整下さい。
加工面傾斜角度(β)が30°以下の斜面への加工では、上表の送り速度40～60%を目安にご使用下さい。
加工面傾斜角度(β)が30°を超える加工では、上表の回転速度60～80%、送り速度20～40%を目安にご使用下さい。
9 .加工穴の位置決め精度を必要とする場合は、加工精度に合わせ上記回転速度、送り速度を調整下さい。
10.マグネシウム合金切削において、切削油剤を使用する場合は、切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理に注意下さい。発火の恐れがあります。

1 .This machining condition table applies to milling workpieces that have been flattened at the top through the removal of the forged surface (on a milling machine).
2 .These machining conditions apply to hole depths of 1D or less. (D=outer diameter)
3 .Use a rigid and precise machine and holder.
4 .Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
5 .When chucking an end mill, keep the runout at the cutting edge below 10μm.
6 .Please use a suitable fluid with high smoke retardant properties.
7 .During Dry (no fluid) milling, please use air blow to remove cutting chips from the milling area and to eliminate chip packing.
8 .When machining an inclined plane,adjust the rotational speed and the feed rate in accordance with the angle of the incline (β).
When the machining incline angle(β) is less than 30°, please reduce the feed to 40～60%.
When the machining incline angle(β) is over 30°, please reduce the speed to 60～80%, the feed to 20～40%.
9 .If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed rate as indicated above (in accordance with the machining precision requirement).
10.When machining magnesium alloy materials, please use the coolant oil recommended by the coolant oil manufacturer. Please also properly dispose the cutting chips to prevent fire hazards.

形状寸法表
SPECIFICATION CHARTS
CA-SCC▶P466

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## CA-SCC
## 穴面取り（突込み加工） COUNTER SINKING

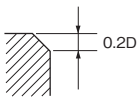
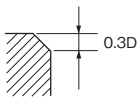
| 被削材 Work Material | 銅合金、マグネシウム合金 Copper Alloy Magnesium Alloy | | | アルミニウム合金 Aluminum Alloy | | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70〜100m/min | | | 100〜180m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) |
| 3 | 9,000 | 900 | 0.04 〜 0.16 | 15,000 | 2,750 | 0.1 〜 0.27 |
| 4 | 6,750 | 840 | 0.05 〜 0.2 | 11,000 | 2,400 | 0.12 〜 0.31 |
| 6 | 4,500 | 680 | 0.06 〜 0.24 | 7,450 | 1,850 | 0.14 〜 0.35 |
| 8 | 3,400 | 650 | 0.08 〜 0.3 | 5,550 | 1,650 | 0.18 〜 0.41 |
| 10 | 2,700 | 620 | 0.1 〜 0.36 | 4,450 | 1,550 | 0.22 〜 0.47 |
| 12 | 2,250 | 610 | 0.12 〜 0.42 | 3,700 | 1,450 | 0.25 〜 0.53 |
| 切込み深さ Depth of Cut |  | | |  | | |

＊Dは呼びの寸法 D=Mill Dia.

1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量aaを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30 〜40%程度下げてご使用下さい。
3. 切削時に振動やびびり音が発生した場合は、回転数を下げてから送りを調整して下さい。
4. バリが発生する場合は、送り速度を下げて下さい。角面取り（側面切削）で送りを下げてもバリの発生が改善されない場合は、切込みを数回に分けて対応下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30 〜40 % and use 1/2 of amount of cut aa (maximum 0.5mm).
3. Please reduce the speed and adjust the feed if vibration and chattering occur while machining.
4. Please reduce the feed if burr occurs. If burr still occurs even reduce the feed while side milling, please reduce the depth of cut.

## CA-SCC
## 角面取り（側面切削） CHAMFERING

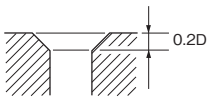
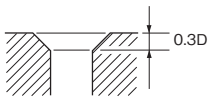
| 被削材 Work Material | 銅合金、マグネシウム合金 Copper Alloy Magnesium Alloy | | | アルミニウム合金 Aluminum Alloy | | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70〜100m/min | | | 100〜180m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) |
| 3 | 9,000 | 380 | 0.021 | 15,000 | 650 | 0.022 |
| 4 | 6,750 | 410 | 0.03 | 11,000 | 710 | 0.032 |
| 6 | 4,500 | 540 | 0.06 | 7,450 | 940 | 0.063 |
| 8 | 3,400 | 510 | 0.075 | 5,550 | 890 | 0.08 |
| 10 | 2,700 | 490 | 0.09 | 4,450 | 890 | 0.1 |
| 12 | 2,250 | 450 | 0.1 | 3,700 | 890 | 0.12 |
| 切込み深さ Depth of Cut |  | | |  | | |

＊Dは呼びの寸法 D=Mill Dia.

1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量aaを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30 〜40%程度下げてご使用下さい。
3. 切削時に振動やびびり音が発生した場合は、回転数を下げてから送りを調整して下さい。
4. バリが発生する場合は、送り速度を下げて下さい。角面取り（側面切削）で送りを下げてもバリの発生が改善されない場合は、切込みを数回に分けて対応下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30 〜40 % and use 1/2 of amount of cut aa (maximum 0.5mm).
3. Please reduce the speed and adjust the feed if vibration and chattering occur while machining.
4. Please reduce the feed if burr occurs. If burr still occurs even reduce the feed while side milling, please reduce the depth of cut.

## CA-LS-SCC
## 穴面取り（突込み加工） COUNTER SINKING

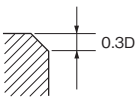
| 被削材 Work Material | 銅合金、マグネシウム合金 Copper Alloy Magnesium Alloy | | | アルミニウム合金 Aluminum Alloy | | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70〜100m/min | | | 100〜180m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 送り量 (mm/rev) |
| 3 | 9,000 | 900 | 0.04 〜 0.16 | 15,000 | 2,750 | 0.1 〜 0.27 |
| 4 | 6,750 | 840 | 0.05 〜 0.2 | 11,000 | 2,400 | 0.12 〜 0.31 |
| 6 | 4,500 | 680 | 0.06 〜 0.24 | 7,450 | 1,850 | 0.14 〜 0.35 |
| 8 | 3,400 | 650 | 0.08 〜 0.3 | 5,550 | 1,650 | 0.18 〜 0.41 |
| 10 | 2,700 | 620 | 0.1 〜 0.36 | 4,450 | 1,550 | 0.22 〜 0.47 |
| 12 | 2,250 | 610 | 0.12 〜 0.42 | 3,700 | 1,450 | 0.25 〜 0.53 |
| 切込み深さ Depth of Cut |   | | |   | | |

＊Dは呼びの寸法 D=Mill Dia.

1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量aaを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30 〜40%程度下げてご使用下さい。
3. 切削時に振動やびびり音が発生した場合は、回転数を下げてから送りを調整して下さい。
4. バリが発生する場合は、送り速度を下げて下さい。角面取り（側面切削）で送りを下げてもバリの発生が改善されない場合は、切込みを数回に分けて対応下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30 〜40 % and use 1/2 of amount of cut aa (maximum 0.5mm).
3. Please reduce the speed and adjust the feed if vibration and chattering occur while machining.
4. Please reduce the feed if burr occurs. If burr still occurs even reduce the feed while side milling, please reduce the depth of cut.

## CA-LS-SCC
## 角面取り（側面切削） CHAMFERING

| 被削材 Work Material | 銅合金、マグネシウム合金 Copper Alloy Magnesium Alloy | | | アルミニウム合金 Aluminum Alloy | | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 70〜100m/min | | | 100〜180m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) |
| 3 | 9,000 | 380 | 0.021 | 15,000 | 650 | 0.022 |
| 4 | 6,750 | 410 | 0.03 | 11,000 | 710 | 0.032 |
| 6 | 4,500 | 540 | 0.06 | 7,450 | 940 | 0.063 |
| 8 | 3,400 | 510 | 0.075 | 5,550 | 890 | 0.08 |
| 10 | 2,700 | 490 | 0.09 | 4,450 | 890 | 0.1 |
| 12 | 2,250 | 450 | 0.1 | 3,700 | 890 | 0.12 |
| 切込み深さ Depth of Cut |   | | |   | | |

＊Dは呼びの寸法 D=Mill Dia.

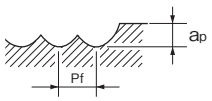
1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量aaを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30 〜40%程度下げてご使用下さい。
3. 切削時に振動やびびり音が発生した場合は、回転数を下げてから送りを調整して下さい。
4. バリが発生する場合は、送り速度を下げて下さい。角面取り（側面切削）で送りを下げてもバリの発生が改善されない場合は、切込みを数回に分けて対応下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30 〜40 % and use 1/2 of amount of cut aa (maximum 0.5mm).
3. Please reduce the speed and adjust the feed if vibration and chattering occur while machining.
4. Please reduce the feed if burr occurs. If burr still occurs even reduce the feed while side milling, please reduce the depth of cut.

形状寸法表 SPECIFICATION CHARTS CRN-EBD-3▶P340-22
形状寸法表 SPECIFICATION CHARTS CRN-EBD▶P340-21

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## CRN-EBD-3

| 被削材 Work Material | 銅合金 Copper Alloy C1100 | |
|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.25 | 3,2000 | 350 |
| R0.3 | 26,000 | 375 |
| R0.4 | 22,000 | 400 |
| R0.5 | 17,500 | 400 |
| R0.6 | 16,000 | 400 |
| R0.7 | 16,000 | 400 |
| R0.8 | 14,000 | 400 |
| R0.9 | 12,500 | 400 |
| R1 | 11,000 | 400 |
| R1.1 | 10,000 | 400 |
| R1.2 | 9,500 | 400 |
| R1.3 | 8,500 | 400 |
| R1.4 | 8,000 | 400 |
| R1.5 | 7,500 | 400 |
| 切込深さ Depth of Cut |  | |



| | ap | Pf |
|---|---|---|
| DC<φ1 | 0.02D | 0.1D |
| φ1≦DC | 0.05D | 0.2D |

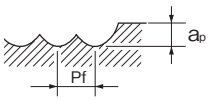
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 加工面、精度を重視される場合には、切込深さ、送り速度を必要に応じて調節下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble fluid.
3. To achieve a desired surface and precision, adjust the cutting depth and feed rate as necessary.

## CRN-EBD

⚠ 加工時に発生する火花や破損による発熱で引火･火災の危険があります。
防火対策を必ずおこなって下さい。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

| 被削材 Work Material | 銅合金 Copper Alloy C1100 | | | | | |
|---|---|---|---|---|---|---|
| | 標準条件(水溶性切削油剤) Regular Milling | | 高速切削用(水溶性切削油剤) High Speed Milling | | ドライ切削用(エアブロー) Dry Milling(Air Blow) | |
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R3× 6 | 7,950 | 1,150 | 13,000 | 3,900 | 6,350 | 920 |
| R4× 8 | 5,950 | 1,450 | 9,900 | 4,950 | 4,750 | 1,150 |
| R5×10 | 4,750 | 1,300 | 7,950 | 4,450 | 3,800 | 1,050 |
| R6×12 | 3,950 | 1,200 | 6,600 | 3,950 | 3,150 | 960 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.2D | | ap 0.02D / Pf 0.05D  | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 標準条件、高速切削用は水溶性切削油剤をご使用下さい。
3. 高速切削条件は、高速高精度のマシニングセンタを利用した場合の基準条件表です。
4. ドライ切削にて加工する場合には、ドライ切削用条件を使用下さい。
その場合にはエアブローをご使用下さい。
5. ビビリが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble fluid for regular and high speed milling.
3. The high speed conditions are for high speed and high precision machining centers.
4. Make sure to use the dry milling setting when fluid is not being used. Apply an air blow during dry operation.
5. When chattering occurs, reduce the speed and feed simultaneously.

形状寸法表 SPECIFICATION CHARTS CRN-LN-EBD▶P359-10
形状寸法表 SPECIFICATION CHARTS CRN-LN-EBD-4▶P359-10
形状寸法表 SPECIFICATION CHARTS CRN-HS-EBD▶P340-22



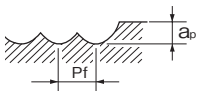
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## CRN-LN-EBD/CRN-LN-EBD-4

⚠ 高速切削では引火性のある切削油剤は絶対に使用しないで下さい。
工具が破損した場合に、引火・火災の危険があります。

Do not use flammable fluids for high-speed light milling. Sparks generated during operation or heat caused by tool breakage can cause fire.

| 被削材 Work Material | 銅合金 Copper Alloy C1100 | | | | | |
|---|---|---|---|---|---|---|
| 呼び RE | 標準条件(水溶性切削油剤) Regular Milling | | 高速切削用(水溶性切削油剤) High Speed Milling | | ドライ切削用(エアブロー) Dry Milling(Air Blow) | |
| | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.5 | 32,000 | 690 | 50,000 | 1,050 | 31,500 | 680 |
| R0.6 | 31,500 | 700 | 50,000 | 1,100 | 26,500 | 590 |
| R0.7 | 27,000 | 680 | 45,000 | 1,100 | 22,500 | 565 |
| R0.75 | 25,000 | 675 | 42,000 | 1,100 | 21,000 | 565 |
| R0.8 | 23,500 | 675 | 39,500 | 1,100 | 19,500 | 560 |
| R0.9 | 21,000 | 680 | 35,000 | 1,100 | 17,500 | 565 |
| R1 | 19,000 | 680 | 31,500 | 1,100 | 15,500 | 555 |
| R1.25 | 15,000 | 675 | 25,000 | 1,100 | 12,500 | 560 |
| R1.5 | 12,500 | 675 | 21,000 | 1,100 | 10,500 | 565 |
| R1.75 | 10,500 | 660 | 18,000 | 1,100 | 9,050 | 570 |
| R2 | 9,500 | 680 | 15,500 | 1,100 | 7,950 | 570 |
| R2.5 | 7,600 | 770 | 12,500 | 1,250 | 6,350 | 640 |
| 切込深さ Depth of Cut | ap 0.05D / Pf 0.2D | | ap 0.02D / Pf 0.05D   | | | |

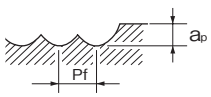
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 標準条件、高速切削用は水溶性切削油剤をご使用下さい。
3. 高速切削条件は、高速高精度のマシニングセンタを利用した場合の基準条件表です。
4. ドライ切削にて加工する場合には、ドライ切削用条件を使用下さい。その場合にはエアブローをご使用下さい。
5. ビビリが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble fluid for regular and high speed milling.
3. The high speed conditions are for high speed and high precision machining centers.
4. Make sure to use the dry milling setting when fluid is not being used. Apply an air blow during dry operation.
5. When chattering occurs, reduce the speed and feed simultaneously.

## CRN-HS-EBD

⚠ 工具が破損した場合に、引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | 銅合金 Copper Alloy | |
|---|---|---|
| 切削速度 Cutting Speed | 400m／min | |
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.5 | 50,000 | 2,500 |
| R0.75 | 50,000 | 3,450 |
| R1 | 50,000 | 4,200 |
| R1.5 | 42,500 | 4,600 |
| R2 | 32,000 | 4,050 |
| R2.5 | 25,500 | 3,700 |
| R3 | 21,000 | 3,450 |
| R4 | 16,500 | 3,300 |
| R5 | 12,500 | 3,200 |
| R6 | 10,500 | 3,050 |
| 切込深さ Depth of Cut |   | ap 0.02D / Pf 0.05D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 上表は、等高線加工（側面加工）の負荷の少ない加工形状での目安です。加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調節下さい。
4. 切込深さが小さい場合は、回転速度、送り速度、切込深さを調節下さい。

1. Use a rigid and precise machine and holder.
2. Used a water soluble cutting fluid.
3. The above condition shows an approximate standard for contouring operation (side millig) with a lowmachining load. If abnormal cutting sounds, vibration, or chattering occurs; depending on the machining shape, cutting amount, rigidity of the machine / workholdeng condition, etc, please adjust the speed, feed, and depth of cut.
4. If the cutting depth is small, it is possible to further increase the speed and feed.

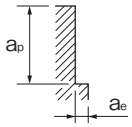
形状寸法表
SPECIFICATION CHARTS
CRN-HS-EDS▶P311-13

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## CRN-HS-EDS

⚠ 工具が破損した場合に、引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | 銅合金 Copper Alloy | |
|---|---|---|
| 切削速度 Cutting Speed | 320m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 | 50,000 | 900 |
| 1.5 | 50,000 | 1,300 |
| 2 | 50,000 | 1,600 |
| 3 | 34,000 | 1,550 |
| 4 | 25,500 | 1,450 |
| 5 | 20,500 | 1,450 |
| 6 | 17,000 | 1,450 |
| 8 | 12,500 | 1,450 |
| 10 | 10,000 | 1,450 |
| 12 | 8,500 | 1,300 |
| 切込深さ Depth of Cut |  | |



| | ap | ae |
|---|---|---|
| DC＜φ3 | 1D | 0.01D |
| φ3≦DC | 1D | 0.02D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調節下さい。
4. 切込深さが小さい場合は、回転速度、送り速度をさらに上げることが可能です。
5. この条件表は能率重視の条件です。要求精度により回転速度、送り速度を調節下さい。

1. Use a rigid and precise machine and holder.
2. Used a water soluble cutting fluid.
3. If abnormal cutting sounds, vibration,or chattering occurs; depending on the machining shape, cutting amount, rigidity of the machine/ workholding condition, etc,please adjust the speed, feed, and depth of cut.
4. If the cutting depth is small, it is possible to further increase the speed and feed.
5. The table above lists the conditions for efficient millng. The speed and the feed rate may be adjusted to suit the required precision level.

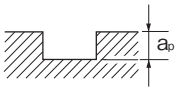
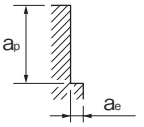
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## CRN-LN-EDS

⚠ 高速切削では引火性のある切削油剤は絶対に使用しないで下さい。
工具が破損した場合に、引火・火災の危険があります。

Do not use flammable fluids for high-speed light milling. Sparks generated during operation or heat caused by tool breakage can cause fire.

| 被削材 Work Material | 銅合金 Copper Alloy C1100 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 溝切削 Slotting | | | | 側面切削 Side Milling | | | | | |
| | 標準条件(水溶性) Regular Milling | | ドライ切削用(エアブロー) Dry Milling(Air Blow) | | 標準条件(水溶性) Regular Milling | | 高速切削用(水溶性) High Speed Milling | | ドライ切削用(エアブロー) Dry Milling(Air Blow) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 0.5 | 32,000 | 125 | 32,000 | 125 | 32,000 | 125 | 50,000 | 200 | 32,000 | 125 |
| 0.8 | 32,000 | 150 | 32,000 | 150 | 31,500 | 150 | 50,000 | 240 | 31,500 | 150 |
| 1 | 32,000 | 190 | 32,000 | 190 | 25,000 | 150 | 50,000 | 300 | 25,000 | 150 |
| 1.5 | 15,500 | 140 | 15,500 | 140 | 16,500 | 145 | 42,000 | 375 | 16,500 | 145 |
| 2 | 11,500 | 135 | 11,500 | 135 | 12,500 | 150 | 31,500 | 375 | 12,500 | 150 |
| 2.5 | 9,500 | 175 | 9,500 | 175 | 10,000 | 185 | 25,000 | 470 | 10,000 | 185 |
| 3 | 7,950 | 220 | 7,950 | 220 | 8,450 | 235 | 21,000 | 585 | 8,450 | 235 |
| 4 | 5,950 | 235 | 5,950 | 235 | 6,350 | 250 | 15,500 | 620 | 6,350 | 250 |
| 5 | 4,750 | 285 | 4,750 | 285 | 5,050 | 300 | 12,500 | 750 | 5,050 | 300 |
| 6 | 3,950 | 250 | 3,950 | 250 | 4,200 | 265 | 10,500 | 670 | 4,200 | 265 |
| 8 | 2,950 | 260 | 2,950 | 260 | 3,150 | 275 | 7,950 | 700 | 3,150 | 275 |
| 10 | 2,350 | 245 | 2,350 | 245 | 2,500 | 265 | 6,350 | 670 | 2,500 | 265 |
| 12 | 1,950 | 250 | 1,950 | 250 | 2,100 | 265 | 5,300 | 675 | 2,100 | 265 |
| 切込深さ Depth of Cut | | ap<br>DC<φ1 0.05D<br>φ1≦DC 0.1D |  | | | ap ae<br>DC<φ1 1.5D 0.02D<br>φ1≦DC 1.5D 0.05D | | ap ae<br>DC<φ1 1.5D 0.01D<br>φ1≦DC 1.5D 0.02D |  | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 標準条件、高速切削用は水溶性切削油剤をご使用下さい。
3. 高速切削条件は、高速高精度のマシニングセンタを利用した場合の基準条件表です。
4. ドライ切削にて加工する場合には、ドライ切削用条件を使用下さい。その場合にはエアブローをご使用下さい。
5. ビビリが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble fluid for regular and high speed milling.
3. The high speed conditions are for high speed and high precision machining centers.
4. Make sure to use the dry milling setting when fluid is not being used. Apply an air blow during dry operation.
5. When chattering occurs, reduce the speed and feed simultaneously.

## 首下長別補正係数（%）

Effective Length Compensation Coefficient(%)

| 首下長(LU) ／ 外径(DC) | 溝切削用 Slotting | | | 側面切削用 Side Milling | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件・ドライ切削用 Regular Milling・Dry Milling | | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | ドライ切削用 Dry Milling | | 切込深さ Depth of Cut | |
| | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 軸方向切込み Rasial Milling ap | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 軸方向切込み Rasial Milling ap | 半径方向切込み Axial Milling ae |
| LU/DC=3～4 | 120～150 | 120～150 | 100 | 120～150 | 120～150 | 120～150 | 120～150 | 120～150 | 120～150 | 100 | 100 |
| LU/DC=5～6 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 90～100 | 90～100 |
| LU/DC=7～8 | 70～90 | 70～90 | 100 | 70～90 | 70～90 | × | × | 70～90 | 70～90 | 70～90 | 70～90 |
| LU/DC=9～10 | 50～70 | 50～70 | 90 | 50～70 | 50～70 | × | × | 50～70 | 50～70 | 50～70 | 50～70 |

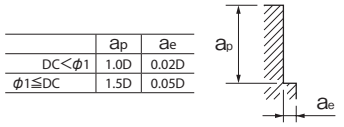
※上記CRN-LN-EDS切削条件表は、首下長（LU）／外径（DC）＝5を対象としたものです。
首下長（LU）／外径（DC）により、上表係数を補正下さい。
※首下長を超えて突出し量を長く設定される場合は、更に回転速度、送り速度共に調整下さい。
※首下長（LU）／外径（DC）≧7の場合は高速切削を推奨致しません。標準条件を補正して使用下さい。

※ The milling condition table above for CRN-LN-EDS is applicable to the end mills with the following measurements:Length (LU) ／ Diameter=5.
Apply the correction coefficients indicated in the table above in accordance with the Length (LU) ／ Diameter (DC) of the end mill.
※ When setting the end mill with a long overhang, make sure to adjust both the speed and the feed rate.
※ When the effective length (LU) /diameter(DC) ＞7,High Speed Milling is not recommended. Please use Regular Milling conditions.

形状寸法表 SPECIFICATION CHARTS CRN-EDS-3▶P311-12
形状寸法表 SPECIFICATION CHARTS CRN-EMS▶P311-35

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## CRN-EDS-3

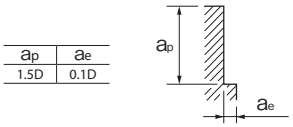
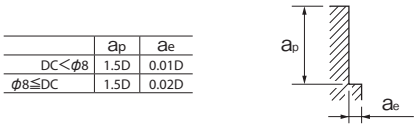
| 被削材 Work Material | 銅合金 Copper Alloy C1100 | | | |
|---|---|---|---|---|
| | 溝切削 Slotting | | 側面切削 Side Milling | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 0.5 | 31,000 | 100 | 32,000 | 120 |
| 0.6 | 25,500 | 120 | 29,000 | 150 |
| 0.7 | 22,000 | 130 | 25,000 | 150 |
| 0.8 | 20,000 | 150 | 22,000 | 180 |
| 0.9 | 17,000 | 150 | 20,000 | 180 |
| 1 | 15,500 | 150 | 17,500 | 180 |
| 1.2 | 13,000 | 150 | 14,500 | 180 |
| 1.5 | 10,500 | 150 | 12,000 | 180 |
| 2 | 7,500 | 150 | 9,000 | 180 |
| 2.5 | 6,000 | 160 | 7,000 | 180 |
| 3 | 5,000 | 160 | 5,500 | 180 |
| 切込深さ Depth of Cut |  | |  | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 加工面、精度を重視される場合には、切込深さ、送り速度を必要に応じて調節下さい。
4. CRN-EDL-4(CrNコーティング 2刃ロング形)をご使用の場合は、上表の回転速度、送り速度共に20～40%程度下げてご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble fluid.
3. To achieve a desired surface and precision, adjust the cutting depth and feed rate as necessary.
4. When using CRN-EDL-4(CrN-coated, 2-flute, long), reduce both the speed and the feed rate by 20 to 40% from those indicated in the table above.

## CRN-EMS

| 被削材 Work Material | 銅合金 Copper Alloy C1100 | | | | | |
|---|---|---|---|---|---|---|
| | 標準条件(水溶性切削油剤) Regular Milling | | 高速切削用(水溶性切削油剤) High Speed Milling | | ドライ切削用(エアブロー) Dry Milling(Air Blow) | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 3 | 10,500 | 600 | 26,500 | 1,200 | 10,500 | 475 |
| 4 | 7,950 | 635 | 19,500 | 1,200 | 7,950 | 505 |
| 5 | 6,350 | 740 | 15,500 | 1,450 | 6,350 | 590 |
| 6 | 5,300 | 735 | 13,000 | 1,450 | 5,300 | 590 |
| 8 | 3,950 | 705 | 9,900 | 1,500 | 3,950 | 615 |
| 10 | 3,150 | 705 | 7,950 | 1,550 | 3,150 | 630 |
| 12 | 2,650 | 710 | 6,600 | 1,550 | 2,650 | 625 |
| 切込深さ Depth of Cut |  | |  | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 標準条件、高速切削用は水溶性切削油剤をご使用下さい。
3. 高速切削条件は、高速高精度のマシニングセンタを利用した場合の基準条件表です。
4. ドライ切削にて加工する場合には、ドライ切削用条件を使用下さい。その場合にはエアブローをご使用下さい。
5. ビビリを発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a water soluble fluid for regular and high speed milling.
3. The high speed conditions are for high speed and high precision machining centers.
4. Make sure to use the dry milling setting when fluid is not being used. Apply an air blow during dry operation.
5. When chattering occurs, reduce the speed and feed simultaneously.



Pro カタログ

# オーエスジー公式アプリ
# Pro カタログ

## デジタルカタログ

カタログ

最新の総合カタログや製品カタログを時間・場所問わず閲覧できます。しおりを挟んだり、メールでカタログを共有することも可能です。




### 総合カタログ

いつでもどこでもカタログを。

### 製品カタログ

最新カタログをいち早く。




## コードスキャン

コードスキャン

アプリ限定

バーコード・二次元コードに対応したスキャン機能です。工具のスペック情報や切削条件、検査成績表などの各種データを取得することができます。



※二次元コードは一部製品に限ります

## CADデータダウンロード

CADデータダウンロード

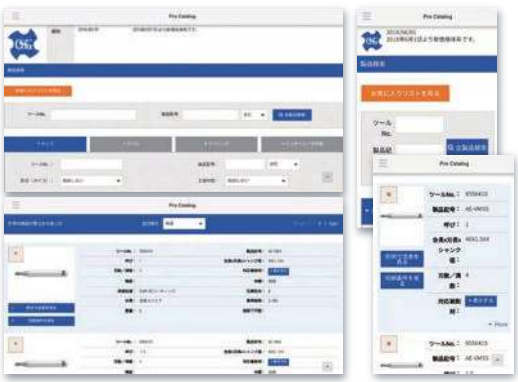
工具のDXFファイル・STEPファイルをパソコンやスマートフォンからいつでもダウンロードできます。



## 製品検索

製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



アプリの使い方・ダウンロードはこちら

**さらに、製品動画やFAQサイトなどOSG情報が満載！**

**最新情報を掲載中　今すぐダウンロード！**

形状寸法表
SPECIFICATION CHARTS
SEP-EL▶P286

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## SEP-EL
## 3D刃長

3 X D FLUTE LENGTH

### 溝切削 SLOTTING

| 被削材 Work Material | 熱可塑性樹脂(ナチュラルグレード) Thermoplastic Resin (Natural Grade) | | 熱硬化性樹脂 熱可塑性樹脂(繊維強化グレード) Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade) | |
|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 60〜70 | | 50〜70 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 0.5 × 1.5 | 38,200 | 1,530 | 31,800 | 1,270 |
| 1 × 3 | 19,100 | 2,290 | 15,900 | 1,910 |
| 2 × 6 | 9,500 | 1,430 | 8,000 | 1,200 |
| 3 × 9 | 6,400 | 1,150 | 5,300 | 950 |
| 4 ×12 | 5,600 | 1,340 | 4,800 | 1,010 |
| 6 ×18 | 3,700 | 1,110 | 3,400 | 920 |
| 切込深さ Depth of Cut | ap 1D | | | |

上表は、エアブローを使用する場合のものです。
The table above is for when using air-blow.

### 側面切削 SIDE MILLING

| 被削材 Work Material | 熱可塑性樹脂(ナチュラルグレード) Thermoplastic Resin (Natural Grade) | | 熱硬化性樹脂 熱可塑性樹脂(繊維強化グレード) Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade) | |
|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 100〜150 | | 60〜70 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 0.5 × 1.5 | 40,000 | 2,400 | 38,200 | 2,290 |
| 1 × 3 | 31,800 | 3,820 | 19,100 | 2,290 |
| 2 × 6 | 20,700 | 3,730 | 9,500 | 2,000 |
| 3 × 9 | 14,900 | 3,580 | 7,400 | 2,220 |
| 4 ×12 | 11,900 | 3,570 | 5,600 | 1,680 |
| 6 ×18 | 8,000 | 2,880 | 3,700 | 1,330 |
| 切込深さ Depth of Cut | ap 3D | ae 0.2D | | |

上表は、エアブローを使用する場合のものです。
The table above is for when using air-blow.

### 突込み切削 PLUNGING

| 被削材 Work Material | 熱可塑性樹脂(ナチュラルグレード) Thermoplastic Resin (Natural Grade) | | 熱硬化性樹脂 熱可塑性樹脂(繊維強化グレード) Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade) | |
|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 50〜70 | | 50〜70 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 0.5 × 1.5 | 31,800 | 320 | 31,800 | 320 |
| 1 × 3 | 15,900 | 480 | 15,900 | 480 |
| 2 × 6 | 9,500 | 360 | 8,000 | 300 |
| 3 × 9 | 6,400 | 290 | 5,300 | 240 |
| 4 ×12 | 5,600 | 340 | 4,800 | 250 |
| 6 ×18 | 3,700 | 280 | 3,400 | 230 |
| 切込深さ Depth of Cut | ap 1D | | | |

上表は、エアブローを使用する場合のものです。
The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
   強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
5. 切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
6. より高品位に加工する場合は水溶性切削油剤の使用を推奨します
   (ナイロン系とベークライトを除く)。
7. 突込み切削する場合はステップ送りを行って下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. The feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. When the chips wind around the end mill, reduce the speed and feed.
5. Please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
7. Please step feed when processing by plunging.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## SEP-EL
## 5D刃長

5 X D FLUTE LENGTH

### 側面切削 SIDE MILLING

| 被削材 Work Material | 熱可塑性樹脂（ナチュラルグレード） Thermoplastic Resin (Natural Grade) | | 熱硬化性樹脂 熱可塑性樹脂（繊維強化グレード） Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade) | |
|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 50〜100 | | 50〜70 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 0.5 × 2.5 | 31,800 | 1,910 | 31,800 | 1,910 |
| 1 × 5 | 19,100 | 2,290 | 19,100 | 2,290 |
| 2 × 10 | 12,700 | 1,910 | 9,500 | 2,000 |
| 3 × 15 | 9,500 | 1,710 | 7,400 | 2,220 |
| 4 × 20 | 8,000 | 1,920 | 5,600 | 1,680 |
| 6 × 30 | 5,300 | 1,270 | 3,700 | 1,330 |
| 切込深さ Depth of Cut | ap 5D | ae 0.05D | ap 5D | ae 0.1D |

上表は、エアブローを使用する場合のものです。
The table above is for when using air-blow.

### 突込み切削 PLUNGING

| 被削材 Work Material | 熱可塑性樹脂（ナチュラルグレード） Thermoplastic Resin (Natural Grade) | | 熱硬化性樹脂 熱可塑性樹脂（繊維強化グレード） Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade) | |
|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 50〜70 | | 50〜70 | |
| 外径×刃長 DC×APMX | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 0.5 × 2.5 | 31,800 | 320 | 31,800 | 320 |
| 1 × 5 | 15,900 | 480 | 15,900 | 480 |
| 2 × 10 | 9,500 | 360 | 8,000 | 300 |
| 3 × 15 | 6,400 | 290 | 5,300 | 240 |
| 4 × 20 | 5,600 | 340 | 4,800 | 250 |
| 6 × 30 | 3,700 | 280 | 3,400 | 230 |
| 切込深さ Depth of Cut | ap 1D | | | |

上表は、エアブローを使用する場合のものです。
The table above is for when using air-blow.

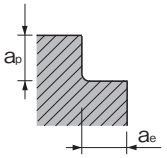
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
   強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 加工精度を要求される場合は、回転速度、送り速度、切込み量を抑えて使用下さい。
4. 切りくずが絡む場合は、回転速度、送り速度を下げてご使用下さい。
5. 切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
6. より高品位に加工する場合は水溶性切削油剤の使用を推奨します
   （ナイロン系とベークライトを除く）。
7. 突込み切削する場合はステップ送りを行って下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. The feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. When the chips wind around the end mill, reduce the speed and feed.
5. Please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
7. Please step feed when processing by plunging.

形状寸法表 SPECIFICATION CHARTS DLC-AIR-EDS▶P376
形状寸法表 SPECIFICATION CHARTS AERO-ETS▶P376

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

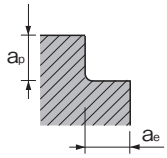
## DLC-AIR-EDS

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy | |
|---|---|---|
| 切削速度 Cutting Speed | 1,000～3,000m/min | |
| 外径 Mill Dia.(mm) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) |
| 12 | ≦33,000 | ≦9,100 |
| 16 | ≦33,000 | ≦12,000 |
| 20 | ≦33,000 | ≦15,000 |
| 25 | ≦33,000 | ≦15,000 |
| 切込深さ Depth of Cut | ap: 0.6DC, ae: 1DC  | |

1. この切削条件表はアルミニウム合金高能率加工用マシニングセンタでの加工を対象としたものです。
2. 切りくずは切削油剤・エアブロー等で強制排出を行って下さい。

1. This cutting condition is set for a highly-efficient machining center for aluminum alloy.
2. Chips must be removed forcibly by cutting fluid or air blow.

## AERO-ETS

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy | |
|---|---|---|
| 外径 Mill Dia.(mm) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) |
| 12 | ≦33,000 | ≦15,000 |
| 16 | ≦33,000 | ≦20,000 |
| 20 | ≦33,000 | ≦25,700 |
| 25 | ≦33,000 | ≦32,600 |
| 切込深さ Depth of Cut | ap: 0.4DC, ae: 1DC  | |

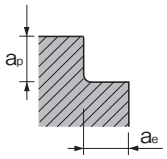
1. この切削条件表はアルミニウム合金高能率加工用マシニングセンタでの加工を対象としたものです。
2. 切りくずは切削油剤・エアブロー等で強制排出を行って下さい。

1. This cutting condition is set for a highly-efficient machining center for aluminum alloy.
2. Chips must be removed forcibly by cutting fluid or air blow.

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



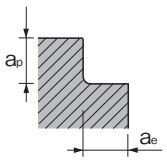
## AERO-O-ETS

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy | |
|---|---|---|
| 外径 Mill Dia.(mm) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) |
| 20 | ≦33,000 | ≦25,700 |
| 25 | ≦33,000 | ≦32,600 |
| 切込深さ Depth of Cut | ap: 0.4DC, ae: 1DC  | |

1. この切削条件表はアルミニウム合金高能率加工用マシニングセンタでの加工を対象としたものです。

1. This cutting condition is set for a highly-efficient machining center for aluminum alloy.

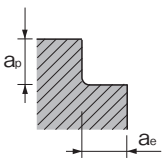
## AERO-ETL

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy | | | |
|---|---|---|---|---|
| 外径 Mill Dia.(mm) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) | ap(mm) | ae(mm) |
| 12 | ≦14,000 | ≦4,000 | ≦45 | ≦0.15 |
| 16 | ≦14,000 | ≦5,000 | ≦45 | ≦0.2 |
| 20 | ≦14,000 | ≦6,000 | ≦45 | ≦0.3 |
| 切込深さ Depth of Cut |  | | | |

1. この切削条件表はアルミニウム合金高能率加工用マシニングセンタでの加工を対象としたものです。
2. 切りくずは切削油剤・エアブロー等で強制排出を行って下さい。

1. This cutting condition is set for a highly-efficient machining center for aluminum alloy.
2. Chips must be removed forcibly by cutting fluid or air blow.

## AERO-EXTL

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy | |
|---|---|---|
| 外径 Mill Dia.(mm) | 回転速度 Speed(min-1) | 送り速度 Feed(mm/min) |
| 20 | ≦14,000 | ≦6,000 |
| 切込深さ Depth of Cut | ap: ≦95mm, ae: ≦0.2mm  | |

1. この切削条件表はアルミニウム合金高能率加工用マシニングセンタでの加工を対象としたものです。
2. 切りくずは切削油剤・エアブロー等で強制排出を行って下さい。

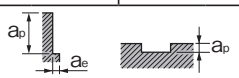
1. This cutting condition is set for a highly-efficient machining center for aluminum alloy.
2. Chips must be removed forcibly by cutting fluid or air blow.

形状寸法表 SPECIFICATION CHARTS DLC-EDS▶P272
形状寸法表 SPECIFICATION CHARTS DLC-LN-EDS▶P317

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DLC-EDS

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting Si13%未満 | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 外径 Mill Dia.（mm） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） |
| 0.5 | 32,000 | 180 | 50,000 | 550 | 32,000 | 180 | 50,000 | 500 | 32,000 | 160 | 50,000 | 450 |
| 0.6 | 32,000 | 200 | 50,000 | 650 | 32,000 | 200 | 50,000 | 600 | 32,000 | 180 | 50,000 | 550 |
| 0.8 | 32,000 | 220 | 50,000 | 850 | 32,000 | 220 | 50,000 | 800 | 29,000 | 200 | 50,000 | 650 |
| 1 | 32,000 | 220 | 50,000 | 1,000 | 32,000 | 220 | 50,000 | 950 | 23,000 | 220 | 42,000 | 700 |
| 1.2 | 32,000 | 230 | 50,000 | 1,200 | 32,000 | 230 | 50,000 | 1,150 | 19,000 | 220 | 36,000 | 700 |
| 1.4 | 32,000 | 260 | 50,000 | 1,400 | 32,000 | 260 | 50,000 | 1,250 | 16,500 | 220 | 31,000 | 700 |
| 1.5 | 32,000 | 280 | 50,000 | 1,600 | 32,000 | 280 | 48,000 | 1,250 | 15,500 | 220 | 29,500 | 700 |
| 1.6 | 32,000 | 320 | 50,000 | 1,700 | 32,000 | 320 | 45,000 | 1,250 | 14,500 | 220 | 28,000 | 700 |
| 1.8 | 32,000 | 360 | 50,000 | 1,850 | 32,000 | 360 | 41,000 | 1,250 | 13,000 | 220 | 26,500 | 750 |
| 2 | 32,000 | 420 | 50,000 | 2,000 | 32,000 | 420 | 38,000 | 1,250 | 11,500 | 220 | 24,000 | 750 |
| 2.5 | 25,000 | 600 | 48,000 | 2,100 | 25,000 | 600 | 31,000 | 1,250 | 9,500 | 250 | 20,000 | 750 |
| 3 | 21,000 | 700 | 40,000 | 2,100 | 21,000 | 700 | 26,000 | 1,250 | 7,950 | 250 | 17,000 | 750 |
| 4 | 15,500 | 725 | 33,000 | 2,250 | 15,500 | 725 | 20,000 | 1,350 | 5,950 | 280 | 14,000 | 800 |
| 5 | 12,500 | 760 | 31,000 | 2,800 | 12,500 | 760 | 19,200 | 1,650 | 4,750 | 295 | 12,500 | 950 |
| 6 | 10,500 | 830 | 26,000 | 2,800 | 10,500 | 830 | 15,900 | 1,700 | 3,950 | 310 | 10,500 | 1,000 |
| 8 | 7,950 | 890 | 19,500 | 2,900 | 7,950 | 890 | 12,000 | 1,800 | 2,950 | 300 | 7,900 | 1,000 |
| 10 | 6,350 | 995 | 15,500 | 3,200 | 6,350 | 995 | 9,600 | 1,900 | 2,350 | 365 | 6,350 | 1,100 |
| 12 | 5,300 | 1,050 | 13,000 | 3,200 | 5,300 | 1,050 | 8,000 | 1,900 | 1,950 | 390 | 5,300 | 1,100 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.1D<br>ap φ0.5≦DC≦φ0.8 0.3D<br>ap φ1 ≦DC 0.5D | | | | ap 1D / ae 0.1D<br>ap 0.15D | | | | ap 1.5D / ae 0.1D<br>ap φ0.5≦DC≦φ0.8 0.3D<br>ap φ1 ≦DC 0.5D | | ap 1D / ae 0.05D<br>ap 0.1D | |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. アルミニウム合金は水溶性切削油剤をご使用下さい。
3. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。
4. 高Siアルミニウム合金鋳物・ダイキャストにはダイヤコートエンドミルを推奨します。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid for milling aluminum alloys.
3. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.
4. Diamond coated end mill is recommended for machining Aluminum casting or die casting alloy with high Si.

## DLC-LN-EDS

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting Si13%未満 | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 外径 Mill Dia.（mm） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） |
| 0.5 | 32,000 | 100 | 50,000 | 550 | 32,000 | 100 | 50,000 | 550 | 32,000 | 100 | 50,000 | 450 |
| 1 | 32,000 | 190 | 50,000 | 1,000 | 32,000 | 190 | 50,000 | 1,000 | 23,000 | 140 | 42,000 | 700 |
| 1.5 | 32,000 | 250 | 45,000 | 1,200 | 32,000 | 250 | 45,000 | 1,200 | 15,500 | 145 | 29,500 | 700 |
| 2 | 25,500 | 300 | 34,000 | 1,200 | 25,500 | 300 | 34,000 | 1,200 | 11,500 | 150 | 24,000 | 750 |
| 2.5 | 20,000 | 430 | 27,000 | 1,200 | 20,000 | 430 | 27,000 | 1,200 | 9,500 | 175 | 20,000 | 750 |
| 3 | 17,000 | 510 | 23,000 | 1,200 | 17,000 | 510 | 23,000 | 1,200 | 7,950 | 220 | 17,000 | 750 |
| 4 | 12,500 | 520 | 17,000 | 1,200 | 12,500 | 520 | 17,000 | 1,200 | 5,950 | 235 | 13,000 | 750 |
| 5 | 10,000 | 540 | 13,500 | 1,200 | 10,000 | 540 | 13,500 | 1,200 | 4,750 | 250 | 10,000 | 750 |
| 6 | 8,500 | 600 | 11,000 | 1,200 | 8,500 | 600 | 11,000 | 1,200 | 3,950 | 250 | 8,000 | 750 |
| 切込深さ Depth of Cut | ap 1.2D / ae 0.1D<br>ap 0.3D | | ap 1D / ae 0.1D<br>ap 0.15D | | ap 1.2D / ae 0.1D<br>ap 0.3D | | ap 1D / ae 0.1D<br>ap 0.15D | | ap 1D / ae 0.1D<br>ap 0.3D | | ap 1D / ae 0.05D<br>ap 0.1D | |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. アルミニウム合金は水溶性切削油剤をご使用下さい。
3. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。
4. 高Siアルミニウム合金鋳物・ダイキャストにはダイヤコートエンドミルを推奨します。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid for milling aluminum alloys.
3. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.
4. Diamond coated end mill is recommended for machining Aluminum casting or die casting alloy with high Si.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## DLC-MR-EDS

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting Si13%未満 | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 外径 Mill Dia.（mm） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） |
| 1 | 32,000 | 220 | 50,000 | 1,000 | 32,000 | 220 | 50,000 | 950 | 23,000 | 220 | 42,000 | 700 |
| 2 | 32,000 | 420 | 50,000 | 2,000 | 32,000 | 420 | 38,000 | 1,250 | 11,500 | 220 | 24,000 | 750 |
| 3 | 21,000 | 700 | 40,000 | 2,100 | 21,000 | 700 | 26,000 | 1,250 | 7,950 | 250 | 17,000 | 750 |
| 4 | 15,500 | 725 | 33,000 | 2,250 | 15,500 | 725 | 20,000 | 1,350 | 5,950 | 280 | 14,000 | 800 |
| 5 | 12,500 | 760 | 31,000 | 2,800 | 12,500 | 760 | 19,200 | 1,650 | 4,750 | 295 | 12,500 | 950 |
| 6 | 10,500 | 830 | 26,000 | 2,800 | 10,500 | 830 | 15,900 | 1,700 | 3,950 | 310 | 10,500 | 1,000 |
| 8 | 7,950 | 890 | 19,500 | 2,900 | 7,950 | 890 | 12,000 | 1,800 | 2,950 | 300 | 7,900 | 1,000 |
| 10 | 6,350 | 995 | 15,500 | 3,200 | 6,350 | 995 | 9,600 | 1,900 | 2,350 | 365 | 6,350 | 1,100 |
| 12 | 5,300 | 1,050 | 13,000 | 3,200 | 5,300 | 1,050 | 8,000 | 1,900 | 1,950 | 390 | 5,300 | 1,100 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.1D　ap 0.5D | | ap 1D / ae 0.1D　ap 0.15D | | ap 1.5D / ae 0.1D　ap 0.5D | | ap 1D / ae 0.1D　ap 0.15D | | ap 1.5D / ae 0.1D　ap 0.5D | | ap 1D / ae 0.05D　ap 0.1D | |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. アルミニウム合金は水溶性切削油剤をご使用下さい。
3. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。
4. 高Siアルミニウム合金鋳物・ダイキャストにはダイヤコートエンドミルを推奨します。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid for milling aluminum alloys.
3. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.
4. Diamond coated end mill is recommended for machining Aluminum casting or die casting alloy with high Si.

## DLC-MR-EMS

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting Si13%未満 | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 外径 Mill Dia.（mm） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） | 回転速度 Speed（min-1） | 送り速度 Feed（mm/min） |
| 2 | 32,000 | 840 | 50,000 | 4,000 | 32,000 | 840 | 38,000 | 2,500 | 11,500 | 440 | 24,000 | 1,500 |
| 3 | 21,000 | 1,400 | 40,000 | 4,200 | 21,000 | 1,400 | 26,000 | 2,500 | 7,950 | 500 | 17,000 | 1,500 |
| 4 | 15,500 | 1,450 | 33,000 | 4,500 | 15,500 | 1,450 | 20,000 | 2,700 | 5,950 | 560 | 14,000 | 1,600 |
| 5 | 12,500 | 1,520 | 31,000 | 5,600 | 12,500 | 1,520 | 19,200 | 3,300 | 4,750 | 590 | 12,500 | 1,900 |
| 6 | 10,500 | 1,660 | 26,000 | 5,600 | 10,500 | 1,660 | 15,900 | 3,400 | 3,950 | 620 | 10,500 | 2,000 |
| 8 | 7,950 | 1,780 | 19,500 | 5,800 | 7,950 | 1,780 | 12,000 | 3,600 | 2,950 | 600 | 7,900 | 2,000 |
| 10 | 6,350 | 1,990 | 15,500 | 6,400 | 6,350 | 1,990 | 9,600 | 3,800 | 2,350 | 730 | 6,350 | 2,200 |
| 12 | 5,300 | 2,100 | 13,000 | 6,400 | 5,300 | 2,100 | 8,000 | 3,800 | 1,950 | 780 | 5,300 | 2,200 |
| 切込深さ Depth of Cut | ap 1.5D / ae 0.1D | | ap 1D / ae 0.1D | | ap 1.5D / ae 0.1D | | ap 1D / ae 0.1D | | ap 1.5D / ae 0.1D | | ap 1D / ae 0.05D | |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. アルミニウム合金は水溶性切削油剤をご使用下さい。
3. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。
4. 高Siアルミニウム合金鋳物・ダイキャストにはダイヤコートエンドミルを推奨します。

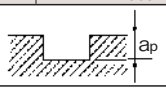
1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid for milling aluminum alloys.
3. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.
4. Diamond coated end mill is recommended for machining Aluminum casting or die casting alloy with high Si.

形状寸法表 SPECIFICATION CHARTS DLC-E1-3D▶P311-48
形状寸法表 SPECIFICATION CHARTS DLC-E1-3D-L▶P311-48
形状寸法表 SPECIFICATION CHARTS DLC-E1-5D▶P311-49
形状寸法表 SPECIFICATION CHARTS DLC-E1-5D-L▶P311-49

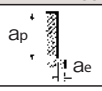
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DLC-E1-3D/DLC-E1-3D-L

### 溝切削 SLOTTING

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A6063 | |
|---|---|---|
| 切削速度 Cutting Speed | 240m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 38,200 | 420 |
| 3 | 25,500 | 460 |
| 4 | 19,100 | 470 |
| 5 | 15,300 | 490 |
| 6 | 12,700 | 505 |
| 8 | 9,500 | 540 |
| 10 | 7,600 | 570 |
| 12 | 6,400 | 605 |
| 切込深さ Depth of Cut | ap 1D  | |

### 側面切削 SIDE MILLING

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A6063 | |
|---|---|---|
| 切削速度 Cutting Speed | 240m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 38,200 | 575 |
| 3 | 25,500 | 570 |
| 4 | 19,100 | 590 |
| 5 | 15,300 | 610 |
| 6 | 12,700 | 630 |
| 8 | 9,500 | 675 |
| 10 | 7,600 | 715 |
| 12 | 6,400 | 755 |
| 切込深さ Depth of Cut | ap 3D / ae 0.1D  | |

## DLC-E1-5D/DLC-E1-5D-L

### 側面切削 SIDE MILLING

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A6063 | |
|---|---|---|
| 切削速度 Cutting Speed | 100m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 15,900 | 205 |
| 3 | 10,600 | 210 |
| 4 | 8,000 | 230 |
| 5 | 6,400 | 240 |
| 6 | 5,300 | 260 |
| 8 | 4,000 | 290 |
| 10 | 3,200 | 320 |
| 12 | 2,700 | 350 |
| 切込深さ Depth of Cut | ap 5D / ae 0.1D  | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. この切削条件表は、水溶性切削油剤を使用する場合のものです。
3. びびりが発生する時は、回転速度、送り速度を下げてご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. DLC-E1-5D、DLC-E1-3D-L、DLC-E1-5D-Lは突込み切削には推奨しません。

1. Use a rigid and precise machine and holder.
2. The indicated speeds and feeds are for milling with water-soluble coolant.
3. When chattering occurs, reduce the speed and feed.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. DLC-E1-5D, DLC-E1-3D-L, and DLC-E1-5D-L are not recommended for plunging.

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表

## DLC-E2-3D/DLC-E2-3D-L

### 溝切削 SLOTTING

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A6063 | |
|---|---|---|
| 切削速度 Cutting Speed | 240m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 2 | 38,200 | 840 |
| 3 | 25,500 | 920 |
| 4 | 19,100 | 945 |
| 5 | 15,300 | 980 |
| 6 | 12,700 | 1,010 |
| 8 | 9,500 | 1,080 |
| 10 | 7,600 | 1,145 |
| 12 | 6,400 | 1,210 |
| 切込深さ Depth of Cut | ap 1D | |

### 側面切削 SIDE MILLING

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A6063 | |
|---|---|---|
| 切削速度 Cutting Speed | 240m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 2 | 38,200 | 1,150 |
| 3 | 25,500 | 1,145 |
| 4 | 19,100 | 1,185 |
| 5 | 15,300 | 1,225 |
| 6 | 12,700 | 1,265 |
| 8 | 9,500 | 1,350 |
| 10 | 7,600 | 1,430 |
| 12 | 6,400 | 1,510 |
| 切込深さ Depth of Cut | ap 3D | ae 0.1D |

## DLC-E2-5D/DLC-E2-5D-L

### 側面切削 SIDE MILLING

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A6063 | |
|---|---|---|
| 切削速度 Cutting Speed | 100m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 2 | 15,900 | 410 |
| 3 | 10,600 | 425 |
| 4 | 8,000 | 460 |
| 5 | 6,400 | 485 |
| 6 | 5,300 | 520 |
| 8 | 4,000 | 580 |
| 10 | 3,200 | 640 |
| 12 | 2,700 | 700 |
| 切込深さ Depth of Cut | ap 5D | ae 0.1D |

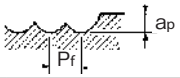
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. この切削条件表は、水溶性切削油剤を使用する場合のものです。
3. びびりが発生する時は、回転速度、送り速度を下げてご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
5. DLC-E2-5D、DLC-E2-3D-L、DLC-E2-5D-Lは突込み切削には推奨しません。

1. Use a rigid and precise machine and holder.
2. The indicated speeds and feeds are for milling with water-soluble coolant.
3. When chattering occurs, reduce the speed and feed.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. DLC-E2-5D, DLC-E2-3D-L, and DLC-E2-5D-L are not recommended for plunging.

形状寸法表
SPECIFICATION CHARTS
DLC-EQD▶P359-11

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DLC-EQD

| 被削材 Work Material | アルミニウム合金展伸材・マグネシウム合金 Aluminum Alloy Expanding Material・Magnesium Alloy A5052・A7075・AZ91・AZ80A | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4C・ADC | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|
| ボール半径X首下長 REXLU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 × 6 | 28,600 | 1,090 | 28,600 | 1,090 | 24,300 | 920 |
| R1 ×10 | 25,400 | 800 | 25,400 | 800 | 21,600 | 680 |
| R1.5× 9 | 19,100 | 1,240 | 19,100 | 1,240 | 16,200 | 1,050 |
| R1.5×15 | 16,900 | 1,050 | 16,900 | 1,050 | 14,400 | 890 |
| R2 ×12 | 14,300 | 1,240 | 14,300 | 1,240 | 12,200 | 1,050 |
| R2 ×20 | 12,700 | 1,050 | 12,700 | 1,050 | 10,800 | 890 |
| R2.5×15 | 11,400 | 1,240 | 11,400 | 1,240 | 9,700 | 1,050 |
| R2.5×25 | 10,100 | 1,050 | 10,100 | 1,050 | 8,600 | 890 |
| R3 ×18 | 9,500 | 1,200 | 9,500 | 1,200 | 8,000 | 1,020 |
| R3 ×30 | 8,400 | 1,020 | 8,400 | 1,020 | 7,100 | 870 |
| R4 ×24 | 7,200 | 1,560 | 7,200 | 1,560 | 6,100 | 1,330 |
| R4 ×40 | 6,400 | 1,330 | 6,400 | 1,330 | 5,400 | 1,130 |
| R5 ×30 | 5,700 | 1,400 | 5,700 | 1,400 | 4,900 | 1,190 |
| R5 ×50 | 5,100 | 1,190 | 5,100 | 1,190 | 4,300 | 1,010 |
| R6 ×36 | 4,800 | 1,300 | 4,800 | 1,300 | 4,100 | 1,110 |
| R6 ×60 | 4,200 | 1,110 | 4,200 | 1,110 | 3,600 | 940 |
| 切込深さ Depth of Cut | ap 0.1D / pf 0.2D  | | | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. この切削条件表は、水溶性切削油剤を使用する場合のものです。
3. びびりが発生する時は、回転速度、送り速度を下げてご使用下さい。
4. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

1. Use a rigid and precise machine and holder.
2. The indicated speeds and feeds are for milling with water-soluble coolant.
3. When chattering occurs, reduce the speed and feed.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

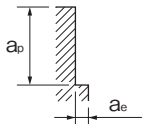
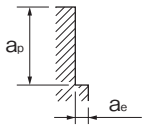
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表



## DLC-ETS
## 側面切削

SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting Si13%未満 | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | |
|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 3 | 21,000 | 950 | 21,000 | 950 | 7,950 | 320 |
| 4 | 15,500 | 1,100 | 15,500 | 1,100 | 5,950 | 350 |
| 5 | 12,500 | 1,100 | 12,500 | 1,100 | 4,750 | 380 |
| 6 | 10,500 | 1,200 | 10,500 | 1,200 | 3,950 | 400 |
| 8 | 7,950 | 1,300 | 7,950 | 1,300 | 2,950 | 450 |
| 10 | 6,350 | 1,500 | 6,350 | 1,500 | 2,350 | 480 |
| 12 | 5,300 | 1,550 | 5,300 | 1,550 | 1,950 | 510 |
| 16 | 3,950 | 1,550 | 3,950 | 1,550 | 1,450 | 510 |
| 20 | 3,150 | 1,550 | 3,150 | 1,550 | 1,150 | 510 |
| 切込深さ Depth of Cut | $a_p$ 1.5D / $a_e$ 0.1D | |  | |  | |

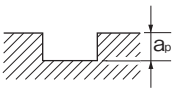
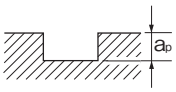


1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
4. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
4. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.

## DLC-ETS
## 溝切削

SIDE MILLING

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting Si13%未満 | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | |
|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 3 | 21,000 | 670 | 21,000 | 670 | 7,950 | 325 |
| 4 | 15,500 | 700 | 15,500 | 700 | 5,950 | 365 |
| 5 | 12,500 | 745 | 12,500 | 745 | 4,750 | 385 |
| 6 | 10,500 | 820 | 10,500 | 820 | 3,950 | 405 |
| 8 | 7,950 | 865 | 7,950 | 865 | 2,950 | 455 |
| 10 | 6,350 | 970 | 6,350 | 970 | 2,350 | 475 |
| 12 | 5,300 | 1,050 | 5,300 | 1,050 | 1,950 | 510 |
| 16 | 3,950 | 1,050 | 3,950 | 1,050 | 1,450 | 510 |
| 20 | 3,150 | 1,050 | 3,150 | 1,050 | 1,150 | 500 |
| 切込深さ Depth of Cut | $a_p$=0.5D | |  | |  | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
4. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。

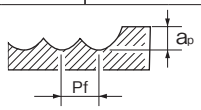
1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
4. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.

形状寸法表 SPECIFICATION CHARTS DLC-EBD▶P332
形状寸法表 SPECIFICATION CHARTS DLC-LN-EBD▶P356

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DLC-EBD

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting <Si13% | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 0.5 | 32,000 | 845 | 50,000 | 1,200 | 32,000 | 845 | 50,000 | 1,200 | 32,000 | 845 | 50,000 | 1,200 |
| R 1 | 31,800 | 1,550 | 50,000 | 2,200 | 31,800 | 1,550 | 47,700 | 2,100 | 23,900 | 1,150 | 39,800 | 1,750 |
| R 1.5 | 21,200 | 1,550 | 50,000 | 3,300 | 21,200 | 1,550 | 31,800 | 2,100 | 15,900 | 1,150 | 26,500 | 1,750 |
| R 2 | 15,900 | 1,550 | 39,800 | 3,500 | 15,900 | 1,550 | 23,800 | 2,100 | 11,900 | 1,150 | 19,900 | 1,750 |
| R 3 | 10,600 | 1,600 | 26,500 | 3,550 | 10,600 | 1,600 | 15,900 | 2,150 | 7,950 | 1,150 | 13,000 | 1,800 |
| R 4 | 7,950 | 1,950 | 19,500 | 4,500 | 7,950 | 1,950 | 11,900 | 2,650 | 5,950 | 1,450 | 9,900 | 2,250 |
| R 5 | 6,350 | 1,750 | 15,500 | 4,050 | 6,350 | 1,750 | 9,550 | 2,450 | 4,750 | 1,300 | 7,950 | 2,000 |
| R 6 | 5,300 | 1,650 | 13,000 | 3,750 | 5,300 | 1,650 | 7,950 | 2,250 | 3,950 | 1,200 | 6,600 | 1,900 |
| R 8 | 3,950 | 1,500 | 9,900 | 3,550 | 3,950 | 1,500 | 5,950 | 2,100 | 2,950 | 1,150 | 4,950 | 1,800 |
| R10 | 3,150 | 1,350 | 7,950 | 3,200 | 3,150 | 1,350 | 4,750 | 1,900 | 2,350 | 1,000 | 3,950 | 1,600 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.2D | | ap 0.05D / Pf 0.1D | | ap 0.1D / Pf 0.2D | | ap 0.05D / Pf 0.1D | | ap 0.1D / Pf 0.2D | | ap 0.02D / Pf 0.05D | |

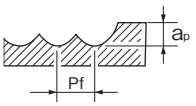



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. アルミニウム合金は水溶性切削油剤をご使用下さい。
3. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。
4. 高Siアルミニウム合金鋳物・ダイキャストにはダイヤコートエンドミルを推奨します。

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid for milling aluminum alloys.
3. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.
4. Diamond coated end mill is recommended for machining
   Aluminum casting or die casting alloy with high Si.

## DLC-LN-EBD

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting <Si13% | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | 銅合金 Copper Alloy C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.5 | 26,000 | 800 | 35,000 | 1,050 | 26,000 | 800 | 28,000 | 1,000 | 26,000 | 800 | 23,000 | 900 |
| R1 | 25,000 | 1,050 | 35,000 | 1,400 | 25,000 | 1,050 | 28,000 | 1,200 | 19,000 | 800 | 23,000 | 900 |
| R1.5 | 17,000 | 1,050 | 23,000 | 1,400 | 17,000 | 1,050 | 18,500 | 1,200 | 12,500 | 800 | 15,000 | 900 |
| R2 | 12,500 | 1,050 | 17,500 | 1,400 | 12,500 | 1,050 | 14,000 | 1,200 | 9,500 | 800 | 11,500 | 900 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.2D | | ap 0.05D / Pf 0.1D | | ap 0.1D / Pf 0.2D | | ap 0.05D / Pf 0.1D | | ap 0.1D / Pf 0.2D | | ap 0.02D / Pf 0.05D | |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. アルミニウム合金は水溶性切削油剤をご使用下さい。
3. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。
4. 高Siアルミニウム合金鋳物・ダイキャストにはダイヤコートエンドミルを推奨します。

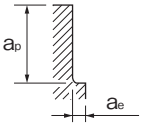
1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid for milling aluminum alloys.
3. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.
4. Diamond coated end mill is recommended for machining
   Aluminum casting or die casting alloy with high Si.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## DLC-PKE
## 側面切削

SIDE MILLING

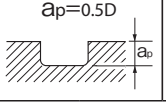
| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting Si13%未満 | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 21,000 | 1,100 | 40,000 | 2,100 | 21,000 | 1,100 | 24,000 | 1,250 | 7,950 | 325 | 17,000 | 625 |
| 4 | 15,500 | 1,250 | 32,000 | 2,250 | 15,500 | 1,250 | 19,200 | 1,550 | 5,950 | 365 | 14,300 | 800 |
| 5 | 12,500 | 1,300 | 32,000 | 3,250 | 12,500 | 1,275 | 19,200 | 1,950 | 4,750 | 385 | 12,700 | 925 |
| 6 | 10,500 | 1,400 | 26,500 | 3,500 | 10,500 | 1,400 | 15,900 | 2,150 | 3,950 | 400 | 10,600 | 960 |
| 8 | 7,950 | 1,500 | 20,000 | 3,750 | 7,950 | 1,500 | 12,000 | 2,250 | 2,950 | 460 | 8,000 | 1,130 |
| 10 | 6,350 | 1,700 | 16,000 | 4,300 | 6,350 | 1,700 | 9,600 | 2,580 | 2,350 | 475 | 6,350 | 1,150 |
| 12 | 5,300 | 1,750 | 13,300 | 4,400 | 5,300 | 1,750 | 8,000 | 2,650 | 1,950 | 510 | 5,300 | 1,250 |
| 16 | 3,950 | 1,750 | 10,000 | 4,400 | 3,950 | 1,750 | 6,000 | 2,650 | 1,450 | 510 | 4,000 | 1,250 |
| 20 | 3,150 | 1,750 | 8,000 | 4,400 | 3,150 | 1,750 | 4,800 | 2,650 | 1,150 | 510 | 3,200 | 1,250 |
| 切込深さ Depth of Cut | ap 1D, ae 0.2D  | | ap 1D, ae 0.1D | | ap 1D, ae 0.2D | | ap 1D, ae 0.1D | | ap 1D, ae 0.2D | | ap 1D, ae 0.1D | |

※ワークの仕上げ状態よりも、切りくず排出量を重視される場合は、送り速度を1.5倍程度でご使用いただけます。
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
4. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。

※If the chip disposal is a greater concern than the surface finish on work material, the feeding speed should be increased by 50%.
1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
4. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.

## DLC-PKE
## 溝切削

SLOTTING

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | | | アルミニウム合金鋳物・ダイキャスト Aluminum Alloy Casting・Die Casting Si13%未満 | | | | マグネシウム合金・銅合金 Magnesium Alloy・Copper Alloy AZ91・AZ80A・C1100 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | 標準条件 Regular Milling | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 21,000 | 770 | 40,000 | 1,450 | 21,000 | 770 | 24,000 | 880 | 7,950 | 325 |
| 4 | 15,500 | 810 | 32,000 | 1,700 | 15,500 | 810 | 19,200 | 1,000 | 5,950 | 375 |
| 5 | 12,500 | 860 | 32,000 | 2,200 | 12,500 | 860 | 19,200 | 1,350 | 4,750 | 385 |
| 6 | 10,500 | 950 | 26,500 | 2,400 | 10,500 | 950 | 15,900 | 1,450 | 3,950 | 400 |
| 8 | 8,000 | 1,000 | 20,000 | 2,500 | 8,000 | 1,000 | 12,000 | 1,500 | 2,950 | 460 |
| 10 | 6,350 | 1,150 | 16,000 | 2,800 | 6,350 | 1,150 | 9,600 | 1,700 | 2,350 | 475 |
| 12 | 5,300 | 1,200 | 13,300 | 2,950 | 5,300 | 1,200 | 8,000 | 1,800 | 1,950 | 510 |
| 16 | 3,950 | 1,200 | 10,000 | 3,000 | 3,950 | 1,200 | 6,000 | 1,800 | 1,450 | 510 |
| 20 | 3,150 | 1,200 | 8,000 | 3,000 | 3,150 | 1,200 | 4,800 | 1,800 | 1,150 | 510 |
| 切込深さ Depth of Cut | ap=0.5D  | | ap=0.25D | | ap=0.5D | | ap=0.25D | | ap=0.5D | ap=0.25D |

※ワークの仕上げ状態よりも、切りくず排出量を重視される場合は、送り速度を1.5倍程度でご使用いただけます。
＜標準条件＞
ランピング加工でご使用される場合、最大ランピング角度30°以内でご使用下さい。
＜高速条件＞
ランピング加工でご使用される場合、送り速度2,000mm/min以下、最大ランピング角度30°以内でご使用下さい。
1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 水溶性切削油剤をご使用下さい。
3. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
4. マグネシウム合金切削時は下記注意点をお守り下さい。
   切削油剤は切削油剤メーカーにご相談の上、ご使用下さい。
   切りくず処理・管理に注意して下さい。発火の恐れがあります。

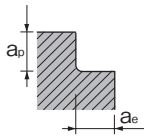
※If the chip disposal is a greater concern than the surface finish on work material, the feeding speed should be increased by 50%.
＜Regular Milling＞
The recommended maximum ramping angle is 30 degrees or lower when using for ramping machining.
＜High Speed Milling＞
The recommended feeding speed for ramping machining is less than 2000mm/min, and the recommended maximum ramping angle is 30 degrees or lower.
1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
4. Please note the following points on machining Mg alloy.
   To select appropriate cutting fluid, consult with lubricant manufacturers.
   Chips must be handled carefully, because they cause fire.

形状寸法表 SPECIFICATION CHARTS DLC-AIR-EDS▶P376
形状寸法表 SPECIFICATION CHARTS DIA-EDS▶P272
形状寸法表 SPECIFICATION CHARTS DIA-2D-DE▶P311-8

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DLC-AIR-EDS

### アルミニウム合金高能率加工用マシニングセンタ対応切削条件 ALUMINIUM ALLOY ON A MACHIINING CENTER.

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | |
|---|---|---|
| 切削速度 Cutting Speed | 1,000〜3,000m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 35,000 | 9,100 |
| 15 | 35,000 | 12,000 |
| 20 | 35,000 | 15,000 |
| 25 | 30,000 | 15,000 |
| 切込深さ Depth of Cut | ap 0.6D / ae 0.6D |  |



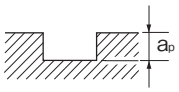
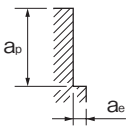
1. この切削条件表はアルミニウム合金高能率加工用マシニングセンタでの加工を対象としたものです。
2. 切りくずは切削油剤・エアブロー等で強制排出を行って下さい。

1. This cutting condition is fixed for a highly efficient machining center for Aluminum Alloy.
2. Chips most be removed forcibly by cutting fluid or air blow.

## DIA-EDS/DIA-2D-DE

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険があります。
防火対策を必ずおこなって下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.
The conditions below are for high speed / high precision machining centers.

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A7075 | | アルミニウム合金・ダイキャスト鋳物 Aluminum Alloy Die Casting ADC12 | | 銅合金 Copper Alloy C1100 | | グラファイト Graphite | |
|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 1 | 50,000 | 480 | 50,000 | 400 | 28,500 | 230 | 50,000 | 400 |
| 1.5 | 36,000 | 520 | 36,000 | 430 | 20,000 | 240 | 36,000 | 430 |
| 2 | 30,000 | 580 | 30,000 | 470 | 15,500 | 250 | 30,000 | 470 |
| 3 | 21,000 | 600 | 21,000 | 640 | 10,500 | 255 | 21,000 | 640 |
| 4 | 16,000 | 670 | 16,000 | 540 | 8,000 | 270 | 16,000 | 540 |
| 5 | 12,500 | 700 | 12,500 | 560 | 6,400 | 280 | 12,500 | 560 |
| 6 | 10,500 | 730 | 10,500 | 590 | 5,300 | 290 | 10,500 | 590 |
| 8 | 8,000 | 770 | 8,000 | 610 | 4,000 | 305 | 8,000 | 610 |
| 10 | 6,400 | 770 | 6,400 | 640 | 3,200 | 320 | 6,400 | 640 |
| 12 | 6,300 | 770 | 5,300 | 630 | 2,700 | 360 | 5,300 | 630 |
| 切込深さ Depth of Cut | 溝 Slotting: ae — DC≦φ2.5: 0.25D; φ2.5<DC: 0.5 D  側面Side Milling: ap / ae — DC≦φ2.5: 1.5D / 0.05D; φ2.5<DC: 1.5D / 0.1 D  | | | | | | | |

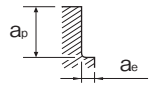


1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は、被削材に適したもので発煙性の少ないものを選定して下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調節下さい。
4. 上表はエンドミルの突出し長さが工具径の3倍以下の場合の目安です。突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調節下さい。
5. グラファイト加工専用機以外でグラファイト加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
4. These milling conditions are for an end mill where the tool projection length is less than 3×D (mill dia.). When the tool projection length is longer, please adjust the speed, feed and cutting depth.
5. When milling graphite on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表

## DIA-LS-CRED

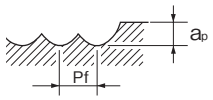
| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 5 | 8,000 | 510 |
| 7 | 8,000 | 765 |
| 9 | 8,000 | 1,000 |
| 11 | 8,000 | 1,250 |
| 切込深さ Depth of Cut | ap: 1D / ae: 0.1D  | |



1. この切削条件表は、エンドミルの突出し量が、(刃径×10倍以下)を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。

1. These milling conditions are for an mill where the tool extension length is 10 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feel and milling depth.

## DIA-PC-EBD

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A7075 | | グラファイト Graphite | |
|---|---|---|---|---|
| 呼び RE | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| R0.5 | 16,000 | 150 | 15,000 | 150 |
| R1 | 10,500 | 200 | 14,500 | 300 |
| R1.5 | 7,500 | 300 | 13,000 | 500 |
| R2 | 7,000 | 400 | 12,000 | 600 |
| R3 | 6,500 | 450 | 9,500 | 700 |
| 切込深さ Depth of Cut | ap: 0.05D / Pf: 0.1D  | | | |



1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 上表は目安条件です。加工形状、突き出し量、機械剛性等使用状況により、回転速度、送り速度を調節下さい。
3. 加工面、精度を重視される場合には、切込深さ、送り速度を必要に応じて調節下さい。
4. エンドミル取り付け時の刃先の振れは、出来るだけ抑えて(10μm以内を推奨)ご使用下さい。
5. 切削油剤は被削材に適したものを選定下さい。
6. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。

1. Use a rigid and precise machine and holder.
2. The general conditions are shown on the above table. thus, the speed and the feed rate should be adjusted in accordance with the machining conditions such as shape of component, overhang of cutting tool, machine rigidity, etc.
3. To ensure good surface and accuracy of component, depth of cut and the feed rate should be adjusted accordingly.
4. Please prevent the runout of tool after chucking as much as possible(10μm maximum recommended).
5. Use suitable cutting fluids.
6. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

形状寸法表 SPECIFICATION CHARTS DIA-EBD▶P333
形状寸法表 SPECIFICATION CHARTS DIA-LN-EBD▶P355

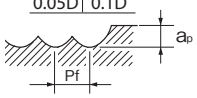
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DIA-EBD

⚠ 高速切削では引火性のある切削油剤は絶対に使用しないで下さい。
工具が破損した場合に、引火・火災の危険があります。

Do not use flammable fluids for high-speed light milling. Sparks generated during operation or heat caused by tool breakage can cause fire.

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A7075 | | | | | | 銅合金 Copper Alloy C1100 | | | | | | グラファイト Glaphite | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | ドライ切削用 Dry Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | ドライ切削用 Dry Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.5 × 1 | 32,000 | 1,000 | 50,000 | 3,000 | 25,600 | 700 | 32,000 | 845 | 50,000 | 2,750 | 25,600 | 590 | 15,000 | 650 | 20,000 | 1,000 |
| R1 × 2 | 31,800 | 1,550 | 50,000 | 5,000 | 25,500 | 1,050 | 23,900 | 1,150 | 39,800 | 3,900 | 19,100 | 800 | 15,000 | 1,000 | 20,000 | 1,600 |
| R1.5 × 3 | 21,200 | 1,550 | 50,000 | 7,500 | 17,000 | 1,050 | 15,900 | 1,150 | 26,500 | 3,900 | 12,700 | 800 | 15,000 | 1,500 | 20,000 | 2,150 |
| R2 × 4 | 15,900 | 1,550 | 39,800 | 7,500 | 12,700 | 1,050 | 11,900 | 1,150 | 19,900 | 3,900 | 9,500 | 800 | 15,000 | 1,650 | 20,000 | 2,550 |
| R2.5 × 5 | 12,700 | 1,550 | 31,800 | 7,500 | 10,200 | 1,050 | 9,500 | 1,150 | 15,900 | 3,900 | 7,200 | 800 | 15,000 | 1,800 | 20,000 | 2,800 |
| R3 × 6 | 10,500 | 1,500 | 26,500 | 7,950 | 8,400 | 1,050 | 7,950 | 1,150 | 13,000 | 3,900 | 6,350 | 800 | 15,000 | 1,900 | 20,000 | 2,900 |
| R4 × 8 | 7,950 | 1,950 | 19,500 | 9,750 | 6,350 | 1,350 | 5,950 | 1,450 | 9,900 | 4,950 | 4,750 | 1,000 | 13,900 | 2,600 | 20,000 | 3,850 |
| R5 × 10 | 6,350 | 1,750 | 15,500 | 8,650 | 5,100 | 1,220 | 4,750 | 1,300 | 7,950 | 4,450 | 3,800 | 910 | 11,100 | 2,100 | 19,000 | 4,600 |
| R6 × 12 | 5,300 | 1,650 | 13,000 | 7,800 | 4,250 | 1,150 | 3,950 | 1,200 | 6,600 | 3,950 | 3,150 | 840 | 9,300 | 2,300 | 16,000 | 3,800 |
| 切込深さ Depth of Cut | ap 0.1D | Pf 0.2D | ap 0.05D | Pf 0.1D | | | ap 0.1D | Pf 0.2D | ap 0.02D | Pf 0.05D | | | ap 0.1D | Pf 0.3D | ap 0.05D | Pf 0.1D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. アルミニウム合金、銅合金の標準条件、高速切削は水溶性切削油剤をご使用下さい。
3. 高速切削条件は、高速高精度のマシニングセンタを利用したL/D ≦4の場合の基準条件表です。
4. アルミニウム合金、銅合金をドライ切削にて加工する場合には、ドライ切削用条件を使用下さい。
5. グラファイト加工専用機以外でグラファイト加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。

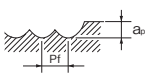
1. Use a rigid and precise machine and holder.
2. For the high-speed (as well as standard) milling of aluminum alloys and copper alloys, use a water soluble fluid.
3. The high-speed milling condition is the standard condition table for operating a high-speed, high-precision machining center with an L/D ≦4.
4. Make sure to use the dry milling setting for dry milling on aluminum alloy. Also use an air blow when dry milling.
5. When milling graphite on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## DIA-LN-EBD

⚠ 高速切削では引火性のある切削油剤は絶対に使用しないで下さい。
工具が破損した場合に、引火・火災の危険があります。

Do not use flammable fluids for high-speed light milling. Sparks generated during operation or heat caused by tool breakage can cause fire.

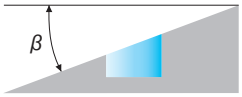
| 被削材 Work Material | | アルミニウム合金 Aluminum Alloy A7075 | | | | | | 銅合金 Copperaalloy C1100 | | | | | | グラファイト Glaphite | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | ドライ切削用 Dry Milling | | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | | ドライ切削用 Dry Milling | | 標準条件 Regular Milling | |
| 呼び RE | 首下長 LU | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R0.5 | 5 | 25,600 | 800 | 50,000 | 1,050 | 20,400 | 410 | 32,000 | 690 | 50,000 | 1,050 | 31,000 | 550 | 15,000 | 500 |
| | 10 | 15,300 | 300 | — | — | 12,200 | 160 | 22,400 | 260 | — | — | 15,300 | 210 | 15,000 | 200 |
| R1 | 10 | 25,400 | 1,050 | 40,000 | 1,550 | 20,300 | 750 | 19,000 | 680 | 31,500 | 1,100 | 15,200 | 550 | 15,000 | 800 |
| | 20 | 15,200 | 420 | — | — | 12,200 | 290 | 13,300 | 260 | — | — | 9,150 | 210 | 15,000 | 450 |
| R1.5 | 15 | 16,900 | 1,050 | 40,000 | 2,300 | 13,500 | 750 | 12,500 | 680 | 21,000 | 1,100 | 10,000 | 560 | 15,000 | 1,200 |
| | 30 | 10,100 | 420 | — | — | 8,100 | 290 | 8,750 | 260 | — | — | 6,000 | 210 | 15,000 | 600 |
| R2 | 20 | 12,700 | 1,050 | 31,800 | 2,450 | 10,100 | 750 | 15,500 | 680 | 15,500 | 1,100 | 12,400 | 570 | 15,000 | 1,300 |
| | 40 | 7,600 | 420 | — | — | 6,100 | 290 | 10,850 | 260 | — | — | 7,450 | 210 | 12,000 | 600 |
| R2.5 | 25 | 10,100 | 1,050 | 25,400 | 2,450 | 8,100 | 750 | 12,500 | 770 | 12,500 | 1,250 | 10,000 | 640 | 15,000 | 1,400 |
| | 50 | 6,000 | 420 | — | — | 4,800 | 290 | 8,750 | 300 | — | — | 6,000 | 240 | 10,000 | 600 |
| 切込深さ Depth of Cut | | ap 0.1D | Pf 0.2D | ap 0.05D | Pf 0.1D | | | ap 0.1D | Pf 0.2D | ap 0.02D | Pf 0.05D | | | ap 0.1D | Pf 0.3D |




1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. アルミニウム合金、銅合金の標準条件、高速切削は水溶性切削油剤をご使用下さい。
3. 高速切削条件は、高速高精度のマシニングセンタを利用した場合の基準条件表です。
4. アルミニウム合金、銅合金をドライ切削にて加工する場合には、ドライ切削用条件を使用下さい。その場合にはエアブローをご使用下さい。
5. グラファイト加工専用機以外でグラファイト加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。

1. Use a rigid and precise machine and holder.
2. For the high-speed (as well as standard) milling of aluminum alloys and copper alloys, use a water soluble fluid.
3. The high speed condition are for high precision machining centers.
4. Make sure to use the dry milling setting for dry milling on aluminum alloy and copper alloy. Also use an air blow when dry milling.
5. When milling graphite on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## DIA-ZDS

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A7075 | | | アルミニウム合金鋳物 Aluminum Alloy Casting <Si 13% | | | アルミニウム合金鋳物 Aluminum Alloy Casting ≧Si 13% | | | マグネシウム合金 Magnesium Alloy AZ91・AZ80A | | | 複合材（CFRP）・脆性材（マシナブルセラミックス・グラファイト） Composite Material・Brittle Material (Machinable Ceramic・Graphite) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80～200m/min | | | 50～150m/min | | | 30～130m/min | | | 50～100m/min | | | 30～120m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) |
| 0.5 | 20,000 | 180 | 0.004~0.011 | 20,000 | 150 | 0.004~0.01 | 20,000 | 140 | 0.004~0.01 | 20,000 | 150 | 0.004~0.01 | 20,000 | 100 | 0.002~0.01 |
| 1 | 20,000 | 360 | 0.014~0.021 | 20,000 | 300 | 0.012~0.018 | 20,000 | 300 | 0.012~0.018 | 20,000 | 300 | 0.012~0.018 | 20,000 | 200 | 0.005~0.02 |
| 2 | 20,000 | 720 | 0.028~0.043 | 19,000 | 570 | 0.024~0.036 | 15,000 | 450 | 0.022~0.034 | 15,400 | 450 | 0.024~0.036 | 13,000 | 250 | 0.01 ~0.04 |
| 3 | 17,000 | 915 | 0.042~0.066 | 12,500 | 575 | 0.035~0.055 | 10,000 | 450 | 0.035~0.055 | 10,000 | 450 | 0.035~0.055 | 8,500 | 250 | 0.01 ~0.06 |
| 4 | 12,500 | 915 | 0.054~0.09 | 9,550 | 575 | 0.045~0.075 | 7,550 | 450 | 0.045~0.075 | 7,500 | 450 | 0.045~0.075 | 6,350 | 250 | 0.02 ~0.07 |
| 5 | 10,000 | 915 | 0.066~0.114 | 7,650 | 575 | 0.055~0.095 | 6,000 | 450 | 0.055~0.095 | 6,000 | 450 | 0.055~0.095 | 5,100 | 250 | 0.03 ~0.08 |
| 6 | 8,500 | 915 | 0.08 ~0.13 | 6,350 | 575 | 0.07 ~0.11 | 5,000 | 450 | 0.07 ~0.11 | 5,000 | 450 | 0.07 ~0.11 | 4,250 | 250 | 0.04 ~0.09 |
| 7 | 7,250 | 915 | 0.09 ~0.16 | 5,450 | 575 | 0.08 ~0.13 | 4,300 | 450 | 0.08 ~0.13 | 4,300 | 450 | 0.07 ~0.12 | 3,650 | 250 | 0.05 ~0.1 |
| 8 | 6,350 | 915 | 0.1 ~0.17 | 4,750 | 575 | 0.09 ~0.14 | 3,800 | 450 | 0.09 ~0.14 | 3,750 | 450 | 0.09 ~0.14 | 3,200 | 250 | 0.06 ~0.11 |
| 9 | 5,650 | 915 | 0.12 ~0.2 | 4,250 | 575 | 0.11 ~0.17 | 3,350 | 450 | 0.11 ~0.17 | 3,350 | 450 | 0.1 ~0.16 | 2,850 | 250 | 0.07 ~0.12 |
| 10 | 5,100 | 915 | 0.14 ~0.22 | 3,800 | 575 | 0.12 ~0.18 | 3,000 | 450 | 0.12 ~0.18 | 3,000 | 450 | 0.12 ~0.18 | 2,550 | 250 | 0.08 ~0.13 |
| 11 | 4,600 | 915 | 0.16 ~0.24 | 3,500 | 575 | 0.13 ~0.19 | 2,750 | 450 | 0.13 ~0.19 | 2,750 | 450 | 0.13 ~0.19 | 2,300 | 250 | 0.09 ~0.14 |
| 12 | 4,250 | 915 | 0.18 ~0.26 | 3,200 | 575 | 0.15 ~0.21 | 2,500 | 450 | 0.15 ~0.21 | 2,500 | 450 | 0.14 ~0.22 | 2,150 | 250 | 0.1 ~0.15 |
| 切込深さ Depth of Cut |  H=1D以下 H≦1D 下穴無し Without pilot hole | | | | | | | | |  | | | | | |

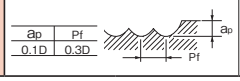
1 .上表は、ワーク上面が平坦でフライス前加工がしてあることを前提としたものです。
2 .上表は、穴深さが１D以下の場合のものです。
3 .機械、ホルダは剛性のある精度の高いものをご使用下さい。
4 .加工物の形状や保持方法の状況によって切削条件を調整して下さい。
5 .エンドミル取り付け時の刃先の振れは、10μm以下に抑えて下さい。
6 .切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
7 .乾式の場合には、切りくず詰まりが無いよう、エアブローにて切りくずを除去して下さい。
8 .斜面部への加工の場合は、加工面傾斜角（β）により、回転速度、送り速度を調整下さい。
加工面傾斜角（β）が30°以下の斜面への加工では、上表の送り速度40～60%を目安にご使用下さい。
加工面傾斜角（β）が30°を超える加工では、上表の回転速度60～80%、送り速度20～40%を目安にご使用下さい。
9 .加工穴の位置決め精度を必要とする場合は、加工精度に合わせ上記回転速度、送り速度を調整下さい。
10.マグネシウム合金切削において、切削油剤を使用する場合は、切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理に注意下さい。発火の恐れがあります。
11.脆性材の加工の場合は、粉塵対策を必ず行って下さい。舞い上がった粉塵は、引火、爆発の恐れがあります。吸引をすると人体に影響を及ぼす危険があります。
12.CFRP等の被削性は、レジンの性質やその含有量によって大きく影響を受けます。切削状況を見ながら回転速度、送り速度を調整下さい。

1 .This machining condition table applies to milling workpieces that have been flattened at the top through the removal of the forged surface (on a milling machine).
2 .These machining conditions apply to hole depths of 1D or less. (D=outer diameter)
3 .Use a rigid and precise machine and holder.
4 .Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
5 .When chucking an end mill, keep the runout at the cutting edge below 10μm.
6 .Please use a suitable fluid with high smoke retardant properties.
7 .During Dry (no fluid) milling, please use air blow to remove cutting chips from the milling area and to eliminate chip packing.
8 .When machining an inclined plane,adjust the rotational speed and the feed rate in accordance with the angle of the incline (β).
When the machining incline angle(β) is less than 30°, please reduce the feed to 40～60%.
When the machining incline angle(β) is over 30°, please reduce the speed to 60～80%, the feed to 20～40%.
9 .If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed rate as indicated above (in accordance with the machining precision requirement).
10.When machining magnesium alloy materials, please use the coolant oil recommended by the coolant oil manufacturer. Please also properly dispose the cutting chips to prevent fire hazards.
11.When machining brittle materials, please take proper measures to eliminate the dust. Airborne dust is flammable, may cause fire, and is a health hazard if inhaled.
12.The machinability of materials like CFRP is heavily dependent on the composition of the resin. Please adjust the RPM and feed rate accordingly based on cutting conditions.

形状寸法表 SPECIFICATION CHARTS DIA-GF-EBDR▶P340-25
形状寸法表 SPECIFICATION CHARTS D-GF-LS-EBDR▶P340-26
形状寸法表 SPECIFICATION CHARTS GF-EDR▶P311-24
形状寸法表 SPECIFICATION CHARTS GF-EDL▶P311-25
形状寸法表 SPECIFICATION CHARTS GF-EMR▶P311-37

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DIA-GF-EBDR

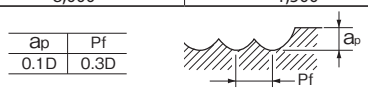
| 被削材 Work Material | グラファイト Graphite | | | |
|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 × 2 | 8,000 | 380 | 20,000 | 960 |
| R1.5 × 3 | 8,000 | 570 | 20,000 | 1,450 |
| R2 × 4 | 8,000 | 765 | 20,000 | 1,900 |
| R2.5 × 5 | 8,000 | 960 | 20,000 | 2,400 |
| R3 × 6 | 8,000 | 1,150 | 20,000 | 2,900 |
| R4 × 8 | 8,000 | 1,500 | 20,000 | 3,800 |
| R5 × 10 | 8,000 | 1,900 | 16,000 | 3,800 |
| R6 × 12 | 8,000 | 2,300 | 13,500 | 3,200 |
| 切込深さ Depth of Cut |  | |  | |



1. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調整下さい。
2. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
3. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。

1. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
2. To mill a highly rigid material,lower the speed and feed rate.
3. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## D-GF-LS-EBDR

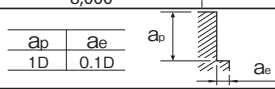
| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 × 2 | 8,000 | 250 |
| R1.5 × 3 | 8,000 | 380 |
| R2 × 4 | 8,000 | 510 |
| R2.5 × 5 | 8,000 | 640 |
| R3 × 6 | 8,000 | 765 |
| R4 × 8 | 8,000 | 1,000 |
| R5 × 10 | 8,000 | 1,250 |
| R6 × 12 | 8,000 | 1,500 |
| 切込深さ Depth of Cut |  | |



1. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
2. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。

1. To mill a highly rigid material, lower the speed and feed rate.
2. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## GF-EDR 側面切削 SIDE MILLING

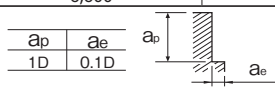
| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 8,000 | 380 |
| 3 | 8,000 | 570 |
| 4 | 8,000 | 765 |
| 5 | 8,000 | 960 |
| 6 | 8,000 | 1,150 |
| 8 | 8,000 | 1,500 |
| 10 | 8,000 | 1,900 |
| 12 | 8,000 | 2,300 |
| 切込深さ Depth of Cut |  | |



1. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調整下さい。
2. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
3. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。

1. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
2. To mill a highly rigid material, lower the speed and feed rate.
3. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## GF-EDL 側面切削 SIDE MILLING

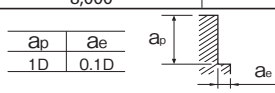
| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 8,000 | 190 |
| 3 | 8,000 | 285 |
| 4 | 8,000 | 380 |
| 5 | 8,000 | 480 |
| 6 | 8,000 | 575 |
| 8 | 7,950 | 760 |
| 10 | 7,950 | 950 |
| 12 | 6,600 | 950 |
| 切込深さ Depth of Cut |  | |



1. エンドミル取り付け時の刃先の振れは、出来るだけ抑えて（10μm以内を推奨）ご使用下さい。
2. 高速回転でのご使用は工具の破損等の危険があります。上表の回転速度以内でご使用下さい。

1. Please prevent the runout of tool after chucking as much as possible (10μm maximum recommended).
2. The tool can be damaged by operating at high speeds. Thus, use the tool within the speeds indicated in the above table.

## GF-EMR 側面切削 SIDE MILLING

| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 8,000 | 670 |
| 3 | 8,000 | 1,000 |
| 4 | 8,000 | 1,300 |
| 5 | 8,000 | 1,700 |
| 6 | 8,000 | 2,000 |
| 8 | 8,000 | 2,600 |
| 10 | 8,000 | 3,300 |
| 12 | 8,000 | 4,000 |
| 切込深さ Depth of Cut |  | |

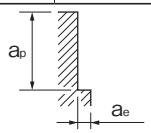


1. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
2. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。

1. To mill a highly rigid material, lower the speed and feed rate.
2. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表

## GF-EML
### 側面切削 SIDE MILLING

| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 7,950 | 285 |
| 3 | 7,950 | 430 |
| 4 | 8,000 | 570 |
| 5 | 8,000 | 720 |
| 6 | 8,000 | 860 |
| 8 | 7,950 | 1,100 |
| 10 | 7,950 | 1,400 |
| 12 | 6,600 | 1,400 |
| 切込深さ Depth of Cut | ap 1D / ae 0.1D |  |

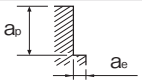
1. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
2. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。
1. To mill a highly rigid material, lower the speed and feed rate.
2. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## GF-EBDR

| 被削材 Work Material | グラファイト Graphite | | | |
|---|---|---|---|---|
| | 標準条件 Regular Milling | | 高速切削用 High Speed Milling | |
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 × 2 | 8,000 | 380 | 20,000 | 960 |
| R1.5 × 3 | 8,000 | 570 | 20,000 | 1,450 |
| R2 × 4 | 8,000 | 765 | 20,000 | 1,900 |
| R2.5 × 5 | 8,000 | 960 | 20,000 | 2,400 |
| R3 × 6 | 8,000 | 1,150 | 20,000 | 2,900 |
| R4 × 8 | 8,000 | 1,500 | 20,000 | 3,800 |
| R5 × 10 | 8,000 | 1,900 | 16,000 | 3,800 |
| R6 × 12 | 8,000 | 2,300 | 13,500 | 3,200 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.3D |  | ap 0.05D / Pf 0.1D | |

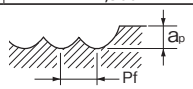
1. 加工形状、切込深さ、機械剛性、ワーク保持等の使用状況により、回転速度、送り速度、切込深さを調整下さい。
2. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
3. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。
1. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
2. To mill a highly rigid material,lower the speed and feed rate.
3. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## GF-LS-EDR
### 側面切削 SIDE MILLING

| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 外径 Mill Dia. (Mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 8,000 | 250 |
| 3 | 8,000 | 380 |
| 4 | 8,000 | 510 |
| 5 | 8,000 | 640 |
| 6 | 8,000 | 765 |
| 8 | 8,000 | 1,000 |
| 10 | 8,000 | 1,250 |
| 12 | 8,000 | 1,500 |
| 切込深さ Depth of Cut | ap 1D / ae 0.1D |  |

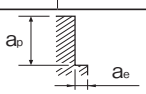
1. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
2. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。
1. To mill a highly rigid material, lower the speed and feed rate.
2. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## GF-LS-EBDR

| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 1 × 2 | 8,000 | 250 |
| R 1.5 × 3 | 8,000 | 380 |
| R 2 × 4 | 8,000 | 510 |
| R 2.5 × 5 | 8,000 | 640 |
| R 3 × 6 | 8,000 | 765 |
| R 4 × 8 | 8,000 | 1,000 |
| R 5 × 10 | 8,000 | 1,250 |
| R 6 × 12 | 8,000 | 1,500 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.3D |  |

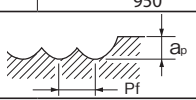
1. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
2. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。
1. To mill a highly rigid material, lower the speed and feed rate.
2. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## GF-LS-EMR
### 側面切削 SIDE MILLING

| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2 | 8,000 | 440 |
| 3 | 8,000 | 670 |
| 4 | 8,000 | 900 |
| 5 | 8,000 | 1,100 |
| 6 | 8,000 | 1,350 |
| 8 | 8,000 | 1,750 |
| 10 | 8,000 | 2,200 |
| 12 | 8,000 | 2,600 |
| 切込深さ Depth of Cut | ap 1D / ae 0.1D |  |

1. 硬度の高い被削材を加工する場合、回転速度、送り速度を下げてご使用下さい。
2. グラファイト加工専用機以外で加工を行う場合は、粉塵の飛散、吸入防止のため集塵機、防塵マスクをご使用下さい。
1. To mill a highly rigid material, lower the speed and feed rate.
2. When milling on a machine other than a dedicated graphite milling machine, use a dust collector and a dust mask to prevent dust from flying and being inhaled.

## GF-EBDL

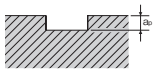
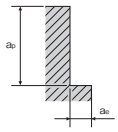
| 被削材 Work Material | グラファイト Graphite | |
|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 × 2 | 8,000 | 190 |
| R1.5 × 3 | 8,000 | 285 |
| R2 × 4 | 8,000 | 380 |
| R2.5 × 5 | 8,000 | 480 |
| R3 × 6 | 8,000 | 575 |
| R4 × 8 | 8,000 | 765 |
| R5 × 10 | 8,000 | 960 |
| R6 × 12 | 6,600 | 950 |
| 切込深さ Depth of Cut | ap 0.1D / Pf 0.3D |  |

1. エンドミル取り付け時の刃先の振れは、出来るだけ抑えて（10μm以内を推奨）ご使用下さい。
2. 高速回転でのご使用は工具の破損等の危険があります。上表の回転速度以内でご使用下さい。
1. Please prevent the runout of tool after chucking as much as possible (10μm maximum recommended).
2. The tool can be damaged by operating at high speeds. Thus, use the tool within the speeds indicated in the above table.

形状寸法表 SPECIFICATION CHARTS DG-EMS▶P293
形状寸法表 SPECIFICATION CHARTS DG-LN-EMS▶P321

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DG-EMS

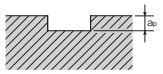
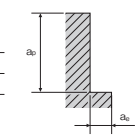
| 被削材 Work Material | グラファイト Graphite | | | |
|---|---|---|---|---|
| | 溝加工 Slotting | | 側面加工 Side Milling | |
| 外径(mm) DC | 回転速度 ($min^{-1}$) | 送り速度 (mm/min) | 回転速度 ($min^{-1}$) | 送り速度 (mm/min) |
| 4 | 18,500 | 1,550 | 18,500 | 2,250 |
| 6 | 12,500 | 2,100 | 12,500 | 3,000 |
| 8 | 10,000 | 1,950 | 10,000 | 2,800 |
| 10 | 8,000 | 1,750 | 8,000 | 2,500 |
| 12 | 6,600 | 1,450 | 6,600 | 2,100 |
| 切込深さ Depth of Cut | $\phi4<DC\leqq\phi8$ 0.3D<br>$\phi8<DC$ 0.5D |  | ap / ae<br>$\phi4<DC\leqq\phi8$ 1.5D / 0.05D<br>$\phi8<DC$ 2D / 0.05D |  |

傾斜切り込み角度は、3°を目安に設定して下さい。 Set the diagonal plunge angle to be approximately 3°.

1. 加工形状、機械剛性、ホルダ剛性、ワーク保持力等の使用状況により、回転速度、送り速度、切込深さを調節下さい。
2. 回転速度、送り速度が上表より上がらない場合は回転速度、送り速度を同じ比率で下げてご使用下さい。
3. ワークの欠けが発生する場合や、精度の高い加工が必要な場合、必要に応じて送り速度を下げてご使用下さい。
4. 加工形状によって加工時にビビリが発生する場合は、回転速度と送り速度を同じ比率で下げて調節しご使用下さい。
5. グラファイト加工は専用加工機をご使用下さい。粉塵の吸入防止の為、グラファイトの周囲で作業を行う場合は集塵機、防塵マスクをご使用下さい。
6. 加工時はエンドミルの刃先の振れを0.01mm以下に抑えてご使用下さい。
7. 側面加工で隅部に当たる切削がある場合は、プログラムのコーナR処理を行うか、ビビリが発生しない回転速度に調節し、コーナ部減速（約40%）などを併用してご使用下さい。

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. If a cut involves the shaping of a corner during side milling, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (approximately 40%).

## DG-LN-EMS

| 被削材 Work Material | グラファイト Graphite | | |
|---|---|---|---|
| 外径×首下長 DC×LU | 回転速度 ($min^{-1}$) | 送り速度 (mm/min) | |
| | | 溝加工 Slotting | 側面加工 Side Milling |
| 1 × 5 | 20,000 | 550 | 560 |
| 1 × 10 | 10,000 | 280 | 450 |
| 1.5 × 7.5 | 20,000 | 580 | 620 |
| 1.5 × 15 | 10,000 | 300 | 500 |
| 2 × 10 | 20,000 | 630 | 670 |
| 2 × 20 | 10,000 | 330 | 530 |
| 3 × 15 | 20,000 | 900 | 1,000 |
| 3 × 30 | 10,000 | 500 | 800 |
| 4 × 40 | 9,400 | 650 | 800 |
| 6 × 60 | 6,300 | 480 | 600 |
| 切込深さ Depth of Cut | | ap 0.1D  | ap 0.5D / ae 0.05D  |

傾斜切り込み角度は、3°を目安に設定して下さい。 Set the diagonal plunge angle to be approximately 3°.

1. 加工形状、機械剛性、ホルダ剛性、ワーク保持力等の使用状況により、回転速度、送り速度、切込深さを調節下さい。
2. 回転速度、送り速度が上表より上がらない場合は回転速度、送り速度を同じ比率で下げてご使用下さい。
3. ワークの欠けが発生する場合や、精度の高い加工が必要な場合、必要に応じて送り速度を下げてご使用下さい。
4. 加工形状によって加工時にビビリが発生する場合は、回転速度と送り速度を同じ比率で下げて調節しご使用下さい。
5. グラファイト加工は専用加工機をご使用下さい。粉塵の吸入防止の為、グラファイトの周囲で作業を行う場合は集塵機、防塵マスクをご使用下さい。
6. 加工時はエンドミルの刃先の振れを0.01mm以下に抑えてご使用下さい。
7. 側面加工で隅部に当たる切削がある場合は、プログラムのコーナR処理を行うか、ビビリが発生しない回転速度に調節し、コーナ部減速（約40%）などを併用してご使用下さい。

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. If a cut involves the shaping of a corner during side milling, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (approximately 40%).

# 超硬エンドミル切削条件基準表

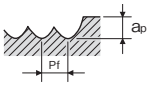


## DG-EBD

| 被削材 Work Material | | グラファイト Graphite | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 荒取り加工 Roughing | | | | | | 仕上げ加工 Finishing | | | | | |
| ボール半径×刃長×全長 RE×APMX×LF | 突き出し量 (mm) | 回転速度(min-1) | | 送り速度(mm/min) | | 切込深さ(mm) | | 回転速度(min-1) | | 送り速度(mm/min) | | 切込深さ(mm) | |
| | | 短い Short ◁ | 長い Long | 短い Short ◁ | 長い Long | ap | Pf | 短い Short ◁ | 長い Long | 短い Short ◁ | 長い Long | ap | Pf |
| R2 × 8× 80 | 16 ～ 40 | 20,000 ～ | 11,000 | 3,150 ～ | 1,800 | 0.4 | 1.2 | 20,000 ～ | 11,000 | 2,100 ～ | 1,200 | 0.12 | 0.12 |
| R2 ×20×120 | 40 ～ 80 | 11,000 ～ | 4,600 | 1,800 ～ | 720 | 0.26 | 0.8 | 11,000 ～ | 4,600 | 1,200 ～ | 480 | 0.12 | 0.12 |
| R2.5×25×120 | 25 ～ 80 | 20,000 ～ | 4,600 | 3,750 ～ | 870 | 0.4 | 1.2 | 20,000 ～ | 4,600 | 2,500 ～ | 580 | 0.15 | 0.15 |
| R3 ×12× 80 | 24 ～ 36 | 20,000 ～ | 9,600 | 4,500 ～ | 2,100 | 0.6 | 1.8 | 20,000 ～ | 9,600 | 3,000 ～ | 1,400 | 0.18 | 0.18 |
| R3 ×30×120 | 36 ～ 78 | 9,600 ～ | 5,500 | 2,100 ～ | 1,250 | 0.46 | 1.4 | 9,600 ～ | 5,500 | 1,400 ～ | 820 | 0.12 | 0.12 |
| R3 ×30×150 | 78 ～ 108 | 5,500 ～ | 3,300 | 1,250 ～ | 750 | 0.33 | 1 | 5,500 ～ | 3,300 | 820 ～ | 500 | 0.08 | 0.08 |
| R4 ×16×100 | 32 ～ 56 | 16,000 ～ | 7,200 | 3,900 ～ | 1,800 | 0.8 | 2.4 | 16,000 ～ | 7,200 | 2,600 ～ | 1,200 | 0.22 | 0.22 |
| R4 ×40×170 | 56 ～ 136 | 7,200 ～ | 2,500 | 1,800 ～ | 600 | 0.45 | 1.3 | 7,200 ～ | 2,500 | 1,200 ～ | 400 | 0.18 | 0.18 |
| R5 ×20×100 | 40 ～ 60 | 12,500 ～ | 5,700 | 3,000 ～ | 1,350 | 1 | 3 | 12,500 ～ | 5,700 | 2,000 ～ | 900 | 0.26 | 0.26 |
| R5 ×50×150 | 60 ～ 110 | 5,700 ～ | 3,800 | 1,350 ～ | 900 | 0.8 | 2.5 | 5,700 ～ | 3,800 | 900 ～ | 600 | 0.23 | 0.23 |
| R5 ×50×200 | 110 ～ 160 | 3,800 ～ | 1,700 | 900 ～ | 405 | 0.6 | 1.9 | 3,800 ～ | 1,700 | 600 ～ | 270 | 0.18 | 0.18 |
| R6 ×36×130 | 48 ～ 84 | 10,500 ～ | 4,800 | 2,550 ～ | 1,100 | 1.2 | 3.6 | 10,500 ～ | 4,800 | 1,700 ～ | 750 | 0.3 | 0.3 |
| R6 ×60×200 | 84 ～ 156 | 4,800 ～ | 1,900 | 1,100 ～ | 450 | 0.9 | 2.8 | 4,800 ～ | 1,900 | 750 ～ | 300 | 0.26 | 0.26 |

傾斜切り込み角度は、0.5°～1°を目安に設定して下さい。 Set the diagonal plunge angle to be approximately 0.5° and 1°.

1. 加工形状、機械剛性、ホルダ剛性、ワーク保持力等の使用状況により、回転速度、送り速度、切込深さを調節下さい。
2. 回転速度、送り速度が上表より上がらない場合や回転速度、送り速度を同じ比率で下げてご使用下さい。
3. ワークの欠けが発生する場合や、精度の高い加工が必要な場合、必要に応じて送り速度を下げてご使用下さい。
4. 加工形状によって加工時にビビリが発生する場合は、回転速度と送り速度を同じ比率で下げて調節しご使用下さい。
5. グラファイト加工は専用加工機をご使用下さい。粉塵の吸入防止の為、グラファイトの周囲で作業を行う場合は集塵機、防塵マスクをご使用下さい。
6. 加工時はエンドミルの刃先の振れを0.01mm以下に抑えてご使用下さい。
7. 仕上げ加工の高能率加工を行う場合は、送り速度を3倍を上限に調節下さい。
8. 高能率加工を行う場合は、溝加工部など負荷がかかる部分の送り速度を30%まで落とす事により、工具のたわみによる削り残し量を軽減させることができます。
9. 平坦部の加工でむしれが発生する場合は、回転速度を上げてご使用下さい。
10. 形状隅部に当たる切削がある場合は、プログラムのコーナR処理を行うか、ビビリが発生しない回転速度に調節し、コーナ部減速（約60%）などを併用してご使用下さい。



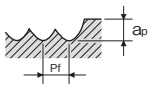

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

## DG-EBM/DG-LN-EBM

| 被削材 Work Material | | グラファイト Graphite | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 荒取り加工 Roughing | | | | | | 仕上げ加工 Finishing | | | | | |
| 呼び RE (×LU) | 突き出し量 (mm) | 回転速度(min-1) | | 送り速度(mm/min) | | 切込深さ(mm) | | 回転速度(min-1) | | 送り速度(mm/min) | | 切込深さ(mm) | |
| | | 短い Short ◁ | 長い Long | 短い Short ◁ | 長い Long | ap | Pf | 短い Short ◁ | 長い Long | 短い Short ◁ | 長い Long | ap | Pf |
| R1 × 10 | 10 | 20,000 ～ | | 2,450 ～ | | 0.5 | 0.6 | 20,000 ～ | | 1,900 ～ | | 0.06 | 0.06 |
| R1 × 16 | 16 | 18,000 ～ | | 2,200 ～ | | 0.3 | 0.5 | 18,000 ～ | | 1,700 ～ | | 0.06 | 0.06 |
| R1 × 20 | 20 | 16,000 ～ | | 2,000 ～ | | 0.2 | 0.4 | 16,000 ～ | | 1,500 ～ | | 0.06 | 0.06 |
| R1.5 × 10 | 10 | 20,000 ～ | | 3,900 ～ | | 0.5 | 0.9 | 20,000 ～ | | 3,000 ～ | | 0.09 | 0.09 |
| R1.5 × 20 | 20 | 18,000 ～ | | 3,500 ～ | | 0.3 | 0.6 | 18,000 ～ | | 2,700 ～ | | 0.09 | 0.09 |
| R2 | 20 ～ 32 | 20,000 ～ | 11,000 | 5,450 ～ | 3,100 | 0.4 | 1.2 | 20,000 ～ | 11,000 | 4,200 ～ | 2,400 | 0.12 | 0.12 |
| R3 | 30 ～ 40 | 20,000 ～ | 9,600 | 7,800 ～ | 3,650 | 0.6 | 1.8 | 20,000 ～ | 9,600 | 6,000 ～ | 2,800 | 0.18 | 0.18 |
| R4 | 32 ～ 56 | 16,000 ～ | 7,200 | 6,750 ～ | 3,100 | 0.8 | 2.4 | 16,000 ～ | 7,200 | 5,200 ～ | 2,400 | 0.22 | 0.22 |
| R5 | 40 ～ 60 | 12,500 ～ | 5,700 | 6,000 ～ | 2,700 | 1 | 3 | 12,500 ～ | 5,700 | 4,000 ～ | 1,800 | 0.26 | 0.26 |

傾斜切り込み角度は、0.5°を目安に設定して下さい。 Set the diagonal plunge angle to be approximately 0.5°.

1. 加工形状、機械剛性、ホルダ剛性、ワーク保持力等の使用状況により、回転速度、送り速度、切込深さを調節下さい。
2. 回転速度、送り速度が上表より上がらない場合は回転速度、送り速度を同じ比率で下げてご使用下さい。
3. ワークの欠けが発生する場合や精度の高い加工が必要な場合、必要に応じて送り速度を下げてご使用下さい。
4. 加工形状によって加工時にビビリが発生する場合は、回転速度と送り速度を同じ比率で下げて調節しご使用下さい。
5. グラファイト加工は専用加工機をご使用下さい。粉塵の吸入防止の為、グラファイトの周囲で作業を行う場合は集塵機、防塵マスクをご使用下さい。
6. 加工時はエンドミルの刃先の振れを0.01mm以下に抑えてご使用下さい。
7. 仕上げ加工の高能率加工を行う場合は、送り速度を3倍を上限に調節下さい。
8. 高能率加工を行う場合は、溝加工部など負荷がかかる部分の送り速度を30%まで落とす事により、工具のたわみによる削り残し量を軽減させることができます。
9. 平坦部の加工でむしれが発生する場合は、回転速度を上げてご使用下さい。
10. 形状隅部に当たる切削がある場合は、プログラムのコーナR処理を行うか、ビビリが発生しない回転速度に調節し、コーナ部減速（約40%）などを併用してご使用下さい。




1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 40%).

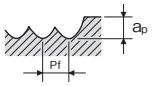
形状寸法表
SPECIFICATION CHARTS
DG-LN-EBD▶P355

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DG-LN-EBD

| 被削材 Work Material | グラファイト Graphite | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 荒取り加工 Roughing | | | | | | | | 仕上げ加工 Finishing | | | | | | | |
| ボール半径×首下長 REXLU | 回転速度(min-1) | | | 送り速度(mm/min) | | | 切込深さ(mm) | | 回転速度(min-1) | | | 送り速度(mm/min) | | | 切込深さ(mm) | |
| | 短い Short | ◁ | 長い Long | 短い Short | ◁ | 長い Long | ap | Pf | 短い Short | ◁ | 長い Long | 短い Short | ◁ | 長い Long | ap | Pf |
| R 0.2 × 4 | 40,000 | ～ | 20,000 | 960 | ～ | 480 | 0.04 | 0.12 | 40,000 | ～ | 20,000 | 800 | ～ | 400 | 0.012 | 0.012 |
| R 0.2 × 8 | 30,000 | ～ | 18,000 | 430 | ～ | 250 | 0.03 | 0.08 | 30,000 | ～ | 18,000 | 360 | ～ | 210 | 0.012 | 0.012 |
| R 0.2 × 12 | 13,000 | ～ | 9,000 | 180 | ～ | 130 | 0.03 | 0.06 | 13,000 | ～ | 9,000 | 150 | ～ | 110 | 0.008 | 0.008 |
| R 0.3 × 6 | 40,000 | ～ | 20,000 | 960 | ～ | 480 | 0.06 | 0.18 | 40,000 | ～ | 20,000 | 800 | ～ | 400 | 0.018 | 0.018 |
| R 0.3 × 10 | 33,000 | ～ | 20,000 | 635 | ～ | 385 | 0.05 | 0.15 | 33,000 | ～ | 20,000 | 530 | ～ | 320 | 0.018 | 0.018 |
| R 0.3 × 16 | 15,000 | ～ | 10,000 | 215 | ～ | 145 | 0.03 | 0.09 | 15,000 | ～ | 10,000 | 180 | ～ | 120 | 0.013 | 0.013 |
| R 0.3 × 20 | 9,000 | ～ | 7,000 | 130 | ～ | 95 | 0.02 | 0.07 | 9,000 | ～ | 7,000 | 110 | ～ | 80 | 0.013 | 0.013 |
| R 0.5 × 4 | 40,000 | ～ | 20,000 | 1,200 | ～ | 600 | 0.1 | 0.3 | 40,000 | ～ | 20,000 | 1,000 | ～ | 500 | 0.03 | 0.03 |
| R 0.5 × 6 | 40,000 | ～ | 20,000 | 1,150 | ～ | 575 | 0.1 | 0.3 | 40,000 | ～ | 20,000 | 950 | ～ | 480 | 0.03 | 0.03 |
| R 0.5 × 10 | 33,000 | ～ | 20,000 | 935 | ～ | 575 | 0.1 | 0.3 | 33,000 | ～ | 20,000 | 780 | ～ | 480 | 0.03 | 0.03 |
| R 0.5 × 16 | 23,000 | ～ | 18,000 | 530 | ～ | 410 | 0.08 | 0.24 | 23,000 | ～ | 18,000 | 440 | ～ | 340 | 0.03 | 0.03 |
| R 0.5 × 20 | 18,000 | ～ | 12,000 | 310 | ～ | 205 | 0.07 | 0.2 | 18,000 | ～ | 12,000 | 260 | ～ | 170 | 0.03 | 0.03 |
| R 0.5 × 30 | 8,000 | ～ | 5,000 | 145 | ～ | 85 | 0.04 | 0.13 | 8,000 | ～ | 5,000 | 120 | ～ | 70 | 0.02 | 0.02 |
| R 0.5 × 40 | 7,000 | ～ | 5,000 | 120 | ～ | 85 | 0.03 | 0.1 | 7,000 | ～ | 5,000 | 100 | ～ | 70 | 0.02 | 0.02 |
| R 0.75 × 6 | 40,000 | ～ | 20,000 | 1,800 | ～ | 900 | 0.15 | 0.45 | 40,000 | ～ | 20,000 | 1,500 | ～ | 750 | 0.045 | 0.045 |
| R 0.75 × 10 | 38,000 | ～ | 20,000 | 1,600 | ～ | 865 | 0.15 | 0.45 | 38,000 | ～ | 20,000 | 1,350 | ～ | 720 | 0.045 | 0.045 |
| R 0.75 × 16 | 30,000 | ～ | 20,000 | 1,300 | ～ | 865 | 0.15 | 0.45 | 30,000 | ～ | 20,000 | 1,100 | ～ | 720 | 0.045 | 0.045 |
| R 0.75 × 20 | 22,000 | ～ | 18,000 | 745 | ～ | 625 | 0.15 | 0.45 | 22,000 | ～ | 18,000 | 620 | ～ | 520 | 0.045 | 0.045 |
| R 0.75 × 30 | 12,000 | ～ | 9,000 | 310 | ～ | 240 | 0.1 | 0.3 | 12,000 | ～ | 9,000 | 260 | ～ | 200 | 0.032 | 0.032 |
| R 0.75 × 40 | 7,000 | ～ | 5,000 | 190 | ～ | 130 | 0.08 | 0.23 | 7,000 | ～ | 5,000 | 160 | ～ | 110 | 0.032 | 0.032 |
| R 1 × 6 | 40,000 | ～ | 20,000 | 2,800 | ～ | 1,350 | 0.2 | 0.6 | 40,000 | ～ | 20,000 | 2,000 | ～ | 950 | 0.06 | 0.06 |
| R 1 × 10 | 40,000 | ～ | 20,000 | 2,500 | ～ | 1,350 | 0.2 | 0.6 | 40,000 | ～ | 20,000 | 1,800 | ～ | 950 | 0.06 | 0.06 |
| R 1 × 16 | 28,000 | ～ | 20,000 | 1,800 | ～ | 1,350 | 0.2 | 0.6 | 28,000 | ～ | 20,000 | 1,300 | ～ | 950 | 0.06 | 0.06 |
| R 1 × 20 | 23,000 | ～ | 18,000 | 1,550 | ～ | 1,100 | 0.2 | 0.6 | 23,000 | ～ | 18,000 | 1,100 | ～ | 800 | 0.06 | 0.06 |
| R 1 × 30 | 16,000 | ～ | 11,500 | 840 | ～ | 615 | 0.18 | 0.52 | 16,000 | ～ | 11,500 | 600 | ～ | 440 | 0.06 | 0.06 |
| R 1 × 40 | 6,000 | ～ | 4,000 | 335 | ～ | 210 | 0.13 | 0.4 | 6,000 | ～ | 4,000 | 240 | ～ | 150 | 0.04 | 0.04 |
| R 1 × 60 | 6,000 | ～ | 4,000 | 335 | ～ | 210 | 0.09 | 0.26 | 6,000 | ～ | 4,000 | 240 | ～ | 150 | 0.04 | 0.04 |
| R 1.5 × 20 | 20,000 | ～ | 15,500 | 2,050 | ～ | 1,550 | 0.3 | 0.9 | 20,000 | ～ | 15,500 | 1,450 | ～ | 1,100 | 0.09 | 0.09 |
| R 1.5 × 40 | 12,500 | ～ | 9,200 | 1,000 | ～ | 740 | 0.22 | 0.65 | 12,500 | ～ | 9,200 | 720 | ～ | 530 | 0.09 | 0.09 |
| R 1.5 × 60 | 7,000 | ～ | 4,000 | 490 | ～ | 280 | 0.15 | 0.45 | 7,000 | ～ | 4,000 | 350 | ～ | 200 | 0.06 | 0.06 |
| R 2 × 20 | 20,000 | ～ | 14,000 | 2,950 | ～ | 2,050 | 0.4 | 1.2 | 20,000 | ～ | 14,000 | 2,100 | ～ | 1,450 | 0.12 | 0.12 |
| R 2 × 40 | 11,500 | ～ | 9,500 | 1,700 | ～ | 1,350 | 0.4 | 1.2 | 11,500 | ～ | 9,500 | 1,200 | ～ | 950 | 0.12 | 0.12 |
| R 2 × 60 | 8,200 | ～ | 5,700 | 1,200 | ～ | 770 | 0.34 | 1.05 | 8,200 | ～ | 5,700 | 850 | ～ | 550 | 0.12 | 0.12 |

傾斜切り込み角度は、0.3°～0.5°を目安に設定して下さい。 Set the diagonal plunge angle to be approximately 0.3° and 0.5°.




1. 加工形状、機械剛性、ホルダ剛性、ワーク保持力等の使用状況により、回転速度、送り速度、切込深さを調節下さい。
2. 回転速度、送り速度が上表より上がらない場合は回転速度、送り速度を同じ比率で下げてご使用下さい。
3. ワークの欠けが発生する場合や、精度の高い加工が必要な場合、必要に応じて送り速度を下げてご使用下さい。
4. 加工形状によって加工時にビビリが発生する場合は、回転速度と送り速度を同じ比率で下げて調節しご使用下さい。
5. グラファイト加工は専用加工機をご使用下さい。粉塵の吸入防止の為、グラファイトの周囲で作業を行う場合は集塵機、防塵マスクをご使用下さい。
6. 加工時はエンドミルの刃先の振れを0.01mm以下に抑えてご使用下さい。
7. 仕上げ加工の高能率加工を行う場合は、送り速度を3倍を上限に調節下さい。
8. 高能率加工を行う場合は、溝加工部など負荷がかかる部分の送り速度を30%まで落とす事により、工具のたわみによる削り残し量を軽減させることができます。
9. 平坦部の加工でむしれが発生する場合は、回転速度を上げてご使用下さい。
10. 形状隅部に当たる切削がある場合は、プログラムのコーナR処理を行うか、ビビリが発生しない回転速度に調節し、コーナ部減速（約60%）などを併用してご使用下さい。

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

CUTTING CONDITIONS FOR CARBIDE END MILLS

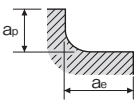
# 超硬エンドミル切削条件基準表

## DG-CPR

| 被削材 Work Material | グラファイト Graphite | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 荒取り加工 Roughing | | | | | | 仕上げ加工 Finishing | | | | | | | |
| 外径×コーナ半径×首部テーパ(半角)×首下長 DC×RE×θn×LU | 回転速度(min-1) | | 送り速度(mm/min) | | 切込深さ(mm) | | 回転速度(min-1) | | 送り速度(mm/min) | | 切込深さ(mm) | | | |
| | 短い Short | 長い Long | 短い Short | 長い Long | ap | ae | 短い Short | 長い Long | 短い Short | 長い Long | ap | ae | | |
| 0.5 × R0.1 × 0° × 4 | 20,000 | 16,000 | 720 | 575 | 0.05 | 0.24 | 20,000 | 16,000 | 600 | 480 | 0.05 | 0.12 | | |
| 0.5 × R0.1 × 0° × 6 | 20,000 | 16,000 | 720 | 575 | 0.05 | 0.24 | 20,000 | 16,000 | 600 | 480 | 0.05 | 0.12 | | |
| 0.5 × R0.1 × 0° × 8 | 18,000 | 14,000 | 650 | 505 | 0.05 | 0.18 | 18,000 | 14,000 | 540 | 420 | 0.05 | 0.12 | | |
| 0.5 × R0.1 × 0° × 10 | 16,000 | 12,000 | 575 | 430 | 0.04 | 0.15 | 16,000 | 12,000 | 480 | 360 | 0.04 | 0.1 | | |
| 0.5 × R0.1 × 0° × 15 | 11,000 | 9,000 | 395 | 325 | 0.03 | 0.12 | 11,000 | 9,000 | 330 | 270 | 0.03 | 0.08 | | |
| 0.5 × R0.1 × 0° × 20 | 11,000 | 8,000 | 395 | 290 | 0.03 | 0.09 | 11,000 | 8,000 | 330 | 240 | 0.03 | 0.06 | | |
| 1 × R0.2 × 0° × 6 | 16,000 | 12,000 | 1,150 | 865 | 0.12 | 0.48 | 16,000 | 12,000 | 960 | 720 | 0.08 | 0.24 | | |
| 1 × R0.2 × 0° × 10 | 16,000 | 12,000 | 1,150 | 865 | 0.1 | 0.48 | 16,000 | 12,000 | 960 | 720 | 0.08 | 0.24 | | |
| 1 × R0.2 × 0° × 16 | 14,000 | 11,000 | 1,000 | 790 | 0.1 | 0.43 | 14,000 | 11,000 | 840 | 660 | 0.08 | 0.24 | | |
| 1 × R0.2 × 0° × 20 | 12,000 | 8,000 | 865 | 575 | 0.1 | 0.4 | 12,000 | 8,000 | 720 | 480 | 0.08 | 0.2 | | |
| 1 × R0.2 × 0° × 30 | 9,000 | 7,000 | 650 | 505 | 0.08 | 0.36 | 9,000 | 7,000 | 540 | 420 | 0.06 | 0.18 | | |
| 1 × R0.2 × 0° × 40 | 9,000 | 7,000 | 650 | 505 | 0.06 | 0.3 | 9,000 | 7,000 | 540 | 420 | 0.06 | 0.15 | | |
| 1.5 × R0.2 × 0° × 6 | 16,000 | 13,000 | 1,450 | 1,100 | 0.17 | 0.88 | 16,000 | 13,000 | 1,200 | 910 | 0.08 | 0.44 | | |
| 1.5 × R0.2 × 0° × 10 | 16,000 | 13,000 | 1,450 | 1,100 | 0.12 | 0.88 | 16,000 | 13,000 | 1,200 | 910 | 0.08 | 0.44 | | |
| 1.5 × R0.2 × 0° × 20 | 14,000 | 11,000 | 1,200 | 925 | 0.1 | 0.88 | 14,000 | 11,000 | 980 | 770 | 0.08 | 0.44 | | |
| 1.5 × R0.2 × 0° × 30 | 12,000 | 8,000 | 1,000 | 670 | 0.08 | 0.88 | 12,000 | 8,000 | 840 | 560 | 0.06 | 0.38 | | |
| 1.5 × R0.2 × 0° × 40 | 10,000 | 7,000 | 925 | 590 | 0.08 | 0.7 | 10,000 | 7,000 | 770 | 490 | 0.06 | 0.32 | | |
| 2 × R0.2 × 0° × 6 | 16,000 | 12,000 | 2,050 | 1,500 | 0.3 | 1.28 | 16,000 | 12,000 | 1,450 | 1,100 | 0.08 | 0.64 | | |
| 2 × R0.2 × 0° × 10 | 16,000 | 12,000 | 2,050 | 1,500 | 0.3 | 1.28 | 16,000 | 12,000 | 1,450 | 1,100 | 0.08 | 0.64 | | |
| 2 × R0.2 × 0° × 16 | 13,000 | 9,000 | 1,650 | 1,150 | 0.2 | 1.28 | 13,000 | 9,000 | 1,150 | 810 | 0.08 | 0.64 | | |
| 2 × R0.2 × 0° × 20 | 11,000 | 8,000 | 1,400 | 1,000 | 0.18 | 1.2 | 11,000 | 8,000 | 990 | 720 | 0.08 | 0.64 | | |
| 2 × R0.2 × 0° × 40 | 8,000 | 6,000 | 1,000 | 755 | 0.13 | 0.8 | 8,000 | 6,000 | 720 | 540 | 0.05 | 0.64 | | |
| 2 × R0.2 × 0° × 60 | 6,000 | 4,000 | 755 | 505 | 0.07 | 0.6 | 6,000 | 4,000 | 540 | 360 | 0.03 | 0.55 | | |
| 3 × R0.2 × 0° × 10 | 16,000 | 12,000 | 2,450 | 1,850 | 0.35 | 2 | 16,000 | 12,000 | 1,750 | 1,300 | 0.08 | 1 | | |
| 3 × R0.2 × 0° × 16 | 14,000 | 10,000 | 2,150 | 1,550 | 0.3 | 2 | 14,000 | 10,000 | 1,550 | 1,100 | 0.08 | 1 | | |
| 3 × R0.2 × 0° × 20 | 12,000 | 8,000 | 1,850 | 1,250 | 0.2 | 1.8 | 12,000 | 8,000 | 1,300 | 880 | 0.08 | 1 | | |
| 3 × R0.2 × 0° × 40 | 7,000 | 4,000 | 1,100 | 615 | 0.15 | 1.6 | 7,000 | 4,000 | 770 | 440 | 0.05 | 0.8 | | |
| 4 × R0.2 × 0° × 40 | 12,000 | 8,000 | 3,450 | 2,300 | 0.35 | 2.8 | 12,000 | 8,000 | 2,450 | 1,650 | 0.08 | 1.4 | | |
| 4 × R0.2 × 0° × 60 | 6,000 | 3,000 | 1,700 | 855 | 0.2 | 2 | 6,000 | 3,000 | 1,200 | 610 | 0.05 | 1 | | |
| 6 × R0.5 × 0° × 30 | 12,000 | 7,000 | 4,300 | 2,500 | 1.5 | 4 | 12,000 | 7,000 | 3,050 | 1,800 | 0.2 | 2 | | |
| 6 × R1 × 0° × 30 | 12,000 | 7,000 | 4,300 | 2,500 | 1.5 | 3.2 | 12,000 | 7,000 | 3,050 | 1,800 | 0.4 | 1.6 | | |
| 8 × R0.5 × 0° × 32 | 10,000 | 7,000 | 3,800 | 2,650 | 2 | 5.6 | 10,000 | 7,000 | 2,700 | 1,900 | 0.2 | 2.8 | | |
| 8 × R1 × 0° × 32 | 10,000 | 7,000 | 3,800 | 2,650 | 2 | 4.8 | 10,000 | 7,000 | 2,700 | 1,900 | 0.4 | 2.4 | | |
| 10 × R0.5 × 0° × 40 | 8,000 | 4,000 | 3,050 | 1,500 | 2.5 | 7.2 | 8,000 | 4,000 | 2,200 | 1,100 | 0.2 | 4.4 | | |
| 10 × R1 × 0° × 40 | 8,000 | 4,000 | 3,050 | 1,500 | 2.5 | 6.4 | 8,000 | 4,000 | 2,200 | 1,100 | 0.4 | 3.2 | | |
| 12 × R0.5 × 0° × 48 | 6,000 | 3,000 | 2,300 | 1,150 | 3 | 9 | 6,000 | 3,000 | 1,650 | 815 | 0.2 | 4.4 | | |
| 12 × R1 × 0° × 48 | 6,000 | 3,000 | 2,300 | 1,150 | 3 | 8 | 6,000 | 3,000 | 1,650 | 815 | 0.4 | 4 | | |

傾斜切り込み角度は、0.3°～0.5°を目安に設定して下さい。　Set the diagonal plunge angle to be approximately 0.3° and 0.5°.

1. 加工形状、機械剛性、ホルダ剛性、ワーク保持力等の使用状況により、回転速度、送り速度、切込深さを調節下さい。
2. 回転速度、送り速度が上表より上がらない場合は回転速度、送り速度を同じ比率で下げてご使用下さい。
3. ワークの欠けが発生する場合や、精度の高い加工が必要な場合、必要に応じて送り速度を下げてご使用下さい。
4. 加工形状によって加工時にビビリが発生する場合は、回転速度と送り速度を同じ比率で下げて調節しご使用下さい。
5. グラファイト加工は専用加工機をご使用下さい。粉塵の吸入防止の為、グラファイトの周囲で作業を行う場合は集塵機、防塵マスクをご使用下さい。
6. 加工時はエンドミルの刃先の振れを0.01mm以下に抑えてご使用下さい。
7. φ4以上の荒取り加工で、コーナR以下のZ切り込み深さの場合、送り速度を3倍まで上げることが出来ます。
8. 仕上げ加工の高能率加工を行う場合は、2倍を上限に調節下さい。
9. 高能率加工を行う場合は、溝加工部など負荷がかかる部分の送り速度を30%まで落とす事により工具たわみによる削り残し量を軽減させることができます。
10. 水平部の平面を仕上げる場合は、送り速度を40%まで落とし、静粛性に優れた加工機でご使用下さい。
11. コーナR部で形状の仕上げ加工を行う場合は、加工ピッチ（コーナR×0.06＝仕上げピッチ）を変えてご使用下さい。
12. 形状隅部に当たる切削がある場合は、プログラムのコーナR処理を行うか、ビビリが発生しない回転速度に調節し、コーナ部減速（約60%）などを併用してご使用下さい。

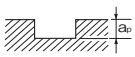



1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. When making a rough cut with a ø4 end mill or greater, you can raise the feed rate as high as triple the rate, for making a Z cut depth that is less than the corner radius.
8. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
9. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
10. When finishing a horizontal plane, lower the feed rate as far down as 40% on a milling machine that operates quietly.
11. When finishing a shape with a corner radius, change the milling pitch (corner radius x 0.06 = finishing pitch).
12. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

形状寸法表 SPECIFICATION CHARTS FX-MCF▶P403
形状寸法表 SPECIFICATION CHARTS MDOS▶P270
形状寸法表 SPECIFICATION CHARTS MBOS▶P269

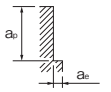
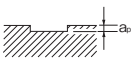
# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## FX-MCF

| 被削材 Work Material | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S55C (～750N/mm²) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKT、SKD、NAK55、HPM1 (30～40HRC) | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100～300m/min | | 80～200m/min | | 40～80m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 6,370 | 765 | 5,310 | 510 | 3,180 | 230 |
| 8 | 4,780 | 765 | 3,980 | 510 | 2,390 | 230 |
| 10 | 3,820 | 765 | 3,180 | 510 | 1,910 | 230 |
| 12 | 3,180 | 765 | 2,650 | 510 | 1,590 | 230 |
| 16 | 2,400 | 720 | 2,000 | 480 | 1,200 | 220 |
| 20 | 1,900 | 570 | 1,590 | 380 | 960 | 175 |
| 切込深さ Depth of Cut | ap=0.05D Max=0.5mm 以下  | | ap=0.02D Max=0.2mm以下 | | ap=0.01D Max=0.1mm以下 | |

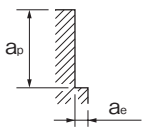
1．機械、チャックは剛性のある精度の高いものをご使用下さい。
1. Use a rigid and precise machine and holder.
2．エアブローでご使用下さい。但し、ステンレス鋼は湿式でご使用ください。
2. We suggest using air blow. Apply the cutting fluid for stainless steels.
3．切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. Adjust speeds and feeds according to cutting conditions, cutting depth, and rigidity of the machine.

## MDOS

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A7075 | | | |
|---|---|---|---|---|
| 加工内容 Type of Milling | 側面切削 Side Milling | | 溝切削 Slotting | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 10,500 | 315 | 10,500 | 315 |
| 8 | 7,950 | 315 | 7,950 | 315 |
| 10 | 6,350 | 315 | 6,350 | 315 |
| 12 | 5,300 | 265 | 5,300 | 265 |
| 切込深さ Depth of Cut | ap 1D / ae 0.02D  | | ap 0.05D  | |

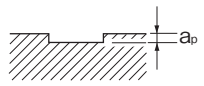
1．水溶性切削油剤を使用して下さい。
1. Use a water soluble cutting fluid.
2．機械、ホルダは、精度の高いものをご使用下さい。
2. Use a precise machine and holder.
3．刃先は非常にシャープです。取扱いに注意して下さい。
3. Cutting edges are very sharp. Be careful when handling.

## MBOS 側面切削 SIDE MILLING

| 被削材 Work Material | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | |
|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 10,500 | 370 | 7,950 | 180 | 4,950 | 40 |
| 8 | 7,950 | 295 | 5,950 | 145 | 3,700 | 30 |
| 10 | 6,350 | 250 | 4,750 | 130 | 2,950 | 30 |
| 12 | 5,300 | 210 | 3,950 | 115 | 2,450 | 25 |
| 切込深さ Depth of Cut | ap 0.3D / ae 0.02D  | | | | | |

1．機械、ホルダは精度の高いものをご使用下さい。
1. Use a rigid and precise machine and holder.
2．エアブローで使用下さい。但し、ステンレス鋼の切削は湿式で行なって下さい。
2. Use an air blow, unless milling stainless steel. In that case, use a water soluble cutting fluid.

## MBOS 溝切削 SLOTTING

| 被削材 Work Material | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | | 調質鋼 Hardened Steel (60～65HRC) | |
|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 10,500 | 370 | 7,950 | 180 | 4,950 | 40 |
| 8 | 7,950 | 295 | 5,950 | 145 | 3,700 | 30 |
| 10 | 6,350 | 250 | 4,750 | 130 | 2,950 | 30 |
| 12 | 5,300 | 210 | 3,950 | 115 | 2,450 | 25 |
| 切込深さ Depth of Cut | ap 0.05D  | | | | | |

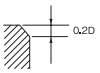
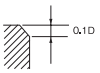
1．機械、ホルダは精度の高いものをご使用下さい。
1. Use a rigid and precise machine and holder.
2．エアブローで使用下さい。但し、ステンレス鋼の切削は湿式で行なって下さい。
2. Use an air blow, unless milling stainless steel. In that case, use a water soluble cutting fluid.

形状寸法表 SPECIFICATION CHARTS W-HSCT-P▶P459
形状寸法表 SPECIFICATION CHARTS W-HSCT-N▶P460
形状寸法表 SPECIFICATION CHARTS WLS-HSCT-P▶P459
形状寸法表 SPECIFICATION CHARTS WLS-HSCT-N▶P460
形状寸法表 SPECIFICATION CHARTS HSCT-P/N▶P461
形状寸法表 SPECIFICATION CHARTS LS-HSCT-P/N▶P462
形状寸法表 SPECIFICATION CHARTS FX-MG-CS▶P468





## W-HSCT-P/W-HSCT-N/WLS-HSCT-P/WLS-HSCT-N/HSCT-P/HSCT-N/LS-HSCT-P/LS-HSCT-N

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S55C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | | アルミニウム合金 Aluminum Alloy | | | ステンレス鋼 Stainless Steel SUS304 | | | 耐熱合金 Heat Resistant Alloy Steel Titanium、Inconel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 60～100m/min | | | 35～65m/min | | | 20～40m/min | | | 150～230m/min | | | 30～50m/min | | | 15～30m/min | | |
| 大端径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) |
| 6 | 4,250 | 445 | 0.035 | 2,650 | 160 | 0.02 | 1,590 | 95 | 0.02 | 10,000 | 1,200 | 0.04 | 2,100 | 255 | 0.04 | 1,150 | 70 | 0.02 |
| 8 | 3,200 | 380 | 0.04 | 2,000 | 120 | 0.02 | 1,200 | 70 | 0.02 | 7,550 | 1,000 | 0.045 | 1,600 | 190 | 0.04 | 900 | 60 | 0.022 |
| 10 | 2,550 | 305 | 0.04 | 1,600 | 95 | 0.02 | 955 | 55 | 0.02 | 6,050 | 815 | 0.045 | 1,250 | 155 | 0.04 | 700 | 55 | 0.025 |
| 12 | 2,100 | 255 | 0.04 | 1,350 | 90 | 0.022 | 795 | 55 | 0.022 | 5,050 | 680 | 0.045 | 1,050 | 125 | 0.04 | 585 | 55 | 0.03 |
| 16 | 1,600 | 190 | 0.04 | 995 | 70 | 0.024 | 595 | 45 | 0.024 | 3,800 | 510 | 0.045 | 795 | 105 | 0.045 | 440 | 45 | 0.033 |
| 切込深さ Depth of Cut |   | | |   | | | | | |   | | |   | | | | | |

1. 上記の切削条件基準表は、水溶性切削油剤を使用する場合のものです。
2. 不水溶性切削油剤を使用する場合は、切削速度を20%下げて下さい。

1. The "Recommended Milling Conditions" above are applicable when using a water-soluble cutting fluid.
2. When using a non-water-soluble cutting fluid, the cutting speed must be reduced 20%.

## FX-MG-CS（60°・90°）

| 被削材 Work Material | 鋳鉄 Cast Iron FC250、FCD400 (～750N/mm²) | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S45C (～750N/mm²) | | 合金鋼 Alloy Steel Scm435 (～30HRC) | | プリハードン鋼 Prehardened Steel NAK55 (30～38HRC) | | アルミニウム合金 Aluminum Alloy AC4D | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 30～60m/min | | 60～100m/min | | 30～40m/min | | 25～40m/min | | 100～180m/min | | 24～36m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) |
| 6.3 | 3,035 | 0.17 | 4,550 | 0.17 | 1,820 | 0.11 | 1,820 | 0.11 | 7,580 | 0.17 | 1,515 | 0.11 |
| 8.3 | 2,300 | 0.22 | 3,455 | 0.22 | 1,380 | 0.14 | 1,380 | 0.14 | 5,755 | 0.22 | 1,150 | 0.14 |
| 10.4 | 1,835 | 0.27 | 2,755 | 0.27 | 1,100 | 0.18 | 1,100 | 0.18 | 4,595 | 0.27 | 920 | 0.18 |
| 12.4 | 1,540 | 0.32 | 2,380 | 0.32 | 925 | 0.22 | 925 | 0.22 | 3,850 | 0.32 | 770 | 0.22 |
| 16.5 | 1,160 | 0.38 | 1,735 | 0.4 | 695 | 0.25 | 695 | 0.25 | 2,895 | 0.4 | 580 | 0.25 |
| 20.5 | 930 | 0.45 | 1,400 | 0.45 | 560 | 0.28 | 560 | 0.28 | 2,330 | 0.45 | 465 | 0.28 |
| 25 | 765 | 0.5 | 1,145 | 0.5 | 460 | 0.32 | 460 | 0.32 | 1,910 | 0.5 | 380 | 0.32 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | |

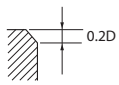
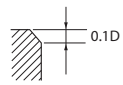
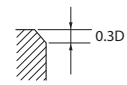
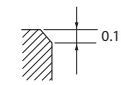
1. 上記の切削条件基準表は、水溶性切削油剤を使用する場合のものです。
2. 不水溶性切削油剤を使用する場合は、切削速度を20%下げて下さい。

1. The "Recommended Milling Conditions" above are applicable when using a water-soluble cutting fluid.
2. When using a non-water-soluble cutting fluid, the cutting speed must be reduced 20%.

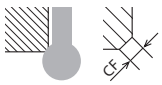
形状寸法表 SPECIFICATION CHARTS HY-HSCM-P▶P463
形状寸法表 SPECIFICATION CHARTS HY-QCC▶P470
形状寸法表 SPECIFICATION CHARTS HY-BCC▶P471

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## HY-HSCM-P

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S50C、FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | | アルミニウム合金 Aluminum Alloy AC4D | | | ステンレス鋼 Stainless Steel SUS304 | | | 耐熱合金 Heat Resistant Alloy Steel Titanium、Inconel | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 100～150m/min | | | 60～110m/min | | | 35～65m/min | | | 200～350m/min | | | 50～100m/min | | | 25～50m/min | | |
| 大端径 Mill Dia.(mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 刃当り送り (mm/t) |
| 6 | 6,630 | 1,160 | 0.035 | 4,500 | 450 | 0.02 | 2,650 | 265 | 0.02 | 14,600 | 2,920 | 0.04 | 4,000 | 700 | 0.035 | 2,000 | 200 | 0.02 |
| 8 | 5,000 | 1,200 | 0.04 | 3,380 | 510 | 0.025 | 2,000 | 300 | 0.025 | 10,950 | 2,950 | 0.045 | 3,000 | 720 | 0.04 | 1,500 | 225 | 0.025 |
| 10 | 4,000 | 1,200 | 0.05 | 2,700 | 485 | 0.03 | 1,600 | 290 | 0.03 | 8,750 | 2,880 | 0.055 | 2,400 | 720 | 0.05 | 1,200 | 215 | 0.03 |
| 12 | 3,315 | 1,200 | 0.06 | 2,250 | 470 | 0.035 | 1,330 | 280 | 0.035 | 7,300 | 2,850 | 0.065 | 2,000 | 720 | 0.06 | 1,000 | 210 | 0.035 |
| 切込深さ Depth of Cut |  0.2D | | |  0.1D | | |  0.3D | | |  0.1D | | | | | | | | |

## HY-QCC

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S50C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | アルミニウム合金 Aluminum Alloy AC4D | | ステンレス鋼 Stainless Steel SUS304 | | 耐熱合金 Heat Resistant Alloy Steel Titanium、Inconel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80～100m/min | | 60～80m/min | | 30～50m/min | | 100～200m/min | | 40～60m/min | | 15～25m/min | |
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1.15 | 12,400 | 2,400 | 9,700 | 1,800 | 5,540 | 980 | 20,700 | 4,000 | 6,920 | 1,230 | 2,770 | 245 |
| R1.4 | 10,200 | 2,400 | 8,000 | 1,800 | 4,550 | 980 | 17,000 | 4,000 | 5,700 | 1,230 | 2,270 | 245 |
| R1.65 | 8,700 | 2,400 | 6,750 | 1,780 | 3,860 | 980 | 14,500 | 4,000 | 4,820 | 1,220 | 1,930 | 245 |
| R1.9 | 7,500 | 2,350 | 5,860 | 1,760 | 3,350 | 960 | 12,600 | 3,950 | 4,200 | 1,210 | 1,680 | 240 |
| R2.4 | 6,000 | 2,640 | 4,640 | 1,950 | 2,650 | 1,060 | 9,950 | 4,380 | 3,300 | 1,320 | 1,330 | 265 |
| R2.9 | 4,900 | 2,610 | 3,840 | 1,950 | 2,190 | 1,050 | 8,230 | 4,380 | 2,740 | 1,320 | 1,100 | 265 |
| R3.9 | 3,700 | 2,590 | 2,860 | 1,920 | 1,630 | 1,040 | 6,120 | 4,280 | 2,040 | 1,300 | 820 | 260 |
| 切込深さ Depth of Cut |  CF | | | | | | | | | | | |

| | CF |
|---|---|
| R1.4 | ≦ 0.2mm |
| R1.9 | ≦ 0.25mm |
| R2.4,R3.9 | ≦ 0.3mm |

## HY-BCC

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400、S50C、FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SKT、SKS、SKD (～30HRC) | | 調質鋼・プリハードン鋼(快削) Hardened Steel・Prehardened Steel (Free-Cutting) SKT、SKD、NAK55、HPM1 (30～38HRC) | | アルミニウム合金 Aluminum Alloy AC4D | | ステンレス鋼 Stainless Steel SUS304 | | 耐熱合金 Heat Resistant Alloy Steel Titanium、Inconel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 90～110m/min | | 70～90m/min | | 40～60m/min | | 120～200m/min | | 50～70m/min | | 20～30m/min | |
| 大端径 Mill Dia.(mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3.9 | 8,160 | 2,600 | 6,530 | 1,960 | 4,080 | 980 | 13,060 | 4,160 | 4,900 | 770 | 2,040 | 160 |
| 4.9 | 6,500 | 2,600 | 5,200 | 1,960 | 3,250 | 980 | 10,400 | 4,160 | 3,900 | 770 | 1,620 | 160 |
| 5.9 | 5,400 | 2,600 | 4,320 | 1,960 | 2,700 | 980 | 8,640 | 4,160 | 3,240 | 770 | 1,350 | 160 |
| 7.9 | 4,030 | 2,600 | 3,220 | 1,960 | 2,020 | 980 | 6,440 | 4,160 | 2,420 | 770 | 1,010 | 160 |
| 切込深さ Depth of Cut |  0.1D | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 加工物の形状や保持方法の状況によって切削条件を調整して下さい。
3. 上記の切削条件基準表は、水溶性切削油剤を使用する場合のものです。
4. 不水溶性切削油剤を使用する場合は、切削速度を20%下げて下さい。
5. びびりや振動を生ずる場合は切込み回数を数回に分けて下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
3. The "Recommended Milling Conditions" above are applicable when using a water-soluble cutting fluid.
4. When using a non-water-soluble cutting fluid, the cutting speed must be reduced by 20%.
5. When chattering or vibration occurs, reduce cutting depth with multiple passes.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## DUR-ECR

| 被削材 Work Material | 工具鋼・調質鋼（～45HRC）・プリハードン鋼 Tool Steel・Hardened Steel・Prehardened Steel SKD、NAK80、HPM50 | | 調質鋼 Hardened Steel（45～55HRC） | | 調質鋼 Hardened Steel（55～60HRC） | | 調質鋼 Hardened Steel（60～65HRC） | |
|---|---|---|---|---|---|---|---|---|
| 先端径×コーナ半径 DC×RE | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 0.5×R0.1 | 8,750 | 25 | 7,960 | 20 | 7,160 | 15 | 7,160 | 12 |
| 0.5×R0.15 | 8,130 | 25 | 7,250 | 20 | 6,540 | 15 | 6,470 | 12 |
| 0.5×R0.2 | 7,640 | 25 | 6,680 | 20 | 6,050 | 15 | 5,890 | 12 |
| 0.5×R0.25 | 7,230 | 25 | 6,220 | 20 | 5,640 | 15 | 5,440 | 12 |
| 0.5×R0.3 | 6,900 | 25 | 5,840 | 20 | 5,310 | 15 | 5,040 | 12 |
| 0.5×R0.35 | 6,490 | 25 | 5,510 | 20 | 5,020 | 15 | 4,730 | 12 |
| 0.5×R0.4 | 6,140 | 25 | 5,230 | 20 | 4,770 | 15 | 4,430 | 12 |
| 0.5×R0.45 | 5,840 | 25 | 4,990 | 20 | 4,560 | 15 | 4,200 | 12 |
| 0.5×R0.5 | 5,570 | 25 | 4,770 | 20 | 4,380 | 15 | 3,980 | 12 |
| 0.5×R0.55 | 5,340 | 25 | 4,590 | 20 | 4,210 | 15 | 3,740 | 12 |
| 0.5×R0.6 | 5,130 | 25 | 4,420 | 20 | 4,070 | 15 | 3,540 | 12 |
| 0.5×R0.65 | 4,940 | 25 | 4,270 | 20 | 3,940 | 15 | 3,350 | 12 |
| 0.5×R0.7 | 4,770 | 25 | 4,140 | 20 | 3,820 | 15 | 3,180 | 12 |
| 0.5×R0.75 | 4,550 | 25 | 3,940 | 20 | 3,640 | 15 | 3,030 | 12 |
| 0.8×R0.8 | 3,820 | 25 | 3,310 | 20 | 3,060 | 15 | 2,550 | 12 |
| 0.8×R0.85 | 3,670 | 25 | 3,180 | 20 | 2,940 | 15 | 2,450 | 12 |
| 0.8×R0.9 | 3,540 | 25 | 3,070 | 20 | 2,830 | 15 | 2,360 | 12 |
| 0.8×R0.95 | 3,410 | 25 | 2,960 | 20 | 2,730 | 15 | 2,270 | 12 |
| 0.8×R1 | 3,290 | 25 | 2,850 | 20 | 2,630 | 15 | 2,200 | 12 |
| 0.8×R1.25 | 2,810 | 25 | 2,430 | 20 | 2,250 | 15 | 1,870 | 12 |
| 1.5×R1.5 | 2,080 | 25 | 1,800 | 20 | 1,660 | 15 | 1,380 | 12 |
| 1.5×R1.75 | 1,870 | 25 | 1,620 | 20 | 1,500 | 15 | 1,250 | 12 |
| 1.5×R2 | 1,710 | 25 | 1,480 | 20 | 1,360 | 15 | 1,140 | 12 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 加工物の形状や保持方法の状況によって切削条件を調整して下さい。
3. 切削油剤は被削材に適したものをご使用いただき、十分に注油下さい。
4. びびりや振動を生ずる場合は切込み回数を数回に分けて下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
3. Use suitable cutting fluids, supply enough amount.
4. When chattering or vibration occurs, reduce cutting depth with multiple passes.

形状寸法表
SPECIFICATION CHARTS
DIA-ECR▶P465-6

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## DIA-ECR

| 被削材 Work Material | アルミニウム合金 Aluminum Alloy A7075 | | グラファイト Glaphite | |
|---|---|---|---|---|
| 先端径×コーナ半径 DC×RE | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 0.5×R0.3 | 26,500 | 120 | 26,500 | 100 |
| 0.5×R0.35 | 24,500 | 120 | 24,500 | 100 |
| 0.5×R0.4 | 22,500 | 120 | 22,500 | 100 |
| 0.5×R0.45 | 21,200 | 120 | 21,200 | 100 |
| 0.5×R0.5 | 20,000 | 120 | 20,000 | 100 |
| 0.5×R0.55 | 18,700 | 120 | 18,700 | 100 |
| 0.5×R0.6 | 17,700 | 120 | 17,700 | 100 |
| 0.5×R0.65 | 16,700 | 120 | 16,700 | 100 |
| 0.5×R0.7 | 16,000 | 120 | 16,000 | 100 |
| 0.5×R0.75 | 15,200 | 120 | 15,200 | 100 |
| 0.8×R0.8 | 12,800 | 120 | 12,800 | 100 |
| 0.8×R0.85 | 12,200 | 120 | 12,200 | 100 |
| 0.8×R0.9 | 11,800 | 120 | 11,800 | 100 |
| 0.8×R0.95 | 11,300 | 120 | 11,300 | 100 |
| 0.8×R1 | 11,000 | 120 | 11,000 | 100 |
| 0.8×R1.25 | 9,400 | 120 | 9,400 | 100 |
| 1.5×R1.5 | 7,000 | 120 | 7,000 | 100 |
| 1.5×R1.75 | 6,300 | 120 | 6,300 | 100 |
| 1.5×R2 | 5,700 | 120 | 5,700 | 100 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 加工物の形状や保持方法の状況によって切削条件を調整して下さい。
3. 切削油剤は被削材に適したものをご使用いただき、十分に注油下さい。
4. びびりや振動を生ずる場合は切込み回数を数回に分けて下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
3. Use suitable cutting fluids, supply enough amount.
4. When chattering or vibration occurs, reduce cutting depth with multiple passes.

CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

## FX-ECR/SXL-ECR

| 被削材 Work Material | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400、S45C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM、SUJ、SKS (～30HRC) | | 調質鋼・ステンレス鋼 Hardened Steel・Stainless Steel SKD、SKT、SUS (30～40HRC) | |
|---|---|---|---|---|---|---|
| 先端径×コーナ半径 DC×RE | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 0.5×R0.1 | 14,500 | 55 | 12,000 | 40 | 9,750 | 30 |
| 0.5×R0.15 | 13,500 | 55 | 11,500 | 40 | 9,050 | 30 |
| 0.5×R0.2 | 12,500 | 55 | 10,500 | 40 | 8,450 | 30 |
| 0.5×R0.25 | 12,000 | 55 | 9,900 | 40 | 7,950 | 30 |
| 0.5×R0.3 | 11,000 | 55 | 9,350 | 40 | 7,450 | 30 |
| 0.5×R0.35 | 10,500 | 55 | 8,800 | 40 | 7,050 | 30 |
| 0.5×R0.4 | 10,000 | 55 | 8,350 | 40 | 6,700 | 30 |
| 0.5×R0.45 | 9,500 | 55 | 7,950 | 40 | 6,350 | 30 |
| 0.5×R0.5 | 9,000 | 55 | 7,550 | 40 | 6,050 | 30 |
| 0.5×R0.55 | 8,600 | 55 | 7,200 | 40 | 5,750 | 30 |
| 0.5×R0.6 | 8,300 | 55 | 6,900 | 40 | 5,500 | 30 |
| 0.5×R0.65 | 7,950 | 55 | 6,600 | 40 | 5,300 | 30 |
| 0.5×R0.7 | 7,600 | 55 | 6,350 | 40 | 5,050 | 30 |
| 0.5×R0.75 | 7,300 | 55 | 6,100 | 40 | 4,850 | 30 |
| 0.8×R0.8 | 5,750 | 55 | 4,800 | 40 | 3,850 | 30 |
| 0.8×R0.85 | 5,600 | 55 | 4,650 | 40 | 3,700 | 30 |
| 0.8×R0.9 | 5,450 | 55 | 4,500 | 40 | 3,600 | 30 |
| 0.8×R0.95 | 5,300 | 55 | 4,400 | 40 | 3,500 | 30 |
| 0.8×R1 | 5,150 | 55 | 4,300 | 40 | 3,400 | 30 |
| 0.8×R1.25 | 4,500 | 55 | 3,750 | 40 | 3,000 | 30 |
| 1.5×R1.5 | 3,100 | 55 | 2,600 | 40 | 2,050 | 30 |
| 1.5×R1.75 | 2,850 | 55 | 2,400 | 40 | 1,900 | 30 |
| 1.5×R2 | 2,650 | 55 | 2,200 | 40 | 1,750 | 30 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 加工物の形状や保持方法の状況によって切削条件を調整して下さい。
3. 切削油剤は被削材に適したものをご使用いただき、十分に注油下さい。
4. びびりや振動を生ずる場合は切込み回数を数回に分けて下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
3. Use suitable cutting fluids, supply enough amount.
4. When chattering or vibration occurs, reduce cutting depth with multiple passes.

## DIA-BNC/DIA-HBC4/DIA-HBC60/DIA-CNC/DIA-DCR/DIA-DCR-N/DIA-DCE/DIA-DCE-N/ DIA-DCE-D/DIA-REC/DIA-MRC/DIA-COE/DIA-MFC/DIA-TRE/DIA-TRE-D/DCE/DCR/HBC60

| 被削材 Work Material | | CFRP | | |
|---|---|---|---|---|
| 外径 Mill Dia. | | 切削速度 Cutting Speed (m/min) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) |
| インチ(inch) | ミリ(mm) | | | |
| — | 1.5 | 40～200 | 25,000 | 0.07～0.28 |
| — | 2 | | 19,000 | 0.07～0.28 |
| — | 3 | 80～200 | 15,000 | 0.13～0.32 |
| 1/8 | 3.175 | | 14,000 | 0.13～0.32 |
| — | 4 | 100～200 | 12,000 | 0.17～0.35 |
| — | 5 | | 9,600 | 0.17～0.35 |
| — | 6 | | 8,000 | 0.22～0.44 |
| 1/4 | 6.35 | | 7,500 | 0.22～0.44 |
| — | 8 | | 6,000 | 0.26～0.50 |
| 3/8 | 9.525 | | 5,000 | 0.27～0.55 |
| — | 10 | | 4,800 | 0.27～0.55 |
| — | 12 | | 4,000 | 0.44～0.86 |
| 1/2 | 12.7 | | 3,800 | 0.44～0.88 |

1. CFRPの被削性は、レジンの性質やその含有率、保持状態によって大きく影響され、上表を参考に、送りの調整をして下さい。
2. 上表は、およそ厚さの被削材を基準にしています。
3. 切削油剤は不要ですが、十分な粉塵対策（真空集塵）を施して下さい。
4. 仕上げ加工はアップカットで使用下さい。
5. 適切な切削油剤を使用しての加工においては、切削速度を20-50%上げることが可能です。
6. 加工物の肉厚、形状、保持状態により加工物がびびり振動を起こすことがあります。びびり振動が発生した場合は回転速度、送り量を調整下さい。

1. Machinability of CFRP will change by the character of resin and a percentage of content, also large influence by the way of part holding. Please refer above conditions to adjust feed rate.
2. The above conditions are based on approximately 1xDc thickness of part under rigid work holding.
3. Coolant is not necessary, however, please apply good dust control（Vacuum collection）.
4. Conventional cut is recommended for good surface finish.
5. Milling speed can be increased by 20-50% with the use of appropriate cutting oil.
6. Depending on the workpiece thickness and form as well as work holding, vibration may occur. When it occurs, please adjust RPM and feed rate.

### 送り速度調整目安 Adjustment

| 被削材厚さ Material Thickness | 調整目安 Feed Adjustment |
|---|---|
| ≦0.25DC | × 80% |
| 0.25 DC ~ 0.5DC | ×120% |
| 0.5 DC ~ 1DC | ×100% |
| 1 DC ~ 2DC | × 80% |
| 2 DC ~ 3DC | × 50% |

形状寸法表 SPECIFICATION CHARTS ED-EM▶P481
形状寸法表 SPECIFICATION CHARTS ED-EB▶P482

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## ED-EM
### 〈半径方向切込幅が工具径の10%（0.1D）の場合〉 WHEN AE (WIDTH OF CUT) IS 10% OF TOOL DIA.

| 被削材 Work Material | | CFRP | | |
|---|---|---|---|---|
| 外径 Mill Dia. | | 切削速度 Cutting Speed (m/min) | 回転速度 Speed (min-1) | 送り量 Feed Rate (mm/rev) |
| インチ(inch) | ミリ(mm) | | | |
| 1/8 | 3.175 | 200〜300 | 20,000 | 0.003〜0.012 |
| — | 4 | | 20,000 | 0.005〜0.015 |
| — | 6 | | 13,000 | 0.005〜0.025 |
| 1/4 | 6.35 | | 13,000 | 0.005〜0.032 |
| — | 8 | | 10,000 | 0.005〜0.035 |
| 3/8 | 9.525 | | 8,500 | 0.005〜0.04 |
| — | 10 | | 8,000 | 0.005〜0.04 |
| — | 12 | | 7,000 | 0.005〜0.045 |
| 1/2 | 12.7 | | 6,500 | 0.005〜0.045 |

1. 送り速度は、半径方向の切込幅の増加に従って、右表を目安に減速して下さい。(DCは工具径)
2. CF、CF含有材、セラミックなどの脆性材を加工する場合は、上表の最小値を基準に送り量を調整して下さい。こば欠けが発生する場合は、切込深さ、送り量をさらに小さくして下さい。
3. 切削油剤は不要ですが、十分な粉塵対策（真空集塵）を施して下さい。

1. When the depth of cut is large, please reduce feed rate. The following table shows approximate reduction rate of feed rate.
DC : indicates tool diameter
2. When machining brittle material such as CF/CF composite and ceramics, please reduce feed rate to the minimum amount on the table. If chipping occurs on cutting edge, please reduce the depth of cut and feed rate further.
3. Coolant is not necessary, however, please apply good dust control（Vacuum collection）

| 半径方向切込幅 Radial Depth of Cut ae | 減速率 Coefficients |
|---|---|
| 0.1 × DC | — |
| 0.2 × DC | −30% |
| 0.5 × DC | −60% |
| 1 × DC | −80% |

## ED-EB
### 〈軸方向切込幅は最大0.1mmまで〉 MAXIMUM AP (DEPTH OF CUT) OF 0.1MM

| 被削材 Work Material | | CFRP | | |
|---|---|---|---|---|
| 外径 Mill Dia. | | 切削速度 Cutting Speed (m/min) | 回転速度 Speed (min-1) | 送り量 Feed Rate (mm/rev) |
| インチ(inch) | ミリ(mm) | | | |
| — | R0.5 | 200〜300 | 20,000 | 0.0024〜0.008 |
| — | R1 | | 20,000 | 0.0024〜0.008 |
| — | R1.5 | | 20,000 | 0.0024〜0.0096 |
| — | R2 | | 20,000 | 0.004 〜0.012 |
| — | R3 | | 13,000 | 0.004 〜0.02 |
| — | R4 | | 10,000 | 0.004 〜0.0256 |
| — | R5 | | 8,000 | 0.004 〜0.032 |

1. 送り速度は、半径方向の切込幅の増加に従って、右表を目安に減速して下さい。(DCは工具径)
2. CF、CF含有材、セラミックなどの脆性材を加工する場合は、上表の最小値を基準に送り量を調整して下さい。こば欠けが発生する場合は、切込深さ、送り量をさらに小さくして下さい。
3. 切削油剤は不要ですが、十分な粉塵対策（真空集塵）を施して下さい。

1. When the depth of cut is large, please reduce feed rate. The following table shows approximate reduction rate of feed rate.
DC : indicates tool diameter
2. When machining brittle material such as CF/CF composite and ceramics, please reduce feed rate to the minimum amount on the table. If chipping occurs on cutting edge, please reduce the depth of cut and feed rate further.
3. Coolant is not necessary, however, please apply good dust control（Vacuum collection）

# CUTTING CONDITIONS FOR CARBIDE END MILLS 超硬エンドミル切削条件基準表



## CM-RMS

### 4枚刃タイプ　4 FLUTES TYPE

| 被削材 Work Material | 耐熱合金 Heat Resistant Alloys Inconel 718 | | | | | | |
|---|---|---|---|---|---|---|---|
| 加工方法 Machining Method | 側面切削 Side Milling | | | | 溝切削 Slotting | | |
| 外径 Mill Dia. (mm) | 切削速度 Cutting Speed (m/min) | 一刃当たりの送り量 Feed per Tooth (mm/t) | 切込深さ Depth of Cut (mm) | | 切削速度 Cutting Speed (m/min) | 一刃当たりの送り量 Feed per Tooth (mm/t) | 切込深さ Depth of Cut (mm) |
| | | | ap | ae | | | ap |
| 6 | 400～800 | 0.02～0.04 | ≦4.5(0.75D) | ≦0.6(0.1D) | 400～800 | 0.02～0.04 | ≦1.2(0.2D) |
| 8 | 400～800 | 0.02～0.04 | ≦6.0(0.75D) | ≦0.8(0.1D) | 400～800 | 0.02～0.04 | ≦1.6(0.2D) |
| 10 | 400～800 | 0.04～0.07 | ≦7.5(0.75D) | ≦1.0(0.1D) | 400～800 | 0.04～0.07 | ≦2.0(0.2D) |
| 12 | 400～800 | 0.04～0.07 | ≦9.0(0.75D) | ≦1.2(0.1D) | 400～800 | 0.04～0.07 | ≦2.4(0.2D) |

### 6枚刃タイプ　6 FLUTES TYPE

| 被削材 Work Material | 耐熱合金 Heat Resistant Alloys Inconel 718 | | | |
|---|---|---|---|---|
| 加工方法 Machining Method | 側面切削 Side Milling | | | |
| 外径 Mill Dia. (mm) | 切削速度 Cutting Speed (m/min) | 一刃当たりの送り量 Feed per Tooth (mm/t) | 切込深さ Depth of Cut (mm) | |
| | | | ap | ae |
| 6 | 400～800 | 0.02～0.04 | ≦4.5(0.75D) | ≦0.6(0.1D) |
| 8 | 400～800 | 0.02～0.04 | ≦6.0(0.75D) | ≦0.8(0.1D) |
| 10 | 400～800 | 0.04～0.07 | ≦7.5(0.75D) | ≦1.0(0.1D) |
| 12 | 400～800 | 0.04～0.07 | ≦9.0(0.75D) | ≦1.2(0.1D) |

## CM-CRE

首部干渉を防ぐため加工時のプログラムは、抜き勾配（3°以上）を付けて作成下さい。
Specify a draft (at least 3° ) in the milling program to avoid neck interferences.

| 被削材 Work Material | 耐熱合金 Heat Resistant Alloys Inconel 718 | | | |
|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 切削速度 Cutting Speed (m/min) | 一刃当たりの送り量 Feed per Tooth (mm/t) | 切込深さ Depth of Cut (mm) | |
| | | | ap | ae |
| 16 | 400～800 | 0.03～0.05 | 1 | ≦ 9.6(0.6D) |
| 20 | 400～800 | 0.04～0.06 | 1 | ≦12.0(0.6D) |
| 25 | 400～800 | 0.05～0.08 | 1 | ≦15.0(0.6D) |

形状寸法表 SPECIFICATION CHARTS AM-EBT▶P334
形状寸法表 SPECIFICATION CHARTS AM-CRE▶P385

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AM-EBT

| 被削材 Work Material | | 調質鋼・プリハードン鋼 Hardened Steels・Prehardened Steels | | 調質鋼 Hardened Steels | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Alloy | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ～45HRC | | ～65HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed | | 50～70m/min | | 40～60m/min | | 20～40m/min | | 60～80m/min | | 50～70m/min | | 40～60m/min | | 20～40m/min | |
| RE | 首下長 LU (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R1 | 4 | 9,500 | 940 | 8,000 | 790 | 4,800 | 480 | 11,100 | 1,100 | 9,500 | 940 | 8,000 | 790 | 4,800 | 480 |
| | 8 | 4,800 | 430 | 4,300 | 390 | 2,600 | 230 | 5,600 | 500 | 4,800 | 430 | 4,300 | 390 | 2,600 | 230 |
| R1.5 | 6 | 6,400 | 960 | 5,300 | 800 | 3,200 | 480 | 7,400 | 1,110 | 6,400 | 960 | 5,300 | 800 | 3,200 | 480 |
| | 12 | 3,800 | 510 | 3,300 | 450 | 2,000 | 270 | 4,400 | 590 | 3,800 | 510 | 3,300 | 450 | 2,000 | 270 |
| R2 | 8 | 4,800 | 930 | 4,000 | 770 | 2,400 | 470 | 5,600 | 1,080 | 4,800 | 930 | 4,000 | 770 | 2,400 | 470 |
| | 16 | 2,900 | 490 | 2,500 | 420 | 1,500 | 250 | 3,400 | 570 | 2,900 | 490 | 2,500 | 420 | 1,500 | 250 |
| R2.5 | 10 | 3,800 | 910 | 3,200 | 770 | 1,900 | 460 | 4,500 | 1,080 | 3,800 | 910 | 3,200 | 770 | 1,900 | 460 |
| | 20 | 2,400 | 550 | 2,000 | 430 | 1,200 | 280 | 2,800 | 600 | 2,400 | 520 | 2,000 | 430 | 1,200 | 280 |
| R3 | — | 3,200 | 960 | 2,700 | 800 | 1,600 | 480 | 3,700 | 1,120 | 3,200 | 960 | 2,700 | 800 | 1,600 | 480 |
| R4 | — | 2,400 | 860 | 2,000 | 720 | 1,200 | 430 | 2,800 | 1,000 | 2,400 | 860 | 2,000 | 720 | 1,200 | 430 |
| R5 | — | 1,900 | 860 | 1,600 | 720 | 960 | 430 | 2,200 | 1,000 | 1,900 | 860 | 1,600 | 720 | 960 | 430 |
| R6 | — | 1,600 | 960 | 1,300 | 800 | 800 | 480 | 1,900 | 1,120 | 1,600 | 960 | 1,300 | 800 | 800 | 480 |
| R8 | — | 1,200 | 790 | 1,000 | 660 | 600 | 390 | 1,400 | 920 | 1,200 | 790 | 1,000 | 660 | 600 | 390 |
| R10 | — | 1,000 | 720 | 800 | 600 | 480 | 360 | 1,100 | 840 | 1,000 | 720 | 800 | 600 | 480 | 360 |

| 切込深さ Depth of Cut | ap | Pf |
|---|---|---|
| | RE≦6 | MAX：0.15D | 0.05D |
| | 8≦RE | MAX：3mm | |

## AM-CRE

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steels・Prehardened Steels | | 調質鋼 Hardened Steels | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Alloy | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～45HRC | | ～65HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed | 50～70m/min | | 40～60m/min | | 20～40m/min | | 60～80m/min | | 50～70m/min | | 40～60m/min | | 20～40m/min | |
| 外径×コーナ半径 DC × RE (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6×R1 | 3,700 | 1,330 | 3,200 | 1,150 | 1,910 | 690 | 4,240 | 1,530 | 3,700 | 1,330 | 3,200 | 1,150 | 1,910 | 690 |
| 6×R1.5 | 3,200 | 960 | 2,700 | 800 | 1,600 | 480 | 3,700 | 1,120 | 3,200 | 960 | 2,700 | 800 | 1,600 | 480 |
| 8×R1 | 2,780 | 1,250 | 2,400 | 1,080 | 1,430 | 640 | 3,180 | 1,430 | 2,780 | 1,250 | 2,400 | 1,080 | 1,430 | 640 |
| 8×R2 | 2,400 | 720 | 2,000 | 600 | 1,200 | 360 | 2,800 | 840 | 2,400 | 720 | 2,000 | 600 | 1,200 | 360 |
| 10×R1 | 2,220 | 1,600 | 1,900 | 1,370 | 1,150 | 830 | 2,540 | 1,830 | 2,220 | 1,600 | 1,900 | 1,370 | 1,150 | 830 |
| 10×R2 | 1,900 | 920 | 1,600 | 760 | 960 | 460 | 2,200 | 1,070 | 1,900 | 920 | 1,600 | 760 | 960 | 460 |
| 12×R1 | 1,850 | 2,220 | 1,600 | 1,920 | 960 | 1,150 | 2,120 | 2,540 | 1,850 | 2,220 | 1,600 | 1,920 | 960 | 1,150 |
| 12×R2 | 1,600 | 1,270 | 1,300 | 1,060 | 800 | 640 | 1,900 | 1,490 | 1,600 | 1,270 | 1,300 | 1,060 | 800 | 640 |
| 16×R1 | 1,380 | 2,430 | 1,200 | 2,110 | 720 | 1,270 | 1,590 | 2,800 | 1,380 | 2,430 | 1,200 | 2,110 | 720 | 1,270 |
| 16×R3 | 1,200 | 1,430 | 1,000 | 1,190 | 600 | 720 | 1,400 | 1,670 | 1,200 | 1,430 | 1,000 | 1,190 | 600 | 720 |
| 20×R1 | 1,110 | 2,490 | 1,000 | 2,240 | 570 | 1,280 | 1,270 | 2,840 | 1,110 | 2,490 | 1,000 | 2,240 | 570 | 1,280 |
| 20×R3 | 1,000 | 1,530 | 800 | 1,270 | 480 | 760 | 1,100 | 1,780 | 1,000 | 1,530 | 800 | 1,270 | 480 | 760 |

| 切込深さ Depth of Cut | | |
|---|---|---|
| | ap | Max0.2×Rmm |
| | ae | Max0.5×Dmm |

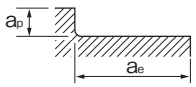
1. 本工具はアディティブ・マニュファクチャリング（金属積層）、金型肉盛り部表層の荒取り加工に使用することを推奨します。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
4. 推奨条件よりも切込み量を大きくとる場合は、送り速度を抑えてご使用下さい。
5. 突出し長さが長くなる場合は、回転速度、送り速度、切込み量を調整下さい。
6. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
7. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
8. ステンレス鋼、コバルトクロム基、チタン合金、Ni基合金の加工には、水溶性切削油剤の使用を推奨します。
9. 工具の振れ精度を最小限に抑えてご使用下さい。
10. コーナ部等切削負荷が変動する場合は、回転速度を抑えてご使用下さい。

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. Please adjust the speed, feed and depth of cut accordingly when the overhang length is longer than specified.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromium based alloy, titanium alloy, and Ni-based alloy.
9. Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.

# AM-HFC

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

## 正面切削 FRONTAL MILLING

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steels・Prehardened Steels | | 調質鋼 Hardened Steels | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Alloy | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～45HRC | | ～62HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed | 90～110m/min | | 70～90m/min | | 50～70m/min | | 100～120m/min | | 90～110m/min | | 70～90m/min | | 30～50m/min | |
| 外径×擬似R DC×rt | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 4 × R0.5 | 7,960 | 5,730 | 6,370 | 4,590 | 4,780 | 1,720 | 8,760 | 6,310 | 7,960 | 5,730 | 6,370 | 4,590 | 3,180 | 760 |
| 5 × R0.6 | 6,370 | 5,730 | 5,100 | 4,590 | 3,820 | 1,720 | 7,010 | 6,310 | 6,370 | 5,730 | 5,100 | 4,590 | 2,550 | 770 |
| 6 × R0.8 | 5,310 | 5,730 | 4,250 | 4,590 | 3,180 | 1,720 | 5,840 | 6,310 | 5,310 | 5,730 | 4,250 | 4,590 | 2,120 | 760 |
| 8 × R1 | 3,980 | 5,730 | 3,180 | 4,580 | 2,390 | 1,720 | 4,380 | 6,310 | 3,980 | 5,730 | 3,180 | 4,580 | 1,590 | 760 |
| 10 × R1.2 | 3,180 | 5,720 | 2,550 | 4,590 | 1,910 | 1,720 | 3,500 | 6,300 | 3,180 | 5,720 | 2,550 | 4,590 | 1,270 | 760 |
| 12 × R1.5 | 2,650 | 5,720 | 2,120 | 4,580 | 1,590 | 1,720 | 2,920 | 6,310 | 2,650 | 5,720 | 2,120 | 4,580 | 1,060 | 760 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | | | |

| | |
|---|---|
| ap | Max:0.04D |
| ae | Max:0.5D |

※ピック量が0.5D以上の場合、加工面にカスプが発生することがあります。
1. 本工具はアディティブ・マニュファクチャリング（金属積層）、金型肉盛り部表層の荒取り加工に使用することを推奨します。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
4. 推奨条件よりも切込み量を大きくとる場合は、送り速度を抑えてご使用下さい。
5. 上表は、工具の突出し量が4D以下の場合の目安です。突出し量が大きな場合は、びびりが発生しやすくなりますので係数を参考に、回転速度、送り速度、切込み深さを調整下さい。
6. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
7. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
8. ステンレス鋼、コバルトクロム合金、チタン合金、Ni 基合金の加工には、水溶性切削油剤の使用を推奨します。
9. 工具の振れ精度を最小限に抑えてご使用下さい。
10. コーナ部等切削負荷が変動する場合は、回転速度を抑えてご使用下さい。

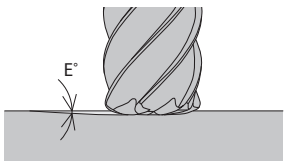
If the pick amount is 0.5 x D or more, cusp may occur on the machined surface.
1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. The above table is a guide when the amount of protrusion of the tool is 4 x D or less. If the amount of protrusion is large, chattering is likely to occur, so adjust the rotation speed, feed rate and depth of cut with reference to the coefficients.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromium alloy, titanium alloy, and Ni-based alloy.
9. Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.

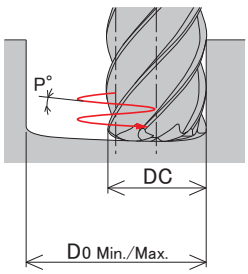
## 工具突出し量による係数（%） TOOL EXTENSION COEFFICIENTS

| 工具突出し量 Overhang Length | 切削速度 Cutting Speed | 軸方向切り込み ap | 1刃当たりの送り量 fz |
|---|---|---|---|
| L/D ≦ 4 | 100% | 100% | 100% |
| 4 < L/D ≦ 5 | 90% | 75% | 80% |
| 5 < L/D ≦ 6 | 80% | 50% | 60% |

## ランピング加工時の最大傾斜角（E°）とヘリカル加工時の最大傾斜角（P°）
MAXIMUM RAMPING (E) AND HELICAL (P) ANGLE

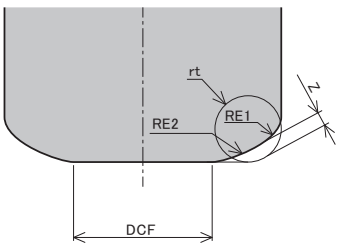
| 外径×擬似R DC×rt | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° |
|---|---|---|---|---|
| | | 最小径 D0 Min. | 最大径 D0 Max. | |
| 4 × R0.5 | 3° | 6 | 7 | 1.5° |
| 5 × R0.6 | | 7.5 | 9 | |
| 6 × R0.8 | | 9 | 11 | |
| 8 × R1 | | 12 | 15 | |
| 10 × R1.2 | | 15 | 19 | |
| 12 × R1.5 | | 18 | 23 | |




## プログラム作成上の刃先形状定義 Edge shape definitions for the purpose of creating a program

| 外径 DC | 擬似R rt | 削り残し量 Remainder Z |
|---|---|---|
| 4 | R0.5 | 0.11 |
| 5 | R0.6 | 0.15 |
| 6 | R0.8 | 0.17 |
| 8 | R1 | 0.22 |
| 10 | R1.2 | 0.31 |
| 12 | R1.5 | 0.36 |




加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

形状寸法表 SPECIFICATION CHARTS
AM-HFC▶P386

# 超硬エンドミル切削条件基準表 CUTTING CONDITIONS FOR CARBIDE END MILLS

## AM-HFC

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

### 側面切削 SIDE MILLING

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steels・Prehardened Steels | | 調質鋼 Hardened Steels | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Alloy | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～45HRC | | ～62HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed | 80～100m/min | | 50～70m/min | | 30～50m/min | | 90～110m/min | | 80～100m/min | | 50～70m/min | | 20～40m/min | |
| 外径×擬似R DC×rt | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 4 × R0.5 | 7,170 | 1,200 | 4,780 | 570 | 3,180 | 230 | 7,960 | 1,340 | 7,170 | 1,200 | 4,780 | 570 | 2,390 | 230 |
| 5 × R0.6 | 5,730 | 1,200 | 3,820 | 570 | 2,550 | 230 | 6,370 | 1,340 | 5,730 | 1,200 | 3,820 | 570 | 1,910 | 230 |
| 6 × R0.8 | 4,780 | 1,200 | 3,180 | 570 | 2,120 | 230 | 5,310 | 1,340 | 4,780 | 1,200 | 3,180 | 570 | 1,590 | 230 |
| 8 × R1 | 3,580 | 1,720 | 2,390 | 800 | 1,590 | 380 | 3,980 | 1,910 | 3,580 | 1,720 | 2,390 | 800 | 1,190 | 230 |
| 10 × R1.2 | 2,870 | 1,720 | 1,910 | 800 | 1,270 | 380 | 3,180 | 1,910 | 2,870 | 1,720 | 1,910 | 800 | 960 | 230 |
| 12 × R1.5 | 2,390 | 1,720 | 1,590 | 800 | 1,060 | 380 | 2,650 | 1,910 | 2,390 | 1,720 | 1,590 | 800 | 800 | 230 |
| 切込深さ Depth of Cut | ap Max:1.5D<br>ae Max:0.05D | | ap Max:1.5D<br>ae Max:0.02D | | ap Max:1.0D<br>ae Max:0.02D | | ap Max:1.5D<br>ae Max:0.05D | | | | ap Max:1.5D<br>ae Max:0.02D | | | |

1. 本工具はアディティブ・マニュファクチャリング（金属積層）、金型肉盛り部表層の荒取り加工に使用することを推奨します。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
4. 推奨条件よりも切込み量を大きくとる場合は、送り速度を抑えてご使用下さい。
5. 上表は、工具の突出し量が4D以下の場合の目安です。突出し量が大きな場合は、びびりが発生しやすくなりますので係数を参考に、回転速度、送り速度、切込み深さを調整下さい。
6. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
7. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
8. ステンレス鋼、コバルトクロム合金、チタン合金、Ni 基合金の加工には、水溶性切削油剤の使用を推奨します。
9. 工具の振れ精度を最小限に抑えてご使用下さい。
10. コーナ部等切削負荷が変動する場合は、回転速度を抑えてご使用下さい。

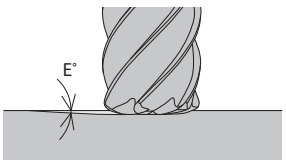
1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. The above table is a guide when the amount of protrusion of the tool is 4 x D or less. If the amount of protrusion is large, chattering is likely to occur, so adjust the rotation speed, feed rate and depth of cut with reference to the coefficients.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromium alloy, titanium alloy, and Ni-based alloy.
9. Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.

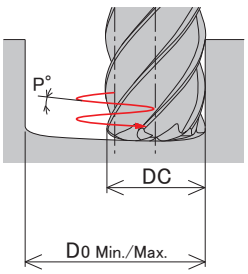
### 工具突出し量による係数（%） TOOL EXTENSION COEFFICIENTS

| 工具突出し量 Overhang Length | 切削速度 Cutting Speed | 軸方向切り込み ap | 1刃当たりの送り量 fz |
|---|---|---|---|
| L/D ≦ 4 | 100% | 100% | 100% |
| 4 < L/D ≦ 5 | 90% | 75% | 80% |
| 5 < L/D ≦ 6 | 80% | 50% | 60% |

### ランピング加工時の最大傾斜角（E°）とヘリカル加工時の最大傾斜角（P°） MAXIMUM RAMPING (E) AND HELICAL (P) ANGLE

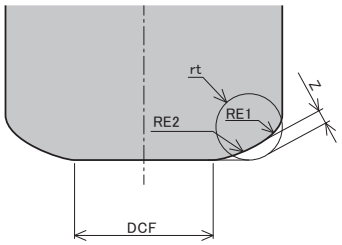
| 外径×擬似R DC×rt | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) 最小径 D0 Min. | ヘリカル穴あけ Helical Milling (mm) 最大径 D0 Max. | ヘリカル角度 Helical Angle P° |
|---|---|---|---|---|
| 4 × R0.5 | 3° | 6 | 7 | 1.5° |
| 5 × R0.6 | | 7.5 | 9 | |
| 6 × R0.8 | | 9 | 11 | |
| 8 × R1 | | 12 | 15 | |
| 10 × R1.2 | | 15 | 19 | |
| 12 × R1.5 | | 18 | 23 | |




### プログラム作成上の刃先形状定義 Edge shape definitions for the purpose of creating a program

| 外径 DC | 擬似R rt | 削り残し量 Remainder Z |
|---|---|---|
| 4 | R0.5 | 0.11 |
| 5 | R0.6 | 0.15 |
| 6 | R0.8 | 0.17 |
| 8 | R1 | 0.22 |
| 10 | R1.2 | 0.31 |
| 12 | R1.5 | 0.36 |




加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

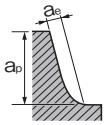
CUTTING CONDITIONS FOR CARBIDE END MILLS

# 超硬エンドミル切削条件基準表

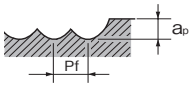


## IB-TPBT

### 側面切削 SIDE MILLING

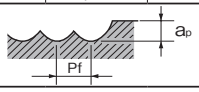
| 被削材 Work Material | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | | | チタン合金 Titanium Alloy Ti-6Al-4V | | | | 耐熱合金 Heat Resistant Alloy インコネル Inconel | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80〜100m/min | | | | 60〜80m/min | | | | 20〜40m/min | | | |
| 呼び Designation | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | |
| | | | ap | ae | | | ap | ae | | | ap | ae |
| R0.5 × 4° | 12,300 | 740 | 16 | 0.1 | 9,600 | 580 | 16 | 0.1 | 4,100 | 190 | 16 | 0.05 |
| R1 × 4° | 8,800 | 800 | 16 | 0.1 | 6,900 | 630 | 16 | 0.1 | 3,000 | 180 | 16 | 0.05 |
| R1.5 × 4° | 6,600 | 600 | 18 | 0.15 | 5,100 | 460 | 18 | 0.15 | 2,200 | 140 | 18 | 0.1 |
| R2 × 4° | 4,900 | 590 | 25 | 0.2 | 3,900 | 470 | 25 | 0.2 | 1,700 | 160 | 25 | 0.15 |
| R3 × 4° | 3,700 | 670 | 25 | 0.2 | 2,900 | 530 | 25 | 0.2 | 1,300 | 160 | 25 | 0.15 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | |

### 先端（ボール部）標準切削 TIP (BALL SECTION) STANDARD CUTTING

| 被削材 Work Material | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | | | チタン合金 Titanium Alloy Ti-6Al-4V | | | | 耐熱合金 Heat Resistant Alloy インコネル Inconel | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 80〜100m/min | | | | 60〜80m/min | | | | 20〜40m/min | | | |
| 呼び Designation | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | |
| | | | ap | Pf | | | ap | Pf | | | ap | Pf |
| R0.5 × 4° | 30,800 | 1,850 | 0.1 | 0.1 | 23,900 | 1,440 | 0.1 | 0.1 | 10,300 | 470 | 0.05 | 0.1 |
| R1 × 4° | 15,400 | 1,390 | 0.15 | 0.2 | 12,000 | 1,080 | 0.15 | 0.2 | 5,200 | 320 | 0.1 | 0.2 |
| R1.5 × 4° | 10,300 | 930 | 0.15 | 0.2 | 8,000 | 720 | 0.15 | 0.2 | 3,500 | 210 | 0.1 | 0.2 |
| R2 × 4° | 7,700 | 930 | 0.2 | 0.25 | 6,000 | 720 | 0.2 | 0.25 | 2,600 | 240 | 0.15 | 0.25 |
| R3 × 4° | 5,200 | 940 | 0.25 | 0.25 | 4,000 | 720 | 0.25 | 0.25 | 1,800 | 220 | 0.2 | 0.25 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | |

### 先端（ボール部）高速切削 TIP (BALL SECTION) HIGH-SPEED CUTTING

機械の能力が十分であることを確認された上でご使用下さい。 Please confirm that the capability of the machine is sufficient.

| 被削材 Work Material | 析出硬化系ステンレス鋼 Precipitation Stainless Steel SUS630 | | | | チタン合金 Titanium Alloy Ti-6Al-4V | | | | 耐熱合金 Heat Resistant Alloy インコネル Inconel | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 180〜200m/min | | | | 120〜140m/min | | | | 50〜70m/min | | | |
| 呼び Designation | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 切込み深さ Depth of Cut (mm) | |
| | | | ap | Pf | | | ap | Pf | | | ap | Pf |
| R0.5 × 4° | 64,900 | 3,900 | 0.2 | 0.1 | 44,400 | 2,670 | 0.2 | 0.1 | 20,500 | 930 | 0.1 | 0.1 |
| R1 × 4° | 32,500 | 2,930 | 0.3 | 0.2 | 22,200 | 2,000 | 0.3 | 0.2 | 10,300 | 780 | 0.2 | 0.2 |
| R1.5 × 4° | 21,700 | 2,930 | 0.3 | 0.2 | 14,800 | 2,000 | 0.3 | 0.2 | 6,900 | 630 | 0.2 | 0.2 |
| R2 × 4° | 16,300 | 2,940 | 0.4 | 0.25 | 11,100 | 2,000 | 0.4 | 0.25 | 5,200 | 630 | 0.3 | 0.25 |
| R3 × 4° | 10,900 | 2,950 | 0.5 | 0.25 | 7,400 | 2,000 | 0.5 | 0.25 | 3,500 | 630 | 0.4 | 0.25 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 上表の値はあくまでも目安です。実際の加工における切削条件は、上表を参考に状況に応じて設定下さい。
3. 加工時切込み方法の設定により、側面切削か先端（ボール部）切削かを選定下さい。
4. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
5. 工具の振れ精度を最小限に抑えてご使用下さい。

1. Use a rigid and precise machine and holder.
2. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
3. Select side cutting or tip (ball section) cutting for the cutting method.
4. Please use a suitable fluid with high smoke retardant properties.
5. Tool runout should be kept to a minimum for maximum accuracy.

# エンドミルの加工条件 CUTTING CONDITIONS

## 切削条件の計算式 How to calculate cutting conditions

### ■スクエアタイプ/ラジアスタイプ Square Type/Radius Type

**切削速度（m/min） Cutting Speed**

$$Vc = \frac{\pi \times DC \times n}{1{,}000}$$

**回転速度（min$^{-1}$） Speed**

$$n = \frac{1{,}000 \times Vc}{\pi \times DC}$$

**送り速度（mm/min） Feed**

$$Vf = n \times f \qquad f = \frac{Vf}{n}$$

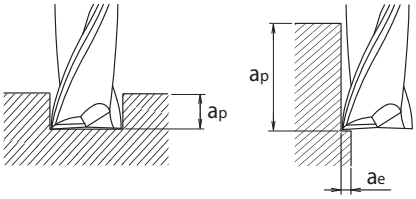
$$fz = \frac{f}{z} = \frac{Vf}{n \times z}$$

$$Vf = n \times fz \times z$$

**切りくず排出量（cm$^3$/min） Metal Removal Rate**

$$Q = \frac{ap \times ae \times Vf}{1{,}000}$$

Vc ：切削速度 Cutting Speed (m/min)
n ：回転速度 Speed ($min^{-1}$)
Vf ：送り速度 Feed (mm/min)
Q ：切りくず排出量 Metal Removal Rate ($cm^3$/min)
DC ：外径 Mill Diameter (mm)
z ：刃数 Number of Tooth
π ：円周率 Circumference Ratio ≒3.14
f ：1回転当たりの送り量 Feed per Revolution (mm/rev)
fz ：1刃当たりの送り量 Feed per Tooth (mm/t)
ap ：軸方向の切込み深さ Axial Depth of Cut (mm)
ae ：半径方向の切込み深さ Radial Depth of Cut (mm)



溝切削 Slotting　　側面切削 Side Milling

### ■ボールタイプ Ball Type

**カスプハイト（mm） Cusp Hight**

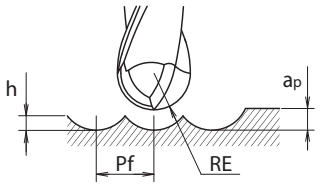
$$h = RE - \sqrt{RE^2 - \left(\frac{Pf}{2}\right)^2}$$

近似的な理論粗さRz（mm）
Approximate Theoretical Roughness

$$Rz = h \fallingdotseq \frac{Pf^2}{8 \times RE}$$

切削速度、回転速度及び送り速度はスクエアタイプ／ラジアスタイプと同じ計算式を用います。
The cutting speed, spindle speed and feed can be calculated by using the same formulas as the square type / radius type.

h ：カスプハイト Cusp Hight (mm)
RE ：ボール半径 Radius of Ball Nose (mm)
ap ：軸方向の切込み深さ Axial Depth of Cut (mm)
Pf ：ピックフィード Pick Feed (mm)



# HY-PRO SHRINK
## TOOLING SYSTEM



# 新発想チャッキング。ハイプロシュリンク。

補助アーバのサイズバリエーションが大幅に充実！

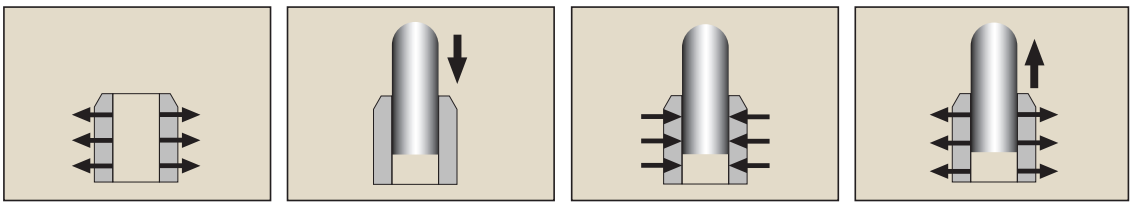
**HY-PRO Shrink - A New Approach to Chucking**

**金属の特性を利用したシュリンクフィット（焼きばめ）式ホルダで、振れ、緩みのない高速、高精度加工を実現。**

**Utilizing the special properties of metal, the Shrink Fit Holder provides high speed and precision without deflection or loosening.**

## シュリンク（焼きばめ）の原理 Main Instructions for the Shrink Fit

取付け Attachment　　取り外し Detachment



### ①加熱 Heating
ホルダを熱風で加熱します。
（加熱時間 約3分）

Heat the holder with hot air for about 3 minutes.

### ②装着 Attachment
熱膨張により拡大した穴に工具を挿入します。

Insert tool into the hole, which is expanded by heat.

### ③固定 Fixing
冷却により穴が収縮し、工具を強固にチャッキングします。

The holder fixes the tool in place by cooling and clamping tightly.

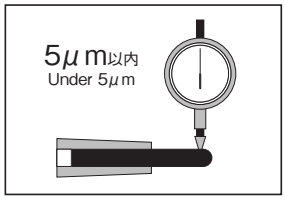
### 取り外し Detachment
再加熱することでクランプされた工具は取り外せます。

The clamped tool can be detached by re-heating.

## シュリンク（焼きばめ）の特長 Features of the Shrink Fit

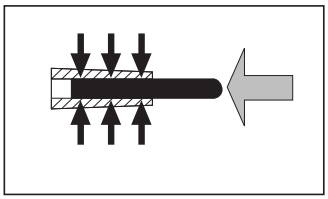
### 1 高い振れ精度 Less Run Out
振れ精度が高く、使用中もその精度が長く維持されます。また軽量で回転バランスの良いホルダは高速回転での加工に適しています。

The HY-PRO Shrink reduces run out and provides consistent precision. The holder, which is light weight and has good balance, is also suitable for high speed operations.

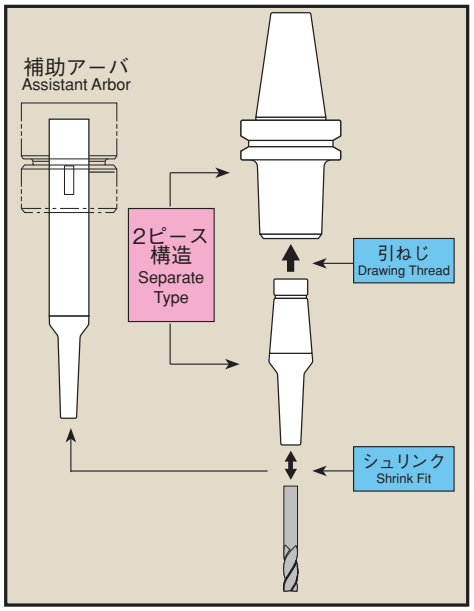



### 2 高い把握力 Holding Ability
コレット式チャック等に比べ高い把握力があり、高負荷の加工においても工具のスリップの心配はありません。

Compared to other chucks such as the collet type, this holder has stronger holding ability, and can successfully hold tools during high load operations.



# HY-PRO Shrink Fit System ハイプロシュリンクシステム




## ホルダ Holder

holder

ベーシック型 Basic
ノズル取付け型 Nozzle

BT30
BT40
BT50
HSK-A63
HSK-A100

## シュリンクコレット Shrink Collet

collet

レギュラ型 Regular
スリム型 Slim
フラッシュ型 Flush

φ3～12

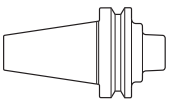
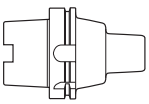
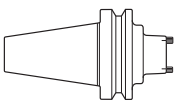
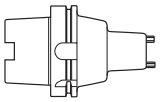
## 切削工具 Cutting Tool

cutting tool

超硬エンドミル Carbide End Mills
超硬ドリル Carbide Drills
その他超硬製工具 Other Carbide Tools

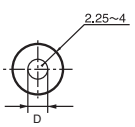
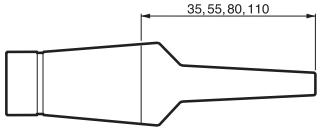
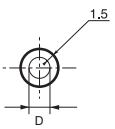
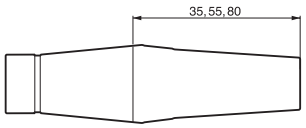
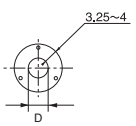
### ■ホルダ Holder

holder

| タイプ Type | 仕様 Specification | BTシャンク BT Shank | HSKシャンク HSK Shank |
|---|---|---|---|
| **B型（ベーシック型）** B Type（Basic Type） | シュリンクコレット用ホルダ（ノズルなし） Holder for Shrink Collet（without nozzle） | BT-30・40・50  | A63・A100  |
| **F型（ノズル型）** F Type（Nozzle Type） | シュリンクコレット用ホルダ（ノズルはオプション） Holder for Shrink Collet（Coolant supply nozzle is optional） | BT-40・50  | A63・A100  |

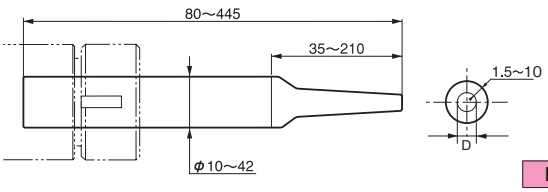
### ■シュリンクコレット Shrink Collet

collet

| タイプ Type | 用途 Application | 形状・サイズ Dimension, Size |
|---|---|---|
| **レギュラ型** Regular Type | 一般的な加工用 For General Operations |     D 3 4 6 8 10 12 |
| **スリム型** Slim Type | ワークとの干渉を避ける為、ホルダをスリムにしたい場合 Use this type when a slim holder is needed to avoid interference between the tool and the work piece. |     D 3 3.175 4 5 6 7 8 9 10 11 12 |
| **フラッシュ型** Flush Type | コレット端面から切削油を供給したい場合 Use this type when coolant is supplied from the end face of the collet. |     D 3 4 6 8 10 12 |

# ハイプロシュリンクシステム　HY-PRO Shrink Fit System

## ■補助アーバ
**Assistant Arbor**




通常のミーリングチャックでチャッキング出来るように、ストレートのシャンクを持ったシュリンクホルダです。専用ホルダなしでシュリンクフィットの高性能が得られます。

Shrink holder with straight shank for ordinary milling chucks. Provides high performance of shrink fit without holder.

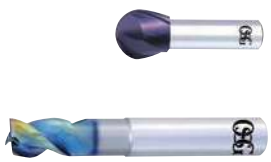
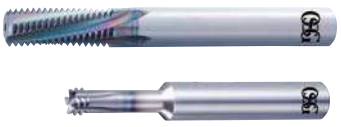
| D | 3 | 3.175 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

## ■切削工具
**Cutting Tools**




**【使用可能な工具】**　Available Tools
- ●シャンク部が超硬製の工具
- ●シャンク径がφ3～φ25の整数サイズで、シャンク径公差がφ3～φ5→h6、φ6～φ25→h7のもの
- ●Tools with a carbide shank.
- ●Tools with shank diameter that is a whole number between 3 and 25mm, and tolerances of h6 for shank diameter of 3 to 5mm, and h7 for 6 to 25mm.

## シュリンク対応が可能なOSG製品　OSG Products for Shrink Holder.

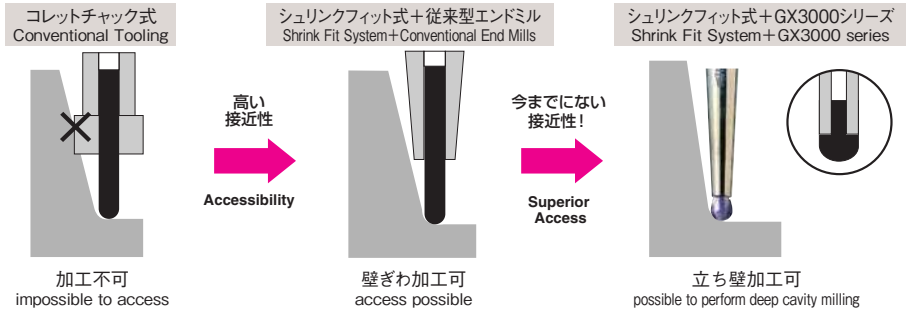
| 形状 Form | 分類 Tools | 主なOSG製品 Products |
|---|---|---|
|  | 超硬エンドミル<br>Carbide End Mills | GX3000シュリンク専用超硬エンドミルシリーズ<br>Aエンドミルシリーズ<br>WX21超硬エンドミルシリーズ<br>超硬FXコーティングシリーズ<br>超硬MG、RGエンドミルシリーズ<br>GX3000 series Carbide End Mills for the Shrink Fit System<br>A End Mill Series<br>ULTRA WX(TIAIN) Coated Micro Grain Carbide Series<br>ULTRA FX Carbide End Mills<br>MG, RG Carbide End Mills |
|  | 超硬ドリル<br>Carbide Drills | 高硬度鋼用　WH70-DRL,WH55-5D,FH-GDS,FH-GDN<br>Aドリルシリーズ<br>超硬ドリル　AD<br>超硬油穴付きドリル　ADO<br>For High Hardend Steels WH70-DRL,WH55-5D,FH-GDS,FH-GDN<br>A Drill Series<br>Carbide Drill AD<br>Carbide Drill with Internal Coolant Supply ADO |
|  | 超硬インデキサブルカッタ<br>Carbide Indexable Type Cutters | 超硬シャンク付き仕上げ用ボールエンドミル PFB<br>Ball-nose Cutter with Carbide Shank for Finishing:  PFB |
|  | ねじ切りフライスカッタ<br>Thread Milling Cutter | ワンレボリューションスレッドミル　AT-1<br>高硬度鋼用底刃付きスレッドミル　AT-2<br>非鉄用底刃付きスレッドミル　AT-2 R-SPEC<br>One Pass Thread Mill AT-1<br>Thread Mill With End-Cutting Edge For High Hardness Steels AT-2<br>High-efficiency Thread Mill with End-cutting Edge for Non-ferrous Materials AT-2 R-SPEC |
|  | 超硬リーマ<br>Carbide Reamer | 超硬ストレートリーマ　CRM<br>Carbide Straight Reamer CRM |

# Features of the HY-PRO Shrink Fit System　ハイプロシュリンクシステムの特長

## 1 高い接近性 Accessibility

ホルダとシュリンクコレットからなる2ピース構造の為、ハイプロシュリンクはワークへの接近性に優れ、従来のコレット式ホルダでは干渉により加工が出来なかった壁際の加工が可能になります。

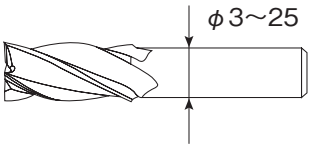
Because this device consists of two pieces, a holder and shrink collet, HY-PRO Shrink has superior access to work pieces and is capable of side wall operations, which cannot be performed by ordinary collet holders.




## 2 小径シャンクや h7 シャンクに対応 For Small Shank Diameter and h7 Shank

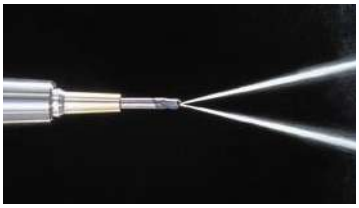
ハイプロシュリンクはφ3のシャンク径から使用できます。またφ6～25のシャンクではh7公差のものが使用でき、幅広い範囲の中から工具選定が行えます。

The HY-PRO Shrink can be used for drills with a minimum shank diameter of 3mm. If the shank diameter is between 6 and 25mm, the Shrink can use h7 tolerance. A wide variety of tools are applicable.




## 3 多様な給油方法 Various Coolant supply Devices

### 刃物スルー Through the Tool






油穴付き工具を使用して刃先から切削油剤を供給する場合に使用します。切削箇所に確実に切削油剤が届くため穴加工等では特に有効です。

Suitable when using a tool with internal coolant supply or a supply from the point of the cutting edge. This is especially effective for drilling because the coolant is guaranteed to reach the cutting area.

### ノズルスルー Through the Holder






ホルダ端面から切削油を供給します。油穴付きでない工具をレギュラ形またはスリム形のコレットに装着して使用する場合に用います。

Supplies coolant from the end face of the holder. This is used when attaching tools without internal coolant supply to a regular or slim type collet.

### フラッシュスルー Through the Collet






シュリンクコレット端面より切削油剤を供給します。コレットの端面径はレギュラ形、スリム形に比べ大きくなりますが、工具の近くからの給油が可能になります。

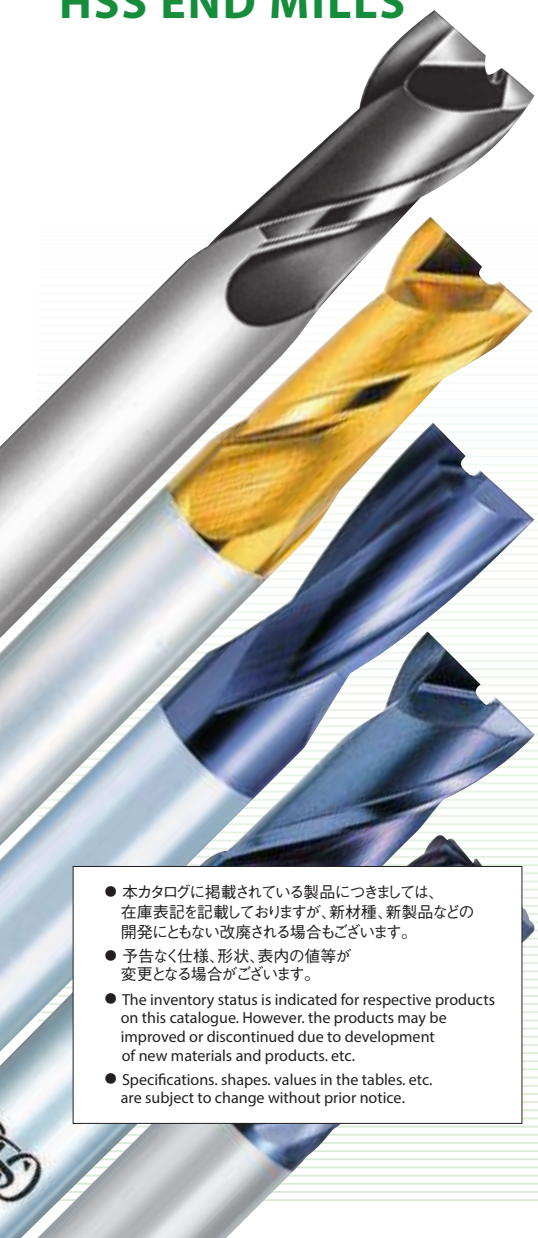
Supplies coolant from the end face of the shrink collet. Although the diameter of the collet end face increases, coolant supply becomes even more effective.

**全サイズ クーラントスルー対応　耐圧 7MPa** All sizes can be used with through coolants. Maximum Coolant Pressure:7MPa



# ハイス エンドミル

## HSS END MILLS



- 本カタログに掲載されている製品につきましては、在庫表記を記載しておりますが、新材種、新製品などの開発にともない改廃される場合もございます。
- 予告なく仕様、形状、表内の値等が変更となる場合がございます。
- The inventory status is indicated for respective products on this catalogue. However. the products may be improved or discontinued due to development of new materials and products. etc.
- Specifications. shapes. values in the tables. etc. are subject to change without prior notice.

## 在庫記号について Inventory symbols

●＝標準在庫品 Standard stock item
○＝準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲＝新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□＝特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△＝生産中止品（在庫をご確認下さい。） Discontinued item


| | |
|---|---|
| ハイスエンドミル目次 INDEX OF HIGH SPEED STEEL END MILLS | P.715～ |
| 形状寸法表 SPECIFICATION CHART | P.753～ |
| 選定表 SELECTION CHART | P.751～ |
| 切削条件基準表目次 INDEX OF CUTTING CONDITIONS | P.903～ |
| 切削条件基準表 CUTTING CONDITIONS | P.905～ |
| ハイススクエア HSS SQUARE | P.753～ |
| ハイスロングネックスクエア※ HSS SQUARE WITH LONG NECK | P.823-27～ |
| ハイスボール HSS BALL NOSE | P.824～ |
| ハイスペンシルネックボール※ HSS PENCIL NECK BALL NOSE | P.835-13～ |
| ハイスコーナR HSS CORNER RADIUS | P.836～ |
| ハイスラフィング HSS ROUGHING | P.838～ |
| ハイステーパ HSS TAPER | P.871～ |
| ハイステーパボール HSS TAPER BALL NOSE | P.888～ |
| ハイステーパコーナR※ HSS TAPER CORNER RADIUS | P.893-10～ |
| ハイス逆テーパ※ HSS INVERTED TAPER | P.893-18～ |
| ハイスT溝カッタ HSS T-SLOT | P.894～ |
| ハイス座ぐり HSS COUNTERBORING | P.896～ |
| ハイス面取り HSS CHAMFERING | P.899～ |


※＝ハイスロングネックスクエア・ハイスペンシルネックボール・ハイステーパコーナR・ハイス逆テーパはWEBカタログのみ掲載

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 753 |   | V-XPM-EDS | Vコート2枚刃XPMスクエアエンドミルショート形<br>V Coated 2-flute XPM End Mill Short Length | V | 0.8〜40 |
| 756 |  | V-XPM-EKD | キー溝用Vコート2枚刃XPMスクエアエンドミル<br>V Coated 2-flute XPM End Mill for Keyway Slotting | V | 3〜12 |
| 823-4 WEB |  | TIN-XPM-EDS | TiNコート2枚刃XPMスクエアエンドミルショート形<br>TiN Coated 2-flute XPM End Mill Short Length | TiN | 1.5〜24 |
| 757 |  | XPM-EDS | 2枚刃XPMスクエアエンドミルショート形<br>2-flute XPM End Mill Short Length | | 0.8〜50 |
| 761 |  | EX-TIN-EDS | TiNコート2枚刃ハイススクエアエンドミルショート形<br>TiN Coated 2-flute End Mill Short Length | TiN | 0.5〜80 |
| 765 |  | EX-TIN-EKD | キー溝用TiNコート2枚刃ハイススクエアエンドミル<br>TiN Coated 2-flute End Mill for Keyway | TiN | 3〜25 |
| 765 |  | EDS-3 | 2枚刃ハイススクエアエンドミル(ミニチュア)<br>2-flute Miniature End Mill (φ3 Shank) | | 0.4〜3 |
| 766 |  | EDS | 2枚刃ハイススクエアエンドミルショート形<br>2-flute End Mill Short Length | | 0.8〜80 |
| 773 |  | EKD | キー溝用2枚刃ハイススクエアエンドミル<br>2-flute End Mill for Keyway | | 3〜25 |
| 823-1 WEB |  | XLS-EDS | 2枚刃ハイススクエアエンドミルエキストラロングシャンクショート形<br>2-flute End Mill Short Length with Extra Long Shank | | 6〜50 |
| 774 |  | CPM-EDS | 2枚刃CPMスクエアエンドミルショート形<br>2-flute CPM End Mill Short Length | | 0.8〜60 |
| 823-2 WEB |  | CPM-XLS-EDS | 2枚刃CPMスクエアエンドミルエキストラロングシャンクショート形<br>2-flute CPM End Mill Short Length with Extra Long Shank | | 6〜30 |
| 776 |  | AL-EDS | アルミ合金用2枚刃ハイススクエアエンドミルショート形<br>2-flute End Mill Short Length for Aluminum Alloys | | 1〜50 |
| 777 |  | SUS-EDS | ステンレス用ホモ処理2枚刃ハイススクエアエンドミルショート形<br>2-flute End Mill Short Length for Stainless Steels (with Steam Oxide) | H | 1〜35 |
| 778 |  | V-XPM-EDN | Vコート2枚刃XPMスクエアエンドミルミディアム形<br>V Coated 2-flute XPM End Mill Medium Length | V | 1〜20 |
| 778 |  | V-SS-XPM-EDN | Vコート2枚刃XPMスクエアエンドミルスリムシャンクミディアム形<br>V Coated 2-flute XPM End Mill Medium Length with Slim Shank | V | 6〜25 |
| 779 |  | TIN-XPM-EDN | TiNコート2枚刃XPMスクエアエンドミルミディアム形<br>TiN Coated 2-flute XPM End Mill Medium Length | TiN | 1.5〜19 |
| 779 |  | XPM-EDN | 2枚刃XPMスクエアエンドミルミディアム形<br>2-flute XPM End Mill Medium Length | | 1〜20 |
| 781 |  | DE-XPM-EDN | 深彫り用2枚刃XPMスクエアエンドミルミディアム形<br>2-flute XPM End Mill Medium Length for Deep Contouring | | 8〜50 |
| 782 |  | EX-TIN-EDN | TiNコート2枚刃ハイススクエアエンドミルミディアム形<br>TiN Coated 2-flute End Mill Medium Length | TiN | 1〜20 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

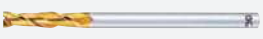
| 被削材質 Work Material | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
| ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | | ○ | |
| ◎ | ○ | ◎ | ◎ | ○ | ○ | | | | ○ | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | |
| ○ | ○ | ○ | ○ | ○ | ○ | | | | ○ | |
| ○ | ○ | ○ | ○ | ○ | ○ | | | | ○ | |
| ○ | ○ | ○ | ○ | ○ | ○ | | | | ○ | |
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| ○ | | ○ | ○ | ○ | ○ | | | | ○ | |
| ○ | | ○ | ○ | ○ | ○ | | | | ○ | |
| | | | | ○ | ◎ | | | | ○ | |
| ○ | | ◎ | | | | | | | ○ | |
| ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | | ○ | |
| ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | | ○ | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | |

◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 782 |  | EDN | 2枚刃ハイススクエアエンドミルミディアム形<br>2-flute End Mill Medium Length | | 1〜20 |
| 784 |  | LS-EDN | 2枚刃ハイススクエアエンドミルロングシャンクミディアム形<br>2-flute End Mill Medium Length with Long Shank | | 10〜40 |
| 823-5 WEB |  | CPM-EDN | 2枚刃CPMスクエアエンドミルミディアム形<br>2-flute CPM End Mill Medium Length | | 1〜20 |
| 784 |  | CPM-STDN | 成形用2枚刃CPMエンドミル直刃ミディアム形<br>2-flute CPM Straight Fluted End Mill Medium Length for Reforming | | 1.5〜20 |
| 823-5 WEB |  | CPM-STD | 成形用2枚刃CPMエンドミル直刃ショート形<br>2-flute CPM Straight Fluted End Mill Short Length for Reforming | | 3〜30 |
| 785 |  | V-XPM-EDL | Vコート2枚刃XPMスクエアエンドミルロング形<br>V Coated 2-flute XPM End Mill Long Length | V | 3〜30 |
| 823-9 WEB |  | TIN-XPM-EDL | TiNコート2枚刃XPMスクエアエンドミルロング形<br>TiN Coated 2-flute XPM End Mill Long Length | TiN | 6〜22 |
| 786 |  | XPM-EDL | 2枚刃XPMスクエアエンドミルロング形<br>2-flute XPM End Mill Long Length | | 3〜50 |
| 787 |  | EX-TIN-EDL | TiNコート2枚刃ハイススクエアエンドミルロング形<br>TiN Coated 2-flute End Mill Long Length | TiN | 1〜50 |
| 823-6 WEB |  | EX-TIN-LS-EDL | TiNコート2枚刃ハイススクエアエンドミルロングシャンクロング形<br>TiN Coated 2-flute End Mill Long Length with Long Shank | TiN | 10〜40 |
| 823-6 WEB |  | EX-TIN-EXDL | TiNコート2枚刃ハイススクエアエンドミルエキストラロング形<br>TiN Coated 2-flute End Mill Extra Long Length | TiN | 1〜50 |
| 789 |  | EDL | 2枚刃ハイススクエアエンドミルロング形<br>2-flute End Mill Long Length | | 0.8〜50 |
| 792 |  | EXDL | 2枚刃ハイススクエアエンドミルエキストラロング形<br>2-flute End Mill Extra Long Length | | 1〜60 |
| 823-7 WEB |  | LS-EDL | 2枚刃ハイススクエアエンドミルロングシャンクロング形<br>2-flute End Mill Long Length with Long Shank | | 10〜40 |
| 823-8 WEB |  | CPM-EDL | 2枚刃CPMスクエアエンドミルロング形<br>2-flute CPM End Mill Long Length | | 1〜29 |
| 823-7 WEB |  | AL-EDL | アルミ合金用2枚刃ハイススクエアエンドミルロング形<br>2-flute End Mill Long Length for Aluminum Alloys | | 1〜20 |
| 823-10 WEB |  | EX-TIN-ETS | TiNコート3枚刃ハイススクエアエンドミルショート形<br>TiN Coated 3-flute End Mill Short Length | TiN | 1〜30 |
| 823-10 WEB |  | EX-TIN-ETXL | TiNコート3枚刃ハイススクエアエンドミルエキストラロング形<br>TiN Coated 3-flute End Mill Extra Long Length | TiN | 3〜60 |
| 794 |  | ETS | 3枚刃ハイススクエアエンドミルショート形<br>3-flute End Mill Short Length | | 1〜40 |
| 823-11 WEB |  | ETXL | 3枚刃ハイススクエアエンドミルエキストラロング形<br>3-flute End Mill Extra Long Length | | 3〜60 |
| 795 |  | V-XPM-EMS | Vコート4枚刃XPMスクエアエンドミルショート形<br>V Coated 4-flute XPM End Mill Short Length | V | 2.5〜40 |
| 796 |  | V-SS-XPM-EMS | Vコート4枚刃XPMスクエアエンドミルスリムシャンクショート形<br>V Coated 4-flute XPM End Mill Short Length with Slim Shank | V | 6〜25 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

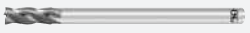
| 被削材質 Work Material | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
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| ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | ○ | | ○ |

◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 796 |  | **VPS-EMS** | Vコート多刃XPMエンドミルショート形高剛性タイプ<br>V Coated Multi-flute XPM End Mill Short Length (Highly Rigid Type) | **V** | 10〜30 |
| 823-14 WEB |  | **TIN-XPM-EMS** | TiNコート4枚刃XPMスクエアエンドミルショート形<br>TiN Coated 4-flute XPM End Mill Short Length | **TiN** | 3〜30 |
| 797 |  | **XPM-EMS** | 4枚刃XPMスクエアエンドミルショート形<br>4-flute XPM End Mill Short Length | | 2〜50 |
| 801 |  | **DE-XPM-EMS** | 深彫り用4枚刃XPMスクエアエンドミルショート形<br>4-flute XPM End Mill Short Length for Deep Contouring | | 8〜50 |
| 802 |  | **EX-TIN-EMS** | TiNコート多刃ハイススクエアエンドミルショート形<br>TiN Coated Multi-flute End Mill Short Length | **TiN** | 2〜80 |
| 823-11 WEB |  | **LS-EMSS** | 4枚刃ハイススクエアエンドミルロングシャンクスタブ形<br>4-flute End Mill Stub Length with Long Shank | | 6〜30 |
| 805 |  | **CC-EMS** | 4枚刃ハイススクエアエンドミルセンタカットショート形<br>4-flute End Mill Center Cut Short Length | | 2〜40 |
| 809 |  | **CE-EMS** | 多刃ハイススクエアエンドミルセンタ付きショート形<br>Multi-flute End Mill Short Length with Center Hole | | 8〜80 |
| 810 |  | **LS-EMS** | 4枚刃ハイススクエアエンドミルロングシャンクショート形<br>4-flute End Mill Short Length with Long Shank | | 10〜50 |
| 823-12 WEB |  | **XLS-EMS** | 多刃ハイススクエアエンドミルエキストラロングシャンクショート形<br>Multi-flute End Mill Short Length with Extra Long Shank | | 6〜50 |
| 811 |  | **CPM-EMS** | 多刃CPMスクエアエンドミルショート形<br>Multiple-flute CPM End Mill Short Length | | 2.5〜60 |
| 823-13 WEB |  | **CPM-XLS-EMS** | 多刃CPMスクエアエンドミルエキストラロングシャンクショート形<br>Multi-flute CPM End Mill Short Length with Extra Long Shank | | 32〜60 |
| 823-16 WEB |  | **XPM-EMN** | 4枚刃XPMスクエアエンドミルミディアム形<br>4-flute XPM End Mill Medium Length | | 16〜25 |
| 823-17 WEB |  | **CC-EMN** | 4枚刃ハイススクエアエンドミルセンタカットミディアム形<br>4-flute End Mill Center Cut Medium Length | | 3〜40 |
| 812 |  | **V-XPM-EML** | Vコート4枚刃XPMスクエアエンドミルロング形<br>V Coated 4-flute XPM End Mill Long Length | **V** | 3〜30 |
| 823-15 WEB |  | **TIN-XPM-EML** | TiNコート4枚刃XPMスクエアエンドミルロング形<br>TiN Coated 4-flute XPM End Mill Long Length | **TiN** | 4〜27 |
| 813 |  | **XPM-EML** | 多刃XPMスクエアエンドミルロング形<br>Multi-flute XPM End Mill Long Length | | 3〜50 |
| 814 |  | **EX-TIN-EML** | TiNコート多刃ハイススクエアエンドミルロング形<br>TiN Coated Multi-flute End Mill Long Length | **TiN** | 3〜50 |
| 815 |  | **CC-EML** | 4枚刃ハイススクエアエンドミルセンタカットロング形<br>4-flute End Mill Center Cut Long Length | | 2〜40 |
| 823-18 WEB |  | **CE-EML** | 多刃ハイススクエアエンドミルセンタ付きロング形<br>Multi-flute End Mill Long Length with Center Hole | | 25〜50 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

| | 被削材質 Work Material | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel / 合金鋼 Alloy Steel / プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | | プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
| | ◎ | ○ | | ◎ | ◎ | | | ◎ | ○ | | ○ |
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◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **スクエア** Square | | | | | |
| 818 |   | **LS-EML** | 4枚刃ハイススクエアエンドミルロングシャンクロング形<br>4-flute End Mill Long Length with Long Shank | | 10〜40 |
| 818 |  | **CPM-EML** | 4枚刃CPMスクエアエンドミルロング形<br>4-flute CPM End Mill Long Length | | 2〜40 |
| 823-19 WEB |  | **EX-TIN-EXML** | TiNコート多刃ハイススクエアエンドミルエキストラロング形<br>TiN Coated Multi-flute End Mill Extra Long Length | TiN | 3〜50 |
| 819 |  | **EXML** | 多刃ハイススクエアエンドミルエキストラロング形<br>Multi-flute End Mill Extra Long Length | | 3〜60 |
| 823-21 WEB |  | **AL-EOS** | アルミ合金用1枚刃ハイススクエアエンドミルショート形<br>Single-flute End Mill Short Length for Aluminum Alloys | | 3〜12 |
| 823-21 WEB |  | **AL-EOL** | アルミ合金用1枚刃ハイススクエアエンドミルロング形<br>Single-flute End Mill Long Length for Aluminum Alloys | | 4〜12 |
| 821 |  | **V-XPM-EHS** | VコートXPMスクエアエンドミルハイヘリックスショート形<br>V Coated High Helix XPM End Mill Short Length | V | 3〜30 |
| 821 |  | **V-XPM-EHL** | VコートXPMスクエアエンドミルハイヘリックスロング形<br>V Coated High Helix XPM End Mill Long Length | V | 6〜30 |
| 822 |  | **TIN-XPM-EHS** | TiNコートXPMスクエアエンドミルハイヘリックスショート形<br>TiN Coated High Helix XPM End Mill Short Length | TiN | 6〜30 |
| 822 |  | **TIN-XPM-EHL** | TiNコートXPMスクエアエンドミルハイヘリックスロング形<br>TiN Coated High Helix XPM End Mill Long Length | TiN | 6〜30 |
| 823 |  | **XPM-EHS** | XPMスクエアエンドミルハイヘリックスショート形<br>High Helix XPM End Mill Short Length | | 6〜50 |
| 823 |  | **XPM-EHL** | XPMスクエアエンドミルハイヘリックスロング形<br>High Helix XPM End Mill Long Length | | 6〜30 |
| 823-22 WEB |  | **CPM-EHS** | CPMスクエアエンドミルハイヘリックスショート形<br>High Helix CPM End Mill Short Length | | 7〜60 |
| 823-24 WEB |  | **CPM-EHL** | CPMスクエアエンドミルハイヘリックスロング形<br>High Helix CPM End Mill Long Length | | 10〜40 |
| 823-23 WEB |  | **CN-EML** | 多刃ハイススクエアエンドミルコンビネーションシャンクロング形<br>Multi-flute End Mill Long Length with Combination Shank | | 45〜70 |
| 823-23 WEB |  | **CN-EHL** | 多刃ハイススクエアエンドミルコンビネーションシャンクハイヘリックスロング形<br>Multi-flute High Helix End Mill Long Length with Combination Shank | | 45〜70 |
| 823-25 WEB |  | **MT-EHL** | 4枚刃ハイススクエアエンドミルハイヘリックスモールステーパシャンクロング形<br>4-flute High Helix End Mill Long Length with Morse Taper Shank | | 20〜60 |
| 823-26 WEB |  | **EXML-NT40** | 多刃ハイススクエアエンドミルエキストラロング形(NT40)<br>Multi-flute End Mill Extra Long Length (NT40) | | 50〜80 |
| 823-26 WEB |  | **EXML-NT50** | 多刃ハイススクエアエンドミルエキストラロング形(NT50)<br>Multi-flute End Mill Extra Long Length (NT50) | | 50〜80 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

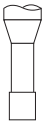
| 被削材質 Work Material | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
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※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **ロングネックスクエア** Long Neck Square End | | | | | |
| 823-27 WEB |   | **LN-EDN-OH** | 2枚刃ハイスロングネックスクエアエンドミルオーバサイズ<br>2-flute Long Neck End Mill Medium Length (Over Size) | | 1 ～ 20 |
| **ボール** Ball End | | | | | |
| 824 |   | **V-XPM-EBD** | Vコート2枚刃XPMボールエンドミル<br>V Coated 2-flute XPM Ball End Mill | **V** | R0.5 ～ R15 |
| 825 |  | **V-SS-XPM-EBD** | Vコート2枚刃XPMボールエンドミルスリムシャンク<br>V Coated 2-flute XPM Ball End Mill with Slim Shank | **V** | R3 ～ R12.5 |
| 835-2 WEB |  | **TIN-XPM-EBD** | TiNコート2枚刃XPMボールエンドミル<br>TiN Coated 2-flute XPM Ball End Mill | **TiN** | R2 ～ R3.5 |
| 826 |  | **T-LS-XPM-EBD** | TiNコート2枚刃XPMボールエンドミルロングシャンク<br>TiN Coated 2-flute XPM Ball End Mill with Long Shank | **TiN** | R0.5 ～ R6 |
| 827 |  | **XPM-EBD** | 2枚刃XPMボールエンドミル<br>2-flute XPM Ball End Mill | | R0.5 ～ R20 |
| 828 |  | **LS-XPM-EBD** | 2枚刃XPMボールエンドミルロングシャンク<br>2-flute XPM Ball End Mill with Long Shank | | R0.5 ～ R6 |
| 829 |  | **EX-TIN-EBD** | TiNコート2枚刃ハイスボールエンドミル<br>TiN Coated 2-flute Ball End Mill | **TiN** | R0.5 ～ R30 |
| 835-3 WEB |  | **EX-TIN-LS-EBD** | TiNコート2枚刃ハイスボールエンドミルロングシャンク<br>TiN Coated 2-flute Ball End Mill with Long Shank | **TiN** | R3 ～ R15 |
| 830 |  | **EBD** | 2枚刃ハイスボールエンドミル<br>2-flute Ball End Mill | | R0.4 ～ R30 |
| 835-4 WEB |  | **EBDL** | 2枚刃ハイスボールエンドミルロング形<br>2-flute Ball End Mill Long Length | | R0.5 ～ R15 |
| 835-5 WEB |  | **LS-EBD** | 2枚刃ハイスボールエンドミルロングシャンク<br>2-flute Ball End Mill with Long Shank | | R3 ～ R15.5 |
| 835-5 WEB |  | **XLS-EBD** | 2枚刃ハイスボールエンドミルエキストラロングシャンク<br>2-flute Ball End Mill with Extra Long Shank | | R10 ～ R15 |
| 835-1 WEB |  | **CPM-EBD** | 2枚刃CPMボールエンドミル<br>2-flute CPM Ball End Mill | | R1.25 ～ R22.5 |
| 835-6 WEB |  | **CPM-EBDS** | 2枚刃CPMボールエンドミルショート形<br>2-flute CPM Ball End Mill Short Length | | R1 ～ R5 |
| 835-6 WEB |  | **EX-TIN-LS-EBM** | TiNコート4枚刃ハイスボールエンドミルロングシャンク<br>TiN Coated 4-flute Ball End Mill with Long Shank | **TiN** | R16 ～ R25 |
| 835 |  | **EBM** | 多刃ハイスボールエンドミル<br>Multi-flute Ball End Mill | | R3 ～ R30 |
| 835-7 WEB |  | **LS-EBM** | 4枚刃ハイスボールエンドミルロングシャンク<br>4-flute Ball End Mill with Long Shank | | R3 ～ R25 |
| 835-11 WEB |  | **ED-EQ-80** | 電着ダイヤモンドボールエンドミル#80タイプ<br>Electroplated Diamond Ball End Mill #80 | **DIA** | R2 ～ R5 |
| 835-12 WEB |  | **ED-EQ-100** | 電着ダイヤモンドボールエンドミル#100タイプ<br>Electroplated Diamond Ball End Mill #100 | **DIA** | R0.5 ～ R5 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

| | 被削材質 Work Material | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel / 合金鋼 Alloy Steel / プリハードン鋼 Prehardened Steel | | | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| | プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel | | 焼き入れ鋼 Hardened Steel | | | | | | | | |
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
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◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS


| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **ボール Ball End** | | | | | |
| 835-7 WEB |  | XLS-EBM | 4枚刃ハイスボールエンドミルエキストラロングシャンク<br>4-flute Ball End Mill with Extra Long Shank | | R16 ～ R25 |
| 835-8 WEB | | REBM | 4枚刃ハイスボールエンドミル<br>4-flute Ball End Mill | | R30 ～ R60 |
| 835-8 WEB | | CPM-EBM | 多刃CPMボールエンドミル<br>Multi-flute CPM Ball End Mill | | R3 ～ R25 |
| 835-9 WEB | | ER | 4枚刃ハイスエンドミルラージR<br>4-flute End Mill with Large Radius | | R50 ～ R150 |
| **ペンシルネックボール Pencil Neck Ball End** | | | | | |
| 835-13 WEB |  | PCS-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル強力型<br>2-flute Pencil Neck CPM Ball End Mill Short Length | | R2 ～ R8 |
| 835-15 WEB | | SPC-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル<br>2-flute Pencil Neck CPM Ball End Mill | | R1.5 ～ R10 |
| 835-14 WEB | | PC-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル<br>2-flute Pencil Neck CPM Ball End Mill | | R1.5 ～ R10 |
| 835-16 WEB | | PC-CPM-EBL | CPMペンシルネックボールエンドミルロング形<br>Pencil Neck CPM Ball End Mill Long Length | | R3 ～ R20 |
| **コーナR Comer Radius** | | | | | |
| 836 |  | CR-XPM-EDS | 2枚刃XPMラジアスエンドミルショート形<br>2-flute XPM End Mill Short Length with Corner Radius | | 3 ～ 20 |
| 837-1 WEB | | EX-TIN-CR-EDS | TiNコート2枚刃ハイスラジアスエンドミルショート形<br>TiN Coated 2-flute End Mill Short Length with Corner Radius | TiN | 6 ～ 30 |
| 837-2 WEB | | CR-EDS | 2枚刃ハイスラジアスエンドミルショート形<br>2-flute End Mill Short Length with Corner Radius | | 3 ～ 40 |
| 837-3 WEB | | CR-EDL | 2枚刃ハイスラジアスエンドミルロング形<br>2-flute End Mill Long Length with Corner Radius | | 6 ～ 12 |
| 796 | | VPS-EMS | Vコート多刃XPMエンドミルショート形高剛性タイプ<br>V Coated Multi-flute XPM End Mill Short Length (Highly Rigid Type) | V | 10 ～ 30 |
| 837-4 WEB | | CR-EMS | 4枚刃ハイスラジアスエンドミルショート形<br>4-flute End Mill Short Length with Corner Radius | | 6 ～ 25 |
| 837-6 WEB | | CS-EDS | 2枚刃ハイスエンドミルコーナC面付きショート形<br>2-flute End Mill Short Length with Corner Chamfering | | 1 ～ 25 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

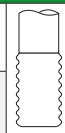
| | 被削材質 Work Material | | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | | |
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | | | |
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | | |
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◎=Best
○=Good

※1:Super=For efficient cutting of high hardened materials. Also for cutting conventional work materials at extremely high speeds.
コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

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|---|---|---|---|---|---|
| **荒・中仕上げ用 Roughing** | | | | | |
| 840 |   | VP-RESF | VコートXPMファインピッチラフィングエンドミルショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length | V | 5〜50 |
| 841 |  | VLS-XPM-RESF | VコートXPMファインピッチラフィングエンドミルロングシャンクショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank | V | 5〜50 |
| 842 |  | VSS-XPM-RESF | VコートXPMファインピッチラフィングエンドミルスリムシャンク<br>V Coated XPM Roughing End Mill Fine Pitch Short Length with Slim Shank | V | 10〜25 |
| 843 |  | VP-DE-RESF | 深彫り用VコートXPMファインピッチラフィングエンドミルショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length for Deep Contouring | V | 16〜40 |
| 844 |  | TLS-XPM-RESF | TiNコートXPMファインピッチラフィングエンドミルロングシャンク<br>TiN Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank | TiN | 7〜28 |
| 870-1 WEB |  | LS-XPM-RESF | XPMファインピッチラフィングエンドミルロングシャンク<br>XPM Roughing End Mill Fine Pitch Short Length with Long Shank | | 6〜50 |
| 838 |  | SI-WH-RESF | WXLコートCPMファインピッチラフィングエンドミルショート形<br>WXL Coated CPM Roughing End Mill Fine Pitch Short Length and Silent Type | WXL | 5〜30 |
| 839 |  | WH-RESF | WXLコートハイスファインピッチラフィングエンドミルショート形<br>WXL Coated Roughing End Mill Fine Pitch Short Length | WXL | 6〜40 |
| 845 |  | EX-TIN-RESF | TiNコートハイスファインピッチラフィングエンドミルショート形<br>TiN Coated Roughing End Mill Fine Pitch Short Length | TiN | 6〜80 |
| 846 |  | TIN-LS-RESF | TiNコートハイスファインピッチラフィングエンドミルロングシャンクショート形<br>TiN Coated Roughing End Mill Fine Pitch Short Length with Long Shank | TiN | 6〜50 |
| 839 |  | WH-REES | WXLコートハイスラフィングエンドミルショート形<br>WXL Coated Roughing End Mill Short Length | WXL | 6〜40 |
| 848 |  | EX-REES | ハイスラフィングエンドミルショート形<br>Roughing End Mill Short Length | | 3〜80 |
| 870-3 WEB |  | REES | ハイスラフィングエンドミルショート形<br>Roughing End Mill Short Length | | 4〜50 |
| 847 |  | EX-LS-RESF | ハイスファインピッチラフィングエンドミルロングシャンクショート形<br>Roughing End Mill Fine Pitch Short Length with Long Shank | | 6〜50 |
| 849 |  | EX-LS-REES | ハイスラフィングエンドミルロングシャンクショート形<br>Roughing End Mill Short Length with Long Shank | | 6〜50 |
| 870-3 WEB |  | LS-REES | ハイスラフィングエンドミルロングシャンクショート形<br>Roughing End Mill Short Length with Long Shank | | 5〜50 |
| 870-2 WEB |  | CPM-LS-RESF | CPMファインピッチラフィングエンドミルロングシャンクショート形<br>CPM Roughing End Mill Fine Pitch Short Length with Long Shank | | 6〜50 |
| 850 |  | VP-RENF | VコートXPMファインピッチラフィングエンドミルミディアム形<br>V Coated XPM Roughing End Mill Fine Pitch Medium Length | V | 6〜50 |
| 850 |  | WH-RENF | WXLコートハイスファインピッチラフィングエンドミルミディアム形<br>WXL Coated Roughing End Mill Fine Pitch Medium Length | WXL | 6〜40 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

| 被削材質 Work Material | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
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◎=Best
○=Good

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# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **荒・中仕上げ用 Roughing** | | | | | |
| 851 |   | EX-TIN-RENF | TiNコートハイスファインピッチラフィングエンドミルミディアム形<br>TiN Coated Roughing End Mill Fine Pitch Medium Length | TiN | 6〜50 |
| 870-4 WEB |  | EX-TIN-REE | TiNコートハイスラフィングエンドミル<br>TiN Coated Roughing End Mill | TiN | 10〜60 |
| 852 |  | WH-REEN | WXLコートハイスラフィングエンドミルミディアム形<br>WXL Coated Roughing End Mill Medium Length | WXL | 6〜40 |
| 853 |  | EX-REEN | ハイスラフィングエンドミルミディアム形<br>Roughing End Mill Medium Length | | 6〜50 |
| 870-5 WEB |  | REEM | ハイスラフィングエンドミルミディアム形<br>Roughing End Mill Medium Length | | 12〜50 |
| 870-5 WEB |  | EX-REE | ハイスラフィングエンドミル<br>Roughing End Mill | | 10〜60 |
| 870-6 WEB |  | EX-REE-3F | 3枚刃ハイスラフィングエンドミル<br>3-flute Roughing End Mill | | 6〜50 |
| 870-6 WEB |  | REE | ハイスラフィングエンドミル<br>Roughing End Mill | | 10〜80 |
| 870-7 WEB |  | EX-XLS-REE | ハイスラフィングエンドミルエキストラロングシャンク<br>Roughing End Mill with Extra Long Shank | | 6〜60 |
| 870-7 WEB |  | CPM-REE | CPMラフィングエンドミルレギュラ形<br>CPM Roughing End Mill Regular Length | | 12〜60 |
| 855 |  | VP-RELF | VコートXPMファインピッチラフィングエンドミルロング形<br>V Coated XPM Roughing End Mill Fine Pitch Long Length | V | 10〜50 |
| 854 |  | WH-RELF | WXLコートハイスファインピッチラフィングエンドミルロング形<br>WXL Coated Roughing End Mill Fine Pitch Long Length | WXL | 10〜40 |
| 856 |  | EX-TIN-RELF | TiNコートファインピッチハイスラフィングエンドミルロング形<br>TiN Coated Roughing End Mill Fine Pitch Long Length | TiN | 6〜80 |
| 870-8 WEB |  | EX-TIN-REXL | TiNコートハイスラフィングエンドミルエキストラロング形<br>TiN Coated Roughing End Mill Extra Long Length | TiN | 8〜60 |
| 854 |  | WH-REEL | WXLコートハイスラフィングエンドミルロング形<br>WXL Coated Roughing End Mill Long Length | WXL | 10〜40 |
| 857 |  | EX-REEL | ハイスラフィングエンドミルロング形<br>Roughing End Mill Long Length | | 3〜80 |
| 870-9 WEB |  | REEL | ハイスラフィングエンドミルロング形<br>Roughing End Mill Long Length | | 4〜60 |
| 858 |  | EX-REXL | ハイスラフィングエンドミルエキストラロング形<br>Roughing End Mill Extra Long Length | | 6〜60 |
| 870-10 WEB |  | CN-REE | 8枚刃ハイスラフィングエンドミルコンビネーションシャンクロング形<br>8-flute Roughing End Mill Long Length with Combination Shank | | 50〜60 |
| 870-11 WEB |  | EX-CN-REE | 6枚刃ハイスラフィングエンドミルコンビネーションシャンクロング形<br>6-flute Roughing End Mill Long Length with Combination Shank | | 45〜70 |
| 870-10 WEB |  | BS-REE | ハイスラフィングエンドミルBSシャンクロング形<br>Roughing End Mill Long Length with BS Shank | | 15〜50 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

| 被削材質 Work Material | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
| ○ | | ○ | ○ | ○ | ○ | | | | ○ | |
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◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **荒・中仕上げ用 Roughing** | | | | | |
| 870-11 WEB |  | **MT-REE** | ハイスラフィングエンドミルモールステーパシャンクロング形<br>Roughing End Mill Long Length with Morse Taper Shank | | 15〜60 |
| 870-12 WEB | | **MT-REEL** | ハイスラフィングエンドミルモールステーパシャンクロング形<br>Roughing End Mill Long Length with Morse Taper Shank | | 45〜60 |
| 870-12 WEB | | **REXL-NT50** | ハイスラフィングエンドミルエキストラロング形 (NT50)<br>Extra Long Roughing End Mill (NT50) | | 50〜80 |
| 859 | | **V-XPM-NHS** | VコートXPMエンドミルハイヘリックスニック付ショート形<br>V Coated High Helix XPM Nicked End Mill Short Length | V | 6〜30 |
| 859 | | **TFGS** | TiNコートハイスタフニックゴールドエンドミルショート形<br>TiN Coated TUF-NICK End Mill Short Length | TiN | 5〜50 |
| 860 | | **TFS** | ハイスタフニックエンドミルショート形<br>TUF-NICK End Mill Short Length | | 5〜60 |
| 870-13 WEB | | **LS-TFS** | ハイスタフニックエンドミルロングシャンクショート形<br>TUF-NICK End Mill Short Length with Long Shank | | 5〜27 |
| 862 | | **RFES** | ハイスラフアンドフィニッシュショート形<br>Roughing and Finishing End Mill Short Length | | 6〜40 |
| 863 | | **LS-RFES** | ハイスラフアンドフィニッシュロングシャンクショート形<br>Roughing and Finishing End Mill Short Length with Long Shank | | 8〜50 |
| 863 | | **BKMS** | 多刃ハイスベストカットショート形<br>Multi-flute Best-Kut End Mill Short Length | | 11〜50 |
| 864 | | **LS-BKMS** | 多刃ハイスベストカットロングシャンクショート形<br>Multi-flute Best-Kut End Mill Short Length with Long Shank | | 12〜50 |
| 870-15 WEB | | **CPM-BKMS** | 多刃CPMベストカットショート形<br>Multi-flute CPM Best-Kut End Mill Short Length | | 11〜60 |
| 865 | | **TFGN** | TiNコートハイスタフニックゴールドエンドミルミディアム形<br>TiN Coated TUF-NICK End Mill Medium Length | TiN | 5〜50 |
| 870-18 WEB | | **TIN-KFR** | TiNコートハイスクラフトミルレギュラ形<br>TiN Coated Kraft Mill End Mill Regular Length | TiN | 6〜32 |
| 866 | | **TFN** | ハイスタフニックエンドミルミディアム形<br>TUF-NICK End Mill Medium Length | | 5〜50 |
| 867 | | **KFR** | ホモ処理ハイスクラフトミルレギュラ形<br>Kraft Mill End Mill Regular Length (with Steam Oxide) | H | 6〜35 |
| 868 | | **RFE** | ハイスラフアンドフィニッシュレギュラ形<br>Roughing and Finishing End Mill Regular Length | | 10〜60 |
| 870-17 WEB | | **CPM-RFE** | CPMラフアンドフィニッシュレギュラ形<br>CPM Roughing and Finishing End Mill Regular Length | | 12〜60 |
| 870-14 WEB | | **TFL** | ハイスタフニックエンドミルロング形<br>TUF-NICK End Mill Long Length | | 5〜50 |
| 869 | | **RFEL** | ハイスラフアンドフィニッシュロング形<br>Roughing and Finishing End Mill Long Length | | 15〜60 |
| 870-19 WEB | | **NI-EXML** | 多刃ハイスエンドミルニック付エキストラロング形<br>Multi-flute Nicked End Mill Extra Long Length | | 40〜60 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

| 被削材質 Work Material | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
| ○ | | ○ | ○ | ○ | ○ | | | | ○ | |
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○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **荒・中仕上げ用 Roughing** | | | | | |
| 870-16 WEB |   | **BKML** | 多刃ハイスベストカットロング形<br>Multi-flute Best-Kut End Mill Long Length | | 12〜35 |
| 870-19 WEB |  | **BS-RFE** | ハイスラフアンドフィニッシュBSシャンクロング形<br>Roughing and Finishing End Mill Long Length with BS Shank | | 20〜50 |
| 870-20 WEB |  | **MT-RFE** | ハイスラフアンドフィニッシュモールステーパシャンクロング形<br>Roughing and Finishing End Mill Long Length with Morse Taper Shank | | 20〜60 |
| 870-20 WEB |  | **EX-TIN-LS-REBS** | TiNコートハイスラフィングボールエンドミルロングシャンク<br>TiN Coated Roughing Ball End Mill with Long Shank | **TiN** | R4〜R25 |
| 870 |  | **EX-LS-REBS** | ハイスラフィングボールエンドミルロングシャンクショート形<br>Roughing Ball End Mill Short Length with Long Shank | | R4〜R25 |
| 870-21 WEB |  | **LS-REBS** | ハイスラフィングボールエンドミルロングシャンク<br>Roughing Ball End Mill with Long Shank | | R4〜R25 |
| 870-21 WEB |  | **REB** | ハイスラフィングボールエンドミル<br>Roughing Ball End Mill | | R5〜R25 |
| 870-22 WEB |  | **XLS-REB** | ハイスラフィングボールエンドミルエキストラロングシャンク<br>Roughing Ball End Mill with Extra Long Shank | | R5〜R25 |
| 870-22 WEB |  | **RFB** | ハイスラフアンドフィニッシュボールエンドミル<br>Roughing and Finishing Ball End Mill | | R5〜R25 |
| **テーパ Taper** | | | | | |
| 871 |   | **XPM-TPDSS** | 2枚刃XPMテーパエンドミルスタブ形<br>2-flute XPM Taper End Mill Stub Length | | 1〜4 |
| 871 |  | **TPDSS** | 2枚刃ハイステーパエンドミルスタブ形<br>2-flute Taper End Mill Stub Length | | 1〜4 |
| 872 |  | **XPM-TPDS** | 2枚刃XPMテーパエンドミルショート形<br>2-flute XPM Taper End Mill Short Length | | 2〜10 |
| 873 |  | **XPM-TRC** | 台形ランナ用2枚刃XPMテーパエンドミル<br>2-flute XPM Taper End Mill for Trapezoidal Runner | | 2〜6 |
| 887-1 WEB |  | **EX-TIN-TPDS** | TiNコート2枚刃ハイステーパエンドミルショート形<br>TiN Coated 2-flute Taper End Mill Short Length | **TiN** | 2〜10 |
| 874 |  | **TPDS** | 2枚刃ハイステーパエンドミルショート形<br>2-flute Taper End Mill Short Length | | 0.8〜20 |
| 887-2 WEB |  | **CPM-TPED** | 台形ランナ用2枚刃CPMテーパエンドミル<br>2-flute CPM Taper End Mill for Trapezoidal Runner | | 2〜12 |
| 877 |  | **XPM-TPDR** | 2枚刃XPMテーパエンドミルレギュラ形<br>2-flute XPM Taper End Mill Regular Length | | 2〜20 |
| 887-3 WEB |  | **EX-TIN-TPDR** | TiNコート2枚刃ハイステーパエンドミルレギュラ形<br>TiN Coated 2-flute Taper End Mill Regular Length | **TiN** | 2〜20 |
| 878 |  | **TPDR** | 2枚刃ハイステーパエンドミルレギュラ形<br>2-flute Taper End Mill Regular Length | | 2〜20 |
| 887-4 WEB |  | **TPDN** | 2枚刃ハイステーパエンドミルミディアム形<br>2-flute Taper End Mill Medium Length | | 2〜20 |
| 887-6 WEB |  | **TPDL** | 2枚刃ハイステーパエンドミルロング形<br>2-flute Taper End Mill Long Length | | 2.5〜20 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

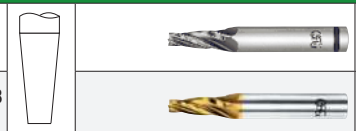
| | 被削材質 Work Material | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | コバルトの含有 Cobalt |
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
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# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **テーパ** Taper | | | | | |
| 881 |  | XPM-TPMS | 4枚刃XPMテーパエンドミルショート形<br>4-flute XPM Taper End Mill Short Length | | 2〜10 |
| 887-8 WEB | | EX-TIN-TPMS | TiNコート4枚刃ハイステーパエンドミルショート形<br>TiN Coated 4-flute Taper End Mill Short Length | TiN | 2〜10 |
| 882 | | TPMS | 4枚刃ハイステーパエンドミルショート形<br>4-flute Taper End Mill Short Length | | 2〜20 |
| 884 | | XPM-TPMR | 4枚刃XPMテーパエンドミルレギュラ形<br>4-flute XPM Taper End Mill Regular Length | | 6〜20 |
| 887-9 WEB | | EX-TIN-TPMR | TiNコート4枚刃ハイステーパエンドミルレギュラ形<br>TiN Coated 4-flute Taper End Mill Regular Length | TiN | 6〜20 |
| 885 | | TPMR | 4枚刃ハイステーパエンドミルレギュラ形<br>4-flute Taper End Mill Regular Length | | 2〜20 |
| 887-10 WEB | | TPMN | 4枚刃ハイステーパエンドミルミディアム形<br>4-flute Taper End Mill Medium Length | | 2〜20 |
| 887-12 WEB | | TPML | 4枚刃ハイステーパエンドミルロング形<br>4-flute Taper End Mill Long Length | | 2.5〜20 |
| **テーパボール** Taper Ball End | | | | | |
| 888 |  | XPM-TPBDS | 2枚刃XPMテーパボールエンドミルショート形<br>2-flute XPM Taper Ball End Mills Short Length | | R1〜R5 |
| 893-1 WEB | | EX-TIN-TPBDS | TiNコート2枚刃ハイステーパボールエンドミルショート形<br>TiN Coated 2-flute Taper Ball End Mill Short Length | TiN | R1〜R5 |
| 889 | | TPBDS | 2枚刃ハイステーパボールエンドミルショート形<br>2-flute Taper Ball End Mill Short Length | | R0.4〜R10 |
| 893-2 WEB | | TPBD.E | 2枚刃ハイステーパボールエンドミルミディアム形<br>2-flute Taper Ball End Mill Medium Length | | R1〜R5 |
| 893-2 WEB | | TPBD.K | 2枚刃ハイステーパボールエンドミルミディアム形<br>2-flute Taper Ball End Mill Medium Length | | R1.5〜R8 |
| 891 | | XPM-TPBDR | 2枚刃XPMテーパボールエンドミルレギュラ形<br>2-flute XPM Taper Ball End Mill Regular Length | | R3〜R10 |
| 893-3 WEB | | EX-TIN-TPBDR | TiNコート2枚刃ハイステーパボールエンドミルレギュラ形<br>TiN Coated 2-flute Taper Ball End Mill Regular Length | TiN | R3〜R10 |
| 892 | | TPBDR | 2枚刃ハイステーパボールエンドミルレギュラ形<br>2-flute Taper Ball End Mill Regular Length | | R1〜R10 |
| 893-4 WEB | | TPBDN | 2枚刃ハイステーパボールエンドミルミディアム形<br>2-flute Taper Ball End Mill Medium Length | | R1〜R10 |
| 893-6 WEB | | TPBDL | 2枚刃ハイステーパボールエンドミルロング形<br>2-flute Taper Ball End Mill Long Length | | R1.25〜R10 |
| 893-7 WEB | | TPBMS | 4枚刃ハイステーパボールエンドミルショート形<br>4-flute Taper Ball End Mill Short Length | | R1〜R10 |
| 893-8 WEB | | TPBMR | 4枚刃ハイステーパボールエンドミルレギュラ形<br>4-flute Taper Ball End Mill Regular Length | | R3〜R10 |
| 893-8 WEB | | TPBML | 4枚刃ハイステーパボールエンドミルロング形<br>4-flute Taper Ball End Mill Long Length | | R1.5〜R10 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

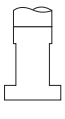
| | 被削材質 Work Material | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | コバルトの含有 Cobalt |
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
| | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ |
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| | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ |
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| | ○ | | ○ | ○ | ○ | ○ | | | | ○ |

◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# 形状別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes |
|---|---|---|---|---|---|
| **テーパコーナR** Taper Corner Radius | | | | | |
| 893-10 WEB |   | **XPM-CR-TPDS** | 2枚刃XPMテーパラジアスエンドミルショート形<br>2-flute XPM Taper End Mill Short Length with Corner Radius | | 3〜10 |
| 893-12 WEB |  | **CR-TPDS** | 2枚刃ハイステーパラジアスエンドミルショート形<br>2-flute Taper End Mill Short Length with Corner Radius | | 3〜10 |
| 893-14 WEB |  | **XPM-CR-TPDR** | 2枚刃XPMテーパラジアスエンドミルレギュラ形<br>2-flute XPM Taper End Mill Regular Length with Corner Radius | | 3〜16 |
| 893-16 WEB |  | **CR-TPDR** | 2枚刃ハイステーパラジアスエンドミルレギュラ形<br>2-flute Taper End Mill Regular Length with Corner Radius | | 3〜16 |
| **逆テーパ** Inverted Taper | | | | | |
| 893-18 WEB |   | **RTPMS** | 4枚刃ハイス逆テーパエンドミルショート形<br>Inverted 4-flute Taper End Mill Short Length | | 3〜12 |
| **T溝カッタ** T-slot | | | | | |
| 894 |   | **RF-TSC** | ハイスTスロットカッタ<br>End Mill for T-slots | | 15〜100 |
| 895-1 WEB |  | **TIN-TUF-TSC** | TiNコートハイスTスロットカッタ<br>TiN Coated TUF-NICK End Mill for T-slots | **TiN** | 15〜60 |
| **座ぐり** Counterboring | | | | | |
| 896 |   | **VP-ZDS** | 座ぐり用Vコート2枚刃CPMエンドミルショート形<br>V Coated 2-flute XPM End Mill Short Length for Counterboring | **V** | 3〜32 |
| 898 |  | **VP-LS-ZDS** | 座ぐり用Vコート2枚刃CPMエンドミルロングシャンクショート形<br>V Coated 2-flute XPM End Mill Short Length with Long Shank for Counterboring | **V** | 6〜20 |
| **面取り** Chamfering | | | | | |
| 899 |   | **VP-SCC** | 面取り用Vコート2枚刃XPMエンドミル<br>V Coated 2-flute XPM End Mill for Chamfering | **V** | 0.8〜1 |
| 900-1 WEB |  | **V-XPM-VCM** | 面取り用Vコート2枚刃XPMエンドミルVカット<br>V Coated 2-flute XPM End Mill V Cut Type | **V** | 3〜25 |
| 900-2 WEB |  | **WH-NC-VCM** | 面取り用WXLコート2枚刃ハイスエンドミルVカット<br>WXL Coated 2-flute End Mill V Cut Type | **WXL** | 3〜20 |
| 900-3 WEB |  | **WH-NC-VCMF** | 面取り用WXLコート2枚刃ハイスエンドミルVカット<br>WXL Coated 2-flute End Mill V Cut Type | **WXL** | 3〜20 |
| 899 |  | **V-XPM-ECR** | Vコート3枚刃XPMコーナラウンディング<br>V coated 3-flute XPM End Mill with Corner Rounding | **V** | 2 |
| 900 |  | **V-UCS** | Vコート3枚刃カウンターシンク<br>V Coated 3-flute Countersink | **V** | 4.3〜37 |

# INDEX OF HSS END MILLS 形状別 ハイスエンドミル 目次

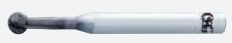
| | 被削材質 Work Material | | | | | | | | | | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminium Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic | |
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | | |
| | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ |
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| | ◎ | | ○ | ◎ | ◎ | ○ | ○ | ○ | | ○ | ○ |
| | ◎ | | ○ | ○ | ◎ | ○ | ○ | | | | ○ |
| | ◎ | | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ |
| | ◎ | | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ |
| | ◎ | | ○ | ○ | ◎ | ○ | ○ | | | | ○ |
| | ◎ | | ○ | ○ | ◎ | ○ | ○ | | | | ○ |

◎=Best
○=Good

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# シリーズ別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|
| **WXLコーティングシリーズ** WXL Coated Series | | | 耐熱性、耐摩耗性に優れるWXLコーティングが工具寿命延長を実現します。炭素鋼、合金鋼、ステンレス鋼、チタン合金など幅広い被削材に対応します。 | | | |
| 823-3 WEB |  | WH-NC-EDSS | NC旋盤用WXLコート2枚刃ハイススクエアエンドミルスタブ形 WXL Coated 2-flute End Mill Stub Length for Lathes | WXL | 3〜20 | ○ |
| 837-3 WEB |  | WH-NC-CRDS | NC旋盤用WXLコート2枚刃ハイスラジアスエンドミルショート形 WXL Coated 2-flute End Mill Short Length with Corner Radius for Lathes | WXL | 3〜12 | ○ |
| 837-7 WEB |  | WH-NC-CSDS | NC旋盤用WXLコート2枚刃ハイスエンドミルコーナC面付きショート形 WXL Coated 2-flute End Mill Short Length with Corner Chamfering for Lathes | WXL | 3〜12 | ○ |
| 838 |  | SI-WH-RESF | WXLコートCPMファインピッチラフィングエンドミルショート形 WXL Coated CPM Roughing End Mill Fine Pitch Short Length and Silent Type | WXL | 5〜30 | ○ |
| 839 |  | WH-RESF | WXLコートハイスファインピッチラフィングエンドミルショート形 WXL Coated Roughing End Mill Fine Pitch Short Length | WXL | 6〜40 | ○ |
| 870-2 WEB |  | WH-NC-RESF | NC旋盤用WXLコートハイスラフィングエンドミル WXL Coated Roughing End Mill for Lathes | WXL | 3〜20 | ○ |
| 823-16 WEB |  | WH-NC-EMSS | NC旋盤用WXLコート4枚刃ハイススクエアエンドミルスタブ形 WXL Coated 4-flute End Mill Stub Length for Lathes | WXL | 3〜20 | ○ |
| 835-10 WEB |  | WH-NC-EQD | NC旋盤用WXLコート2枚刃ハイスエンドミル球形 WXL Coated 2-flute End Mill Spherical Type for Lathes | WXL | R3〜R6 | ○ |
| 839 |  | WH-REES | WXLコートハイスラフィングエンドミルショート形 WXL Coated Roughing End Mill Short Length | WXL | 6〜40 | ○ |
| 850 |  | WH-RENF | WXLコートハイスファインピッチラフィングエンドミルミディアム形 WXL Coated Roughing End Mill Fine Pitch Medium Length | WXL | 6〜40 | ○ |
| 852 |  | WH-REEN | WXLコートハイスラフィングエンドミルミディアム形 WXL Coated Roughing End Mill Medium Length | WXL | 6〜40 | ○ |
| 854 |  | WH-RELF | WXLコートハイスファインピッチラフィングエンドミルロング形 WXL Coated Roughing End Mill Fine Pitch Long Length | WXL | 10〜40 | ○ |
| 854 |  | WH-REEL | WXLコートハイスラフィングエンドミルロング形 WXL Coated Roughing End Mill Long Length | WXL | 10〜40 | ○ |
| 900-2 WEB |  | WH-NC-VCM | 面取り用WXLコート2枚刃ハイスエンドミルVカット WXL Coated 2-flute End Mill V Cut Type | WXL | 3〜20 | ○ |
| 900-3 WEB |  | WH-NC-VCMF | 面取り用WXLコート2枚刃ハイスエンドミルVカット WXL Coated 2-flute End Mill V Cut Type | WXL | 3〜20 | ○ |
| 753 |  | V-XPM-EDS | Vコート2枚刃XPMスクエアエンドミルショート形 V Coated 2-flute XPM End Mill Short Length | V | 0.8〜40 | ○ |
| 778 |  | V-XPM-EDN | Vコート2枚刃XPMスクエアエンドミルミディアム形 V Coated 2-flute XPM End Mill Medium Length | V | 1〜20 | ○ |
| 785 |  | V-XPM-EDL | Vコート2枚刃XPMスクエアエンドミルロング形 V Coated 2-flute XPM End Mill Long Length | V | 3〜30 | ○ |
| 795 |  | V-XPM-EMS | Vコート4枚刃XPMスクエアエンドミルショート形 V Coated 4-flute XPM End Mill Short Length | V | 2.5〜40 | ○ |
| 812 |  | V-XPM-EML | Vコート4枚刃XPMスクエアエンドミルロング形 V Coated 4-flute XPM End Mill Long Length | V | 3〜30 | ○ |
| 824 |  | V-XPM-EBD | Vコート2枚刃XPMボールエンドミル V Coated 2-flute XPM Ball End Mill | V | R0.5〜R15 | ○ |
| 756 |  | V-XPM-EKD | キー溝用Vコート2枚刃XPMスクエアエンドミル V Coated 2-flute XPM End Mill for Keyway Slotting | V | 3〜12 | ○ |
| 896 |  | VP-ZDS | 座ぐり用Vコート2枚刃CPMエンドミルショート形 V Coated 2-flute XPM End Mill Short Length for Counterboring | V | 3〜32 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

# INDEX OF HSS END MILLS シリーズ別 ハイスエンドミル 目次

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|
| **Vコーティング XPMシリーズ** V Coated XPM Series | | | 粉末HSSとVコーティングの相乗効果が幅広い被削材、加工方法において安定した切削を実現します。 | | | |
| 898 |  | VP-LS-ZDS | 座ぐり用Vコート2枚刃CPMエンドミルロングシャンクショート形<br>V Coated 2-flute XPM End Mill Short Length with Long Shank for Counterboring | V | 6〜20 | ○ |
| 821 |  | V-XPM-EHS | VコートXPMスクエアエンドミル/ハイヘリックスショート形<br>V Coated High Helix XPM End Mill Short Length | V | 3〜30 | ○ |
| 821 |  | V-XPM-EHL | VコートXPMスクエアエンドミルハイヘリックスロング形<br>V Coated High Helix XPM End Mill Long Length | V | 6〜30 | ○ |
| 870-17 WEB |  | VP-CR-BKMS | Vコート多刃CPMベストカットショート形コーナR<br>V Coated Multi-flute CPM Best-Kut End Mill with Corner Radius Short Length | V | 12〜32 | ○ |
| 796・837 |  | VPS-EMS | Vコート多刃XPMエンドミルショート形高剛性タイプ<br>V Coated Multi-flute XPM End Mill Short Length (Highly Rigid Type) | V | 10〜30 | ○ |
| 859 |  | V-XPM-NHS | VコートXPMエンドミルハイヘリックスニック付ショート形<br>V Coated High Helix XPM Nicked End Mill Short Length | V | 6〜30 | ○ |
| 841 |  | VLS-XPM-RESF | VコートXPMファインピッチラフィングエンドミルロングシャンクショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank | V | 5〜50 | ○ |
| 840 |  | VP-RESF | VコートXPMファインピッチラフィングエンドミルショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length | V | 5〜50 | ○ |
| 850 |  | VP-RENF | VコートXPMファインピッチラフィングエンドミルミディアム形<br>V Coated XPM Roughing End Mill Fine Pitch Medium Length | V | 6〜50 | ○ |
| 855 |  | VP-RELF | VコートXPMファインピッチラフィングエンドミルロング形<br>V Coated XPM Roughing End Mill Fine Pitch Long Length | V | 10〜50 | ○ |
| 843 |  | VP-DE-RESF | 深彫り用VコートXPMファインピッチラフィングエンドミルショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length for Deep Contouring | V | 16〜40 | ○ |
| 899 |  | V-XPM-ECR | Vコート3枚刃XPMコーナラウンディング<br>V coated 3-flute XPM End Mill with Corner Rounding | V | 2 | ○ |
| 899 |  | VP-SCC | 面取り用Vコート2枚刃XPMエンドミル<br>V Coated 2-flute XPM End Mill for Chamfering | V | 0.8〜1 | ○ |
| 900-1 WEB |  | V-XPM-VCMS | 面取り用Vコート2枚刃XPMエンドミルVカットショート形<br>V Coated 2-flute XPM End Mill V Cut Short Type | V | 3〜25 | ○ |
| 900-1 WEB |  | V-XPM-VCM | 面取り用Vコート2枚刃XPMエンドミルVカット<br>V Coated 2-flute XPM End Mill V Cut Type | V | 3〜25 | ○ |
| 778 |  | V-SS-XPM-EDN | Vコート2枚刃XPMスクエアエンドミルスリムシャンクミディアム形<br>V Coated 2-flute XPM End Mill Medium Length with Slim Shank | V | 6〜25 | ○ |
| 796 |  | V-SS-XPM-EMS | Vコート4枚刃XPMスクエアエンドミルスリムシャンクショート形<br>V Coated 4-flute XPM End Mill Short Length with Slim Shank | V | 6〜25 | ○ |
| 842 |  | VSS-XPM-RESF | VコートXPMファインピッチラフィングエンドミルスリムシャンク<br>V Coated XPM Roughing End Mill Fine Pitch Short Length with Slim Shank | V | 10〜25 | ○ |
| 825 |  | V-SS-XPM-EBD | Vコート2枚刃XPMボールエンドミルスリムシャンク<br>V Coated 2-flute XPM Ball End Mill with Slim Shank | V | R3〜R12.5 | ○ |
| **XPMシリーズ** XPM Series | | | 粉末HSSエンドミルシリーズです。炭素鋼、合金鋼、ステンレス鋼など幅広い被削材に対応します。 | | | |
| 757 |  | XPM-EDS | 2枚刃XPMスクエアエンドミルショート形<br>2-flute XPM End Mill Short Length | | 0.8〜50 | ○ |
| 779 |  | XPM-EDN | 2枚刃XPMスクエアエンドミルミディアム形<br>2-flute XPM End Mill Medium Length | | 1〜20 | ○ |
| 786 |  | XPM-EDL | 2枚刃XPMスクエアエンドミルロング形<br>2-flute XPM End Mill Long Length | | 3〜50 | ○ |
| 797 |  | XPM-EMS | 4枚刃XPMスクエアエンドミルショート形<br>4-flute XPM End Mill Short Length | | 2〜50 | ○ |

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# シリーズ別 ハイスエンドミル 目次 INDEX OF HSS END MILLS

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 表面処理 Surface Treatment | 在庫サイズ Stocked Sizes | コバルトの含有 Cobalt |
|---|---|---|---|---|---|---|
| **XPMシリーズ** XPM Series | | | 粉末HSSエンドミルシリーズです。炭素鋼、合金鋼、ステンレス鋼など幅広い被削材に対応します。 | | | |
| 823-16 WEB |  | XPM-EMN | 4枚刃XPMスクエアエンドミルミディアム形<br>4-flute XPM End Mill Medium Length | | 16〜25 | ○ |
| 813 |  | XPM-EML | 多刃XPMスクエアエンドミルロング形<br>Multi-flute XPM End Mill Long Length | | 3〜50 | ○ |
| 827 |  | XPM-EBD | 2枚刃XPMボールエンドミル<br>2-flute XPM Ball End Mill | | R0.5〜R20 | ○ |
| 835-3 WEB |  | MR-XPM-EBD | 2枚刃XPMボールエンドミル左刃左ねじれ<br>2-flute XPM Ball End Mill (LH Cut and LH Helix) | | R2〜R3 | ○ |
| 828 |  | LS-XPM-EBD | 2枚刃XPMボールエンドミルロングシャンク<br>2-flute XPM Ball End Mill with Long Shank | | R0.5〜R5.5 | ○ |
| 823 |  | XPM-EHS | XPMスクエアエンドミルハイヘリックスショート形<br>High Helix XPM End Mill Short Length | | 6〜50 | ○ |
| 823 |  | XPM-EHL | XPMスクエアエンドミルハイヘリックスロング形<br>High Helix XPM End Mill Long Length | | 6〜30 | ○ |
| 870-1 WEB |  | LS-XPM-RESF | XPMファインピッチラフィングエンドミルロングシャンク<br>XPM Roughing End Mill Fine Pitch Short Length with Long Shank | | 6〜48 | ○ |
| 836 |  | CR-XPM-EDS | 2枚刃XPMラジアスエンドミルショート形<br>2-flute XPM End Mill Short Length with Corner Radius | | 3〜20 | ○ |
| 781 |  | DE-XPM-EDN | 深彫り用2枚刃XPMスクエアエンドミルミディアム形<br>2-flute XPM End Mill Medium Length for Deep Contouring | | 8〜50 | ○ |
| 801 |  | DE-XPM-EMS | 深彫り用4枚刃XPMスクエアエンドミルショート形<br>4-flute XPM End Mill Short Length for Deep Contouring | | 8〜50 | ○ |
| **XPMテーパ刃シリーズ** XPM Taper Series | | | | | | |
| 873 |  | XPM-TRC | 台形ランナ用2枚刃XPMテーパエンドミル<br>2-flute XPM Taper End Mill for Trapezoidal Runner | | 2〜6 | ○ |
| 871 |  | XPM-TPDSS | 2枚刃XPMテーパエンドミルスタブ形<br>2-flute XPM Taper End Mill Stub Length | | 1〜4 | ○ |
| 872 |  | XPM-TPDS | 2枚刃XPMテーパエンドミルショート形<br>2-flute XPM Taper End Mill Short Length | | 2〜10 | ○ |
| 893-10 WEB |  | XPM-CR-TPDS | 2枚刃XPMテーパラジアスエンドミルショート形<br>2-flute XPM Taper End Mill Short Length with Corner Radius | | 3〜10 | ○ |
| 877 |  | XPM-TPDR | 2枚刃XPMテーパエンドミルレギュラ形<br>2-flute XPM Taper End Mill Regular Length | | 2〜20 | ○ |
| 893-14 WEB |  | XPM-CR-TPDR | 2枚刃XPMテーパラジアスエンドミルレギュラ形<br>2-flute XPM Taper End Mill Regular Length with Corner Radius | | 3〜16 | ○ |
| 881 |  | XPM-TPMS | 4枚刃XPMテーパエンドミルショート形<br>4-flute XPM Taper End Mill Short Length | | 2〜10 | ○ |
| 884 |  | XPM-TPMR | 4枚刃XPMテーパエンドミルレギュラ形<br>4-flute XPM Taper End Mill Regular Length | | 6〜20 | ○ |
| 891 |  | XPM-TPBDR | 2枚刃XPMテーパボールエンドミルレギュラ形<br>2-flute XPM Taper Ball End Mill Regular Length | | R3〜R10 | ○ |
| 888 |  | XPM-TPBDS | 2枚刃XPMテーパボールエンドミルショート形<br>2-flute XPM Taper Ball End Mills Short Length | | R1〜R5 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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|---|---|---|---|---|---|---|
| **TiN-XPMシリーズ** TiN Coated XPM Series | | | | | | |
| 823-4 WEB |  | TIN-XPM-EDS | TiNコート2枚刃XPMスクエアエンドミルショート形 TiN Coated 2-flute XPM End Mill Short Length | TiN | 1.5〜24 | ○ |
| 779 |  | TIN-XPM-EDN | TiNコート2枚刃XPMスクエアエンドミルミディアム形 TiN Coated 2-flute XPM End Mill Medium Length | TiN | 1.5〜19 | ○ |
| 823-9 WEB |  | TIN-XPM-EDL | TiNコート2枚刃XPMスクエアエンドミルロング形 TiN Coated 2-flute XPM End Mill Long Length | TiN | 6〜22 | ○ |
| 823-14 WEB |  | TIN-XPM-EMS | TiNコート4枚刃XPMスクエアエンドミルショート形 TiN Coated 4-flute XPM End Mill Short Length | TiN | 3〜30 | ○ |
| 823-15 WEB |  | TIN-XPM-EML | TiNコート4枚刃XPMスクエアエンドミルロング形 TiN Coated 4-flute XPM End Mill Long Length | TiN | 4〜27 | ○ |
| 835-2 WEB |  | TIN-XPM-EBD | TiNコート2枚刃XPMボールエンドミル TiN Coated 2-flute XPM Ball End Mill | TiN | R2〜R3.5 | ○ |
| 826 |  | T-LS-XPM-EBD | TiNコート2枚刃XPMボールエンドミルロングシャンク TiN Coated 2-flute XPM Ball End Mill with Long Shank | TiN | R0.5〜R6 | ○ |
| 822 |  | TIN-XPM-EHS | TiNコートXPMスクエアエンドミルハイヘリックスショート形 TiN Coated High Helix XPM End Mill Short Length | TiN | 6〜30 | ○ |
| 822 |  | TIN-XPM-EHL | TiNコートXPMスクエアエンドミルハイヘリックスロング形 TiN Coated High Helix XPM End Mill Long Length | TiN | 6〜30 | ○ |
| 844 |  | TLS-XPM-RESF | TiNコートXPMファインピッチラフィングエンドミルロングシャンク TiN Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank | TiN | 7〜28 | ○ |
| **TiNコーティングシリーズ** TiN Coated Series | | | | | | |
| 761 |  | EX-TIN-EDS | TiNコート2枚刃ハイススクエアエンドミルショート形 TiN Coated 2-flute End Mill Short Length | TiN | 0.5〜80 | ○ |
| 782 |  | EX-TIN-EDN | TiNコート2枚刃ハイススクエアエンドミルミディアム形 TiN Coated 2-flute End Mill Medium Length | TiN | 1〜20 | ○ |
| 787 |  | EX-TIN-EDL | TiNコート2枚刃ハイススクエアエンドミルロング形 TiN Coated 2-flute End Mill Long Length | TiN | 1〜50 | ○ |
| 823-6 WEB |  | EX-TIN-LS-EDL | TiNコート2枚刃ハイススクエアエンドミルロングシャンクロング形 TiN Coated 2-flute End Mill Long Length with Long Shank | TiN | 10〜40 | ○ |
| 823-6 WEB |  | EX-TIN-EXDL | TiNコート2枚刃ハイススクエアエンドミルエキストラロング形 TiN Coated 2-flute End Mill Extra Long Length | TiN | 1〜50 | ○ |
| 765 |  | EX-TIN-EKD | キー溝用TiNコート2枚刃ハイススクエアエンドミル TiN Coated 2-flute End Mill for Keyway | TiN | 3〜25 | ○ |
| 837-1 WEB |  | EX-TIN-CR-EDS | TiNコート2枚刃ハイスラジアスエンドミルショート形 TiN Coated 2-flute End Mill Short Length with Corner Radius | TiN | 6〜30 | ○ |
| 823-10 WEB |  | EX-TIN-ETS | TiNコート3枚刃ハイススクエアエンドミルショート形 TiN Coated 3-flute End Mill Short Length | TiN | 1〜30 | ○ |
| 823-10 WEB |  | EX-TIN-ETXL | TiNコート3枚刃ハイススクエアエンドミルエキストラロング形 TiN Coated 3-flute End Mill Extra Long Length | TiN | 3〜60 | ○ |
| 802 |  | EX-TIN-EMS | TiNコート多刃ハイススクエアエンドミルショート形 TiN Coated Multi-flute End Mill Short Length | TiN | 2〜80 | ○ |
| 814 |  | EX-TIN-EML | TiNコート多刃ハイススクエアエンドミルロング形 TiN Coated Multi-flute End Mill Long Length | TiN | 3〜50 | ○ |
| 823-19 WEB |  | EX-TIN-EXML | TiNコート多刃ハイススクエアエンドミルエキストラロング形 TiN Coated Multi-flute End Mill Extra Long Length | TiN | 3〜50 | ○ |
| 829 |  | EX-TIN-EBD | TiNコート2枚刃ハイスボールエンドミル TiN Coated 2-flute Ball End Mill | TiN | R0.5〜R30 | ○ |

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※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

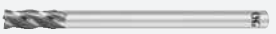
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| **TiNコーティングシリーズ** TiN Coated Series | | | | | | |
| 835-3 WEB |  | EX-TIN-LS-EBD | TiNコート2枚刃ハイスボールエンドミルロングシャンク TiN Coated 2-flute Ball End Mill with Long Shank | TiN | R3〜R15 | ○ |
| 835-6 WEB |  | EX-TIN-LS-EBM | TiNコート4枚刃ハイスボールエンドミルロングシャンク TiN Coated 4-flute Ball End Mill with Long Shank | TiN | R16〜R25 | ○ |
| **2刃シリーズ** 2 Flutes Series | | | | | | |
| 766 |  | EDS | 2枚刃ハイススクエアエンドミルショート形 2-flute End Mill Short Length | | 0.8〜80 | ○ |
| 765 |  | EDS-3 | 2枚刃ハイススクエアエンドミル(ミニチュア) 2-flute Miniature End Mill (φ3 Shank) | | 0.4〜3 | ○ |
| 823-1 WEB |  | XLS-EDS | 2枚刃ハイススクエアエンドミルエキストラロングシャンクショート形 2-flute End Mill Short Length with Extra Long Shank | | 6〜50 | ○ |
| 782 |  | EDN | 2枚刃ハイススクエアエンドミルミディアム形 2-flute End Mill Medium Length | | 1〜20 | ○ |
| 823-27 WEB |  | LN-EDN-OH | 2枚刃ハイスロングネックスクエアエンドミルオーバサイズ 2-flute Long Neck End Mill Medium Length (Over Size) | | 1〜20 | ○ |
| 784 |  | LS-EDN | 2枚刃ハイススクエアエンドミルロングシャンクミディアム形 2-flute End Mill Medium Length with Long Shank | | 10〜40 | ○ |
| 789 |  | EDL | 2枚刃ハイススクエアエンドミルロング形 2-flute End Mill Long Length | | 0.8〜50 | ○ |
| 823-7 WEB |  | LS-EDL | 2枚刃ハイススクエアエンドミルロングシャンクロング形 2-flute End Mill Long Length with Long Shank | | 10〜40 | ○ |
| 792 |  | EXDL | 2枚刃ハイススクエアエンドミルエキストラロング形 2-flute End Mill Extra Long Length | | 1〜60 | ○ |
| 773 |  | EKD | キー溝用2枚刃ハイススクエアエンドミル 2-flute End Mill for Keyway | | 3〜25 | ○ |
| 777 |  | SUS-EDS | ステンレス用ホモ処理2枚刃ハイススクエアエンドミルショート形 2-flute End Mill Short Length for Stainless Steels (with Steam Oxide) | H | 1〜35 | ○ |
| 823-3 WEB |  | MR-EDS | 2枚刃ハイススクエアエンドミルショート形左刃左ねじれ 2-flute End Mill Short Length (LH Cut and LH Helix) | | 3〜20 | ○ |
| 776 |  | AL-EDS | アルミ合金用2枚刃ハイススクエアエンドミルショート形 2-flute End Mill Short Length for Aluminum Alloys | | 1〜50 | ○ |
| 823-7 WEB |  | AL-EDL | アルミ合金用2枚刃ハイススクエアエンドミルロング形 2-flute End Mill Long Length for Aluminum Alloys | | 1〜20 | ○ |
| 823-21 WEB |  | AL-EOS | アルミ合金用1枚刃ハイススクエアエンドミルショート形 Single-flute End Mill Short Length for Aluminum Alloys | | 3〜12 | ○ |
| 823-21 WEB |  | AL-EOL | アルミ合金用1枚刃ハイススクエアエンドミルロング形 Single-flute End Mill Long Length for Aluminum Alloys | | 4〜12 | ○ |
| 837-6 WEB |  | CS-EDS | 2枚刃ハイスエンドミルコーナC面付きショート形 2-flute End Mill Short Length with Corner Chamfering | | 1〜25 | ○ |
| 837-2 WEB |  | CR-EDS | 2枚刃ハイスラジアスエンドミルショート形 2-flute End Mill Short Length with Corner Radius | | 3〜40 | ○ |
| 837-3 WEB |  | CR-EDL | 2枚刃ハイスラジアスエンドミルロング形 2-flute End Mill Long Length with Corner Radius | | 6〜12 | ○ |

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※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

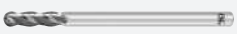
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| **3刃シリーズ 3 Flutes Series** | | | | | | |
| 794 |  | ETS | 3枚刃ハイススクエアエンドミルショート形<br>3-flute End Mill Short Length | | 1〜40 | ○ |
| 823-11 WEB |  | ETXL | 3枚刃ハイススクエアエンドミルエキストラロング形<br>3-flute End Mill Extra Long Length | | 3〜60 | ○ |
| **多刃シリーズ Multiple Flutes Series** | | | | | | |
| 805 |  | CC-EMS | 4枚刃ハイススクエアエンドミルセンタカットショート形<br>4-flute End Mill Center Cut Short Length | | 2〜40 | ○ |
| 809 |  | CE-EMS | 多刃ハイススクエアエンドミルセンタ付きショート形<br>Multi-flute End Mill Short Length with Center Hole | | 8〜80 | ○ |
| 823-11 WEB |  | LS-EMSS | 4枚刃ハイススクエアエンドミルロングシャンクスタブ形<br>4-flute End Mill Stub Length with Long Shank | | 6〜30 | ○ |
| 810 |  | LS-EMS | 4枚刃ハイススクエアエンドミルロングシャンクショート形<br>4-flute End Mill Short Length with Long Shank | | 10〜50 | ○ |
| 837-5 WEB |  | LS-CR-EMN | 4枚刃ハイスラジアスエンドミルロングシャンクミディアム形<br>4-flute Radius End Mill Medium Length with Long Shank | | 20〜50 | ○ |
| 823-12 WEB |  | XLS-EMS | 多刃ハイススクエアエンドミルエキストラロングシャンクショート形<br>Multi-flute End Mill Short Length with Extra Long Shank | | 6〜50 | ○ |
| 823-13 WEB |  | MR-EMS | 4枚刃ハイススクエアエンドミルショート形左刃左ねじれ<br>4-flute End Mill Short Length (LH Cut and LH Helix) | | 6〜20 | ○ |
| 837-4 WEB |  | CR-EMS | 4枚刃ハイスラジアスエンドミルショート形<br>4-flute End Mill Short Length with Corner Radius | | 6〜25 | ○ |
| 823-17 WEB |  | CC-EMN | 4枚刃ハイススクエアエンドミルセンタカットミディアム形<br>4-flute End Mill Center Cut Medium Length | | 3〜40 | ○ |
| 815 |  | CC-EML | 4枚刃ハイススクエアエンドミルセンタカットロング形<br>4-flute End Mill Center Cut Long Length | | 2〜40 | ○ |
| 823-18 WEB |  | CE-EML | 多刃ハイススクエアエンドミルセンタ付きロング形<br>Multi-flute End Mill Long Length with Center Hole | | 25〜50 | ○ |
| 818 |  | LS-EML | 4枚刃ハイススクエアエンドミルロングシャンクロング形<br>4-flute End Mill Long Length with Long Shank | | 10〜40 | ○ |
| 819 |  | EXML | 多刃ハイススクエアエンドミルエキストラロング形<br>Multi-flute End Mill Extra Long Length | | 3〜60 | ○ |
| 823-20 WEB |  | PS-EXML | 発泡スチロール加工用多刃スクエアエンドミルロング形<br>Multi-flute End Mill Long Length for Expanded Polystyrene | | 20〜40 | ○ |
| 837-5 WEB |  | PS-CR-EXML | 発泡スチロール加工用多刃ハイスラジアスエンドミルエキストラロング形<br>Multi-flute End Mill Extra Long Length with Corner Radius for Expanded Polystyrene | | 20〜40 | ○ |
| 870-19 WEB |  | NI-EXML | 多刃ハイスエンドミルニック付エキストラロング形<br>Multi-flute Nicked End Mill Extra Long Length | | 40〜60 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

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| **ボールエンドシリーズ Ball-end Series** | | | | | | |
| 830 |  | EBD | 2枚刃ハイスボールエンドミル<br>2-flute Ball End Mill | | R0.4〜R30 | ○ |
| 835-5 WEB |  | LS-EBD | 2枚刃ハイスボールエンドミルロングシャンク<br>2-flute Ball End Mill with Long Shank | | R3〜R15.5 | ○ |
| 835-5 WEB |  | XLS-EBD | 2枚刃ハイスボールエンドミルエキストラロングシャンク<br>2-flute Ball End Mill with Extra Long Shank | | R10〜R15 | ○ |
| 835-4 WEB |  | EBDL | 2枚刃ハイスボールエンドミルロング形<br>2-flute Ball End Mill Long Length | | R0.5〜R15 | ○ |
| 835 |  | EBM | 多刃ハイスボールエンドミル<br>Multi-flute Ball End Mill | | R3〜R30 | ○ |
| 835-8 WEB |  | REBM | 4枚刃ハイスボールエンドミル<br>4-flute Ball End Mill | | R30〜R60 | ○ |
| 835-7 WEB |  | LS-EBM | 4枚刃ハイスボールエンドミルロングシャンク<br>4-flute Ball End Mill with Long Shank | | R3〜R25 | ○ |
| 835-7 WEB |  | XLS-EBM | 4枚刃ハイスボールエンドミルエキストラロングシャンク<br>4-flute Ball End Mill with Extra Long Shank | | R16〜R25 | ○ |
| 835-9 WEB |  | PS-EBXML | 発泡スチロール加工用多刃ボールエンドミルエキストラロング形<br>Multiple-flute Ball End Mill Extra Long Length for Expanded Polystyrene | | R8〜R20 | ○ |
| 835-9 WEB |  | ER | 4枚刃ハイスエンドミルラージR<br>4-flute End Mill with Large Radius | | R50〜R150 | ○ |
| 835-11 WEB |  | ED-EQ-80 | 電着ダイヤモンドボールエンドミル#80タイプ<br>Electroplated Diamond Ball End Mill #80 | DIA | R2〜R5 | ○ |
| 835-12 WEB |  | ED-EQ-100 | 電着ダイヤモンドボールエンドミル#100タイプ<br>Electroplated Diamond Ball End Mill #100 | DIA | R0.5〜R5 | ○ |
| **TiNコーティングテーパ刃シリーズ TiN Coated Taper Series** | | | | | | |
| 887-1 WEB |  | EX-TIN-TPDS | TiNコート2枚刃ハイステーパエンドミルショート形<br>TiN Coated 2-flute Taper End Mill Short Length | TiN | 2〜10 | ○ |
| 887-3 WEB |  | EX-TIN-TPDR | TiNコート2枚刃ハイステーパエンドミルレギュラ形<br>TiN Coated 2-flute Taper End Mill Regular Length | TiN | 2〜20 | ○ |
| 887-8 WEB |  | EX-TIN-TPMS | TiNコート4枚刃ハイステーパエンドミルショート形<br>TiN Coated 4-flute Taper End Mill Short Length | TiN | 2〜10 | ○ |
| 887-9 WEB |  | EX-TIN-TPMR | TiNコート4枚刃ハイステーパエンドミルレギュラ形<br>TiN Coated 4-flute Taper End Mill Regular Length | TiN | 6〜20 | ○ |
| 893-1 WEB |  | EX-TIN-TPBDS | TiNコート2枚刃ハイステーパボールエンドミルショート形<br>TiN Coated 2-flute Taper Ball End Mill Short Length | TiN | R1〜R5 | ○ |
| 893-3 WEB |  | EX-TIN-TPBDR | TiNコート2枚刃ハイステーパボールエンドミルレギュラ形<br>TiN Coated 2-flute Taper Ball End Mill Regular Length | TiN | R3〜R10 | ○ |
| **テーパ刃シリーズ Taper Series** | | | | | | |
| 871 |  | TPDSS | 2枚刃ハイステーパエンドミルスタブ形<br>2-flute Taper End Mill Stub Length | | 1〜4 | ○ |
| 874 |  | TPDS | 2枚刃ハイステーパエンドミルショート形<br>2-flute Taper End Mill Short Length | | 0.8〜20 | ○ |
| 887-4 WEB |  | TPDN | 2枚刃ハイステーパエンドミルミディアム形<br>2-flute Taper End Mill Medium Length | | 2〜20 | ○ |
| 878 |  | TPDR | 2枚刃ハイステーパエンドミルレギュラ形<br>2-flute Taper End Mill Regular Length | | 2〜20 | ○ |

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| **テーパ刃シリーズ Taper Series** | | | | | | |
| 887-6 WEB |  | TPDL | 2枚刃ハイステーパエンドミルロング形<br>2-flute Taper End Mill Long Length | | 2.5〜20 | ○ |
| 882 |  | TPMS | 4枚刃ハイステーパエンドミルショート形<br>4-flute Taper End Mill Short Length | | 2〜20 | ○ |
| 887-10 WEB |  | TPMN | 4枚刃ハイステーパエンドミルミディアム形<br>4-flute Taper End Mill Medium Length | | 2〜20 | ○ |
| 885 |  | TPMR | 4枚刃ハイステーパエンドミルレギュラ形<br>4-flute Taper End Mill Regular Length | | 2〜20 | ○ |
| 887-12 WEB |  | TPML | 4枚刃ハイステーパエンドミルロング形<br>4-flute Taper End Mill Long Length | | 2.5〜20 | ○ |
| 893-2 WEB |  | TPBD.E | 2枚刃ハイステーパボールエンドミルミディアム形<br>2-flute Taper Ball End Mill Medium Length | | R1〜R5 | ○ |
| 893-2 WEB |  | TPBD.K | 2枚刃ハイステーパボールエンドミルミディアム形<br>2-flute Taper Ball End Mill Medium Length | | R1.5〜R8 | ○ |
| 889 |  | TPBDS | 2枚刃ハイステーパボールエンドミルショート形<br>2-flute Taper Ball End Mill Short Length | | R0.4〜R10 | ○ |
| 893-4 WEB |  | TPBDN | 2枚刃ハイステーパボールエンドミルミディアム形<br>2-flute Taper Ball End Mill Medium Length | | R1〜R10 | ○ |
| 892 |  | TPBDR | 2枚刃ハイステーパボールエンドミルレギュラ形<br>2-flute Taper Ball End Mill Regular Length | | R1〜R10 | ○ |
| 893-6 WEB |  | TPBDL | 2枚刃ハイステーパボールエンドミルロング形<br>2-flute Taper Ball End Mill Long Length | | R1.25〜R10 | ○ |
| 893-7 WEB |  | TPBMS | 4枚刃ハイステーパボールエンドミルショート形<br>4-flute Taper Ball End Mill Short Length | | R1〜R10 | ○ |
| 893-8 WEB |  | TPBMR | 4枚刃ハイステーパボールエンドミルレギュラ形<br>4-flute Taper Ball End Mill Regular Length | | R3〜R10 | ○ |
| 893-8 WEB |  | TPBML | 4枚刃ハイステーパボールエンドミルロング形<br>4-flute Taper Ball End Mill Long Length | | R1.5〜R10 | ○ |
| 893-18 WEB |  | RTPMS | 4枚刃ハイス逆テーパエンドミルショート形<br>Inverted 4-flute Taper End Mill Short Length | | 3〜12 | ○ |
| 893-16 WEB |  | CR-TPDR | 2枚刃ハイステーパラジアスエンドミルレギュラ形<br>2-flute Taper End Mill Regular Length with Corner Radius | | 3〜16 | ○ |
| 893-12 WEB |  | CR-TPDS | 2枚刃ハイステーパラジアスエンドミルショート形<br>2-flute Taper End Mill Short Length with Corner Radius | | 3〜10 | ○ |
| **TiNコーティングラフィングシリーズ TiN Coated Roughing Series** | | | | | | |
| 845 |  | EX-TIN-RESF | TiNコートハイスファインピッチラフィングエンドミルショート形<br>TiN Coated Roughing End Mill Fine Pitch Short Length | TiN | 6〜80 | ○ |
| 851 |  | EX-TIN-RENF | TiNコートハイスファインピッチラフィングエンドミルミディアム形<br>TiN Coated Roughing End Mill Fine Pitch Medium Length | TiN | 6〜50 | ○ |
| 856 |  | EX-TIN-RELF | TiNコートファインピッチハイスラフィングエンドミルロング形<br>TiN Coated Roughing End Mill Fine Pitch Long Length | TiN | 6〜80 | ○ |
| 870-8 WEB |  | EX-TIN-REXL | TiNコートハイスラフィングエンドミルエキストラロング形<br>TiN Coated Roughing End Mill Extra Long Length | TiN | 8〜60 | ○ |
| 846 |  | TIN-LS-RESF | TiNコートハイスファインピッチラフィングエンドミルロングシャンクショート形<br>TiN Coated Roughing End Mill Fine Pitch Short Length with Long Shank | TiN | 6〜50 | ○ |
| 870-4 WEB |  | EX-TIN-REE | TiNコートハイスラフィングエンドミル<br>TiN Coated Roughing End Mill | TiN | 10〜60 | ○ |

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| **TiNコーティングラフィングシリーズ** TiN Coated Roughing Series | | | | | | |
| 870-20 WEB |  | EX-TIN-LS-REBS | TiNコートハイスラフィングボールエンドミルロングシャンク TiN Coated Roughing Ball End Mill with Long Shank | TiN | R4 ～ R25 | ○ |
| **ラフィングシリーズ** Roughing Series | | | | | | |
| 848 |  | EX-REES | ハイスラフィングエンドミルショート形 Roughing End Mill Short Length | | 3 ～ 80 | ○ |
| 870-3 WEB |  | REES | ハイスラフィングエンドミルショート形 Roughing End Mill Short Length | | 4 ～ 50 | ○ |
| 870-3 WEB |  | LS-REES | ハイスラフィングエンドミルロングシャンクショート形 Roughing End Mill Short Length with Long Shank | | 5 ～ 50 | ○ |
| 870-5 WEB |  | EX-REE | ハイスラフィングエンドミル Roughing End Mill | | 10 ～ 60 | ○ |
| 870-6 WEB |  | EX-REE-3F | 3枚刃ハイスラフィングエンドミル 3-flute Roughing End Mill | | 6 ～ 50 | ○ |
| 870-7 WEB |  | EX-XLS-REE | ハイスラフィングエンドミルエキストラロングシャンク Roughing End Mill with Extra Long Shank | | 6 ～ 60 | ○ |
| 870-6 WEB |  | REE | ハイスラフィングエンドミル Roughing End Mill | | 10 ～ 80 | ○ |
| 870-5 WEB |  | REEM | ハイスラフィングエンドミルミディアム形 Roughing End Mill Medium Length | | 12 ～ 50 | ○ |
| 853 |  | EX-REEN | ハイスラフィングエンドミルミディアム形 Roughing End Mill Medium Length | | 6 ～ 50 | ○ |
| 857 |  | EX-REEL | ハイスラフィングエンドミルロング形 Roughing End Mill Long Length | | 3 ～ 80 | ○ |
| 870-9 WEB |  | REEL | ハイスラフィングエンドミルロング形 Roughing End Mill Long Length | | 4 ～ 60 | ○ |
| 858 |  | EX-REXL | ハイスラフィングエンドミルエキストラロング形 Roughing End Mill Extra Long Length | | 6 ～ 60 | ○ |
| 870-21 WEB |  | REB | ハイスラフィングボールエンドミル Roughing Ball End Mill | | R5 ～ R25 | ○ |
| 870-22 WEB |  | XLS-REB | ハイスラフィングボールエンドミルエキストラロングシャンク Roughing Ball End Mill with Extra Long Shank | | R5 ～ R25 | ○ |
| 870-22 WEB |  | RFB | ハイスラフアンドフィニッシュボールエンドミル Roughing and Finishing Ball End Mill | | R5 ～ R25 | ○ |
| 870 |  | EX-LS-REBS | ハイスラフィングボールエンドミルロングシャンクショート形 Roughing Ball End Mill Short Length with Long Shank | | R4 ～ R25 | ○ |
| 870-21 WEB |  | LS-REBS | ハイスラフィングボールエンドミルロングシャンク Roughing Ball End Mill with Long Shank | | R4 ～ R25 | ○ |
| 849 |  | EX-LS-REES | ハイスラフィングエンドミルロングシャンクショート形 Roughing End Mill Short Length with Long Shank | | 6 ～ 50 | ○ |
| 847 |  | EX-LS-RESF | ハイスファインピッチラフィングエンドミルロングシャンクショート形 Roughing End Mill Fine Pitch Short Length with Long Shank | | 6 ～ 50 | ○ |
| **Tufニックシリーズ** Tuf-Nick Series | | | | | | |
| 859 |  | TFGS | TiNコートハイスタフニックゴールドエンドミルショート形 TiN Coated TUF-NICK End Mill Short Length | TiN | 5 ～ 50 | ○ |
| 865 |  | TFGN | TiNコートハイスタフニックゴールドエンドミルミディアム形 TiN Coated TUF-NICK End Mill Medium Length | TiN | 5 ～ 50 | ○ |

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| **Tufニックシリーズ** Tuf-Nick Series | | | | | | |
| 860 |  | TFS | ハイスタフニックエンドミルショート形 TUF-NICK End Mill Short Length | | 5〜60 | ○ |
| 866 |  | TFN | ハイスタフニックエンドミルミディアム形 TUF-NICK End Mill Medium Length | | 5〜50 | ○ |
| 870-14 WEB |  | TFL | ハイスタフニックエンドミルロング形 TUF-NICK End Mill Long Length | | 5〜50 | ○ |
| 870-13 WEB |  | LS-TFS | ハイスタフニックエンドミルロングシャンクショート形 TUF-NICK End Mill Short Length with Long Shank | | 5〜27 | ○ |
| **クラフトミルシリーズ** Kraft Mill Series | | | | | | |
| 867 |  | KFR | ホモ処理ハイスクラフトミルレギュラ形 Kraft Mill End Mill Regular Length (with Steam Oxide) | H | 6〜35 | ○ |
| 870-18 WEB |  | TIN-KFR | TiNコートハイスクラフトミルレギュラ形 TiN Coated Kraft Mill End Mill Regular Length | TiN | 6〜32 | ○ |
| **ベストカットシリーズ** Best Kut Series | | | | | | |
| 863 |  | BKMS | 多刃ハイスベストカットショート形 Multi-flute Best-Kut End Mill Short Length | | 11〜50 | ○ |
| 870-16 WEB |  | BKML | 多刃ハイスベストカットロング形 Multi-flute Best-Kut End Mill Long Length | | 12〜35 | ○ |
| 870-15 WEB |  | CPM-BKMS | 多刃CPMベストカットショート形 Multi-flute CPM Best-Kut End Mill Short Length | | 11〜60 | ○ |
| 864 |  | LS-BKMS | 多刃ハイスベストカットロングシャンクショート形 Multi-flute Best-Kut End Mill Short Length with Long Shank | | 12〜50 | ○ |
| **ラフアンドフィニッシュシリーズ** Roughing & Finishing Series | | | | | | |
| 862 |  | RFES | ハイスラフアンドフィニッシュショート形 Roughing and Finishing End Mill Short Length | | 6〜40 | ○ |
| 863 |  | LS-RFES | ハイスラフアンドフィニッシュロングシャンクショート形 Roughing and Finishing End Mill Short Length with Long Shank | | 8〜50 | ○ |
| 868 |  | RFE | ハイスラフアンドフィニッシュレギュラ形 Roughing and Finishing End Mill Regular Length | | 10〜60 | ○ |
| 869 |  | RFEL | ハイスラフアンドフィニッシュロング形 Roughing and Finishing End Mill Long Length | | 15〜60 | ○ |
| 894 |  | RF-TSC | ハイスTスロットカッタ End Mill for T-slots | | 15〜100 | ○ |
| 895-1 WEB |  | TIN-TUF-TSC | TiNコートハイスTスロットカッタ TiN Coated TUF-NICK End Mill for T-slots | TiN | 15〜60 | ○ |
| **CPMシリーズ** CPM Series | | | | | | |
| 774 |  | CPM-EDS | 2枚刃CPMスクエアエンドミルショート形 2-flute CPM End Mill Short Length | | 0.8〜60 | ○ |
| 823-2 WEB |  | CPM-XLS-EDS | 2枚刃CPMスクエアエンドミルエキストラロングシャンクショート形 2-flute CPM End Mill Short Length with Extra Long Shank | | 6〜30 | ○ |
| 823-5 WEB |  | CPM-EDN | 2枚刃CPMスクエアエンドミルミディアム形 2-flute CPM End Mill Medium Length | | 1〜20 | ○ |
| 823-8 WEB |  | CPM-EDL | 2枚刃CPMスクエアエンドミルロング形 2-flute CPM End Mill Long Length | | 1〜29 | ○ |

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| **CPMシリーズ** CPM Series | | | | | | |
| 784 |  | CPM-STDN | 成形用2枚刃CPMエンドミル直刃ミディアム形<br>2-flute CPM Straight Fluted End Mill Medium Length for Reforming | | 1.5〜20 | ○ |
| 823-5 WEB |  | CPM-STD | 成形用2枚刃CPMエンドミル直刃ショート形<br>2-flute CPM Straight Fluted End Mill Short Length for Reforming | | 3〜30 | ○ |
| 811 |  | CPM-EMS | 多刃CPMスクエアエンドミルショート形<br>Multiple-flute CPM End Mill Short Length | | 2.5〜60 | ○ |
| 823-13 WEB |  | CPM-XLS-EMS | 多刃CPMスクエアエンドミルエキストラロングシャンクショート形<br>Multi-flute CPM End Mill Short Length with Extra Long Shank | | 32〜60 | ○ |
| 818 |  | CPM-EML | 4枚刃CPMスクエアエンドミルロング形<br>4-flute CPM End Mill Long Length | | 2〜40 | ○ |
| 823-22 WEB |  | CPM-EHS | CPMスクエアエンドミルハイヘリックスショート形<br>High Helix CPM End Mill Short Length | | 7〜60 | ○ |
| 823-24 WEB |  | CPM-EHL | CPMスクエアエンドミルハイヘリックスロング形<br>High Helix CPM End Mill Long Length | | 10〜40 | ○ |
| 823-27 WEB |  | LN-CPM-EDS | 2枚刃CPMロングネックスクエアエンドミルショート形<br>2-flute Long Neck CPM End Mill Short Length | | 3〜10 | ○ |
| 835-1 WEB |  | CPM-EBD | 2枚刃CPMボールエンドミル<br>2-flute CPM Ball End Mill | | R1.25〜R22.5 | ○ |
| 835-6 WEB |  | CPM-EBDS | 2枚刃CPMボールエンドミルショート形<br>2-flute CPM Ball End Mill Short Length | | R1〜R5 | ○ |
| 835-8 WEB |  | CPM-EBM | 多刃CPMボールエンドミル<br>Multi-flute CPM Ball End Mill | | R3〜R25 | ○ |
| 870-7 WEB |  | CPM-REE | CPMラフィングエンドミルレギュラ形<br>CPM Roughing End Mill Regular Length | | 12〜60 | ○ |
| 870-17 WEB |  | CPM-RFE | CPMラフアンドフィニッシュレギュラ形<br>CPM Roughing and Finishing End Mill Regular Length | | 12〜60 | ○ |
| 870-2 WEB |  | CPM-LS-RESF | CPMファインピッチラフィングエンドミルロングシャンクショート形<br>CPM Roughing End Mill Fine Pitch Short Length with Long Shank | | 6〜50 | ○ |
| 887-2 WEB |  | CPM-TPED | 台形ランナ用2枚刃CPMテーパエンドミル<br>2-flute CPM Taper End Mill for Trapezoidal Runner | | 2〜12 | ○ |
| **CPMペンシルネックシリーズ** CPM Pencil neck Series | | | | | | |
| 823-28 WEB |  | PC-CPM-EDS | 2枚刃CPMペンシルネックスクエアエンドミルショート形<br>2-flute Pencil Neck CPM End Mill Short Length | | 14〜30 | ○ |
| 835-14 WEB |  | PC-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル<br>2-flute Pencil Neck CPM Ball End Mill | | R1.5〜R10 | ○ |
| 835-16 WEB |  | PC-CPM-EBL | CPMペンシルネックボールエンドミルロング形<br>Pencil Neck CPM Ball End Mill Long Length | | R3〜R20 | ○ |
| 835-13 WEB |  | PCS-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル強力型<br>2-flute Pencil Neck CPM Ball End Mill Short Length | | R2〜R8 | ○ |
| 835-15 WEB |  | SPC-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル<br>2-flute Pencil Neck CPM Ball End Mill | | R1.5〜R10 | ○ |

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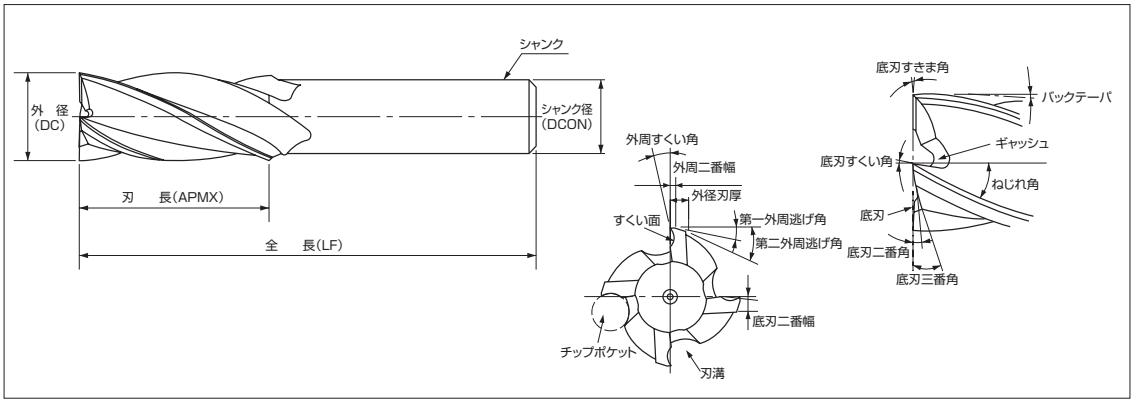
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| **コンビネーションシャンクシリーズ Combination Shank Series** | | | | | | |
| 823-23 WEB |  | CN-EML | 多刃ハイススクエアエンドミルコンビネーションシャンクロング形<br>Multi-flute End Mill Long Length with Combination Shank | | 45〜70 | ○ |
| 823-23 WEB |  | CN-EHL | 多刃ハイススクエアエンドミルコンビネーションシャンクハイヘリックスロング形<br>Multi-flute High Helix End Mill Long Length with Combination Shank | | 45〜70 | ○ |
| 870-10 WEB |  | CN-REE | 8枚刃ハイスラフィングエンドミルコンビネーションシャンクロング形<br>8-flute Roughing End Mill Long Length with Combination Shank | | 50〜60 | ○ |
| 870-11 WEB |  | EX-CN-REE | 6枚刃ハイスラフィングエンドミルコンビネーションシャンクロング形<br>6-flute Roughing End Mill Long Length with Combination Shank | | 45〜70 | ○ |
| **モールステーパシャンクシリーズ Morse Taper Shank Series** | | | | | | |
| 870-11 WEB |  | MT-REE | ハイスラフィングエンドミルモールステーパシャンクロング形<br>Roughing End Mill Long Length with Morse Taper Shank | | 15〜60 | ○ |
| 870-20 WEB |  | MT-RFE | ハイスラフアンドフィニッシュモールステーパシャンクロング形<br>Roughing and Finishing End Mill Long Length with Morse Taper Shank | | 20〜60 | ○ |
| 870-12 WEB |  | MT-REEL | ハイスラフィングエンドミルモールステーパシャンクロング形<br>Roughing End Mill Long Length with Morse Taper Shank | | 45〜60 | ○ |
| 823-25 WEB |  | MT-EHL | 4枚刃ハイススクエアエンドミルハイヘリックスモールステーパシャンクロング形<br>4-flute High Helix End Mill Long Length with Morse Taper Shank | | 20〜60 | ○ |
| **BSシャンクシリーズ BS Shank Series** | | | | | | |
| 870-10 WEB |  | BS-REE | ハイスラフィングエンドミルBSシャンクロング形<br>Roughing End Mill Long Length with BS Shank | | 15〜50 | ○ |
| 870-19 WEB |  | BS-RFE | ハイスラフアンドフィニッシュBSシャンクロング形<br>Roughing and Finishing End Mill Long Length with BS Shank | | 20〜50 | ○ |
| **ナショナルテーパシャンクシリーズ National Taper Shank Series** | | | | | | |
| 823-26 WEB |  | EXML-NT40 | 多刃ハイススクエアエンドミルエキストラロング形(NT40)<br>Multi-flute End Mill Extra Long Length (NT40) | | 50〜80 | ○ |
| 823-26 WEB |  | EXML-NT50 | 多刃ハイススクエアエンドミルエキストラロング形(NT50)<br>Multi-flute End Mill Extra Long Length (NT50) | | 50〜80 | ○ |
| 870-12 WEB |  | REXL-NT50 | ハイスラフィングエンドミルエキストラロング形(NT50)<br>Extra Long Roughing End Mill (NT50) | | 50〜80 | ○ |
| **カウンターシンクシリーズ Countersink Series** | | | | | | |
| 900 |  | V-UCS | Vコート3枚刃カウンターシンク<br>V Coated 3-flute Countersink | V | 4.3〜37 | ○ |

コバルトの含有についてのご案内はP.1249を参照下さい。 For information on Cobalt content, please refer to P.1249.

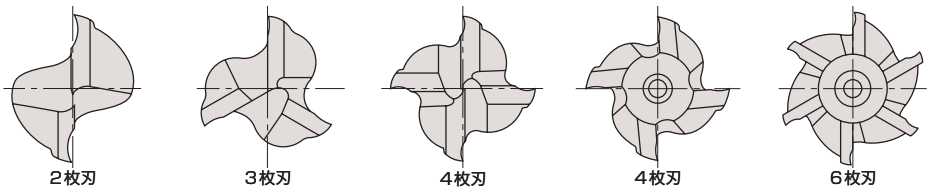
# ハイスエンドミルをお選びになる前に

## ■各部の名称



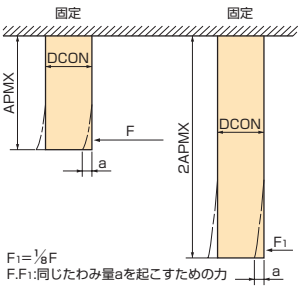

## ■刃数(ZEFP)

エンドミルの性能を左右する大きな要因のひとつに、刃数があります。一般に、刃数の少ないものはチップポケットが大きく、切りくずの排出はよいのですが、その反面、工具断面積は小さく、剛性は低下しますので、切削中にたわみを生じやすくなります。逆に、刃数が多くなると工具断面積は大きくなり剛性は大きくなりますが、チップポケットは小さくなり切りくず収容能力は低下し、切りくずづまりの状態を生じやすくなります。



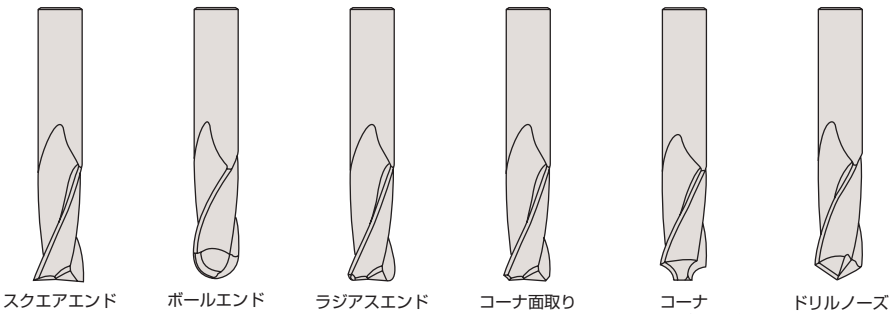

## ■刃長(APMX)

刃長は短いほど工具剛性が増し、切削性能もよくなります。エンドミルの剛性は刃長（突出し長さ）の3乗に反比例します。したがって、刃長（突出し長さ）が2倍になると工具剛性は1/8になります。エンドミルは横送りによって使用する工具ですから、このことは大変重要となります。必要以上に長い刃長のエンドミルを使用することは大きなデメリットとなります。OSGでは刃長のバリエーションも豊富に取り揃えておりますので、加工の内容に見合った最適な刃長をお選び下さい。

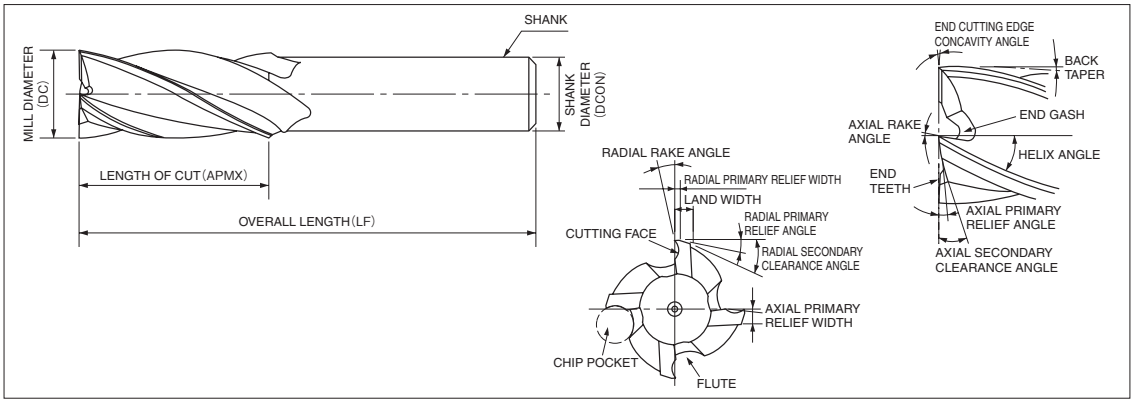



## ■底刃の形状

エンドミル底刃形状には、代表的なものにスクエアエンド、ボールエンド、ラジアスエンドがあり、OSGでは各種在庫を取り揃えております。この他にもコーナ面取り、コーナラウンディング、ドリルノーズなど、用途に合わせて対応しております。

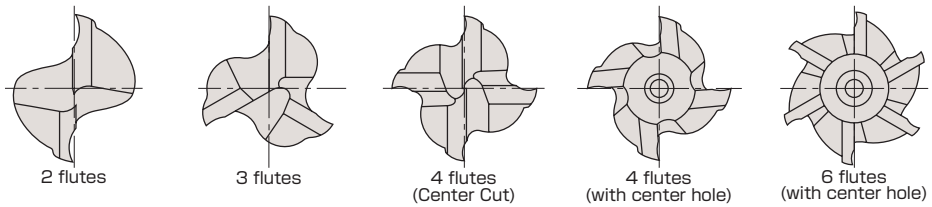


## ■TERMINOLOGY



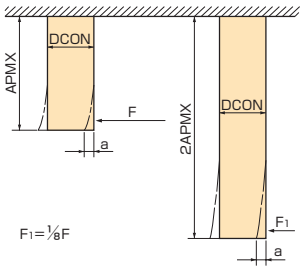

## ■NUMBER OF FLUTES(ZEFP)

The number of flutes should be determined by the work material, dimensions of the work piece and milling conditions. In general, an end mill with a small number of flutes and large chip room is used for roughing, and an end mill with a large number of flutes is used for finishing.



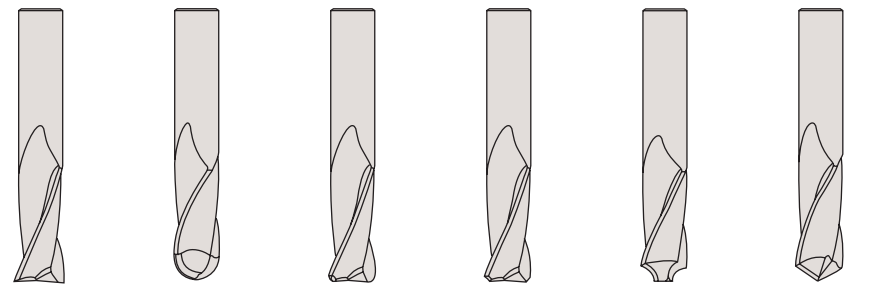

## ■LENGTH OF CUT(APMX)

The shorter the end mill, the smaller the deflection and the stronger the rigidity. Because rigidity varies in proportion to length of cut by a factor to the power of 3 (for example, when the length of cut doubles, the rigidity decreases to 1/8), it is necessary to keep the length of cut as short as possible.




## ■END PROFILE

Stocked end profiles are typically square end, ball end and radius end. Corner radius, corner chamfer, corner rounding and drill nose end profiles can be supplied via special order.



# Vコート2枚刃XPMスクエアエンドミル ショート形

**V Coated 2-flute XPM End Mill Short Length**

## V-XPM-EDS

切削条件 Cutting Conditions | P905



粉末ハイスXPMにVコーティングが施してあります。良好な切れ味と安定した工具寿命を実現しました。

Vcoating and powder metallurgy XPM provide superior finish quality and long tool life.

CAD

XPM | V | 0〜-0.03 | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 0.8 | 50 | 2 | 6 | — | □ | — | — |
| | 0.85 | | 2.2 | | | □ | — | — |
| | 0.9 | | | | | □ | — | — |
| | 0.95 | | 2.5 | | B | ● | 14 | 9,220 |
| 8450010 | 1 | | | | | □ | — | — |
| | 1.05 | | | | — | □ | — | — |
| | 1.1 | | | | | □ | — | — |
| | 1.15 | | 3 | | | □ | — | — |
| | 1.2 | | | | | □ | — | — |
| | 1.25 | | | | | □ | — | — |
| | 1.3 | | | | | □ | — | — |
| | 1.35 | | | | | □ | — | — |
| | 1.4 | | | | | □ | — | — |
| | 1.45 | | 3.5 | | | □ | — | — |
| 8450015 | 1.5 | | | | B | ● | 14 | 8,420 |
| | 1.55 | | | | | □ | — | — |
| | 1.6 | | | | | □ | — | — |
| | 1.65 | | | | | □ | — | — |
| | 1.7 | | | | | □ | — | — |
| | 1.75 | | | | — | □ | — | — |
| | 1.8 | | | | | □ | — | — |
| | 1.85 | 55 | 4 | | | □ | — | — |
| | 1.9 | | | | | □ | — | — |
| | 1.95 | | | | | □ | — | — |
| 8450020 | 2 | | | | B | ● | 14 | 7,980 |
| | 2.05 | | 5 | | | □ | — | — |
| | 2.1 | | | | | □ | — | — |
| | 2.15 | | | | | □ | — | — |
| | 2.2 | | | | | □ | — | — |
| | 2.25 | | | | — | □ | — | — |
| | 2.3 | | | | | □ | — | — |
| | 2.35 | | | | | □ | — | — |
| | 2.4 | | | | | □ | — | — |
| | 2.45 | | | | | □ | — | — |
| 8450025 | 2.5 | | | | B | ● | 14 | 7,860 |
| | 2.55 | | 7 | | | □ | — | — |
| | 2.6 | | | | | □ | — | — |
| | 2.65 | | | | | □ | — | — |
| | 2.7 | | | | — | □ | — | — |
| | 2.75 | | | | | □ | — | — |
| | 2.8 | | | | | □ | — | — |
| | 2.85 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2.9 | 55 | 7 | 6 | — | □ | — | — |
| | 2.95 | | | | | □ | — | — |
| 8450030 | 3 | | | | B | ● | 14 | 6,700 |
| | 3.05 | 65 | 8 | 8 | — | □ | — | — |
| | 3.1 | | | | | □ | — | — |
| | 3.15 | | | | | □ | — | — |
| | 3.2 | | | | | □ | — | — |
| | 3.25 | | | | | □ | — | — |
| | 3.3 | | | | | □ | — | — |
| | 3.35 | | | | | □ | — | — |
| | 3.4 | | | | | □ | — | — |
| | 3.45 | | | | | □ | — | — |
| 8450035 | 3.5 | | | | B | ● | 25 | 6,700 |
| | 3.55 | | | | — | □ | — | — |
| | 3.6 | | | | | □ | — | — |
| | 3.65 | | | | | □ | — | — |
| | 3.7 | | | | | □ | — | — |
| | 3.75 | | | | | □ | — | — |
| | 3.8 | | | | | □ | — | — |
| | 3.85 | | | | | □ | — | — |
| | 3.9 | | | | | □ | — | — |
| | 3.95 | | | | | □ | — | — |
| 8450040 | 4 | | | | B | ● | 25 | 6,700 |
| | 4.05 | | 10 | | — | □ | — | — |
| | 4.1 | | | | | □ | — | — |
| | 4.15 | | | | | □ | — | — |
| | 4.2 | | | | | □ | — | — |
| | 4.25 | | | | | □ | — | — |
| | 4.3 | | | | | □ | — | — |
| | 4.35 | | | | | □ | — | — |
| | 4.4 | | | | | □ | — | — |
| | 4.45 | | | | | □ | — | — |
| 8450045 | 4.5 | | | | B | ● | 25 | 6,700 |
| | 4.55 | | | | — | □ | — | — |
| | 4.6 | | | | | □ | — | — |
| | 4.65 | | | | | □ | — | — |
| | 4.7 | | | | | □ | — | — |
| | 4.75 | | | | | □ | — | — |
| | 4.8 | | | | | □ | — | — |
| | 4.85 | | | | | □ | — | — |
| | 4.9 | | | | | □ | — | — |
| | 4.95 | | | | | □ | — | — |

次ページへ
外径 DC 5〜9.15 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| V-XPM-EDS | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# Vコート2枚刃XPMスクエアエンドミル ショート形
**V Coated 2-flute XPM End Mill Short Length**

## V-XPM-EDS

切削条件 Cutting Conditions | P905



粉末ハイスXPMにVコーティングが施してあります。良好な切れ味と安定した工具寿命を実現しました。
Vcoating and powder metallurgy XPM provide superior finish quality and long tool life.

CAD

XPM | V | 0〜-0.03 | 約30° ABOUT 30°

前ページより FROM 外径 DC 0.8〜4.95

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8450050 | 5 | 65 | 10 | 8 | B | ● | 26 | 6,700 |
| | 5.05 | | 12 | | – | □ | – | – |
| | 5.1 | | | | | □ | – | – |
| | 5.15 | | | | | □ | – | – |
| | 5.2 | | | | | □ | – | – |
| | 5.25 | | | | | □ | – | – |
| | 5.3 | | | | | □ | – | – |
| | 5.35 | | | | | □ | – | – |
| | 5.4 | | | | | □ | – | – |
| | 5.45 | | | | | □ | – | – |
| 8450055 | 5.5 | | | | B | ● | 26 | 6,700 |
| | 5.55 | | | | | □ | – | – |
| | 5.6 | | | | | □ | – | – |
| | 5.65 | | | | | □ | – | – |
| | 5.7 | | | | | □ | – | – |
| | 5.75 | | | | | □ | – | – |
| | 5.8 | | | | | □ | – | – |
| | 5.85 | | | | | □ | – | – |
| | 5.9 | | | | | □ | – | – |
| | 5.95 | | | | | □ | – | – |
| 8450060 | 6 | | | | B | ● | 26 | 6,700 |
| | 6.05 | 70 | 14 | 10 | | □ | – | – |
| | 6.1 | | | | | □ | – | – |
| | 6.15 | | | | | □ | – | – |
| | 6.2 | | | | | □ | – | – |
| | 6.25 | | | | | □ | – | – |
| | 6.3 | | | | | □ | – | – |
| | 6.35 | | | | | □ | – | – |
| | 6.4 | | | | | □ | – | – |
| | 6.45 | | | | | □ | – | – |
| 8450065 | 6.5 | | | | B | ● | 40 | 7,560 |
| | 6.55 | | | | | □ | – | – |
| | 6.6 | | | | | □ | – | – |
| | 6.65 | | | | | □ | – | – |
| | 6.7 | | | | | □ | – | – |
| | 6.75 | | | | | □ | – | – |
| | 6.8 | | | | | □ | – | – |
| | 6.85 | | | | | □ | – | – |
| | 6.9 | | | | | □ | – | – |
| | 6.95 | | | | | □ | – | – |
| 8450070 | 7 | | | | B | ● | 41 | 7,560 |
| | 7.05 | | | | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 7.1 | 70 | 14 | 10 | – | □ | – | – |
| | 7.15 | | | | | □ | – | – |
| | 7.2 | | | | | □ | – | – |
| | 7.25 | | | | | □ | – | – |
| | 7.3 | | | | | □ | – | – |
| | 7.35 | | | | | □ | – | – |
| | 7.4 | | | | | □ | – | – |
| | 7.45 | | | | | □ | – | – |
| 8450075 | 7.5 | | | | B | ● | 41 | 7,560 |
| | 7.55 | | | | | □ | – | – |
| | 7.6 | | | | | □ | – | – |
| | 7.65 | | | | | □ | – | – |
| | 7.7 | | | | | □ | – | – |
| | 7.75 | | | | | □ | – | – |
| | 7.8 | | | | | □ | – | – |
| | 7.85 | | | | | □ | – | – |
| | 7.9 | | | | | □ | – | – |
| | 7.95 | | | | | □ | – | – |
| 8450080 | 8 | | | | B | ● | 41 | 7,560 |
| | 8.05 | 75 | 18 | | | □ | – | – |
| | 8.1 | | | | | □ | – | – |
| | 8.15 | | | | | □ | – | – |
| | 8.2 | | | | | □ | – | – |
| | 8.25 | | | | | □ | – | – |
| | 8.3 | | | | | □ | – | – |
| | 8.35 | | | | | □ | – | – |
| | 8.4 | | | | | □ | – | – |
| | 8.45 | | | | | □ | – | – |
| 8450085 | 8.5 | | | | B | ● | 44 | 8,640 |
| | 8.55 | | | | | □ | – | – |
| | 8.6 | | | | | □ | – | – |
| | 8.65 | | | | | □ | – | – |
| | 8.7 | | | | | □ | – | – |
| | 8.75 | | | | | □ | – | – |
| | 8.8 | | | | | □ | – | – |
| | 8.85 | | | | | □ | – | – |
| | 8.9 | | | | | □ | – | – |
| | 8.95 | | | | | □ | – | – |
| 8450090 | 9 | | | | B | ● | 44 | 8,640 |
| | 9.05 | | | | – | □ | – | – |
| | 9.1 | | | | | □ | – | – |
| | 9.15 | | | | | □ | – | – |

次ページへ 外径 DC 9.2〜40 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| V-XPM-EDS | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# Vコート2枚刃XPMスクエアエンドミル ショート形
**V Coated 2-flute XPM End Mill Short Length**

## V-XPM-EDS

切削条件 Cutting Conditions | P905



粉末ハイスXPMにVコーティングが施してあります。良好な切れ味と安定した工具寿命を実現しました。
Vcoating and powder metallurgy XPM provide superior finish quality and long tool life.

CAD

XPM | V | 0〜-0.03 | 約30° ABOUT 30°

前ページより FROM 外径 DC 5〜9.15

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **9.2** | 75 | 18 | 10 | — | □ | — | — |
| | **9.25** | | | | | □ | — | — |
| | **9.3** | | | | | □ | — | — |
| | **9.35** | | | | | □ | — | — |
| | **9.4** | | | | | □ | — | — |
| | **9.45** | | | | | □ | — | — |
| 8450095 | **9.5** | | | | B | ● | 45 | 8,640 |
| | **9.55** | | | | — | □ | — | — |
| | **9.6** | | | | | □ | — | — |
| | **9.65** | | | | | □ | — | — |
| | **9.7** | | | | | □ | — | — |
| | **9.75** | | | | | □ | — | — |
| | **9.8** | | | | | □ | — | — |
| | **9.85** | | | | | □ | — | — |
| | **9.9** | | | | | □ | — | — |
| | **9.95** | | | | | □ | — | — |
| 8450100 | **10** | | | | B | ● | 46 | 8,640 |
| 8450110 | **11** | 85 | 22 | 12 | | ● | 73 | 11,200 |
| 8450120 | **12** | | | | | ● | 75 | 11,200 |
| 8450130 | **13** | 90 | 26 | | | ● | 82 | 14,700 |
| 8450140 | **14** | 95 | | 16 | | ● | 140 | 14,700 |
| 8450150 | **15** | 100 | 30 | | | ● | 145 | 16,300 |
| 8450160 | **16** | | | | | ● | 153 | 17,400 |
| 8450170 | **17** | | 34 | | | ● | 150 | 20,800 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8450180 | **18** | 100 | 34 | 16 | B | ● | 160 | 20,800 |
| 8450190 | **19** | 115 | 38 | 20 | | ● | 256 | 25,200 |
| 8450200 | **20** | | | | | ● | 263 | 25,200 |
| 8450210 | **21** | | 45 | | D | ● | 265 | 37,300 |
| 8450220 | **22** | | | | B | ● | 272 | 31,000 |
| 8450230 | **23** | 125 | 50 | 25 | D | ● | 398 | 43,900 |
| 8450240 | **24** | | | | B | ● | 418 | 35,800 |
| 8450250 | **25** | | | | | ● | 433 | 35,800 |
| 8450260 | **26** | | | | | ● | 456 | 39,600 |
| 8450270 | **27** | 130 | 55 | | D | ● | 491 | 58,200 |
| 8450280 | **28** | | | | B | ● | 497 | 46,900 |
| 8450290 | **29** | | | | D | ● | 510 | 70,200 |
| 8450300 | **30** | | | | B | ● | 520 | 56,900 |
| 8450310 | **31** | 160 | 60 | 32 | D | ● | 937 | 85,500 |
| 8450320 | **32** | | | | B | ● | 948 | 70,300 |
| 8450330 | **33** | | | | D | ● | 974 | 102,000 |
| 8450340 | **34** | | | | | ● | 953 | 102,000 |
| 8450350 | **35** | | | | B | ● | 1,003 | 82,900 |
| 8450360 | **36** | 165 | 65 | | D | ● | 1,045 | 115,000 |
| 8450370 | **37** | | | | | ● | 1,064 | 124,000 |
| 8450380 | **38** | | | | B | ● | 1,064 | 101,000 |
| 8450390 | **39** | | | | D | ● | 1,064 | 143,000 |
| 8450400 | **40** | | | | B | ● | 1,105 | 117,000 |



工具自販機 MONOlithbox モノリスボックス
※詳細はこちら▶ Scan for details
「労働人口減少の2030年問題」対策を! 自動化・省人化に貢献します

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **V-XPM-EDS** | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

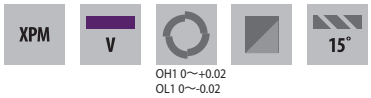
# キー溝用Vコート2枚刃XPMスクエアエンドミル
**V Coated 2-flute XPM End Mill for Keyway Slotting**

## V-XPM-EKD



Vコーティングを施した粉末ハイスXPMのキー溝加工用エンドミルです。
Vcoated end mill for key way made with powder metallurgy XPM.

CAD




OH1 0～+0.02
OL1 0～-0.02

（単位:mm）(Unit:mm)

| ツール No. EDP No. OH1 | ツール No. EDP No. OL1 | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 83406 | 83766 | **3** | 50 | 5 | 6 | D | ● | 13 | 8,750 |
| 83408 | 83768 | **4** | 60 | 6 | 8 | | ● | 23 | 8,750 |
| 83410 | 83770 | **5** | | 8 | | | ● | 23 | 8,750 |
| 83412 | 83772 | **6** | | 10 | | | ● | 23 | 8,750 |
| 83414 | 83774 | **7** | | | 10 | | ● | 35 | 9,660 |
| 83416 | 83776 | **8** | | 12 | | | ● | 34 | 9,660 |
| 83418 | 83778 | **9** | 65 | | | | ● | 39 | 11,200 |
| 83420 | 83780 | **10** | | 15 | | | ● | 39 | 11,200 |
| 83421 | 83781 | **11** | 70 | | 12 | | ● | 60 | 14,200 |
| 83422 | 83782 | **12** | | | | | ● | 61 | 14,200 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **V-XPM-EKD** | ◎ | | ○ | ◎ | ◎ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 2枚刃XPMスクエアエンドミルショート形
**2-flute XPM End Mill Short Length**

## XPM-EDS

切削条件 Cutting Conditions | P912



粉末ハイスXPMを母材に採用した2枚刃のショート刃シリーズです。
Two-fluted short end mill with powder metallurgy XPM base material.

CAD

XPM


0～-0.03




約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 70308 | **0.8** | 50 | 2 | 6 | D | ● | 14 | 11,400 |
| 70309 | **0.9** | | 2.2 | | | ● | 14 | 11,400 |
| 89002 | **1** | | 2.5 | | A | ● | 14 | 6,800 |
| 70311 | **1.1** | | | | D | ● | 14 | 10,800 |
| 70312 | **1.2** | | 3 | | | ● | 13 | 10,800 |
| 70313 | **1.3** | | | | | ● | 13 | 10,800 |
| 70314 | **1.4** | | | | | ● | 14 | 10,800 |
| 89003 | **1.5** | | 3.5 | | A | ● | 14 | 6,220 |
| 70316 | **1.6** | | | | D | ● | 14 | 10,200 |
| 70317 | **1.7** | | | | | ● | 14 | 10,200 |
| 70318 | **1.8** | | | | | ● | 14 | 10,200 |
| 70319 | **1.9** | 55 | 4 | | | ● | 14 | 10,200 |
| 89004 | **2** | | | | A | ● | 14 | 5,900 |
| 70321 | **2.1** | | 5 | | D | ● | 14 | 9,660 |
| 70322 | **2.2** | | | | | ● | 17 | 9,660 |
| 70323 | **2.3** | | | | | ● | 17 | 9,660 |
| 70324 | **2.4** | | | | | ● | 14 | 9,660 |
| 89005 | **2.5** | | | | A | ● | 14 | 5,850 |
| 70326 | **2.6** | | 7 | | D | ● | 14 | 9,590 |
| 70327 | **2.7** | | | | | ● | 17 | 9,590 |
| 70328 | **2.8** | | | | | ● | 14 | 9,590 |
| 70329 | **2.9** | | | | | ● | 14 | 9,590 |
| 89006 | **3** | | | | A | ● | 14 | 4,950 |
| 70331 | **3.1** | 65 | 8 | 8 | D | ● | 26 | 8,230 |
| 70332 | **3.2** | | | | | ● | 25 | 8,230 |
| 70333 | **3.3** | | | | | ● | 25 | 8,230 |
| 70334 | **3.4** | | | | | ● | 25 | 8,230 |
| 89007 | **3.5** | | | | A | ● | 25 | 4,950 |
| 70336 | **3.6** | | | | D | ● | 25 | 8,230 |
| 70337 | **3.7** | | | | | ● | 25 | 8,230 |
| 70338 | **3.8** | | | | | ● | 25 | 8,230 |
| 70339 | **3.9** | | | | | ● | 25 | 8,230 |
| 89008 | **4** | | | | A | ● | 25 | 4,950 |
| 70341 | **4.1** | | 10 | | D | ● | 25 | 8,230 |
| 70342 | **4.2** | | | | | ● | 25 | 8,230 |
| 70343 | **4.3** | | | | | ● | 25 | 8,230 |
| 70344 | **4.4** | | | | | ● | 25 | 8,230 |
| 89009 | **4.5** | | | | A | ● | 25 | 4,950 |
| 70346 | **4.6** | | | | D | ● | 25 | 8,230 |
| 70347 | **4.7** | | | | | ● | 25 | 8,230 |
| 70348 | **4.8** | | | | | ● | 25 | 8,230 |
| 70349 | **4.9** | | | | | ● | 25 | 8,230 |
| 89010 | **5** | | | | A | ● | 25 | 4,950 |
| 70351 | **5.1** | | 12 | | D | ● | 25 | 8,230 |
| 70352 | **5.2** | | | | | ● | 25 | 8,230 |
| 70353 | **5.3** | | | | | ● | 25 | 8,230 |
| 70354 | **5.4** | | | | | ● | 26 | 8,230 |
| 89011 | **5.5** | | | | A | ● | 25 | 4,950 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 70356 | **5.6** | 65 | 12 | 8 | D | ● | 26 | 8,230 |
| 70357 | **5.7** | | | | | ● | 25 | 8,230 |
| 70358 | **5.8** | | | | | ● | 26 | 8,230 |
| 70359 | **5.9** | | | | | ● | 26 | 8,230 |
| 89012 | **6** | | | | A | ● | 26 | 4,950 |
| 70361 | **6.1** | 70 | 14 | 10 | D | ● | 39 | 8,990 |
| 70362 | **6.2** | | | | | ● | 40 | 8,990 |
| 70363 | **6.3** | | | | | ● | 40 | 8,990 |
| 70364 | **6.4** | | | | | ● | 40 | 8,990 |
| 89013 | **6.5** | | | | A | ● | 40 | 5,590 |
| 70366 | **6.6** | | | | D | ● | 43 | 8,990 |
| 70367 | **6.7** | | | | | ● | 43 | 8,990 |
| 70368 | **6.8** | | | | | ● | 43 | 8,990 |
| 70369 | **6.9** | | | | | ● | 43 | 8,990 |
| 89014 | **7** | | | | A | ● | 40 | 5,590 |
| 70371 | **7.1** | | | | D | ● | 43 | 8,990 |
| 70372 | **7.2** | | | | | ● | 43 | 8,990 |
| 70373 | **7.3** | | | | | ● | 43 | 8,990 |
| 70374 | **7.4** | | | | | ● | 43 | 8,990 |
| 89015 | **7.5** | | | | A | ● | 43 | 5,590 |
| 70376 | **7.6** | | | | D | ● | 43 | 8,990 |
| 70377 | **7.7** | | | | | ● | 43 | 8,990 |
| 70378 | **7.8** | | | | | ● | 43 | 8,990 |
| 70379 | **7.9** | | | | | ● | 43 | 8,990 |
| 89016 | **8** | | | | A | ● | 43 | 5,590 |
| 70381 | **8.1** | 75 | 18 | | D | ● | 44 | 10,500 |
| 70382 | **8.2** | | | | | ● | 44 | 10,500 |
| 70383 | **8.3** | | | | | ● | 44 | 10,500 |
| 70384 | **8.4** | | | | | ● | 45 | 10,500 |
| 89017 | **8.5** | | | | A | ● | 45 | 6,400 |
| 70386 | **8.6** | | | | D | ● | 45 | 10,500 |
| 70387 | **8.7** | | | | | ● | 45 | 10,500 |
| 70388 | **8.8** | | | | | ● | 45 | 10,500 |
| 70389 | **8.9** | | | | | ● | 46 | 10,500 |
| 89018 | **9** | | | | A | ● | 44 | 6,400 |
| 70391 | **9.1** | | | | D | ● | 47 | 10,500 |
| 70392 | **9.2** | | | | | ● | 47 | 10,500 |
| 70393 | **9.3** | | | | | ● | 47 | 10,500 |
| 70394 | **9.4** | | | | | ● | 47 | 10,500 |
| 89019 | **9.5** | | | | A | ● | 45 | 6,400 |
| 70396 | **9.6** | | | | D | ● | 47 | 10,500 |
| 70397 | **9.7** | | | | | ● | 47 | 10,500 |
| 70398 | **9.8** | | | | | ● | 47 | 10,500 |
| 70399 | **9.9** | | | | | ● | 47 | 10,500 |
| 89020 | **10** | | | | A | ● | 47 | 6,400 |
| | **10.1** | 85 | 22 | 12 | – | □ | – | – |
| | **10.2** | | | | | □ | – | – |

次ページへ
外径 DC 10.3～18.6 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃XPMスクエアエンドミルショート形
**2-flute XPM End Mill Short Length**

## XPM-EDS

切削条件 Cutting Conditions | P912



粉末ハイスXPMを母材に採用した2枚刃のショート刃シリーズです。
Two-fluted short end mill with powder metallurgy XPM base material.

CAD

XPM | 0〜-0.03 | 約30° ABOUT 30°

前ページより FROM 外径 DC 0.8〜10.2

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 10.3 | 85 | 22 | 12 | – | □ | – | – |
| | 10.4 | | | | | □ | – | – |
| 89461 | 10.5 | | | | D | ● | 72 | 12,800 |
| | 10.6 | | | | – | □ | – | – |
| | 10.7 | | | | | □ | – | – |
| | 10.8 | | | | | □ | – | – |
| | 10.9 | | | | | □ | – | – |
| 89021 | 11 | | | | A | ● | 73 | 8,170 |
| | 11.1 | | | | – | □ | – | – |
| | 11.2 | | | | | □ | – | – |
| | 11.3 | | | | | □ | – | – |
| | 11.4 | | | | | □ | – | – |
| 89462 | 11.5 | | | | D | ● | 76 | 12,800 |
| | 11.6 | | | | – | □ | – | – |
| | 11.7 | | | | | □ | – | – |
| | 11.8 | | | | | □ | – | – |
| | 11.9 | | | | | □ | – | – |
| 89022 | 12 | | | | A | ● | 75 | 8,170 |
| | 12.1 | 90 | 26 | | – | □ | – | – |
| | 12.2 | | | | | □ | – | – |
| | 12.3 | | | | | □ | – | – |
| | 12.4 | | | | | □ | – | – |
| 89463 | 12.5 | | | | D | ● | 80 | 16,900 |
| | 12.6 | | | | – | □ | – | – |
| | 12.7 | | | | | □ | – | – |
| | 12.8 | | | | | □ | – | – |
| | 12.9 | | | | | □ | – | – |
| 89023 | 13 | | | | A | ● | 81 | 10,900 |
| | 13.1 | 95 | | 16 | – | □ | – | – |
| | 13.2 | | | | | □ | – | – |
| | 13.3 | | | | | □ | – | – |
| | 13.4 | | | | | □ | – | – |
| 89464 | 13.5 | | | | D | ● | 134 | 16,900 |
| | 13.6 | | | | – | □ | – | – |
| | 13.7 | | | | | □ | – | – |
| | 13.8 | | | | | □ | – | – |
| | 13.9 | | | | | □ | – | – |
| 89024 | 14 | | | | A | ● | 136 | 10,900 |
| | 14.1 | 100 | 30 | | – | □ | – | – |
| | 14.2 | | | | | □ | – | – |
| | 14.3 | | | | | □ | – | – |
| | 14.4 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89465 | 14.5 | 100 | 30 | 16 | D | ● | 142 | 18,500 |
| | 14.6 | | | | – | □ | – | – |
| | 14.7 | | | | | □ | – | – |
| | 14.8 | | | | | □ | – | – |
| | 14.9 | | | | | □ | – | – |
| 89025 | 15 | | | | A | ● | 149 | 12,000 |
| | 15.1 | | | | – | □ | – | – |
| | 15.2 | | | | | □ | – | – |
| | 15.3 | | | | | □ | – | – |
| | 15.4 | | | | | □ | – | – |
| 89466 | 15.5 | | | | D | ● | 146 | 20,400 |
| | 15.6 | | | | – | □ | – | – |
| | 15.7 | | | | | □ | – | – |
| | 15.8 | | | | | □ | – | – |
| | 15.9 | | | | | □ | – | – |
| 89026 | 16 | | | | A | ● | 148 | 12,900 |
| | 16.1 | | 34 | | – | □ | – | – |
| | 16.2 | | | | | □ | – | – |
| | 16.3 | | | | | □ | – | – |
| | 16.4 | | | | | □ | – | – |
| 89467 | 16.5 | | | | D | ● | 153 | 24,100 |
| | 16.6 | | | | – | □ | – | – |
| | 16.7 | | | | | □ | – | – |
| | 16.8 | | | | | □ | – | – |
| | 16.9 | | | | | □ | – | – |
| 89027 | 17 | | | | A | ● | 150 | 15,400 |
| | 17.1 | | | | – | □ | – | – |
| | 17.2 | | | | | □ | – | – |
| | 17.3 | | | | | □ | – | – |
| | 17.4 | | | | | □ | – | – |
| 89468 | 17.5 | | | | D | ● | 157 | 24,100 |
| | 17.6 | | | | – | □ | – | – |
| | 17.7 | | | | | □ | – | – |
| | 17.8 | | | | | □ | – | – |
| | 17.9 | | | | | □ | – | – |
| 89028 | 18 | | | | A | ● | 153 | 15,400 |
| | 18.1 | 115 | 38 | 20 | – | □ | – | – |
| | 18.2 | | | | | □ | – | – |
| | 18.3 | | | | | □ | – | – |
| | 18.4 | | | | | □ | – | – |
| 89469 | 18.5 | | | | D | ● | 244 | 29,000 |
| | 18.6 | | | | – | □ | – | – |

次ページへ 外径 DC 18.7〜26.9 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| XPM-EDS | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃XPMスクエアエンドミルショート形
**2-flute XPM End Mill Short Length**

## XPM-EDS

切削条件 Cutting Conditions | P912



粉末ハイスXPMを母材に採用した2枚刃のショート刃シリーズです。
Two-fluted short end mill with powder metallurgy XPM base material.

CAD

XPM

0〜-0.03

約30° ABOUT 30°

前ページより FROM 外径 DC 10.3〜18.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 18.7 | 115 | 38 | 20 | — | □ | — | — |
| | 18.8 | | | | | □ | — | — |
| | 18.9 | | | | | □ | — | — |
| 89029 | 19 | | | | A | ● | 255 | 18,700 |
| | 19.1 | | | | — | □ | — | — |
| | 19.2 | | | | | □ | — | — |
| | 19.3 | | | | | □ | — | — |
| | 19.4 | | | | | □ | — | — |
| 89470 | 19.5 | | | | D | ● | 253 | 29,000 |
| | 19.6 | | | | — | □ | — | — |
| | 19.7 | | | | | □ | — | — |
| | 19.8 | | | | | □ | — | — |
| | 19.9 | | | | | □ | — | — |
| 89030 | 20 | | | | A | ● | 263 | 18,700 |
| | 20.1 | | 45 | | — | □ | — | — |
| | 20.2 | | | | | □ | — | — |
| | 20.3 | | | | | □ | — | — |
| | 20.4 | | | | | □ | — | — |
| | 20.5 | | | | | □ | — | — |
| | 20.6 | | | | | □ | — | — |
| | 20.7 | | | | | □ | — | — |
| | 20.8 | | | | | □ | — | — |
| | 20.9 | | | | | □ | — | — |
| 89031 | 21 | | | | A | ● | 263 | 22,900 |
| | 21.1 | | | | — | □ | — | — |
| | 21.2 | | | | | □ | — | — |
| | 21.3 | | | | | □ | — | — |
| | 21.4 | | | | | □ | — | — |
| | 21.5 | | | | | □ | — | — |
| | 21.6 | | | | | □ | — | — |
| | 21.7 | | | | | □ | — | — |
| | 21.8 | | | | | □ | — | — |
| | 21.9 | | | | | □ | — | — |
| 89032 | 22 | | | | A | ● | 274 | 22,900 |
| ◆ | 22.1 | 125 | 50 | 25 | — | □ | — | — |
| ◆ | 22.2 | | | | | □ | — | — |
| ◆ | 22.3 | | | | | □ | — | — |
| ◆ | 22.4 | | | | | □ | — | — |
| ◆ | 22.5 | | | | | □ | — | — |
| ◆ | 22.6 | | | | | □ | — | — |
| ◆ | 22.7 | | | | | □ | — | — |
| ◆ | 22.8 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ◆ | 22.9 | 125 | 50 | 25 | — | □ | — | — |
| 89033 | 23 | | | | A | ● | 410 | 26,700 |
| ◆ | 23.1 | | | | — | □ | — | — |
| ◆ | 23.2 | | | | | □ | — | — |
| ◆ | 23.3 | | | | | □ | — | — |
| ◆ | 23.4 | | | | | □ | — | — |
| ◆ | 23.5 | | | | | □ | — | — |
| ◆ | 23.6 | | | | | □ | — | — |
| ◆ | 23.7 | | | | | □ | — | — |
| ◆ | 23.8 | | | | | □ | — | — |
| ◆ | 23.9 | | | | | □ | — | — |
| 89034 | 24 | | | | A | ● | 409 | 26,700 |
| ◆ | 24.1 | | | | — | □ | — | — |
| ◆ | 24.2 | | | | | □ | — | — |
| ◆ | 24.3 | | | | | □ | — | — |
| ◆ | 24.4 | | | | | □ | — | — |
| ◆ | 24.5 | | | | | □ | — | — |
| ◆ | 24.6 | | | | | □ | — | — |
| ◆ | 24.7 | | | | | □ | — | — |
| ◆ | 24.8 | | | | | □ | — | — |
| ◆ | 24.9 | | | | | □ | — | — |
| 89035 | 25 | | | | A | ● | 418 | 26,700 |
| ◆ | 25.1 | | | | — | □ | — | — |
| ◆ | 25.2 | | | | | □ | — | — |
| ◆ | 25.3 | | | | | □ | — | — |
| ◆ | 25.4 | | | | | □ | — | — |
| ◆ | 25.5 | | | | | □ | — | — |
| ◆ | 25.6 | | | | | □ | — | — |
| ◆ | 25.7 | | | | | □ | — | — |
| ◆ | 25.8 | | | | | □ | — | — |
| ◆ | 25.9 | | | | | □ | — | — |
| 89036 | 26 | | | | D | ● | 459 | 32,600 |
| ◆ | 26.1 | 130 | 55 | 25 | — | □ | — | — |
| ◆ | 26.2 | | | | | □ | — | — |
| ◆ | 26.3 | | | | | □ | — | — |
| ◆ | 26.4 | | | | | □ | — | — |
| ◆ | 26.5 | | | | | □ | — | — |
| ◆ | 26.6 | | | | | □ | — | — |
| ◆ | 26.7 | | | | | □ | — | — |
| ◆ | 26.8 | | | | | □ | — | — |
| ◆ | 26.9 | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆ :Shank with two flat face.

次ページへ 外径 DC 27〜50 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜35HRC | 〜350HB | | | | | |
| XPM-EDS | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃XPMスクエアエンドミルショート形
**2-flute XPM End Mill Short Length**

## XPM-EDS

切削条件 Cutting Conditions | P912



粉末ハイスXPMを母材に採用した2枚刃のショート刃シリーズです。
Two-fluted short end mill with powder metallurgy XPM base material.

CAD

XPM | 0〜-0.03 | 約30° ABOUT 30°

前ページより FROM 外径 DC 18.7〜26.9

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89037 | 27 | 130 | 55 | 25 | D | ● | 491 | 38,900 |
| ◆ | 27.1 | | | | – | □ | – | – |
| ◆ | 27.2 | | | | | □ | – | – |
| ◆ | 27.3 | | | | | □ | – | – |
| ◆ | 27.4 | | | | | □ | – | – |
| ◆ | 27.5 | | | | | □ | – | – |
| ◆ | 27.6 | | | | | □ | – | – |
| ◆ | 27.7 | | | | | □ | – | – |
| ◆ | 27.8 | | | | | □ | – | – |
| ◆ | 27.9 | | | | | □ | – | – |
| 89038 | 28 | | | | D | ● | 499 | 38,900 |
| ◆ | 28.1 | | | | – | □ | – | – |
| ◆ | 28.2 | | | | | □ | – | – |
| ◆ | 28.3 | | | | | □ | – | – |
| ◆ | 28.4 | | | | | □ | – | – |
| ◆ | 28.5 | | | | | □ | – | – |
| ◆ | 28.6 | | | | | □ | – | – |
| ◆ | 28.7 | | | | | □ | – | – |
| ◆ | 28.8 | | | | | □ | – | – |
| ◆ | 28.9 | | | | | □ | – | – |
| 89039 | 29 | | | | D | ● | 497 | 47,100 |
| ◆ | 29.1 | | | | – | □ | – | – |
| ◆ | 29.2 | | | | | □ | – | – |
| ◆ | 29.3 | | | | | □ | – | – |
| ◆ | 29.4 | | | | | □ | – | – |
| ◆ | 29.5 | | | | | □ | – | – |
| ◆ | 29.6 | | | | | □ | – | – |
| ◆ | 29.7 | | | | | □ | – | – |
| ◆ | 29.8 | | | | | □ | – | – |
| ◆ | 29.9 | | | | | □ | – | – |
| 89040 | 30 | | | | D | ● | 523 | 47,100 |
| 89041 | 31 | 160 | 60 | 32 | | ● | 910 | 57,800 |
| 89042 | 32 | | | | | ● | 956 | 57,800 |
| 89043 | 33 | | | | | ● | 974 | 68,500 |
| 89044 | 34 | | | | | ● | 980 | 68,500 |
| 89045 | 35 | | | | | ● | 1,001 | 68,500 |
| 89046 | 36 | 165 | 65 | | | ● | 1,040 | 76,600 |
| 89047 | 37 | | | | | ● | 1,040 | 82,500 |
| 89048 | 38 | | | | | ● | 1,086 | 82,500 |
| 89049 | 39 | | | | | ● | 1,112 | 96,100 |
| 89050 | 40 | | | | | ● | 1,132 | 96,100 |
| ◆ | 42 | 180 | 70 | 42 | – | □ | – | – |
| ◆ | 45 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ◆ | 48 | 185 | 75 | 42 | – | □ | – | – |
| ◆ | 50 | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆ :Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| XPM-EDS | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# TiNコート2枚刃ハイススクエアエンドミル ショート形
**TiN Coated 2-flute End Mill Short Length**

## EX-TIN-EDS

切削条件 Cutting Conditions | P914



HSS-Co | TiN | 0〜-0.03 | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 76805 | **0.5** | 45 | 1 | 6 | D | △ | 13 | 12,100 |
| 76808 | **0.8** | | 1.6 | | | ● | 14 | 9,930 |
| 76809 | **0.9** | | 1.8 | | | ● | 13 | 9,930 |
| 88002 | **1** | | 2 | | A | ● | 14 | 5,900 |
| 76811 | **1.1** | | 2.5 | | D | ● | 13 | 9,200 |
| 76812 | **1.2** | | | | | ● | 12 | 9,200 |
| 76813 | **1.3** | | 3 | | | ● | 12 | 9,200 |
| 76814 | **1.4** | | | | | ● | 12 | 9,200 |
| 88003 | **1.5** | | | | A | ● | 12 | 5,520 |
| 76816 | **1.6** | | 3.5 | | D | ● | 12 | 8,450 |
| 76817 | **1.7** | | | | | ● | 13 | 8,450 |
| 76818 | **1.8** | | 4 | | | ● | 12 | 8,450 |
| 76819 | **1.9** | 50 | | | | ● | 13 | 8,450 |
| 88004 | **2** | | | | A | ● | 13 | 5,220 |
| 76821 | **2.1** | | 4.5 | | D | ● | 13 | 8,190 |
| 76822 | **2.2** | | | | | ● | 13 | 8,190 |
| 76823 | **2.3** | | 5 | | | ● | 13 | 8,190 |
| 76824 | **2.4** | | | | | ● | 13 | 8,190 |
| 88005 | **2.5** | | | | A | ● | 13 | 5,110 |
| 76826 | **2.6** | | 5.5 | | D | ● | 13 | 8,080 |
| 76827 | **2.7** | | | | | ● | 13 | 8,080 |
| 76828 | **2.8** | | 6 | | | ● | 13 | 8,080 |
| 76829 | **2.9** | | | | | ● | 13 | 8,080 |
| 88006 | **3** | | | | A | ● | 13 | 4,540 |
| 76831 | **3.1** | 60 | 6.5 | 8 | D | ● | 23 | 7,540 |
| 76832 | **3.2** | | | | | ● | 23 | 7,540 |
| 76833 | **3.3** | | 7 | | | ● | 23 | 7,540 |
| 76834 | **3.4** | | | | | ● | 23 | 7,540 |
| 88007 | **3.5** | | 8 | | A | ● | 23 | 4,540 |
| 76836 | **3.6** | | | | D | ● | 23 | 7,540 |
| 76837 | **3.7** | | | | | ● | 23 | 7,540 |
| 76838 | **3.8** | | | | | ● | 23 | 7,540 |
| 76839 | **3.9** | | | | | ● | 23 | 7,540 |
| 88008 | **4** | | | | A | ● | 24 | 4,540 |
| 76841 | **4.1** | | 10 | | D | ● | 23 | 7,540 |
| 76842 | **4.2** | | | | | ● | 23 | 7,540 |
| 76843 | **4.3** | | | | | ● | 23 | 7,540 |
| 76844 | **4.4** | | | | | ● | 23 | 7,540 |
| 88009 | **4.5** | | | | A | ● | 24 | 4,540 |
| 76846 | **4.6** | | | | D | ● | 23 | 7,540 |
| 76847 | **4.7** | | | | | ● | 23 | 7,540 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 76848 | **4.8** | 60 | 10 | 8 | D | ● | 23 | 7,540 |
| 76849 | **4.9** | | | | | ● | 23 | 7,540 |
| 88010 | **5** | | | | A | ● | 24 | 4,540 |
| 76851 | **5.1** | | 12 | | D | ● | 23 | 7,540 |
| 76852 | **5.2** | | | | | ● | 23 | 7,540 |
| 76853 | **5.3** | | | | | ● | 23 | 7,540 |
| 76854 | **5.4** | | | | | ● | 23 | 7,540 |
| 88011 | **5.5** | | | | A | ● | 24 | 4,540 |
| 76856 | **5.6** | | | | D | ● | 24 | 7,540 |
| 76857 | **5.7** | | | | | ● | 24 | 7,540 |
| 76858 | **5.8** | | | | | ● | 24 | 7,540 |
| 76859 | **5.9** | | | | | ● | 24 | 7,540 |
| 88012 | **6** | | | | A | ● | 24 | 4,540 |
| 76861 | **6.1** | | 14 | 10 | D | ● | 33 | 8,450 |
| 76862 | **6.2** | | | | | ● | 33 | 8,450 |
| 76863 | **6.3** | | | | | ● | 33 | 8,450 |
| 76864 | **6.4** | | | | | ● | 33 | 8,450 |
| 88013 | **6.5** | | | | A | ● | 34 | 5,110 |
| 76866 | **6.6** | | | | D | ● | 34 | 8,450 |
| 76867 | **6.7** | | | | | ● | 34 | 8,450 |
| 76868 | **6.8** | | | | | ● | 34 | 8,450 |
| 76869 | **6.9** | | | | | ● | 34 | 8,450 |
| 88014 | **7** | | | | A | ● | 34 | 5,110 |
| 76871 | **7.1** | | | | D | ● | 35 | 8,450 |
| 76872 | **7.2** | | | | | ● | 35 | 8,450 |
| 76873 | **7.3** | | | | | ● | 34 | 8,450 |
| 76874 | **7.4** | | | | | ● | 34 | 8,450 |
| 88015 | **7.5** | | | | A | ● | 35 | 5,110 |
| 76876 | **7.6** | | | | D | ● | 35 | 8,450 |
| 76877 | **7.7** | | | | | ● | 35 | 8,450 |
| 76878 | **7.8** | | | | | ● | 35 | 8,450 |
| 76879 | **7.9** | | | | | ● | 35 | 8,450 |
| 88016 | **8** | | | | A | ● | 36 | 5,110 |
| 76881 | **8.1** | 70 | 18 | | D | ● | 40 | 9,300 |
| 76882 | **8.2** | | | | | ● | 41 | 9,300 |
| 76883 | **8.3** | | | | | ● | 41 | 9,300 |
| 76884 | **8.4** | | | | | ● | 41 | 9,300 |
| 88017 | **8.5** | | | | A | ● | 41 | 5,900 |
| 76886 | **8.6** | | | | D | ● | 41 | 9,300 |
| 76887 | **8.7** | | | | | ● | 42 | 9,300 |

次ページへ 外径 DC 8.8〜17.1 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-TIN-EDS** | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイススクエアエンドミル ショート形
**TiN Coated 2-flute End Mill Short Length**

## EX-TIN-EDS

切削条件 Cutting Conditions | P914



CAD

HSS-Co | TiN | 0〜-0.03 | 30°

前ページより FROM 外径 DC 0.5〜8.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 76888 | **8.8** | 70 | 18 | 10 | D | ● | 41 | 9,300 |
| 76889 | **8.9** | | | | | ● | 42 | 9,300 |
| 88018 | **9** | | | | A | ● | 42 | 5,900 |
| 76891 | **9.1** | | | | D | ● | 42 | 9,300 |
| 76892 | **9.2** | | | | | ● | 43 | 9,300 |
| 76893 | **9.3** | | | | | ● | 43 | 9,300 |
| 76894 | **9.4** | | | | | ● | 43 | 9,300 |
| 88019 | **9.5** | | | | A | ● | 43 | 5,900 |
| 76896 | **9.6** | | | | D | ● | 43 | 9,300 |
| 76897 | **9.7** | | | | | ● | 43 | 9,300 |
| 76898 | **9.8** | | | | | ● | 43 | 9,300 |
| 76899 | **9.9** | | | | | ● | 43 | 9,300 |
| 88020 | **10** | | | | A | ● | 44 | 5,900 |
| | **10.1** | 80 | 22 | 12 | – | □ | – | – |
| | **10.2** | | | | | □ | – | – |
| | **10.3** | | | | | □ | – | – |
| | **10.4** | | | | | □ | – | – |
| 8402005 | **10.5** | | | | D | ● | 67 | 11,700 |
| | **10.6** | | | | – | □ | – | – |
| | **10.7** | | | | | □ | – | – |
| | **10.8** | | | | | □ | – | – |
| | **10.9** | | | | | □ | – | – |
| 88021 | **11** | | | | A | ● | 69 | 7,510 |
| | **11.1** | | | | – | □ | – | – |
| | **11.2** | | | | | □ | – | – |
| | **11.3** | | | | | □ | – | – |
| | **11.4** | | | | | □ | – | – |
| 8402015 | **11.5** | | | | D | ● | 69 | 11,700 |
| | **11.6** | | | | – | □ | – | – |
| | **11.7** | | | | | □ | – | – |
| | **11.8** | | | | | □ | – | – |
| | **11.9** | | | | | □ | – | – |
| 88022 | **12** | | | | A | ● | 71 | 7,510 |
| | **12.1** | 85 | 26 | | – | □ | – | – |
| | **12.2** | | | | | □ | – | – |
| | **12.3** | | | | | □ | – | – |
| | **12.4** | | | | | □ | – | – |
| 8402025 | **12.5** | | | | D | ● | 72 | 14,600 |
| | **12.6** | | | | – | □ | – | – |
| | **12.7** | | | | | □ | – | – |
| | **12.8** | | | | | □ | – | – |
| | **12.9** | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 88023 | **13** | 85 | 26 | 12 | A | ● | 73 | 9,400 |
| | **13.1** | 90 | | 16 | – | □ | – | – |
| | **13.2** | | | | | □ | – | – |
| | **13.3** | | | | | □ | – | – |
| | **13.4** | | | | | □ | – | – |
| 8402035 | **13.5** | | | | D | ● | 122 | 14,600 |
| | **13.6** | | | | – | □ | – | – |
| | **13.7** | | | | | □ | – | – |
| | **13.8** | | | | | □ | – | – |
| | **13.9** | | | | | □ | – | – |
| 88024 | **14** | | | | A | ● | 128 | 9,400 |
| | **14.1** | 95 | 30 | | – | □ | – | – |
| | **14.2** | | | | | □ | – | – |
| | **14.3** | | | | | □ | – | – |
| | **14.4** | | | | | □ | – | – |
| 8402045 | **14.5** | | | | D | ● | 131 | 16,100 |
| | **14.6** | | | | – | □ | – | – |
| | **14.7** | | | | | □ | – | – |
| | **14.8** | | | | | □ | – | – |
| | **14.9** | | | | | □ | – | – |
| 88025 | **15** | | | | A | ● | 135 | 10,500 |
| | **15.1** | | | | – | □ | – | – |
| | **15.2** | | | | | □ | – | – |
| | **15.3** | | | | | □ | – | – |
| | **15.4** | | | | | □ | – | – |
| 8402055 | **15.5** | | | | D | ● | 138 | 17,400 |
| | **15.6** | | | | – | □ | – | – |
| | **15.7** | | | | | □ | – | – |
| | **15.8** | | | | | □ | – | – |
| | **15.9** | | | | | □ | – | – |
| 88026 | **16** | | | | A | ● | 137 | 11,300 |
| | **16.1** | | 34 | | – | □ | – | – |
| | **16.2** | | | | | □ | – | – |
| | **16.3** | | | | | □ | – | – |
| | **16.4** | | | | | □ | – | – |
| 8402065 | **16.5** | | | | D | ● | 138 | 20,900 |
| | **16.6** | | | | – | □ | – | – |
| | **16.7** | | | | | □ | – | – |
| | **16.8** | | | | | □ | – | – |
| | **16.9** | | | | | □ | – | – |
| 88027 | **17** | | | | A | ● | 139 | 13,600 |
| | **17.1** | | | | – | □ | – | – |

次ページへ 外径 DC 17.2〜47×32 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **EX-TIN-EDS** | ○ | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイススクエアエンドミル ショート形

**TiN Coated 2-flute End Mill Short Length**

## EX-TIN-EDS

切削条件 Cutting Conditions | P914



HSS-Co | TiN | 0〜-0.03 | 30°

CAD

前ページより FROM 外径 DC 8.8〜17.1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 17.2 | | | | — | □ | — | — |
| | 17.3 | | | | — | □ | — | — |
| | 17.4 | | | | — | □ | — | — |
| 8402075 | 17.5 | | | | D | ● | 140 | 20,900 |
| | 17.6 | 95 | 34 | 16 | — | □ | — | — |
| | 17.7 | | | | — | □ | — | — |
| | 17.8 | | | | — | □ | — | — |
| | 17.9 | | | | — | □ | — | — |
| 88028 | 18 | | | | A | ● | 145 | 13,600 |
| | 18.1 | | | | — | □ | — | — |
| | 18.2 | | | | — | □ | — | — |
| | 18.3 | | | | — | □ | — | — |
| | 18.4 | | | | — | □ | — | — |
| 8402085 | 18.5 | | | | D | ● | 228 | 25,100 |
| | 18.6 | | | | — | □ | — | — |
| | 18.7 | | | | — | □ | — | — |
| | 18.8 | | | | — | □ | — | — |
| | 18.9 | | | | — | □ | — | — |
| 88029 | 19 | | 38 | | A | ● | 229 | 16,300 |
| | 19.1 | | | | — | □ | — | — |
| | 19.2 | 110 | | 20 | — | □ | — | — |
| | 19.3 | | | | — | □ | — | — |
| | 19.4 | | | | — | □ | — | — |
| 8402095 | 19.5 | | | | D | ● | 237 | 25,100 |
| | 19.6 | | | | — | □ | — | — |
| | 19.7 | | | | — | □ | — | — |
| | 19.8 | | | | — | □ | — | — |
| | 19.9 | | | | — | □ | — | — |
| 88030 | 20 | | | | A | ● | 237 | 16,300 |
| 8402105 | 20.5 | | | | D | ● | 240 | 30,700 |
| 88031 | 21 | | 45 | | A | ● | 238 | 20,100 |
| 8402115 | 21.5 | | | | D | ● | 245 | 30,700 |
| 88032 | 22 | | | | A | ● | 246 | 20,100 |
| 8402125 | 22.5 | | | | D | ● | 363 | 35,200 |
| 88033 | 23 | | | | A | ● | 369 | 23,300 |
| 8402135 | 23.5 | | | | D | ● | 379 | 35,200 |
| 88034 | 24 | 120 | 50 | 25 | A | ● | 377 | 23,300 |
| 8402145 | 24.5 | | | | D | ● | 382 | 35,200 |
| 88035 | 25 | | | | A | ● | 389 | 23,300 |
| 8402155 | 25.5 | | | | D | ● | 416 | 37,300 |
| 88036 | 26 | | | | B | ● | 419 | 25,500 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8402165 | 26.5 | | | | D | ● | 440 | 44,800 |
| 88037 | 27 | | | | B | ● | 443 | 30,000 |
| 8402175 | 27.5 | | | | D | ● | 443 | 44,800 |
| 88038 | 28 | 125 | 55 | 25 | B | ● | 455 | 30,000 |
| 8402185 | 28.5 | | | | D | ● | 458 | 54,600 |
| 88039 | 29 | | | | B | ● | 456 | 37,000 |
| 8402195 | 29.5 | | | | D | ● | 463 | 54,600 |
| 88040 | 30 | | | | B | ● | 469 | 37,000 |
| ◆ | 30.5 | | | | — | □ | — | — |
| 88041 | 31 | | | | B | ● | 790 | 45,100 |
| ◆ | 31.5 | | | | — | □ | — | — |
| 88042 | 32 | | | | B | ● | 806 | 45,100 |
| ◆ | 32.5 | | | | — | □ | — | — |
| 88043 | 33 | 145 | 60 | | B | ● | 815 | 53,200 |
| ◆ | 33.5 | | | | — | □ | — | — |
| 88044 | 34 | | | | B | ● | 822 | 53,200 |
| ◆ | 34.5 | | | | — | □ | — | — |
| 88045 | 35 | | | | B | ● | 855 | 53,200 |
| ◆ | 35.5 | | | | — | □ | — | — |
| 88046 | 36 | | | 32 | B | ● | 895 | 60,000 |
| ◆ | 36.5 | | | | — | □ | — | — |
| 88047 | 37 | | | | B | ● | 916 | 64,800 |
| ◆ | 37.5 | | | | — | □ | — | — |
| 88048 | 38 | 150 | 65 | | B | ● | 929 | 64,800 |
| ◆ | 38.5 | | | | — | □ | — | — |
| 88049 | 39 | | | | B | ● | 954 | 75,600 |
| ◆ | 39.5 | | | | — | □ | — | — |
| 88050 | 40 | | | | B | ● | 953 | 75,600 |
| ◆ | 41×32 | | | | — | □ | — | — |
| ◆ | 41 | | | 42 | | □ | — | — |
| 88082 | 42×32 | | | 32 | D | ● | 1,120 | 97,900 |
| 88052 | 42 | | | 42 | | ● | 1,503 | 97,900 |
| ◆ | 43×32 | 160 | 70 | 32 | — | □ | — | — |
| ◆ | 43 | | | 42 | | □ | — | — |
| ◆ | 44×32 | | | 32 | | □ | — | — |
| ◆ | 44 | | | 42 | | □ | — | — |
| 88085 | 45×32 | | | 32 | D | ● | 1,200 | 119,000 |
| 88055 | 45 | | | 42 | | ● | 1,558 | 119,000 |
| ◆ | 46×32 | | | 32 | — | □ | — | — |
| ◆ | 46 | 165 | 75 | 42 | | □ | — | — |
| ◆ | 47×32 | | | 32 | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆ :Shank with two flat face.

次ページへ 外径 DC 47〜80 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EX-TIN-EDS | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイススクエアエンドミル ショート形

**TiN Coated 2-flute End Mill Short Length**

## EX-TIN-EDS

切削条件 Cutting Conditions | P914



CAD

HSS-Co | TiN | 0〜-0.03 | 30°

前ページより FROM 外径 DC 17.2〜47×32

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ◆ | **47** | | | 42 | — | □ | — | — |
| 88088 | **48×32** | | | 32 | D | ● | 1,279 | 128,000 |
| 88058 | **48** | | | 42 | | ● | 1,663 | 128,000 |
| ◆ | **49×32** | 165 | 75 | 32 | — | □ | — | — |
| ◆ | **49** | | | 42 | | □ | — | — |
| 88090 | **50×32** | | | 32 | D | ● | 1,352 | 143,000 |
| 88060 | **50** | | | 42 | | ● | 1,720 | 143,000 |
| ◆ | **51** | | | | | □ | — | — |
| ◆ | **52** | | | | | □ | — | — |
| ◆ | **53** | | | | | □ | — | — |
| ◆ | **54** | | | | | □ | — | — |
| ◆ | **55** | 170 | 80 | | | □ | — | — |
| ◆ | **56** | | | | | □ | — | — |
| ◆ | **57** | | | 42 | — | □ | — | — |
| ◆ | **58** | | | | | □ | — | — |
| ◆ | **59** | | | | | □ | — | — |
| ◆ | **60** | | | | | □ | — | — |
| ◆ | **65** | 175 | 85 | | | □ | — | — |
| ◆ | **70** | 180 | 90 | | | □ | — | — |
| ◆ | **75** | 190 | 100 | | | □ | — | — |
| ◆ | **80** | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆ :Shank with two flat face.

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-TIN-EDS** | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## キー溝用TiNコート2枚刃ハイススクエアエンドミル
**TiN Coated 2-flute End Mill for Keyway**

# EX-TIN-EKD



HSS-Co | TiN | 15°

OH1 0～+0.02
OL1 0～-0.02

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. OH1 | ツール No. EDP No. OL1 | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 81556 | 81656 | **3** | 50 | 5 | 6 | B | ● | 13 | 4,540 |
| 81558 | 81658 | **4** | 60 | 6 | 8 | B | ● | 23 | 4,540 |
| 81560 | 81660 | **5** | 60 | 8 | 8 | B | ● | 23 | 4,540 |
| 81562 | 81662 | **6** | 60 | 10 | 10 | B | ● | 23 | 4,540 |
| 81564 | 81664 | **7** | 60 | 10 | 10 | B | ● | 35 | 5,110 |
| 81566 | 81666 | **8** | 60 | 12 | 10 | B | ● | 35 | 5,110 |
| 81568 | 81668 | **9** | 65 | 12 | 10 | B | ● | 40 | 5,900 |
| 81570 | 81670 | **10** | 65 | 15 | 12 | B | ● | 40 | 5,900 |
| 81571 | 81671 | **11** | 70 | 15 | 12 | B | ● | 59 | 7,510 |
| 81572 | 81672 | **12** | 70 | 15 | 12 | B | ● | 61 | 7,510 |
| 81573 | 81673 | **13** | 75 | 15 | 12 | B | ● | 68 | 9,400 |
| 81574 | 81674 | **14** | 75 | 15 | 16 | B | ● | 110 | 9,400 |
| 81575 | 81675 | **15** | 75 | 15 | 16 | B | ● | 115 | 10,500 |
| 81576 | 81676 | **16** | 80 | 18 | 16 | B | ● | 123 | 11,300 |
| 81578 | 81678 | **18** | 80 | 18 | 16 | B | ● | 128 | 13,600 |
| 81580 | 81680 | **20** | 85 | 20 | 20 | B | ● | 197 | 16,300 |
| 81582 | 81682 | **22** | 90 | 25 | 20 | B | ● | 212 | 20,100 |
| 81584 | 81684 | **24** | 95 | 25 | 25 | B | ● | 339 | 23,300 |
| 81585 | 81685 | **25** | 95 | 25 | 25 | B | ● | 346 | 23,300 |

## 2枚刃ハイススクエアエンドミル（ミニチュア）
**2-flute Miniature End Mill (φ3 Shank)**

# EDS-3



HSS-Co | 30°

0～-0.02

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 82004 | **0.4** | 36 | 0.6 | 3 | D | △ | 5 | 10,800 |
| 82009 | **0.9** | 36 | 1.3 | 3 | D | △ | 5 | 6,160 |
| 82011 | **1.1** | 36 | 1.7 | 3 | D | △ | 5 | 4,370 |
| 82012 | **1.2** | 36 | 1.9 | 3 | D | △ | 5 | 4,370 |
| 82015 | **1.5** | 36 | 2.1 | 3 | D | △ | 5 | 4,140 |
| 82016 | **1.6** | 36 | 2.4 | 3 | D | △ | 5 | 4,010 |
| 82017 | **1.7** | 36 | 2.4 | 3 | D | △ | 5 | 4,010 |
| 82019 | **1.9** | 36 | 2.6 | 3 | D | △ | 5 | 4,010 |
| | **2** | 36 | 3 | 3 | – | □ | – | – |
| 82022 | **2.2** | 36 | 3.4 | 3 | D | △ | 5 | 4,010 |
| 82023 | **2.3** | 36 | 3.4 | 3 | D | △ | 5 | 4,010 |
| 82024 | **2.4** | 36 | 4 | 3 | D | △ | 5 | 4,010 |
| | **2.5** | 36 | 4 | 3 | – | □ | – | – |
| 82026 | **2.6** | 36 | 4 | 3 | D | △ | 5 | 3,730 |
| 82027 | **2.7** | 36 | 4 | 3 | D | △ | 5 | 3,730 |
| 82028 | **2.8** | 36 | 4 | 3 | D | △ | 5 | 3,730 |
| 82029 | **2.9** | 36 | 4 | 3 | D | △ | 5 | 3,730 |
| | **3** | 36 | 4 | 3 | – | □ | – | – |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-TIN-EKD** | ○ | | ○ | ○ | ○ | ○ | ○ | | | |
| **EDS-3** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミルショート形
**2-flute End Mill Short Length**

## EDS

切削条件 Cutting Conditions | P915



CAD

HSS-Co

0〜-0.03

30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 87488 | **0.8** | 45 | 2 | 6 | D | ● | 13 | 7,660 |
| | **0.85** | | 2.2 | | – | □ | – | – |
| 87489 | **0.9** | | | | D | ● | 12 | 7,660 |
| | **0.95** | | 2.5 | | – | □ | – | – |
| 80001 | **1** | | | | A | ● | 13 | 4,340 |
| | **1.05** | | 3 | | – | □ | – | – |
| 87490 | **1.1** | | | | D | ● | 12 | 6,980 |
| | **1.15** | | | | – | □ | – | – |
| 87491 | **1.2** | | | | D | ● | 13 | 6,980 |
| | **1.25** | | 3.5 | | – | □ | – | – |
| 87492 | **1.3** | | | | D | ● | 12 | 6,980 |
| | **1.35** | | | | – | □ | – | – |
| 87493 | **1.4** | | | | D | ● | 13 | 6,980 |
| | **1.45** | | 4 | | – | □ | – | – |
| 80003 | **1.5** | | | | A | ● | 12 | 3,960 |
| | **1.55** | | | | – | □ | – | – |
| 87494 | **1.6** | | | | D | ● | 13 | 6,210 |
| | **1.65** | | 4.5 | | – | □ | – | – |
| 87495 | **1.7** | | | | D | ● | 13 | 6,210 |
| | **1.75** | | | | – | □ | – | – |
| 87496 | **1.8** | | | | D | ● | 12 | 6,210 |
| | **1.85** | 50 | 5 | | – | □ | – | – |
| 87497 | **1.9** | | | | D | ● | 13 | 6,210 |
| | **1.95** | | | | – | □ | – | – |
| 80004 | **2** | | | | A | ● | 13 | 3,700 |
| | **2.05** | | 6 | | – | □ | – | – |
| 87501 | **2.1** | | | | D | ● | 13 | 5,930 |
| | **2.15** | | | | – | □ | – | – |
| 87502 | **2.2** | | | | D | ● | 13 | 5,930 |
| | **2.25** | | | | – | □ | – | – |
| 87503 | **2.3** | | | | D | ● | 13 | 5,930 |
| | **2.35** | | | | – | □ | – | – |
| 87504 | **2.4** | | | | D | ● | 13 | 5,930 |
| | **2.45** | | | | – | □ | – | – |
| 80005 | **2.5** | | | | A | ● | 13 | 3,630 |
| | **2.55** | | 8 | | – | □ | – | – |
| 87505 | **2.6** | | | | D | ● | 13 | 5,850 |
| | **2.65** | | | | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 87506 | **2.7** | 50 | 8 | 6 | D | ● | 13 | 5,850 |
| | **2.75** | | | | – | □ | – | – |
| 87507 | **2.8** | | | | D | ● | 13 | 5,850 |
| | **2.85** | | | | – | □ | – | – |
| 87508 | **2.9** | | | | D | ● | 13 | 5,850 |
| | **2.95** | | | | – | □ | – | – |
| 80006 | **3** | | | | A | ● | 13 | 3,170 |
| | **3.05** | 60 | | 8 | – | □ | – | – |
| 87509 | **3.1** | | | | D | ● | 23 | 5,100 |
| | **3.15** | | | | – | □ | – | – |
| 87510 | **3.2** | | | | D | ● | 23 | 5,100 |
| | **3.25** | | | | – | □ | – | – |
| 87511 | **3.3** | | | | D | ● | 23 | 5,100 |
| | **3.35** | | | | – | □ | – | – |
| 87512 | **3.4** | | | | D | ● | 23 | 5,100 |
| | **3.45** | | | | – | □ | – | – |
| 80007 | **3.5** | | | | A | ● | 23 | 3,170 |
| | **3.55** | | | | – | □ | – | – |
| 87513 | **3.6** | | | | D | ● | 23 | 5,100 |
| | **3.65** | | | | – | □ | – | – |
| 87514 | **3.7** | | | | D | ● | 23 | 5,100 |
| | **3.75** | | | | – | □ | – | – |
| 87515 | **3.8** | | | | D | ● | 23 | 5,100 |
| | **3.85** | | | | – | □ | – | – |
| 87516 | **3.9** | | | | D | ● | 23 | 5,100 |
| | **3.95** | | | | – | □ | – | – |
| 80008 | **4** | | | | A | ● | 23 | 3,170 |
| | **4.05** | | 10 | | – | □ | – | – |
| 87517 | **4.1** | | | | D | ● | 23 | 5,100 |
| | **4.15** | | | | – | □ | – | – |
| 87518 | **4.2** | | | | D | ● | 23 | 5,100 |
| | **4.25** | | | | – | □ | – | – |
| 87519 | **4.3** | | | | D | ● | 23 | 5,100 |
| | **4.35** | | | | – | □ | – | – |
| 87520 | **4.4** | | | | D | ● | 23 | 5,100 |
| | **4.45** | | | | – | □ | – | – |
| 80009 | **4.5** | | | | A | ● | 23 | 3,170 |
| | **4.55** | | | | – | □ | – | – |

次ページへ
外径 DC 4.6〜8.75 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EDS** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミルショート形
**2-flute End Mill Short Length**

## EDS

切削条件 Cutting Conditions | P915



HSS-Co


0〜-0.03




30°

CAD

前ページより FROM 外径 DC 0.8〜4.55

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 87521 | 4.6 | 60 | 10 | 8 | D | ● | 23 | 5,100 |
| | 4.65 | | | | – | □ | – | – |
| 87522 | 4.7 | | | | D | ● | 23 | 5,100 |
| | 4.75 | | | | – | □ | – | – |
| 87523 | 4.8 | | | | D | ● | 23 | 5,100 |
| | 4.85 | | | | – | □ | – | – |
| 87524 | 4.9 | | | | D | ● | 23 | 5,100 |
| | 4.95 | | | | – | □ | – | – |
| 80010 | 5 | | | | A | ● | 23 | 3,170 |
| | 5.05 | | 12 | | – | □ | – | – |
| 87525 | 5.1 | | | | D | ● | 23 | 5,100 |
| | 5.15 | | | | – | □ | – | – |
| 87526 | 5.2 | | | | D | ● | 23 | 5,100 |
| | 5.25 | | | | – | □ | – | – |
| 87527 | 5.3 | | | | D | ● | 23 | 5,100 |
| | 5.35 | | | | – | □ | – | – |
| 87528 | 5.4 | | | | D | ● | 23 | 5,100 |
| | 5.45 | | | | – | □ | – | – |
| 80011 | 5.5 | | | | A | ● | 23 | 3,170 |
| | 5.55 | | | | – | □ | – | – |
| 87529 | 5.6 | | | | D | ● | 23 | 5,100 |
| | 5.65 | | | | – | □ | – | – |
| 87530 | 5.7 | | | | D | ● | 23 | 5,100 |
| | 5.75 | | | | – | □ | – | – |
| 87531 | 5.8 | | | | D | ● | 24 | 5,100 |
| | 5.85 | | | | – | □ | – | – |
| 87532 | 5.9 | | | | D | ● | 24 | 5,100 |
| | 5.95 | | | | – | □ | – | – |
| 80012 | 6 | | | | A | ● | 24 | 3,170 |
| | 6.05 | | 14 | 10 | – | □ | – | – |
| 87533 | 6.1 | | | | D | ● | 33 | 5,570 |
| | 6.15 | | | | – | □ | – | – |
| 87534 | 6.2 | | | | D | ● | 33 | 5,570 |
| | 6.25 | | | | – | □ | – | – |
| 87535 | 6.3 | | | | D | ● | 33 | 5,570 |
| | 6.35 | | | | – | □ | – | – |
| 87536 | 6.4 | | | | D | ● | 34 | 5,570 |
| | 6.45 | | | | – | □ | – | – |
| 80013 | 6.5 | | | | A | ● | 34 | 3,580 |
| | 6.55 | | | | – | □ | – | – |
| 87537 | 6.6 | | | | D | ● | 34 | 5,570 |
| | 6.65 | | | | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 87538 | 6.7 | 60 | 14 | 10 | D | ● | 34 | 5,570 |
| | 6.75 | | | | – | □ | – | – |
| 87539 | 6.8 | | | | D | ● | 34 | 5,570 |
| | 6.85 | | | | – | □ | – | – |
| 87540 | 6.9 | | | | D | ● | 25 | 5,570 |
| | 6.95 | | | | – | □ | – | – |
| 80014 | 7 | | | | A | ● | 35 | 3,580 |
| | 7.05 | | | | – | □ | – | – |
| 87541 | 7.1 | | | | D | ● | 34 | 5,570 |
| | 7.15 | | | | – | □ | – | – |
| 87542 | 7.2 | | | | D | ● | 35 | 5,570 |
| | 7.25 | | | | – | □ | – | – |
| 87543 | 7.3 | | | | D | ● | 35 | 5,570 |
| | 7.35 | | | | – | □ | – | – |
| 87544 | 7.4 | | | | D | ● | 35 | 5,570 |
| | 7.45 | | | | – | □ | – | – |
| 80015 | 7.5 | | | | A | ● | 35 | 3,580 |
| | 7.55 | | | | – | □ | – | – |
| 87545 | 7.6 | | | | D | ● | 35 | 5,570 |
| | 7.65 | | | | – | □ | – | – |
| 87546 | 7.7 | | | | D | ● | 35 | 5,570 |
| | 7.75 | | | | – | □ | – | – |
| 87547 | 7.8 | | | | D | ● | 36 | 5,570 |
| | 7.85 | | | | – | □ | – | – |
| 87548 | 7.9 | | | | D | ● | 36 | 5,570 |
| | 7.95 | | | | – | □ | – | – |
| 80016 | 8 | | | | A | ● | 36 | 3,580 |
| | 8.05 | 70 | 18 | | – | □ | – | – |
| 87549 | 8.1 | | | | D | ● | 40 | 6,450 |
| | 8.15 | | | | – | □ | – | – |
| 87550 | 8.2 | | | | D | ● | 41 | 6,450 |
| | 8.25 | | | | – | □ | – | – |
| 87551 | 8.3 | | | | D | ● | 41 | 6,450 |
| | 8.35 | | | | – | □ | – | – |
| 87552 | 8.4 | | | | D | ● | 41 | 6,450 |
| | 8.45 | | | | – | □ | – | – |
| 80017 | 8.5 | | | | A | ● | 41 | 4,140 |
| | 8.55 | | | | – | □ | – | – |
| 87553 | 8.6 | | | | D | ● | 41 | 6,450 |
| | 8.65 | | | | – | □ | – | – |
| 87554 | 8.7 | | | | D | ● | 42 | 6,450 |
| | 8.75 | | | | – | □ | – | – |

次ページへ 外径 DC 8.8〜15.9 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EDS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミルショート形
**2-flute End Mill Short Length**

## EDS

切削条件 Cutting Conditions | P915



CAD

HSS-Co | 0〜-0.03 | 30°

前ページより FROM 外径 DC 4.6〜8.75

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 87555 | **8.8** | 70 | 18 | 10 | D | ● | 42 | 6,450 |
| | **8.85** | | | | – | □ | – | – |
| 87556 | **8.9** | | | | D | ● | 42 | 6,450 |
| | **8.95** | | | | – | □ | – | – |
| 80018 | **9** | | | | A | ● | 42 | 4,140 |
| | **9.05** | | | | – | □ | – | – |
| 87557 | **9.1** | | | | D | ● | 42 | 6,450 |
| | **9.15** | | | | – | □ | – | – |
| 87558 | **9.2** | | | | D | ● | 42 | 6,450 |
| | **9.25** | | | | – | □ | – | – |
| 87559 | **9.3** | | | | D | ● | 42 | 6,450 |
| | **9.35** | | | | – | □ | – | – |
| 87560 | **9.4** | | | | D | ● | 42 | 6,450 |
| | **9.45** | | | | – | □ | – | – |
| 80019 | **9.5** | | | | A | ● | 43 | 4,140 |
| | **9.55** | | | | – | □ | – | – |
| 87561 | **9.6** | | | | D | ● | 43 | 6,450 |
| | **9.65** | | | | – | □ | – | – |
| 87562 | **9.7** | | | | D | ● | 43 | 6,450 |
| | **9.75** | | | | – | □ | – | – |
| 87563 | **9.8** | | | | D | ● | 43 | 6,450 |
| | **9.85** | | | | – | □ | – | – |
| 87564 | **9.9** | | | | D | ● | 44 | 6,450 |
| | **9.95** | | | | – | □ | – | – |
| 80020 | **10** | | | | A | ● | 44 | 4,140 |
| 87565 | **10.1** | 80 | 22 | 12 | D | ● | 65 | 8,340 |
| 87566 | **10.2** | | | | | ● | 66 | 8,340 |
| 87567 | **10.3** | | | | | ● | 66 | 8,340 |
| 87568 | **10.4** | | | | | ● | 67 | 8,340 |
| 87711 | **10.5** | | | | | ● | 67 | 8,340 |
| 87569 | **10.6** | | | | | ● | 68 | 8,340 |
| 87570 | **10.7** | | | | | ● | 68 | 8,340 |
| 87571 | **10.8** | | | | | ● | 68 | 8,340 |
| 87572 | **10.9** | | | | | ● | 68 | 8,340 |
| 80021 | **11** | | | | A | ● | 69 | 5,320 |
| 87573 | **11.1** | | | | D | ● | 68 | 8,340 |
| 87574 | **11.2** | | | | | ● | 68 | 8,340 |
| 87575 | **11.3** | | | | | ● | 68 | 8,340 |
| 87576 | **11.4** | | | | | ● | 70 | 8,340 |
| 87712 | **11.5** | | | | | ● | 70 | 8,340 |
| 87577 | **11.6** | | | | | ● | 70 | 8,340 |
| 87578 | **11.7** | | | | | ● | 70 | 8,340 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 87579 | **11.8** | 80 | 22 | 12 | D | ● | 70 | 8,340 |
| 87580 | **11.9** | | | | | ● | 70 | 8,340 |
| 80022 | **12** | | | | A | ● | 71 | 5,320 |
| 87581 | **12.1** | 85 | 26 | | D | ● | 71 | 10,300 |
| 87582 | **12.2** | | | | | ● | 72 | 10,300 |
| 87583 | **12.3** | | | | | ● | 73 | 10,300 |
| 87584 | **12.4** | | | | | ● | 72 | 10,300 |
| 87713 | **12.5** | | | | | ● | 71 | 10,300 |
| 87585 | **12.6** | | | | | ● | 72 | 10,300 |
| 87586 | **12.7** | | | | | ● | 72 | 10,300 |
| 87587 | **12.8** | | | | | ● | 73 | 10,300 |
| 87588 | **12.9** | | | | | ● | 73 | 10,300 |
| 80023 | **13** | | | | A | ● | 74 | 6,630 |
| 87589 | **13.1** | 90 | | 16 | D | ● | 123 | 10,300 |
| 87590 | **13.2** | | | | | ● | 124 | 10,300 |
| 87591 | **13.3** | | | | | ● | 123 | 10,300 |
| 87592 | **13.4** | | | | | ● | 123 | 10,300 |
| 87714 | **13.5** | | | | | ● | 123 | 10,300 |
| 87593 | **13.6** | | | | | ● | 125 | 10,300 |
| 87594 | **13.7** | | | | | ● | 127 | 10,300 |
| 87595 | **13.8** | | | | | ● | 127 | 10,300 |
| 87596 | **13.9** | | | | | ● | 126 | 10,300 |
| 80024 | **14** | | | | A | ● | 127 | 6,630 |
| 87597 | **14.1** | 95 | 30 | | D | ● | 131 | 11,600 |
| 87598 | **14.2** | | | | | ● | 131 | 11,600 |
| 87599 | **14.3** | | | | | ● | 131 | 11,600 |
| 87600 | **14.4** | | | | | ● | 132 | 11,600 |
| 87715 | **14.5** | | | | | ● | 132 | 11,600 |
| 87601 | **14.6** | | | | | ● | 132 | 11,600 |
| 87602 | **14.7** | | | | | ● | 132 | 11,600 |
| 87603 | **14.8** | | | | | ● | 134 | 11,600 |
| 87604 | **14.9** | | | | | ● | 134 | 11,600 |
| 80025 | **15** | | | | A | ● | 135 | 7,390 |
| 87605 | **15.1** | | | | D | ● | 135 | 12,500 |
| 87606 | **15.2** | | | | | ● | 135 | 12,500 |
| 87607 | **15.3** | | | | | ● | 136 | 12,500 |
| 87608 | **15.4** | | | | | ● | 136 | 12,500 |
| 87716 | **15.5** | | | | | ● | 137 | 12,500 |
| 87609 | **15.6** | | | | | ● | 135 | 12,500 |
| 87610 | **15.7** | | | | | ● | 136 | 12,500 |
| 87611 | **15.8** | | | | | ● | 136 | 12,500 |
| 87612 | **15.9** | | | | | ● | 137 | 12,500 |

次ページへ 外径 DC 16〜24.1 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜35HRC | 〜350HB | | | | | |
| EDS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイススクエアエンドミルショート形
**2-flute End Mill Short Length**

## EDS

切削条件 Cutting Conditions | P915



HSS-Co　0〜-0.03　30°

CAD

前ページより FROM 外径 DC 8.8〜15.9

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 80026 | 16 | 95 | 30 | 16 | A | ● | 137 | 7,960 |
| 87613 | 16.1 | | 34 | | D | ● | 134 | 14,900 |
| 87614 | 16.2 | | | | | ● | 135 | 14,900 |
| 87615 | 16.3 | | | | | ● | 135 | 14,900 |
| 87616 | 16.4 | | | | | ● | 138 | 14,900 |
| 87717 | 16.5 | | | | | ● | 136 | 14,900 |
| 87617 | 16.6 | | | | | ● | 139 | 14,900 |
| 87618 | 16.7 | | | | | ● | 137 | 14,900 |
| 87619 | 16.8 | | | | | ● | 140 | 14,900 |
| 87620 | 16.9 | | | | | ● | 140 | 14,900 |
| 80027 | 17 | | | | A | ● | 140 | 9,530 |
| 87621 | 17.1 | | | | D | ● | 140 | 14,900 |
| 87622 | 17.2 | | | | | ● | 141 | 14,900 |
| 87623 | 17.3 | | | | | ● | 140 | 14,900 |
| 87624 | 17.4 | | | | | ● | 142 | 14,900 |
| 87718 | 17.5 | | | | | ● | 140 | 14,900 |
| 87625 | 17.6 | | | | | ● | 140 | 14,900 |
| 87626 | 17.7 | | | | | ● | 141 | 14,900 |
| 87627 | 17.8 | | | | | ● | 142 | 14,900 |
| 87628 | 17.9 | | | | | ● | 143 | 14,900 |
| 80028 | 18 | 110 | 38 | 20 | A | ● | 145 | 9,530 |
| 87629 | 18.1 | | | | D | ● | 225 | 18,000 |
| 87630 | 18.2 | | | | | ● | 225 | 18,000 |
| 87631 | 18.3 | | | | | ● | 228 | 18,000 |
| 87632 | 18.4 | | | | | ● | 230 | 18,000 |
| 87719 | 18.5 | | | | | ● | 228 | 18,000 |
| 87633 | 18.6 | | | | | ● | 233 | 18,000 |
| 87634 | 18.7 | | | | | ● | 234 | 18,000 |
| 87635 | 18.8 | | | | | ● | 235 | 18,000 |
| 87636 | 18.9 | | | | | ● | 235 | 18,000 |
| 80029 | 19 | | | | A | ● | 230 | 11,500 |
| 87637 | 19.1 | | | | D | ● | 236 | 18,000 |
| 87638 | 19.2 | | | | | ● | 236 | 18,000 |
| 87639 | 19.3 | | | | | ● | 236 | 18,000 |
| 87640 | 19.4 | | | | | ● | 236 | 18,000 |
| 87720 | 19.5 | | | | | ● | 235 | 18,000 |
| 87641 | 19.6 | | | | | ● | 237 | 18,000 |
| 87642 | 19.7 | | | | | ● | 237 | 18,000 |
| 87643 | 19.8 | | | | | ● | 237 | 18,000 |
| 87644 | 19.9 | | | | | ● | 238 | 18,000 |
| 80030 | 20 | | | | A | ● | 239 | 11,500 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 20.1 | 110 | 45 | 20 | — | □ | — | — |
| | 20.2 | | | | | □ | — | — |
| | 20.3 | | | | | □ | — | — |
| | 20.4 | | | | | □ | — | — |
| 87721 | 20.5 | | | | D | ● | 231 | 22,200 |
| | 20.6 | | | | — | □ | — | — |
| | 20.7 | | | | | □ | — | — |
| | 20.8 | | | | | □ | — | — |
| | 20.9 | | | | | □ | — | — |
| 80031 | 21 | | | | A | ● | 241 | 14,100 |
| | 21.1 | | | | — | □ | — | — |
| | 21.2 | | | | | □ | — | — |
| | 21.3 | | | | | □ | — | — |
| | 21.4 | | | | | □ | — | — |
| 87722 | 21.5 | | | | D | ● | 241 | 22,200 |
| | 21.6 | | | | — | □ | — | — |
| | 21.7 | | | | | □ | — | — |
| | 21.8 | | | | | □ | — | — |
| | 21.9 | | | | | □ | — | — |
| 80032 | 22 | | | | A | ● | 247 | 14,100 |
| | 22.1 | 120 | 50 | 25 | — | □ | — | — |
| | 22.2 | | | | | □ | — | — |
| | 22.3 | | | | | □ | — | — |
| | 22.4 | | | | | □ | — | — |
| 87723 | 22.5 | | | | D | ● | 360 | 25,300 |
| | 22.6 | | | | — | □ | — | — |
| | 22.7 | | | | | □ | — | — |
| | 22.8 | | | | | □ | — | — |
| | 22.9 | | | | | □ | — | — |
| 80033 | 23 | | | | A | ● | 368 | 16,400 |
| | 23.1 | | | | — | □ | — | — |
| | 23.2 | | | | | □ | — | — |
| | 23.3 | | | | | □ | — | — |
| | 23.4 | | | | | □ | — | — |
| 87724 | 23.5 | | | | D | ● | 372 | 25,300 |
| | 23.6 | | | | — | □ | — | — |
| | 23.7 | | | | | □ | — | — |
| | 23.8 | | | | | □ | — | — |
| | 23.9 | | | | | □ | — | — |
| 80034 | 24 | | | | A | ● | 381 | 16,400 |
| | 24.1 | | | | — | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆ :Shank with two flat face.

次ページへ 外径 DC 24.2〜32.3 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EDS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミルショート形
**2-flute End Mill Short Length**

## EDS

切削条件 Cutting Conditions | P915



CAD

HSS-Co　0〜-0.03　30°

前ページより FROM 外径 DC 16〜24.1

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 24.2 | 120 | 50 | 25 | – | □ | – | – |
| | 24.3 | | | | | □ | – | – |
| | 24.4 | | | | | □ | – | – |
| 87725 | 24.5 | | | | D | ● | 383 | 25,300 |
| | 24.6 | | | | – | □ | – | – |
| | 24.7 | | | | | □ | – | – |
| | 24.8 | | | | | □ | – | – |
| | 24.9 | | | | | □ | – | – |
| 80035 | 25 | | | | A | ● | 390 | 16,400 |
| | 25.1 | | | | – | □ | – | – |
| | 25.2 | | | | | □ | – | – |
| | 25.3 | | | | | □ | – | – |
| | 25.4 | | | | | □ | – | – |
| 87726 | 25.5 | | | | D | ● | 412 | 26,900 |
| | 25.6 | | | | – | □ | – | – |
| | 25.7 | | | | | □ | – | – |
| | 25.8 | | | | | □ | – | – |
| | 25.9 | | | | | □ | – | – |
| 80036 | 26 | | | | A | ● | 420 | 17,400 |
| | 26.1 | 125 | 55 | | – | □ | – | – |
| | 26.2 | | | | | □ | – | – |
| | 26.3 | | | | | □ | – | – |
| | 26.4 | | | | | □ | – | – |
| 87727 | 26.5 | | | | D | ● | 435 | 32,400 |
| | 26.6 | | | | – | □ | – | – |
| | 26.7 | | | | | □ | – | – |
| | 26.8 | | | | | □ | – | – |
| | 26.9 | | | | | □ | – | – |
| 80037 | 27 | | | | A | ● | 436 | 20,800 |
| | 27.1 | | | | – | □ | – | – |
| | 27.2 | | | | | □ | – | – |
| | 27.3 | | | | | □ | – | – |
| | 27.4 | | | | | □ | – | – |
| 87728 | 27.5 | | | | D | ● | 439 | 32,400 |
| | 27.6 | | | | – | □ | – | – |
| | 27.7 | | | | | □ | – | – |
| | 27.8 | | | | | □ | – | – |
| | 27.9 | | | | | □ | – | – |
| 80038 | 28 | | | | A | ● | 449 | 20,800 |
| | 28.1 | | | | – | □ | – | – |
| | 28.2 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 28.3 | 125 | 55 | 25 | – | □ | – | – |
| | 28.4 | | | | | □ | – | – |
| 87729 | 28.5 | | | | D | ● | 455 | 38,900 |
| | 28.6 | | | | – | □ | – | – |
| | 28.7 | | | | | □ | – | – |
| | 28.8 | | | | | □ | – | – |
| | 28.9 | | | | | □ | – | – |
| 80039 | 29 | | | | A | ● | 461 | 25,200 |
| | 29.1 | | | | – | □ | – | – |
| | 29.2 | | | | | □ | – | – |
| | 29.3 | | | | | □ | – | – |
| | 29.4 | | | | | □ | – | – |
| 87730 | 29.5 | | | | D | ● | 463 | 38,900 |
| | 29.6 | | | | – | □ | – | – |
| | 29.7 | | | | | □ | – | – |
| | 29.8 | | | | | □ | – | – |
| | 29.9 | | | | | □ | – | – |
| 80040 | 30 | | | | A | ● | 471 | 25,200 |
| | 30.1 | 145 | 60 | 32 | – | □ | – | – |
| | 30.2 | | | | | □ | – | – |
| | 30.3 | | | | | □ | – | – |
| | 30.4 | | | | | □ | – | – |
| | 30.5 | | | | | □ | – | – |
| | 30.6 | | | | | □ | – | – |
| | 30.7 | | | | | □ | – | – |
| | 30.8 | | | | | □ | – | – |
| | 30.9 | | | | | □ | – | – |
| 80041 | 31 | | | | A | ● | 793 | 31,000 |
| | 31.1 | | | | – | □ | – | – |
| | 31.2 | | | | | □ | – | – |
| | 31.3 | | | | | □ | – | – |
| | 31.4 | | | | | □ | – | – |
| | 31.5 | | | | | □ | – | – |
| | 31.6 | | | | | □ | – | – |
| | 31.7 | | | | | □ | – | – |
| | 31.8 | | | | | □ | – | – |
| | 31.9 | | | | | □ | – | – |
| 80042 | 32 | | | | A | ● | 815 | 31,000 |
| | 32.1 | | | | – | □ | – | – |
| | 32.2 | | | | | □ | – | – |
| | 32.3 | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆ :Shank with two flat face.

次ページへ 外径 DC 32.4〜43 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜35HRC | 〜350HB | | | | | |
| EDS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイススクエアエンドミルショート形
**2-flute End Mill Short Length**

## EDS

切削条件 Cutting Conditions | P915



HSS-Co　0〜-0.03　30°

CAD

前ページより FROM 外径 DC 24.2〜32.3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 32.4 | 145 | 60 | 32 | — | □ | — | — |
| | 32.5 | | | | | □ | — | — |
| | 32.6 | | | | | □ | — | — |
| | 32.7 | | | | | □ | — | — |
| | 32.8 | | | | | □ | — | — |
| | 32.9 | | | | | □ | — | — |
| 80043 | 33 | | | | A | ● | 826 | 36,000 |
| | 33.1 | | | | — | □ | — | — |
| | 33.2 | | | | | □ | — | — |
| | 33.3 | | | | | □ | — | — |
| | 33.4 | | | | | □ | — | — |
| | 33.5 | | | | | □ | — | — |
| | 33.6 | | | | | □ | — | — |
| | 33.7 | | | | | □ | — | — |
| | 33.8 | | | | | □ | — | — |
| | 33.9 | | | | | □ | — | — |
| 80044 | 34 | | | | A | ● | 826 | 36,000 |
| | 34.1 | | | | — | □ | — | — |
| | 34.2 | | | | | □ | — | — |
| | 34.3 | | | | | □ | — | — |
| | 34.4 | | | | | □ | — | — |
| | 34.5 | | | | | □ | — | — |
| | 34.6 | | | | | □ | — | — |
| | 34.7 | | | | | □ | — | — |
| | 34.8 | | | | | □ | — | — |
| | 34.9 | | | | | □ | — | — |
| 80045 | 35 | | | | A | ● | 854 | 36,000 |
| | 35.1 | 150 | 65 | | — | □ | — | — |
| | 35.2 | | | | | □ | — | — |
| | 35.3 | | | | | □ | — | — |
| | 35.4 | | | | | □ | — | — |
| | 35.5 | | | | | □ | — | — |
| | 35.6 | | | | | □ | — | — |
| | 35.7 | | | | | □ | — | — |
| | 35.8 | | | | | □ | — | — |
| | 35.9 | | | | | □ | — | — |
| 80046 | 36 | | | | A | ● | 895 | 40,500 |
| | 36.1 | | | | — | □ | — | — |
| | 36.2 | | | | | □ | — | — |
| | 36.3 | | | | | □ | — | — |
| | 36.4 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 36.5 | 150 | 65 | 32 | — | □ | — | — |
| | 36.6 | | | | | □ | — | — |
| | 36.7 | | | | | □ | — | — |
| | 36.8 | | | | | □ | — | — |
| | 36.9 | | | | | □ | — | — |
| 80047 | 37 | | | | A | ● | 914 | 44,300 |
| | 37.1 | | | | — | □ | — | — |
| | 37.2 | | | | | □ | — | — |
| | 37.3 | | | | | □ | — | — |
| | 37.4 | | | | | □ | — | — |
| | 37.5 | | | | | □ | — | — |
| | 37.6 | | | | | □ | — | — |
| | 37.7 | | | | | □ | — | — |
| | 37.8 | | | | | □ | — | — |
| | 37.9 | | | | | □ | — | — |
| 80048 | 38 | | | | A | ● | 940 | 44,300 |
| | 38.1 | | | | — | □ | — | — |
| | 38.2 | | | | | □ | — | — |
| | 38.3 | | | | | □ | — | — |
| | 38.4 | | | | | □ | — | — |
| | 38.5 | | | | | □ | — | — |
| | 38.6 | | | | | □ | — | — |
| | 38.7 | | | | | □ | — | — |
| | 38.8 | | | | | □ | — | — |
| | 38.9 | | | | | □ | — | — |
| 80049 | 39 | | | | A | ● | 952 | 51,100 |
| | 39.1 | | | | — | □ | — | — |
| | 39.2 | | | | | □ | — | — |
| | 39.3 | | | | | □ | — | — |
| | 39.4 | | | | | □ | — | — |
| | 39.5 | | | | | □ | — | — |
| | 39.6 | | | | | □ | — | — |
| | 39.7 | | | | | □ | — | — |
| | 39.8 | | | | | □ | — | — |
| | 39.9 | | | | | □ | — | — |
| 80050 | 40 | | | | A | ● | 963 | 51,100 |
| 80051 | 41 | 160 | 70 | 42 | B | ● | 1,482 | 58,500 |
| 80081 | 41×32 | | | 32 | | ● | 1,121 | 58,500 |
| 80052 | 42 | | | 42 | | ● | 1,491 | 58,500 |
| 80082 | 42×32 | | | 32 | | ● | 1,152 | 58,500 |
| 80053 | 43 | | | 42 | | ● | 1,465 | 72,100 |

◆は2面平切り欠け付きシャンクです。◆ :Shank with two flat face.

次ページへ 外径 DC 43×32〜80 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EDS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミルショート形
**2-flute End Mill Short Length**

## EDS

切削条件 Cutting Conditions | P915



CAD

HSS-Co | 0〜-0.03 | 30°

前ページより FROM 外径 DC 32.4〜43

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 80083 | **43×32** | 160 | 70 | 32 | | ● | 1,140 | 72,100 |
| 80054 | **44** | | | 42 | | ● | 1,517 | 72,100 |
| 80084 | **44×32** | | | 32 | | ● | 1,169 | 72,100 |
| 80055 | **45** | | | 42 | | ● | 1,560 | 72,100 |
| 80085 | **45×32** | | | 32 | | ● | 1,196 | 72,100 |
| 80056 | **46** | 165 | 75 | 42 | | ● | 1,598 | 76,900 |
| 80086 | **46×32** | | | 32 | | ● | 1,248 | 76,900 |
| 80057 | **47** | | | 42 | B | ● | 1,654 | 76,900 |
| 80087 | **47×32** | | | 32 | | ● | 1,263 | 76,900 |
| 80058 | **48** | | | 42 | | ● | 1,653 | 76,900 |
| 80088 | **48×32** | | | 32 | | ● | 1,279 | 76,900 |
| 80059 | **49** | | | 42 | | ● | 1,697 | 86,400 |
| 80089 | **49×32** | | | 32 | | ● | 1,301 | 86,400 |
| 80060 | **50** | | | 42 | | ● | 1,710 | 86,400 |
| 80090 | **50×32** | | | 32 | | ● | 1,356 | 86,400 |
| ◆ | **51** | 170 | 80 | 42 | — | □ | — | — |
| ◆ | **51×32** | | | 32 | | □ | — | — |
| ◆ | **52** | | | 42 | | □ | — | — |
| ◆ | **52×32** | | | 32 | | □ | — | — |
| ◆ | **53** | | | 42 | | □ | — | — |
| ◆ | **53×32** | | | 32 | | □ | — | — |
| ◆ | **54** | | | 42 | | □ | — | — |
| ◆ | **54×32** | | | 32 | | □ | — | — |
| 80065 | **55** | | | 42 | B | ● | 1,950 | 106,000 |
| ◆ | **55×32** | | | 32 | | □ | — | — |
| ◆ | **56** | | | 42 | | □ | — | — |
| ◆ | **56×32** | | | 32 | | □ | — | — |
| ◆ | **57** | | | 42 | | □ | — | — |
| ◆ | **57×32** | | | 32 | — | □ | — | — |
| ◆ | **58** | | | 42 | | □ | — | — |
| ◆ | **58×32** | | | 32 | | □ | — | — |
| ◆ | **59** | | | 42 | | □ | — | — |
| ◆ | **59×32** | | | 32 | | □ | — | — |
| 80070 | **60** | | | 42 | B | ● | 2,154 | 135,000 |
| ◆ | **60×32** | | | 32 | | □ | — | — |
| ◆ | **62** | 175 | 85 | 42 | | □ | — | — |
| ◆ | **62×32** | | | 32 | | □ | — | — |
| ◆ | **64** | | | 42 | | □ | — | — |
| ◆ | **64×32** | | | 32 | — | □ | — | — |
| ◆ | **65** | | | 42 | | □ | — | — |
| ◆ | **65×32** | | | 32 | | □ | — | — |
| ◆ | **66** | 180 | 90 | 42 | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ◆ | **66×32** | 180 | 90 | 32 | — | □ | — | — |
| ◆ | **68** | | | 42 | | □ | — | — |
| ◆ | **68×32** | | | 32 | | □ | — | — |
| ◆ | **70** | | | 42 | | □ | — | — |
| ◆ | **70×32** | | | 32 | | □ | — | — |
| ◆ | **75** | 190 | 100 | 42 | | □ | — | — |
| ◆ | **80** | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆ :Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EDS** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# キー溝用2枚刃ハイススクエアエンドミル
**2-flute End Mill for Keyway**

## EKD



HSS-Co

OH1 0〜+0.02
OL1 0〜 -0.02
OL2-0.02〜 -0.04
OL3-0.04〜 -0.06

15°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. OH1 | OL1 | OL2 | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock OH1/OL1 | OL2 | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 80606 | 80666 | 81466 | **3** | 50 | 5 | 6 | | | 13 | 3,500 |
| 80608 | 80668 | 81468 | **4** | | 6 | | | | 23 | 3,500 |
| 80610 | 80670 | 81470 | **5** | | 8 | 8 | | | 23 | 3,500 |
| 80612 | 80672 | 81472 | **6** | 60 | 10 | | | | 23 | 3,500 |
| 80614 | 80674 | 81474 | **7** | | | 10 | | | 35 | 3,850 |
| 80616 | 80676 | 81476 | **8** | | 12 | | | | 35 | 3,850 |
| 80618 | 80678 | 81478 | **9** | 65 | | | | | 40 | 4,490 |
| 80620 | 80680 | 81480 | **10** | | 15 | | | | 40 | 4,490 |
| 80621 | 80681 | 81481 | **11** | 70 | | 12 | | | 59 | 5,720 |
| 80622 | 80682 | 81482 | **12** | | | | A | B | 61 | 5,720 |
| 80623 | 80683 | 81483 | **13** | 75 | | | | | 67 | 7,190 |
| 80624 | 80684 | 81484 | **14** | | | 16 | | | 111 | 7,190 |
| 80625 | 80685 | 81485 | **15** | | | | | | 114 | 7,960 |
| 80626 | 80686 | 81486 | **16** | 80 | 18 | | | | 124 | 8,600 |
| 80628 | 80688 | 81488 | **18** | | | | | | 129 | 10,300 |
| 80630 | 80690 | 81490 | **20** | 85 | 20 | 20 | | | 197 | 12,400 |
| 80632 | 80692 | 81492 | **22** | 90 | 25 | | | | 215 | 15,200 |
| 80634 | 80694 | 81494 | **24** | 95 | | 25 | | | 341 | 17,800 |
| 80635 | 80695 | 81495 | **25** | | | | | | 347 | 17,800 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. OL3 | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 81806 | **3** | 50 | 5 | 6 | | | 13 | 4,580 |
| 81808 | **4** | | 6 | | | | 23 | 4,580 |
| 81810 | **5** | | 8 | 8 | | | 23 | 4,580 |
| 81812 | **6** | 60 | 10 | | | | 23 | 4,580 |
| 81814 | **7** | | | 10 | | | 35 | 4,980 |
| 81816 | **8** | | 12 | | | | 35 | 4,980 |
| 81818 | **9** | 65 | | | | | 40 | 5,760 |
| 81820 | **10** | | 15 | | | | 40 | 5,760 |
| 81821 | **11** | 70 | | 12 | | | 58 | 7,410 |
| 81822 | **12** | | | | D | | 60 | 7,410 |
| 81823 | **13** | 75 | | | | | 66 | 9,200 |
| 81824 | **14** | | | 16 | | | 112 | 9,200 |
| 81825 | **15** | | | | | | 115 | 10,300 |
| 81826 | **16** | 80 | 18 | | | | 124 | 11,000 |
| 81828 | **18** | | | | | | 130 | 13,200 |
| 81830 | **20** | 85 | 20 | 20 | | | 198 | 15,900 |
| 81832 | **22** | 90 | 25 | | | | 212 | 19,500 |
| 81834 | **24** | 95 | | 25 | | | 338 | 22,700 |
| 81835 | **25** | | | | | | 345 | 22,700 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
吹き飛ばし・吸込・搬送1台で三役!
※詳細は ▶P.1178 を参照下さい。
See p.1178 for details



**CADデータ（DXF・STEP）ダウンロードサービス公開中** ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EKD** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃CPMスクエアエンドミルショート形
**2-flute CPM End Mill Short Length**

## CPM-EDS

切削条件 Cutting Conditions | P915



CPM | 0〜-0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **0.8** | 45 | 2 | 6 | – | □ | – | – |
| | **0.9** | | 2.2 | | | □ | – | – |
| | **1** | | 2.5 | | | □ | – | – |
| | **1.1** | | 3 | | | □ | – | – |
| | **1.2** | | | | | □ | – | – |
| | **1.3** | | 3.5 | | | □ | – | – |
| 82403 | **1.4** | | | | D | ▲ | 13 | 9,200 |
| | **1.5** | | 4 | | – | □ | – | – |
| 82404 | **1.6** | | | | D | ▲ | 13 | 8,660 |
| 82405 | **1.7** | | 4.5 | | | ▲ | 13 | 8,660 |
| 82406 | **1.8** | | | | | ▲ | 13 | 8,660 |
| | **1.9** | 50 | 5 | | – | □ | – | – |
| | **2** | | | | | □ | – | – |
| | **2.1** | | 6 | | | □ | – | – |
| 82412 | **2.2** | | | | D | ▲ | 14 | 8,320 |
| | **2.3** | | | | – | □ | – | – |
| | **2.4** | | | | | □ | – | – |
| | **2.5** | | | | | □ | – | – |
| | **2.6** | | 8 | | | □ | – | – |
| | **2.7** | | | | | □ | – | – |
| 82417 | **2.8** | | | | D | ▲ | 14 | 8,230 |
| | **2.9** | | | | – | □ | – | – |
| | **3** | | | | | □ | – | – |
| 82419 | **3.1** | 60 | | 8 | D | ▲ | 23 | 7,020 |
| 82420 | **3.2** | | | | | ▲ | 23 | 7,020 |
| | **3.3** | | | | – | □ | – | – |
| | **3.4** | | | | | □ | – | – |
| | **3.5** | | | | | □ | – | – |
| | **3.6** | | | | | □ | – | – |
| | **3.7** | | | | | □ | – | – |
| 82425 | **3.8** | | | | D | ▲ | 24 | 7,020 |
| | **3.9** | | | | – | □ | – | – |
| | **4** | | | | | □ | – | – |
| | **4.1** | | 10 | | | □ | – | – |
| 82428 | **4.2** | | | | D | ▲ | 24 | 7,020 |
| | **4.3** | | | | – | □ | – | – |
| | **4.4** | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **4.5** | 60 | 10 | 8 | – | □ | – | – |
| 82431 | **4.6** | | | | D | ▲ | 24 | 7,020 |
| | **4.7** | | | | – | □ | – | – |
| 82433 | **4.8** | | | | D | ▲ | 24 | 7,020 |
| | **4.9** | | | | – | □ | – | – |
| | **5** | | | | | □ | – | – |
| | **5.1** | | 12 | | | □ | – | – |
| | **5.2** | | | | | □ | – | – |
| | **5.3** | | | | | □ | – | – |
| | **5.4** | | | | | □ | – | – |
| | **5.5** | | | | | □ | – | – |
| | **5.6** | | | | | □ | – | – |
| | **5.7** | | | | | □ | – | – |
| 82441 | **5.8** | | | | D | ▲ | 25 | 7,020 |
| 82442 | **5.9** | | | | | ▲ | 25 | 7,020 |
| | **6** | | | | – | □ | – | – |
| 82443 | **6.1** | | 14 | 10 | D | ▲ | 34 | 7,660 |
| 82444 | **6.2** | | | | | ▲ | 34 | 7,660 |
| | **6.3** | | | | – | □ | – | – |
| 82446 | **6.4** | | | | D | ▲ | 34 | 7,660 |
| | **6.5** | | | | – | □ | – | – |
| | **6.6** | | | | | □ | – | – |
| | **6.7** | | | | | □ | – | – |
| 82449 | **6.8** | | | | D | ▲ | 34 | 7,660 |
| 82450 | **6.9** | | | | | ▲ | 34 | 7,660 |
| | **7** | | | | – | □ | – | – |
| | **7.1** | | | | | □ | – | – |
| | **7.2** | | | | | □ | – | – |
| | **7.3** | | | | | □ | – | – |
| | **7.4** | | | | | □ | – | – |
| | **7.5** | | | | | □ | – | – |
| | **7.6** | | | | | □ | – | – |
| | **7.7** | | | | | □ | – | – |
| | **7.8** | | | | | □ | – | – |
| | **7.9** | | | | | □ | – | – |
| | **8** | | | | | □ | – | – |

▲＝この製品は、XPM-EDS（P.757）へ切り替え生産させていただいております。（在庫をご確認下さい。）
▲＝These products have been stopped producing and replaced by XPM-EDS(p.757)

次ページへ
外径 DC 8.1〜60 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **CPM-EDS** | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃CPMスクエアエンドミルショート形
**2-flute CPM End Mill Short Length**

## CPM-EDS

切削条件 Cutting Conditions | P915



CPM | 0〜-0.03 | 30°

前ページより FROM 外径 DC 0.8〜8

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 82459 | **8.1** | 70 | 18 | 10 | D | ▲ | 42 | 8,940 |
| | **8.2** | | | | – | □ | – | – |
| | **8.3** | | | | | □ | – | – |
| | **8.4** | | | | | □ | – | – |
| | **8.5** | | | | | □ | 42 | – |
| | **8.6** | | | | | □ | – | – |
| | **8.7** | | | | | □ | – | – |
| | **8.8** | | | | | □ | – | – |
| | **8.9** | | | | | □ | – | – |
| | **9** | | | | | □ | – | – |
| | **9.1** | | | | | □ | – | – |
| | **9.2** | | | | | □ | – | – |
| | **9.3** | | | | | □ | – | – |
| | **9.4** | | | | | □ | – | – |
| | **9.5** | | | | | □ | – | – |
| | **9.6** | | | | | □ | – | – |
| | **9.7** | | | | | □ | – | – |
| 82473 | **9.8** | | | | D | ▲ | 50 | 8,940 |
| | **9.9** | | | | – | □ | – | – |
| | **10** | | | | | □ | – | – |
| | **10.5** | 80 | 22 | 12 | | □ | – | – |
| | **11** | | | | | □ | – | – |
| | **11.5** | | | | | □ | 71 | – |
| | **12** | | | | | □ | – | – |
| | **12.5** | 85 | 26 | | | □ | – | – |
| | **13** | | | | | □ | – | – |
| | **13.5** | 90 | | 16 | | □ | – | – |
| | **14** | | | | | □ | – | – |
| | **14.5** | 95 | 30 | | | □ | – | – |
| | **15** | | | | | □ | – | – |
| 82326 | **15.5** | | | | D | ▲ | 144 | 17,100 |
| | **16** | | | | – | □ | – | – |
| 82327 | **16.5** | | 34 | | D | ▲ | 139 | 20,500 |
| | **17** | | | | – | □ | – | – |
| | **17.5** | | | | | □ | – | – |
| | **18** | | | | | □ | – | – |
| | **18.5** | 110 | 38 | 20 | | □ | – | – |
| | **19** | | | | | □ | – | – |
| | **19.5** | | | | | □ | – | – |
| | **20** | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **20.5** | 110 | 45 | 20 | – | □ | – | – |
| | **21** | | | | | □ | – | – |
| | **21.5** | | | | | □ | – | – |
| | **22** | | | | | □ | – | – |
| | **22.5** | 120 | 50 | 25 | | □ | – | – |
| | **23** | | | | | □ | – | – |
| | **23.5** | | | | | □ | – | – |
| | **24** | | | | | □ | – | – |
| | **24.5** | | | | | □ | – | – |
| | **25** | | | | | □ | – | – |
| | **25.5** | | | | | □ | – | – |
| | **26** | | | | | □ | – | – |
| | **26.5** | 125 | 55 | | | □ | – | – |
| | **27** | | | | | □ | – | – |
| 82338 | **27.5** | | | | D | △ | 451 | 44,800 |
| | **28** | | | | – | □ | – | – |
| | **28.5** | | | | | □ | – | – |
| | **29** | | | | | □ | – | – |
| 82340 | **29.5** | | | | D | △ | 482 | 54,600 |
| | **30** | | | | – | □ | – | – |
| | **31** | 145 | 60 | 32 | | □ | – | – |
| | **32** | | | | | □ | – | – |
| | **33** | | | | | □ | – | – |
| | **34** | | | | | □ | – | – |
| | **35** | | | | | □ | – | – |
| 82546 | **36** | 150 | 65 | | D | ▲ | 901 | 66,200 |
| 82547 | **37** | | | | | ▲ | 927 | 71,800 |
| 82548 | **38** | | | | | ▲ | 954 | 71,800 |
| | **39** | | | | – | □ | – | – |
| | **40** | | | | | □ | – | – |
| 82552 | **42** | 160 | 70 | 42 | D | △ | 1,503 | 99,500 |
| 82582 | **42×32** | | | 32 | | △ | 1,177 | 99,500 |
| | **45** | | | 42 | – | □ | – | – |
| | **45×32** | | | 32 | | □ | – | – |
| 82560 | **50** | 165 | 75 | 42 | D | △ | 1,832 | 148,000 |
| | **50×32** | | | 32 | – | □ | – | – |
| | **55** | 170 | 80 | 42 | | □ | – | – |
| | **60** | | | | | □ | – | – |

▲＝この製品は、XPM-EDS（P.757）へ切り替え生産させていただいております。（在庫をご確認下さい。）
▲＝These products have been stopped producing and replaced by XPM-EDS(p.757)

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CPM-EDS** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# アルミ合金用2枚刃ハイススクエアエンドミル ショート形
**2-flute End Mill Short Length for Aluminum Alloys**

## AL-EDS



CAD

HSS-Co　0〜-0.03　40°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 45 | 2.5 | 6 | — | □ | — | — |
| 81103 | **1.5** | | 4 | | B | ● | 12 | 4,340 |
| 81104 | **2** | 50 | 5 | | | ● | 13 | 4,070 |
| 81105 | **2.5** | | 6 | | | ● | 13 | 4,030 |
| 81306 | **3** | 60 | 8 | 8 | | ● | 23 | 3,520 |
| 81307 | **3.5** | | | | | ● | 23 | 3,520 |
| 81308 | **4** | | | | | ● | 23 | 3,520 |
| 81309 | **4.5** | | 10 | | | ● | 23 | 3,520 |
| 81310 | **5** | | | | | ● | 23 | 3,520 |
| 81311 | **5.5** | | 12 | | | ● | 23 | 3,520 |
| 81312 | **6** | | | | | ● | 23 | 3,520 |
| 81313 | **6.5** | | 14 | 10 | | ● | 33 | 3,900 |
| 81314 | **7** | | | | | ● | 34 | 3,900 |
| 81315 | **7.5** | | | | | ● | 34 | 3,900 |
| 81316 | **8** | | | | | ● | 35 | 3,900 |
| 81317 | **8.5** | 70 | 18 | | | ● | 40 | 4,580 |
| 81318 | **9** | | | | | ● | 41 | 4,580 |
| 81319 | **9.5** | | | | | ● | 41 | 4,580 |
| 81320 | **10** | | | | | ● | 42 | 4,580 |
| 81321 | **11** | 80 | 22 | 12 | | ● | 67 | 5,900 |
| 81322 | **12** | | | | | ● | 68 | 5,900 |
| 81323 | **13** | 85 | 26 | | | ● | 73 | 7,230 |
| 81324 | **14** | 90 | | 16 | | ● | 127 | 7,230 |
| 81325 | **15** | 95 | 30 | | | ● | 133 | 8,170 |
| 81326 | **16** | | | | | ● | 138 | 8,720 |
| 81327 | **17** | | 34 | | | ● | 140 | 10,500 |
| 81328 | **18** | | | | | ● | 142 | 10,500 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 81329 | **19** | 110 | 38 | 20 | B | ● | 231 | 12,600 |
| 81330 | **20** | | | | | ● | 238 | 12,600 |
| 81331 | **21** | | 45 | | D | ● | 238 | 17,300 |
| 81332 | **22** | | | | | ● | 242 | 17,300 |
| 81333 | **23** | 120 | 50 | 25 | | ● | 366 | 20,200 |
| 81334 | **24** | | | | | ● | 375 | 20,200 |
| 81335 | **25** | | | | | ● | 385 | 20,200 |
| 81336 | **26** | | | | | ● | 414 | 21,500 |
| 81337 | **27** | 125 | 55 | | | ● | 437 | 25,300 |
| 81338 | **28** | | | | | ● | 446 | 25,300 |
| 81339 | **29** | | | | | ● | 455 | 30,700 |
| 81340 | **30** | | | | | ● | 470 | 30,700 |
| ◆ | **31** | 145 | 60 | 32 | — | □ | — | — |
| ◆ | **32** | | | | | □ | — | — |
| ◆ | **33** | | | | | □ | — | — |
| ◆ | **34** | | | | | □ | — | — |
| ◆ | **35** | | | | | □ | — | — |
| ◆ | **36** | 150 | 65 | | | □ | — | — |
| ◆ | **37** | | | | | □ | — | — |
| ◆ | **38** | | | | | □ | — | — |
| ◆ | **39** | | | | | □ | — | — |
| ◆ | **40** | | | | | □ | — | — |
| ◆ | **42** | 160 | 70 | 42 | | □ | — | — |
| ◆ | **44** | | | | | □ | — | — |
| ◆ | **45** | | | | | □ | — | — |
| ◆ | **48** | 165 | 75 | | | □ | — | — |
| ◆ | **50** | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
標準サイズ在庫完備!タングが無し!タングレスインサートあります
※詳細は▶P.1167を参照下さい。 See p.1167 for details





OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **AL-EDS** | | | | | ○ | ◎ | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ステンレス用ホモ処理2枚刃ハイス スクエアエンドミルショート形

**2-flute End Mill Short Length for Stainless Steels (with Steam Oxide)**

## SUS-EDS



HSS-Co | H | 0〜-0.03 | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 45 | 2.5 | 6 | – | □ | – | – |
| 81403 | **1.5** | | 4 | | D | ● | 12 | 4,920 |
| 81404 | **2** | 50 | 5 | | | ● | 13 | 4,640 |
| 81405 | **2.5** | | 6 | | | ● | 13 | 4,580 |
| 81406 | **3** | | 8 | | | ● | 13 | 4,010 |
| 81407 | **3.5** | 60 | | 8 | | ● | 23 | 4,010 |
| 81408 | **4** | | | | | ● | 23 | 4,010 |
| 81409 | **4.5** | | 10 | | | ● | 23 | 4,010 |
| 81410 | **5** | | | | | ● | 23 | 4,010 |
| 81411 | **5.5** | | 12 | | | ● | 24 | 4,010 |
| 81412 | **6** | | | | | ● | 23 | 4,010 |
| 81413 | **6.5** | | 14 | 10 | | ● | 33 | 4,370 |
| 81414 | **7** | | | | | ● | 34 | 4,370 |
| 81415 | **7.5** | | | | | ● | 34 | 4,370 |
| 81416 | **8** | | | | | ● | 35 | 4,370 |
| 81417 | **8.5** | 70 | 18 | | | ● | 40 | 5,100 |
| 81418 | **9** | | | | | ● | 41 | 5,100 |
| 81419 | **9.5** | | | | | ● | 41 | 5,100 |
| 81420 | **10** | | | | | ● | 42 | 5,100 |
| | **10.5** | 80 | 22 | 12 | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 81421 | **11** | 80 | 22 | 12 | D | ● | 68 | 6,550 |
| 81422 | **12** | | | | | ● | 70 | 6,550 |
| 81423 | **13** | 85 | 26 | | | ● | 74 | 8,080 |
| 81424 | **14** | 90 | | 16 | | ● | 125 | 8,080 |
| 81425 | **15** | 95 | 30 | | | ● | 136 | 9,090 |
| 81426 | **16** | | | | | ● | 138 | 9,770 |
| 81427 | **17** | | 34 | | | ● | 141 | 11,700 |
| 81428 | **18** | | | | | ● | 150 | 11,700 |
| 81429 | **19** | 110 | 38 | 20 | | ● | 235 | 14,100 |
| 81430 | **20** | | | | | ● | 240 | 14,100 |
| 81431 | **21** | | 45 | | | ● | 238 | 17,300 |
| 81432 | **22** | | | | | ● | 248 | 17,300 |
| 81433 | **23** | 120 | 50 | 25 | | ● | 371 | 20,200 |
| 81434 | **24** | | | | | ● | 379 | 20,200 |
| 81435 | **25** | | | | | ● | 388 | 20,200 |
| 81436 | **26** | | | | | ● | 422 | 21,500 |
| 81437 | **27** | 125 | 55 | | | ● | 444 | 25,300 |
| 81438 | **28** | | | | | ● | 454 | 25,300 |
| 81439 | **29** | | | | | ● | 457 | 30,700 |
| 81440 | **30** | | | | | ● | 470 | 30,700 |
| ◆ | **31** | 145 | 60 | 32 | – | □ | – | – |
| ◆ | **32** | | | | | □ | – | – |
| ◆ | **34** | | | | | □ | – | – |
| ◆ | **35** | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。 See p.1175 for details



**形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6**

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **SUS-EDS** | ○ | | | ◎ | | | | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## Vコート2枚刃XPMスクエアエンドミル ミディアム形
**V Coated 2-flute XPM End Mill Medium Length**

# V-XPM-EDN



粉末ハイスXPMにVコーティングが施してあります。良好な切れ味と安定した工具寿命を実現しました。
Vcoating and powder metallurgy XPM provide superior finish quality and long tool life.

CAD

XPM | V | 0〜-0.03 | | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8450510 | **1** | 55 | 3.5 | 6 | B | ● | 14 | 9,220 |
| 8450515 | **1.5** | | 5 | | | ● | 14 | 8,420 |
| 8450520 | **2** | 65 | 7 | | | ● | 16 | 7,980 |
| 8450525 | **2.5** | | 8 | | | ● | 16 | 7,860 |
| 8450530 | **3** | | 10 | | | ● | 15 | 6,700 |
| 8450535 | **3.5** | 70 | 12 | 8 | | ● | 26 | 6,700 |
| 8450540 | **4** | | | | | ● | 26 | 6,700 |
| 8450545 | **4.5** | | 15 | | | ● | 26 | 6,700 |
| 8450550 | **5** | | | | | ● | 26 | 6,700 |
| 8450555 | **5.5** | | | | | ● | 26 | 6,700 |
| 8450560 | **6** | | | | | ● | 26 | 6,700 |
| 8450565 | **6.5** | 75 | 20 | 10 | | ● | 40 | 7,560 |
| 8450570 | **7** | | | | | ● | 40 | 7,560 |
| 8450575 | **7.5** | | | | | ● | 41 | 7,560 |
| 8450580 | **8** | | | | | ● | 42 | 7,560 |
| 8450585 | **8.5** | 80 | 25 | | | ● | 44 | 8,640 |
| 8450590 | **9** | | | | | ● | 45 | 8,640 |
| 8450595 | **9.5** | | | | | ● | 47 | 8,640 |
| 8450600 | **10** | | | | | ● | 47 | 8,640 |
| 8450610 | **11** | 95 | 30 | 12 | | ● | 79 | 11,200 |
| 8450620 | **12** | | | | | ● | 82 | 11,200 |
| 8450630 | **13** | 100 | 35 | | | ● | 88 | 14,700 |
| 8450640 | **14** | 105 | | 16 | | ● | 144 | 14,700 |
| 8450650 | **15** | 110 | 40 | | | ● | 158 | 16,300 |
| 8450660 | **16** | | | | | ● | 157 | 17,400 |
| 8450670 | **17** | | | | | ● | 169 | 20,800 |
| 8450680 | **18** | | | | | ● | 169 | 20,800 |
| 8450690 | **19** | 125 | 45 | 20 | | ● | 280 | 25,200 |
| 8450700 | **20** | | | | | ● | 291 | 25,200 |

## Vコート2枚刃XPMスクエアエンドミル スリムシャンクミディアム形
**V Coated 2-flute XPM End Mill Medium Length with Slim Shank**

# V-SS-XPM-EDN



シャンク径を刃径マイナス1mmに設定したスリムシャンクタイプです。突出し長さを自由に調整できます。
Slim shank type. Shank diameter is 1mm smaller than the mill diameter. Extension length can be adjusted.

CAD

XPM | V | 0〜-0.03 | | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8406060 | **6** | 85 | 15 | 5 | D | ● | 30 | 8,230 |
| 8406080 | **8** | 95 | 20 | 7 | | ● | 34 | 9,090 |
| 8406100 | **10** | 100 | 25 | 9 | | ● | 56 | 10,500 |
| 8406120 | **12** | 110 | 30 | 11 | | ● | 85 | 13,400 |
| 8406160 | **16** | 125 | 40 | 15 | | ● | 173 | 21,300 |
| 8406200 | **20** | 140 | 45 | 19 | | ● | 308 | 30,300 |
| 8406250 | **25** | 160 | 50 | 24 | | ● | 544 | 42,700 |

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / 合金鋼 Alloy Steel / プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| V-XPM-EDN | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |
| V-SS-XPM-EDN | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## TiNコート2枚刃XPMスクエアエンドミル ミディアム形
**TiN Coated 2-flute XPM End Mill Medium Length**

# TIN-XPM-EDN



XPM | TiN | 0〜-0.03 | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1.5** | 55 | 5 | 6 | — | □ | — | — |
| | **2** | 65 | 7 | | | □ | — | — |
| 8403207 | **3.5** | 70 | 12 | 8 | D | ▲ | 26 | 8,080 |
| | **4** | | | | — | □ | — | — |
| | **4.5** | | 15 | | | □ | — | — |
| | **5** | | | | | □ | — | — |
| 8403211 | **5.5** | | | | D | ▲ | 27 | 8,080 |
| | **6** | | | | — | □ | — | — |
| | **7** | 75 | 20 | 10 | | □ | — | — |
| 8403215 | **7.5** | | | | D | ▲ | 42 | 8,880 |
| 8403217 | **8.5** | 80 | 25 | | | ▲ | 44 | 10,300 |
| | **10** | | | | — | □ | — | — |
| | **11** | 95 | 30 | 12 | | □ | — | — |
| | **12** | | | | | □ | — | — |
| 8403225 | **15** | 110 | 40 | 16 | D | ▲ | 159 | 19,300 |
| | **18** | | | | — | □ | — | — |
| 8403229 | **19** | 125 | 45 | 20 | D | ▲ | 271 | 29,900 |

▲＝この製品は、V-XPM-EDN (P.778) へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲＝These products have been stopped producing and replaced by V-XPM-EDN(p.778)

## 2枚刃XPMスクエアエンドミルミディアム形
**2-flute XPM End Mill Medium Length**

# XPM-EDN



刃長がロングとショートの中間に設定してあります。
Length of cut is halfway between that of long and short flutes.

CAD

XPM | 0〜-0.03 | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 71402 | **1** | 55 | 3.5 | 6 | B | ● | 15 | 7,230 |
| | **1.1** | | 5 | | — | □ | — | — |
| | **1.2** | | | | | □ | — | — |
| | **1.3** | | | | | □ | — | — |
| | **1.4** | | | | | □ | — | — |
| 71403 | **1.5** | | | | B | ● | 14 | 6,570 |
| | **1.6** | 65 | 7 | | — | □ | — | — |
| | **1.7** | | | | | □ | — | — |
| | **1.8** | | | | | □ | — | — |
| | **1.9** | | | | | □ | — | — |
| 71404 | **2** | | | | B | ● | 16 | 6,250 |
| | **2.1** | | 8 | | — | □ | — | — |
| | **2.2** | | | | | □ | — | — |
| | **2.3** | | | | | □ | — | — |
| | **2.4** | | | | | □ | — | — |
| 71405 | **2.5** | | | | B | ● | 16 | 6,150 |
| | **2.6** | | 10 | | — | □ | — | — |
| | **2.7** | | | | | □ | — | — |
| | **2.8** | | | | | □ | — | — |
| | **2.9** | | | | | □ | — | — |
| 71406 | **3** | | | | B | ● | 16 | 5,260 |
| | **3.1** | 70 | 12 | 8 | — | □ | — | — |
| | **3.2** | | | | | □ | — | — |
| | **3.3** | | | | | □ | — | — |
| | **3.4** | | | | | □ | — | — |
| 71407 | **3.5** | | | | B | ● | 26 | 5,260 |
| | **3.6** | | | | — | □ | — | — |
| | **3.7** | | | | | □ | — | — |
| | **3.8** | | | | | □ | — | — |
| | **3.9** | | | | | □ | — | — |
| 71408 | **4** | | | | B | ● | 26 | 5,260 |
| | **4.1** | | 15 | | — | □ | — | — |
| | **4.2** | | | | | □ | — | — |
| | **4.3** | | | | | □ | — | — |
| | **4.4** | | | | | □ | — | — |
| 71409 | **4.5** | | | | B | ● | 26 | 5,260 |
| | **4.6** | | | | — | □ | — | — |
| | **4.7** | | | | | □ | — | — |
| | **4.8** | | | | | □ | — | — |
| | **4.9** | | | | | □ | — | — |

次ページへ
外径 DC 5〜20 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TIN-XPM-EDN** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |
| **XPM-EDN** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols
● = 標準在庫品 Standard stock item
○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品 (在庫をご確認下さい。) Discontinued item

# 2枚刃XPMスクエアエンドミルミディアム形
**2-flute XPM End Mill Medium Length**

## XPM-EDN



刃長がロングとショートの中間に設定してあります。
Length of cut is halfway between that of long and short flutes.

CAD

XPM | 0〜-0.03 | 約30° ABOUT 30°

前ページより FROM 外径 DC 1〜4.9

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 71410 | **5** | 70 | 15 | 8 | B | ● | 26 | 5,260 |
| | **5.1** | | | | – | □ | – | – |
| | **5.2** | | | | | □ | – | – |
| | **5.3** | | | | | □ | – | – |
| | **5.4** | | | | | □ | – | – |
| 71411 | **5.5** | | | | B | ● | 26 | 5,260 |
| | **5.6** | | | | – | □ | – | – |
| | **5.7** | | | | | □ | – | – |
| | **5.8** | | | | | □ | – | – |
| | **5.9** | | | | | □ | – | – |
| 71412 | **6** | | | | B | ● | 26 | 5,260 |
| | **6.1** | 75 | 20 | 10 | – | □ | – | – |
| | **6.2** | | | | | □ | – | – |
| | **6.3** | | | | | □ | – | – |
| | **6.4** | | | | | □ | – | – |
| 71413 | **6.5** | | | | B | ● | 41 | 5,920 |
| | **6.6** | | | | – | □ | – | – |
| | **6.7** | | | | | □ | – | – |
| | **6.8** | | | | | □ | – | – |
| | **6.9** | | | | | □ | – | – |
| 71414 | **7** | | | | B | ● | 41 | 5,920 |
| | **7.1** | | | | – | □ | – | – |
| | **7.2** | | | | | □ | – | – |
| | **7.3** | | | | | □ | – | – |
| | **7.4** | | | | | □ | – | – |
| 71415 | **7.5** | | | | B | ● | 42 | 5,920 |
| | **7.6** | | | | – | □ | – | – |
| | **7.7** | | | | | □ | – | – |
| | **7.8** | | | | | □ | – | – |
| | **7.9** | | | | | □ | – | – |
| 71416 | **8** | | | | B | ● | 43 | 5,920 |
| | **8.1** | 80 | 25 | | – | □ | – | – |
| | **8.2** | | | | | □ | – | – |
| | **8.3** | | | | | □ | – | – |
| | **8.4** | | | | | □ | – | – |
| 71417 | **8.5** | | | | B | ● | 45 | 6,800 |
| | **8.6** | | | | – | □ | – | – |
| | **8.7** | | | | | □ | – | – |
| | **8.8** | | | | | □ | – | – |
| | **8.9** | | | | | □ | – | – |
| 71418 | **9** | | | | B | ● | 47 | 6,800 |
| | **9.1** | | | | – | □ | – | – |
| | **9.2** | | | | | □ | – | – |
| | **9.3** | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **9.4** | 80 | 25 | 10 | – | □ | – | – |
| 71419 | **9.5** | | | | B | ● | 48 | 6,800 |
| | **9.6** | | | | – | □ | – | – |
| | **9.7** | | | | | □ | – | – |
| | **9.8** | | | | | □ | – | – |
| | **9.9** | | | | | □ | – | – |
| 71420 | **10** | | | | B | ● | 47 | 6,800 |
| | **10.1** | 95 | 30 | 12 | – | □ | – | – |
| | **10.2** | | | | | □ | – | – |
| | **10.3** | | | | | □ | – | – |
| | **10.4** | | | | | □ | – | – |
| | **10.5** | | | | | □ | – | – |
| | **10.6** | | | | | □ | – | – |
| | **10.7** | | | | | □ | – | – |
| | **10.8** | | | | | □ | – | – |
| | **10.9** | | | | | □ | – | – |
| 71421 | **11** | | | | B | ● | 79 | 8,640 |
| | **11.1** | | | | – | □ | – | – |
| | **11.2** | | | | | □ | – | – |
| | **11.3** | | | | | □ | – | – |
| | **11.4** | | | | | □ | – | – |
| | **11.5** | | | | | □ | – | – |
| | **11.6** | | | | | □ | – | – |
| | **11.7** | | | | | □ | – | – |
| | **11.8** | | | | | □ | – | – |
| | **11.9** | | | | | □ | – | – |
| 71422 | **12** | | | | B | ● | 81 | 8,640 |
| | **12.1** | 100 | 35 | | – | □ | – | – |
| | **12.2** | | | | | □ | – | – |
| | **12.3** | | | | | □ | – | – |
| | **12.4** | | | | | □ | – | – |
| | **12.5** | | | | | □ | – | – |
| | **12.6** | | | | | □ | – | – |
| | **12.7** | | | | | □ | – | – |
| | **12.8** | | | | | □ | – | – |
| | **12.9** | | | | | □ | – | – |
| 71423 | **13** | | | | B | ● | 89 | 11,500 |
| 71424 | **14** | 105 | | 16 | | ● | 143 | 11,500 |
| 71425 | **15** | 110 | 40 | | | ● | 157 | 12,800 |
| 71426 | **16** | | | | | ● | 157 | 13,700 |
| 71427 | **17** | | | | | ● | 168 | 16,400 |
| 71428 | **18** | | | | | ● | 174 | 16,400 |
| 71429 | **19** | 125 | 45 | 20 | | ● | 280 | 19,800 |
| 71430 | **20** | | | | | ● | 282 | 19,800 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>合金鋼 Alloy Steel<br>工具鋼 Tool Steel<br>～40HRC | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **XPM-EDN** | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

## 深彫り用2枚刃XPMスクエアエンドミル ミディアム形
**2-flute XPM End Mill Medium Length for Deep Contouring**

# DE-XPM-EDN



深彫用のロングシャンク形2枚刃エンドミルです。刃径よりシャンク径が細い設定となっています。
Two-fluted end mill with long shank for deep holes. Mill diameter is larger than the shank diameter.

CAD

XPM


0～-0.03





ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8404008 | 8 | 80 | 20 | 6 | D | ● | 24 | 7,180 |
| 8404108 | 8 | 125 | | | | ● | 34 | 9,090 |
| 8404009 | 9 | 100 | 25 | 8 | | ● | 45 | 8,520 |
| 8404109 | 9 | 150 | | | | ● | 68 | 10,400 |
| 8404010 | 10 | 100 | | | | ● | 47 | 8,520 |
| 8404110 | 10 | 150 | | | | ● | 71 | 10,400 |
| 8404011 | 11 | 150 | 30 | 10 | | ● | 100 | 11,700 |
| 8404111 | 11 | 200 | | | | ● | 163 | 13,200 |
| 8404012 | 12 | 150 | | | | ● | 103 | 11,700 |
| 8404112 | 12 | 200 | | | | ● | 165 | 13,200 |
| 8404013 | 13 | 150 | 35 | 12 | | ● | 139 | 15,900 |
| 8404113 | 13 | 200 | | | | ● | 210 | 18,400 |
| 8404014 | 14 | 150 | | | | ● | 145 | 15,900 |
| 8404114 | 14 | 200 | | | | ● | 211 | 18,400 |
| 8404015 | 15 | 150 | 40 | | | ● | 151 | 16,900 |
| 8404115 | 15 | 200 | | | | ● | 220 | 19,400 |
| 8404016 | 16 | 150 | | | | ● | 160 | 18,000 |
| 8404116 | 16 | 200 | | | | ● | 225 | 20,600 |
| 8404017 | 17 | 180 | | 16 | | ● | 287 | 24,400 |
| 8404117 | 17 | 250 | | | | ● | 427 | 29,500 |
| 8404018 | 18 | 180 | | | | ● | 292 | 24,400 |
| 8404118 | 18 | 250 | | | | ● | 432 | 29,500 |
| 8404019 | 19 | 180 | 45 | | | ● | 303 | 26,700 |
| 8404119 | 19 | 250 | | | | ● | 437 | 32,200 |
| 8404020 | 20 | 180 | | | | ● | 310 | 26,700 |
| 8404120 | 20 | 250 | | | | ● | 443 | 32,200 |
| 8404022 | 22 | 225 | | 20 | | ● | 556 | 42,700 |
| 8404122 | 22 | 300 | | | | ● | 760 | 53,600 |
| 8404024 | 24 | 225 | 50 | | | ● | 571 | 45,600 |
| 8404124 | 24 | 300 | | | | ● | 810 | 55,700 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8404025 | 25 | 225 | 50 | 20 | D | ● | 581 | 45,600 |
| 8404125 | 25 | 300 | | | | ● | 900 | 55,700 |
| 8404026 | 26 | 225 | | 25 | | ● | 866 | 48,000 |
| 8404126 | 26 | 300 | | | | ● | 1,050 | 58,200 |
| 8404028 | 28 | 225 | 55 | | | ● | 881 | 53,600 |
| 8404128 | 28 | 300 | | | | ● | 1,168 | 64,000 |
| 8404030 | 30 | 225 | | | | ● | 907 | 61,900 |
| 8404130 | 30 | 300 | | | | ● | 1,204 | 71,800 |
| 8404032 | 32 | 225 | 60 | | | ● | 936 | 73,500 |
| 8404132 | 32 | 300 | | | | ● | 1,249 | 88,400 |
| 8404034 | 34 | 250 | | 32 | | ● | 1,499 | 88,800 |
| 8404134 | 34 | 350 | | | | ● | 2,150 | 109,000 |
| 8404035 | 35 | 250 | | | | ● | 1,513 | 88,800 |
| 8404135 | 35 | 350 | | | | ● | 2,161 | 109,000 |
| 8404036 | 36 | 250 | 65 | | | ● | 1,536 | 96,400 |
| 8404136 | 36 | 350 | | | | ● | 2,185 | 116,000 |
| 8404038 | 38 | 250 | | | | ● | 1,578 | 103,000 |
| 8404138 | 38 | 350 | | | | ● | 2,226 | 123,000 |
| 8404040 | 40 | 250 | | | | ● | 1,614 | 116,000 |
| 8404140 | 40 | 350 | | | | ● | 2,272 | 135,000 |
| 8404042 | 42 | 280 | 70 | | | ● | 1,942 | 116,000 |
| 8404142 | 42 | 350 | | | | ● | 2,395 | 128,000 |
| 8404045 | 45 | 280 | | | | ● | 1,964 | 138,000 |
| 8404145 | 45 | 350 | | | | ● | 2,487 | 149,000 |
| 8404245 | 45 | 280 | | 42 | | ● | 3,000 | 146,000 |
| 8404345 | 45 | 350 | | | | ● | 3,665 | 159,000 |
| 8404050 | 50 | 280 | 75 | 32 | | ● | 2,164 | 161,000 |
| 8404150 | 50 | 350 | | | | ● | 2,650 | 173,000 |
| 8404250 | 50 | 280 | | 42 | | ● | 3,120 | 169,000 |
| 8404350 | 50 | 350 | | | | ● | 3,950 | 183,000 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1176を参照下さい。 See p.1176 for details
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、水・油・ヘドロをスピード吸入・スピード吐出



**製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6**

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| DE-XPM-EDN | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## TiNコート2枚刃ハイススクエアエンドミル ミディアム形
**TiN Coated 2-flute End Mill Medium Length**

# EX-TIN-EDN



HSS-Co | TiN | 0〜-0.03 | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8403852 | 1 | 45 | 3.5 | 6 | D | ● | 13 | 7,830 |
| 8403853 | 1.5 | | 5 | | | ● | 13 | 7,250 |
| 8403854 | 2 | 50 | 7 | | | ● | 13 | 6,980 |
| 8403855 | 2.5 | | 8 | | | ● | 13 | 6,810 |
| 8403856 | 3 | | 10 | | | ● | 13 | 6,070 |
| 8403857 | 3.5 | 60 | 12 | 8 | | ● | 22 | 6,070 |
| 8403858 | 4 | | | | | ● | 22 | 6,070 |
| 8403859 | 4.5 | | 15 | | | ● | 21 | 6,070 |
| 8403860 | 5 | | | | | ● | 22 | 6,070 |
| 8403861 | 5.5 | | | | | ● | 22 | 6,070 |
| 8403862 | 6 | | | | | ● | 23 | 6,070 |
| 8403863 | 6.5 | | 20 | 10 | | ● | 31 | 6,680 |
| 8403864 | 7 | | | | | ● | 32 | 6,680 |
| 8403865 | 7.5 | | | | | ● | 32 | 6,680 |
| 8403866 | 8 | | | | | ● | 34 | 6,680 |
| 8403867 | 8.5 | 70 | 25 | | | ● | 39 | 7,660 |
| 8403868 | 9 | | | | | ● | 40 | 7,660 |
| 8403869 | 9.5 | | | | | ● | 41 | 7,660 |
| 8403870 | 10 | | | | | ● | 42 | 7,660 |
| 8403871 | 11 | 80 | 30 | 12 | | ● | 65 | 9,790 |
| 8403872 | 12 | | | | | ● | 67 | 9,790 |
| 8403873 | 13 | 85 | 35 | 16 | | ● | 70 | 12,300 |
| 8403874 | 14 | 90 | | | | ● | 117 | 12,300 |
| 8403875 | 15 | 95 | 40 | | | ● | 126 | 13,600 |
| 8403876 | 16 | | | | | ● | 130 | 14,700 |
| 8403877 | 17 | | | | | ● | 135 | 17,800 |
| 8403878 | 18 | | | | | ● | 140 | 17,800 |
| 8403879 | 19 | 110 | 45 | 20 | | ● | 219 | 21,400 |
| 8403880 | 20 | | | | | ● | 228 | 21,400 |

## 2枚刃ハイススクエアエンドミルミディアム形
**2-flute End Mill Medium Length**

# EDN



HSS-Co | 0〜-0.03 | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 80202 | 1 | 45 | 3.5 | 6 | A | ● | 13 | 4,580 |
| | 1.1 | | 5 | | – | □ | – | – |
| | 1.2 | | | | | □ | – | – |
| | 1.3 | | | | | □ | – | – |
| | 1.4 | | | | | □ | – | – |
| 80203 | 1.5 | 50 | 7 | | A | ● | 13 | 4,160 |
| | 1.6 | | | | – | □ | – | – |
| | 1.7 | | | | | □ | – | – |
| | 1.8 | | | | | □ | – | – |
| | 1.9 | | | | | □ | – | – |
| 80204 | 2 | | 8 | | A | ● | 13 | 3,960 |
| | 2.1 | | | | – | □ | – | – |
| | 2.2 | | | | | □ | – | – |
| | 2.3 | | | | | □ | – | – |
| | 2.4 | | | | | □ | – | – |
| 80205 | 2.5 | | 10 | | A | ● | 13 | 3,900 |
| | 2.6 | | | | – | □ | – | – |
| | 2.7 | | | | | □ | – | – |
| | 2.8 | | | | | □ | – | – |
| | 2.9 | | | | | □ | – | – |
| 80206 | 3 | 60 | 15 | | A | ● | 13 | 3,350 |
| | 3.1 | | | | – | □ | – | – |
| | 3.2 | | | | | □ | – | – |
| | 3.3 | | | | | □ | – | – |
| | 3.4 | | | | | □ | – | – |
| | 3.5 | | 12 | | | □ | – | – |
| 80207 | 3.5 | | | 8 | A | ● | 22 | 3,350 |
| | 3.6 | | 15 | 6 | – | □ | – | – |
| | 3.7 | | | | | □ | – | – |
| | 3.8 | | | | | □ | – | – |
| | 3.9 | | | | | □ | – | – |
| | 4 | | 12 | | | □ | – | – |
| 80208 | 4 | | | 8 | A | ● | 22 | 3,350 |
| | 4.1 | 65 | 18 | 6 | – | □ | – | – |
| | 4.2 | | | | | □ | – | – |
| | 4.3 | | | | | □ | – | – |
| | 4.4 | | | | | □ | – | – |
| | 4.5 | 60 | 15 | | | □ | – | – |
| 80209 | 4.5 | | | 8 | A | ● | 21 | 3,350 |
| | 4.6 | 65 | 18 | 6 | – | □ | – | – |

次ページへ 外径 DC 4.7〜20 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| EX-TIN-EDN | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| EDN | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミルミディアム形
**2-flute End Mill Medium Length**

## EDN



HSS-Co









CAD

前ページより FROM 外径 DC 1〜4.6

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 4.7 | 65 | 18 | 6 | – | □ | – | – |
| | 4.8 | | | | | □ | – | – |
| | 4.9 | | | | | □ | – | – |
| | 5 | 60 | 15 | | | □ | – | – |
| 80210 | 5 | | | 8 | A | ● | 22 | 3,350 |
| | 5.1 | 65 | 20 | 6 | – | □ | – | – |
| | 5.2 | | | | | □ | – | – |
| | 5.3 | | | | | □ | – | – |
| | 5.4 | | | | | □ | – | – |
| | 5.5 | 60 | 15 | | | □ | – | – |
| 80211 | 5.5 | | | 8 | A | ● | 22 | 3,350 |
| | 5.6 | 65 | 20 | 6 | – | □ | – | – |
| | 5.7 | | | | | □ | – | – |
| | 5.8 | | | | | □ | – | – |
| | 5.9 | | | | | □ | – | – |
| | 6 | 60 | 15 | | | □ | – | – |
| 80212 | 6 | | | 8 | A | ● | 23 | 3,350 |
| | 6.1 | 65 | 25 | 8 | – | □ | – | – |
| | 6.2 | | | | | □ | – | – |
| | 6.3 | | | | | □ | – | – |
| | 6.4 | | | | | □ | – | – |
| | 6.5 | 60 | 20 | | | □ | – | – |
| 80213 | 6.5 | | | 10 | A | ● | 31 | 3,720 |
| | 6.6 | 65 | 25 | 8 | – | □ | – | – |
| | 6.7 | | | | | □ | – | – |
| | 6.8 | | | | | □ | – | – |
| | 6.9 | | | | | □ | – | – |
| | 7 | 60 | 20 | | | □ | – | – |
| 80214 | 7 | | | 10 | A | ● | 32 | 3,720 |
| | 7.1 | 65 | 25 | 8 | – | □ | – | – |
| | 7.2 | | | | | □ | – | – |
| | 7.3 | | | | | □ | – | – |
| | 7.4 | | | | | □ | – | – |
| | 7.5 | 60 | 20 | | | □ | – | – |
| 80215 | 7.5 | | | 10 | A | ● | 33 | 3,720 |
| | 7.6 | 65 | 25 | 8 | – | □ | – | – |
| | 7.7 | | | | | □ | – | – |
| | 7.8 | | | | | □ | – | – |
| | 7.9 | | | | | □ | – | – |
| | 8 | 60 | 20 | | | □ | – | – |
| 80216 | 8 | | | 10 | A | ● | 34 | 3,720 |
| | 8.1 | 75 | 30 | | – | □ | – | – |
| | 8.2 | | | | | □ | – | – |
| | 8.3 | | | | | □ | – | – |
| | 8.4 | | | | | □ | – | – |
| 80217 | 8.5 | 70 | 25 | | A | ● | 39 | 4,430 |
| | 8.6 | 75 | 30 | | – | □ | – | – |
| | 8.7 | | | | | □ | – | – |
| | 8.8 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 8.9 | 75 | 30 | 10 | – | □ | – | – |
| 80218 | 9 | 70 | 25 | | A | ● | 40 | 4,430 |
| | 9.1 | 80 | 35 | | – | □ | – | – |
| | 9.2 | | | | | □ | – | – |
| | 9.3 | | | | | □ | – | – |
| | 9.4 | | | | | □ | – | – |
| 80219 | 9.5 | 70 | 25 | | A | ● | 41 | 4,430 |
| | 9.6 | 80 | 35 | | – | □ | – | – |
| | 9.7 | | | | | □ | – | – |
| | 9.8 | | | | | □ | – | – |
| | 9.9 | | | | | □ | – | – |
| 80220 | 10 | 70 | 25 | | A | ● | 42 | 4,430 |
| | 10.1 | 90 | 40 | 12 | – | □ | – | – |
| | 10.2 | | | | | □ | – | – |
| | 10.3 | | | | | □ | – | – |
| | 10.4 | | | | | □ | – | – |
| | 10.5 | | | | | □ | – | – |
| | 10.6 | | | | | □ | – | – |
| | 10.7 | | | | | □ | – | – |
| | 10.8 | | | | | □ | – | – |
| | 10.9 | | | | | □ | – | – |
| 80221 | 11 | 80 | 30 | | A | ● | 65 | 5,670 |
| | 11.1 | 90 | 40 | | – | □ | – | – |
| | 11.2 | | | | | □ | – | – |
| | 11.3 | | | | | □ | – | – |
| | 11.4 | | | | | □ | – | – |
| | 11.5 | | | | | □ | – | – |
| | 11.6 | | | | | □ | – | – |
| | 11.7 | | | | | □ | – | – |
| | 11.8 | | | | | □ | – | – |
| | 11.9 | | | | | □ | – | – |
| 80222 | 12 | 80 | 30 | | A | ● | 68 | 5,670 |
| | 12.1 | 95 | 45 | | – | □ | – | – |
| | 12.2 | | | | | □ | – | – |
| | 12.3 | | | | | □ | – | – |
| | 12.4 | | | | | □ | – | – |
| | 12.5 | | | | | □ | – | – |
| | 12.6 | | | | | □ | – | – |
| | 12.7 | | | | | □ | – | – |
| | 12.8 | | | | | □ | – | – |
| | 12.9 | | | | | □ | – | – |
| 80223 | 13 | 85 | 35 | | A | ● | 71 | 7,060 |
| 80224 | 14 | 90 | | 16 | | ● | 118 | 7,060 |
| 80225 | 15 | 95 | 40 | | | ● | 125 | 7,780 |
| 80226 | 16 | | | | | ● | 131 | 8,420 |
| 80227 | 17 | | | | | ● | 136 | 10,100 |
| 80228 | 18 | | | | | ● | 142 | 10,100 |
| 80229 | 19 | 110 | 45 | 20 | | ● | 220 | 12,100 |
| 80230 | 20 | | | | | ● | 231 | 12,100 |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃ハイススクエアエンドミルロングシャンク ミディアム形
**2-flute End Mill Medium Length with Long Shank**

# LS-EDN



CAD

HSS-Co | 30° | 0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 首下長 LU | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 82170 | **10** | 65 | 125 | 25 | 10 | D | ● | 78 | 6,550 |
| 82172 | **12** | 80 | 150 | 30 | 12 | | ● | 130 | 8,960 |
| 82174 | **14** | — | | 35 | | | ● | 149 | 11,600 |
| 82175 | **15** | | 155 | 40 | | | ● | 157 | 12,800 |
| 82176 | **16** | 85 | | | 16 | | ● | 234 | 14,700 |
| 82178 | **18** | — | | | | | ● | 250 | 17,900 |
| 82180 | **20** | 110 | 185 | 45 | 20 | | ● | 443 | 23,000 |
| 82182 | **22** | — | | | | | ● | 463 | 26,700 |
| 82184 | **24** | | 190 | 50 | | | ● | 498 | 32,600 |
| 82185 | **25** | 135 | 220 | | 25 | | ● | 860 | 34,400 |
| 82188 | **28** | — | | 55 | | | ● | 866 | 45,800 |
| 82190 | **30** | | | | | | ● | 888 | 52,300 |
| 82192 | **32** | 145 | | 60 | 32 | | ● | 1,337 | 57,600 |
| 82194 | **34** | | 235 | | | | ● | 1,403 | 68,500 |
| 82195 | **35** | — | | | | | ● | 1,456 | 68,500 |
| 82198 | **38** | | | 65 | | | ● | 1,478 | 79,800 |
| 82200 | **40** | | | | | | ● | 1,527 | 92,000 |

## 成形用2枚刃CPMエンドミル直刃ミディアム形
**2-flute CPM Straight Fluted End Mill Medium Length for Reforming**

# CPM-STDN



CAD

CPM | 0° | 0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 82763 | **1.5** | 45 | 5 | 6 | D | ● | 12 | 7,000 |
| 82764 | **2** | 50 | 7 | | | ● | 13 | 6,620 |
| 82765 | **2.5** | | 8 | | | ● | 13 | 6,450 |
| 82766 | **3** | | 10 | | | ● | 12 | 5,570 |
| 82767 | **3.5** | 60 | 12 | | | ● | 15 | 5,570 |
| 82768 | **4** | | | | | ● | 15 | 5,570 |
| 82769 | **4.5** | | 15 | | | ● | 15 | 5,570 |
| 82770 | **5** | | | | | ● | 16 | 5,570 |
| 82771 | **5.5** | | | | | ● | 15 | 5,570 |
| 82772 | **6** | | | | | ● | 16 | 5,570 |
| 82773 | **6.5** | | 20 | 8 | | ● | 22 | 6,070 |
| 82774 | **7** | | | | | ● | 22 | 6,070 |
| 82775 | **7.5** | | | | | ● | 23 | 6,070 |
| 82776 | **8** | | | | | ● | 24 | 6,070 |
| 82777 | **8.5** | 70 | 25 | 10 | | ● | 39 | 7,020 |
| 82778 | **9** | | | | | ● | 40 | 7,020 |
| 82779 | **9.5** | | | | | ● | 41 | 7,020 |
| 82780 | **10** | | | | | ● | 42 | 7,020 |
| 82781 | **11** | 80 | 30 | 12 | | ● | 65 | 9,090 |
| 82782 | **12** | | | | | ● | 68 | 9,090 |
| 82783 | **13** | 85 | 35 | | | ● | 75 | 11,400 |
| 82784 | **14** | 90 | | 16 | | ● | 122 | 11,400 |
| 82785 | **15** | 95 | 40 | | | ● | 132 | 12,500 |
| 82786 | **16** | | | | | ● | 135 | 13,600 |
| 82787 | **17** | | | | | ● | 145 | 16,100 |
| 82788 | **18** | | | | | ● | 148 | 16,100 |
| 82789 | **19** | 110 | 45 | 20 | | ● | 238 | 19,400 |
| 82790 | **20** | | | | | ● | 243 | 19,400 |

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **LS-EDN** | ○ | | | ○ | ○ | ○ | ○ | | | |
| **CPM-STDN** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## Vコート2枚刃XPMスクエアエンドミルロング形
**V Coated 2-flute XPM End Mill Long Length**

# V-XPM-EDL



粉末ハイスXPMにVコーティングが施してあります。良好な切れ味と安定した工具寿命を実現しました。
Vcoating and powder metallurgy XPM provide superior finish quality and long tool life.

CAD

XPM　V　0〜-0.03　約30°　ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8451530 | 3 | 65 | 15 | 6 | B | ● | 15 | 8,290 |
| 8451540 | 4 | 70 | 20 | 8 | | ● | 23 | 8,290 |
| 8451550 | 5 | 75 | 25 | | | ● | 24 | 8,290 |
| 8451560 | 6 | | | | | ● | 26 | 8,290 |
| 8451570 | 7 | 95 | 35 | 10 | | ● | 49 | 9,680 |
| 8451580 | 8 | | | | | ● | 52 | 9,680 |
| 8451590 | 9 | 100 | 45 | | | ● | 55 | 11,000 |
| 8451600 | 10 | | | | | ● | 58 | 11,000 |
| 8451610 | 11 | 120 | 55 | 12 | | ● | 93 | 13,600 |
| 8451620 | 12 | | | | | ● | 99 | 13,600 |
| 8451630 | 13 | | | | | ● | 106 | 17,900 |
| 8451640 | 14 | 125 | | 16 | | ● | 166 | 17,900 |
| 8451650 | 15 | 135 | 65 | | | ● | 186 | 20,100 |
| 8451660 | 16 | | | | | ● | 192 | 22,200 |
| 8451670 | 17 | | | | | ● | 201 | 27,000 |
| 8451680 | 18 | | | | | ● | 210 | 27,000 |
| 8451690 | 19 | 155 | 75 | 20 | | ● | 314 | 31,000 |
| 8451700 | 20 | | | | | ● | 330 | 31,000 |
| 8451710 | 21 | | | | | ● | 350 | 39,600 |
| 8451720 | 22 | | | | | ● | 366 | 39,600 |
| 8451730 | 23 | 180 | 90 | 25 | | ● | 565 | 49,500 |
| 8451740 | 24 | | | | | ● | 685 | 49,500 |
| 8451750 | 25 | | | | | ● | 603 | 49,500 |
| 8451760 | 26 | | | | | ● | 639 | 54,200 |
| 8451770 | 27 | | | | | ● | 667 | 65,300 |
| 8451780 | 28 | | | | | ● | 686 | 64,500 |
| 8451790 | 29 | | | | | ● | 673 | 79,800 |
| 8451800 | 30 | | | | | ● | 724 | 78,600 |

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能 ▶▶▶ P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / 合金鋼 Alloy Steel / プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| V-XPM-EDL | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃XPMスクエアエンドミルロング形
2-flute XPM End Mill Long Length

## XPM-EDL



CAD

XPM　0〜-0.03　約30°　ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89056 | 3 | 65 | 15 | 6 | B | ● | 15 | 6,150 |
| | 3.5 | 70 | 20 | 8 | – | □ | – | – |
| 89058 | 4 | | | | B | ● | 23 | 6,150 |
| | 4.5 | 75 | 25 | | – | □ | – | – |
| 89060 | 5 | | | | B | ● | 24 | 6,150 |
| | 5.5 | | | | – | □ | – | – |
| 89062 | 6 | | | | B | ● | 26 | 6,150 |
| | 6.5 | 95 | 35 | 10 | – | □ | – | – |
| 89064 | 7 | | | | B | ● | 50 | 7,190 |
| | 7.5 | | | | – | □ | – | – |
| 89066 | 8 | | | | B | ● | 52 | 7,190 |
| | 8.5 | 100 | 45 | | – | □ | – | – |
| 89068 | 9 | | | | B | ● | 54 | 8,050 |
| | 9.5 | | | | – | □ | – | – |
| 89070 | 10 | | | | B | ● | 58 | 8,050 |
| 89071 | 11 | 120 | 55 | 12 | | ● | 93 | 9,950 |
| 89072 | 12 | | | | | ● | 99 | 9,950 |
| 89073 | 13 | | | | | ● | 105 | 13,200 |
| 89074 | 14 | 125 | | 16 | | ● | 170 | 13,200 |
| 89075 | 15 | 135 | 65 | | | ● | 190 | 14,800 |
| 89076 | 16 | | | | | ● | 193 | 16,400 |
| 89077 | 17 | | | | | ● | 201 | 20,100 |
| 89078 | 18 | | | | | ● | 211 | 20,100 |
| 89079 | 19 | 155 | 75 | 20 | | ● | 321 | 23,100 |
| 89080 | 20 | | | | | ● | 336 | 23,100 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89081 | 21 | 155 | 75 | 20 | B | ● | 341 | 29,500 |
| 89082 | 22 | | | | | ● | 356 | 29,500 |
| 89083 | 23 | 180 | 90 | 25 | | ● | 564 | 36,300 |
| 89084 | 24 | | | | | ● | 571 | 36,300 |
| 89085 | 25 | | | | | ● | 604 | 36,300 |
| 89086 | 26 | | | | | ● | 643 | 40,300 |
| 89087 | 27 | | | | | ● | 650 | 48,700 |
| 89088 | 28 | | | | | ● | 663 | 47,800 |
| 89089 | 29 | | | | | ● | 669 | 59,000 |
| 89090 | 30 | | | | | ● | 715 | 58,200 |
| 89091 | 31 | 195 | 95 | 32 | | ● | 1,064 | 72,800 |
| 89092 | 32 | | | | | ● | 1,088 | 71,900 |
| 89093 | 33 | 200 | 100 | | | ● | 1,141 | 89,300 |
| 89094 | 34 | | | | | ● | 1,167 | 88,200 |
| 89095 | 35 | | | | | ● | 1,149 | 88,200 |
| 89096 | 36 | 205 | 105 | | | ● | 1,261 | 94,000 |
| 89097 | 37 | | | | | ● | 1,237 | 107,000 |
| 89098 | 38 | | | | | ● | 1,324 | 105,000 |
| 89099 | 39 | 210 | 110 | | | ● | 1,346 | 125,000 |
| 89100 | 40 | | | | | ● | 1,397 | 124,000 |
| ◆ | 42 | 225 | 115 | 42 | – | □ | – | – |
| ◆ | 45 | | | | | □ | – | – |
| ◆ | 48 | 235 | 125 | | | □ | – | – |
| ◆ | 50 | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.


OSGのPSシリーズ
PS 商品シリーズ Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177を参照下さい。 See p.1177 for details





最新の加工動画を公開中 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| XPM-EDL | ○ | | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート2枚刃ハイススクエアエンドミル ロング形

**TiN Coated 2-flute End Mill Long Length**

## EX-TIN-EDL



HSS-Co | TiN | 0〜-0.03 | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8402210 | **1** | 50 | 6 | 6 | D | ● | 13 | 12,300 |
| 8402211 | **1.1** | | | | | ● | 12 | 12,300 |
| | **1.1** | | 7.5 | | – | □ | – | – |
| 8402212 | **1.2** | | 6 | | D | ● | 12 | 12,300 |
| | **1.2** | | 7.5 | | – | □ | – | – |
| 8402213 | **1.3** | | | | D | ● | 12 | 12,300 |
| 8402214 | **1.4** | | | | | ● | 12 | 12,300 |
| 8402215 | **1.5** | | | | | ● | 14 | 12,300 |
| 8402216 | **1.6** | | | | | ● | 14 | 11,300 |
| | **1.6** | 60 | | | – | □ | – | – |
| 8402217 | **1.7** | | 10 | | D | ● | 14 | 11,300 |
| 8402218 | **1.8** | | | | | ● | 14 | 11,300 |
| 8402219 | **1.9** | | | | | ● | 14 | 11,300 |
| 8402220 | **2** | | | | | ● | 14 | 11,300 |
| 8402221 | **2.1** | | 12 | | | ● | 14 | 11,300 |
| | **2.1** | | 15 | | – | □ | – | – |
| 8402222 | **2.2** | | 12 | | D | ● | 14 | 11,300 |
| | **2.2** | | 15 | | – | □ | – | – |
| 8402223 | **2.3** | | 12 | | D | ● | 14 | 11,300 |
| | **2.3** | | 15 | | – | □ | – | – |
| 8402224 | **2.4** | | 12 | | D | ● | 14 | 11,300 |
| | **2.4** | | 15 | | – | □ | – | – |
| 8402225 | **2.5** | | | | D | ● | 14 | 11,300 |
| 8402226 | **2.6** | | | | | ● | 14 | 10,900 |
| 8402227 | **2.7** | | | | | ● | 14 | 10,900 |
| 8402228 | **2.8** | | | | | ● | 14 | 10,900 |
| 8402229 | **2.9** | | | | | ● | 14 | 10,900 |
| 88106 | **3** | | | | | ● | 14 | 6,270 |
| 8402231 | **3.1** | | 20 | 8 | | ● | 19 | 8,230 |
| 8402232 | **3.2** | | | | | ● | 18 | 8,230 |
| 8402233 | **3.3** | | | | | ● | 19 | 8,230 |
| 8402234 | **3.4** | | | | | ● | 19 | 8,230 |
| 8402235 | **3.5** | | | | | ● | 19 | 8,230 |
| 8402236 | **3.6** | | | | | ● | 19 | 8,230 |
| 8402237 | **3.7** | | | | | ● | 19 | 8,230 |
| 8402238 | **3.8** | | | | | ● | 19 | 8,230 |
| 8402239 | **3.9** | | | | | ● | 19 | 8,230 |
| 88108 | **4** | | | | | ● | 19 | 6,270 |
| 8402241 | **4.1** | | 25 | | | ● | 19 | 8,230 |
| 8402242 | **4.2** | | | | | ● | 19 | 8,230 |
| 8402243 | **4.3** | | | | | ● | 19 | 8,230 |
| 8402244 | **4.4** | | | | | ● | 19 | 8,230 |
| 8402245 | **4.5** | | | | | ● | 19 | 8,230 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8402246 | **4.6** | 60 | 25 | 8 | D | ● | 19 | 8,230 |
| 8402247 | **4.7** | | | | | ● | 19 | 8,230 |
| 8402248 | **4.8** | | | | | ● | 19 | 8,230 |
| 8402249 | **4.9** | | | | | ● | 19 | 8,230 |
| 88110 | **5** | | | | | ● | 19 | 6,270 |
| 8402251 | **5.1** | | | | | ● | 19 | 8,230 |
| 8402252 | **5.2** | | | | | ● | 19 | 8,230 |
| 8402253 | **5.3** | | | | | ● | 21 | 8,230 |
| 8402254 | **5.4** | | | | | ● | 21 | 8,230 |
| 8402255 | **5.5** | | | | | ● | 20 | 8,230 |
| 8402256 | **5.6** | | | | | ● | 21 | 8,230 |
| 8402257 | **5.7** | | | | | ● | 22 | 8,230 |
| 8402258 | **5.8** | | | | | ● | 20 | 8,230 |
| 8402259 | **5.9** | | | | | ● | 22 | 8,230 |
| 88112 | **6** | | | | | ● | 20 | 6,270 |
| 8402261 | **6.1** | 75 | 35 | 10 | | ● | 32 | 9,510 |
| 8402262 | **6.2** | | | | | ● | 33 | 9,510 |
| 8402263 | **6.3** | | | | | ● | 33 | 9,510 |
| 8402264 | **6.4** | | | | | ● | 33 | 9,510 |
| 8402265 | **6.5** | | | | | ● | 33 | 9,510 |
| 8402266 | **6.6** | | | | | ● | 33 | 9,510 |
| 8402267 | **6.7** | | | | | ● | 34 | 9,510 |
| 8402268 | **6.8** | | | | | ● | 35 | 9,510 |
| 8402269 | **6.9** | | | | | ● | 35 | 9,510 |
| 88114 | **7** | | | | | ● | 34 | 7,180 |
| 8402271 | **7.1** | | | | | ● | 35 | 9,510 |
| 8402272 | **7.2** | | | | | ● | 35 | 9,510 |
| 8402273 | **7.3** | | | | | ● | 36 | 9,510 |
| 8402274 | **7.4** | | | | | ● | 36 | 9,510 |
| 8402275 | **7.5** | | | | | ● | 36 | 9,510 |
| 8402276 | **7.6** | | | | | ● | 36 | 9,510 |
| 8402277 | **7.7** | | | | | ● | 38 | 9,510 |
| 8402278 | **7.8** | | | | | ● | 36 | 9,510 |
| 8402279 | **7.9** | | | | | ● | 36 | 9,510 |
| 88116 | **8** | | | | | ● | 37 | 7,180 |
| 8402281 | **8.1** | 90 | 45 | | | ● | 46 | 10,900 |
| 8402282 | **8.2** | | | | | ● | 46 | 10,900 |
| 8402283 | **8.3** | | | | | ● | 47 | 10,900 |
| 8402284 | **8.4** | | | | | ● | 47 | 10,900 |
| 8402285 | **8.5** | | | | | ● | 48 | 10,900 |
| 8402286 | **8.6** | | | | | ● | 48 | 10,900 |
| 8402287 | **8.7** | | | | | ● | 49 | 10,900 |

次ページへ 外径 DC 8.8〜50 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **EX-TIN-EDL** | ○ | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイススクエアエンドミル ロング形
**TiN Coated 2-flute End Mill Long Length**

## EX-TIN-EDL



CAD

HSS-Co | TiN | 0〜-0.03 | 30°

前ページより FROM 外径 DC 1〜8.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8402288 | **8.8** | 90 | 45 | 10 | D | ● | 49 | 10,900 |
| 8402289 | **8.9** | | | | | ● | 49 | 10,900 |
| 88118 | **9** | | | | | ● | 49 | 8,190 |
| 8402291 | **9.1** | | | | | ● | 50 | 10,900 |
| 8402292 | **9.2** | | | | | ● | 50 | 10,900 |
| 8402293 | **9.3** | | | | | ● | 51 | 10,900 |
| 8402294 | **9.4** | | | | | ● | 51 | 10,900 |
| 8402295 | **9.5** | | | | | ● | 52 | 10,900 |
| 8402296 | **9.6** | | | | | ● | 51 | 10,900 |
| 8402297 | **9.7** | | | | | ● | 51 | 10,900 |
| 8402298 | **9.8** | | | | | ● | 52 | 10,900 |
| 8402299 | **9.9** | | | | | ● | 52 | 10,900 |
| 88120 | **10** | | | | | ● | 53 | 8,190 |
| 8402305 | **10.5** | 105 | 55 | 12 | | ● | 75 | 13,200 |
| 88121 | **11** | | | | | ● | 77 | 10,100 |
| 8402315 | **11.5** | | | | | ● | 80 | 13,200 |
| 88122 | **12** | | | | | ● | 81 | 10,100 |
| 8402325 | **12.5** | | | | | ● | 83 | 17,100 |
| 88123 | **13** | | | | | ● | 85 | 13,000 |
| 8402335 | **13.5** | 110 | | 16 | | ● | 132 | 17,100 |
| 88124 | **14** | | | | | ● | 137 | 13,000 |
| 8402345 | **14.5** | 120 | 65 | | | ● | 152 | 19,000 |
| 88125 | **15** | | | | | ● | 153 | 14,300 |
| 8402355 | **15.5** | | | | | ● | 162 | 21,300 |
| 88126 | **16** | | | | | ● | 165 | 16,000 |
| 8402365 | **16.5** | | | | | ● | 167 | 25,800 |
| 88127 | **17** | | | | | ● | 170 | 19,500 |
| 8402375 | **17.5** | | | | | ● | 175 | 25,800 |
| 88128 | **18** | | | | | ● | 180 | 19,500 |
| 8402385 | **18.5** | 140 | 75 | 20 | | ● | 268 | 29,500 |
| 88129 | **19** | | | | | ● | 276 | 22,500 |
| 8402395 | **19.5** | | | | | ● | 283 | 29,500 |
| 88130 | **20** | | | | | ● | 286 | 22,500 |
| 8402405 | **20.5** | | | | | ● | 295 | 37,300 |
| 88131 | **21** | | | | | ● | 301 | 28,800 |
| 88132 | **22** | | | | | ● | 310 | 28,800 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 88133 | **23** | 160 | 90 | 25 | D | ● | 459 | 35,200 |
| 88134 | **24** | | | | | ● | 484 | 35,200 |
| 88135 | **25** | | | | | ● | 504 | 35,200 |
| 88136 | **26** | | | | | ● | 547 | 39,100 |
| 88137 | **27** | | | | | ● | 558 | 48,000 |
| 88138 | **28** | | | | | ● | 580 | 47,100 |
| 88139 | **29** | | | | | ● | 606 | 57,600 |
| 88140 | **30** | | | | | ● | 626 | 56,500 |
| 88141 | **31** | 180 | 95 | | | ● | 924 | 70,200 |
| 88142 | **32** | | | | | ● | 960 | 68,700 |
| 88143 | **33** | 185 | 100 | | | ● | 1,018 | 86,600 |
| 88144 | **34** | | | | | ● | 1,040 | 85,500 |
| 88145 | **35** | | | | | ● | 1,056 | 85,500 |
| 88146 | **36** | 190 | 105 | | | ● | 1,102 | 91,500 |
| 88147 | **37** | | | | | ● | 1,150 | 103,000 |
| 88148 | **38** | | | | | ● | 1,195 | 102,000 |
| 88149 | **39** | 195 | 110 | | | ● | 1,220 | 121,000 |
| 88150 | **40** | | | | | ● | 1,269 | 120,000 |
| | **41** | 205 | 115 | 32 | – | □ | – | – |
| | **42** | | | | | □ | – | – |
| | **43** | | | | | □ | – | – |
| | **44** | | | | | □ | – | – |
| | **45** | | | | | □ | – | – |
| | **46** | 215 | 125 | | | □ | – | – |
| | **47** | | | | | □ | – | – |
| | **48** | | | | | □ | – | – |
| | **49** | | | | | □ | – | – |
| | **50** | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-TIN-EDL** | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイススクエアエンドミルロング形
**2-flute End Mill Long Length**

## EDL



HSS-Co

0～-0.03

30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 70508 | **0.8** | 50 | 6 | 6 | D | ● | 13 | 8,750 |
| 70509 | **0.9** | | | | | ● | 13 | 8,750 |
| 70510 | **1** | | | | | ● | 13 | 8,750 |
| 70511 | **1.1** | | | | | ● | 13 | 8,750 |
| | **1.1** | | 7.5 | | – | □ | – | – |
| 70512 | **1.2** | | 6 | | D | ● | 13 | 8,750 |
| | **1.2** | | 7.5 | | – | □ | – | – |
| 70513 | **1.3** | | | | D | ● | 13 | 8,750 |
| 70514 | **1.4** | | | | | ● | 13 | 8,750 |
| 70515 | **1.5** | | | | | ● | 13 | 8,750 |
| 70516 | **1.6** | | | | | ● | 13 | 8,000 |
| | **1.6** | 60 | 10 | | – | □ | – | – |
| 70517 | **1.7** | | | | D | ● | 14 | 8,000 |
| 70518 | **1.8** | | | | | ● | 14 | 8,000 |
| 70519 | **1.9** | | | | | ● | 14 | 8,000 |
| 70520 | **2** | | | | | ● | 14 | 8,000 |
| 70521 | **2.1** | | 12 | | | ● | 14 | 8,000 |
| | **2.1** | | 15 | | – | □ | – | – |
| 70522 | **2.2** | | 12 | | D | ● | 14 | 8,000 |
| | **2.2** | | 15 | | – | □ | – | – |
| 70523 | **2.3** | | 12 | | D | ● | 14 | 8,000 |
| | **2.3** | | 15 | | – | □ | – | – |
| 70524 | **2.4** | | 12 | | D | ● | 14 | 8,000 |
| | **2.4** | | 15 | | – | □ | – | – |
| 70525 | **2.5** | | | | D | ● | 14 | 8,000 |
| 70526 | **2.6** | | | | | ● | 14 | 7,770 |
| 70527 | **2.7** | | | | | ● | 14 | 7,770 |
| 70528 | **2.8** | | | | | ● | 14 | 7,770 |
| 70529 | **2.9** | | | | | ● | 18 | 7,770 |
| 80106 | **3** | | | | A | ● | 14 | 3,810 |
| 70531 | **3.1** | | 20 | 8 | D | ● | 18 | 5,890 |
| 70532 | **3.2** | | | | | ● | 18 | 5,890 |
| 70533 | **3.3** | | | | | ● | 19 | 5,890 |
| 70534 | **3.4** | | | | | ● | 19 | 5,890 |
| 70535 | **3.5** | | | | | ● | 19 | 5,890 |
| 70536 | **3.6** | | | | | ● | 19 | 5,890 |
| 70537 | **3.7** | | | | | ● | 19 | 5,890 |
| 70538 | **3.8** | | | | | ● | 19 | 5,890 |
| 70539 | **3.9** | | | | | ● | 19 | 5,890 |
| 80108 | **4** | | | | A | ● | 19 | 3,810 |
| 70541 | **4.1** | | 25 | | D | ● | 19 | 5,890 |
| 70542 | **4.2** | | | | | ● | 19 | 5,890 |
| 70543 | **4.3** | | | | | ● | 19 | 5,890 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 70544 | **4.4** | 60 | 25 | 8 | D | ● | 19 | 5,890 |
| 70545 | **4.5** | | | | | ● | 19 | 5,890 |
| 70546 | **4.6** | | | | | ● | 19 | 5,890 |
| 70547 | **4.7** | | | | | ● | 19 | 5,890 |
| 70548 | **4.8** | | | | | ● | 19 | 5,890 |
| 70549 | **4.9** | | | | | ● | 19 | 5,890 |
| 80110 | **5** | | | | A | ● | 19 | 3,810 |
| 70551 | **5.1** | | | | D | ● | 19 | 5,890 |
| 70552 | **5.2** | | | | | ● | 19 | 5,890 |
| 70553 | **5.3** | | | | | ● | 19 | 5,890 |
| 70554 | **5.4** | | | | | ● | 19 | 5,890 |
| 70555 | **5.5** | | | | | ● | 19 | 5,890 |
| 70556 | **5.6** | | | | | ● | 20 | 5,890 |
| 70557 | **5.7** | | | | | ● | 20 | 5,890 |
| 70558 | **5.8** | | | | | ● | 20 | 5,890 |
| 70559 | **5.9** | | | | | ● | 20 | 5,890 |
| 80112 | **6** | | | | A | ● | 20 | 3,810 |
| 70561 | **6.1** | 75 | 35 | 10 | D | ● | 32 | 6,760 |
| 70562 | **6.2** | | | | | ● | 32 | 6,760 |
| 70563 | **6.3** | | | | | ● | 33 | 6,760 |
| 70564 | **6.4** | | | | | ● | 34 | 6,760 |
| 70565 | **6.5** | | | | | ● | 33 | 6,760 |
| 70566 | **6.6** | | | | | ● | 34 | 6,760 |
| 70567 | **6.7** | | | | | ● | 34 | 6,760 |
| 70568 | **6.8** | | | | | ● | 34 | 6,760 |
| 70569 | **6.9** | | | | | ● | 35 | 6,760 |
| 80114 | **7** | | | | A | ● | 35 | 4,540 |
| 70571 | **7.1** | | | | D | ● | 35 | 6,760 |
| 70572 | **7.2** | | | | | ● | 35 | 6,760 |
| 70573 | **7.3** | | | | | ● | 35 | 6,760 |
| 70574 | **7.4** | | | | | ● | 36 | 6,760 |
| 70575 | **7.5** | | | | | ● | 36 | 6,760 |
| 70576 | **7.6** | | | | | ● | 36 | 6,760 |
| 70577 | **7.7** | | | | | ● | 36 | 6,760 |
| 70578 | **7.8** | | | | | ● | 36 | 6,760 |
| 70579 | **7.9** | | | | | ● | 36 | 6,760 |
| 80116 | **8** | | | | A | ● | 37 | 4,540 |
| 70581 | **8.1** | 90 | 45 | | D | ● | 46 | 7,720 |
| 70582 | **8.2** | | | | | ● | 46 | 7,720 |
| 70583 | **8.3** | | | | | ● | 46 | 7,720 |
| 70584 | **8.4** | | | | | ● | 47 | 7,720 |
| 70585 | **8.5** | | | | | ● | 47 | 7,720 |

次ページへ
外径 DC 8.6～17 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EDL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミルロング形
**2-flute End Mill Long Length**

## EDL



CAD

HSS-Co　0〜-0.03　30°

前ページより
FROM 外径 DC 0.8〜8.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 70586 | **8.6** | 90 | 45 | 10 | D | ● | 47 | 7,720 |
| 70587 | **8.7** | | | | | ● | 48 | 7,720 |
| 70588 | **8.8** | | | | | ● | 49 | 7,720 |
| 70589 | **8.9** | | | | | ● | 49 | 7,720 |
| 80118 | **9** | | | | A | ● | 50 | 5,090 |
| 70591 | **9.1** | | | | D | ● | 49 | 7,720 |
| 70592 | **9.2** | | | | | ● | 50 | 7,720 |
| 70593 | **9.3** | | | | | ● | 50 | 7,720 |
| 70594 | **9.4** | | | | | ● | 51 | 7,720 |
| 70595 | **9.5** | | | | D | ● | 51 | 7,720 |
| 70596 | **9.6** | | | | | ● | 51 | 7,720 |
| 70597 | **9.7** | | | | | ● | 52 | 7,720 |
| 70598 | **9.8** | | | | | ● | 52 | 7,720 |
| 70599 | **9.9** | | | | | ● | 52 | 7,720 |
| 80120 | **10** | | | | A | ● | 53 | 5,090 |
| 70601 | **10.1** | 105 | 55 | 12 | D | ● | 72 | 9,450 |
| 70602 | **10.2** | | | | | ● | 72 | 9,450 |
| 70603 | **10.3** | | | | | ● | 73 | 9,450 |
| 70604 | **10.4** | | | | | ● | 75 | 9,450 |
| 70605 | **10.5** | | | | D | ● | 75 | 9,450 |
| 70606 | **10.6** | | | | | ● | 75 | 9,450 |
| 70607 | **10.7** | | | | | ● | 77 | 9,450 |
| 70608 | **10.8** | | | | | ● | 75 | 9,450 |
| 70609 | **10.9** | | | | | ● | 77 | 9,450 |
| 80121 | **11** | | | | A | ● | 78 | 6,300 |
| 70611 | **11.1** | | | | D | ● | 77 | 9,450 |
| 70612 | **11.2** | | | | | ● | 78 | 9,450 |
| 70613 | **11.3** | | | | | ● | 79 | 9,450 |
| 70614 | **11.4** | | | | | ● | 79 | 9,450 |
| 70615 | **11.5** | | | | D | ● | 80 | 9,450 |
| 70616 | **11.6** | | | | | ● | 79 | 9,450 |
| 70617 | **11.7** | | | | | ● | 80 | 9,450 |
| 70618 | **11.8** | | | | | ● | 80 | 9,450 |
| 70619 | **11.9** | | | | | ● | 82 | 9,450 |
| 80122 | **12** | | | | A | ● | 83 | 6,300 |
| 70621 | **12.1** | | | | D | ● | 79 | 12,300 |
| 70622 | **12.2** | | | | | ● | 80 | 12,300 |
| 70623 | **12.3** | | | | | ● | 82 | 12,300 |
| 70624 | **12.4** | | | | | ● | 83 | 12,300 |
| 70625 | **12.5** | | | | D | ● | 82 | 12,300 |
| 70626 | **12.6** | | | | | ● | 83 | 12,300 |
| 70627 | **12.7** | | | | | ● | 84 | 12,300 |
| 70628 | **12.8** | | | | | ● | 84 | 12,300 |
| 70629 | **12.9** | | | | | ● | 85 | 12,300 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 80123 | **13** | 105 | 55 | 12 | A | ● | 85 | 8,110 |
| | **13.1** | 110 | | 16 | – | □ | – | – |
| | **13.2** | | | | | □ | – | – |
| | **13.3** | | | | | □ | – | – |
| | **13.4** | | | | | □ | – | – |
| 70635 | **13.5** | | | | D | ● | 132 | 12,300 |
| | **13.6** | | | | – | □ | – | – |
| | **13.7** | | | | | □ | – | – |
| | **13.8** | | | | | □ | – | – |
| | **13.9** | | | | | □ | – | – |
| 80124 | **14** | | | | A | ● | 136 | 8,110 |
| | **14.1** | 120 | 65 | | – | □ | – | – |
| | **14.2** | | | | | □ | – | – |
| | **14.3** | | | | | □ | – | – |
| | **14.4** | | | | | □ | – | – |
| 70645 | **14.5** | | | | D | ● | 149 | 13,500 |
| | **14.6** | | | | – | □ | – | – |
| | **14.7** | | | | | □ | – | – |
| | **14.8** | | | | | □ | – | – |
| | **14.9** | | | | | □ | – | – |
| 80125 | **15** | | | | A | ● | 154 | 8,990 |
| | **15.1** | | | | – | □ | – | – |
| | **15.2** | | | | | □ | – | – |
| | **15.3** | | | | | □ | – | – |
| | **15.4** | | | | | □ | – | – |
| 70655 | **15.5** | | | | D | ● | 162 | 15,000 |
| | **15.6** | | | | – | □ | – | – |
| | **15.7** | | | | | □ | – | – |
| | **15.8** | | | | | □ | – | – |
| | **15.9** | | | | | □ | – | – |
| 80126 | **16** | | | | A | ● | 165 | 10,100 |
| | **16.1** | | | | – | □ | – | – |
| | **16.2** | | | | | □ | – | – |
| | **16.3** | | | | | □ | – | – |
| | **16.4** | | | | | □ | – | – |
| 70665 | **16.5** | | | | D | ● | 168 | 18,300 |
| | **16.6** | | | | – | □ | – | – |
| | **16.7** | | | | | □ | – | – |
| | **16.8** | | | | | □ | – | – |
| | **16.9** | | | | | □ | – | – |
| 80127 | **17** | | | | A | ● | 172 | 12,300 |

次ページへ
外径 DC 17.1〜50 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EDL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミルロング形
**2-flute End Mill Long Length**

## EDL



CAD

HSS-Co

0〜-0.03

30°

前ページより FROM 外径 DC 8.6〜17

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **17.1** | 120 | 65 | 16 | — | □ | — | — |
| | **17.2** | | | | | □ | — | — |
| | **17.3** | | | | | □ | — | — |
| | **17.4** | | | | | □ | — | — |
| 70675 | **17.5** | | | | D | ● | 175 | 18,300 |
| | **17.6** | | | | — | □ | — | — |
| | **17.7** | | | | | □ | — | — |
| | **17.8** | | | | | □ | — | — |
| | **17.9** | | | | | □ | — | — |
| 80128 | **18** | | | | A | ● | 180 | 12,300 |
| | **18.1** | 140 | 75 | 20 | — | □ | — | — |
| | **18.2** | | | | | □ | — | — |
| | **18.3** | | | | | □ | — | — |
| | **18.4** | | | | | □ | — | — |
| 70685 | **18.5** | | | | D | ● | 269 | 21,300 |
| | **18.6** | | | | — | □ | — | — |
| | **18.7** | | | | | □ | — | — |
| | **18.8** | | | | | □ | — | — |
| | **18.9** | | | | | □ | — | — |
| 80129 | **19** | | | | A | ● | 280 | 14,100 |
| | **19.1** | | | | — | □ | — | — |
| | **19.2** | | | | | □ | — | — |
| | **19.3** | | | | | □ | — | — |
| | **19.4** | | | | | □ | — | — |
| 70695 | **19.5** | | | | D | ● | 282 | 21,300 |
| | **19.6** | | | | — | □ | — | — |
| | **19.7** | | | | | □ | — | — |
| | **19.8** | | | | | □ | — | — |
| | **19.9** | | | | | □ | — | — |
| 80130 | **20** | | | | A | ● | 286 | 14,100 |
| 70705 | **20.5** | | | | D | ● | 296 | 27,400 |
| 80131 | **21** | | | | A | ● | 305 | 18,300 |
| 80132 | **22** | | | | | ● | 316 | 18,300 |
| 80133 | **23** | 160 | 90 | 25 | | ● | 460 | 22,600 |
| 80134 | **24** | | | | | ● | 487 | 22,600 |
| 80135 | **25** | | | | | ● | 504 | 22,600 |
| 80136 | **26** | | | | | ● | 545 | 24,400 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 80137 | **27** | 160 | 90 | 25 | A | ● | 560 | 29,200 |
| 80138 | **28** | | | | | ● | 574 | 29,000 |
| 80139 | **29** | | | | | ● | 601 | 35,500 |
| 80140 | **30** | | | | | ● | 624 | 34,000 |
| 80141 | **31** | 180 | 95 | 32 | | ● | 941 | 43,400 |
| 80142 | **32** | | | | | ● | 963 | 42,500 |
| 80143 | **33** | 185 | 100 | | | ● | 1,021 | 53,900 |
| 80144 | **34** | | | | | ● | 1,045 | 52,600 |
| 80145 | **35** | | | | | ● | 1,060 | 52,600 |
| 80146 | **36** | 190 | 105 | | | ● | 1,100 | 55,900 |
| 80147 | **37** | | | | | ● | 1,159 | 64,000 |
| 80148 | **38** | | | | | ● | 1,198 | 62,500 |
| 80149 | **39** | 195 | 110 | | | ● | 1,263 | 75,600 |
| 80150 | **40** | | | | | ● | 1,259 | 73,900 |
| | **41 ×32** | 205 | 115 | 42 | — | □ | — | — |
| | **41** | | | 32 | | □ | — | — |
| | **42 ×32** | | | 42 | | □ | — | — |
| | **42** | | | 32 | | □ | — | — |
| | **43 ×32** | | | 42 | | □ | — | — |
| | **43** | | | 32 | | □ | — | — |
| | **44 ×32** | | | 42 | | □ | — | — |
| | **44** | | | 32 | | □ | — | — |
| | **45 ×32** | | | 42 | | □ | — | — |
| | **45** | | | 32 | | □ | — | — |
| | **46 ×32** | 215 | 125 | 42 | | □ | — | — |
| | **46** | | | 32 | | □ | — | — |
| | **47 ×32** | | | 42 | | □ | — | — |
| | **47** | | | 32 | | □ | — | — |
| | **48 ×32** | | | 42 | | □ | — | — |
| | **48** | | | 32 | | □ | — | — |
| | **49 ×32** | | | 42 | | □ | — | — |
| | **49** | | | 32 | | □ | — | — |
| | **50 ×32** | | | 42 | | □ | — | — |
| | **50** | | | 32 | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EDL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイススクエアエンドミル エキストラロング形
**2-flute End Mill Extra Long Length**

## EXDL



HSS-Co　0〜-0.03　30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 55 | 8 | 6 | – | □ | – | – |
| | **1** | | 10 | | | □ | – | – |
| | **1.5** | | | | | □ | – | – |
| | **1.5** | | 15 | | | □ | – | – |
| | **2** | 60 | | | | □ | – | – |
| | **2** | | 16 | | | □ | – | – |
| | **2** | 70 | 20 | | | □ | – | – |
| 81703 | **3** | | 30 | | D | ● | 13 | 5,930 |
| | **3** | 80 | 40 | | – | □ | – | – |
| 81707 | **4** | 70 | 30 | 8 | D | ● | 20 | 5,930 |
| | **4** | 80 | 40 | | – | □ | – | – |
| 81711 | **5** | | | | D | ● | 24 | 6,160 |
| | **5** | 90 | 50 | | – | □ | – | – |
| 81715 | **6** | 80 | 40 | | D | ● | 26 | 6,160 |
| | **6** | 90 | 50 | | – | □ | – | – |
| 81719 | **7** | | 45 | 10 | D | ● | 43 | 6,850 |
| | **7** | | 50 | | – | □ | – | – |
| | **7** | 100 | 60 | | | □ | – | – |
| 81723 | **8** | 95 | 50 | | D | ● | 47 | 6,850 |
| | **8** | 100 | 60 | | – | □ | – | – |
| | **8** | 120 | 80 | | | □ | – | – |
| 81727 | **9** | 100 | 55 | | D | ● | 53 | 7,540 |
| | **9** | 105 | 60 | | – | □ | – | – |
| | **10** | | | | | □ | – | – |
| 81731 | **10** | 125 | 80 | | D | ● | 67 | 8,550 |
| | **11** | 130 | | 12 | – | □ | – | – |
| | **12** | | | | | □ | – | – |
| 81735 | **12** | 150 | 100 | | D | ● | 109 | 11,300 |
| | **13** | 130 | 80 | | – | □ | – | – |
| 81739 | **14** | 155 | 100 | 16 | D | ● | 179 | 15,800 |
| 81743 | **15** | | | | | ● | 189 | 15,800 |
| 81747 | **16** | | | | | ● | 204 | 18,400 |
| | **17** | | | | – | □ | – | – |
| 81754 | **18** | | | | D | ● | 232 | 22,500 |
| | **19** | 165 | | 20 | – | □ | – | – |
| | **20** | | | | | □ | – | – |
| 81758 | **20** | 185 | 120 | | D | ● | 381 | 28,800 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **20** | 215 | 150 | 20 | – | □ | – | – |
| | **21** | 165 | 100 | | | □ | – | – |
| | **21** | 185 | 120 | | | □ | – | – |
| | **21** | 215 | 150 | | | □ | – | – |
| | **22** | 165 | 100 | | | □ | – | – |
| 81762 | **22** | 185 | 120 | | D | ● | 424 | 35,000 |
| | **22** | 215 | 150 | | | □ | – | – |
| ◆ | **23** | 170 | 100 | 25 | – | □ | – | – |
| ◆ | **23** | 190 | 120 | | | □ | – | – |
| ◆ | **23** | 220 | 150 | | | □ | – | – |
| ◆ | **24** | 170 | 100 | | | □ | – | – |
| 81764 | **24** | 190 | 120 | | D | ● | 574 | 36,500 |
| ◆ | **24** | 220 | 150 | | – | □ | – | – |
| ◆ | **25** | 170 | 100 | | – | □ | – | – |
| ◆ | **25** | 190 | 120 | | | □ | – | – |
| 81768 | **25** | 220 | 150 | | D | ● | 657 | 43,700 |
| ◆ | **25** | 270 | 200 | | – | □ | – | – |
| ◆ | **26** | 190 | 120 | | | □ | – | – |
| ◆ | **26** | 220 | 150 | | | □ | – | – |
| ◆ | **28** | 190 | 120 | | | □ | – | – |
| 81776 | **28** | 220 | 150 | | D | ● | 815 | 57,600 |
| ◆ | **30** | 190 | 120 | | – | □ | – | – |
| 81781 | **30** | 220 | 150 | | D | ● | 886 | 65,500 |
| ◆ | **30** | 270 | 200 | | – | □ | – | – |
| ◆ | **30** | 320 | 250 | | | □ | – | – |
| 81785 | **32** | 235 | 150 | 32 | D | ● | 1,192 | 71,800 |
| ◆ | **32** | 285 | 200 | | – | □ | – | – |
| 81789 | **34** | 235 | 150 | | D | ● | 1,280 | 86,600 |
| 81793 | **35** | | | | | ● | 1,320 | 86,600 |
| ◆ | **35** | 285 | 200 | | – | □ | – | – |
| ◆ | **35** | 335 | 250 | | | □ | – | – |
| 81802 | **38** | 235 | 150 | | D | ● | 1,487 | 101,000 |
| ◆ | **38** | 285 | 200 | | – | □ | – | – |
| ◆ | **38** | 335 | 250 | | | □ | – | – |
| 81805 | **40** | 235 | 150 | 42 | D | ● | 1,564 | 116,000 |
| ◆ | **40×42** | | | | – | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

次ページへ 外径 DC 40〜60 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **EXDL** | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイススクエアエンドミル エキストラロング形
**2-flute End Mill Extra Long Length**

# EXDL



CAD

HSS-Co　0〜-0.03　30°

前ページより FROM 外径 DC 1〜40×42

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| ◆ | **40** | 285 | 200 | 32 | □ | — | — |
| ◆ | **40×42** | | | 42 | □ | — | — |
| ◆ | **40** | 335 | 250 | 32 | □ | — | — |
| ◆ | **40×42** | | | 42 | □ | — | — |
| ◆ | **45×32** | 235 | 150 | 32 | □ | — | — |
| ◆ | **45** | | | 42 | □ | — | — |
| ◆ | **45×32** | 285 | 200 | 32 | □ | — | — |
| ◆ | **45** | | | 42 | □ | — | — |
| ◆ | **45×32** | 335 | 250 | 32 | □ | — | — |
| ◆ | **45** | | | 42 | □ | — | — |
| ◆ | **50×32** | 235 | 150 | 32 | □ | — | — |
| ◆ | **50** | | | 42 | □ | — | — |
| ◆ | **50×32** | 285 | 200 | 32 | □ | — | — |
| ◆ | **50** | | | 42 | □ | — | — |
| ◆ | **50×32** | 335 | 250 | 32 | □ | — | — |
| ◆ | **50** | | | 42 | □ | — | — |
| ◆ | **50** | 385 | 300 | | □ | — | — |
| ◆ | **60** | 250 | 150 | | □ | — | — |
| ◆ | **60** | 300 | 200 | | □ | — | — |
| ◆ | **60** | 350 | 250 | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EXDL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

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○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 3枚刃ハイススクエアエンドミルショート形
**3-flute End Mill Short Length**

## ETS



CAD

HSS-Co　0〜-0.03　30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 80302 | **1** | 45 | 2.5 | 6 | D | ● | 13 | 5,420 |
| 80303 | **1.5** | | 4 | | | ● | 13 | 4,920 |
| 80304 | **2** | 50 | 5 | | | ● | 13 | 4,710 |
| 80305 | **2.5** | | 6 | | | ● | 13 | 4,610 |
| 80306 | **3** | | 8 | | | ● | 13 | 4,040 |
| 80307 | **3.5** | 60 | | 8 | | ● | 23 | 4,040 |
| 80308 | **4** | | | | | ● | 23 | 4,040 |
| 80309 | **4.5** | | 10 | | | ● | 23 | 4,040 |
| 80310 | **5** | | | | | ● | 24 | 4,040 |
| 80311 | **5.5** | | 12 | | | ● | 24 | 4,040 |
| 80312 | **6** | | | | | ● | 23 | 4,040 |
| 80313 | **6.5** | | 14 | 10 | | ● | 33 | 4,370 |
| 80314 | **7** | | | | | ● | 34 | 4,370 |
| 80315 | **7.5** | | | | | ● | 34 | 4,370 |
| 80316 | **8** | | | | | ● | 35 | 4,370 |
| 80317 | **8.5** | 70 | 18 | | | ● | 40 | 5,100 |
| 80318 | **9** | | | | | ● | 41 | 5,100 |
| 80319 | **9.5** | | | | | ● | 42 | 5,100 |
| 80320 | **10** | | | | | ● | 42 | 5,100 |
| 80321 | **11** | 80 | 22 | 12 | | ● | 66 | 6,550 |
| 80322 | **12** | | | | | ● | 69 | 6,550 |
| 80323 | **13** | 85 | 26 | | | ● | 76 | 8,080 |
| 80324 | **14** | 90 | | 16 | | ● | 128 | 8,080 |
| 80325 | **15** | 95 | 30 | | | ● | 136 | 9,050 |
| 80326 | **16** | | | | | ● | 140 | 9,770 |
| 80327 | **17** | | 34 | | | ● | 143 | 11,700 |
| 80328 | **18** | | | | | ● | 147 | 11,700 |
| 80329 | **19** | 110 | 38 | 20 | | ● | 237 | 14,100 |
| 80330 | **20** | | | | | ● | 243 | 14,100 |
| 80331 | **21** | | 45 | | | ● | 243 | 17,300 |
| 80332 | **22** | | | | | ● | 250 | 17,300 |
| 80333 | **23** | 120 | 50 | 25 | | ● | 375 | 20,200 |
| 80334 | **24** | | | | | ● | 386 | 20,200 |
| 80335 | **25** | | | | | ● | 400 | 20,200 |
| 80336 | **26** | | | | | ● | 423 | 21,500 |
| 80338 | **28** | 125 | 55 | | | ● | 455 | 25,300 |
| 80340 | **30** | | | | | ● | 490 | 30,700 |
| ◆ | **35** | 145 | 60 | 32 | – | □ | – | – |
| ◆ | **40** | 150 | 65 | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| **ETS** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# Vコート4枚刃XPMスクエアエンドミル ショート形
**V Coated 4-flute XPM End Mill Short Length**

## V-XPM-EMS

切削条件 Cutting Conditions | P905



粉末ハイスXPMにVコーティングが施してあります。良好な切れ味と安定した工具寿命を実現しました。
Vcoating and powder metallurgy XPM provide superior finish quality and long tool life.

CAD

XPM | V | 0〜+0.03 | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8452025 | **2.5** | 55 | 10 | 6 | B | ● | 13 | 8,620 |
| 8452030 | **3** | | | | | ● | 14 | 7,390 |
| 8452035 | **3.5** | 65 | 12 | 8 | | ● | 23 | 7,390 |
| 8452040 | **4** | | | | | ● | 24 | 7,390 |
| 8452045 | **4.5** | | 15 | | | ● | 24 | 7,390 |
| 8452050 | **5** | | | | | ● | 24 | 7,390 |
| 8452055 | **5.5** | | | | | ● | 25 | 7,390 |
| 8452060 | **6** | | | | | ● | 25 | 7,390 |
| 8452065 | **6.5** | 75 | 20 | 10 | | ● | 40 | 8,310 |
| 8452070 | **7** | | | | | ● | 42 | 8,310 |
| 8452075 | **7.5** | | | | | ● | 42 | 8,310 |
| 8452080 | **8** | | | | | ● | 43 | 8,310 |
| 8452085 | **8.5** | | 25 | | | ● | 43 | 9,620 |
| 8452090 | **9** | | | | | ● | 43 | 9,620 |
| 8452095 | **9.5** | | | | | ● | 44 | 9,620 |
| 8452100 | **10** | | | | | ● | 45 | 9,620 |
| 8452110 | **11** | 90 | 30 | 12 | | ● | 76 | 12,400 |
| 8452120 | **12** | | | | | ● | 79 | 12,400 |
| 8452130 | **13** | 95 | 35 | | | ● | 86 | 16,300 |
| 8452140 | **14** | | | 16 | | ● | 134 | 16,300 |
| 8452150 | **15** | 100 | 40 | | | ● | 143 | 18,100 |
| 8452160 | **16** | | | | | ● | 145 | 19,600 |
| 8452170 | **17** | | | | | ● | 151 | 23,100 |
| 8452180 | **18** | | | | | ● | 156 | 23,100 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8452190 | **19** | 115 | 45 | 20 | B | ● | 248 | 27,700 |
| 8452200 | **20** | | | | | ● | 261 | 27,700 |
| 8452210 | **21** | | | | D | ● | 270 | 41,600 |
| 8452220 | **22** | | | | B | ● | 279 | 34,000 |
| 8452230 | **23** | 125 | 50 | 25 | D | ● | 418 | 48,200 |
| 8452240 | **24** | | | | B | ● | 416 | 39,600 |
| 8452250 | **25** | | | | | ● | 441 | 39,600 |
| 8452260 | **26** | | | | | ● | 472 | 42,700 |
| 8452270 | **27** | 130 | 55 | | D | ● | 497 | 63,700 |
| 8452280 | **28** | | | | B | ● | 505 | 51,100 |
| 8452290 | **29** | | | | D | ● | 510 | 77,700 |
| 8452300 | **30** | | | | B | ● | 522 | 63,000 |
| 8452310 | **31** | 160 | 60 | 32 | D | ● | 932 | 94,500 |
| 8452320 | **32** | | | | B | ● | 978 | 76,800 |
| 8452330 | **33** | | | | D | ● | 976 | 113,000 |
| 8452340 | **34** | | | | | ● | 972 | 113,000 |
| 8452350 | **35** | | | | B | ● | 1,023 | 91,200 |
| 8452360 | **36** | 165 | 65 | | D | ● | 1,076 | 124,000 |
| 8452370 | **37** | | | | | ● | 1,070 | 135,000 |
| 8452380 | **38** | | | | B | ● | 1,085 | 110,000 |
| 8452390 | **39** | | | | D | ● | 1,109 | 157,000 |
| 8452400 | **40** | | | | B | ● | 1,118 | 128,000 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。 See p.1175 for details



**OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6**

| 製品記号 Abbreviation / 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **V-XPM-EMS** | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## Vコート4枚刃XPMスクエアエンドミル スリムシャンクショート形
**V Coated 4-flute XPM End Mill Short Length with Slim Shank**

# V-SS-XPM-EMS



シャンク径を刃径マイナス1mmに設定したスリムシャンクタイプです。突出し長さを自由に調整できます。
Slim shank type. Shank diameter is 1mm smaller than the mill diameter. Extension length can be adjusted.

CAD

XPM | V | 0〜+0.03 | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8406560 | **6** | 85 | 15 | 5 | D | ● | 19 | 9,090 |
| 8406580 | **8** | 95 | 20 | 7 | | ● | 34 | 10,100 |
| 8406600 | **10** | 100 | 25 | 9 | | ● | 57 | 11,600 |
| 8406620 | **12** | 110 | 30 | 11 | | ● | 86 | 14,900 |
| 8406660 | **16** | 125 | 40 | 15 | | ● | 175 | 23,500 |
| 8406700 | **20** | 140 | 45 | 19 | | ● | 304 | 33,700 |
| 8406750 | **25** | 160 | 50 | 24 | | ● | 563 | 48,000 |

## Vコート多刃XPMスクエアエンドミル ショート形高剛性タイプ
**V Coated Multi-flute XPM End Mill Short Length (Highly Rigid Type)**

# VPS-EMS

切削条件 Cutting Conditions | P907



工具剛性の高い高能率加工用エンドミルです。一般材から難削材まで幅広い加工が可能です。
High-efficiency operations achieved due to the highly rigid multi-flute. Excellent milling performance shown against a wide range of work materials including general steel to difficult-to-machine materials.

CAD

XPM | V | 0〜+0.03 | 45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃数 DC × RE × ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8457100 | **10 × 6F** | 75 | 25 | 10 | 6 | B | ● | 50 | 9,620 |
| 8457120 | **12 × 6F** | 90 | 30 | 12 | 6 | | ● | 86 | 12,400 |
| 8458120 | **12 × 10F** | | | | 10 | | ● | 85 | 12,800 |
| 8457160 | **16 × 6F** | 100 | 40 | 16 | 6 | | ● | 161 | 19,600 |
| 8457162 | **16 × R1 × 6F** | | | | | | ● | 161 | 25,900 |
| 8458160 | **16 × 10F** | | | | 10 | | ● | 161 | 20,100 |
| 8458162 | **16 × R1 × 10F** | | | | | | ● | 160 | 31,000 |
| 8457200 | **20 × 6F** | 115 | 45 | 20 | 6 | | ● | 288 | 27,700 |
| 8457202 | **20 × R1 × 6F** | | | | | | ● | 293 | 35,000 |
| 8458200 | **20 × 10F** | | | | 10 | | ● | 282 | 29,000 |
| 8458202 | **20 × R1 × 10F** | | | | | | ● | 290 | 39,600 |
| 8457250 | **25 × 6F** | 125 | 50 | 25 | 6 | | ● | 486 | 39,600 |
| 8457252 | **25 × R1 × 6F** | | | | | | ● | 486 | 45,800 |
| 8458250 | **25 × 10F** | | | | 10 | | ● | 490 | 40,300 |
| 8458252 | **25 × R1 × 10F** | | | | | | ● | 490 | 51,100 |
| 8457300 | **30 × 6F** | 130 | 55 | | 6 | | ● | 586 | 63,000 |
| 8457302 | **30 × R1 × 6F** | | | | | | ● | 605 | 69,500 |
| 8458300 | **30 × 10F** | | | | 10 | | ● | 590 | 64,300 |
| 8458302 | **30 × R1 × 10F** | | | | | | ● | 604 | 75,600 |


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※詳細は▶P.1178 を参照下さい。 See p.1178 for details





**CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6**


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| V-SS-XPM-EMS | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |
| VPS-EMS | ◎ | ○ | ◎ | ◎ | | | ◎ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃XPMスクエアエンドミルショート形
**4-flute XPM End Mill Short Length**

## XPM-EMS

切削条件 Cutting Conditions | P912



粉末ハイスXPMを母材に採用した4枚刃のショート刃シリーズです。
Four-fluted short end mill with powder metallurgy XPM base material.

CAD

XPM


0～+0.03




約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 | 55 | 8 | 6 | – | □ | – | – |
| | 2.1 | | | | | □ | – | – |
| | 2.2 | | | | | □ | – | – |
| | 2.3 | | | | | □ | – | – |
| | 2.4 | | | | | □ | – | – |
| 89105 | 2.5 | | 10 | | A | ● | 13 | 6,400 |
| | 2.6 | | | | – | □ | – | – |
| | 2.7 | | | | | □ | – | – |
| | 2.8 | | | | | □ | – | – |
| | 2.9 | | | | | □ | – | – |
| 89106 | 3 | | | | A | ● | 13 | 5,460 |
| | 3.1 | | 12 | | – | □ | – | – |
| | 3.2 | | | | | □ | – | – |
| | 3.3 | | | | | □ | – | – |
| | 3.4 | | | | | □ | – | – |
| 89107 | 3.5 | | | | A | ● | 24 | 5,460 |
| | 3.6 | | | | – | □ | – | – |
| | 3.7 | | | | | □ | – | – |
| | 3.8 | | | | | □ | – | – |
| | 3.9 | | | | | □ | – | – |
| 89108 | 4 | | | | A | ● | 24 | 5,460 |
| | 4.1 | 65 | 15 | 8 | – | □ | – | – |
| | 4.2 | | | | | □ | – | – |
| | 4.3 | | | | | □ | – | – |
| | 4.4 | | | | | □ | – | – |
| 89109 | 4.5 | | | | A | ● | 24 | 5,460 |
| | 4.6 | | | | – | □ | – | – |
| | 4.7 | | | | | □ | – | – |
| | 4.8 | | | | | □ | – | – |
| | 4.9 | | | | | □ | – | – |
| 89110 | 5 | | | | A | ● | 24 | 5,460 |
| | 5.1 | | | | – | □ | – | – |
| | 5.2 | | | | | □ | – | – |
| | 5.3 | | | | | □ | – | – |
| | 5.4 | | | | | □ | – | – |
| 89111 | 5.5 | | | | A | ● | 24 | 5,460 |
| | 5.6 | | | | – | □ | – | – |
| | 5.7 | | | | | □ | – | – |
| | 5.8 | | | | | □ | – | – |
| | 5.9 | | | | | □ | – | – |
| 89112 | 6 | | | | A | ● | 25 | 5,460 |
| | 6.1 | 75 | 20 | 10 | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6.2 | 75 | 20 | 10 | – | □ | – | – |
| | 6.3 | | | | | □ | – | – |
| | 6.4 | | | | | □ | – | – |
| 89113 | 6.5 | | | | A | ● | 41 | 6,120 |
| | 6.6 | | | | – | □ | – | – |
| | 6.7 | | | | | □ | – | – |
| | 6.8 | | | | | □ | – | – |
| | 6.9 | | | | | □ | – | – |
| 89114 | 7 | | | | A | ● | 41 | 6,120 |
| | 7.1 | | | | – | □ | – | – |
| | 7.2 | | | | | □ | – | – |
| | 7.3 | | | | | □ | – | – |
| | 7.4 | | | | | □ | – | – |
| 89115 | 7.5 | | | | A | ● | 43 | 6,120 |
| | 7.6 | | | | – | □ | – | – |
| | 7.7 | | | | | □ | – | – |
| | 7.8 | | | | | □ | – | – |
| | 7.9 | | | | | □ | – | – |
| 89116 | 8 | | | | A | ● | 42 | 6,120 |
| | 8.1 | | 25 | | – | □ | – | – |
| | 8.2 | | | | | □ | – | – |
| | 8.3 | | | | | □ | – | – |
| | 8.4 | | | | | □ | – | – |
| 89117 | 8.5 | | | | A | ● | 42 | 7,100 |
| | 8.6 | | | | – | □ | – | – |
| | 8.7 | | | | | □ | – | – |
| | 8.8 | | | | | □ | – | – |
| | 8.9 | | | | | □ | – | – |
| 89118 | 9 | | | | A | ● | 44 | 7,100 |
| | 9.1 | | | | – | □ | – | – |
| | 9.2 | | | | | □ | – | – |
| | 9.3 | | | | | □ | – | – |
| | 9.4 | | | | | □ | – | – |
| 89119 | 9.5 | | | | A | ● | 45 | 7,100 |
| | 9.6 | | | | – | □ | – | – |
| | 9.7 | | | | | □ | – | – |
| | 9.8 | | | | | □ | – | – |
| | 9.9 | | | | | □ | – | – |
| 89120 | 10 | | | | A | ● | 45 | 7,100 |
| | 10.1 | 90 | 30 | 12 | – | □ | – | – |
| | 10.2 | | | | | □ | – | – |
| | 10.3 | | | | | □ | – | – |

次ページへ
外径 DC 10.4～18.7 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| XPM-EMS | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃XPMスクエアエンドミルショート形
**4-flute XPM End Mill Short Length**

## XPM-EMS

切削条件 Cutting Conditions | P912



粉末ハイスXPMを母材に採用した4枚刃のショート刃シリーズです。
Four-fluted short end mill with powder metallurgy XPM base material.

CAD

XPM | 0〜+0.03 | 約30° ABOUT 30°

前ページより FROM 外径 DC 2〜10.3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 10.4 | 90 | 30 | 12 | — | □ | — | — |
| | 10.5 | | | | | □ | — | — |
| | 10.6 | | | | | □ | — | — |
| | 10.7 | | | | | □ | — | — |
| | 10.8 | | | | | □ | — | — |
| | 10.9 | | | | | □ | — | — |
| 89121 | 11 | | | | A | ● | 76 | 9,120 |
| | 11.1 | | | | — | □ | — | — |
| | 11.2 | | | | | □ | — | — |
| | 11.3 | | | | | □ | — | — |
| | 11.4 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 11.6 | | | | | □ | — | — |
| | 11.7 | | | | | □ | — | — |
| | 11.8 | | | | | □ | — | — |
| | 11.9 | | | | | □ | — | — |
| 89122 | 12 | | | | A | ● | 79 | 9,120 |
| | 12.1 | 95 | 35 | | — | □ | — | — |
| | 12.2 | | | | | □ | — | — |
| | 12.3 | | | | | □ | — | — |
| | 12.4 | | | | | □ | — | — |
| | 12.5 | | | | | □ | — | — |
| | 12.6 | | | | | □ | — | — |
| | 12.7 | | | | | □ | — | — |
| | 12.8 | | | | | □ | — | — |
| | 12.9 | | | | | □ | — | — |
| 89123 | 13 | | | | A | ● | 86 | 11,900 |
| | 13.1 | | | 16 | — | □ | — | — |
| | 13.2 | | | | | □ | — | — |
| | 13.3 | | | | | □ | — | — |
| | 13.4 | | | | | □ | — | — |
| | 13.5 | | | | | □ | — | — |
| | 13.6 | | | | | □ | — | — |
| | 13.7 | | | | | □ | — | — |
| | 13.8 | | | | | □ | — | — |
| | 13.9 | | | | | □ | — | — |
| 89124 | 14 | | | | A | ● | 131 | 11,900 |
| | 14.1 | 100 | 40 | | — | □ | — | — |
| | 14.2 | | | | | □ | — | — |
| | 14.3 | | | | | □ | — | — |
| | 14.4 | | | | | □ | — | — |
| | 14.5 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 14.6 | 100 | 40 | 16 | — | □ | — | — |
| | 14.7 | | | | | □ | — | — |
| | 14.8 | | | | | □ | — | — |
| | 14.9 | | | | | □ | — | — |
| 89125 | 15 | | | | A | ● | 144 | 13,400 |
| | 15.1 | | | | — | □ | — | — |
| | 15.2 | | | | | □ | — | — |
| | 15.3 | | | | | □ | — | — |
| | 15.4 | | | | | □ | — | — |
| | 15.5 | | | | | □ | — | — |
| | 15.6 | | | | | □ | — | — |
| | 15.7 | | | | | □ | — | — |
| | 15.8 | | | | | □ | — | — |
| | 15.9 | | | | | □ | — | — |
| 89126 | 16 | | | | A | ● | 151 | 14,500 |
| | 16.1 | | | | — | □ | — | — |
| | 16.2 | | | | | □ | — | — |
| | 16.3 | | | | | □ | — | — |
| | 16.4 | | | | | □ | — | — |
| | 16.5 | | | | | □ | — | — |
| | 16.6 | | | | | □ | — | — |
| | 16.7 | | | | | □ | — | — |
| | 16.8 | | | | | □ | — | — |
| | 16.9 | | | | | □ | — | — |
| 89127 | 17 | | | | A | ● | 157 | 17,000 |
| | 17.1 | | | | — | □ | — | — |
| | 17.2 | | | | | □ | — | — |
| | 17.3 | | | | | □ | — | — |
| | 17.4 | | | | | □ | — | — |
| | 17.5 | | | | | □ | — | — |
| | 17.6 | | | | | □ | — | — |
| | 17.7 | | | | | □ | — | — |
| | 17.8 | | | | | □ | — | — |
| | 17.9 | | | | | □ | — | — |
| 89128 | 18 | | | | A | ● | 156 | 17,000 |
| | 18.1 | 115 | 45 | 20 | — | □ | — | — |
| | 18.2 | | | | | □ | — | — |
| | 18.3 | | | | | □ | — | — |
| | 18.4 | | | | | □ | — | — |
| | 18.5 | | | | | □ | — | — |
| | 18.6 | | | | | □ | — | — |
| | 18.7 | | | | | □ | — | — |

次ページへ 外径 DC 18.8〜26.9 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| XPM-EMS | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃XPMスクエアエンドミルショート形
**4-flute XPM End Mill Short Length**

## XPM-EMS

切削条件 Cutting Conditions | P912



粉末ハイスXPMを母材に採用した4枚刃のショート刃シリーズです。
Four-fluted short end mill with powder metallurgy XPM base material.

CAD

XPM

0〜+0.03

約30°
ABOUT 30°

前ページより FROM 外径 DC 10.4〜18.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 18.8 | 115 | 45 | 20 | — | □ | — | — |
| | 18.9 | | | | | □ | — | — |
| 89129 | 19 | | | | A | ● | 253 | 20,700 |
| | 19.1 | | | | — | □ | — | — |
| | 19.2 | | | | | □ | — | — |
| | 19.3 | | | | | □ | — | — |
| | 19.4 | | | | | □ | — | — |
| | 19.5 | | | | | □ | — | — |
| | 19.6 | | | | | □ | — | — |
| | 19.7 | | | | | □ | — | — |
| | 19.8 | | | | | □ | — | — |
| | 19.9 | | | | | □ | — | — |
| 89130 | 20 | | | | A | ● | 262 | 20,700 |
| | 20.1 | | | | — | □ | — | — |
| | 20.2 | | | | | □ | — | — |
| | 20.3 | | | | | □ | — | — |
| | 20.4 | | | | | □ | — | — |
| | 20.5 | | | | | □ | — | — |
| | 20.6 | | | | | □ | — | — |
| | 20.7 | | | | | □ | — | — |
| | 20.8 | | | | | □ | — | — |
| | 20.9 | | | | | □ | — | — |
| 89131 | 21 | | | | A | ● | 271 | 25,200 |
| | 21.1 | | | | — | □ | — | — |
| | 21.2 | | | | | □ | — | — |
| | 21.3 | | | | | □ | — | — |
| | 21.4 | | | | | □ | — | — |
| | 21.5 | | | | | □ | — | — |
| | 21.6 | | | | | □ | — | — |
| | 21.7 | | | | | □ | — | — |
| | 21.8 | | | | | □ | — | — |
| | 21.9 | | | | | □ | — | — |
| 89132 | 22 | | | | A | ● | 280 | 25,200 |
| ◆ | 22.1 | 125 | 50 | 25 | — | □ | — | — |
| ◆ | 22.2 | | | | | □ | — | — |
| ◆ | 22.3 | | | | | □ | — | — |
| ◆ | 22.4 | | | | | □ | — | — |
| ◆ | 22.5 | | | | | □ | — | — |
| ◆ | 22.6 | | | | | □ | — | — |
| ◆ | 22.7 | | | | | □ | — | — |
| ◆ | 22.8 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ◆ | 22.9 | 125 | 50 | 25 | — | □ | — | — |
| 89133 | 23 | | | | A | ● | 409 | 29,200 |
| ◆ | 23.1 | | | | — | □ | — | — |
| ◆ | 23.2 | | | | | □ | — | — |
| ◆ | 23.3 | | | | | □ | — | — |
| ◆ | 23.4 | | | | | □ | — | — |
| ◆ | 23.5 | | | | | □ | — | — |
| ◆ | 23.6 | | | | | □ | — | — |
| ◆ | 23.7 | | | | | □ | — | — |
| ◆ | 23.8 | | | | | □ | — | — |
| ◆ | 23.9 | | | | | □ | — | — |
| 89134 | 24 | | | | A | ● | 425 | 29,200 |
| ◆ | 24.1 | | | | — | □ | — | — |
| ◆ | 24.2 | | | | | □ | — | — |
| ◆ | 24.3 | | | | | □ | — | — |
| ◆ | 24.4 | | | | | □ | — | — |
| ◆ | 24.5 | | | | | □ | — | — |
| ◆ | 24.6 | | | | | □ | — | — |
| ◆ | 24.7 | | | | | □ | — | — |
| ◆ | 24.8 | | | | | □ | — | — |
| ◆ | 24.9 | | | | | □ | — | — |
| 89135 | 25 | | | | A | ● | 439 | 29,200 |
| ◆ | 25.1 | | | | — | □ | — | — |
| ◆ | 25.2 | | | | | □ | — | — |
| ◆ | 25.3 | | | | | □ | — | — |
| ◆ | 25.4 | | | | | □ | — | — |
| ◆ | 25.5 | | | | | □ | — | — |
| ◆ | 25.6 | | | | | □ | — | — |
| ◆ | 25.7 | | | | | □ | — | — |
| ◆ | 25.8 | | | | | □ | — | — |
| ◆ | 25.9 | | | | | □ | — | — |
| 89136 | 26 | | | | D | ● | 468 | 35,200 |
| ◆ | 26.1 | 130 | 55 | 25 | — | □ | — | — |
| ◆ | 26.2 | | | | | □ | — | — |
| ◆ | 26.3 | | | | | □ | — | — |
| ◆ | 26.4 | | | | | □ | — | — |
| ◆ | 26.5 | | | | | □ | — | — |
| ◆ | 26.6 | | | | | □ | — | — |
| ◆ | 26.7 | | | | | □ | — | — |
| ◆ | 26.8 | | | | | □ | — | — |
| ◆ | 26.9 | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

次ページへ 外径 DC 27〜50 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| XPM-EMS | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃XPMスクエアエンドミルショート形
**4-flute XPM End Mill Short Length**

## XPM-EMS

切削条件 Cutting Conditions | P912



粉末ハイスXPMを母材に採用した多刃のショート刃シリーズです。
Multiple-fluted short end mill with powder metallurgy XPM base material.

CAD

XPM

0～+0.03

約30°
ABOUT 30°

前ページより FROM 外径 DC 18.8～26.9

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89137 | **27** | 130 | 55 | 25 | D | ● | 495 | 42,300 |
| | **27.1** | | | | – | □ | – | – |
| | **27.2** | | | | | □ | – | – |
| | **27.3** | | | | | □ | – | – |
| | **27.4** | | | | | □ | – | – |
| | **27.5** | | | | | □ | – | – |
| | **27.6** | | | | | □ | – | – |
| | **27.7** | | | | | □ | – | – |
| | **27.8** | | | | | □ | – | – |
| | **27.9** | | | | | □ | – | – |
| 89138 | **28** | | | | D | ● | 494 | 42,300 |
| | **28.1** | | | | – | □ | – | – |
| | **28.2** | | | | | □ | – | – |
| | **28.3** | | | | | □ | – | – |
| | **28.4** | | | | | □ | – | – |
| | **28.5** | | | | | □ | – | – |
| | **28.6** | | | | | □ | – | – |
| | **28.7** | | | | | □ | – | – |
| | **28.8** | | | | | □ | – | – |
| | **28.9** | | | | | □ | – | – |
| 89139 | **29** | | | | D | ● | 511 | 51,600 |
| | **29.1** | | | | – | □ | – | – |
| | **29.2** | | | | | □ | – | – |
| | **29.3** | | | | | □ | – | – |
| | **29.4** | | | | | □ | – | – |
| | **29.5** | | | | | □ | – | – |
| | **29.6** | | | | | □ | – | – |
| | **29.7** | | | | | □ | – | – |
| | **29.8** | | | | | □ | – | – |
| | **29.9** | | | | | □ | – | – |
| 89140 | **30** | | | | D | ● | 537 | 51,600 |
| 89141 | **31** | 160 | 60 | 32 | | ● | 937 | 63,700 |
| 89142 | **32** | | | | | ● | 976 | 63,700 |
| 89143 | **33** | | | | | ● | 998 | 75,300 |
| 89144 | **34** | | | | | ● | 1,008 | 75,300 |
| 89145 | **35** | | | | | ● | 1,031 | 75,300 |
| 89146 | **36** | 165 | 65 | | | ● | 1,073 | 83,400 |
| 89147 | **37** | | | | | ● | 1,058 | 90,900 |
| 89148 | **38** | | | | | ● | 1,118 | 90,900 |
| 89149 | **39** | | | | | ● | 1,130 | 106,000 |
| 89150 | **40** | | | | | ● | 1,149 | 106,000 |
| | **42** | 180 | 70 | 42 | – | □ | – | – |

外径42mm以上はセンタ穴付き（6枚刃）です。
Mill Dia.≧φ42:with center hole (6 Flutes).

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **45** | 180 | 70 | 42 | – | □ | – | – |
| | **48** | 185 | 75 | | | □ | – | – |
| | **50** | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **XPM-EMS** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 深彫り用4枚刃XPMスクエアエンドミル ショート形
**4-flute XPM End Mill Short Length for Deep Contouring**

# DE-XPM-EMS



深彫用のロングシャンク形4枚刃エンドミルです。刃径よりシャンク径が細い設定となっています。
Four-fluted end mill with long shank for deep holes. Mill diameter is smaller than shank diameter.

CAD

XPM


0～+0.03




約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8404408 | **8** | 80 | 20 | 6 | D | ● | 25 | 7,620 |
| 8404508 | **8** | 125 | | | | ● | 35 | 9,510 |
| 8404409 | **9** | 100 | 25 | 8 | | ● | 47 | 8,990 |
| 8404509 | **9** | 150 | | | | ● | 70 | 10,900 |
| 8404410 | **10** | 100 | | | | ● | 47 | 8,990 |
| 8404510 | **10** | 150 | | | | ● | 72 | 10,900 |
| 8404411 | **11** | 150 | 30 | 10 | | ● | 102 | 12,300 |
| 8404511 | **11** | 200 | | | | ● | 165 | 13,800 |
| 8404412 | **12** | 150 | | | | ● | 104 | 12,300 |
| 8404512 | **12** | 200 | | | | ● | 166 | 13,800 |
| 8404413 | **13** | 150 | 35 | 12 | | ● | 141 | 16,800 |
| 8404513 | **13** | 200 | | | | ● | 214 | 19,300 |
| 8404414 | **14** | 150 | | | | ● | 152 | 16,800 |
| 8404514 | **14** | 200 | | | | ● | 221 | 19,300 |
| 8404415 | **15** | 150 | 40 | | | ● | 158 | 17,800 |
| 8404515 | **15** | 200 | | | | ● | 219 | 20,400 |
| 8404416 | **16** | 150 | | | | ● | 161 | 19,000 |
| 8404516 | **16** | 200 | | | | ● | 225 | 21,500 |
| 8404417 | **17** | 180 | | 16 | | ● | 293 | 25,300 |
| 8404517 | **17** | 250 | | | | ● | 431 | 30,500 |
| 8404418 | **18** | 180 | | | | ● | 298 | 25,300 |
| 8404518 | **18** | 250 | | | | ● | 438 | 30,500 |
| 8404419 | **19** | 180 | 45 | | | ● | 301 | 28,000 |
| 8404519 | **19** | 250 | | | | ● | 444 | 33,000 |
| 8404420 | **20** | 180 | | | | ● | 307 | 28,000 |
| 8404520 | **20** | 250 | | | | ● | 449 | 33,000 |
| 8404422 | **22** | 225 | | 20 | | ● | 561 | 44,400 |
| 8404522 | **22** | 300 | | | | ● | 766 | 54,600 |
| 8404424 | **24** | 225 | 50 | | | ● | 585 | 47,100 |
| 8404524 | **24** | 300 | | | | ● | 785 | 58,200 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8404425 | **25** | 225 | 50 | 20 | D | ● | 589 | 47,100 |
| 8404525 | **25** | 300 | | | | ● | 822 | 58,200 |
| 8404426 | **26** | 225 | | 25 | | ● | 886 | 50,300 |
| 8404526 | **26** | 300 | | | | ● | 1,175 | 60,700 |
| 8404428 | **28** | 225 | 55 | | | ● | 905 | 55,700 |
| 8404528 | **28** | 300 | | | | ● | 1,190 | 66,200 |
| 8404430 | **30** | 225 | | | | ● | 935 | 65,100 |
| 8404530 | **30** | 300 | | | | ● | 1,223 | 75,300 |
| 8404432 | **32** | 225 | 60 | | | ● | 960 | 77,200 |
| 8404532 | **32** | 300 | | | | ● | 1,251 | 92,000 |
| 8404434 | **34** | 250 | | 32 | | ● | 1,522 | 92,800 |
| 8404534 | **34** | 350 | | | | ● | 2,150 | 113,000 |
| 8404435 | **35** | 250 | | | | ● | 1,551 | 92,800 |
| 8404535 | **35** | 350 | | | | ● | 2,188 | 113,000 |
| 8404436 | **36** | 250 | 65 | | | ● | 1,576 | 102,000 |
| 8404536 | **36** | 350 | | | | ● | 2,205 | 120,000 |
| 8404438 | **38** | 250 | | | | ● | 1,600 | 108,000 |
| 8404538 | **38** | 350 | | | | ● | 2,250 | 128,000 |
| 8404440 | **40** | 250 | | | | ● | 1,640 | 123,000 |
| 8404540 | **40** | 350 | | | | ● | 2,286 | 141,000 |
| 8404442 | **42** | 280 | 70 | | | ● | 1,948 | 120,000 |
| 8404542 | **42** | 350 | | | | ● | 2,427 | 132,000 |
| 8404445 | **45** | 280 | | | | ● | 2,100 | 146,000 |
| 8404545 | **45** | 350 | | | | ● | 2,495 | 157,000 |
| 8404645 | **45** | 280 | | 42 | | ● | 2,925 | 150,000 |
| 8404745 | **45** | 350 | | | | ● | 3,713 | 165,000 |
| 8404450 | **50** | 280 | 75 | 32 | | ● | 2,184 | 170,000 |
| 8404550 | **50** | 350 | | | | ● | 2,700 | 182,000 |
| 8404650 | **50** | 280 | | 42 | | ● | 3,057 | 178,000 |
| 8404750 | **50** | 350 | | | | ● | 3,900 | 192,000 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
吹き飛ばし・吸込・搬送1台で三役!
※詳細は ▶P.1178 を参照下さい。
See p.1178 for details



OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel ～40HRC | 合金鋼 Alloy Steel / プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **DE-XPM-EMS** | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート多刃ハイススクエアエンドミル ショート形
**TiN Coated Multi-flute End Mill Short Length**

## EX-TIN-EMS

切削条件 Cutting Conditions | P914



CAD

HSS-Co | TiN | 0〜+0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 2 | 50 | 7 | 6 | 4 | – | □ | – | – |
| | 2.1 | | | | | | □ | – | – |
| | 2.2 | | | | | | □ | – | – |
| | 2.3 | | | | | | □ | – | – |
| | 2.4 | | | | | | □ | – | – |
| 88205 | 2.5 | | | | | A | ● | 13 | 5,650 |
| | 2.6 | | 9 | | | – | □ | – | – |
| | 2.7 | | | | | | □ | – | – |
| | 2.8 | | | | | | □ | – | – |
| | 2.9 | | | | | | □ | – | – |
| 88206 | 3 | | | | | A | ● | 14 | 5,060 |
| | 3.1 | 60 | 12 | 8 | | – | □ | – | – |
| | 3.2 | | | | | | □ | – | – |
| | 3.3 | | | | | | □ | – | – |
| | 3.4 | | | | | | □ | – | – |
| 88207 | 3.5 | | | | | A | ● | 22 | 5,060 |
| | 3.6 | | | | | – | □ | – | – |
| | 3.7 | | | | | | □ | – | – |
| | 3.8 | | | | | | □ | – | – |
| | 3.9 | | | | | | □ | – | – |
| 88208 | 4 | | 15 | | | A | ● | 22 | 5,060 |
| | 4.1 | | | | | – | □ | – | – |
| | 4.2 | | | | | | □ | – | – |
| | 4.3 | | | | | | □ | – | – |
| | 4.4 | | | | | | □ | – | – |
| 88209 | 4.5 | | | | | A | ● | 22 | 5,060 |
| | 4.6 | | | | | – | □ | – | – |
| | 4.7 | | | | | | □ | – | – |
| | 4.8 | | | | | | □ | – | – |
| | 4.9 | | | | | | □ | – | – |
| 88210 | 5 | | | | | A | ● | 22 | 5,060 |
| | 5.1 | | | | | – | □ | – | – |
| | 5.2 | | | | | | □ | – | – |
| | 5.3 | | | | | | □ | – | – |
| | 5.4 | | | | | | □ | – | – |
| 88211 | 5.5 | | | | | A | ● | 23 | 5,060 |
| | 5.6 | | | | | – | □ | – | – |
| | 5.7 | | | | | | □ | – | – |
| | 5.8 | | | | | | □ | – | – |
| | 5.9 | | | | | | □ | – | – |
| 88212 | 6 | | 20 | 10 | | A | ● | 23 | 5,060 |
| | 6.1 | | | | | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 6.2 | 60 | 20 | 10 | 4 | – | □ | – | – |
| | 6.3 | | | | | | □ | – | – |
| | 6.4 | | | | | | □ | – | – |
| 88213 | 6.5 | | | | | A | ● | 31 | 5,610 |
| | 6.6 | | | | | – | □ | – | – |
| | 6.7 | | | | | | □ | – | – |
| | 6.8 | | | | | | □ | – | – |
| | 6.9 | | | | | | □ | – | – |
| 88214 | 7 | | | | | A | ● | 32 | 5,610 |
| | 7.1 | | | | | – | □ | – | – |
| | 7.2 | | | | | | □ | – | – |
| | 7.3 | | | | | | □ | – | – |
| | 7.4 | | | | | | □ | – | – |
| 88215 | 7.5 | | | | | A | ● | 33 | 5,610 |
| | 7.6 | | | | | – | □ | – | – |
| | 7.7 | | | | | | □ | – | – |
| | 7.8 | | | | | | □ | – | – |
| | 7.9 | | | | | | □ | – | – |
| 88216 | 8 | | | | | A | ● | 34 | 5,610 |
| | 8.1 | 70 | 25 | | | – | □ | – | – |
| | 8.2 | | | | | | □ | – | – |
| | 8.3 | | | | | | □ | – | – |
| | 8.4 | | | | | | □ | – | – |
| 88217 | 8.5 | | | | | A | ● | 40 | 6,480 |
| | 8.6 | | | | | – | □ | – | – |
| | 8.7 | | | | | | □ | – | – |
| | 8.8 | | | | | | □ | – | – |
| | 8.9 | | | | | | □ | – | – |
| 88218 | 9 | | | | | A | ● | 40 | 6,480 |
| | 9.1 | | | | | – | □ | – | – |
| | 9.2 | | | | | | □ | – | – |
| | 9.3 | | | | | | □ | – | – |
| | 9.4 | | | | | | □ | – | – |
| 88219 | 9.5 | | | | | A | ● | 42 | 6,480 |
| | 9.6 | | | | | – | □ | – | – |
| | 9.7 | | | | | | □ | – | – |
| | 9.8 | | | | | | □ | – | – |
| | 9.9 | | | | | | □ | – | – |
| 88220 | 10 | | | | | A | ● | 42 | 6,480 |
| | 10.1 | 80 | 30 | 12 | | – | □ | – | – |
| | 10.2 | | | | | | □ | – | – |
| | 10.3 | | | | | | □ | – | – |

外径41mm以上はセンタ穴付きです。
Mill Dia.≧φ41:with center hole.

次ページへ 外径 DC 10.4〜20.5 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EX-TIN-EMS | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート多刃ハイススクエアエンドミル ショート形
**TiN Coated Multi-flute End Mill Short Length**

## EX-TIN-EMS

切削条件 Cutting Conditions | P914



CAD

HSS-Co | TiN | 0〜+0.03 | 30°

前ページより FROM 外径 DC 2〜10.3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 10.4 | 80 | 30 | 12 | 4 | — | □ | — | — |
| | 10.5 | | | | | | □ | — | — |
| | 10.6 | | | | | | □ | — | — |
| | 10.7 | | | | | | □ | — | — |
| | 10.8 | | | | | | □ | — | — |
| | 10.9 | | | | | | □ | — | — |
| 88221 | 11 | | | | | A | ● | 66 | 8,360 |
| | 11.1 | | | | | — | □ | — | — |
| | 11.2 | | | | | | □ | — | — |
| | 11.3 | | | | | | □ | — | — |
| | 11.4 | | | | | | □ | — | — |
| | 11.5 | | | | | | □ | — | — |
| | 11.6 | | | | | | □ | — | — |
| | 11.7 | | | | | | □ | — | — |
| | 11.8 | | | | | | □ | — | — |
| | 11.9 | | | | | | □ | — | — |
| 88222 | 12 | | | | | A | ● | 69 | 8,360 |
| | 12.1 | 85 | 35 | | | — | □ | — | — |
| | 12.2 | | | | | | □ | — | — |
| | 12.3 | | | | | | □ | — | — |
| | 12.4 | | | | | | □ | — | — |
| | 12.5 | | | | | | □ | — | — |
| | 12.6 | | | | | | □ | — | — |
| | 12.7 | | | | | | □ | — | — |
| | 12.8 | | | | | | □ | — | — |
| | 12.9 | | | | | | □ | — | — |
| 88223 | 13 | | | | | A | ● | 75 | 10,400 |
| | 13.1 | 90 | | 16 | | — | □ | — | — |
| | 13.2 | | | | | | □ | — | — |
| | 13.3 | | | | | | □ | — | — |
| | 13.4 | | | | | | □ | — | — |
| | 13.5 | | | | | | □ | — | — |
| | 13.6 | | | | | | □ | — | — |
| | 13.7 | | | | | | □ | — | — |
| | 13.8 | | | | | | □ | — | — |
| | 13.9 | | | | | | □ | — | — |
| 88224 | 14 | | | | | A | ● | 123 | 10,400 |
| | 14.1 | 95 | 40 | | | — | □ | — | — |
| | 14.2 | | | | | | □ | — | — |
| | 14.3 | | | | | | □ | — | — |
| | 14.4 | | | | | | □ | — | — |
| | 14.5 | | | | | | □ | — | — |
| | 14.6 | | | | | | □ | — | — |
| | 14.7 | | | | | | □ | — | — |
| | 14.8 | | | | | | □ | — | — |
| | 14.9 | | | | | | □ | — | — |
| 88225 | 15 | | | | | A | ● | 133 | 11,600 |
| | 15.1 | | | | | — | □ | — | — |
| | 15.2 | | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 15.3 | 95 | 40 | 16 | 4 | — | □ | — | — |
| | 15.4 | | | | | | □ | — | — |
| | 15.5 | | | | | | □ | — | — |
| | 15.6 | | | | | | □ | — | — |
| | 15.7 | | | | | | □ | — | — |
| | 15.8 | | | | | | □ | — | — |
| | 15.9 | | | | | | □ | — | — |
| 88226 | 16 | | | | | A | ● | 139 | 12,500 |
| | 16.1 | | | | | — | □ | — | — |
| | 16.2 | | | | | | □ | — | — |
| | 16.3 | | | | | | □ | — | — |
| | 16.4 | | | | | | □ | — | — |
| | 16.5 | | | | | | □ | — | — |
| | 16.6 | | | | | | □ | — | — |
| | 16.7 | | | | | | □ | — | — |
| | 16.8 | | | | | | □ | — | — |
| | 16.9 | | | | | | □ | — | — |
| 88227 | 17 | | | | | A | ● | 145 | 15,100 |
| | 17.1 | | | | | — | □ | — | — |
| | 17.2 | | | | | | □ | — | — |
| | 17.3 | | | | | | □ | — | — |
| | 17.4 | | | | | | □ | — | — |
| | 17.5 | | | | | | □ | — | — |
| | 17.6 | | | | | | □ | — | — |
| | 17.7 | | | | | | □ | — | — |
| | 17.8 | | | | | | □ | — | — |
| | 17.9 | | | | | | □ | — | — |
| 88228 | 18 | | | | | A | ● | 152 | 15,100 |
| | 18.1 | 110 | 45 | 20 | | — | □ | — | — |
| | 18.2 | | | | | | □ | — | — |
| | 18.3 | | | | | | □ | — | — |
| | 18.4 | | | | | | □ | — | — |
| | 18.5 | | | | | | □ | — | — |
| | 18.6 | | | | | | □ | — | — |
| | 18.7 | | | | | | □ | — | — |
| | 18.8 | | | | | | □ | — | — |
| | 18.9 | | | | | | □ | — | — |
| 88229 | 19 | | | | | A | ● | 238 | 18,100 |
| | 19.1 | | | | | — | □ | — | — |
| | 19.2 | | | | | | □ | — | — |
| | 19.3 | | | | | | □ | — | — |
| | 19.4 | | | | | | □ | — | — |
| | 19.5 | | | | | | □ | — | — |
| | 19.6 | | | | | | □ | — | — |
| | 19.7 | | | | | | □ | — | — |
| | 19.8 | | | | | | □ | — | — |
| | 19.9 | | | | | | □ | — | — |
| 88230 | 20 | | | | | A | ● | 245 | 18,100 |
| | 20.5 | | | | | — | □ | — | — |

外径41mm以上はセンタ穴付きです。
Mill Dia.≧φ41:with center hole.

次ページへ 外径 DC 21〜80 NEXT

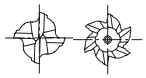
**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート多刃ハイススクエアエンドミル ショート形
**TiN Coated Multi-flute End Mill Short Length**

## EX-TIN-EMS

切削条件 Cutting Conditions | P914





CAD

HSS-Co | TiN | 0〜+0.03 | 30°

前ページより FROM 外径 DC 10.4〜20.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88231 | **21** | 110 | 45 | 20 | 4 | A | ● | 253 | 22,200 |
| | **21.5** | | | | | – | □ | – | – |
| 88232 | **22** | | | | | A | ● | 260 | 22,200 |
| ◆ | **22.5** | 120 | 50 | 25 | | – | □ | – | – |
| 88233 | **23** | | | | | A | ● | 392 | 25,500 |
| ◆ | **23.5** | | | | | – | □ | – | – |
| 88234 | **24** | | | | | A | ● | 400 | 25,500 |
| ◆ | **24.5** | | | | | – | □ | – | – |
| 88235 | **25** | | | | | A | ● | 412 | 25,500 |
| ◆ | **25.5** | | | | | – | □ | – | – |
| 88236 | **26** | | | | | B | ● | 443 | 27,700 |
| ◆ | **26.5** | 125 | 55 | | | – | □ | – | – |
| 88237 | **27** | | | | | B | ● | 468 | 33,300 |
| ◆ | **27.5** | | | | | – | □ | – | – |
| 88238 | **28** | | | | | B | ● | 476 | 33,300 |
| ◆ | **28.5** | | | | | – | □ | – | – |
| 88239 | **29** | | | | | B | ● | 495 | 40,300 |
| ◆ | **29.5** | | | | | – | □ | – | – |
| 88240 | **30** | | | | | B | ● | 498 | 40,300 |
| 88241 | **31** | 145 | 60 | 32 | | | ● | 843 | 49,500 |
| 88242 | **32** | | | | | | ● | 858 | 49,500 |
| 88243 | **33** | | | | | | ● | 878 | 58,500 |
| 88244 | **34** | | | | | | ● | 897 | 58,500 |
| 88245 | **35** | | | | | | ● | 904 | 58,500 |
| 88246 | **36** | 150 | 65 | | | | ● | 952 | 66,300 |
| 88247 | **37** | | | | | | ● | 973 | 70,600 |
| 88248 | **38** | | | | | | ● | 1,000 | 70,600 |
| 88249 | **39** | | | | | | ● | 1,018 | 82,200 |
| 88250 | **40** | | | | | | ● | 1,033 | 82,200 |
| ◆ | **41** | 160 | 70 | 42 | 6 | – | □ | – | – |
| ◆ | **41** | | | | | | □ | – | – |
| 88282 | **42×32** | | | 32 | | D | ● | 1,280 | 104,000 |
| 88252 | **42** | | | 42 | | | ● | 1,676 | 104,000 |
| ◆ | **43** | | | 32 | | – | □ | – | – |
| ◆ | **43** | | | 42 | | | □ | – | – |
| ◆ | **44×32** | | | 32 | | | □ | – | – |
| ◆ | **44** | | | 42 | | | □ | – | – |
| 88285 | **45×32** | | | 32 | | D | ● | 1,334 | 129,000 |
| 88255 | **45** | | | 42 | | | ● | 1,722 | 129,000 |
| ◆ | **46×32** | 165 | 75 | 32 | | – | □ | – | – |
| ◆ | **46** | | | 42 | | | □ | – | – |
| ◆ | **47×32** | | | 32 | | | □ | – | – |
| ◆ | **47** | | | 42 | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88288 | **48×32** | 165 | 75 | 32 | 6 | D | ● | 1,450 | 138,000 |
| 88258 | **48** | | | 42 | | | ● | 1,830 | 138,000 |
| ◆ | **49×32** | | | 32 | | – | □ | – | – |
| ◆ | **49** | | | 42 | | | □ | – | – |
| 88290 | **50×32** | | | 32 | | D | ● | 1,522 | 156,000 |
| 88260 | **50** | | | 42 | | | ● | 1,904 | 156,000 |
| ◆ | **51** | 170 | 80 | | | – | □ | – | – |
| ◆ | **52** | | | | | | □ | – | – |
| ◆ | **53** | | | | | | □ | – | – |
| ◆ | **54** | | | | | | □ | – | – |
| ◆ | **55** | | | | | | □ | – | – |
| ◆ | **56** | | | | | | □ | – | – |
| ◆ | **57** | | | | | | □ | – | – |
| ◆ | **58** | | | | | | □ | – | – |
| ◆ | **59** | | | | | | □ | – | – |
| ◆ | **60** | | | | | | □ | – | – |
| ◆ | **65** | 175 | 85 | | | | □ | – | – |
| ◆ | **70** | 180 | 90 | | | | □ | – | – |
| ◆ | **75** | 190 | 100 | | | | □ | – | – |
| ◆ | **80** | | | | | | □ | – | – |

外径41mm以上はセンタ穴付きです。Mill Dia.≧φ41:with center hole.

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-TIN-EMS** | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミルセンタカット ショート形

**4-flute End Mill Center Cut Short Length**

## CC-EMS

切削条件 Cutting Conditions | P915



HSS-Co　0〜+0.03　30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 | 50 | 8 | 6 | – | □ | – | – |
| | 2.1 | | | | | □ | – | – |
| | 2.2 | | | | | □ | – | – |
| | 2.3 | | | | | □ | – | – |
| | 2.4 | | | | | □ | – | – |
| 80705 | 2.5 | | 10 | | A | ● | 12 | 4,070 |
| | 2.6 | | | | – | □ | – | – |
| | 2.7 | | | | | □ | – | – |
| | 2.8 | | | | | □ | – | – |
| | 2.9 | | | | | □ | – | – |
| 80706 | 3 | | | | A | ● | 12 | 3,520 |
| | 3.1 | 60 | 12 | 8 | – | □ | – | – |
| | 3.2 | | | | | □ | – | – |
| | 3.3 | | | | | □ | – | – |
| | 3.4 | | | | | □ | – | – |
| 80707 | 3.5 | | | | A | ● | 21 | 3,520 |
| | 3.6 | | | | – | □ | – | – |
| | 3.7 | | | | | □ | – | – |
| | 3.8 | | | | | □ | – | – |
| | 3.9 | | | | | □ | – | – |
| 80708 | 4 | | | | A | ● | 22 | 3,520 |
| | 4.1 | | 15 | | – | □ | – | – |
| | 4.2 | | | | | □ | – | – |
| | 4.3 | | | | | □ | – | – |
| | 4.4 | | | | | □ | – | – |
| 80709 | 4.5 | | | | A | ● | 22 | 3,520 |
| | 4.6 | | | | – | □ | – | – |
| | 4.7 | | | | | □ | – | – |
| | 4.8 | | | | | □ | – | – |
| | 4.9 | | | | | □ | – | – |
| 80710 | 5 | | | | A | ● | 22 | 3,520 |
| | 5.1 | | | | – | □ | – | – |
| | 5.2 | | | | | □ | – | – |
| | 5.3 | | | | | □ | – | – |
| | 5.4 | | | | | □ | – | – |
| 80711 | 5.5 | | | | A | ● | 23 | 3,520 |
| | 5.6 | | | | – | □ | – | – |
| | 5.7 | | | | | □ | – | – |
| | 5.8 | | | | | □ | – | – |
| | 5.9 | | | | | □ | – | – |
| 80712 | 6 | | | | A | ● | 23 | 3,520 |
| | 6.1 | | 20 | 10 | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6.2 | 60 | 20 | 10 | – | □ | – | – |
| | 6.3 | | | | | □ | – | – |
| | 6.4 | | | | | □ | – | – |
| 80713 | 6.5 | | | | A | ● | 32 | 3,900 |
| | 6.6 | | | | – | □ | – | – |
| | 6.7 | | | | | □ | – | – |
| | 6.8 | | | | | □ | – | – |
| | 6.9 | | | | | □ | – | – |
| 80714 | 7 | | | | A | ● | 33 | 3,900 |
| | 7.1 | | | | – | □ | – | – |
| | 7.2 | | | | | □ | – | – |
| | 7.3 | | | | | □ | – | – |
| | 7.4 | | | | | □ | – | – |
| 80715 | 7.5 | | | | A | ● | 33 | 3,900 |
| | 7.6 | | | | – | □ | – | – |
| | 7.7 | | | | | □ | – | – |
| | 7.8 | | | | | □ | – | – |
| | 7.9 | | | | | □ | – | – |
| 80716 | 8 | | | | A | ● | 34 | 3,900 |
| | 8.1 | 70 | 25 | | – | □ | – | – |
| | 8.2 | | | | | □ | – | – |
| | 8.3 | | | | | □ | – | – |
| | 8.4 | | | | | □ | – | – |
| 80717 | 8.5 | | | | A | ● | 39 | 4,580 |
| | 8.6 | | | | – | □ | – | – |
| | 8.7 | | | | | □ | – | – |
| | 8.8 | | | | | □ | – | – |
| | 8.9 | | | | | □ | – | – |
| 80718 | 9 | | | | A | ● | 40 | 4,580 |
| | 9.1 | | | | – | □ | – | – |
| | 9.2 | | | | | □ | – | – |
| | 9.3 | | | | | □ | – | – |
| | 9.4 | | | | | □ | – | – |
| 80719 | 9.5 | | | | A | ● | 41 | 4,580 |
| | 9.6 | | | | – | □ | – | – |
| | 9.7 | | | | | □ | – | – |
| | 9.8 | | | | | □ | – | – |
| | 9.9 | | | | | □ | – | – |
| 80720 | 10 | | | | A | ● | 43 | 4,580 |
| | 10.1 | 80 | 30 | 12 | – | □ | – | – |
| | 10.2 | | | | | □ | – | – |
| | 10.3 | | | | | □ | – | – |

次ページへ
外径 DC 10.4〜18.7 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| CC-EMS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミルセンタカット ショート形
**4-flute End Mill Center Cut Short Length**

## CC-EMS

切削条件 Cutting Conditions | P915



CAD

HSS-Co | 0〜+0.03 | 30°

前ページより FROM 外径 DC 2〜10.3

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 10.4 | 80 | 30 | 12 | – | □ | – | – |
| 87741 | 10.5 | | | | D | ● | 65 | 9,200 |
| | 10.6 | | | | – | □ | – | – |
| | 10.7 | | | | | □ | – | – |
| | 10.8 | | | | | □ | – | – |
| | 10.9 | | | | | □ | – | – |
| 80721 | 11 | | | | A | ● | 66 | 5,900 |
| | 11.1 | | | | – | □ | – | – |
| | 11.2 | | | | | □ | – | – |
| | 11.3 | | | | | □ | – | – |
| | 11.4 | | | | | □ | – | – |
| 87742 | 11.5 | | | | D | ● | 67 | 9,200 |
| | 11.6 | | | | – | □ | – | – |
| | 11.7 | | | | | □ | – | – |
| | 11.8 | | | | | □ | – | – |
| | 11.9 | | | | | □ | – | – |
| 80722 | 12 | | | | A | ● | 69 | 5,900 |
| | 12.1 | 85 | 35 | | – | □ | – | – |
| | 12.2 | | | | | □ | – | – |
| | 12.3 | | | | | □ | – | – |
| | 12.4 | | | | | □ | – | – |
| 87743 | 12.5 | | | | D | ● | 74 | 11,400 |
| | 12.6 | | | | – | □ | – | – |
| | 12.7 | | | | | □ | – | – |
| | 12.8 | | | | | □ | – | – |
| | 12.9 | | | | | □ | – | – |
| 80723 | 13 | | | | A | ● | 75 | 7,230 |
| | 13.1 | 90 | | 16 | – | □ | – | – |
| | 13.2 | | | | | □ | – | – |
| | 13.3 | | | | | □ | – | – |
| | 13.4 | | | | | □ | – | – |
| 87744 | 13.5 | | | | D | ● | 122 | 11,400 |
| | 13.6 | | | | – | □ | – | – |
| | 13.7 | | | | | □ | – | – |
| | 13.8 | | | | | □ | – | – |
| | 13.9 | | | | | □ | – | – |
| 80724 | 14 | | | | A | ● | 125 | 7,230 |
| | 14.1 | 95 | 40 | | – | □ | – | – |
| | 14.2 | | | | | □ | – | – |
| | 14.3 | | | | | □ | – | – |
| | 14.4 | | | | | □ | – | – |
| 87745 | 14.5 | | | | D | ● | 131 | 12,800 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 14.6 | 95 | 40 | 16 | – | □ | – | – |
| | 14.7 | | | | | □ | – | – |
| | 14.8 | | | | | □ | – | – |
| | 14.9 | | | | | □ | – | – |
| 80725 | 15 | | | | A | ● | 134 | 8,170 |
| | 15.1 | | | | – | □ | – | – |
| | 15.2 | | | | | □ | – | – |
| | 15.3 | | | | | □ | – | – |
| | 15.4 | | | | | □ | – | – |
| 87746 | 15.5 | | | | D | ● | 136 | 13,700 |
| | 15.6 | | | | – | □ | – | – |
| | 15.7 | | | | | □ | – | – |
| | 15.8 | | | | | □ | – | – |
| | 15.9 | | | | | □ | – | – |
| 80726 | 16 | | | | A | ● | 140 | 8,720 |
| | 16.1 | | | | – | □ | – | – |
| | 16.2 | | | | | □ | – | – |
| | 16.3 | | | | | □ | – | – |
| | 16.4 | | | | | □ | – | – |
| 87747 | 16.5 | | | | D | ● | 143 | 16,400 |
| | 16.6 | | | | – | □ | – | – |
| | 16.7 | | | | | □ | – | – |
| | 16.8 | | | | | □ | – | – |
| | 16.9 | | | | | □ | – | – |
| 80727 | 17 | | | | A | ● | 146 | 10,500 |
| | 17.1 | | | | – | □ | – | – |
| | 17.2 | | | | | □ | – | – |
| | 17.3 | | | | | □ | – | – |
| | 17.4 | | | | | □ | – | – |
| 87748 | 17.5 | | | | D | ● | 148 | 16,400 |
| | 17.6 | | | | – | □ | – | – |
| | 17.7 | | | | | □ | – | – |
| | 17.8 | | | | | □ | – | – |
| | 17.9 | | | | | □ | – | – |
| 80728 | 18 | | | | A | ● | 151 | 10,500 |
| | 18.1 | 110 | 45 | 20 | – | □ | – | – |
| | 18.2 | | | | | □ | – | – |
| | 18.3 | | | | | □ | – | – |
| | 18.4 | | | | | □ | – | – |
| 87749 | 18.5 | | | | D | ● | 236 | 19,600 |
| | 18.6 | | | | – | □ | – | – |
| | 18.7 | | | | | □ | – | – |

次ページへ 外径 DC 18.8〜26.7 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| CC-EMS | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミルセンタカット ショート形

**4-flute End Mill Center Cut Short Length**

## CC-EMS

切削条件 Cutting Conditions | P915



HSS-Co

0〜+0.03

30°

CAD

前ページより FROM 外径 DC 10.4〜18.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 18.8 | | | | — | □ | — | — |
| | 18.9 | | | | — | □ | — | — |
| 80729 | 19 | | | | A | ● | 240 | 12,600 |
| | 19.1 | | | | — | □ | — | — |
| | 19.2 | | | | — | □ | — | — |
| | 19.3 | | | | — | □ | — | — |
| | 19.4 | | | | — | □ | — | — |
| 87750 | 19.5 | | | | D | ● | 244 | 19,600 |
| | 19.6 | | | | — | □ | — | — |
| | 19.7 | | | | — | □ | — | — |
| | 19.8 | | | | — | □ | — | — |
| | 19.9 | | | | — | □ | — | — |
| 80730 | 20 | | | | A | ● | 246 | 12,600 |
| | 20.1 | | | | — | □ | — | — |
| | 20.2 | | | | — | □ | — | — |
| | 20.3 | | | | — | □ | — | — |
| | 20.4 | 110 | 45 | 20 | — | □ | — | — |
| 87751 | 20.5 | | | | D | ● | 251 | 24,400 |
| | 20.6 | | | | — | □ | — | — |
| | 20.7 | | | | — | □ | — | — |
| | 20.8 | | | | — | □ | — | — |
| | 20.9 | | | | — | □ | — | — |
| 80731 | 21 | | | | A | ● | 253 | 15,600 |
| | 21.1 | | | | — | □ | — | — |
| | 21.2 | | | | — | □ | — | — |
| | 21.3 | | | | — | □ | — | — |
| | 21.4 | | | | — | □ | — | — |
| 87752 | 21.5 | | | | D | ● | 259 | 24,400 |
| | 21.6 | | | | — | □ | — | — |
| | 21.7 | | | | — | □ | — | — |
| | 21.8 | | | | — | □ | — | — |
| | 21.9 | | | | — | □ | — | — |
| 80732 | 22 | | | | A | ● | 260 | 15,600 |
| ◆ | 22.1 | | | | — | □ | — | — |
| ◆ | 22.2 | | | | — | □ | — | — |
| ◆ | 22.3 | | | | — | □ | — | — |
| ◆ | 22.4 | 120 | 50 | 25 | — | □ | — | — |
| 87753 | 22.5 | | | | D | ● | 387 | 28,000 |
| ◆ | 22.6 | | | | — | □ | — | — |
| ◆ | 22.7 | | | | — | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 22.8 | | | | — | □ | — | — |
| | 22.9 | | | | — | □ | — | — |
| 80733 | 23 | | | | A | ● | 394 | 18,100 |
| | 23.1 | | | | — | □ | — | — |
| | 23.2 | | | | — | □ | — | — |
| | 23.3 | | | | — | □ | — | — |
| | 23.4 | | | | — | □ | — | — |
| 87754 | 23.5 | | | | D | ● | 397 | 28,000 |
| | 23.6 | | | | — | □ | — | — |
| | 23.7 | | | | — | □ | — | — |
| | 23.8 | | | | — | □ | — | — |
| | 23.9 | | | | — | □ | — | — |
| 80734 | 24 | | | | A | ● | 404 | 18,100 |
| | 24.1 | | | | — | □ | — | — |
| | 24.2 | | | | — | □ | — | — |
| | 24.3 | | | | — | □ | — | — |
| | 24.4 | 120 | 50 | 25 | — | □ | — | — |
| 87755 | 24.5 | | | | D | ● | 413 | 28,000 |
| | 24.6 | | | | — | □ | — | — |
| | 24.7 | | | | — | □ | — | — |
| | 24.8 | | | | — | □ | — | — |
| | 24.9 | | | | — | □ | — | — |
| 80735 | 25 | | | | A | ● | 417 | 18,100 |
| | 25.1 | | | | — | □ | — | — |
| | 25.2 | | | | — | □ | — | — |
| | 25.3 | | | | — | □ | — | — |
| | 25.4 | | | | — | □ | — | — |
| 87756 | 25.5 | | | | D | ● | 435 | 29,900 |
| | 25.6 | | | | — | □ | — | — |
| | 25.7 | | | | — | □ | — | — |
| | 25.8 | | | | — | □ | — | — |
| | 25.9 | | | | — | □ | — | — |
| 80736 | 26 | | | | A | ● | 446 | 19,100 |
| | 26.1 | | | | — | □ | — | — |
| | 26.2 | | | | — | □ | — | — |
| | 26.3 | | | | — | □ | — | — |
| | 26.4 | 125 | 55 | | — | □ | — | — |
| 87757 | 26.5 | | | | D | ● | 465 | 35,200 |
| | 26.6 | | | | — | □ | — | — |
| | 26.7 | | | | — | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

次ページへ 外径 DC 26.8〜40 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| CC-EMS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミルセンタカットショート形
**4-flute End Mill Center Cut Short Length**

## CC-EMS

切削条件 Cutting Conditions | P915



HSS-Co　0〜+0.03　30°

CAD

前ページより FROM 外径 DC 18.8〜26.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ◆ | 26.8 | | | | — | □ | — | — |
| ◆ | 26.9 | | | | | □ | — | — |
| 80737 | 27 | | | | A | ● | 471 | 22,900 |
| ◆ | 27.1 | | | | — | □ | — | — |
| ◆ | 27.2 | | | | | □ | — | — |
| ◆ | 27.3 | | | | | □ | — | — |
| ◆ | 27.4 | | | | | □ | — | — |
| 87758 | 27.5 | | | | D | ● | 472 | 35,200 |
| ◆ | 27.6 | | | | — | □ | — | — |
| ◆ | 27.7 | | | | | □ | — | — |
| ◆ | 27.8 | | | | | □ | — | — |
| ◆ | 27.9 | | | | | □ | — | — |
| 80738 | 28 | | | | A | ● | 481 | 22,900 |
| ◆ | 28.1 | | | | — | □ | — | — |
| ◆ | 28.2 | | | | | □ | — | — |
| ◆ | 28.3 | | | | | □ | — | — |
| ◆ | 28.4 | 125 | 55 | 25 | | □ | — | — |
| 87759 | 28.5 | | | | D | ● | 486 | 42,700 |
| ◆ | 28.6 | | | | — | □ | — | — |
| ◆ | 28.7 | | | | | □ | — | — |
| ◆ | 28.8 | | | | | □ | — | — |
| ◆ | 28.9 | | | | | □ | — | — |
| 80739 | 29 | | | | A | ● | 494 | 27,700 |
| ◆ | 29.1 | | | | — | □ | — | — |
| ◆ | 29.2 | | | | | □ | — | — |
| ◆ | 29.3 | | | | | □ | — | — |
| ◆ | 29.4 | | | | | □ | — | — |
| 87760 | 29.5 | | | | D | ● | 498 | 42,700 |
| ◆ | 29.6 | | | | — | □ | — | — |
| ◆ | 29.7 | | | | | □ | — | — |
| ◆ | 29.8 | | | | | □ | — | — |
| ◆ | 29.9 | | | | | □ | — | — |
| 80740 | 30 | | | | A | ● | 504 | 27,700 |
| 80741 | 31 | 145 | 60 | 32 | | ● | 854 | 33,500 |
| 80742 | 32 | | | | | ● | 867 | 33,500 |
| 80743 | 33 | | | | | ● | 883 | 39,600 |
| 80744 | 34 | | | | | ● | 903 | 39,600 |
| 80745 | 35 | | | | | ● | 916 | 39,600 |
| 80746 | 36 | 150 | 65 | | | ● | 953 | 45,100 |
| 80747 | 37 | | | | | ● | 972 | 48,700 |
| 80748 | 38 | | | | | ● | 1,001 | 48,700 |
| 80749 | 39 | | | | | ● | 1,013 | 56,500 |
| 80750 | 40 | | | | | ● | 1,036 | 56,500 |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| CC-EMS | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 多刃ハイススクエアエンドミルセンタ付き ショート形
**Multi-flute End Mill Short Length with Center Hole**

## CE-EMS

切削条件 Cutting Conditions | P915



HSS-Co



0～+0.03





30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 80416 | **8** | 60 | 20 | 10 | 4 | D | ▲ | 34 | 4,370 |
| 80420 | **10** | 70 | 25 | | | | ▲ | 43 | 5,100 |
| 80421 | **11** | 80 | 30 | 12 | | D | ▲ | 66 | 6,550 |
| 80423 | **13** | 85 | 35 | | | | ▲ | 75 | 8,080 |
| 80425 | **15** | 95 | 40 | 16 | | | ▲ | 133 | 9,090 |
| | **16** | | | | | – | □ | – | – |
| 80427 | **17** | | | | | D | ▲ | 148 | 11,700 |
| | **19** | 110 | 45 | 20 | | – | □ | – | – |
| | **20** | | | | | | □ | – | – |
| 80431 | **21** | | | | | D | ▲ | 245 | 17,300 |
| 80433 | **23** | 120 | 50 | 25 | | | ▲ | 392 | 20,200 |
| 80438 | **28** | 125 | 55 | | | | ▲ | 481 | 25,300 |
| | **30** | | | | | – | □ | – | – |
| 80441 | **31** | 145 | 60 | 32 | | D | ▲ | 837 | 37,300 |
| 80442 | **32** | | | | | | ▲ | 838 | 37,300 |
| 80444 | **34** | | | | | | ▲ | 865 | 44,400 |
| | **35** | | | | | – | □ | – | – |
| 80447 | **37** | 150 | 65 | | | D | ▲ | 954 | 54,200 |
| 80449 | **39** | | | | | | ▲ | 993 | 62,700 |
| | **40** | | | | | – | □ | – | – |

▲＝この製品は、CC-EMS（P.805）へ切り替え生産させていただいております。（在庫をご確認下さい。）
▲＝These products have been stopped producing and replaced by CC-EMS(p.805)

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 80451 | **41** | 160 | 70 | 42 | 6 | D | △ | 1,604 | 70,700 |
| | **41×32** | | | 32 | | – | □ | – | – |
| | **42** | | | 42 | | | □ | – | – |
| | **42×32** | | | 32 | | | □ | – | – |
| | **43×32** | | | | | | □ | – | – |
| | **45** | | | 42 | | | □ | – | – |
| | **45×32** | | | 32 | | | □ | – | – |
| | **46×32** | 165 | 75 | | | | □ | – | – |
| | **48×32** | | | | | | □ | – | – |
| | **49** | | | 42 | | | □ | – | – |
| | **50** | | | | | | □ | – | – |
| | **50×32** | | | 32 | | | □ | – | – |
| | **51** | 170 | 80 | 42 | | | □ | – | – |
| | **52** | | | | | | □ | – | – |
| | **53** | | | | | | □ | – | – |
| | **54** | | | | | | □ | – | – |
| | **55** | | | | | | □ | – | – |
| | **56** | | | | | | □ | – | – |
| | **57** | | | | | | □ | – | – |
| | **58** | | | | | | □ | – | – |
| | **59** | | | | | | □ | – | – |
| | **60** | | | | | | □ | – | – |
| | **65** | 175 | 85 | | | | □ | – | – |
| | **70** | 180 | 90 | | | | □ | – | – |
| | **75** | 190 | 100 | | | | □ | – | – |
| | **80** | | | | | | □ | – | – |

形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CE-EMS** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミルロングシャンクショート形
**4-flute End Mill Short Length with Long Shank**

## LS-EMS



HSS-Co　0〜+0.03　30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 71010 | **10** | 125 | 25 | 10 | D | ● | 80 | 7,020 |
| 71011 | **11** | 150 | 30 | 12 | D | ● | 100 | 9,200 |
| 71012 | **12** | 150 | 30 | 12 | D | ● | 135 | 9,200 |
| 71013 | **13** | 150 | 35 | 12 | D | ● | 137 | 11,000 |
| 71014 | **14** | 150 | 35 | 12 | D | ● | 150 | 11,000 |
| 71015 | **15** | 155 | 40 | 16 | D | ● | 160 | 11,700 |
| 71016 | **16** | 155 | 40 | 16 | D | ● | 242 | 12,400 |
| 71017 | **17** | 155 | 40 | 16 | D | ● | 247 | 15,700 |
| 71018 | **18** | 155 | 40 | 16 | D | ● | 254 | 15,700 |
| 71019 | **19** | 185 | 45 | 20 | D | ● | 410 | 19,300 |
| 71020 | **20** | 185 | 45 | 20 | D | ● | 457 | 19,300 |
| 71120 | **20** | 235 | 45 | 20 | D | ● | 583 | 23,000 |
| 71021 | **21** | 185 | 45 | 20 | D | ● | 462 | 25,300 |
| 71022 | **22** | 185 | 45 | 20 | D | ● | 472 | 25,300 |
| 71122 | **22** | 235 | 45 | 20 | D | ● | 598 | 32,400 |
| 71023 | **23** | 190 | 50 | 20 | D | ● | 491 | 28,000 |
| 71024 | **24** | 190 | 50 | 20 | D | ● | 501 | 28,000 |
| 71124 | **24** | 235 | 50 | 20 | D | ● | 615 | 35,000 |
| 71025 | **25** | 220 | 50 | 25 | D | ● | 794 | 31,400 |
| 71125 | **25** | 270 | 50 | 25 | D | ● | 1,039 | 38,300 |
| 71026 | **26** | 220 | 55 | 25 | D | ● | 853 | 37,100 |
| 71027 | **27** | 220 | 55 | 25 | D | ● | 859 | 42,700 |
| 71028 | **28** | 220 | 55 | 25 | D | ● | 869 | 42,700 |
| 71128 | **28** | 270 | 55 | 25 | D | ● | 1,065 | 50,500 |
| 71029 | **29** | 220 | 55 | 25 | D | ● | 889 | 48,400 |
| 71030 | **30** | 220 | 55 | 25 | D | ● | 895 | 48,400 |
| 71130 | **30** | 270 | 55 | 25 | D | ● | 1,092 | 55,700 |
| 71031 | **31** | 235 | 60 | 25 | D | ● | 973 | 55,500 |
| 71032 | **32** | 235 | 60 | 32 | D | ● | 1,381 | 55,500 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 71132 | **32** | 285 | 60 | 32 | D | ● | 1,724 | 68,700 |
| 71033 | **33** | 235 | 60 | 32 | D | ● | 1,406 | 66,800 |
| 71034 | **34** | 235 | 60 | 32 | D | ● | 1,418 | 66,800 |
| 71035 | **35** | 235 | 60 | 32 | D | ● | 1,415 | 66,800 |
| 71135 | **35** | 285 | 60 | 32 | D | ● | 1,740 | 80,800 |
| 71036 | **36** | 235 | 65 | 32 | D | ● | 1,448 | 77,700 |
| 71037 | **37** | 235 | 65 | 32 | D | ● | 1,442 | 82,500 |
| 71038 | **38** | 235 | 65 | 32 | D | ● | 1,491 | 82,500 |
| 71138 | **38** | 285 | 65 | 32 | D | ● | 1,823 | 96,400 |
| 71039 | **39** | 235 | 65 | 32 | D | ● | 1,487 | 89,900 |
| 71040 | **40** | 235 | 65 | 32 | D | ● | 1,536 | 89,900 |
| 71140 | **40** | 285 | 65 | 32 | D | ● | 1,854 | 104,000 |
| 71042 | **42** | 285 | 70 | 42 | D | ● | 2,940 | 107,000 |
| 71072 | **42×32** | 285 | 70 | 32 | D | ● | 2,000 | 107,000 |
| 71142 | **42** | 340 | 70 | 42 | D | ● | 3,500 | 121,000 |
| 71172 | **42×32** | 340 | 70 | 32 | D | ● | 2,340 | 121,000 |
| 71045 | **45** | 285 | 70 | 42 | D | ● | 3,010 | 124,000 |
| 71075 | **45×32** | 285 | 70 | 32 | D | ● | 2,080 | 124,000 |
| 71145 | **45** | 340 | 70 | 42 | D | ● | 3,600 | 137,000 |
| 71175 | **45×32** | 340 | 70 | 32 | D | ● | 2,435 | 137,000 |
| 71048 | **48** | 285 | 75 | 42 | D | ● | 3,080 | 130,000 |
| 71078 | **48×32** | 285 | 75 | 32 | D | ● | 2,140 | 130,000 |
| 71148 | **48** | 340 | 75 | 42 | D | ● | 3,640 | 143,000 |
| 71178 | **48×32** | 340 | 75 | 32 | D | ● | 2,508 | 143,000 |
| 71050 | **50** | 285 | 75 | 42 | D | ● | 3,100 | 137,000 |
| 71080 | **50×32** | 285 | 75 | 32 | D | ● | 2,200 | 137,000 |
| 71150 | **50** | 340 | 75 | 42 | D | ● | 3,680 | 150,000 |
| 71180 | **50×32** | 340 | 75 | 32 | D | ● | 2,540 | 150,000 |




工具自販機 MONOlithbox モノリスボックス
※詳細はこちら▶ Scan for details
「労働人口減少の2030年問題」対策を! 自動化・省人化に貢献します

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **LS-EMS** | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 多刃CPMスクエアエンドミルショート形
**Multi-flute CPM End Mill Short Length**

## CPM-EMS

切削条件 Cutting Conditions | P915



CPM

0〜+0.03

30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 82605 | **2.5** | 50 | 10 | 6 | 4 | D | ▲ | 12 | 6,210 |
| 82609 | **4.5** | 60 | 15 | 8 | | D | ▲ | 22 | 5,330 |
| 82611 | **5.5** | | | | | | ▲ | 24 | 5,330 |
| | **8** | | 20 | 10 | | – | □ | – | – |
| 82617 | **8.5** | 70 | 25 | | | D | ▲ | 40 | 6,760 |
| 82361 | **10.5** | 80 | 30 | 12 | | | △ | 67 | 12,600 |
| 82621 | **11** | | | | | D | ▲ | 68 | 8,730 |
| 82362 | **11.5** | | | | | | △ | 69 | 12,600 |
| 82623 | **13** | 85 | 35 | | | | ▲ | 77 | 10,900 |
| 82364 | **13.5** | 90 | | 16 | | | △ | 120 | 15,700 |
| | **16** | 95 | 40 | | | – | □ | – | – |
| 82627 | **17** | | | | | D | ▲ | 147 | 15,700 |
| 82368 | **17.5** | | | | | | △ | 152 | 22,700 |
| | **20** | 110 | 45 | 20 | | – | □ | – | – |

外径42mm以上はセンタ穴付きです。
Mill Dia.≧φ42:with center hole.

▲＝この製品は、XPM-EMS（P.797）へ切り替え生産させていただいております。（在庫をご確認下さい。）
▲＝ These products have been stopped producing and replaced by XPM-EMS(p.797)

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 82631 | **21** | 110 | 45 | 20 | 4 | D | ▲ | 257 | 23,000 |
| 82372 | **21.5** | | | | | | △ | 256 | 33,000 |
| | **23** | 120 | 50 | 25 | | – | □ | – | – |
| | **23.5** | | | | | | □ | – | – |
| | **25** | | | | | | □ | – | – |
| | **25.5** | | | | | | □ | – | – |
| | **26.5** | 125 | 55 | | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **28.5** | | | | | | □ | – | – |
| | **29** | | | | | | □ | – | – |
| | **30** | | | | | | □ | – | – |
| | **33** | 145 | 60 | 32 | | | □ | – | – |
| 82644 | **34** | | | | | D | ▲ | 886 | 65,100 |
| | **38** | 150 | 65 | | | – | □ | – | – |
| | **50** | 165 | 75 | 42 | 6 | | □ | – | – |
| ◆ | **55** | 170 | 80 | | | | □ | – | – |
| ◆ | **60** | | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CPM-EMS** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品
Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ ＝ 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ ＝ 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ ＝ 生産中止品（在庫をご確認下さい。）
Discontinued item

# Vコート4枚刃XPMスクエアエンドミルロング形
**V Coated 4-flute XPM End Mill Long Length**

## V-XPM-EML



粉末ハイスXPMにVコーティングが施してあります。良好な切れ味と安定した工具寿命を実現しました。
Vcoating and powder metallurgy XPM provide superior finish quality and long tool life.

CAD

XPM | V | 0〜+0.03 | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8452530 | 3 | 65 | 15 | 6 | B | ● | 15 | 9,100 |
| 8452540 | 4 | 70 | 20 | 8 | | ● | 23 | 9,100 |
| 8452550 | 5 | 75 | 25 | | | ● | 25 | 9,100 |
| 8452560 | 6 | | | | | ● | 26 | 9,100 |
| 8452570 | 7 | 95 | 35 | 10 | | ● | 51 | 10,700 |
| 8452580 | 8 | | | | | ● | 52 | 10,700 |
| 8452590 | 9 | 100 | 45 | | | ● | 55 | 11,900 |
| 8452600 | 10 | | | | | ● | 60 | 11,900 |
| 8452610 | 11 | 120 | 55 | 12 | | ● | 96 | 14,800 |
| 8452620 | 12 | | | | | ● | 100 | 14,800 |
| 8452630 | 13 | | | | | ● | 107 | 19,700 |
| 8452640 | 14 | 125 | | 16 | | ● | 173 | 19,700 |
| 8452650 | 15 | 135 | 65 | | | ● | 185 | 21,800 |
| 8452660 | 16 | | | | | ● | 191 | 24,400 |
| 8452670 | 17 | | | | | ● | 199 | 29,200 |
| 8452680 | 18 | | | | | ● | 210 | 29,200 |
| 8452690 | 19 | 155 | 75 | 20 | | ● | 322 | 33,900 |
| 8452700 | 20 | | | | | ● | 333 | 33,900 |
| 8452710 | 21 | | | | | ● | 353 | 43,400 |
| 8452720 | 22 | | | | | ● | 374 | 43,400 |
| 8452730 | 23 | 180 | 90 | 25 | | ● | 576 | 54,200 |
| 8452740 | 24 | | | | | ● | 579 | 54,200 |
| 8452750 | 25 | | | | | ● | 601 | 54,200 |
| 8452760 | 26 | | | | | ● | 642 | 59,200 |
| 8452770 | 27 | | | | | ● | 662 | 71,400 |
| 8452780 | 28 | | | | | ● | 674 | 70,600 |
| 8452790 | 29 | | | | | ● | 706 | 86,400 |
| 8452800 | 30 | | | | | ● | 730 | 86,000 |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / 合金鋼 Alloy Steel / プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| V-XPM-EML | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 多刃XPMスクエアエンドミルロング形
**Multi-flute XPM End Mill Long Length**

## XPM-EML



粉末ハイスXPMを母材に採用した多刃のロング刃シリーズです。
Multiple-fluted long end mill with powder metallurgy XPM base material.

CAD

XPM

0～+0.03

約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89156 | **3** | 65 | 15 | 6 | B | ● | 15 | 6,700 |
| 89158 | **4** | 70 | 20 | 8 | | ● | 23 | 6,700 |
| 89160 | **5** | 75 | 25 | | | ● | 25 | 6,700 |
| 89162 | **6** | | | | | ● | 26 | 6,700 |
| 89164 | **7** | 95 | 35 | 10 | | ● | 50 | 7,860 |
| 89166 | **8** | | | | | ● | 54 | 7,860 |
| 89168 | **9** | 100 | 45 | | | ● | 55 | 8,790 |
| 89170 | **10** | | | | | ● | 58 | 8,790 |
| 89171 | **11** | 120 | 55 | 12 | | ● | 96 | 11,000 |
| 89172 | **12** | | | | | ● | 100 | 11,000 |
| 89173 | **13** | | | | | ● | 104 | 14,600 |
| 89174 | **14** | 125 | | 16 | | ● | 173 | 14,600 |
| 89175 | **15** | 135 | 65 | | | ● | 190 | 16,100 |
| 89176 | **16** | | | | | ● | 197 | 17,900 |
| 89177 | **17** | | | | | ● | 209 | 21,800 |
| 89178 | **18** | | | | | ● | 211 | 21,800 |
| 89179 | **19** | 155 | 75 | 20 | | ● | 333 | 25,200 |
| 89180 | **20** | | | | | ● | 345 | 25,200 |
| 89181 | **21** | | | | | ● | 357 | 32,200 |
| 89182 | **22** | | | | | ● | 373 | 32,200 |
| 89183 | **23** | 180 | 90 | 25 | | ● | 560 | 40,300 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89184 | **24** | 180 | 90 | 25 | B | ● | 577 | 40,300 |
| 89185 | **25** | | | | | ● | 613 | 40,300 |
| 89186 | **26** | | | | | ● | 645 | 43,600 |
| 89187 | **27** | | | | | ● | 675 | 52,600 |
| 89188 | **28** | | | | | ● | 690 | 51,900 |
| 89189 | **29** | | | | | ● | 688 | 64,000 |
| 89190 | **30** | | | | | ● | 744 | 63,300 |
| 89191 | **31** | 195 | 95 | 32 | | ● | 1,062 | 79,100 |
| 89192 | **32** | | | | | ● | 1,118 | 78,600 |
| 89193 | **33** | 200 | 100 | | | ● | 1,171 | 97,700 |
| 89194 | **34** | | | | | ● | 1,165 | 96,800 |
| 89195 | **35** | | | | | ● | 1,229 | 96,800 |
| 89196 | **36** | 205 | 105 | | | ● | 1,251 | 103,000 |
| 89197 | **37** | | | | | ● | 1,291 | 117,000 |
| 89198 | **38** | | | | | ● | 1,331 | 116,000 |
| 89199 | **39** | 210 | 110 | | | ● | 1,370 | 137,000 |
| 89200 | **40** | | | | | ● | 1,385 | 136,000 |
| ◆ | **42** | 225 | 115 | 42 | — | □ | — | — |
| ◆ | **45** | | | | | □ | — | — |
| ◆ | **48** | 235 | 125 | | | □ | — | — |
| ◆ | **50** | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

外径42㎜以上はセンタ穴付き(6枚刃)です。
Mill Dia.≧φ42:with center hole (6 Flutes).

OSGのPSシリーズ
PS 商品シリーズ Parts & Supply series
※詳細は▶P.1167 を参照下さい。
See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **XPM-EML** | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# TiNコート多刃ハイススクエアエンドミル ロング形
**TiN Coated Multi-flute End Mill Long Length**

## EX-TIN-EML



CAD

HSS-Co | TiN | 0〜+0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 88306 | 3 | 60 | 15 | 6 | D | ● | 14 | 6,850 |
| | 3.5 | | 20 | 8 | – | □ | – | – |
| 88308 | 4 | | | | D | ● | 19 | 6,850 |
| | 4.5 | | 25 | | – | □ | – | – |
| 88310 | 5 | | | | D | ● | 19 | 6,850 |
| | 5.5 | | | | – | □ | – | – |
| 88312 | 6 | | | | D | ● | 21 | 6,850 |
| | 6.5 | 75 | 35 | 10 | – | □ | – | – |
| 88314 | 7 | | | | D | ● | 35 | 7,900 |
| | 7.5 | | | | – | □ | – | – |
| 88316 | 8 | | | | D | ● | 38 | 7,900 |
| | 8.5 | 90 | 45 | | – | □ | – | – |
| 88318 | 9 | | | | D | ● | 50 | 8,880 |
| | 9.5 | | | | – | □ | – | – |
| 88320 | 10 | | | | D | ● | 53 | 8,880 |
| | 10.5 | 105 | 55 | 12 | – | □ | – | – |
| 88321 | 11 | | | | D | ● | 80 | 11,000 |
| | 11.5 | | | | – | □ | – | – |
| 88322 | 12 | | | | D | ● | 84 | 11,000 |
| | 12.5 | | | | – | □ | – | – |
| 88323 | 13 | | | | D | ● | 90 | 14,200 |
| | 13.5 | 110 | | 16 | – | □ | – | – |
| 88324 | 14 | | | | D | ● | 140 | 14,200 |
| | 14.5 | 120 | 65 | | – | □ | – | – |
| 88325 | 15 | | | | D | ● | 165 | 15,800 |
| | 15.5 | | | | – | □ | – | – |
| 88326 | 16 | | | | D | ● | 168 | 17,400 |
| | 16.5 | | | | – | □ | – | – |
| 88327 | 17 | | | | D | ● | 180 | 21,500 |
| | 17.5 | | | | – | □ | – | – |
| 88328 | 18 | | | | D | ● | 189 | 21,500 |
| | 18.5 | 140 | 75 | 20 | – | □ | – | – |
| 88329 | 19 | | | | D | ● | 294 | 24,900 |
| | 19.5 | | | | – | □ | – | – |
| 88330 | 20 | | | | D | ● | 303 | 24,900 |
| 88331 | 21 | | | | | ● | 316 | 31,400 |
| 88332 | 22 | | | | | ● | 331 | 31,400 |
| 88333 | 23 | 160 | 90 | 25 | | ● | 500 | 39,100 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 88334 | 24 | 160 | 90 | 25 | D | ● | 525 | 39,100 |
| 88335 | 25 | | | | | ● | 545 | 39,100 |
| 88336 | 26 | | | | | ● | 566 | 42,700 |
| 88337 | 27 | | | | | ● | 593 | 51,600 |
| 88338 | 28 | | | | | ● | 610 | 51,000 |
| 88339 | 29 | | | | | ● | 635 | 62,700 |
| 88340 | 30 | | | | | ● | 643 | 61,900 |
| 88341 | 31 | 180 | 95 | 32 | | ● | 993 | 77,200 |
| 88342 | 32 | | | | | ● | 1,008 | 75,900 |
| 88343 | 33 | 185 | 100 | | | ● | 1,057 | 95,100 |
| 88344 | 34 | | | | | ● | 1,086 | 93,500 |
| 88345 | 35 | | | | | ● | 1,116 | 93,500 |
| 88346 | 36 | 190 | 105 | | | ● | 1,155 | 99,300 |
| 88347 | 37 | | | | | ● | 1,172 | 114,000 |
| 88348 | 38 | | | | | ● | 1,215 | 112,000 |
| 88349 | 39 | 195 | 110 | | | ● | 1,263 | 134,000 |
| 88350 | 40 | | | | | ● | 1,334 | 131,000 |
| | 41 × 32 | 205 | 115 | | – | □ | – | – |
| | 41 | | | 42 | | □ | – | – |
| | 42 × 32 | | | 32 | | □ | – | – |
| | 42 | | | 42 | | □ | – | – |
| | 43 × 32 | | | 32 | | □ | – | – |
| | 43 | | | 42 | | □ | – | – |
| | 44 × 32 | | | 32 | | □ | – | – |
| | 44 | | | 42 | | □ | – | – |
| | 45 × 32 | | | 32 | | □ | – | – |
| | 45 | | | 42 | | □ | – | – |
| | 46 × 32 | 215 | 125 | 32 | | □ | – | – |
| | 46 | | | 42 | | □ | – | – |
| | 47 × 32 | | | 32 | | □ | – | – |
| | 47 | | | 42 | | □ | – | – |
| | 48 × 32 | | | 32 | | □ | – | – |
| | 48 | | | 42 | | □ | – | – |
| | 49 × 32 | | | 32 | | □ | – | – |
| | 49 | | | 42 | | □ | – | – |
| | 50 × 32 | | | 32 | | □ | – | – |
| | 50 | | | 42 | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

外径41㎜以上はセンタ穴付き（6枚刃）です。
Mill Dia.≧φ41with center hole(6 Flutes).

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EX-TIN-EML | ○ | | ○ | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミルセンタカット ロング形
**4-flute End Mill Center Cut Long Length**

# CC-EML



HSS-Co　0〜+0.03　30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 | 60 | 10 | 6 | – | □ | – | – |
| | 2.1 | | 12 | | | □ | – | – |
| | 2.2 | | | | | □ | – | – |
| | 2.3 | | | | | □ | – | – |
| | 2.4 | | | | | □ | – | – |
| | 2.5 | | 15 | | | □ | – | – |
| | 2.6 | | | | | □ | – | – |
| | 2.7 | | | | | □ | – | – |
| | 2.8 | | | | | □ | – | – |
| | 2.9 | | | | | □ | – | – |
| 81006 | 3 | | 20 | | A | ● | 14 | 4,250 |
| | 3.1 | | | | | □ | – | – |
| | 3.2 | | | | | □ | – | – |
| | 3.3 | | | | | □ | – | – |
| | 3.4 | | | | | □ | – | – |
| | 3.5 | | | | | □ | – | – |
| | 3.6 | | | | | □ | – | – |
| | 3.7 | | | | | □ | – | – |
| | 3.8 | | | | | □ | – | – |
| | 3.9 | | | | | □ | – | – |
| 81008 | 4 | | 25 | 8 | A | ● | 19 | 4,250 |
| | 4.1 | | | | | □ | – | – |
| | 4.2 | | | | | □ | – | – |
| | 4.3 | | | | | □ | – | – |
| | 4.4 | | | | | □ | – | – |
| | 4.5 | | | | | □ | – | – |
| | 4.6 | | | | | □ | – | – |
| | 4.7 | | | | | □ | – | – |
| | 4.8 | | | | | □ | – | – |
| | 4.9 | | | | | □ | – | – |
| 81010 | 5 | | | | A | ● | 19 | 4,250 |
| | 5.1 | | | | | □ | – | – |
| | 5.2 | | | | | □ | – | – |
| | 5.3 | | | | | □ | – | – |
| | 5.4 | | | | | □ | – | – |
| | 5.5 | | | | | □ | – | – |
| | 5.6 | | | | | □ | – | – |
| | 5.7 | | | | | □ | – | – |
| | 5.8 | | | | | □ | – | – |
| | 5.9 | | | | | □ | – | – |
| 81012 | 6 | | | | A | ● | 20 | 4,250 |
| | 6.1 | 75 | 35 | 10 | – | □ | – | – |
| | 6.2 | | | | | □ | – | – |
| | 6.3 | | | | | □ | – | – |
| | 6.4 | | | | | □ | – | – |
| | 6.5 | | | | | □ | – | – |
| | 6.6 | | | | | □ | – | – |
| | 6.7 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6.8 | 75 | 35 | 10 | – | □ | – | – |
| | 6.9 | | | | | □ | – | – |
| 81014 | 7 | | | | A | ● | 35 | 4,990 |
| | 7.1 | | | | – | □ | – | – |
| | 7.2 | | | | | □ | – | – |
| | 7.3 | | | | | □ | – | – |
| | 7.4 | | | | | □ | – | – |
| | 7.5 | | | | | □ | – | – |
| | 7.6 | | | | | □ | – | – |
| | 7.7 | | | | | □ | – | – |
| | 7.8 | | | | | □ | – | – |
| | 7.9 | | | | | □ | – | – |
| 81016 | 8 | | | | A | ● | 38 | 4,990 |
| | 8.1 | 90 | 45 | | – | □ | – | – |
| | 8.2 | | | | | □ | – | – |
| | 8.3 | | | | | □ | – | – |
| | 8.4 | | | | | □ | – | – |
| | 8.5 | | | | | □ | – | – |
| | 8.6 | | | | | □ | – | – |
| | 8.7 | | | | | □ | – | – |
| | 8.8 | | | | | □ | – | – |
| | 8.9 | | | | | □ | – | – |
| 81018 | 9 | | | | A | ● | 50 | 5,610 |
| | 9.1 | | | | – | □ | – | – |
| | 9.2 | | | | | □ | – | – |
| | 9.3 | | | | | □ | – | – |
| | 9.4 | | | | | □ | – | – |
| | 9.5 | | | | | □ | – | – |
| | 9.6 | | | | | □ | – | – |
| | 9.7 | | | | | □ | – | – |
| | 9.8 | | | | | □ | – | – |
| | 9.9 | | | | | □ | – | – |
| 81020 | 10 | | | | A | ● | 54 | 5,610 |
| | 10.1 | 105 | 55 | 12 | – | □ | – | – |
| | 10.2 | | | | | □ | – | – |
| | 10.3 | | | | | □ | – | – |
| | 10.4 | | | | | □ | – | – |
| | 10.5 | | | | | □ | – | – |
| | 10.6 | | | | | □ | – | – |
| | 10.7 | | | | | □ | – | – |
| | 10.8 | | | | | □ | – | – |
| | 10.9 | | | | | □ | – | – |
| 81021 | 11 | | | | A | ● | 79 | 6,920 |
| | 11.1 | | | | – | □ | – | – |
| | 11.2 | | | | | □ | – | – |
| | 11.3 | | | | | □ | – | – |
| | 11.4 | | | | | □ | – | – |
| | 11.5 | | | | | □ | – | – |

次ページへ
外径 DC 11.6〜19.9 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃ハイススクエアエンドミルセンタカット ロング形
**4-flute End Mill Center Cut Long Length**

## CC-EML



CAD

HSS-Co　0〜+0.03　30°

前ページより
FROM 外径 DC 2〜11.5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 11.6 | 105 | 55 | 12 | – | □ | – | – |
| | 11.7 | | | | | □ | – | – |
| | 11.8 | | | | | □ | – | – |
| | 11.9 | | | | | □ | – | – |
| 81022 | 12 | | | | A | ● | 84 | 6,920 |
| | 12.1 | | | | – | □ | – | – |
| | 12.2 | | | | | □ | – | – |
| | 12.3 | | | | | □ | – | – |
| | 12.4 | | | | | □ | – | – |
| | 12.5 | | | | | □ | – | – |
| | 12.6 | | | | | □ | – | – |
| | 12.7 | | | | | □ | – | – |
| | 12.8 | | | | | □ | – | – |
| | 12.9 | | | | | □ | – | – |
| 81023 | 13 | | | | A | ● | 90 | 8,930 |
| | 13.1 | 110 | | 16 | – | □ | – | – |
| | 13.2 | | | | | □ | – | – |
| | 13.3 | | | | | □ | – | – |
| | 13.4 | | | | | □ | – | – |
| | 13.5 | | | | | □ | – | – |
| | 13.6 | | | | | □ | – | – |
| | 13.7 | | | | | □ | – | – |
| | 13.8 | | | | | □ | – | – |
| | 13.9 | | | | | □ | – | – |
| 81024 | 14 | | | | A | ● | 140 | 8,930 |
| | 14.1 | 120 | 65 | | – | □ | – | – |
| | 14.2 | | | | | □ | – | – |
| | 14.3 | | | | | □ | – | – |
| | 14.4 | | | | | □ | – | – |
| | 14.5 | | | | | □ | – | – |
| | 14.6 | | | | | □ | – | – |
| | 14.7 | | | | | □ | – | – |
| | 14.8 | | | | | □ | – | – |
| | 14.9 | | | | | □ | – | – |
| 81025 | 15 | | | | A | ● | 164 | 9,880 |
| | 15.1 | | | | – | □ | – | – |
| | 15.2 | | | | | □ | – | – |
| | 15.3 | | | | | □ | – | – |
| | 15.4 | | | | | □ | – | – |
| | 15.5 | | | | | □ | – | – |
| | 15.6 | | | | | □ | – | – |
| | 15.7 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 15.8 | 120 | 65 | 16 | – | □ | – | – |
| | 15.9 | | | | | □ | – | – |
| 81026 | 16 | | | | A | ● | 171 | 11,000 |
| | 16.1 | | | | – | □ | – | – |
| | 16.2 | | | | | □ | – | – |
| | 16.3 | | | | | □ | – | – |
| | 16.4 | | | | | □ | – | – |
| | 16.5 | | | | | □ | – | – |
| | 16.6 | | | | | □ | – | – |
| | 16.7 | | | | | □ | – | – |
| | 16.8 | | | | | □ | – | – |
| | 16.9 | | | | | □ | – | – |
| 81027 | 17 | | | | A | ● | 183 | 13,500 |
| | 17.1 | | | | – | □ | – | – |
| | 17.2 | | | | | □ | – | – |
| | 17.3 | | | | | □ | – | – |
| | 17.4 | | | | | □ | – | – |
| | 17.5 | | | | | □ | – | – |
| | 17.6 | | | | | □ | – | – |
| | 17.7 | | | | | □ | – | – |
| | 17.8 | | | | | □ | – | – |
| | 17.9 | | | | | □ | – | – |
| 81028 | 18 | | | | A | ● | 191 | 13,500 |
| | 18.1 | 140 | 75 | 20 | – | □ | – | – |
| | 18.2 | | | | | □ | – | – |
| | 18.3 | | | | | □ | – | – |
| | 18.4 | | | | | □ | – | – |
| | 18.5 | | | | | □ | – | – |
| | 18.6 | | | | | □ | – | – |
| | 18.7 | | | | | □ | – | – |
| | 18.8 | | | | | □ | – | – |
| | 18.9 | | | | | □ | – | – |
| 81029 | 19 | | | | A | ● | 292 | 15,400 |
| | 19.1 | | | | – | □ | – | – |
| | 19.2 | | | | | □ | – | – |
| | 19.3 | | | | | □ | – | – |
| | 19.4 | | | | | □ | – | – |
| | 19.5 | | | | | □ | – | – |
| | 19.6 | | | | | □ | – | – |
| | 19.7 | | | | | □ | – | – |
| | 19.8 | | | | | □ | – | – |
| | 19.9 | | | | | □ | – | – |

次ページへ
外径 DC 20〜40 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| CC-EML | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミルセンタカット ロング形
**4-flute End Mill Center Cut Long Length**

## CC-EML



CAD

HSS-Co　0〜+0.03　30°

前ページより
FROM 外径 DC 11.6〜19.9

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 81030 | **20** | 140 | 75 | 20 | A | ● | 301 | 15,400 |
| 81031 | **21** | | | | | ● | 319 | 20,100 |
| 81032 | **22** | | | | | ● | 331 | 20,100 |
| 81033 | **23** | 160 | 90 | 25 | | ● | 496 | 24,700 |
| 81034 | **24** | | | | | ● | 515 | 24,700 |
| 81035 | **25** | | | | | ● | 527 | 24,700 |
| 81036 | **26** | | | | | ● | 572 | 27,000 |
| 81037 | **27** | | | | | ● | 596 | 32,200 |
| 81038 | **28** | | | | | ● | 615 | 31,500 |
| 81039 | **29** | | | | | ● | 615 | 39,000 |
| 81040 | **30** | | | | | ● | 645 | 37,800 |
| 81041 | **31** | 180 | 95 | 32 | | ● | 986 | 47,800 |
| 81042 | **32** | | | | | ● | 1,020 | 46,900 |
| 81043 | **33** | 185 | 100 | | | ● | 1,052 | 59,200 |
| 81044 | **34** | | | | | ● | 1,074 | 58,200 |
| 81045 | **35** | | | | | ● | 1,113 | 58,200 |
| 81046 | **36** | 190 | 105 | | | ● | 1,172 | 61,200 |
| 81047 | **37** | | | | | ● | 1,203 | 70,300 |
| 81048 | **38** | | | | | ● | 1,238 | 68,600 |
| 81049 | **39** | 195 | 110 | | | ● | 1,299 | 82,900 |
| 81050 | **40** | | | | | ● | 1,322 | 81,100 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1167 を参照下さい。
See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CC-EML** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 4枚刃ハイススクエアエンドミルロングシャンクロング形
**4-flute End Mill Long Length with Long Shank**

# LS-EML



HSS-Co | 0〜+0.03 | 30°

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 82231 | **10** | 125 | 45 | 10 | D | ● | 73 | 7,410 |
| 82235 | **12** | 150 | 55 | 12 | D | ● | 124 | 10,200 |
| 82239 | **14** | 150 | 55 | 16 | D | ● | 196 | 13,100 |
| 82243 | **15** | 155 | 65 | 16 | D | ● | 211 | 14,300 |
| 82247 | **16** | 155 | 65 | 16 | D | ● | 223 | 16,500 |
| 82254 | **18** | 155 | 65 | 16 | D | ● | 246 | 20,200 |
| 82258 | **20** | 185 | 75 | 20 | D | ● | 426 | 26,200 |
| 82262 | **22** | 185 | 75 | 20 | D | ● | 462 | 30,300 |
| 82264 | **24** | 190 | 90 | 25 | D | ● | 615 | 36,800 |
| 82268 | **25** | 220 | 90 | 25 | D | ● | 730 | 39,600 |
| 82276 | **28** | 220 | 90 | 25 | D | ● | 850 | 51,600 |
| 82281 | **30** | 220 | 90 | 25 | D | ● | 900 | 59,300 |
| 82285 | **32** | 235 | 95 | 32 | D | ● | 1,346 | 64,500 |
| 82289 | **34** | 235 | 100 | 32 | D | ● | 1,376 | 77,700 |
| 82293 | **35** | 235 | 100 | 32 | D | ● | 1,393 | 77,700 |
| 82302 | **38** | 235 | 105 | 32 | D | ● | 1,477 | 90,500 |
| 82306 | **40** | 285 | 110 | 32 | D | ● | 1,881 | 104,000 |

外径12mm以上はセンタ穴付きです。
Mill Dia.≧φ12:with center hole.

## 4枚刃CPMスクエアエンドミルロング形
**4-flute CPM End Mill Long Length**

# CPM-EML



CPM | 0〜+0.03 | 30°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **2** | 60 | 10 | 6 | – | □ | – | – |
| 83912 | **6** | 60 | 25 | 8 | D | ▲ | 21 | 7,620 |
| 83914 | **7** | 75 | 35 | 10 | D | ▲ | 36 | 8,750 |
| | **13** | 105 | 55 | 12 | – | □ | – | – |
| 83925 | **15** | 120 | 65 | 16 | D | ▲ | 163 | 17,300 |
| | **17** | 120 | 65 | 16 | – | □ | – | – |
| 83929 | **19** | 140 | 75 | 20 | D | ▲ | 279 | 27,400 |
| 83932 | **22** | 140 | 75 | 20 | D | ▲ | 330 | 34,400 |
| 83935 | **25** | 160 | 90 | 25 | D | ▲ | 521 | 42,700 |
| 83936 | **26** | 160 | 90 | 25 | D | ▲ | 565 | 47,100 |
| | **27** | 160 | 90 | 25 | – | □ | – | – |
| | **29** | 160 | 90 | 25 | – | □ | – | – |
| 83945 | **35** | 185 | 100 | 32 | D | ▲ | 1,106 | 108,000 |
| 83950 | **40** | 195 | 110 | 32 | D | ▲ | 1,329 | 150,000 |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

▲＝この製品は、XPM-EML (P.813) へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲＝These products have been stopped producing and replaced by XPM-EML(p.813)

最新の加工動画を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| LS-EML | ○ | | ○ | ○ | ○ | ○ | | | |
| CPM-EML | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# 多刃ハイススクエアエンドミル エキストラロング形
**Multi-flute End Mill Extra Long Length**

# EXML



CAD

HSS-Co　0〜+0.03　APMX≧200除く　30°　45°　APMX≧200

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 81203 | **3** | 70 | 30 | 6 | 4 | D | ● | 13 | 6,550 |
| | **3** | 80 | 40 | | | – | □ | – | – |
| 81207 | **4** | 70 | 30 | 8 | | D | ● | 15 | 6,550 |
| | **4** | 80 | 40 | | | – | □ | – | – |
| 81211 | **5** | | | | | D | ● | 24 | 6,700 |
| | **5** | 90 | 50 | | | – | □ | – | – |
| 81215 | **6** | 80 | 40 | | | D | ● | 27 | 6,700 |
| | **6** | 90 | 50 | | | – | □ | – | – |
| 81219 | **7** | 95 | | 10 | | D | ● | 45 | 7,590 |
| | **7** | 100 | 60 | | | – | □ | – | – |
| | **8** | 90 | 50 | | | | □ | – | – |
| 81223 | **8** | 105 | 60 | | | D | ● | 51 | 7,590 |
| | **8** | 120 | 80 | | | – | □ | – | – |
| 81227 | **9** | 105 | 60 | | | D | ● | 55 | 8,320 |
| | **10** | | | | | – | □ | – | – |
| ※ 81231 | **10** | 125 | 80 | 12 | | D | ● | 69 | 9,090 |
| | **11** | 130 | | | | – | □ | – | – |
| | **12** | | | | | – | □ | – | – |
| ※ 81235 | **12** | 150 | 100 | | | D | ● | 115 | 12,400 |
| | **13** | 130 | 80 | | | – | □ | – | – |
| ※ 81239 | **14** | 150 | 100 | 16 | | D | ● | 180 | 17,300 |
| ※ 81243 | **15** | 155 | | | | | ● | 200 | 17,300 |
| ※ 81247 | **16** | | | | | | ● | 214 | 20,500 |
| | **17** | | | | | – | □ | – | – |
| ※ 81254 | **18** | | | | | D | ● | 244 | 24,900 |
| | **19** | 165 | | 20 | | – | □ | – | – |
| | **20** | | | | | | □ | – | – |
| ※ 81258 | **20** | 185 | 120 | | | D | ● | 403 | 31,400 |
| | **20** | 215 | 150 | | | – | □ | – | – |
| | **21** | 165 | 100 | | | | □ | – | – |
| | **21** | 185 | 120 | | | | □ | – | – |
| | **21** | 215 | 150 | | | | □ | – | – |
| ※ 81261 | **22** | 165 | 100 | | | D | ● | 393 | 30,700 |
| ※ 81262 | **22** | 185 | 120 | | | | ● | 445 | 38,300 |
| | **22** | 215 | 150 | | | – | □ | – | – |
| | **23** | 170 | 100 | 25F | | | □ | – | – |
| | **23** | 190 | 120 | | | | □ | – | – |
| | **23** | 220 | 150 | | | | □ | – | – |
| | **24** | 170 | 100 | | | | □ | – | – |
| ※ 81264 | **24** | 190 | 120 | 25 | | D | ● | 593 | 40,100 |
| | **24** | 220 | 150 | 25F | | – | □ | – | – |
| | **25** | 170 | 100 | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **25** | 190 | 120 | 25F | 4 | – | □ | – | – |
| ※ 81268 | **25** | 220 | 150 | 25 | | D | ● | 684 | 48,200 |
| | **25** | 270 | 200 | 25F | | | □ | – | – |
| | **26** | 190 | 120 | | | – | □ | – | – |
| | **26** | 220 | 150 | | | | □ | – | – |
| | **28** | 190 | 120 | | | | □ | – | – |
| ※ 81276 | **28** | 220 | 150 | 25 | | D | ● | 827 | 63,700 |
| | **30** | 190 | 120 | 25F | | – | □ | – | – |
| ※ 81281 | **30** | 220 | 150 | 25 | | D | ● | 916 | 72,500 |
| | **30** | 270 | 200 | 25F | | – | □ | – | – |
| | **30** | 320 | 250 | | | | □ | – | – |
| ※ 81285 | **32** | 235 | 150 | 32 | | D | ● | 1,253 | 78,900 |
| | **32** | 285 | 200 | 32F | | – | □ | – | – |
| ※ 81289 | **34** | 235 | 150 | 32 | | D | ● | 1,306 | 95,100 |
| ※ 81293 | **35** | | | | | | ● | 1,353 | 95,100 |
| | **35** | 285 | 200 | 32F | | – | □ | – | – |
| | **35** | 335 | 250 | | | | □ | – | – |
| ※ 81302 | **38** | 235 | 150 | 32 | | D | ● | 1,518 | 110,000 |
| ※ | **38** | 285 | 200 | 32F | | – | □ | – | – |
| | **38** | 335 | 250 | | | | □ | – | – |
| ※ 81305 | **40** | 235 | 150 | 32 | | D | ● | 1,597 | 128,000 |
| | **40 × 42** | | | 42F | | – | □ | – | – |
| ※ | **40** | 285 | 200 | 32F | | | □ | – | – |
| ※ | **40 × 42** | | | 42F | | | □ | – | – |
| ※ | **40** | 335 | 250 | 32F | | | □ | – | – |
| ※ | **40 × 42** | | | 42F | | | □ | – | – |
| ※ | **42** | | | | | | □ | – | – |
| ※ | **45 × 32** | 235 | 150 | 32F | 6 | | □ | – | – |
| ※ | **45** | | | 42F | | | □ | – | – |
| ※ | **45 × 32** | 285 | 200 | 32F | 4 | | □ | – | – |
| ※ | **45** | | | 42F | | | □ | – | – |
| ※ | **45 × 32** | 335 | 250 | 32F | | | □ | – | – |
| ※ | **45** | | | 42F | | | □ | – | – |
| ※ | **50 × 32** | 235 | 150 | 32F | 6 | | □ | – | – |
| ※ | **50** | | | 42F | | | □ | – | – |
| ※ | **50 × 32** | 285 | 200 | 32F | 4 | | □ | – | – |
| ※ | **50** | | | 42F | | | □ | – | – |

※はセンタ穴付です。※:with center hole.

Fは2面平切り欠け付きシャンクです。F:Shank with two flat face.

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

次ページへ
外径 DC 50×32〜60 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EXML** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 多刃ハイススクエアエンドミル エキストラロング形
**Multi-flute End Mill Extra Long Length**

## EXML



CAD

HSS-Co | 0～+0.03 | APMX≧200除く | 30° | 45° APMX≧200

前ページより FROM 外径 DC 3～50

（単位:mm）(Unit:mm)

| | ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ※ | | **50 × 32** | 335 | 250 | 32F | 4 | – | □ | – | – |
| ※ | | **50** | | | 42F | | | □ | – | – |
| ※ | | **50** | 400 | 300 | | | | □ | – | – |
| ※ | | **50** | 500 | 400 | | | | □ | – | – |
| ※ | | **60** | 250 | 150 | | 6 | | □ | – | – |
| ※ | | **60** | 300 | 200 | | 4 | | □ | – | – |
| ※ | | **60** | 350 | 250 | | | | □ | – | – |
| ※ | | **60** | 400 | 300 | | | | □ | – | – |
| ※ | | **60** | 500 | 400 | | | | □ | – | – |

Fは2面平切り欠け付きシャンクです。F:Shank with two flat face.

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1170 を参照下さい。 See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EXML** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## VコートXPMスクエアエンドミルハイヘリックス ショート形
**V Coated High Helix XPM End Mill Short Length**

## V-XPM-EHS

切削条件 Cutting Conditions | P906



切れ味の良い強ねじれタイプです。重切削から仕上げ切削まで幅広く使用いただけます。
High helix flute with superior milling capability. This tool can perform a wide range of operations, from heavy to finish milling.

CAD

XPM | V | DC≦6 0〜-0.035 / 6<DC≦10 0〜-0.04 / 10<DC≦18 0〜-0.045 / 18<DC 0〜-0.05 | 50°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC×ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8454030 | 3 × 3F | 55 | 6 | 6 | 3 | B | ● | 14 | 7,760 |
| 8454040 | 4 × 3F | 65 | 8 | 8 | | | ● | 25 | 7,760 |
| 8454050 | 5 × 3F | | 10 | | | | ● | 25 | 7,760 |
| 8454060 | 6 × 3F | | 15 | | | | ● | 25 | 7,910 |
| 8454660 | 6 × 4F | | | | 4 | | ● | 26 | 7,910 |
| 8454070 | 7 × 3F | 75 | 20 | 10 | 3 | | ● | 41 | 8,640 |
| 8454080 | 8 × 3F | | | | | | ● | 44 | 8,640 |
| 8454680 | 8 × 4F | | | | 4 | | ● | 43 | 8,640 |
| 8454090 | 9 × 3F | 80 | 25 | | 3 | | ● | 60 | 10,300 |
| 8454100 | 10 × 3F | 90 | | 12 | | | ● | 75 | 10,300 |
| 8454700 | 10 × 4F | | | | 4 | | ● | 77 | 10,300 |
| 8454110 | 11 × 3F | 95 | 30 | | 3 | | ● | 80 | 13,400 |
| 8454120 | 12 × 3F | | | | | | ● | 83 | 13,400 |
| 8454720 | 12 × 4F | | | | 4 | | ● | 84 | 13,400 |
| 8454140 | 14 × 3F | 105 | 35 | 16 | 3 | | ● | 151 | 16,700 |
| 8454740 | 14 × 4F | | | | 4 | | ● | 150 | 16,700 |
| 8454150 | 15 × 3F | 110 | 40 | | 3 | | ● | 161 | 19,100 |
| 8454750 | 15 × 4F | | | | 4 | | ● | 163 | 19,100 |
| 8454160 | 16 × 3F | | | | 3 | | ● | 164 | 19,800 |
| 8454760 | 16 × 4F | | | | 4 | | ● | 169 | 19,800 |
| 8454180 | 18 × 3F | 120 | 45 | 20 | 3 | | ● | 273 | 24,700 |
| 8454780 | 18 × 4F | | | | 4 | | ● | 280 | 24,700 |
| 8454200 | 20 × 3F | 125 | | | 3 | | ● | 298 | 29,500 |
| 8454800 | 20 × 4F | | | | 4 | | ● | 302 | 29,500 |
| 8454220 | 22 × 3F | 135 | | 25 | 3 | | ● | 459 | 36,300 |
| 8454320 | 22 × 4F | | | | 4 | | ● | 467 | 36,300 |
| 8454240 | 24 × 3F | 140 | 50 | | 3 | | ● | 492 | 44,300 |
| 8454340 | 24 × 4F | | | | 4 | | ● | 501 | 44,300 |
| 8454250 | 25 × 3F | | | | 3 | | ● | 504 | 44,300 |
| 8454350 | 25 × 4F | | | | 4 | | ● | 507 | 44,300 |
| 8454280 | 28 × 3F | 150 | 55 | 32 | 3 | | ● | 823 | 63,300 |
| 8454380 | 28 × 4F | | | | 4 | | ● | 843 | 63,300 |
| 8454300 | 30 × 3F | | | | 3 | | ● | 859 | 70,600 |
| 8454400 | 30 × 4F | | | | 4 | | ● | 870 | 70,600 |

## VコートXPMスクエアエンドミルハイヘリックス ロング形
**V Coated High Helix XPM End Mill Long Length**

## V-XPM-EHL



切れ味の良い強ねじれタイプのロング刃シリーズです。Vコーティングにより安定した工具寿命が得られます。
Long flute with strong helix and superior milling abillty. Vcoating provides addtional tool longevity.

CAD

XPM | V | DC≦6 0〜-0.035 / 6<DC≦10 0〜-0.04 / 10<DC≦18 0〜-0.045 / 18<DC 0〜-0.05 | 50°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC×ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8454456 | 6 × 3F | 75 | 25 | 8 | 3 | D | ● | 26 | 11,900 |
| 8454457 | 7 × 3F | 90 | 35 | 10 | | | ● | 48 | 13,700 |
| 8454458 | 8 × 3F | | | | | | ● | 50 | 13,700 |
| 8454459 | 9 × 3F | 100 | 45 | | | | ● | 56 | 15,400 |
| 8454460 | 10 × 3F | 110 | | 12 | | | ● | 82 | 15,400 |
| 8454461 | 11 × 3F | 120 | 55 | | | | ● | 95 | 19,200 |
| 8454462 | 12 × 3F | | | | | | ● | 98 | 19,200 |
| 8454464 | 14 × 3F | 135 | 65 | 16 | | | ● | 180 | 24,400 |
| 8454465 | 15 × 3F | | | | | | ● | 186 | 26,700 |
| 8454466 | 16 × 3F | | | | | | ● | 191 | 29,900 |
| 8454468 | 18 × 3F | 155 | 75 | 20 | | | ● | 319 | 38,000 |
| 8454470 | 20 × 3F | 165 | 85 | | | | ● | 357 | 43,700 |
| 8454472 | 22 × 3F | 175 | | 25 | | | ● | 552 | 55,200 |
| 8454492 | 22 × 4F | | | | 4 | | ● | 540 | 55,200 |
| 8454474 | 24 × 3F | 195 | 105 | | 3 | | ● | 627 | 73,000 |
| 8454494 | 24 × 4F | | | | 4 | | ● | 622 | 73,000 |
| 8454475 | 25 × 3F | | | | 3 | | ● | 653 | 73,000 |
| 8454495 | 25 × 4F | | | | 4 | | ● | 657 | 73,000 |
| 8454478 | 28 × 3F | 200 | | 32 | 3 | | ● | 970 | 103,000 |
| 8454498 | 28 × 4F | | | | 4 | | ● | 976 | 103,000 |
| 8454480 | 30 × 3F | | | | 3 | | ● | 1,038 | 114,000 |
| 8454500 | 30 × 4F | | | | 4 | | ● | 1,063 | 114,000 |

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| V-XPM-EHS | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | ○ |
| V-XPM-EHL | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | | ○ |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## TiNコートXPMスクエアエンドミル ハイヘリックスショート形
TiN Coated High Helix XPM End Mill Short Length

# TIN-XPM-EHS

切削条件 Cutting Conditions | P913



XPM | TiN | DC≦6 0～-0.035 / 6<DC≦10 0～-0.04 / 10<DC≦18 0～-0.045 / 18<DC 0～-0.05 | 50°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC×ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8403506 | **6 × 3F** | 65 | 15 | 8 | 3 | D | ● | 25 | 8,990 |
| 8403507 | **7 × 3F** | 75 | 20 | 10 | | | ● | 42 | 9,640 |
| 8403508 | **8 × 3F** | | | | | | ● | 42 | 9,640 |
| 8403509 | **9 × 3F** | 80 | 25 | | | | ● | 46 | 11,500 |
| 8403510 | **10 × 3F** | 90 | | 12 | | | ● | 75 | 11,500 |
| 8403511 | **11 × 3F** | 95 | 30 | | | | ● | 79 | 14,900 |
| 8403512 | **12 × 3F** | | | | | | ● | 82 | 14,900 |
| 8403514 | **14 × 3F** | 105 | 35 | | | | ● | 154 | 18,500 |
| 8403515 | **15 × 3F** | 110 | 40 | 16 | | | ● | 161 | 21,500 |
| 8403516 | **16 × 3F** | | | | | | ● | 166 | 22,200 |
| 8403518 | **18 × 3F** | 120 | | 20 | | | ● | 265 | 27,400 |
| 8403520 | **20 × 3F** | 125 | 45 | | | | ● | 295 | 33,000 |
| 8403522 | **22 × 3F** | 135 | | 25 | | | ● | 441 | 40,400 |
| 8403542 | **22 × 4F** | | | | 4 | | ● | 450 | 40,400 |
| 8403524 | **24 × 3F** | 140 | 50 | | 3 | | ● | 473 | 49,200 |
| 8403544 | **24 × 4F** | | | | 4 | | ● | 492 | 49,200 |
| 8403525 | **25 × 3F** | | | | 3 | | ● | 482 | 49,200 |
| 8403545 | **25 × 4F** | | | | 4 | | ● | 490 | 49,200 |
| 8403528 | **28 × 3F** | 150 | 55 | 32 | 3 | | ● | 810 | 70,700 |
| 8403548 | **28 × 4F** | | | | 4 | | ● | 813 | 70,700 |
| 8403530 | **30 × 3F** | | | | 3 | | ● | 858 | 78,900 |
| 8403550 | **30 × 4F** | | | | 4 | | ● | 844 | 78,900 |

## TiNコートXPMスクエアエンドミル ハイヘリックスロング形
TiN Coated High Helix XPM End Mill Long Length

# TIN-XPM-EHL



XPM | TiN | DC≦6 0～-0.035 / 6<DC≦10 0～-0.04 / 10<DC≦18 0～-0.045 / 18<DC 0～-0.05 | 50°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC×ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8403556 | **6 × 3F** | 75 | 25 | 8 | 3 | D | ● | 45 | 11,900 |
| 8403557 | **7 × 3F** | 90 | 35 | 10 | | | ● | 46 | 13,700 |
| 8403558 | **8 × 3F** | | | | | | ● | 50 | 13,700 |
| 8403559 | **9 × 3F** | 100 | 45 | | | | ● | 56 | 15,400 |
| 8403560 | **10 × 3F** | 110 | | 12 | | | ● | 83 | 15,400 |
| 8403561 | **11 × 3F** | 120 | 55 | | | | ● | 94 | 19,200 |
| 8403562 | **12 × 3F** | | | | | | ● | 98 | 19,200 |
| 8403564 | **14 × 3F** | 135 | 65 | 16 | | | ● | 183 | 24,400 |
| 8403565 | **15 × 3F** | | | | | | ● | 188 | 26,700 |
| 8403566 | **16 × 3F** | | | | | | ● | 193 | 29,900 |
| 8403568 | **18 × 3F** | 155 | 75 | 20 | | | ● | 319 | 38,000 |
| 8403570 | **20 × 3F** | 165 | 85 | | | | ● | 348 | 43,700 |
| 8403572 | **22 × 3F** | 175 | | 25 | | | ● | 551 | 55,200 |
| 8403592 | **22 × 4F** | | | | 4 | | ● | 553 | 55,200 |
| 8403574 | **24 × 3F** | 195 | 105 | | 3 | | ● | 623 | 73,000 |
| 8403594 | **24 × 4F** | | | | 4 | | ● | 628 | 73,000 |
| 8403575 | **25 × 3F** | | | | 3 | | ● | 657 | 73,000 |
| 8403595 | **25 × 4F** | | | | 4 | | ● | 642 | 73,000 |
| 8403578 | **28 × 3F** | 200 | | 32 | 3 | | ● | 956 | 103,000 |
| 8403598 | **28 × 4F** | | | | 4 | | ● | 979 | 103,000 |
| 8403580 | **30 × 3F** | | | | 3 | | ● | 1,037 | 114,000 |
| 8403600 | **30 × 4F** | | | | 4 | | ● | 1,061 | 114,000 |

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| TIN-XPM-EHS | ○ | | ○ | ○ | ○ | ○ | ○ | | ○ |
| TIN-XPM-EHL | ○ | | ○ | ○ | ○ | ○ | ○ | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## XPMスクエアエンドミルハイヘリックス ショート形
**High Helix XPM End Mill Short Length**

# XPM-EHS

切削条件 Cutting Conditions | P913



切れ味の良い強ねじれシリーズです。母材は粉末ハイスXPMを採用しています。
High helix flute end mill with superior milling quality. The base material is powder metallurgy XPM.

CAD

XPM

DC≦6 0~-0.035
6<DC≦10 0~-0.04
10<DC≦18 0~-0.045
18<DC 0~-0.05

50°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC×ZEFP | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 71206 | 6 × 3F | 65 | 15 | 8 | | | ● | 25 | 5,850 |
| 71207 | 7 × 3F | 75 | 20 | 10 | | | ● | 42 | 6,400 |
| 71208 | 8 × 3F | | | | | | ● | 43 | 6,400 |
| 71209 | 9 × 3F | 80 | 25 | | | B | ● | 46 | 7,560 |
| 71210 | 10 × 3F | 90 | | 12 | | | ● | 75 | 7,560 |
| 71211 | 11 × 3F | 95 | 30 | | | | ● | 79 | 9,820 |
| 71212 | 12 × 3F | | | | | | ● | 82 | 9,820 |
| | 13 × 3F | 100 | 35 | | | — | □ | — | — |
| 71214 | 14 × 3F | 105 | | 16 | 3 | | ● | 150 | 12,400 |
| 71215 | 15 × 3F | 110 | 40 | | | B | ● | 159 | 14,200 |
| 71216 | 16 × 3F | | | | | | ● | 160 | 14,700 |
| | 17 × 3F | 120 | | 20 | | — | □ | — | — |
| 71218 | 18 × 3F | | | | | B | ● | 274 | 18,400 |
| | 19 × 3F | 125 | 45 | | | — | □ | — | — |
| 71220 | 20 × 3F | | | | | B | ● | 294 | 21,900 |
| | 21 × 3F | | | | | — | □ | — | — |
| 71222 | 22 × 3F | 135 | | 25 | | B | ● | 445 | 27,000 |
| 71242 | 22 × 4F | | | | 4 | | ● | 465 | 27,000 |
| ◆ | 23 × 3F | 140 | 50 | | 3 | — | □ | — | — |
| 71224 | 24 × 3F | | | | | B | ● | 491 | 32,300 |
| 71244 | 24 × 4F | | | | 4 | | ● | 482 | 32,300 |
| 71225 | 25 × 3F | | | | 3 | | ● | 497 | 32,300 |
| 71245 | 25 × 4F | | | | 4 | | ● | 486 | 32,300 |
| ◆ | 26 × 3F | | | | | — | □ | — | — |
| ◆ | 27 × 3F | 145 | 55 | | 3 | | □ | — | — |
| 71228 | 28 × 3F | 150 | | 32 | | B | ● | 820 | 46,700 |
| 71248 | 28 × 4F | | | | 4 | | ● | 836 | 46,700 |
| ◆ | 29 × 3F | | | | 3 | — | □ | — | — |
| 71230 | 30 × 3F | | | | | B | ● | 829 | 51,900 |
| 71250 | 30 × 4F | | | | 4 | | ● | 867 | 51,900 |
| ◆ | 31 × 4F | 155 | 60 | | | — | □ | — | — |
| ◆ | 32 × 4F | | | | | | □ | — | — |
| ◆ | 33 × 4F | | | | | | □ | — | — |
| ◆ | 34 × 4F | | | | | | □ | — | — |
| ◆ | 35 × 4F | | | | | | □ | — | — |
| ◆ | 36 × 4F | 160 | 65 | | | | □ | — | — |
| ◆ | 37 × 4F | | | | | | □ | — | — |
| ◆ | 38 × 4F | | | | | | □ | — | — |
| ◆ | 39 × 4F | | | | | | □ | — | — |
| ◆ | 40 × 4F | | | | | | □ | — | — |
| ◆ | 45 × 4F | 170 | 70 | 42 | | | □ | — | — |
| ◆ | 50 × 4F | 175 | 75 | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

## XPMスクエアエンドミルハイヘリックス ロング形
**High Helix XPM End Mill Long Length**

# XPM-EHL



切れ味の良い強ねじれタイプのロング刃シリーズです。母材は粉末ハイスXPMを採用しています。
High helix flute long end mill with superior milling ability. The base material is powder metallurgy XPM.

CAD

XPM

DC＝6 0~-0.035
6<DC≦10 0~-0.04
10<DC≦18 0~-0.045
18<DC 0~-0.05

50°

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC×ZEFP | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 71256 | 6 × 3F | 75 | 25 | 8 | 3 | D | ● | 26 | 8,750 |
| 71257 | 7 × 3F | 90 | 35 | 10 | | | ● | 48 | 10,200 |
| 71258 | 8 × 3F | | | | | | ● | 49 | 10,200 |
| 71259 | 9 × 3F | 100 | 45 | | | | ● | 55 | 11,400 |
| 71260 | 10 × 3F | 110 | | 12 | | | ● | 82 | 11,400 |
| 71261 | 11 × 3F | 120 | 55 | | | | ● | 93 | 14,100 |
| 71262 | 12 × 3F | | | | | | ● | 99 | 14,100 |
| 71264 | 14 × 3F | 135 | 65 | 16 | | | ● | 176 | 18,200 |
| 71265 | 15 × 3F | | | | | | ● | 189 | 19,800 |
| 71266 | 16 × 3F | | | | | | ● | 195 | 22,300 |
| 71268 | 18 × 3F | 155 | 75 | 20 | | | ● | 321 | 28,200 |
| 71270 | 20 × 3F | 165 | 85 | | | | ● | 430 | 32,600 |
| 71272 | 22 × 3F | 175 | | 25 | | | ● | 530 | 40,400 |
| 71292 | 22 × 4F | | | | 4 | | ● | 542 | 40,400 |
| 71274 | 24 × 3F | 195 | 105 | | 3 | | ● | 631 | 54,200 |
| 71294 | 24 × 4F | | | | 4 | | ● | 622 | 54,200 |
| 71275 | 25 × 3F | | | | 3 | | ● | 652 | 54,200 |
| 71295 | 25 × 4F | | | | 4 | | ● | 666 | 54,200 |
| ◆ | 26 × 3F | | | | 3 | | □ | — | — |
| | 26 × 4F | | | | 4 | — | □ | — | — |
| ◆ | 27 × 3F | | | | 3 | | □ | — | — |
| 71278 | 28 × 3F | | | 32 | | D | ● | 960 | 75,400 |
| 71298 | 28 × 4F | | | | 4 | | ● | 1,005 | 75,400 |
| ◆ | 29 × 3F | 200 | | | 3 | — | □ | — | — |
| 71280 | 30 × 3F | | | | | D | ● | 1,044 | 84,200 |
| 71300 | 30 × 4F | | | | 4 | | ● | 1,057 | 84,200 |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| XPM-EHS | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | ○ |
| XPM-EHL | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品(在庫をご確認下さい。) Discontinued item

# 2枚刃ハイススクエアエンドミル エキストラロングシャンクショート形
**2-flute End Mill Short Length with Extra Long Shank**

## XLS-EDS



HSS-Co　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 | 150 | 30 | 6 | — | □ | — | — |
| | 7 | | 35 | | | □ | — | — |
| | 8 | | | 8 | | □ | — | — |
| | 9 | | 40 | | | □ | — | — |
| | 10 | 200 | | 10 | | □ | — | — |
| | 11 | | 45 | | | □ | — | — |
| | 12 | | | 12 | | □ | — | — |
| | 13 | | 50 | | | □ | — | — |
| | 14 | | | | | □ | — | — |
| | 15 | | 55 | | | □ | — | — |
| | 16 | 250 | | 16 | | □ | — | — |
| | 17 | | 60 | | | □ | — | — |
| | 18 | | | | | □ | — | — |
| | 19 | | 65 | | | □ | — | — |
| | 20 | 300 | | 20 | | □ | — | — |
| | 22 | | | | | □ | — | — |
| | 24 | | 70 | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 25 | 300 | 70 | 25 | — | □ | — | — |
| | 26 | | | | | □ | — | — |
| | 28 | | | | | □ | — | — |
| | 30 | | | | | □ | — | — |
| | 32 | 350 | 80 | 32 | | □ | — | — |
| | 34 | | | | | □ | — | — |
| | 35 | | | | | □ | — | — |
| | 36 | | | | | □ | — | — |
| | 38 | | 100 | | | □ | — | — |
| | 40 | | | | | □ | — | — |
| | 42 | | | 42 | | □ | — | — |
| | 44 | | | | | □ | — | — |
| | 45 | | 125 | | | □ | — | — |
| | 46 | | | | | □ | — | — |
| | 48 | | | | | □ | — | — |
| | 50 | | | | | □ | — | — |

外径25mm以上は切欠付きシャンクです。
Mill Dia.≧φ25:straight & flat shank.

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は２面平切り欠け付きです。
Shank Dia.≧25mm :Shank with two flat face.

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃CPMスクエアエンドミル エキストラロングシャンクショート形
**2-flute CPM End Mill Short Length with Extra Long Shank**

## CPM-XLS-EDS



CPM | 30° | 0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **6** | 150 | 30 | 6 | — | □ | — | — |
| | **7** | | 35 | | | □ | — | — |
| | **8** | | | 8 | | □ | — | — |
| | **9** | | 40 | | | □ | — | — |
| | **10** | 200 | | 10 | | □ | — | — |
| | **11** | | 45 | | | □ | — | — |
| | **12** | | | 12 | | □ | — | — |
| | **13** | | 50 | | | □ | — | — |
| | **14** | | | | | □ | — | — |
| | **15** | | 55 | | | □ | — | — |
| | **16** | 250 | | 16 | | □ | — | — |
| | **17** | | 60 | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **19** | | 65 | | | □ | — | — |
| | **20** | 300 | | 20 | | □ | — | — |
| | **20** | 400 | 75 | | | □ | — | — |
| | **20** | 500 | 100 | | | □ | — | — |
| | **22** | 300 | 65 | | | □ | — | — |
| | **24** | | 70 | | | □ | — | — |
| | **25** | | | 25 | | □ | — | — |
| | **25** | 400 | 90 | | | □ | — | — |
| | **25** | 500 | 120 | | | □ | — | — |
| | **26** | 300 | 70 | | | □ | — | — |
| | **28** | | | | | □ | — | — |
| | **30** | | | | | □ | — | — |
| | **30** | 400 | 90 | | | □ | — | — |
| | **30** | 500 | 120 | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1170 を参照下さい。 See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃ハイススクエアエンドミルショート形 左刃左ねじれ
**2-flute End Mill Short Length (LH Cut and LH Helix)**

# MR-EDS



HSS-Co　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 50 | 8 | 6 | | □ | — | — |
| | **4** | 60 | | 8 | | □ | — | — |
| | **6** | | 12 | | | □ | — | — |
| | **7** | | 14 | 10 | | □ | — | — |
| | **8** | | | | | □ | — | — |
| | **9** | 70 | 18 | | | □ | — | — |
| | **10** | | | | | □ | — | — |
| | **11** | 80 | 22 | 12 | — | □ | — | — |
| | **12** | | | | | □ | — | — |
| | **14** | 90 | 26 | 16 | | □ | — | — |
| | **16** | 95 | 30 | | | □ | — | — |
| | **17** | | 34 | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **20** | 110 | 38 | 20 | | □ | — | — |

## NC旋盤用WXLコート2枚刃ハイススクエア エンドミルスタブ形
**WXL Coated 2-flute End Mill Stub Length for Lathes**

# WH-NC-EDSS



HSS-Co　WXL　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 60 | 6 | 6 | — | □ | — | — |
| | **4** | | | | | □ | — | — |
| | **5** | | | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **7** | | | | | □ | — | — |
| | **8** | | | | | □ | — | — |
| | **10** | | | 10 | | □ | — | — |
| | **12** | | | | | □ | — | — |
| | **14** | | | | | □ | — | — |
| | **16** | | | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **20** | | | | | □ | — | — |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177 を参照下さい。
See p.1177 for details





形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート2枚刃XPMスクエアエンドミル ショート形

**TiN Coated 2-flute XPM End Mill Short Length**

## TIN-XPM-EDS

切削条件 Cutting Conditions | P912



XPM　TiN　0〜-0.03　約30°　ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1.5** | 50 | 3.5 | 6 | | □ | — | — |
| | **2.5** | 55 | 5 | | | □ | — | — |
| | **3** | | 7 | | | □ | — | — |
| | **4** | 65 | 8 | 8 | | □ | — | — |
| | **5** | | 10 | | | □ | — | — |
| | **5.5** | | 12 | | — | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **8** | 70 | 14 | 10 | | □ | — | — |
| | **11** | 85 | 22 | 12 | | □ | — | — |
| | **20** | 115 | 38 | 20 | | □ | — | — |
| | **24** | 125 | 50 | 25 | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TIN-XPM-EDS** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃CPMスクエアエンドミルミディアム形
**2-flute CPM End Mill Medium Length**

# CPM-EDN



CPM | 30° | 0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 | 45 | 3.5 | 6 | | □ | — | — |
| | 1.5 | | 5 | | | □ | — | — |
| | 2 | 50 | 7 | | | □ | — | — |
| | 2.5 | | 8 | | | □ | — | — |
| | 3 | | 10 | | | □ | — | — |
| | 3.5 | 60 | 12 | | | □ | — | — |
| | 3.5 | | | 8 | | □ | — | — |
| | 4 | | | 6 | | □ | — | — |
| | 4 | | | 8 | | □ | — | — |
| | 4.5 | | 15 | 6 | | □ | — | — |
| | 4.5 | | | 8 | | □ | — | — |
| | 5 | | | 6 | | □ | — | — |
| | 5 | | | 8 | | □ | — | — |
| | 5.5 | | | 6 | | □ | — | — |
| | 5.5 | | | 8 | | □ | — | — |
| | 6 | | | 6 | | □ | — | — |
| | 6 | | | 8 | | □ | — | — |
| | 6.5 | | 20 | | | □ | — | — |
| | 6.5 | | | 10 | | □ | — | — |
| | 7 | | | 8 | — | □ | — | — |
| | 7 | | | 10 | | □ | — | — |
| | 7.5 | | | 8 | | □ | — | — |
| | 7.5 | | | 10 | | □ | — | — |
| | 8 | | | 8 | | □ | — | — |
| | 8 | | | 10 | | □ | — | — |
| | 8.5 | 70 | 25 | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 10 | | | | | □ | — | — |
| | 11 | 80 | 30 | 12 | | □ | — | — |
| | 12 | | | | | □ | — | — |
| | 13 | 85 | 35 | | | □ | — | — |
| | 14 | 90 | | 16 | | □ | — | — |
| | 15 | 95 | 40 | | | □ | — | — |
| | 16 | | | | | □ | — | — |
| | 17 | | | | | □ | — | — |
| | 18 | | | | | □ | — | — |
| | 19 | 110 | 45 | 20 | | □ | — | — |
| | 20 | | | | | □ | — | — |

## 成形用2枚刃CPMエンドミル直刃ショート形
**2-flute CPM Straight Fluted End Mill Short Length for Reforming**

# CPM-STD



CPM | 0° | 0〜-0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 70 | 15 | 12 | | □ | — | — |
| | 4 | | | | | □ | — | — |
| | 5 | | | | | □ | — | — |
| | 6 | 73 | 18 | | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 8 | | | | | □ | — | — |
| | 9 | | 19 | | | □ | — | — |
| | 10 | | | | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 12 | | | | | □ | — | — |
| | 13 | 75 | 22 | | | □ | — | — |
| | 14 | 134 | 30 | 16 | | □ | — | — |
| | 15 | 135 | 31 | | | □ | — | — |
| | 16 | | | | | □ | — | — |
| | 17 | 138 | 34 | 20 | — | □ | — | — |
| | 18 | | | | | □ | — | — |
| | 19 | 140 | 36 | | | □ | — | — |
| | 20 | | | | | □ | — | — |
| | 21 | 145 | 41 | | | □ | — | — |
| | 22 | | | | | □ | — | — |
| | 23 | | | | | □ | — | — |
| | 24 | 148 | | 25 | | □ | — | — |
| | 25 | | | | | □ | — | — |
| | 26 | | | | | □ | — | — |
| | 27 | 153 | 46 | | | □ | — | — |
| | 28 | | | | | □ | — | — |
| | 29 | | | | | □ | — | — |
| | 30 | | | | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| CPM-EDN | ○ | | ○ | ○ | ○ | ○ | | | |
| CPM-STDN | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

## TiNコート2枚刃ハイススクエアエンドミル ロングシャンクロング形
**TiN Coated 2-flute End Mill Long Length with Long Shank**

# EX-TIN-LS-EDL



HSS-Co | TiN | 0〜-0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **10** | 125 | 45 | 10 | | □ | — | — |
| | **12** | 150 | 55 | 12 | | □ | — | — |
| | **14** | | | 16 | | □ | — | — |
| | **15** | 155 | 65 | | | □ | — | — |
| | **16** | | | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **20** | 185 | 75 | 20 | | □ | — | — |
| | **22** | | | | | □ | — | — |
| | **24** | 190 | 90 | 25 | — | □ | — | — |
| | **25** | 220 | | | | □ | — | — |
| | **28** | | | | | □ | — | — |
| | **30** | | | | | □ | — | — |
| | **32** | 235 | 95 | 32 | | □ | — | — |
| | **34** | | 100 | | | □ | — | — |
| | **35** | | | | | □ | — | — |
| | **38** | | 105 | | | □ | — | — |
| | **40** | 285 | 110 | | | □ | — | — |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

## TiNコート2枚刃ハイススクエアエンドミル エキストラロング形
**TiN Coated 2-flute End Mill Extra Long Length**

# EX-TIN-EXDL



HSS-Co | TiN | 0〜-0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 55 | 10 | 6 | | □ | — | — |
| | **1.5** | | 15 | | | □ | — | — |
| | **2** | 70 | 20 | | | □ | — | — |
| | **3** | | 30 | | | □ | — | — |
| | **4** | | | 8 | | □ | — | — |
| | **5** | 80 | 40 | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **7** | 90 | 45 | 10 | | □ | — | — |
| | **8** | 95 | 50 | | | □ | — | — |
| | **9** | 100 | 55 | | | □ | — | — |
| | **10** | 125 | 80 | | | □ | — | — |
| | **12** | 150 | 100 | 12 | | □ | — | — |
| | **14** | 155 | | 16 | | □ | — | — |
| | **15** | | | | | □ | — | — |
| | **16** | | | | | □ | — | — |
| | **18** | | | | — | □ | — | — |
| | **20** | 185 | 120 | 20 | | □ | — | — |
| | **22** | | | | | □ | — | — |
| | **24** | 190 | | 25 | | □ | — | — |
| | **25** | 220 | 150 | | | □ | — | — |
| | **28** | | | | | □ | — | — |
| | **30** | | | | | □ | — | — |
| | **30** | 270 | 200 | | | □ | — | — |
| | **32** | 235 | 150 | 32 | | □ | — | — |
| | **34** | | | | | □ | — | — |
| | **35** | | | | | □ | — | — |
| | **35** | 285 | 200 | | | □ | — | — |
| | **40** | 235 | 150 | | | □ | — | — |
| | **40** | 285 | 200 | | | □ | — | — |
| | **50** | 235 | 150 | 42 | | □ | — | — |
| | **50** | 285 | 200 | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃ハイススクエアエンドミル ロングシャンクロング形
**2-flute End Mill Long Length with Long Shank**

# LS-EDL



HSS-Co　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **10** | 125 | 45 | 10 | – | □ | – | – |
| | **12** | 150 | 55 | 12 | | □ | – | – |
| | **13** | | | | | □ | – | – |
| | **14** | | | 16 | | □ | – | – |
| | **15** | 155 | 65 | | | □ | – | – |
| | **16** | | | | | □ | – | – |
| | **18** | | | | | □ | – | – |
| | **20** | 185 | 75 | 20 | | □ | – | – |
| | **22** | | | | | □ | – | – |
| | **24** | 190 | 90 | 25 | | □ | – | – |
| | **25** | 220 | | | | □ | – | – |
| | **28** | | | | | □ | – | – |
| | **30** | | | | | □ | – | – |
| | **32** | 235 | 95 | 32 | | □ | – | – |
| | **34** | | 100 | | | □ | – | – |
| | **35** | | | | | □ | – | – |
| | **38** | | 105 | | | □ | – | – |
| | **40** | 285 | 110 | | | □ | – | – |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

## アルミ合金用2枚刃ハイススクエアエンドミル ロング形
**2-flute End Mill Long Length for Aluminum Alloys**

# AL-EDL



HSS-Co　0〜-0.03　40°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 50 | 6 | 6 | – | □ | – | – |
| | **2** | 60 | 10 | | | □ | – | – |
| | **3** | | 15 | | | □ | – | – |
| | **4** | | 20 | 8 | | □ | – | – |
| | **5** | | 25 | | | □ | – | – |
| | **6** | | | | | □ | – | – |
| | **7** | 75 | 35 | 10 | | □ | – | – |
| | **8** | | | | | □ | – | – |
| | **9** | 90 | 45 | | | □ | – | – |
| | **10** | | | | | □ | – | – |
| | **11** | 105 | 55 | 12 | | □ | – | – |
| | **12** | | | | | □ | – | – |
| | **13** | | | | | □ | – | – |
| | **14** | 110 | | 16 | | □ | – | – |
| | **15** | 120 | 65 | | | □ | – | – |
| | **16** | | | | | □ | – | – |
| | **17** | | | | | □ | – | – |
| | **18** | | | | | □ | – | – |
| | **19** | 140 | 75 | 20 | | □ | – | – |
| | **20** | | | | | □ | – | – |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃CPMスクエアエンドミルロング形
**2-flute CPM End Mill Long Length**

## CPM-EDL



CPM



0～-0.03





30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **1** | 50 | 6 | 6 | – | □ | – | – |
| | **1.5** | | 7.5 | | | □ | – | – |
| | **2** | 60 | 10 | | | □ | – | – |
| | **2.5** | | 15 | | | □ | – | – |
| | **3.5** | | 20 | 8 | | □ | – | – |
| | **4.5** | | 25 | | | □ | – | – |
| | **5.5** | | | | | □ | – | – |
| | **6.5** | 75 | 35 | 10 | | □ | – | – |
| | **7** | | | | | □ | – | – |
| | **7.5** | | | | | □ | – | – |
| | **8.5** | 90 | 45 | | | □ | – | – |
| | **9.5** | | | | | □ | – | – |
| | **12** | 105 | 55 | 12 | | □ | – | – |
| | **17** | 120 | 65 | 16 | | □ | – | – |
| | **21** | 140 | 75 | 20 | | □ | – | – |
| ◆ | **27** | 160 | 90 | 25 | | □ | – | – |
| | **28** | | | | | □ | – | – |
| ◆ | **29** | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CPM-EDL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃XPMスクエアエンドミル ロング形
**TiN Coated 2-flute XPM End Mill Long Length**

## TIN-XPM-EDL



XPM | TiN | 0〜-0.03 | | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **6** | 75 | 25 | 8 | | □ | — | — |
| | **11** | 120 | 55 | 12 | | □ | — | — |
| | **19** | | | | — | □ | — | — |
| | **20** | 155 | 75 | 20 | | □ | — | — |
| | **22** | | | | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TIN-XPM-EDL** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## TiNコート3枚刃ハイススクエアエンドミル ショート形
**TiN Coated 3-flute End Mill Short Length**

# EX-TIN-ETS



HSS-Co | TiN | 0〜-0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 45 | 2.5 | 6 | 3 | — | □ | — | — |
| | 1.5 | | 4 | | | | □ | — | — |
| | 2 | 50 | 5 | | | | □ | — | — |
| | 2.5 | | 6 | | | | □ | — | — |
| | 3 | 60 | 8 | | | | □ | — | — |
| | 3.5 | | | 8 | | | □ | — | — |
| | 4 | | | | | | □ | — | — |
| | 4.5 | | 10 | | | | □ | — | — |
| | 5 | | | | | | □ | — | — |
| | 5.5 | | 12 | | | | □ | — | — |
| | 6 | | | | | | □ | — | — |
| | 6.5 | | 14 | 10 | | | □ | — | — |
| | 7 | | | | | | □ | — | — |
| | 7.5 | | | | | | □ | — | — |
| | 8 | | | | | | □ | — | — |
| | 8.5 | 70 | 18 | | | | □ | — | — |
| | 9 | | | | | | □ | — | — |
| | 9.5 | | | | | | □ | — | — |
| | 10 | | | | | | □ | — | — |
| | 11 | 80 | 22 | 12 | | | □ | — | — |
| | 12 | | | | | | □ | — | — |
| | 13 | 85 | 26 | | | | □ | — | — |
| | 14 | 90 | | 16 | | | □ | — | — |
| | 15 | 95 | 30 | | | | □ | — | — |
| | 16 | | | | | | □ | — | — |
| | 17 | | 34 | | | | □ | — | — |
| | 18 | | | | | | □ | — | — |
| | 19 | 110 | 38 | 20 | | | □ | — | — |
| | 20 | | | | | | □ | — | — |
| | 21 | | 45 | | | | □ | — | — |
| | 22 | | | | | | □ | — | — |
| | 23 | 120 | 50 | 25 | | | □ | — | — |
| | 24 | | | | | | □ | — | — |
| | 25 | | | | | | □ | — | — |
| | 26 | | | | | | □ | — | — |
| | 28 | 125 | 55 | | | | □ | — | — |
| | 30 | | | | | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

## TiNコート3枚刃ハイススクエアエンドミル エキストラロング形
**TiN Coated 3-flute End Mill Extra Long Length**

# EX-TIN-ETXL



HSS-Co | TiN | 0〜-0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 80 | 40 | 6 | 3 | — | □ | — | — |
| | 4 | | | 8 | | | □ | — | — |
| | 5 | | | | | | □ | — | — |
| | 6 | | | | | | □ | — | — |
| | 7 | 90 | 50 | 10 | | | □ | — | — |
| | 8 | | | | | | □ | — | — |
| | 9 | 125 | 80 | | | | □ | — | — |
| | 10 | 130 | | 12 | | | □ | — | — |
| | 11 | 150 | 100 | | | | □ | — | — |
| | 12 | | | | | | □ | — | — |
| | 13 | | | 16 | | | □ | — | — |
| | 14 | | | | | | □ | — | — |
| | 15 | 155 | | | | | □ | — | — |
| | 16 | | | | | | □ | — | — |
| | 17 | | | | | | □ | — | — |
| | 18 | | | | | | □ | — | — |
| | 19 | 165 | | 20 | | | □ | — | — |
| | 20 | 185 | 120 | | | | □ | — | — |
| | 21 | | | | | | □ | — | — |
| | 22 | | | | | | □ | — | — |
| | 23 | 190 | | 25 | | | □ | — | — |
| | 24 | 220 | 150 | | | | □ | — | — |
| | 25 | | | | | | □ | — | — |
| | 26 | | | | | | □ | — | — |
| | 27 | | | | | | □ | — | — |
| | 28 | | | | | | □ | — | — |
| | 29 | | | | | | □ | — | — |
| | 30 | | | | | | □ | — | — |
| | 32 | 235 | | 32 | | | □ | — | — |
| | 34 | | | | | | □ | — | — |
| | 35 | | | | | | □ | — | — |
| | 36 | | | | | | □ | — | — |
| | 38 | | | | | | □ | — | — |
| | 40 | 285 | 200 | 42 | | | □ | — | — |
| | 42 | 300 | | | | | □ | — | — |
| | 45 | | | | | | □ | — | — |
| | 50 | | | | | | □ | — | — |
| | 60 | | | | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 3枚刃ハイススクエアエンドミル エキストラロング形
**3-flute End Mill Extra Long Length**

# ETXL



HSS-Co　0〜-0.03　30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 80 | 40 | 6 | 3 | – | □ | – | – |
| | 4 | | | 8 | | | □ | – | – |
| | 5 | | | | | | □ | – | – |
| | 6 | | | | | | □ | – | – |
| | 7 | 90 | 50 | 10 | | | □ | – | – |
| | 8 | | | | | | □ | – | – |
| | 9 | | | | | | □ | – | – |
| | 10 | 125 | 80 | | | | □ | – | – |
| | 11 | 130 | | 12 | | | □ | – | – |
| | 12 | 150 | 100 | | | | □ | – | – |
| | 13 | | | | | | □ | – | – |
| | 14 | | | 16 | | | □ | – | – |
| | 15 | 155 | | | | | □ | – | – |
| | 16 | | | | | | □ | – | – |
| | 17 | | | | | | □ | – | – |
| | 18 | | | | | | □ | – | – |
| | 19 | 165 | | 20 | | | □ | – | – |
| | 20 | 185 | 120 | | | | □ | – | – |
| | 21 | | | | | | □ | – | – |
| | 22 | | | | | | □ | – | – |
| | 23 | 190 | | 25 | | | □ | – | – |
| | 24 | 220 | 150 | | | | □ | – | – |
| | 25 | | | | | | □ | – | – |
| | 26 | | | | | | □ | – | – |
| | 27 | | | | | | □ | – | – |
| | 28 | | | | | | □ | – | – |
| | 29 | | | | | | □ | – | – |
| | 30 | | | | | | □ | – | – |
| | 32 | 235 | | 32 | | | □ | – | – |
| | 34 | | | | | | □ | – | – |
| | 35 | | | | | | □ | – | – |
| | 36 | | | | | | □ | – | – |
| | 38 | | | | | | □ | – | – |
| | 40 | 285 | 200 | | | | □ | – | – |
| | 42 | 300 | | 42 | | | □ | – | – |
| | 45 | | | | | | □ | – | – |
| | 50 | | | | | | □ | – | – |
| | 60 | | | | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

## 4枚刃ハイススクエアエンドミル ロングシャンクスタブ形
**4-flute End Mill Stub Length with Long Shank**

# LS-EMSS



HSS-Co　0〜+0.03　30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 | 150 | 20 | 6 | – | □ | – | – |
| | 7 | | | | | □ | – | – |
| | 8 | | | 8 | | □ | – | – |
| | 9 | | | | | □ | – | – |
| | 10 | 200 | 25 | 10 | | □ | – | – |
| | 11 | | | | | □ | – | – |
| | 12 | | 30 | 12 | | □ | – | – |
| | 13 | | | | | □ | – | – |
| | 14 | | 35 | | | □ | – | – |
| | 15 | | 40 | | | □ | – | – |
| | 16 | 250 | | 16 | | □ | – | – |
| | 17 | | 45 | | | □ | – | – |
| | 18 | | | | | □ | – | – |
| | 19 | | 50 | | | □ | – | – |
| | 20 | 300 | | 20 | | □ | – | – |
| | 22 | | 55 | | | □ | – | – |
| | 24 | | | | | □ | – | – |
| | 25 | | 60 | 25 | | □ | – | – |
| | 26 | | | | | □ | – | – |
| | 28 | | 70 | | | □ | – | – |
| | 30 | | | | | □ | – | – |

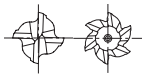
ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 多刃ハイススクエアエンドミル エキストラロングシャンクショート形
**Multi-flute End Mill Short Length with Extra Long Shank**

## XLS-EMS




HSS-Co　0〜+0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 | 150 | 30 | 6 | – | □ | – | – |
| | 7 | | 35 | | | □ | – | – |
| | 8 | | | 8 | | □ | – | – |
| | 9 | | 40 | | | □ | – | – |
| | 10 | 200 | | 10 | | □ | – | – |
| | 11 | | 45 | | | □ | – | – |
| | 12 | | | 12 | | □ | – | – |
| | 13 | | 50 | | | □ | – | – |
| | 14 | | | | | □ | – | – |
| | 15 | | 55 | | | □ | – | – |
| | 16 | 250 | | 16 | | □ | – | – |
| | 17 | | 60 | | | □ | – | – |
| | 18 | | | | | □ | – | – |
| | 19 | | 65 | | | □ | – | – |
| | 20 | 300 | | 20 | | □ | – | – |
| | 22 | | | | | □ | – | – |
| | 24 | | 70 | | | □ | – | – |
| | 25 | | | 25 | | □ | – | – |
| | 26 | | | | | □ | – | – |
| | 28 | | | | | □ | – | – |
| | 30 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 32 | 350 | 80 | 32 | – | □ | – | – |
| | 34 | | | | | □ | – | – |
| | 35 | | | | | □ | – | – |
| | 36 | | | | | □ | – | – |
| | 38 | | 100 | | | □ | – | – |
| | 40 | | | | | □ | – | – |
| | 42 | | | 42 | | □ | – | – |
| | 44 | | | | | □ | – | – |
| | 45 | | 125 | | | □ | – | – |
| | 46 | | | | | □ | – | – |
| | 48 | | | | | □ | – | – |
| | 50 | | | | | □ | – | – |

外径42mm以上はセンタ穴付き（6枚刃）です。
Mill Dia.≧φ42:with center hole (6 Flutes).

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

OSGのPSシリーズ
商品シリーズ Parts & Supply series
吹き飛ばし・吸込・搬送1台で三役!
※詳細は▶P.1178を参照下さい。 See p.1178 for details
製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 4枚刃ハイススクエアエンドミルショート形 左刃左ねじれ
**4-flute End Mill Short Length (LH Cut and LH Helix)**

# MR-EMS



HSS-Co | 0〜+0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **6** | 60 | 15 | 8 | – | □ | – | – |
| | **7** | | 20 | 10 | | □ | – | – |
| | **8** | | | | | □ | – | – |
| | **9** | 70 | 25 | | | □ | – | – |
| | **10** | | | | | □ | – | – |
| | **11** | 80 | 30 | 12 | | □ | – | – |
| | **12** | | | | | □ | – | – |
| | **13** | 85 | 35 | | | □ | – | – |
| | **16** | 95 | 40 | 16 | | □ | – | – |
| | **20** | 110 | 45 | 20 | | □ | – | – |

## 多刃CPMスクエアエンドミル エキストラロングシャンクショート形
**Multi-flute CPM End Mill Short Length with Extra Long Shank**

# CPM-XLS-EMS



CPM | 0〜+0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **32** | 350 | 80 | 32 | 4 | – | □ | – | – |
| | **32** | 400 | 100 | | | | □ | – | – |
| | **32** | 500 | 150 | | | | □ | – | – |
| | **34** | 350 | 80 | | | | □ | – | – |
| | **35** | | | | | | □ | – | – |
| | **35** | 400 | 100 | | | | □ | – | – |
| | **35** | 500 | 150 | | | | □ | – | – |
| | **36** | 350 | 80 | | | | □ | – | – |
| | **38** | | 100 | | | | □ | – | – |
| | **40** | | | | | | □ | – | – |
| | **40** | 400 | 110 | | | | □ | – | – |
| | **40** | 500 | 150 | | | | □ | – | – |
| | **42** | 350 | 100 | 42 | 6 | | □ | – | – |
| | **44** | | | | | | □ | – | – |
| | **45** | | 125 | | | | □ | – | – |
| | **45** | 400 | | | | | □ | – | – |
| | **45** | 500 | 150 | | | | □ | – | – |
| | **46** | 350 | 125 | | | | □ | – | – |
| | **48** | | | | | | □ | – | – |
| | **50** | | | | | | □ | – | – |
| | **50** | 400 | | | | | □ | – | – |
| | **50** | 500 | 150 | | | | □ | – | – |
| | **60** | 400 | 125 | | | | □ | – | – |
| | **60** | 500 | 150 | | | | □ | – | – |

外径42mm以上はセンタ穴付き（6枚刃）です。
Mill Dia.≧φ42:with center hole (6 Flutes).

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

最新の加工動画を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート4枚刃XPMスクエアエンドミル ショート形

**TiN Coated 4-flute XPM End Mill Short Length**

## TIN-XPM-EMS

切削条件 Cutting Conditions | P912



XPM | TiN | 0〜+0.03 | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 55 | 10 | 6 | | □ | — | — |
| | **3.5** | 65 | 12 | 8 | | □ | — | — |
| | **4** | | | | | □ | — | — |
| | **4.5** | | 15 | | | □ | — | — |
| | **5.5** | | | | | □ | — | — |
| | **6.5** | 75 | 20 | 10 | | □ | — | — |
| | **7** | | | | | □ | — | — |
| | **8** | | | | | □ | — | — |
| | **11** | 90 | 30 | 12 | | □ | — | — |
| | **12** | | | | — | □ | — | — |
| | **14** | 95 | 35 | 16 | | □ | — | — |
| | **16** | 100 | 40 | | | □ | — | — |
| | **17** | | | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **19** | 115 | 45 | 20 | | □ | — | — |
| | **20** | | | | | □ | — | — |
| | **24** | 125 | 50 | 25 | | □ | — | — |
| | **25** | | | | | □ | — | — |
| | **30** | 130 | 55 | | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TIN-XPM-EMS** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート4枚刃XPMスクエアエンドミル ロング形
**TiN Coated 4-flute XPM End Mill Long Length**

## TIN-XPM-EML



XPM | TiN | 0〜+0.03 | | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **4** | 70 | 20 | 8 | | □ | — | — |
| | **8** | 95 | 35 | 10 | | □ | — | — |
| | **12** | 120 | 55 | 12 | | □ | — | — |
| | **14** | 125 | | 16 | | □ | — | — |
| | **16** | 135 | 65 | | — | □ | — | — |
| | **20** | 155 | 75 | 20 | | □ | — | — |
| | **25** | 180 | 90 | 25 | | □ | — | — |
| | **27** | | | | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / 合金鋼 Alloy Steel / プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **TIN-XPM-EML** | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

## NC旋盤用WXLコート4枚刃ハイススクエアエンドミルスタブ形
**WXL Coated 4-flute End Mill Stub Length for Lathes**

# WH-NC-EMSS



HSS-Co　WXL　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **3** | 60 | 6 | 6 | — | □ | — | — |
| | **4** | | | | | □ | — | — |
| | **5** | | | | | □ | — | — |
| | **6** | | | | | □ | — | — |
| | **7** | | | | | □ | — | — |
| | **8** | | | | | □ | — | — |
| | **10** | | | 10 | | □ | — | — |
| | **12** | | | | | □ | — | — |
| | **14** | | | | | □ | — | — |
| | **16** | | | | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **20** | | | | | □ | — | — |

## 4枚刃XPMスクエアエンドミルミディアム形
**4-flute XPM End Mill Medium Length**

# XPM-EMN



XPM　0〜+0.03　約30°　ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **16** | 150 | 55 | 16 | — | □ | — | — |
| | **20** | | 60 | 20 | | □ | — | — |
| | **25** | | 70 | 25 | | □ | — | — |

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミル
# センタカットミディアム形
**4-flute End Mill Center Cut Medium Length**

## CC-EMN



HSS-Co　0〜+0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 | 55 | 12 | 6 | | □ | — | — |
| | 3.5 | 65 | 15 | 8 | | □ | — | — |
| | 4 | | | | | □ | — | — |
| | 4.5 | | 20 | | | □ | — | — |
| | 5 | | | | | □ | — | — |
| | 5.5 | | | | | □ | — | — |
| | 6 | | | | | □ | — | — |
| | 6.5 | | 25 | 10 | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 8 | | | | | □ | — | — |
| | 8.5 | 80 | 35 | | — | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 10 | | | | | □ | — | — |
| | 10.5 | 90 | 40 | 12 | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 12 | | | | | □ | — | — |
| | 12.5 | 95 | 45 | | | □ | — | — |
| | 13 | | | | | □ | — | — |
| | 13.5 | 100 | | 16 | | □ | — | — |
| | 14 | | | | | □ | — | — |
| | 14.5 | 105 | 50 | | | □ | — | — |
| | 15 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 15.5 | 105 | 50 | 16 | | □ | — | — |
| | 16 | | | | | □ | — | — |
| | 16.5 | | | | | □ | — | — |
| | 17 | | | | | □ | — | — |
| | 17.5 | | | | | □ | — | — |
| | 18 | | | | | □ | — | — |
| | 18.5 | 125 | 60 | 20 | | □ | — | — |
| | 19 | | | | | □ | — | — |
| | 19.5 | | | | | □ | — | — |
| | 20 | | | | | □ | — | — |
| | 21 | | | | | □ | — | — |
| | 22 | | | | | □ | — | — |
| | 23 | 140 | 70 | 25 | — | □ | — | — |
| | 24 | | | | | □ | — | — |
| | 25 | | | | | □ | — | — |
| | 26 | | | | | □ | — | — |
| | 28 | | | | | □ | — | — |
| | 30 | | | | | □ | — | — |
| | 32 | 165 | 80 | 32 | | □ | — | — |
| | 34 | | | | | □ | — | — |
| | 35 | | | | | □ | — | — |
| | 36 | 170 | 85 | | | □ | — | — |
| | 38 | | | | | □ | — | — |
| | 40 | 175 | 90 | | | □ | — | — |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
エアーブロー・吸引・搬送・冷却・水切りで1台5役
※詳細は▶P.1179を参照下さい。
See p.1179 for details

デジタルカタログで最新情報を公開中 ▶▶▶P.6


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 多刃ハイススクエアエンドミルセンタ付き ロング形
**Multi-flute End Mill Long Length with Center Hole**

## CE-EML



HSS-Co

0～+0.03

30°

（単位:mm）(Unit:mm)

| | ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **25** | 160 | 90 | 25 | 4 | | □ | – | – |
| | | **27** | | | | | | □ | – | – |
| | | **28** | | | | | | □ | – | – |
| | | **35** | 185 | 100 | 32 | | | □ | – | – |
| | | **40** | 195 | 110 | | | | □ | – | – |
| ◆ | | **41×32** | 205 | 115 | 32 | 6 | – | □ | – | – |
| ◆ | | **41** | | | 42 | | | □ | – | – |
| ◆ | | **42×32** | | | 32 | | | □ | – | – |
| ◆ | | **42** | | | 42 | | | □ | – | – |
| ◆ | | **43×32** | | | 32 | | | □ | – | – |
| ◆ | | **43** | | | 42 | | | □ | – | – |
| ◆ | | **44×32** | | | 32 | | | □ | – | – |
| ◆ | | **44** | | | 42 | | | □ | – | – |
| ◆ | | **45×32** | | | 32 | | | □ | – | – |
| ◆ | | **45** | | | 42 | | | □ | – | – |
| ◆ | | **46×32** | 215 | 125 | 32 | | | □ | – | – |
| ◆ | | **46** | | | 42 | | | □ | – | – |
| ◆ | | **47×32** | | | 32 | | | □ | – | – |
| ◆ | | **47** | | | 42 | | | □ | – | – |
| ◆ | | **48×32** | | | 32 | | | □ | – | – |
| ◆ | | **48** | | | 42 | | | □ | – | – |
| ◆ | | **49×32** | | | 32 | | | □ | – | – |
| | | **49** | | | 42 | | | □ | – | – |
| ◆ | | **50×32** | | | 32 | | | □ | – | – |
| | | **50** | | | 42 | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
部品のアルミ化や樹脂化が可能になり軽量化を実現
※詳細は▶P.1171 を参照下さい。 See p.1171 for details



**OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6**

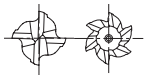
| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CE-EML** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート多刃ハイススクエアエンドミル エキストラロング形
**TiN Coated Multi-flute End Mill Extra Long Length**

## EX-TIN-EXML





HSS-Co | TiN | 0〜+0.03 | *size除く | 30° | 45° *size

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **3** | 70 | 30 | 6 | 4 | – | □ | – | – |
| | **4** | | | 8 | | | □ | – | – |
| | **5** | 80 | 40 | | | | □ | – | – |
| | **6** | | | | | | □ | – | – |
| | **7** | 95 | 50 | 10 | | | □ | – | – |
| | **8** | 105 | 60 | | | | □ | – | – |
| | **9** | | | | | | □ | – | – |
| | **10** | 125 | 80 | | | | □ | – | – |
| | **12** | 150 | 100 | 12 | | | □ | – | – |
| | **14** | | | 16 | | | □ | – | – |
| | **15** | 155 | | | | | □ | – | – |
| | **16** | | | | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **20** | 185 | 120 | 20 | | | □ | – | – |
| | **22** | 165 | 100 | | | | □ | – | – |

※はセンタ穴付です。※:with center hole.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **22** | 185 | 120 | 20 | 4 | – | □ | – | – |
| | **24** | 190 | | 25 | | | □ | – | – |
| | **25** | 220 | 150 | | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **30** | | | | | | □ | – | – |
| | **32** | 235 | | 32 | | | □ | – | – |
| | **34** | | | | | | □ | – | – |
| | **35** | | | | | | □ | – | – |
| * | **35** | 285 | 200 | | | | □ | – | – |
| | **38** | 235 | 150 | | | | □ | – | – |
| | **40** | | | | | | □ | – | – |
| ※* | **40** | 285 | 200 | | | | □ | – | – |
| ※ | **50** | 235 | 150 | 42 | 6 | | □ | – | – |
| ※* | **50** | 285 | 200 | | 4 | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 発泡スチロール加工用多刃スクエアエンドミル ロング形
**Multi-flute End Mill Long Length for Expanded Polystyrene**

## PS-EXML



HSS-Co　0〜+0.03　15°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **20** | 200 | 50 | 20 | 6 | – | □ | – | – |
| | **20** | 250 | 100 | | | | □ | – | – |
| | **20** | 300 | | | | | □ | – | – |
| | **20** | | 200 | | | | □ | – | – |
| | **20** | 350 | 250 | | | | □ | – | – |
| | **25** | 250 | 150 | 25 | | | □ | – | – |
| | **25** | 300 | 200 | | | | □ | – | – |
| | **30** | 250 | 150 | 32 | | | □ | – | – |
| | **30** | 300 | 200 | | | | □ | – | – |
| | **30** | 350 | 250 | | | | □ | – | – |
| | **30** | 400 | 300 | | | | □ | – | – |
| | **30** | 450 | 320 | | | | □ | – | – |
| | **32** | 300 | 200 | | | | □ | – | – |
| | **32** | 350 | 250 | | | | □ | – | – |
| | **35** | 300 | 200 | | | | □ | – | – |
| | **35** | 350 | 250 | | | | □ | – | – |
| | **35** | 400 | 300 | | | | □ | – | – |
| | **35** | 450 | 350 | | | | □ | – | – |
| | **40** | 300 | 200 | 42 | | | □ | – | – |
| | **40** | 350 | 250 | | | | □ | – | – |
| | **40** | 400 | 300 | | | | □ | – | – |
| | **40** | 450 | | | | | □ | – | – |
| | **40** | 500 | 400 | | | | □ | – | – |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1170 を参照下さい。 See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## アルミ合金用1枚刃ハイススクエアエンドミル ショート形
**Single-flute End Mill Short Length for Aluminum Alloys**

# AL-EOS



HSS-Co　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **3** | 60 | 10 | 8 | 1 | — | □ | — | — |
| | **4** | | 12 | | | | □ | — | — |
| | **5** | 65 | 15 | | | | □ | — | — |
| | **6** | | | | | | □ | — | — |
| | **8** | 75 | 20 | | | | □ | — | — |
| | **10** | 80 | 25 | 10 | | | □ | — | — |
| | **12** | 85 | 30 | 12 | | | □ | — | — |

## アルミ合金用1枚刃ハイススクエアエンドミル ロング形
**Single-flute End Mill Long Length for Aluminum Alloys**

# AL-EOL



HSS-Co　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **4** | 70 | 20 | 8 | 1 | — | □ | — | — |
| | **5** | 75 | 25 | | | | □ | — | — |
| | **6** | | | | | | □ | — | — |
| | **8** | 85 | 35 | | | | □ | — | — |
| | **10** | 95 | 40 | 10 | | | □ | — | — |
| | **12** | 105 | 50 | 12 | | | □ | — | — |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
標準サイズ在庫完備!タングが無し!タングレスインサートあります
※詳細は▶P.1167を参照下さい。 See p.1167 for details





形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# CPMスクエアエンドミルハイヘリックス ショート形
**High Helix CPM End Mill Short Length**

## CPM-EHS

切削条件 Cutting Conditions | P925



CPM

DC＝6　0～-0.035
6<DC≦10　0～-0.04
10<DC≦18　0～-0.045
18<DC≦30　0～-0.05

50°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **7** | 75 | 20 | 10 | 0.1 | 3 | — □ | — | — |
| | **9** | 80 | 25 | | 0.15 | | | — | — |
| | **11** | 95 | 30 | 12 | | | | — | — |
| | **13** | 100 | 35 | | | | | — | — |
| | **14** | 105 | | 16 | 0.2 | | | — | — |
| | **16** | 110 | 40 | | | | | — | — |
| | **17** | 120 | | 20 | | | | — | — |
| | **18** | | | | | | | — | — |
| | **19** | 125 | 45 | | | | | — | — |
| | **20** | | | | | | | — | — |
| ◆ | **21** | 135 | | 25 | | | | — | — |
| ◆ | **22** | | | | | | | — | — |
| ◆ | **23** | 140 | 50 | | | | | — | — |
| ◆ | **24** | | | | | 4 | | — | — |
| ◆ | **25** | | | | | | | — | — |
| ◆ | **26** | | | | | | | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | **27** | 150 | 55 | 32 | 0.2 | 4 | — □ | — | — |
| ◆ | **28** | | | | | | | — | — |
| ◆ | **29** | | | | | | | — | — |
| ◆ | **31** | 155 | 60 | | 0.3 | | | — | — |
| ◆ | **32** | | | | | | | — | — |
| ◆ | **33** | | | | | | | — | — |
| ◆ | **34** | | | | | | | — | — |
| ◆ | **35** | | | | | | | — | — |
| ◆ | **36** | 160 | 65 | | | | | — | — |
| ◆ | **37** | | | | | | | — | — |
| ◆ | **38** | | | | | | | — | — |
| ◆ | **39** | | | | | | | — | — |
| ◆ | **40** | | | | | | | — | — |
| ◆ | **42** | 170 | 70 | 42 | | | | — | — |
| ◆ | **45** | | | | | | | — | — |
| ◆ | **46** | | | | | | | — | — |
| ◆ | **48** | | | | | | | — | — |
| ◆ | **50** | 175 | 75 | | | | | — | — |
| ◆ | **55** | 180 | 80 | | | | | — | — |
| ◆ | **60** | | | | | | | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1171 を参照下さい。 See p.1171 for details
部品のアルミ化や樹脂化が可能になり軽量化を実現



OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CPM-EHS** | ○ | | | ○ | ○ | ○ | ○ | | | ○ |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 多刃ハイススクエアエンドミル コンビネーションシャンクロング形
**Multi-flute End Mill Long Length with Combination Shank**

# CN-EML



HSS-Co　0〜+0.03　30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **45** | 201 | 106 | 50.8 | — | □ | — | — |
| | **45** | 220 | 125 | | | □ | — | — |
| | **45** | 245 | 150 | | | □ | — | — |
| | **50** | 201 | 106 | | | □ | — | — |
| | **50** | 220 | 125 | | | □ | — | — |
| | **50** | 245 | 150 | | | □ | — | — |
| | **50** | 307 | 212 | | | □ | — | — |
| | **50** | 345 | 250 | | | □ | — | — |
| | **60** | 201 | 106 | | | □ | — | — |
| | **60** | 220 | 125 | | | □ | — | — |
| | **60** | 245 | 150 | | | □ | — | — |
| | **60** | 307 | 212 | | | □ | — | — |
| | **60** | 345 | 250 | | | □ | — | — |
| | **70** | 201 | 106 | | | □ | — | — |
| | **70** | 220 | 125 | | | □ | — | — |
| | **70** | 245 | 150 | | | □ | — | — |

## 多刃ハイススクエアエンドミル コンビネーションシャンクハイヘリックスロング形
**Multi-flute High Helix End Mill Long Length with Combination Shank**

# CN-EHL



HSS-Co　0〜+0.085　45°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **45** | 201 | 106 | 50.8 | 0.8 | 4 | — | □ | — | — |
| | **45** | 220 | 125 | | | | | □ | — | — |
| | **50** | 201 | 106 | | | | | □ | — | — |
| | **50** | 220 | 125 | | | | | □ | — | — |
| | **50** | 245 | 150 | | | | | □ | — | — |
| | **50** | 295 | 200 | | | 6 | | □ | — | — |
| | **50** | 307 | 212 | | | 4 | | □ | — | — |
| | **50** | 345 | 250 | | | | | □ | — | — |
| | **50** | 395 | 300 | | | 6 | | □ | — | — |
| | **50** | 500 | 400 | | | 4 | | □ | — | — |
| | **60** | 201 | 106 | | | | | □ | — | — |
| | **60** | 220 | 125 | | | | | □ | — | — |
| | **60** | 245 | 150 | | | | | □ | — | — |
| | **60** | 295 | 200 | | | 6 | | □ | — | — |
| | **60** | 307 | 212 | | | 4 | | □ | — | — |
| | **60** | 345 | 250 | | | | | □ | — | — |
| | **60** | 395 | 300 | | | 6 | | □ | — | — |
| | **60** | 500 | 400 | | 1.5 | 4 | | □ | — | — |
| | **70** | 201 | 106 | | 0.8 | | | □ | — | — |
| | **70** | 220 | 125 | | | | | □ | — | — |
| | **70** | 245 | 150 | | | | | □ | — | — |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CN-EML** | ○ | | | ○ | ○ | ○ | ○ | | | |
| **CN-EHL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# CPMスクエアエンドミルハイヘリックスロング形
**High Helix CPM End Mill Long Length**

## CPM-EHL



CPM

DC＝ 6　0～-0.035
6＜DC≦10　0～-0.04
10＜DC≦18　0～-0.045
18＜DC≦30　0～-0.05

50°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **10** | 110 | 45 | 12 | 0.15 | 3 | — | □ | — | — |
| | **13** | 120 | 55 | | | | | □ | — | — |
| | **15** | 135 | 65 | 16 | 0.2 | | | □ | — | — |
| | **19** | 155 | 75 | 20 | | | | □ | — | — |
| | **20** | 165 | 85 | | | | | □ | — | — |
| ◆ | **22** | 175 | | 25 | | | | □ | — | — |
| | **25** | 195 | 105 | | | 4 | | □ | — | — |
| ◆ | **28** | 200 | | 32 | | | | □ | — | — |
| | **30** | | | | | | | □ | — | — |
| ◆ | **35** | 205 | 110 | | 0.3 | | | □ | — | — |
| ◆ | **40** | | | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CPM-EHL** | ○ | | | ○ | ○ | ○ | ○ | | | ○ |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイススクエアエンドミルハイヘリックス モールステーパシャンクロング形
**4-flute High Helix End Mill Long Length with Morse Taper Shank**

## MT-EHL



HSS-Co　45°

0～+0.085

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク CZC | コーナ面取幅 CHW | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **20** | 140 | 60 | MT2 | 0.7 | | □ | – | – |
| | **25** | 175 | 75 | MT3 | | | □ | – | – |
| | **30** | 215 | 90 | MT4 | 0.8 | | □ | – | – |
| | **35** | 230 | 105 | | | | □ | – | – |
| | **40** | 245 | 120 | | | | □ | – | – |
| | **45** | 290 | 135 | MT5 | | – | □ | – | – |
| | **45** | 305 | 150 | | | | □ | – | – |
| | **45** | 355 | 200 | | | | □ | – | – |
| | **45** | 405 | 250 | | | | □ | – | – |
| | **60** | 415 | 250 | | | | □ | – | – |


OSGのPSシリーズ

**商品シリーズ** Parts & Supply series

圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、
水・油・ヘドロをスピード吸入・スピード吐出



※詳細は▶P.1176を参照下さい。
See p.1176 for details



製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **MT-EHL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 多刃ハイススクエアエンドミル エキストラロング形(NT40)
**Multi-flute End Mill Extra Long Length (NT40)**

# EXML-NT40



HSS-Co　45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク CZC | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **50** | 335 | 200 | NT40 | 6 | – | □ | – | – |
| | **50** | 385 | 250 | | | | □ | – | – |
| | **55** | 335 | 200 | | | | □ | – | – |
| | **55** | 385 | 250 | | | | □ | – | – |
| | **60** | 340 | 200 | | | | □ | – | – |
| | **60** | 390 | 250 | | | | □ | – | – |
| | **65** | 340 | 200 | | | | □ | – | – |
| | **65** | 390 | 250 | | | | □ | – | – |
| | **70** | 345 | 200 | | | | □ | – | – |
| | **70** | 395 | 250 | | | | □ | – | – |
| | **75** | 345 | 200 | | | | □ | – | – |
| | **75** | 395 | 250 | | | | □ | – | – |
| | **80** | 345 | 200 | | | | □ | – | – |
| | **80** | 395 | 250 | | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

## 多刃ハイススクエアエンドミル エキストラロング形(NT50)
**Multi-flute End Mill Extra Long Length (NT50)**

# EXML-NT50



HSS-Co　45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク CZC | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **50** | 375 | 200 | NT50 | 6 | – | □ | – | – |
| | **50** | 425 | 250 | | | | □ | – | – |
| | **50** | 475 | 300 | | | | □ | – | – |
| | **55** | 375 | 200 | | | | □ | – | – |
| | **55** | 425 | 250 | | | | □ | – | – |
| | **55** | 475 | 300 | | | | □ | – | – |
| | **60** | 380 | 200 | | | | □ | – | – |
| | **60** | 430 | 250 | | | | □ | – | – |
| | **60** | 480 | 300 | | | | □ | – | – |
| | **65** | 380 | 200 | | | | □ | – | – |
| | **65** | 430 | 250 | | | | □ | – | – |
| | **65** | 480 | 300 | | | | □ | – | – |
| | **70** | 385 | 200 | | | | □ | – | – |
| | **70** | 435 | 250 | | | | □ | – | – |
| | **70** | 485 | 300 | | | | □ | – | – |
| | **75** | 385 | 200 | | | | □ | – | – |
| | **75** | 435 | 250 | | | | □ | – | – |
| | **75** | 485 | 300 | | | | □ | – | – |
| | **80** | 385 | 200 | | | | □ | – | – |
| | **80** | 435 | 250 | | | | □ | – | – |
| | **80** | 485 | 300 | | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
エアーブロー・吸引・搬送・冷却・水切りで1台5役
※詳細は▶P.1179を参照下さい。 See p.1179 for details



**最新の加工動画を公開中** ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EXML-NT40** | ○ | | | ○ | ○ | ○ | ○ | | | |
| **EXML-NT50** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃CPMロングネックスクエアエンドミル ショート形
**2-flute Long Neck CPM End Mill Short Length**

# LN-CPM-EDS



CPM　30°

0〜-0.015

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **3** | 62 | 5 | 6 | 21 | 2.95 | | □ | — | — |
| | **3.5** | 67 | 6 | | 26 | 3.45 | | □ | — | — |
| | **4** | 75 | 7 | 8 | 34 | 3.95 | | □ | — | — |
| | **4.5** | | | | | 4.45 | | □ | — | — |
| | **5** | 83 | 8 | | 42 | 4.95 | — | □ | — | — |
| | **6** | | | | | 5.95 | | □ | — | — |
| | **7** | 98 | 10 | | 53 | 6.95 | | □ | — | — |
| | **8** | 108 | 11 | 10 | 63 | 7.95 | | □ | — | — |
| | **9** | | | | | 8.95 | | □ | — | — |
| | **10** | 120 | 13 | | 75 | 9.95 | | □ | — | — |

## 2枚刃ハイスロングネックスクエアエンドミル オーバサイズ
**2-flute Long Neck End Mill Medium Length (Over Size)**

# LN-EDN-OH



HSS-Co　30°

0〜+0.01

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | 50 | 3.5 | 6 | 8 | 0.95 | | □ | — | — |
| | **1.5** | 55 | 5 | | 11 | 1.45 | | □ | — | — |
| | **2** | 60 | 7 | | 17 | 1.95 | | □ | — | — |
| | **2.5** | 65 | 8 | | 21 | 2.45 | | □ | — | — |
| | **3** | | 10 | | | 2.95 | | □ | — | — |
| | **3.5** | 70 | 12 | 8 | 26 | 3.45 | | □ | — | — |
| | **4** | 75 | | | 34 | 3.95 | | □ | — | — |
| | **4.5** | | 15 | | | 4.45 | | □ | — | — |
| | **5** | 85 | | | 42 | 4.95 | | □ | — | — |
| | **5.5** | | | | | 5.45 | | □ | — | — |
| | **6** | | | | | 5.95 | | □ | — | — |
| | **6.5** | 100 | 20 | 10 | 53 | 6.45 | | □ | — | — |
| | **7** | | | | | 6.95 | | □ | — | — |
| | **7.5** | | | | | 7.45 | | □ | — | — |
| | **8** | 110 | 25 | | 63 | 7.95 | | □ | — | — |
| | **8.5** | | | | | 8.45 | — | □ | — | — |
| | **9** | | | | | 8.95 | | □ | — | — |
| | **9.5** | | | | | 9.45 | | □ | — | — |
| | **10** | 120 | | | 75 | 9.95 | | □ | — | — |
| | **10.5** | 125 | 30 | 12 | | 10.45 | | □ | — | — |
| | **11** | | | | | 10.95 | | □ | — | — |
| | **11.5** | | | | | 11.45 | | □ | — | — |
| | **12** | 140 | | | 90 | 11.95 | | □ | — | — |
| | **13** | | 35 | | — | — | | □ | — | — |
| | **14** | 145 | | 16 | 90 | 13.8 | | □ | — | — |
| | **15** | | 40 | | | 14.8 | | □ | — | — |
| | **16** | 160 | | | 106 | 15.8 | | □ | — | — |
| | **17** | | | | — | — | | □ | — | — |
| | **18** | | | | | — | | □ | — | — |
| | **19** | | 45 | 20 | 106 | 18.8 | | □ | — | — |
| | **20** | 180 | | | 125 | 19.8 | | □ | — | — |

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃CPMペンシルネックスクエアエンドミル ショート形
**2-flute Pencil Neck CPM End Mill Short Length**

# PC-CPM-EDS

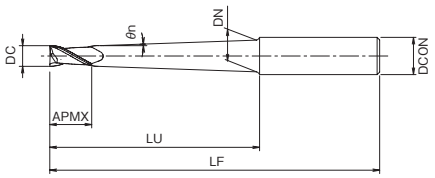


深い部分の加工を行なうペンシルネック形の2枚刃エンドミルです。
Pencil neck 2 flutes end mill for deep milling.

CPM　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首元径 DN | 首部テーパ半角 θn | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **14** | 300 | 26 | 25 | 180 | 24.75 | 1°57′ | – | □ | – | – |
| | **30** | 350 | 55 | 42 | 200 | 41.6 | 2°16′ | | □ | – | – |




デジタルカタログで最新情報を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# Vコート2枚刃XPMボールエンドミル
**V Coated 2-flute XPM Ball End Mill**

## V-XPM-EBD

切削条件 Cutting Conditions | P907



Vコーティングを施した粉末ハイスXPMボールエンドミルです。
Vcoated ball-end mill made with powder metallurgy XPM.

CAD

XPM | V | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8453002 | R0.5 × 1 | 60 | 2.5 | 6 | B | ● | 17 | 15,400 |
| | R0.55× 1.1 | | 3 | | — | □ | — | — |
| | R0.6 × 1.2 | | | | | □ | — | — |
| | R0.65× 1.3 | | 3.5 | | | □ | — | — |
| | R0.7 × 1.4 | | | | | □ | — | — |
| 8453003 | R0.75× 1.5 | | 4 | | B | ● | 17 | 14,500 |
| | R0.8 × 1.6 | | | | — | □ | — | — |
| | R0.85× 1.7 | | 4.5 | | | □ | — | — |
| | R0.9 × 1.8 | | | | | □ | — | — |
| | R0.95× 1.9 | | 5 | | | □ | — | — |
| 8453004 | R1 × 2 | | | | B | ● | 17 | 13,100 |
| | R1.05× 2.1 | 70 | 6 | | — | □ | — | — |
| | R1.1 × 2.2 | | | | | □ | — | — |
| | R1.15× 2.3 | | | | | □ | — | — |
| | R1.2 × 2.4 | | | | | □ | — | — |
| 8453005 | R1.25× 2.5 | | | | B | ● | 17 | 13,100 |
| | R1.3 × 2.6 | | 8 | | — | □ | — | — |
| | R1.35× 2.7 | | | | | □ | — | — |
| | R1.4 × 2.8 | | | | | □ | — | — |
| | R1.45× 2.9 | | | | | □ | — | — |
| 8453006 | R1.5 × 3 | | | | B | ● | 17 | 13,100 |
| | R1.55× 3.1 | | | | — | □ | — | — |
| | R1.6 × 3.2 | | | | | □ | — | — |
| | R1.65× 3.3 | | | | | □ | — | — |
| | R1.7 × 3.4 | | | | | □ | — | — |
| 8453007 | R1.75× 3.5 | | | | B | ● | 18 | 13,100 |
| | R1.8 × 3.6 | | | | — | □ | — | — |
| | R1.85× 3.7 | | | | | □ | — | — |
| | R1.9 × 3.8 | 80 | | | | □ | — | — |
| | R1.95× 3.9 | | | | | □ | — | — |
| 8453008 | R2 × 4 | | 10 | | B | ● | 22 | 13,100 |
| | R2.1 × 4.2 | | | | — | □ | — | — |
| | R2.2 × 4.4 | | | | | □ | — | — |
| | R2.25× 4.5 | | | | | □ | — | — |
| | R2.3 × 4.6 | | | | | □ | — | — |
| | R2.4 × 4.8 | 90 | | | | □ | — | — |
| | R2.45× 4.9 | | | | | □ | — | — |
| 8453010 | R2.5 × 5 | | | | B | ● | 24 | 13,100 |
| | R2.6 × 5.2 | | 12 | | — | □ | — | — |
| | R2.7 × 5.4 | | | | | □ | — | — |
| | R2.75× 5.5 | | | | | □ | — | — |
| | R2.8 × 5.6 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R2.9 × 5.8 | 90 | 12 | 6 | — | □ | — | — |
| 8453012 | R3 × 6 | | | | B | ● | 24 | 13,100 |
| | R3.1 × 6.2 | 100 | 14 | | — | □ | — | — |
| | R3.2 × 6.4 | | | | | □ | — | — |
| | R3.25 × 6.5 | | | | | □ | — | — |
| | R3.3 × 6.6 | | | | | □ | — | — |
| | R3.4 × 6.8 | | | | | □ | — | — |
| 8453014 | R3.5 × 7 | | | | B | ● | 27 | 15,400 |
| | R3.6 × 7.2 | | | | — | □ | — | — |
| | R3.7 × 7.4 | | | | | □ | — | — |
| | R3.75 × 7.5 | | | | | □ | — | — |
| | R3.8 × 7.6 | | | | | □ | — | — |
| | R3.9 × 7.8 | | | | | □ | — | — |
| 8453016 | R4 × 8 | 110 | | 8 | B | ● | 47 | 15,400 |
| | R4.25 × 8.5 | | 18 | | — | □ | — | — |
| 8453018 | R4.5 × 9 | | | | B | ● | 50 | 18,700 |
| | R4.75 × 9.5 | | | | — | □ | — | — |
| 8453020 | R5 × 10 | 125 | | 10 | B | ● | 80 | 18,700 |
| | R5.25 × 10.5 | | 22 | | — | □ | — | — |
| | R5.5 × 11 | | | | | □ | — | — |
| | R5.75 × 11.5 | | | | | □ | — | — |
| 8453022 | R6 × 12 | 140 | | 12 | B | ● | 129 | 22,400 |
| | R6.25 × 12.5 | | 26 | | — | □ | — | — |
| | R6.5 × 13 | | | | | □ | — | — |
| | R6.75 × 13.5 | | | | | □ | — | — |
| 8453024 | R7 × 14 | | | | B | ● | 139 | 27,700 |
| | R7.25 × 14.5 | | | | — | □ | — | — |
| | R7.5 × 15 | | | | | □ | — | — |
| | R7.75 × 15.5 | | 30 | | | □ | — | — |
| 8453026 | R8 × 16 | 160 | | 16 | B | ● | 249 | 33,900 |
| | R8.25 × 16.5 | | 34 | | — | □ | — | — |
| | R8.5 × 17 | | | | | □ | — | — |
| | R8.75 × 17.5 | | | | | □ | — | — |
| 8453028 | R9 × 18 | | | | B | ● | 257 | 39,600 |
| | R9.25 × 18.5 | | 38 | | — | □ | — | — |
| | R9.5 × 19 | | | | | □ | — | — |
| | R9.75 × 19.5 | | | | | □ | — | — |
| 8453030 | R10 × 20 | 180 | | 20 | B | ● | 435 | 47,600 |
| | R10.5 × 21 | | 45 | | — | □ | — | — |
| | R11 × 22 | | | | | □ | — | — |
| | R11.5 × 23 | | 50 | | | □ | — | — |
| | R12 × 24 | 200 | | | | □ | — | — |

次ページへ
ボール半径 RE 12.5～15 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| V-XPM-EBD | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## Vコート2枚刃XPMボールエンドミル
**V Coated 2-flute XPM Ball End Mill**

## V-XPM-EBD

切削条件 Cutting Conditions | P907



Vコーティングを施した粉末ハイスXPMボールエンドミルです。
Vcoated ball-end mill made with powder metallurgy XPM.

CAD

XPM　V　約30°
ABOUT 30°

前ページより FROM ボール半径 RE 0.5～12

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8453035 | R12.5 × 25 | 200 | 50 | 25 | B | ● | 740 | 60,400 |
| ◆ | R13 × 26 | | | | — | □ | — | — |
| ◆ | R13.5 × 27 | | 55 | | | □ | — | — |
| ◆ | R14 × 28 | | | | | □ | — | — |
| ◆ | R14.5 × 29 | | | | | □ | — | — |
| 8453040 | R15 × 30 | | | | B | ● | 770 | 86,000 |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

## Vコート2枚刃XPMボールエンドミル スリムシャンク
**V Coated 2-flute XPM Ball End Mill with Slim Shank**

## V-SS-XPM-EBD



シャンク径を刃径マイナス1mmに設定したスリムシャンクタイプボールエンドミルです。突出し長さを自由に調整できます。
Slim shank type. Shank diameter is 1mm smaller than the mill diameter. Extension length can be adjusted.

CAD

XPM　V　約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8407060 | R 3 × 6 | 120 | 12 | 5 | D | ● | 25 | 16,000 |
| 8407080 | R 4 × 8 | 130 | 14 | 7 | | ● | 46 | 18,500 |
| 8407100 | R 5 × 10 | 150 | 18 | 9 | | ● | 82 | 22,500 |
| 8407120 | R 6 × 12 | 160 | 22 | 11 | | ● | 128 | 26,700 |
| 8407160 | R 8 × 16 | 180 | 30 | 15 | | ● | 260 | 41,400 |
| 8407200 | R10 × 20 | 200 | 38 | 19 | | ● | 467 | 57,600 |
| 8407250 | R12.5 × 25 | 220 | 50 | 24 | | ● | 758 | 72,500 |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
吹き飛ばし・吸込・搬送1台で三役!
※詳細は▶P.1178 を参照下さい。 See p.1178 for details

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| V-XPM-EBD | ◎ | | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |
| V-SS-XPM-EBD | ◎ | | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃XPMボールエンドミル ロングシャンク
**TiN Coated 2-flute XPM Ball End Mill with Long Shank**

## T-LS-XPM-EBD



XPM | TiN | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8403452 | R0.5 X 1 | 60 | 1 | 6 | D | △ | 17 | 19,000 |
| 8403454 | R1 X 2 | 70 | 2 | | | △ | 20 | 16,000 |
| 8403456 | R1.5 X 3 | 80 | 3 | | | △ | 23 | 16,000 |
| 8403458 | R2 X 4 | 90 | 4 | | | △ | 26 | 16,000 |
| 8403460 | R2.5 X 5 | 100 | 5 | | | △ | 28 | 16,000 |
| 8403462 | R3 X 6 | | 6 | | | △ | 28 | 16,000 |
| 8403464 | R3.5 X 7 | 110 | 7 | | | △ | 30 | 18,400 |
| | R4 X 8 | 125 | 8 | 8 | – | □ | – | – |
| 8403468 | R4.5 X 9 | | 9 | | D | △ | 68 | 22,300 |
| | R5 X 10 | 140 | 10 | 10 | – | □ | – | – |
| 8403471 | R5.5 X 11 | | 11 | | D | △ | 94 | 26,700 |
| 8403472 | R6 X 12 | 160 | 12 | 12 | | △ | 155 | 26,700 |

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| T-LS-XPM-EBD | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃XPMボールエンドミル
**2-flute XPM Ball End Mill**

## XPM-EBD



粉末ハイスXPMを母材に採用したボールエンドミルです。
Ball-end mill with powder metallurgy XPM base material.

CAD

XPM

約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 89202 | R0.5 × 1 | 60 | 2.5 | 6 | A | ● | 16 | 12,400 |
| | R0.6 × 1.2 | | 3 | | — | □ | — | — |
| | R0.7 × 1.4 | | 3.5 | | — | □ | — | — |
| 89203 | R0.75 × 1.5 | | 4 | | A | ● | 16 | 11,500 |
| | R0.8 × 1.6 | | | | — | □ | — | — |
| | R0.9 × 1.8 | | 4.5 | | — | □ | — | — |
| 89204 | R1 × 2 | | 5 | | A | ● | 16 | 10,400 |
| 89205 | R1.25 × 2.5 | 70 | 6 | | | ● | 17 | 10,500 |
| 89206 | R1.5 × 3 | | 8 | | | ● | 17 | 10,400 |
| 89207 | R1.75 × 3.5 | | | | | ● | 17 | 10,500 |
| 89208 | R2 × 4 | 80 | | | | ● | 22 | 10,400 |
| | R2.25 × 4.5 | | 10 | | — | □ | — | — |
| 89210 | R2.5 × 5 | 90 | | | A | ● | 24 | 10,400 |
| | R2.75 × 5.5 | | 12 | | — | □ | — | — |
| 89212 | R3 × 6 | | | | A | ● | 24 | 10,400 |
| | R3.25 × 6.5 | 100 | 14 | | — | □ | — | — |
| 89214 | R3.5 × 7 | | | | A | ● | 27 | 12,300 |
| | R3.75 × 7.5 | | | | — | □ | — | — |
| 89216 | R4 × 8 | 110 | 18 | 8 | A | ● | 47 | 12,300 |
| | R4.25 × 8.5 | | | | — | □ | — | — |
| 89218 | R4.5 × 9 | | | | A | ● | 50 | 14,800 |
| | R4.75 × 9.5 | | | | — | □ | — | — |
| 89220 | R5 × 10 | 125 | 22 | 10 | A | ● | 82 | 14,800 |
| | R5.25 × 10.5 | | | | — | □ | — | — |
| | R5.5 × 11 | | | | | □ | — | — |
| | R5.75 × 11.5 | | | | | □ | — | — |
| 89222 | R6 × 12 | 140 | 26 | 12 | A | ● | 128 | 17,800 |
| | R6.25 × 12.5 | | | | — | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 6.5 × 13 | 140 | 26 | 12 | — | □ | — | — |
| | R 6.75 × 13.5 | | | | | □ | — | — |
| 89224 | R 7 × 14 | | | | A | ● | 141 | 23,500 |
| | R 7.25 × 14.5 | | 30 | | — | □ | — | — |
| | R 7.5 × 15 | | | | | □ | — | — |
| | R 7.75 × 15.5 | | | | | □ | — | — |
| 89226 | R 8 × 16 | 160 | | 16 | A | ● | 255 | 29,000 |
| | R 8.25 × 16.5 | | 34 | | — | □ | — | — |
| | R 8.5 × 17 | | | | | □ | — | — |
| | R 8.75 × 17.5 | | | | | □ | — | — |
| 89228 | R 9 × 18 | | | | A | ● | 254 | 33,300 |
| | R 9.25 × 18.5 | | 38 | | — | □ | — | — |
| | R 9.5 × 19 | | | | | □ | — | — |
| | R 9.75 × 19.5 | | | | | □ | — | — |
| 89230 | R10 × 20 | 180 | 45 | 20 | A | ● | 432 | 39,600 |
| | R11 × 22 | | | | — | □ | — | — |
| | R12 × 24 | | | | | □ | — | — |
| 89235 | R12.5 × 25 | 200 | 50 | 25 | A | ● | 735 | 49,900 |
| ◆ | R13 × 26 | | | | — | □ | — | — |
| ◆ | R14 × 28 | | 55 | | | □ | — | — |
| 89240 | R15 × 30 | | | | A | ● | 809 | 71,900 |
| ◆ | R16 × 32 | | 60 | 32 | — | □ | — | — |
| ◆ | R17 × 34 | | | | | □ | — | — |
| ◆ | R17.5 × 35 | | | | | □ | — | — |
| ◆ | R18 × 36 | | | | | □ | — | — |
| ◆ | R19 × 38 | 220 | 65 | | | □ | — | — |
| ◆ | R20 × 40 | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| XPM-EBD | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃XPMボールエンドミルロングシャンク
**2-flute XPM Ball End Mill with Long Shank**

# LS-XPM-EBD



粉末ハイスXPMを母材に採用したロングシャンク型ボールエンドミルです。刃長は剛性の高い超ショート刃です。
Ball-end mill with long shank, with powder metallurgy XPM base material.

XPM　約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 70402 | R0.5 X 1 | 60 | 1 | 6 | D | △ | 17 | 14,100 |
| 70404 | R1 X 2 | 70 | 2 | | | △ | 19 | 11,800 |
| 70406 | R1.5 X 3 | 80 | 3 | | | △ | 27 | 11,800 |
| 70408 | R2 X 4 | 90 | 4 | | | △ | 30 | 11,800 |
| 70410 | R2.5 X 5 | 100 | 5 | | | △ | 30 | 11,800 |
| 70412 | R3 X 6 | | 6 | | | △ | 33 | 11,800 |
| 70414 | R3.5 X 7 | 110 | 7 | | | △ | 30 | 13,700 |
| 70416 | R4 X 8 | 125 | 8 | 8 | | △ | 54 | 13,700 |
| 70418 | R4.5 X 9 | | 9 | | | △ | 59 | 16,500 |
| | R5 X 10 | 140 | 10 | 10 | – | □ | – | – |
| 70421 | R5.5 X 11 | | 11 | | D | △ | 96 | 19,600 |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177 を参照下さい。
See p.1177 for details





形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| LS-XPM-EBD | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイスボールエンドミル
**TiN Coated 2-flute Ball End Mill**

## EX-TIN-EBD



HSS-Co | TiN | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 0.5 × 1 | 50 | 2.5 | 6 | – | □ | – | – |
| | R 0.55 × 1.1 | | 3 | | | □ | – | – |
| | R 0.6 × 1.2 | | | | | □ | – | – |
| | R 0.65 × 1.3 | | | | | □ | – | – |
| | R 0.7 × 1.4 | | 3.5 | | | □ | – | – |
| | R 0.75 × 1.5 | | 4 | | | □ | – | – |
| | R 0.8 × 1.6 | | | | | □ | – | – |
| | R 0.85 × 1.7 | | | | | □ | – | – |
| | R 0.9 × 1.8 | | 4.5 | | | □ | – | – |
| | R 0.95 × 1.9 | | | | | □ | – | – |
| 83062 | R 1 × 2 | | 5 | | B | ● | 13 | 9,860 |
| | R 1.05 × 2.1 | 60 | 6 | | – | □ | – | – |
| | R 1.1 × 2.2 | | | | | □ | – | – |
| | R 1.15 × 2.3 | | | | | □ | – | – |
| | R 1.2 × 2.4 | | | | | □ | – | – |
| | R 1.25 × 2.5 | | | | | □ | – | – |
| | R 1.3 × 2.6 | | | | | □ | – | – |
| | R 1.35 × 2.7 | | | | | □ | – | – |
| | R 1.4 × 2.8 | | | | | □ | – | – |
| | R 1.45 × 2.9 | | | | | □ | – | – |
| 83063 | R 1.5 × 3 | | 8 | | B | ● | 15 | 9,860 |
| | R 1.55 × 3.1 | 70 | | | – | □ | – | – |
| | R 1.6 × 3.2 | | | | | □ | – | – |
| | R 1.65 × 3.3 | | | | | □ | – | – |
| | R 1.7 × 3.4 | | | | | □ | – | – |
| | R 1.75 × 3.5 | | | | | □ | – | – |
| | R 1.8 × 3.6 | | | | | □ | – | – |
| | R 1.85 × 3.7 | | | | | □ | – | – |
| | R 1.9 × 3.8 | | | | | □ | – | – |
| | R 1.95 × 3.9 | | | | | □ | – | – |
| 83064 | R 2 × 4 | | | | B | ● | 18 | 9,860 |
| | R 2.1 × 4.2 | 80 | 10 | | – | □ | – | – |
| | R 2.2 × 4.4 | | | | | □ | – | – |
| | R 2.25 × 4.5 | | | | | □ | – | – |
| | R 2.3 × 4.6 | | | | | □ | – | – |
| | R 2.4 × 4.8 | | | | | □ | – | – |
| | R 2.45 × 4.9 | | | | | □ | – | – |
| 83065 | R 2.5 × 5 | | | | B | ● | 22 | 9,860 |
| | R 2.6 × 5.2 | 90 | 12 | | – | □ | – | – |
| | R 2.7 × 5.4 | | | | | □ | – | – |
| | R 2.75 × 5.5 | | | | | □ | – | – |
| | R 2.8 × 5.6 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 2.9 × 5.8 | 90 | 12 | 6 | – | □ | – | – |
| 83066 | R 3 × 6 | | | | B | ● | 25 | 9,860 |
| | R 3.1 × 6.2 | | 14 | | – | □ | – | – |
| | R 3.2 × 6.4 | | | | | □ | – | – |
| | R 3.25 × 6.5 | | | | | □ | – | – |
| | R 3.3 × 6.6 | | | | | □ | – | – |
| | R 3.4 × 6.8 | | | | | □ | – | – |
| 83067 | R 3.5 × 7 | | | | B | ● | 25 | 11,600 |
| | R 3.6 × 7.2 | | | | – | □ | – | – |
| | R 3.7 × 7.4 | | | | | □ | – | – |
| | R 3.75 × 7.5 | | | | | □ | – | – |
| | R 3.8 × 7.6 | | | | | □ | – | – |
| | R 3.9 × 7.8 | | | | | □ | – | – |
| 83068 | R 4 × 8 | 100 | 18 | 8 | B | ● | 43 | 11,600 |
| | R 4.25 × 8.5 | | | | – | □ | – | – |
| 83069 | R 4.5 × 9 | | | | B | ● | 46 | 13,900 |
| | R 4.75 × 9.5 | | | | – | □ | – | – |
| 83070 | R 5 × 10 | | 22 | 10 | B | ● | 65 | 13,900 |
| | R 5.25 × 10.5 | | | | – | □ | – | – |
| | R 5.5 × 11 | | | | | □ | – | – |
| | R 5.75 × 11.5 | | | | | □ | – | – |
| 83072 | R 6 × 12 | 110 | 26 | 12 | B | ● | 97 | 16,700 |
| | R 6.25 × 12.5 | | | | – | □ | – | – |
| | R 6.5 × 13 | | | | | □ | – | – |
| | R 6.75 × 13.5 | | | | | □ | – | – |
| 83074 | R 7 × 14 | | | | B | ● | 107 | 20,700 |
| | R 7.25 × 14.5 | | 30 | | – | □ | – | – |
| | R 7.5 × 15 | | | | | □ | – | – |
| | R 7.75 × 15.5 | | | | | □ | – | – |
| 83076 | R 8 × 16 | 140 | 34 | 16 | B | ● | 219 | 25,700 |
| | R 8.25 × 16.5 | | | | – | □ | – | – |
| | R 8.5 × 17 | | | | | □ | – | – |
| | R 8.75 × 17.5 | | | | | □ | – | – |
| 83078 | R 9 × 18 | | | | B | ● | 227 | 29,500 |
| | R 9.25 × 18.5 | | 38 | | – | □ | – | – |
| | R 9.5 × 19 | | | | | □ | – | – |
| | R 9.75 × 19.5 | | | | | □ | – | – |
| 83080 | R10 × 20 | 160 | 45 | 20 | B | ● | 378 | 35,500 |
| | R10.5 × 21 | | | | – | □ | – | – |
| | R11 × 22 | | | | | □ | – | – |
| | R11.5 × 23 | | | | | □ | – | – |
| | R12 × 24 | | | | | □ | – | – |

次ページへ
ボール半径 RE 12.5～30 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EX-TIN-EBD | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## TiNコート2枚刃ハイスボールエンドミル
**TiN Coated 2-flute Ball End Mill**

# EX-TIN-EBD



CAD

HSS-Co | TiN | 30°

前ページより FROM ボール半径 RE 0.5～12

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 83085 | R12.5 × 25 | 180 | 50 | 25 | B | ● | 646 | 44,900 |
| ◆ | R13 × 26 | | | | – | □ | – | – |
| ◆ | R13.5 × 27 | | 55 | | | □ | – | – |
| ◆ | R14 × 28 | | | | | □ | – | – |
| ◆ | R14.5 × 29 | | | | | □ | – | – |
| 83090 | R15 × 30 | | | | B | ● | 717 | 64,000 |
| ◆ | R15.5 × 31 | | 60 | 32 | – | □ | – | – |
| ◆ | R16 × 32 | | | | | □ | – | – |
| ◆ | R16.5 × 33 | | | | | □ | – | – |
| ◆ | R17 × 34 | | | | | □ | – | – |
| ◆ | R17.5 × 35 | | | | | □ | – | – |
| ◆ | R18 × 36 | | | | | □ | – | – |
| ◆ | R18.5 × 37 | 200 | 65 | | | □ | – | – |
| ◆ | R19 × 38 | | | | | □ | – | – |
| ◆ | R19.5 × 39 | | | | | □ | – | – |
| ◆ | R20 × 40 | | | | | □ | – | – |
| ◆ | R21 × 42 | 205 | 70 | 42 | | □ | – | – |
| ◆ | R22 × 44 | | | | | □ | – | – |
| ◆ | R22.5 × 45 | 210 | 75 | | | □ | – | – |
| ◆ | R23 × 46 | | | | | □ | – | – |
| ◆ | R24 × 48 | | | | | □ | – | – |
| ◆ | R25 × 50 | | | | | □ | – | – |
| ◆ | R26 × 52 | 215 | | | | □ | – | – |
| ◆ | R27.5 × 55 | | | | | □ | – | – |
| ◆ | R28 × 56 | | | | | □ | – | – |
| ◆ | R30 × 60 | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

## 2枚刃ハイスボールエンドミル
**2-flute Ball End Mill**

# EBD



CAD

HSS-Co | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R0.4 × 0.8 | 50 | 2 | 6 | – | □ | – | – |
| | R0.45 × 0.9 | | | | | □ | – | – |
| 80760 | R0.5 × 1 | | 2.5 | | A | ● | 14 | 8,420 |
| | R0.55 × 1.1 | | 3 | | – | □ | – | – |
| 80762 | R0.6 × 1.2 | | | | B | ● | 13 | 8,420 |
| | R0.65 × 1.3 | | | | – | □ | – | – |
| 80764 | R0.7 × 1.4 | | 3.5 | | B | ● | 13 | 8,420 |
| 80765 | R0.75 × 1.5 | | 4 | | A | ● | 13 | 7,910 |
| 80766 | R0.8 × 1.6 | | | | B | ● | 13 | 7,910 |
| | R0.85 × 1.7 | | | | – | □ | – | – |
| 80768 | R0.9 × 1.8 | | 4.5 | | B | ● | 13 | 7,910 |
| | R0.95 × 1.9 | | | | – | □ | – | – |
| 80802 | R1 × 2 | | 5 | | A | ● | 13 | 6,510 |
| | R1.05 × 2.1 | 60 | 6 | | – | □ | – | – |
| | R1.1 × 2.2 | | | | | □ | – | – |
| | R1.15 × 2.3 | | | | | □ | – | – |
| | R1.2 × 2.4 | | | | | □ | – | – |
| 80971 | R1.25 × 2.5 | | | | B | ● | 15 | 6,510 |
| | R1.3 × 2.6 | | | | – | □ | – | – |
| | R1.35 × 2.7 | | | | | □ | – | – |
| | R1.4 × 2.8 | | | | | □ | – | – |
| | R1.45 × 2.9 | | | | | □ | – | – |
| 80803 | R1.5 × 3 | | 8 | | A | ● | 15 | 6,510 |
| | R1.55 × 3.1 | 70 | | | – | □ | – | – |
| | R1.6 × 3.2 | | | | | □ | – | – |
| | R1.65 × 3.3 | | | | | □ | – | – |
| | R1.7 × 3.4 | | | | | □ | – | – |
| 80972 | R1.75 × 3.5 | | | | B | ● | 17 | 6,510 |
| | R1.8 × 3.6 | | | | | □ | – | – |
| | R1.85 × 3.7 | | | | | □ | – | – |
| | R1.9 × 3.8 | | | | | □ | – | – |
| | R1.95 × 3.9 | | | | | □ | – | – |
| 80804 | R2 × 4 | | | | A | ● | 18 | 6,510 |
| | R2.05 × 4.1 | 80 | 10 | | – | □ | – | – |
| | R2.1 × 4.2 | | | | | □ | – | – |
| | R2.15 × 4.3 | | | | | □ | – | – |
| | R2.2 × 4.4 | | | | | □ | – | – |
| 80973 | R2.25 × 4.5 | | | | B | ● | 22 | 6,510 |
| | R2.3 × 4.6 | | | | – | □ | – | – |
| | R2.35 × 4.7 | | | | | □ | – | – |

次ページへ ボール半径 RE 2.4～6.55 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EX-TIN-EBD | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイスボールエンドミル
**2-flute Ball End Mill**

## EBD



CAD

HSS-Co　30°

前ページより FROM ボール半径 RE 0.4～2.35

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R2.4 × 4.8 | 80 | 10 | 6 | – | □ | – | – |
| | R2.45 × 4.9 | | | | | □ | – | – |
| 80805 | R2.5 × 5 | | | | A | ● | 22 | 6,510 |
| | R2.55 × 5.1 | 90 | 12 | | – | □ | – | – |
| | R2.6 × 5.2 | | | | | □ | – | – |
| | R2.65 × 5.3 | | | | | □ | – | – |
| | R2.7 × 5.4 | | | | | □ | – | – |
| 80974 | R2.75 × 5.5 | | | | B | ● | 24 | 6,510 |
| | R2.8 × 5.6 | | | | – | □ | – | – |
| | R2.85 × 5.7 | | | | | □ | – | – |
| | R2.9 × 5.8 | | | | | □ | – | – |
| | R2.95 × 5.9 | | | | | □ | – | – |
| 80806 | R3 × 6 | | 14 | | A | ● | 25 | 6,510 |
| | R3.05 × 6.1 | | | | – | □ | – | – |
| | R3.1 × 6.2 | | | | | □ | – | – |
| | R3.15 × 6.3 | | | | | □ | – | – |
| | R3.2 × 6.4 | | | | | □ | – | – |
| 80975 | R3.25 × 6.5 | | | | B | ● | 25 | 7,690 |
| | R3.3 × 6.6 | | | | – | □ | – | – |
| | R3.35 × 6.7 | | | | | □ | – | – |
| | R3.4 × 6.8 | | | | | □ | – | – |
| | R3.45 × 6.9 | | | | | □ | – | – |
| 80807 | R3.5 × 7 | | | | A | ● | 25 | 7,690 |
| | R3.55 × 7.1 | | | | – | □ | – | – |
| | R3.6 × 7.2 | | | | | □ | – | – |
| | R3.65 × 7.3 | | | | | □ | – | – |
| | R3.7 × 7.4 | | | | | □ | – | – |
| 80976 | R3.75 × 7.5 | | | | B | ● | 26 | 7,690 |
| | R3.8 × 7.6 | | | | – | □ | – | – |
| | R3.85 × 7.7 | | | | | □ | – | – |
| | R3.9 × 7.8 | | | | | □ | – | – |
| | R3.95 × 7.9 | | | | | □ | – | – |
| 80808 | R4 × 8 | 100 | 18 | 8 | A | ● | 43 | 7,690 |
| | R4.05 × 8.1 | | | | – | □ | – | – |
| | R4.1 × 8.2 | | | | | □ | – | – |
| | R4.15 × 8.3 | | | | | □ | – | – |
| | R4.2 × 8.4 | | | | | □ | – | – |
| 80977 | R4.25 × 8.5 | | | | B | ● | 43 | 9,240 |
| | R4.3 × 8.6 | | | | – | □ | – | – |
| | R4.35 × 8.7 | | | | | □ | – | – |
| | R4.4 × 8.8 | | | | | □ | – | – |
| | R4.45 × 8.9 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 80809 | R4.5 × 9 | 100 | 18 | 8 | A | ● | 46 | 9,240 |
| | R4.55 × 9.1 | | | | – | □ | – | – |
| | R4.6 × 9.2 | | | | | □ | – | – |
| | R4.65 × 9.3 | | | | | □ | – | – |
| | R4.7 × 9.4 | | | | | □ | – | – |
| 80978 | R4.75 × 9.5 | | | | B | ● | 47 | 9,240 |
| | R4.8 × 9.6 | | | | – | □ | – | – |
| | R4.85 × 9.7 | | | | | □ | – | – |
| | R4.9 × 9.8 | | | | | □ | – | – |
| | R4.95 × 9.9 | | | | | □ | – | – |
| 80810 | R5 × 10 | | 22 | 10 | A | ● | 65 | 9,240 |
| | R5.05 × 10.1 | | | | – | □ | – | – |
| | R5.1 × 10.2 | | | | | □ | – | – |
| | R5.15 × 10.3 | | | | | □ | – | – |
| | R5.2 × 10.4 | | | | | □ | – | – |
| | R5.25 × 10.5 | | | | | □ | – | – |
| | R5.3 × 10.6 | | | | | □ | – | – |
| | R5.35 × 10.7 | | | | | □ | – | – |
| | R5.4 × 10.8 | | | | | □ | – | – |
| | R5.45 × 10.9 | | | | | □ | – | – |
| 80811 | R5.5 × 11 | | | | B | ● | 66 | 11,200 |
| | R5.55 × 11.1 | | | | – | □ | – | – |
| | R5.6 × 11.2 | | | | | □ | – | – |
| | R5.65 × 11.3 | | | | | □ | – | – |
| | R5.7 × 11.4 | | | | | □ | – | – |
| | R5.75 × 11.5 | | | | | □ | – | – |
| | R5.8 × 11.6 | | | | | □ | – | – |
| | R5.85 × 11.7 | | | | | □ | – | – |
| | R5.9 × 11.8 | | | | | □ | – | – |
| | R5.95 × 11.9 | | | | | □ | – | – |
| 80812 | R6 × 12 | 110 | 26 | 12 | A | ● | 97 | 11,200 |
| | R6.05 × 12.1 | | | | – | □ | – | – |
| | R6.1 × 12.2 | | | | | □ | – | – |
| | R6.15 × 12.3 | | | | | □ | – | – |
| | R6.2 × 12.4 | | | | | □ | – | – |
| | R6.25 × 12.5 | | | | | □ | – | – |
| | R6.3 × 12.6 | | | | | □ | – | – |
| | R6.35 × 12.7 | | | | | □ | – | – |
| | R6.4 × 12.8 | | | | | □ | – | – |
| | R6.45 × 12.9 | | | | | □ | – | – |
| 80813 | R6.5 × 13 | | | | B | ● | 98 | 13,800 |
| | R6.55 × 13.1 | | | | – | □ | – | – |

次ページへ ボール半径 RE 6.6～10.75 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EBD | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイスボールエンドミル
**2-flute Ball End Mill**

## EBD



CAD

HSS-Co　30°

前ページより
FROM ボール半径 RE 2.4～6.55

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R6.6 × 13.2 | 110 | 26 | 12 | – | □ | – | – |
| | R6.65 × 13.3 | | | | | □ | – | – |
| | R6.7 × 13.4 | | | | | □ | – | – |
| | R6.75 × 13.5 | | | | | □ | – | – |
| | R6.8 × 13.6 | | | | | □ | – | – |
| | R6.85 × 13.7 | | | | | □ | – | – |
| | R6.9 × 13.8 | | | | | □ | – | – |
| | R6.95 × 13.9 | | | | | □ | – | – |
| 80814 | R7 × 14 | | | | A | ● | 107 | 13,800 |
| | R7.05 × 14.1 | | 30 | | – | □ | – | – |
| | R7.1 × 14.2 | | | | | □ | – | – |
| | R7.15 × 14.3 | | | | | □ | – | – |
| | R7.2 × 14.4 | | | | | □ | – | – |
| | R7.25 × 14.5 | | | | | □ | – | – |
| | R7.3 × 14.6 | | | | | □ | – | – |
| | R7.35 × 14.7 | | | | | □ | – | – |
| | R7.4 × 14.8 | | | | | □ | – | – |
| | R7.45 × 14.9 | | | | | □ | – | – |
| 80815 | R7.5 × 15 | | | | B | ● | 108 | 15,400 |
| | R7.55 × 15.1 | | | | – | □ | – | – |
| | R7.6 × 15.2 | | | | | □ | – | – |
| | R7.65 × 15.3 | | | | | □ | – | – |
| | R7.7 × 15.4 | | | | | □ | – | – |
| | R7.75 × 15.5 | | | | | □ | – | – |
| | R7.8 × 15.6 | | | | | □ | – | – |
| | R7.85 × 15.7 | | | | | □ | – | – |
| | R7.9 × 15.8 | | | | | □ | – | – |
| | R7.95 × 15.9 | | | | | □ | – | – |
| 80816 | R8 × 16 | 140 | 34 | 16 | A | ● | 219 | 17,200 |
| | R8.05 × 16.1 | | | | – | □ | – | – |
| | R8.1 × 16.2 | | | | | □ | – | – |
| | R8.15 × 16.3 | | | | | □ | – | – |
| | R8.2 × 16.4 | | | | | □ | – | – |
| | R8.25 × 16.5 | | | | | □ | – | – |
| | R8.3 × 16.6 | | | | | □ | – | – |
| | R8.35 × 16.7 | | | | | □ | – | – |
| | R8.4 × 16.8 | | | | | □ | – | – |
| | R8.45 × 16.9 | | | | | □ | – | – |
| 80817 | R8.5 × 17 | | | | B | ● | 223 | 19,800 |
| | R8.55 × 17.1 | | | | – | □ | – | – |
| | R8.6 × 17.2 | | | | | □ | – | – |
| | R8.65 × 17.3 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 8.7 × 17.4 | 140 | 34 | 16 | – | □ | – | – |
| | R 8.75 × 17.5 | | | | | □ | – | – |
| | R 8.8 × 17.6 | | | | | □ | – | – |
| | R 8.85 × 17.7 | | | | | □ | – | – |
| | R 8.9 × 17.8 | | | | | □ | – | – |
| | R 8.95 × 17.9 | | | | | □ | – | – |
| 80818 | R 9 × 18 | | | | A | ● | 226 | 19,800 |
| | R 9.05 × 18.1 | | 38 | | – | □ | – | – |
| | R 9.1 × 18.2 | | | | | □ | – | – |
| | R 9.15 × 18.3 | | | | | □ | – | – |
| | R 9.2 × 18.4 | | | | | □ | – | – |
| | R 9.25 × 18.5 | | | | | □ | – | – |
| | R 9.3 × 18.6 | | | | | □ | – | – |
| | R 9.35 × 18.7 | | | | | □ | – | – |
| | R 9.4 × 18.8 | | | | | □ | – | – |
| | R 9.45 × 18.9 | | | | | □ | – | – |
| 80819 | R 9.5 × 19 | | | | B | ● | 228 | 23,700 |
| | R 9.55 × 19.1 | | | | – | □ | – | – |
| | R 9.6 × 19.2 | | | | | □ | – | – |
| | R 9.65 × 19.3 | | | | | □ | – | – |
| | R 9.7 × 19.4 | | | | | □ | – | – |
| | R 9.75 × 19.5 | | | | | □ | – | – |
| | R 9.8 × 19.6 | | | | | □ | – | – |
| | R 9.85 × 19.7 | | | | | □ | – | – |
| | R 9.9 × 19.8 | | | | | □ | – | – |
| | R 9.95 × 19.9 | | | | | □ | – | – |
| 80820 | R10 × 20 | 160 | 45 | 20 | A | ● | 378 | 23,700 |
| | R10.05 × 20.1 | | | | – | □ | – | – |
| | R10.1 × 20.2 | | | | | □ | – | – |
| | R10.15 × 20.3 | | | | | □ | – | – |
| | R10.2 × 20.4 | | | | | □ | – | – |
| | R10.25 × 20.5 | | | | | □ | – | – |
| | R10.3 × 20.6 | | | | | □ | – | – |
| | R10.35 × 20.7 | | | | | □ | – | – |
| | R10.4 × 20.8 | | | | | □ | – | – |
| | R10.45 × 20.9 | | | | | □ | – | – |
| | R10.5 × 21 | | | | | □ | – | – |
| | R10.55 × 21.1 | | | | | □ | – | – |
| | R10.6 × 21.2 | | | | | □ | – | – |
| | R10.65 × 21.3 | | | | | □ | – | – |
| | R10.7 × 21.4 | | | | | □ | – | – |
| | R10.75 × 21.5 | | | | | □ | – | – |

次ページへ
ボール半径 RE 10.8～14.85 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EBD | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイスボールエンドミル
**2-flute Ball End Mill**

## EBD



CAD

HSS-Co　30°

前ページより FROM ボール半径 RE 6.6～10.75

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R10.8 × 21.6 | 160 | 45 | 20 | – | □ | – | – |
| | R10.85× 21.7 | | | | | □ | – | – |
| | R10.9 × 21.8 | | | | | □ | – | – |
| | R10.95× 21.9 | | | | | □ | – | – |
| | R11 × 22 | | 50 | | | □ | – | – |
| | R11.05× 22.1 | | | | | □ | – | – |
| | R11.1 × 22.2 | | | | | □ | – | – |
| | R11.15× 22.3 | | | | | □ | – | – |
| | R11.2 × 22.4 | | | | | □ | – | – |
| | R11.25× 22.5 | | | | | □ | – | – |
| | R11.3 × 22.6 | | | | | □ | – | – |
| | R11.35× 22.7 | | | | | □ | – | – |
| | R11.4 × 22.8 | | | | | □ | – | – |
| | R11.45× 22.9 | | | | | □ | – | – |
| | R11.5 × 23 | | | | | □ | – | – |
| | R11.55× 23.1 | | | | | □ | – | – |
| | R11.6 × 23.2 | | | | | □ | – | – |
| | R11.65× 23.3 | | | | | □ | – | – |
| | R11.7 × 23.4 | | | | | □ | – | – |
| | R11.75× 23.5 | | | | | □ | – | – |
| | R11.8 × 23.6 | | | | | □ | – | – |
| | R11.85× 23.7 | | | | | □ | – | – |
| | R11.9 × 23.8 | | | | | □ | – | – |
| | R11.95× 23.9 | | | | | □ | – | – |
| | R12 × 24 | | | | | □ | – | – |
| | R12.05× 24.1 | | | | | □ | – | – |
| | R12.1 × 24.2 | | | | | □ | – | – |
| | R12.15× 24.3 | | | | | □ | – | – |
| | R12.2 × 24.4 | | | | | □ | – | – |
| | R12.25× 24.5 | | | | | □ | – | – |
| | R12.3 × 24.6 | | | | | □ | – | – |
| | R12.35× 24.7 | | | | | □ | – | – |
| | R12.4 × 24.8 | | | | | □ | – | – |
| | R12.45× 24.9 | | | | | □ | – | – |
| 80825 | R12.5 × 25 | 180 | 50 | 25 | A | ● | 650 | 29,700 |
| ◆ | R12.55× 25.1 | | | | – | □ | – | – |
| ◆ | R12.6 × 25.2 | | | | | □ | – | – |
| ◆ | R12.65× 25.3 | | | | | □ | – | – |
| ◆ | R12.7 × 25.4 | | | | | □ | – | – |
| ◆ | R12.75× 25.5 | | | | | □ | – | – |
| ◆ | R12.8 × 25.6 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ◆ | R12.85× 25.7 | 180 | 50 | 25 | – | □ | – | – |
| ◆ | R12.9 × 25.8 | | | | | □ | – | – |
| ◆ | R12.95× 25.9 | | | | | □ | – | – |
| ◆ | R13 × 26 | | 55 | | | □ | – | – |
| ◆ | R13.05× 26.1 | | | | | □ | – | – |
| ◆ | R13.1 × 26.2 | | | | | □ | – | – |
| ◆ | R13.15× 26.3 | | | | | □ | – | – |
| ◆ | R13.2 × 26.4 | | | | | □ | – | – |
| ◆ | R13.25× 26.5 | | | | | □ | – | – |
| ◆ | R13.3 × 26.6 | | | | | □ | – | – |
| ◆ | R13.35× 26.7 | | | | | □ | – | – |
| ◆ | R13.4 × 26.8 | | | | | □ | – | – |
| ◆ | R13.45× 26.9 | | | | | □ | – | – |
| ◆ | R13.5 × 27 | | | | | □ | – | – |
| ◆ | R13.55× 27.1 | | | | | □ | – | – |
| ◆ | R13.6 × 27.2 | | | | | □ | – | – |
| ◆ | R13.65× 27.3 | | | | | □ | – | – |
| ◆ | R13.7 × 27.4 | | | | | □ | – | – |
| ◆ | R13.75× 27.5 | | | | | □ | – | – |
| ◆ | R13.8 × 27.6 | | | | | □ | – | – |
| ◆ | R13.85× 27.7 | | | | | □ | – | – |
| ◆ | R13.9 × 27.8 | | | | | □ | – | – |
| ◆ | R13.95× 27.9 | | | | | □ | – | – |
| ◆ | R14 × 28 | | | | | □ | – | – |
| ◆ | R14.05× 28.1 | | | | | □ | – | – |
| ◆ | R14.1 × 28.2 | | | | | □ | – | – |
| ◆ | R14.15× 28.3 | | | | | □ | – | – |
| ◆ | R14.2 × 28.4 | | | | | □ | – | – |
| ◆ | R14.25× 28.5 | | | | | □ | – | – |
| ◆ | R14.3 × 28.6 | | | | | □ | – | – |
| ◆ | R14.35× 28.7 | | | | | □ | – | – |
| ◆ | R14.4 × 28.8 | | | | | □ | – | – |
| ◆ | R14.45× 28.9 | | | | | □ | – | – |
| ◆ | R14.5 × 29 | | | | | □ | – | – |
| ◆ | R14.55× 29.1 | | | | | □ | – | – |
| ◆ | R14.6 × 29.2 | | | | | □ | – | – |
| ◆ | R14.65× 29.3 | | | | | □ | – | – |
| ◆ | R14.7 × 29.4 | | | | | □ | – | – |
| ◆ | R14.75× 29.5 | | | | | □ | – | – |
| ◆ | R14.8 × 29.6 | | | | | □ | – | – |
| ◆ | R14.85× 29.7 | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

次ページへ ボール半径 RE 14.9～15 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EBD | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイスボールエンドミル
**2-flute Ball End Mill**

## EBD



CAD

HSS-Co　30°

前ページより
FROM ボール半径 RE 10.8~14.85

（単位:mm）(Unit:mm)

| | ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | | R14.9 × 29.8 | 180 | 55 | 25 | — | □ | — | — |
| ◆ | | R14.95× 29.9 | | | | — | □ | — | — |
| | 80830 | R15 × 30 | | | | A | ● | 718 | 42,500 |
| ◆ | | R15.5 × 31 | | 60 | 32 | — | □ | — | — |
| | 82932 | R16 × 32 | | | | B | ● | 1,053 | 46,700 |
| ◆ | | R16.5 × 33 | | | | — | □ | — | — |
| ◆ | | R17 × 34 | | | | | □ | — | — |
| | 82935 | R17.5 × 35 | | | | B | ● | 1,103 | 60,400 |
| ◆ | | R18 × 36 | | | | — | □ | — | — |
| ◆ | | R18.5 × 37 | 200 | 65 | | | □ | — | — |
| ◆ | | R19 × 38 | | | | | □ | — | — |
| ◆ | | R19.5 × 39 | | | | | □ | — | — |
| | 82940 | R20 × 40 | | | | B | ● | 1,300 | 73,900 |
| ◆ | | R20.5 × 41 | 205 | 70 | 42 | — | □ | — | — |
| ◆ | | R21 × 42 | | | | | □ | — | — |
| ◆ | | R21.5 × 43 | | | | | □ | — | — |
| ◆ | | R22 × 44 | | | | | □ | — | — |
| ◆ | | R22.5 × 45 | 210 | 75 | | — | □ | — | — |
| ◆ | | R23 × 46 | | | | | □ | — | — |
| ◆ | | R23.5 × 47 | | | | | □ | — | — |
| ◆ | | R24 × 48 | | | | | □ | — | — |
| ◆ | | R24.5 × 49 | | | | | □ | — | — |
| | 82950 | R25 × 50 | | | | B | ● | 2,250 | 105,000 |
| ◆ | | R25.5 × 51 | 215 | | | — | □ | — | — |
| ◆ | | R26 × 52 | | | | | □ | — | — |
| ◆ | | R26.5 × 53 | | | | | □ | — | — |
| ◆ | | R27 × 54 | | | | | □ | — | — |
| ◆ | | R27.5 × 55 | | | | | □ | — | — |
| ◆ | | R28 × 56 | | | | | □ | — | — |
| ◆ | | R28.5 × 57 | | | | | □ | — | — |
| ◆ | | R29 × 58 | | | | | □ | — | — |
| ◆ | | R29.5 × 59 | | | | | □ | — | — |
| ◆ | | R30 × 60 | | | | | □ | — | — |
| | | R1/16 | 70 | 8 | 6 | | □ | — | — |
| | | R1/8 | 90 | 14 | | | □ | — | — |
| | | R3/16 | 100 | 18 | 8 | | □ | — | — |
| | | R5/16 | 110 | 30 | 12 | | □ | — | — |
| | | R3/8 | 140 | 38 | 16 | | □ | — | — |
| ◆ | | R5/8 | 180 | 60 | 32 | | □ | — | — |
| ◆ | | R3/4 | 200 | 65 | | | □ | — | — |
| ◆ | | R7/8 | 205 | 70 | 42 | | □ | — | — |
| ◆ | | R1 | 215 | 75 | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 多刃ハイスボールエンドミル
**Multi-flute Ball End Mill**

## EBM



HSS-Co　30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 83006 | R 3 × 6 | 90 | 15 | 6 | 4 | D | ● | 25 | 11,300 |
| 83007 | R 3.5 × 7 | | | | | | ● | 25 | 13,000 |
| 83008 | R 4 × 8 | 100 | 20 | 8 | | | ● | 42 | 13,000 |
| 83009 | R 4.5 × 9 | | | | | | ● | 46 | 15,600 |
| 83010 | R 5 × 10 | | 25 | 10 | | | ● | 63 | 15,600 |
| | R 5.5 × 11 | | | | | – | □ | – | – |
| 83012 | R 6 × 12 | 110 | 30 | 12 | | D | ● | 102 | 17,400 |
| | R 6.5 × 13 | | | | | – | □ | – | – |
| 83014 | R 7 × 14 | | 35 | | | D | ● | 107 | 21,500 |
| | R 7.5 × 15 | | | | | – | □ | – | – |
| 83016 | R 8 × 16 | 140 | 40 | 16 | | D | ● | 216 | 25,800 |
| | R 8.5 × 17 | | | | | – | □ | – | – |
| 83018 | R 9 × 18 | | | | | D | ● | 227 | 29,500 |
| | R 9.5 × 19 | | | | | – | □ | – | – |
| 83020 | R10 × 20 | 160 | 45 | 20 | | D | ● | 390 | 34,100 |
| | R11 × 22 | | | | | – | □ | – | – |
| | R12 × 24 | | 50 | | | | □ | – | – |
| 83025 | R12.5 × 25 | 180 | | 25 | | D | ● | 654 | 43,700 |
| ◆ | R13 × 26 | | | | | – | □ | – | – |
| ◆ | R14 × 28 | | 55 | | | | □ | – | – |
| 83030 | R15 × 30 | | | | | D | ● | 722 | 57,200 |
| 83032 | R16 × 32 | | 60 | 32 | | | ● | 1,037 | 62,500 |
| ◆ | R17 × 34 | | | | | – | □ | – | – |
| ◆ | R17.5 × 35 | | | | | | □ | – | – |
| 83036 | R18 × 36 | | | | | D | ● | 1,140 | 78,900 |
| ◆ | R19 × 38 | 200 | 65 | | | – | □ | – | – |
| 83040 | R20 × 40 | | | | | D | ● | 1,338 | 95,100 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | R20.5 × 41 | 205 | 70 | 42 | 6 | – | □ | – | – |
| ◆ | R21 × 42 | | | | | | □ | – | – |
| ◆ | R21.5 × 43 | | | | | | □ | – | – |
| ◆ | R22 × 44 | | | | | | □ | – | – |
| ◆ | R22.5 × 45 | 210 | 75 | | | | □ | – | – |
| ◆ | R23 × 46 | | | | | | □ | – | – |
| ◆ | R23.5 × 47 | | | | | | □ | – | – |
| ◆ | R24 × 48 | | | | | | □ | – | – |
| ◆ | R24.5 × 49 | | | | | | □ | – | – |
| 83050 | R25 × 50 | | | | | D | ● | 2,342 | 134,000 |
| ◆ | R25.5 × 51 | 215 | 80 | | | – | □ | – | – |
| ◆ | R26 × 52 | | | | | | □ | – | – |
| ◆ | R26.5 × 53 | | | | | | □ | – | – |
| ◆ | R27 × 54 | | | | | | □ | – | – |
| ◆ | R27.5 × 55 | | | | | | □ | – | – |
| ◆ | R28 × 56 | | | | | | □ | – | – |
| ◆ | R28.5 × 57 | | | | | | □ | – | – |
| ◆ | R29 × 58 | | | | | | □ | – | – |
| ◆ | R29.5 × 59 | | | | | | □ | – | – |
| ◆ | R30 × 60 | | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼<br>Prehardened Steel<br>焼き入れ鋼<br>Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EBM | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃CPMボールエンドミル
**2-flute CPM Ball End Mill**

## CPM-EBD



CPM　30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1.25 × 2.5 | 60 | 6 | 6 | | □ | — | — |
| | R1.75 × 3.5 | 70 | 8 | | | □ | — | — |
| | R2.25 × 4.5 | 80 | 10 | | | □ | — | — |
| | R2.75 × 5.5 | 90 | 12 | | | □ | — | — |
| | R3.25 × 6.5 | | 14 | | | □ | — | — |
| | R3.75 × 7.5 | | | | | □ | — | — |
| | R4.25 × 8.5 | 100 | 18 | 8 | | □ | — | — |
| | R4.75 × 9.5 | | | | | □ | — | — |
| | R5.25 × 10.5 | | 22 | 10 | | □ | — | — |
| | R5.5 × 11 | | | | | □ | — | — |
| | R5.75 × 11.5 | | | | | □ | — | — |
| | R6.25 × 12.5 | 110 | 26 | 12 | | □ | — | — |
| | R6.5 × 13 | | | | | □ | — | — |
| | R 6.75 × 13.5 | | | | | □ | — | — |
| | R 7.25 × 14.5 | | 30 | | | □ | — | — |
| | R 7.75 × 15.5 | | | | | □ | — | — |
| | R 8 × 16 | 140 | 34 | 16 | — | □ | — | — |
| | R 8.25 × 16.5 | | | | | □ | — | — |
| | R 8.5 × 17 | | | | | □ | — | — |
| | R 8.75 × 17.5 | | | | | □ | — | — |
| | R 9.25 × 18.5 | | 38 | | | □ | — | — |
| | R 9.5 × 19 | | | | | □ | — | — |
| | R 9.75 × 19.5 | | | | | □ | — | — |
| | R10.5 × 21 | 160 | 45 | 20 | | □ | — | — |
| | R11 × 22 | | | | | □ | — | — |
| | R11.5 × 23 | | 50 | | | □ | — | — |
| | R12 × 24 | | | | | □ | — | — |
| ◆ | R13 × 26 | 180 | 55 | 25 | | □ | — | — |
| ◆ | R14 × 28 | | | | | □ | — | — |
| | R17.5 × 35 | | 60 | 32 | | □ | — | — |
| ◆ | R18 × 36 | | | | | □ | — | — |
| | R20 × 40 | 200 | 65 | | | □ | — | — |
| ◆ | R22.5 × 45 | 210 | 75 | 42 | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| CPM-EBD | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート2枚刃XPMボールエンドミル
**TiN Coated 2-flute XPM Ball End Mill**

## TIN-XPM-EBD



XPM　TiN　約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 2 × 4 | 80 | 8 | 6 | – | □ | – | – |
| | R 3 × 6 | 90 | 12 | | | □ | – | – |
| | R 3.5 × 7 | 100 | 14 | | | □ | – | – |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175 を参照下さい。
See p.1175 for details

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| TIN-XPM-EBD | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃XPMボールエンドミル左刃左ねじれ
**2-flute XPM Ball End Mill (LH Cut and LH Helix)**

# MR-XPM-EBD



XPM　約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 2 × 4 | 80 | 8 | 6 | – | □ | – | – |
| | R 2.5 × 5 | 90 | 10 | | | □ | – | – |
| | R 3 × 6 | | 12 | | | □ | – | – |

## TiNコート2枚刃ハイスボールエンドミル ロングシャンク
**TiN Coated 2-flute Ball End Mill with Long Shank**

# EX-TIN-LS-EBD



HSS-Co　TiN　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 3 × 6 | 150 | 30 | 6 | – | □ | – | – |
| | R 3.5 × 7 | | 35 | 8 | | □ | – | – |
| | R 4 × 8 | | | | | □ | – | – |
| | R 4.5 × 9 | | 40 | 10 | | □ | – | – |
| | R 5 × 10 | 200 | | | | □ | – | – |
| | R 5.5 × 11 | | 45 | 12 | | □ | – | – |
| | R 6 × 12 | | | | | □ | – | – |
| | R 6.5 × 13 | | 50 | | | □ | – | – |
| | R 7 × 14 | | | | | □ | – | – |
| | R 7.5 × 15 | | 55 | 16 | | □ | – | – |
| | R 8 × 16 | 250 | | | | □ | – | – |
| | R 8.5 × 17 | | 60 | | | □ | – | – |
| | R 9 × 18 | | | | | □ | – | – |
| | R 9.5 × 19 | | 65 | 20 | | □ | – | – |
| | R10 × 20 | 300 | | | | □ | – | – |
| | R11 × 22 | | | | | □ | – | – |
| | R12 × 24 | | 70 | 25 | | □ | – | – |
| | R12.5 × 25 | | | | | □ | – | – |
| | R13 × 26 | | | | | □ | – | – |
| | R14 × 28 | | 75 | | | □ | – | – |
| | R15 × 30 | | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.


OSGのPSシリーズ
商品シリーズ Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177 を参照下さい。
See p.1177 for details





製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイスボールエンドミルロング形
**2-flute Ball End Mill Long Length**

## EBDL



HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 0.5 × 1 | 60 | 5 | 6 | | □ | — | — |
| | R 0.5 × 1 | | 8 | | | □ | — | — |
| | R 0.75× 1.5 | | 7 | | | □ | — | — |
| | R 0.75× 1.5 | | 10 | | | □ | — | — |
| | R 1 × 2 | 70 | 8 | | | □ | — | — |
| | R 1 × 2 | | 15 | | | □ | — | — |
| | R 1.25× 2.5 | | 12 | | | □ | — | — |
| | R 1.25× 2.5 | | 18 | | | □ | — | — |
| | R 1.5 × 3 | 80 | 15 | | | □ | — | — |
| | R 1.5 × 3 | | 22 | | | □ | — | — |
| | R 1.75× 3.5 | | 18 | | | □ | — | — |
| | R 1.75× 3.5 | | 25 | | | □ | — | — |
| | R 2 × 4 | 90 | 15 | | | □ | — | — |
| | R 2 × 4 | | 20 | | | □ | — | — |
| | R 2 × 4 | | 30 | | | □ | — | — |
| | R 2.25× 4.5 | | 20 | | | □ | — | — |
| | R 2.25× 4.5 | | 30 | | | □ | — | — |
| | R 2.5 × 5 | 100 | 25 | | | □ | — | — |
| | R 2.5 × 5 | | 35 | | | □ | — | — |
| | R 2.75× 5.5 | | 25 | | | □ | — | — |
| | R 2.75× 5.5 | 110 | 40 | | | □ | — | — |
| | R 3 × 6 | 100 | 25 | | | □ | — | — |
| | R 3 × 6 | 110 | 40 | | — | □ | — | — |
| | R 3.5 × 7 | 100 | 30 | | | □ | — | — |
| | R 3.5 × 7 | 120 | 50 | | | □ | — | — |
| | R 4 × 8 | 110 | 35 | 8 | | □ | — | — |
| | R 4 × 8 | 120 | 50 | | | □ | — | — |
| | R 4.5 × 9 | | 40 | | | □ | — | — |
| | R 4.5 × 9 | 140 | 60 | | | □ | — | — |
| | R 5 × 10 | 120 | 40 | 10 | | □ | — | — |
| | R 5 × 10 | 140 | 60 | | | □ | — | — |
| | R 5.5 × 11 | | 50 | | | □ | — | — |
| | R 6 × 12 | | | 12 | | □ | — | — |
| | R 6 × 12 | 160 | 80 | | | □ | — | — |
| | R 6.5 × 13 | 150 | 70 | | | □ | — | — |
| | R 7 × 14 | | 60 | | | □ | — | — |
| | R 7 × 14 | 160 | 80 | | | □ | — | — |
| | R 7.5 × 15 | | | 16 | | □ | — | — |
| | R 8 × 16 | 150 | 60 | | | □ | — | — |
| | R 8 × 16 | 180 | 100 | | | □ | — | — |
| | R 9 × 18 | 160 | 70 | | | □ | — | — |
| | R10 × 20 | 190 | 80 | 20 | | □ | — | — |
| | R10 × 20 | 210 | 120 | | | □ | — | — |
| | R12.5 × 25 | 220 | | 25 | | □ | — | — |
| | R15 × 30 | 250 | 150 | | | □ | — | — |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃ハイスボールエンドミルロングシャンク
**2-flute Ball End Mill with Long Shank**

# LS-EBD



HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 3 × 6 | 150 | 30 | 6 | – | □ | – | – |
| | R 3.25 × 6.5 | | 35 | | | □ | – | – |
| | R 3.5 × 7 | | | | | □ | – | – |
| | R 3.75 × 7.5 | | | 8 | | □ | – | – |
| | R 4 × 8 | | 40 | | | □ | – | – |
| | R 4.25 × 8.5 | | | | | □ | – | – |
| | R 4.5 × 9 | | | | | □ | – | – |
| | R 4.75 × 9.5 | | | | | □ | – | – |
| | R 5 × 10 | 200 | 45 | 10 | | □ | – | – |
| | R 5.25 × 10.5 | | | | | □ | – | – |
| | R 5.5 × 11 | | | | | □ | – | – |
| | R 5.75 × 11.5 | | | | | □ | – | – |
| | R 6 × 12 | | 50 | 12 | | □ | – | – |
| | R 6.25 × 12.5 | | | | | □ | – | – |
| | R 6.5 × 13 | | | | | □ | – | – |
| | R 6.75 × 13.5 | | | | | □ | – | – |
| | R 7 × 14 | | 55 | | | □ | – | – |
| | R 7.25 × 14.5 | | | | | □ | – | – |
| | R 7.5 × 15 | | | | | □ | – | – |
| | R 7.75 × 15.5 | | | | | □ | – | – |
| | R 8 × 16 | 250 | 60 | 16 | | □ | – | – |
| | R 8.25 × 16.5 | | | | | □ | – | – |
| | R 8.5 × 17 | | | | | □ | – | – |
| | R 8.75 × 17.5 | | | | | □ | – | – |
| | R 9 × 18 | | 65 | | | □ | – | – |
| | R 9.25 × 18.5 | | | | | □ | – | – |
| | R 9.5 × 19 | | | | | □ | – | – |
| | R 9.75 × 19.5 | | | | | □ | – | – |
| | R10 × 20 | 300 | 70 | 20 | | □ | – | – |
| | R10.5 × 21 | | | | | □ | – | – |
| | R11 × 22 | | | | | □ | – | – |
| | R11.5 × 23 | | | | | □ | – | – |
| | R12 × 24 | | | | | □ | – | – |
| | R12.5 × 25 | | | 25 | | □ | – | – |
| | R13 × 26 | | | | | □ | – | – |
| | R13.5 × 27 | | 75 | | | □ | – | – |
| | R14 × 28 | | | | | □ | – | – |
| | R14.5 × 29 | | | | | □ | – | – |
| | R15 × 30 | | | | | □ | – | – |
| | R15.5 × 31 | | | | | □ | – | – |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

## 2枚刃ハイスボールエンドミル エキストラロングシャンク
**2-flute Ball End Mill with Extra Long Shank**

# XLS-EBD



HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R10 × 20 | 400 | 65 | 20 | – | □ | – | – |
| | R10 × 20 | 500 | | | | □ | – | – |
| | R12.5 × 25 | 400 | 70 | 25 | | □ | – | – |
| | R12.5 × 25 | 500 | | | | □ | – | – |
| | R15 × 30 | 400 | 75 | | | □ | – | – |
| | R15 × 30 | 500 | | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.


超硬エンドミル CARBIDE END MILLS
ハイスエンドミル HSS END MILLS
SPECIFICATION CHART 形状寸法表
インデキサブルツール INDEXABLE TOOL
各種製品 OTHER PRODUCTS
索引 INDEX
HSS SQUARE ハイススクエア
HSS SQUARE WITH LONG NECK ハイスロングネックスクエア
HSS BALL NOSE ハイスボール
HSS PENCIL NECK BALL NOSE ハイスペンシルネックボール
HSS CORNER RADIUS ハイスコーナR
HSS ROUGHING ハイスラフィング
HSS TAPER ハイステーパ
HSS TAPER BALL NOSE ハイステーパボール
HSS TAPER CORNER RADIUS ハイステーパコーナR
HSS INVERTED TAPER ハイス逆テーパ
HSS T-SLOT ハイスT溝カッタ
HSS COUNTERBORING ハイス座ぐり
HSS CHAMFERING ハイス面取り



最新の加工動画を公開中 ▶▶▶P.6


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃CPMボールエンドミルショート形
**2-flute CPM Ball End Mill Short Length**

# CPM-EBDS



CPM　30°

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R1 × 2 | 50 | 2 | 6 | 2 | — | □ | — | — |
| | R1.25 × 2.5 | | 2.5 | | | | □ | — | — |
| | R1.5 × 3 | 60 | 3 | | | | □ | — | — |
| | R1.75 × 3.5 | | 3.5 | | | | □ | — | — |
| | R2 × 4 | | 4 | 8 | | | □ | — | — |
| | R2.5 × 5 | | 4.5 | | | | □ | — | — |
| | R3 × 6 | | 5 | 10 | | | □ | — | — |
| | R4 × 8 | 75 | 6 | 12 | | | □ | — | — |
| | R5 × 10 | | 8 | | | | □ | — | — |

## TiNコート4枚刃ハイスボールエンドミル ロングシャンク
**TiN Coated 4-flute Ball End Mill with Long Shank**

# EX-TIN-LS-EBM



HSS-Co　TiN　30°

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R16 × 32 | 350 | 80 | 32 | 4 | — | □ | — | — |
| | R17 × 34 | | | | | | □ | — | — |
| | R17.5 × 35 | | | | | | □ | — | — |
| | R18 × 36 | | | | | | □ | — | — |
| | R19 × 38 | | 100 | 42 | | | □ | — | — |
| | R20 × 40 | | | | | | □ | — | — |
| | R21 × 42 | | | | | | □ | — | — |
| | R22 × 44 | | | | | | □ | — | — |
| | R22.5 × 45 | | 125 | | | | □ | — | — |
| | R23 × 46 | | | | | | □ | — | — |
| | R24 × 48 | | | | | | □ | — | — |
| | R25 × 50 | | | | | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、
水・油・ヘドロをスピード吸入・スピード吐出
※詳細は▶P.1176を参照下さい。
See p.1176 for details



デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 4枚刃ハイスボールエンドミルロングシャンク
**4-flute Ball End Mill with Long Shank**

# LS-EBM



HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 3 × 6 | 150 | 30 | 6 | 4 | — | □ | — | — |
| | R 4 × 8 | | 35 | 8 | | | □ | — | — |
| | R 5 × 10 | 200 | 40 | 10 | | | □ | — | — |
| | R 6 × 12 | | 45 | 12 | | | □ | — | — |
| | R 7 × 14 | | 50 | | | | □ | — | — |
| | R 8 × 16 | 250 | 55 | 16 | | | □ | — | — |
| | R 9 × 18 | | 60 | | | | □ | — | — |
| | R10 × 20 | 300 | 65 | 20 | | | □ | — | — |
| | R12.5 × 25 | | 70 | 25 | | | □ | — | — |
| | R15 × 30 | | 75 | | | | □ | — | — |
| | R16 × 32 | 350 | 80 | 32 | | | □ | — | — |
| | R16.5 × 33 | | | | | | □ | — | — |
| | R17 × 34 | | | | | | □ | — | — |
| | R17.5 × 35 | | | | | | □ | — | — |
| | R18 × 36 | | | | | | □ | — | — |
| | R18.5 × 37 | | 100 | | | | □ | — | — |
| | R19 × 38 | | | | | | □ | — | — |
| | R19.5 × 39 | | | | | | □ | — | — |
| | R20 × 40 | | | | | | □ | — | — |
| | R21 × 42 | | | 42 | | | □ | — | — |
| | R22 × 44 | | | | | | □ | — | — |
| | R22.5 × 45 | | 125 | | | | □ | — | — |
| | R23 × 46 | | | | | | □ | — | — |
| | R24 × 48 | | | | | | □ | — | — |
| | R25 × 50 | | | | | | □ | — | — |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

## 4枚刃ハイスボールエンドミル エキストラロングシャンク
**4-flute Ball End Mill with Extra Long Shank**

# XLS-EBM



HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R16 × 32 | 400 | 80 | 32 | 4 | — | □ | — | — |
| | R16 × 32 | 500 | | | | | □ | — | — |
| | R17.5 × 35 | 400 | | | | | □ | — | — |
| | R17.5 × 35 | 500 | | | | | □ | — | — |
| | R20 × 40 | 400 | 100 | | | | □ | — | — |
| | R20 × 40 | 500 | | | | | □ | — | — |
| | R25 × 50 | 400 | 125 | 42 | | | □ | — | — |
| | R25 × 50 | 500 | | | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.


OSGのPSシリーズ
商品シリーズ Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177 を参照下さい。
See p.1177 for details





デジタルカタログで最新情報を公開中 ▶▶▶P.6


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 4枚刃ハイスボールエンドミル
**4-flute Ball End Mill**

# REBM



HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R30 × 60 | 300 | 60 | 42 | 4 | – | □ | – | – |
| | R35 × 70 | | | | | | □ | – | – |
| | R40 × 80 | | 75 | | | | □ | – | – |
| | R45 × 90 | | | | | | □ | – | – |
| | R50 × 100 | | | | | | □ | – | – |
| | R55 × 110 | | | | | | □ | – | – |
| | R60 × 120 | | 85 | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

## 多刃CPMボールエンドミル
**Multi-flute CPM Ball End Mill**

# CPM-EBM



CPM　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 3 × 6 | 90 | 15 | 6 | 4 | – | □ | – | – |
| | R 3.5 × 7 | | | | | | □ | – | – |
| | R 4 × 8 | 100 | 20 | 8 | | | □ | – | – |
| | R 4.5 × 9 | | | | | | □ | – | – |
| | R 5 × 10 | | 25 | 10 | | | □ | – | – |
| | R 6 × 12 | 110 | 30 | 12 | | | □ | – | – |
| | R 7 × 14 | | 35 | | | | □ | – | – |
| | R 8 × 16 | 140 | 40 | 16 | | | □ | – | – |
| | R 9 × 18 | | | | | | □ | – | – |
| | R10 × 20 | 160 | 45 | 20 | | | □ | – | – |
| | R12.5 × 25 | 180 | 50 | 25 | | | □ | – | – |
| | R15 × 30 | | 55 | | | | □ | – | – |
| | R16 × 32 | | 60 | 32 | | – | □ | – | – |
| ◆ | R17 × 34 | | | | | | □ | – | – |
| ◆ | R17.5 × 35 | | | | | | □ | – | – |
| | R18 × 36 | | | | | | □ | – | – |
| ◆ | R19 × 38 | 200 | 65 | | | | □ | – | – |
| | R20 × 40 | | | | | | □ | – | – |
| ◆ | R21 × 42 | 205 | 70 | 42 | 6 | | □ | – | – |
| ◆ | R22 × 44 | | | | | | □ | – | – |
| ◆ | R22.5 × 45 | 210 | 75 | | | | □ | – | – |
| ◆ | R23 × 46 | | | | | | □ | – | – |
| ◆ | R24 × 48 | | | | | | □ | – | – |
| | R25 × 50 | | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| CPM-EBM | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 発泡スチロール加工用多刃ボールエンドミル エキストラロング形
**Multi-flute Ball End Mill Extra Long Length for Expanded Polystyrene**

# PS-EBXML



HSS-Co　15°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 8 ×16 | 200 | 50 | 16 | 4 | | □ | — | — |
| | R 8 ×16 | 250 | 100 | | | | □ | — | — |
| | R 8 ×16 | 300 | | | | | □ | — | — |
| | R 8 ×16 | | 200 | | | | □ | — | — |
| | R10 ×20 | 200 | 50 | 20 | | | □ | — | — |
| | R10 ×20 | | 100 | | | | □ | — | — |
| | R10 ×20 | 250 | 50 | | | | □ | — | — |
| | R10 ×20 | | 100 | | | | □ | — | — |
| | R10 ×20 | | 150 | | | | □ | — | — |
| | R10 ×20 | 300 | 100 | | | | □ | — | — |
| | R10 ×20 | | 200 | | | | □ | — | — |
| | R10 ×20 | 350 | | | | | □ | — | — |
| | R10 ×20 | | 250 | | | | □ | — | — |
| | R10 ×20 | 400 | 300 | | | — | □ | — | — |
| | R12.5×25 | 350 | 100 | 25 | | | □ | — | — |
| | R12.5×25 | | 250 | | | | □ | — | — |
| | R12.5×25 | 400 | 300 | | | | □ | — | — |
| | R15 ×30 | 250 | 150 | 32 | 6 | | □ | — | — |
| | R15 ×30 | 300 | 200 | | | | □ | — | — |
| | R15 ×30 | 350 | | | | | □ | — | — |
| | R15 ×30 | | 250 | | | | □ | — | — |
| | R15 ×30 | 400 | 150 | | | | □ | — | — |
| | R15 ×30 | | 200 | | | | □ | — | — |
| | R15 ×30 | | 300 | | | | □ | — | — |
| | R15 ×30 | 450 | 350 | | | | □ | — | — |
| | R20 ×40 | 350 | 250 | | | | □ | — | — |
| | R20 ×40 | 400 | 300 | 42 | | | □ | — | — |

## 4枚刃ハイスエンドミルラージR
**4-flute End Mill with Large Radius**

# ER



HSS-Co　0〜+0.03　30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 底刃×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 50 X 50 | 150 | 50 | 42 | 4 | — | □ | — | — |
| | R 60 X 50 | | | | | | □ | — | — |
| | R 70 X 50 | | | | | | □ | — | — |
| | R 80 X 60 | | | | | | □ | — | — |
| | R 90 X 60 | | | | | | □ | — | — |
| | R100 X 60 | | | | | | □ | — | — |
| | R110 X 80 | 175 | | | | | □ | — | — |
| | R120 X 80 | | | | | | □ | — | — |
| | R150 X 100 | 185 | 60 | | | | □ | — | — |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177 を参照下さい。
See p.1177 for details





CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# NC旋盤用WXLコート2枚刃ハイスエンドミル 球形

**WXL Coated 2-flute End Mill Spherical Type for Lathes**

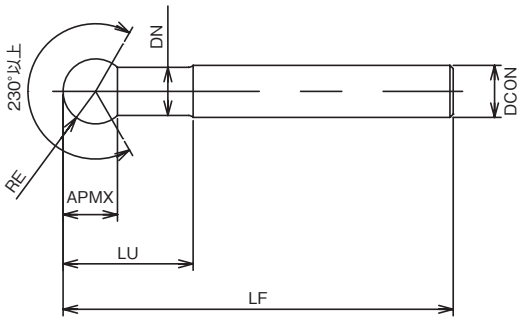
## WH-NC-EQD



HSS-Co　WXL

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 半径 RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **R3** | 60 | 4.3 | 6 | 12 | 5.1 | — | □ | — | — |
| | **R3.5** | | 5 | | 14 | 5.8 | | □ | — | — |
| | **R4** | | 5.7 | | 16 | | | □ | — | — |
| | **R4.5** | | 6.4 | 8 | 18 | 7.7 | | □ | — | — |
| | **R5** | | 7.1 | | 20 | 7.8 | | □ | — | — |
| | **R5.5** | 65 | 7.8 | 10 | 22 | 9.4 | | □ | — | — |
| | **R6** | | 8.5 | | 24 | 9.8 | | □ | — | — |




OSGのPSシリーズ
商品シリーズ Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。
See p.1175 for details



OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

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- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 電着ダイヤモンドボールエンドミル＃80タイプ
**Electroplated Diamond Ball End Mill #80**

## ED-EQ-80

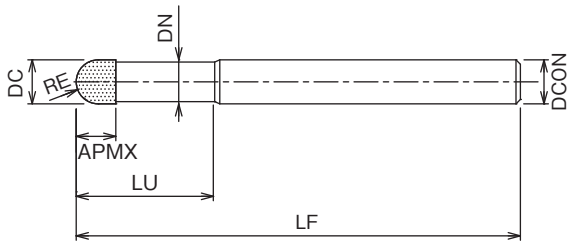
切削条件 Cutting Conditions | P927-1



HSS-Co

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 外径 DC | 全長 LF | 刃長 APMX | 首径 DN | シャンク径 DCON | 粒度 Grit Size | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **R2 × 20** | 4 | 55 | 4 | 3.54 | 4 | #80 | – | □ | – | – |
| | **R2 × 30** | | | | | | | | □ | – | – |
| | **R3** | 6 | 60 | 6 | – | 6 | | | □ | – | – |
| | **R4** | 8 | 70 | 8 | | 8 | | | □ | – | – |
| | **R5** | 10 | 80 | 10 | | 10 | | | □ | – | – |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| **ED-EQ-80** | | | | | | | | | | ※◎ |

※ウレタンゴム・スポンジ加工用です。複合材料の加工にはED-EB（P.464）を推奨いたします。
※For processing urethane rubbers and sponges. For processing composite materials, ED-EB is recommended (p.464).

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 電着ダイヤモンドボールエンドミル#100タイプ
**Electroplated Diamond Ball End Mill #100**

## ED-EQ-100

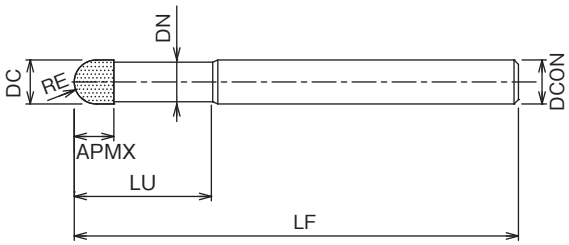
切削条件 Cutting Conditions | P927-1



HSS-Co

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×首下長 RE × LU | 外径 DC | 全長 LF | 刃長 APMX | 首径 DN | シャンク径 DCON | 粒度 Grit Size | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | R0.5 × 5 | 1 | 45 | 1 | 0.62 | 4 | #100 | – | □ | – | – |
| | R0.5 × 10 | | | | | | | | □ | – | – |
| | R1 × 10 | 2 | | 2 | 1.62 | | | | □ | – | – |
| | R1 × 20 | | | | | | | | □ | – | – |
| | R2 × 20 | 4 | 55 | 4 | 3.62 | | | | □ | – | – |
| | R2 × 30 | | | | | | | | □ | – | – |
| | R3 | 6 | 60 | 6 | – | 6 | | | □ | – | – |
| | R4 | 8 | 70 | 8 | – | 8 | | | □ | – | – |
| | R5 | 10 | 80 | 10 | – | 10 | | | □ | – | – |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| ED-EQ-100 | | | | | | | | | | ※◎ |

※ウレタンゴム・スポンジ加工用です。複合材料の加工にはED-EB（P.464）を推奨いたします。
※For processing urethane rubbers and sponges. For processing composite materials, ED-EB is recommended (p.464).

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃CPMペンシルネックボールエンドミル 強力型
**2-flute Pencil Neck CPM Ball End Mill Short Length**

## PCS-CPM-EBD

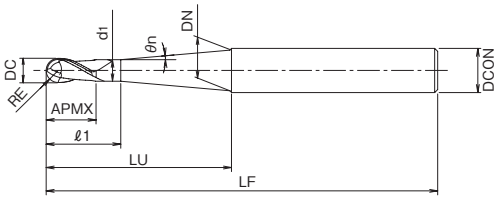


深い部分の加工を行なうペンシルネック形の2刃ボールエンドミルです。
Pencil neck ball-end mill for deep milling.

CPM　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首先径 d1 | 首下長 LU | 首平行長 ℓ1 | 首元径 DN | 首部テーパ半角 θn | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R 2 × 4 | 100 | 8 | 12 | 3.8 | 40 | 11 | 8.9 | 5° | – | □ | – | – |
| | R 3 × 6 | 120 | 12 | 16 | 5.8 | 50 | 16 | 11.7 | | | □ | – | – |
| | R 4 × 8 | 160 | 14 | | 7.8 | 60 | 18 | 15.1 | | | □ | – | – |
| | R 5 × 10 | 180 | 18 | 20 | 9.8 | 80 | 23 | 19.4 | 4°48′ | | □ | – | – |
| | R 8 × 16 | 250 | 30 | 32 | 15.5 | 130 | 40 | 30.4 | 4°45′ | | □ | – | – |




形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| PCS-CPM-EBD | ○ | | ○ | ○ | ○ | ○ | | | |

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- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃CPMペンシルネックボールエンドミル
**2-flute Pencil Neck CPM Ball End Mill**

## PC-CPM-EBD

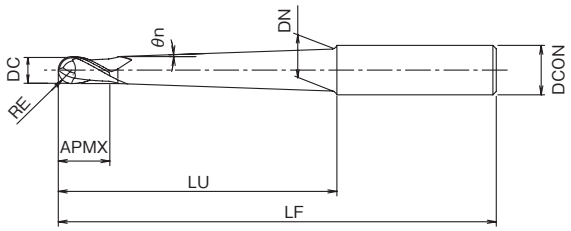


深い部分の加工を行なうペンシルネック形のボールエンドミルです。
Pencil neck ball-end mill for deep milling.

CPM　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首元径 DN | 首部テーパ半角 θn | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | R 1.5 × 3 | 160 | 8 | 10 | 80 | 9.85 | 2°40′ | – | □ | – | – |
| | R 2 × 4 | 180 | | 12 | 90 | 11.8 | | | □ | – | – |
| | R 2.5 × 5 | 200 | 10 | 16 | 100 | 13.56 | | | □ | – | – |
| | R 3 × 6 | 220 | 12 | | 110 | 15.31 | | | □ | – | – |
| | R 5 × 10 | 280 | 18 | 20 | 140 | 19.75 | 2°15′ | | □ | – | – |
| | R10 × 20 | 350 | 38 | 32 | 200 | 31.7 | 2°02′ | | □ | – | – |




OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| PC-CPM-EBD | ○ | | | ○ | ○ | ○ | ○ | | | ○ |

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## 2枚刃CPMペンシルネックボールエンドミル
**2-flute Pencil Neck CPM Ball End Mill**

# SPC-CPM-EBD



CPM　20°~30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首元径 DN | 首部テーパ半角 θn | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | R 1.5 × 3 | 80 | 10 | 8 | 23 | 7.1 | 10° | – | □ | – | – |
| | R 2 × 4 | | 12 | | 24 | 7.75 | | | □ | – | – |
| | R 2.5 × 5 | 120 | 15 | 12 | 34 | 11.28 | | | □ | – | – |
| | R 3 × 6 | | | | 35 | 11.35 | 8° | | □ | – | – |
| | R 4 × 8 | 150 | 16 | | 40 | 11.9 | 5° | | □ | – | – |
| | R 5 × 10 | 160 | 20 | 16 | 50 | 15.9 | 6° | | □ | – | – |
| | R 6 × 12 | 180 | 25 | | 61 | 15.85 | 3° | | □ | – | – |
| | R 7 × 14 | 220 | | 20 | 100 | 19.4 | 2° | | □ | – | – |
| | R 8 × 16 | | 30 | | 105 | 18.9 | 1° | | □ | – | – |
| | R 9 × 18 | 250 | 35 | 25 | 131 | 24.9 | 2° | | □ | – | – |
| | R10 × 20 | | 38 | | 130 | | 1.5° | | □ | – | – |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# CPMペンシルネックボールエンドミルロング形
**Pencil Neck CPM Ball End Mill Long Length**

## PC-CPM-EBL



CPM　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE×DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首元径 DN | 首部テーパ半角 θn | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R 3 × 6 | 300 | 30 | 20 | 130 | 19.75 | 3°53′ | 2 | – | □ | – | – |
| | R 3.5 × 7 | | | | 160 | | 2°45′ | | | □ | – | – |
| | R 4 × 8 | | | | 180 | | 2°11′ | | | □ | – | – |
| | R 4.5 × 9 | | | | | | 1°59′ | | | □ | – | – |
| | R 5 × 10 | | 40 | 25 | | 24.75 | 2°58′ | | | □ | – | – |
| | R 5.5 × 11 | | | | | | 2°45′ | | | □ | – | – |
| | R 6 × 12 | | | | | | 2°33′ | | | □ | – | – |
| | R 6.5 × 13 | | | | | | 2°20′ | | | □ | – | – |
| | R 7 × 14 | | 50 | | | | 2°18′ | | | □ | – | – |
| | R 7.5 × 15 | | | | | | 2°05′ | | | □ | – | – |
| | R 8 × 16 | | | | | | 1°51′ | | | □ | – | – |
| | R 8.5 × 17 | | | | | | 1°38′ | | | □ | – | – |
| | R 9 × 18 | | 60 | | | | 1°31′ | | | □ | – | – |
| | R 9.5 × 19 | | | | | | 1°17′ | | | □ | – | – |
| | R10 × 20 | | 70 | 32 | | 31.7 | 2°59′ | | | □ | – | – |
| | R12 × 24 | | 80 | | | | 2°07′ | | | □ | – | – |
| | R12.5 × 25 | | | | | | 1°49′ | | | □ | – | – |
| | R15 × 30 | 350 | | | 200 | | 0°18′ | | | □ | – | – |
| | R16 × 32 | 400 | | 42 | 250 | 41.6 | 1°33′ | 4 | | □ | – | – |
| | R18 × 36 | | 90 | | | | 0°56′ | | | □ | – | – |
| | R20 × 40 | | 100 | | | | 0°13′ | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。Shank Dia.≧25mm : Shank with two flat face.

OSGのPSシリーズ
商品シリーズ Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。 See p.1175 for details

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

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- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃XPMラジアスエンドミルショート形
**2-flute XPM End Mill Short Length with Corner Radius**

# CR-XPM-EDS



粉末ハイスXPMを母材に採用したコーナR付き2枚刃エンドミルです。
Two-fluted end mill with corner radius. The base material is powder metallurgy XPM.

CAD

XPM

0〜-0.03

約30°
ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8401031 | 3 × R0.5 | 55 | 7 | 6 | D | ● | 14 | 9,820 |
| 8401041 | 4 × R0.5 | 65 | 8 | 8 | | ● | 25 | 9,820 |
| 8401042 | 4 × R1 | | | | | ● | 26 | 9,820 |
| 8401051 | 5 × R0.5 | | 10 | | | ● | 26 | 9,820 |
| 8401052 | 5 × R1 | | | | | ● | 26 | 9,820 |
| 8401053 | 5 × R1.5 | | | | | ● | 25 | 9,820 |
| 8401061 | 6 × R0.5 | | 12 | | | ● | 25 | 9,820 |
| 8401062 | 6 × R1 | | | | | ● | 25 | 9,820 |
| 8401063 | 6 × R1.5 | | | | | ● | 25 | 9,820 |
| 8401064 | 6 × R2 | | | | | ● | 25 | 9,820 |
| 8401081 | 8 × R0.5 | 70 | 14 | 10 | | ● | 42 | 10,500 |
| 8401082 | 8 × R1 | | | | | ● | 42 | 10,500 |
| 8401083 | 8 × R1.5 | | | | | ● | 42 | 10,500 |
| 8401084 | 8 × R2 | | | | | ● | 42 | 10,500 |
| 8401086 | 8 × R3 | | | | | ● | 43 | 10,500 |
| 8401101 | 10 × R0.5 | 75 | 18 | | | ● | 47 | 11,700 |
| 8401102 | 10 × R1 | | | | | ● | 47 | 11,700 |
| 8401103 | 10 × R1.5 | | | | | ● | 47 | 11,700 |
| 8401104 | 10 × R2 | | | | | ● | 47 | 11,700 |
| 8401106 | 10 × R3 | | | | | ● | 46 | 11,700 |
| 8401122 | 12 × R1 | 85 | 22 | 12 | | ● | 75 | 14,100 |
| 8401123 | 12 × R1.5 | | | | | ● | 76 | 14,100 |
| 8401124 | 12 × R2 | | | | | ● | 76 | 14,100 |
| 8401126 | 12 × R3 | | | | | ● | 76 | 14,100 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8401128 | 12 × R4 | 85 | 22 | 12 | D | ● | 76 | 15,900 |
| 8401152 | 15 × R1 | 100 | 30 | 16 | | ● | 149 | 19,300 |
| 8401153 | 15 × R1.5 | | | | | ● | 149 | 19,300 |
| 8401154 | 15 × R2 | | | | | ● | 149 | 19,300 |
| 8401156 | 15 × R3 | | | | | ● | 150 | 19,300 |
| 8401158 | 15 × R4 | | | | | ● | 149 | 21,400 |
| 8401160 | 15 × R5 | | | | | ● | 148 | 21,400 |
| 8401162 | 16 × R1 | | | | | ● | 148 | 20,600 |
| 8401163 | 16 × R1.5 | | | | | ● | 154 | 20,600 |
| 8401164 | 16 × R2 | | | | | ● | 152 | 20,600 |
| 8401166 | 16 × R3 | | | | | ● | 153 | 20,600 |
| 8401168 | 16 × R4 | | | | | ● | 151 | 22,500 |
| 8401170 | 16 × R5 | | | | | ● | 148 | 22,500 |
| 8401182 | 18 × R1 | | 34 | | | ● | 155 | 24,100 |
| 8401183 | 18 × R1.5 | | | | | ● | 159 | 24,100 |
| 8401184 | 18 × R2 | | | | | ● | 161 | 24,100 |
| 8401186 | 18 × R3 | | | | | ● | 156 | 24,100 |
| 8401188 | 18 × R4 | | | | | ● | 157 | 25,900 |
| 8401190 | 18 × R5 | | | | | ● | 159 | 25,900 |
| 8401204 | 20 × R2 | 115 | 38 | 20 | | ● | 267 | 28,200 |
| 8401206 | 20 × R3 | | | | | ● | 256 | 28,200 |
| 8401208 | 20 × R4 | | | | | ● | 267 | 30,100 |
| 8401210 | 20 × R5 | | | | | ● | 270 | 30,100 |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
標準サイズ在庫完備!タングが無し!タングレスインサートあります
※詳細は▶P.1167 を参照下さい。
See p.1167 for details



**デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6**


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| CR-XPM-EDS | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# Vコート多刃XPMエンドミルショート形 高剛性タイプ

**V Coated Multi-flute XPM End Mill Short Length (Highly Rigid Type)**

## VPS-EMS

切削条件 Cutting Conditions | P907



**工具剛性の高い高能率加工用エンドミルです。一般材から難削材まで幅広い加工が可能です。**

High-efficiency operations achieved due to the highly rigid multi-flute. Excellent milling performance shown against a wide range of work materials including general steel to difficult-to-machine materials.




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃数 DC × RE × ZEFP | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8457100 | **10 × 6F** | 75 | 25 | 10 | 6 | B | ● | 50 | 9,620 |
| 8457120 | **12 × 6F** | 90 | 30 | 12 | 6 | B | ● | 86 | 12,400 |
| 8458120 | **12 × 10F** | 90 | 30 | 12 | 10 | B | ● | 85 | 12,800 |
| 8457160 | **16 × 6F** | 100 | 40 | 16 | 6 | B | ● | 161 | 19,600 |
| 8457162 | **16 × R1 × 6F** | 100 | 40 | 16 | 6 | B | ● | 161 | 25,900 |
| 8458160 | **16 × 10F** | 100 | 40 | 16 | 10 | B | ● | 161 | 20,100 |
| 8458162 | **16 × R1 × 10F** | 100 | 40 | 16 | 10 | B | ● | 160 | 31,000 |
| 8457200 | **20 × 6F** | 115 | 45 | 20 | 6 | B | ● | 288 | 27,700 |
| 8457202 | **20 × R1 × 6F** | 115 | 45 | 20 | 6 | B | ● | 293 | 35,000 |
| 8458200 | **20 × 10F** | 115 | 45 | 20 | 10 | B | ● | 282 | 29,000 |
| 8458202 | **20 × R1 × 10F** | 115 | 45 | 20 | 10 | B | ● | 290 | 39,600 |
| 8457250 | **25 × 6F** | 125 | 50 | 25 | 6 | B | ● | 486 | 39,600 |
| 8457252 | **25 × R1 × 6F** | 125 | 50 | 25 | 6 | B | ● | 486 | 45,800 |
| 8458250 | **25 × 10F** | 125 | 50 | 25 | 10 | B | ● | 490 | 40,300 |
| 8458252 | **25 × R1 × 10F** | 125 | 50 | 25 | 10 | B | ● | 490 | 51,100 |
| 8457300 | **30 × 6F** | 130 | 55 | 25 | 6 | B | ● | 586 | 63,000 |
| 8457302 | **30 × R1 × 6F** | 130 | 55 | 25 | 6 | B | ● | 605 | 69,500 |
| 8458300 | **30 × 10F** | 130 | 55 | 25 | 10 | B | ● | 590 | 64,300 |
| 8458302 | **30 × R1 × 10F** | 130 | 55 | 25 | 10 | B | ● | 604 | 75,600 |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>〜40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>〜45HRC | ステンレス鋼 Stainless Steel<br>〜35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **VPS-EMS** | ◎ | | ○ | ◎ | ◎ | | | ◎ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイスラジアスエンドミル ショート形
**TiN Coated 2-flute End Mill Short Length with Corner Radius**

## EX-TIN-CR-EDS



HSS-Co　TiN　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × R 1 | 60 | 12 | 8 | – | □ | – | – |
| | 6 × R 1.5 | | | | | □ | – | – |
| | 6 × R 2 | | | | | □ | – | – |
| | 8 × R 1 | | 14 | 10 | | □ | – | – |
| | 8 × R 1.5 | | | | | □ | – | – |
| | 8 × R 2 | | | | | □ | – | – |
| | 8 × R 2.5 | | | | | □ | – | – |
| | 8 × R 3 | | | | | □ | – | – |
| | 10 × R 1 | 70 | 18 | | | □ | – | – |
| | 10 × R 1.5 | | | | | □ | – | – |
| | 10 × R 2 | | | | | □ | – | – |
| | 10 × R 2.5 | | | | | □ | – | – |
| | 10 × R 3 | | | | | □ | – | – |
| | 12 × R 1 | 80 | 22 | 12 | | □ | – | – |
| | 12 × R 1.5 | | | | | □ | – | – |
| | 12 × R 2 | | | | | □ | – | – |
| | 12 × R 2.5 | | | | | □ | – | – |
| | 12 × R 3 | | | | | □ | – | – |
| | 12 × R 4 | | | | | □ | – | – |
| | 12 × R 5 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 16 × R 2 | 95 | 30 | 16 | – | □ | – | – |
| | 16 × R 2.5 | | | | | □ | – | – |
| | 16 × R 3 | | | | | □ | – | – |
| | 16 × R 4 | | | | | □ | – | – |
| | 16 × R 5 | | | | | □ | – | – |
| | 16 × R 6 | | | | | □ | – | – |
| | 20 × R 2 | 110 | 38 | 20 | | □ | – | – |
| | 20 × R 3 | | | | | □ | – | – |
| | 20 × R 4 | | | | | □ | – | – |
| | 20 × R 5 | | | | | □ | – | – |
| | 20 × R 6 | | | | | □ | – | – |
| | 25 × R 3 | 120 | 50 | 25 | | □ | – | – |
| | 25 × R 4 | | | | | □ | – | – |
| | 25 × R 5 | | | | | □ | – | – |
| | 25 × R 6 | | | | | □ | – | – |
| | 25 × R 8 | | | | | □ | – | – |
| | 30 × R 5 | 125 | 55 | | | □ | – | – |
| | 30 × R 6 | | | | | □ | – | – |
| | 30 × R 8 | | | | | □ | – | – |
| | 30 × R10 | | | | | □ | – | – |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能 ▶▶▶ P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイスラジアスエンドミルショート形
**2-flute End Mill Short Length with Corner Radius**

## CR-EDS



HSS-Co　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.4 | 50 | 8 | 6 | | □ | — | — |
| | 3 × R0.5 | | | | | □ | — | — |
| | 3 × R0.75 | | | | | □ | — | — |
| | 3 × R0.8 | | | | | □ | — | — |
| | 3 × R1 | | | | | □ | — | — |
| | 4 × R0.4 | 60 | | 8 | | □ | — | — |
| | 4 × R0.5 | | | | | □ | — | — |
| | 4 × R0.75 | | | | | □ | — | — |
| | 4 × R0.8 | | | | | □ | — | — |
| | 4 × R1 | | | | | □ | — | — |
| | 5 × R0.4 | | 10 | | | □ | — | — |
| | 5 × R0.5 | | | | | □ | — | — |
| | 5 × R0.75 | | | | | □ | — | — |
| | 5 × R0.8 | | | | | □ | — | — |
| | 5 × R1 | | | | | □ | — | — |
| | 5 × R1.5 | | | | | □ | — | — |
| | 6 × R0.4 | | 12 | | | □ | — | — |
| | 6 × R0.5 | | | | | □ | — | — |
| | 6 × R0.75 | | | | | □ | — | — |
| | 6 × R0.8 | | | | | □ | — | — |
| | 6 × R1 | | | | | □ | — | — |
| | 6 × R1.5 | | | | | □ | — | — |
| | 6 × R2 | | | | | □ | — | — |
| | 8 × R0.4 | | 14 | 10 | | □ | — | — |
| | 8 × R0.5 | | | | | □ | — | — |
| | 8 × R0.8 | | | | | □ | — | — |
| | 8 × R1 | | | | — | □ | — | — |
| | 8 × R1.5 | | | | | □ | — | — |
| | 8 × R2 | | | | | □ | — | — |
| | 8 × R2.5 | | | | | □ | — | — |
| | 8 × R3 | | | | | □ | — | — |
| | 10 × R0.4 | 70 | 18 | | | □ | — | — |
| | 10 × R0.5 | | | | | □ | — | — |
| | 10 × R0.8 | | | | | □ | — | — |
| | 10 × R1 | | | | | □ | — | — |
| | 10 × R1.5 | | | | | □ | — | — |
| | 10 × R2 | | | | | □ | — | — |
| | 10 × R2.5 | | | | | □ | — | — |
| | 10 × R3 | | | | | □ | — | — |
| | 12 × R0.4 | 80 | 22 | 12 | | □ | — | — |
| | 12 × R0.5 | | | | | □ | — | — |
| | 12 × R0.8 | | | | | □ | — | — |
| | 12 × R1 | | | | | □ | — | — |
| | 12 × R1.5 | | | | | □ | — | — |
| | 12 × R2 | | | | | □ | — | — |
| | 12 × R2.5 | | | | | □ | — | — |
| | 12 × R3 | | | | | □ | — | — |
| | 12 × R4 | | | | | □ | — | — |
| | 12 × R5 | | | | | □ | — | — |
| | 15 × R1 | 95 | 30 | 16 | | □ | — | — |
| | 15 × R1.5 | | | | | □ | — | — |
| | 15 × R2 | | | | | □ | — | — |
| | 15 × R2.5 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 15 × R 3 | 95 | 30 | 16 | | □ | — | — |
| | 15 × R 4 | | | | | □ | — | — |
| | 15 × R 5 | | | | | □ | — | — |
| | 16 × R 1 | | | | | □ | — | — |
| | 16 × R 1.5 | | | | | □ | — | — |
| | 16 × R 2 | | | | | □ | — | — |
| | 16 × R 2.5 | | | | | □ | — | — |
| | 16 × R 3 | | | | | □ | — | — |
| | 16 × R 4 | | | | | □ | — | — |
| | 16 × R 5 | | | | | □ | — | — |
| | 16 × R 6 | | | | | □ | — | — |
| | 18 × R 1 | | 34 | | | □ | — | — |
| | 18 × R 1.5 | | | | | □ | — | — |
| | 18 × R 2 | | | | | □ | — | — |
| | 18 × R 2.5 | | | | | □ | — | — |
| | 18 × R 3 | | | | | □ | — | — |
| | 18 × R 4 | | | | | □ | — | — |
| | 18 × R 5 | | | | | □ | — | — |
| | 18 × R 6 | | | | | □ | — | — |
| | 20 × R 1 | 110 | 38 | 20 | — | □ | — | — |
| | 20 × R 1.5 | | | | | □ | — | — |
| | 20 × R 2 | | | | | □ | — | — |
| | 20 × R 2.5 | | | | | □ | — | — |
| | 20 × R 3 | | | | | □ | — | — |
| | 20 × R 4 | | | | | □ | — | — |
| | 20 × R 5 | | | | | □ | — | — |
| | 20 × R 6 | | | | | □ | — | — |
| | 25 × R 1 | 120 | 50 | 25 | | □ | — | — |
| | 25 × R 2 | | | | | □ | — | — |
| | 25 × R 3 | | | | | □ | — | — |
| | 25 × R 4 | | | | | □ | — | — |
| | 25 × R 5 | | | | | □ | — | — |
| | 25 × R 6 | | | | | □ | — | — |
| | 25 × R 8 | | | | | □ | — | — |
| | 30 × R 2 | 125 | 55 | | | □ | — | — |
| | 30 × R 3 | | | | | □ | — | — |
| | 30 × R 4 | | | | | □ | — | — |
| | 30 × R 5 | | | | | □ | — | — |
| | 30 × R 6 | | | | | □ | — | — |
| | 30 × R 8 | | | | | □ | — | — |
| | 30 × R10 | | | | | □ | — | — |
| | 35 × R 3 | 145 | 60 | 32 | | □ | — | — |
| | 35 × R 4 | | | | | □ | — | — |
| | 35 × R 5 | | | | | □ | — | — |
| | 35 × R 6 | | | | | □ | — | — |
| | 40 × R 3 | 150 | 65 | | | □ | — | — |
| | 40 × R 4 | | | | | □ | — | — |
| | 40 × R 5 | | | | | □ | — | — |
| | 40 × R 6 | | | | | □ | — | — |
| | 40 × R10 | | | | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## NC旋盤用WXLコート2枚刃ハイスラジアスエンドミルショート形
**WXL Coated 2-flute End Mill Short Length with Corner Radius for Lathes**

# WH-NC-CRDS



HSS-Co | WXL | 0〜-0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.5 | 60 | 6 | 6 | – | □ | – | – |
| | 4 × R0.5 | | | | | □ | – | – |
| | 4 × R1 | | | | | □ | – | – |
| | 5 × R0.5 | | | | | □ | – | – |
| | 5 × R1 | | | | | □ | – | – |
| | 5 × R1.5 | | | | | □ | – | – |
| | 6 × R0.5 | | | | | □ | – | – |
| | 6 × R1 | | | | | □ | – | – |
| | 6 × R1.5 | | | | | □ | – | – |
| | 6 × R2 | | | | | □ | – | – |
| | 8 × R0.5 | | | | | □ | – | – |
| | 8 × R1 | | | | | □ | – | – |
| | 8 × R1.5 | | | | | □ | – | – |
| | 8 × R2 | | | | | □ | – | – |
| | 10 × R0.5 | | | 10 | | □ | – | – |
| | 10 × R1 | | | | | □ | – | – |
| | 10 × R1.5 | | | | | □ | – | – |
| | 10 × R2 | | | | | □ | – | – |
| | 12 × R0.5 | | | | | □ | – | – |
| | 12 × R1 | | | | | □ | – | – |
| | 12 × R1.5 | | | | | □ | – | – |
| | 12 × R2 | | | | | □ | – | – |

## 2枚刃ハイスラジアスエンドミルロング形
**2-flute End Mill Long Length with Corner Radius**

# CR-EDL



HSS-Co | 0〜-0.03 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × R0.5 | 90 | 30 | 8 | – | □ | – | – |
| | 6 × R1 | | | | | □ | – | – |
| | 6 × R1.5 | | | | | □ | – | – |
| | 6 × R2 | | | | | □ | – | – |
| | 8 × R0.5 | 100 | | 10 | | □ | – | – |
| | 8 × R1 | | | | | □ | – | – |
| | 8 × R1.5 | | | | | □ | – | – |
| | 8 × R2 | | | | | □ | – | – |
| | 8 × R2.5 | | | | | □ | – | – |
| | 8 × R3 | | | | | □ | – | – |
| | 10 × R0.5 | | | | | □ | – | – |
| | 10 × R1 | | | | | □ | – | – |
| | 10 × R1.5 | | | | | □ | – | – |
| | 10 × R2 | | | | | □ | – | – |
| | 10 × R2.5 | | | | | □ | – | – |
| | 10 × R3 | | | | | □ | – | – |
| | 12 × R1 | 110 | | 12 | | □ | – | – |
| | 12 × R1.5 | | | | | □ | – | – |
| | 12 × R2 | | | | | □ | – | – |
| | 12 × R2.5 | | | | | □ | – | – |
| | 12 × R3 | | | | | □ | – | – |
| | 12 × R4 | | | | | □ | – | – |
| | 12 × R5 | | | | | □ | – | – |

最新の加工動画を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃ハイスラジアスエンドミルショート形
**4-flute End Mill Short Length with Corner Radius**

## CR-EMS



HSS-Co　30°　0～+0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × R0.5 | 60 | 15 | 8 | – | □ | – | – |
| | 6 × R1 | | | | | □ | – | – |
| | 6 × R1.5 | | | | | □ | – | – |
| | 6 × R2 | | | | | □ | – | – |
| | 8 × R0.5 | | 20 | 10 | | □ | – | – |
| | 8 × R1 | | | | | □ | – | – |
| | 8 × R1.5 | | | | | □ | – | – |
| | 8 × R2 | | | | | □ | – | – |
| | 8 × R2.5 | | | | | □ | – | – |
| | 8 × R3 | | | | | □ | – | – |
| | 10 × R0.5 | 70 | 25 | | | □ | – | – |
| | 10 × R1 | | | | | □ | – | – |
| | 10 × R1.5 | | | | | □ | – | – |
| | 10 × R2 | | | | | □ | – | – |
| | 10 × R2.5 | | | | | □ | – | – |
| | 10 × R3 | | | | | □ | – | – |
| | 12 × R1 | 80 | 30 | 12 | – | □ | – | – |
| | 12 × R1.5 | | | | | □ | – | – |
| | 12 × R2 | | | | | □ | – | – |
| | 12 × R2.5 | | | | | □ | – | – |
| | 12 × R3 | | | | | □ | – | – |
| | 12 × R4 | | | | | □ | – | – |
| | 16 × R1 | 95 | 40 | 16 | | □ | – | – |
| | 16 × R1.5 | | | | | □ | – | – |
| | 16 × R2 | | | | | □ | – | – |
| | 16 × R2.5 | | | | | □ | – | – |
| | 16 × R3 | | | | | □ | – | – |
| | 16 × R4 | | | | | □ | – | – |
| | 16 × R5 | | | | | □ | – | – |
| | 20 × R1 | 110 | 45 | 20 | | □ | – | – |
| | 20 × R1.5 | | | | | □ | – | – |
| | 20 × R2 | | | | | □ | – | – |
| | 20 × R2.5 | | | | | □ | – | – |
| | 20 × R3 | | | | | □ | – | – |
| | 20 × R4 | | | | | □ | – | – |
| | 20 × R5 | | | | | □ | – | – |
| | 25 × R1 | 120 | 50 | 25 | | □ | – | – |
| | 25 × R2 | | | | | □ | – | – |
| | 25 × R3 | | | | | □ | – | – |
| | 25 × R4 | | | | | □ | – | – |
| | 25 × R5 | | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 4枚刃ハイスラジアスエンドミルロングシャンクミディアム形
**4-flute Radius End Mill Medium Length with Long Shank**

# LS-CR-EMN



HSS-Co　0～+0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 20 × R1 | 200 | 65 | 20 | – | □ | – | – |
| | 20 × R1.5 | | | | | □ | – | – |
| | 20 × R2 | | | | | □ | – | – |
| | 20 × R3 | | | | | □ | – | – |
| | 20 × R4 | | | | | □ | – | – |
| | 20 × R5 | | | | | □ | – | – |
| | 20 × R6 | | | | | □ | – | – |
| | 25 × R2 | 220 | 70 | 25 | | □ | – | – |
| | 25 × R3 | | | | | □ | – | – |
| | 25 × R4 | | | | | □ | – | – |
| | 25 × R5 | | | | | □ | – | – |
| | 25 × R6 | | | | | □ | – | – |
| | 30 × R3 | 250 | | | | □ | – | – |
| | 30 × R4 | | | | | □ | – | – |
| | 30 × R5 | | | | | □ | – | – |
| | 30 × R6 | | | | | □ | – | – |
| | 30 × R8 | | | | | □ | – | – |
| | 30 × R10 | | | | | □ | – | – |
| | 35 × R5 | 300 | 85 | 32 | | □ | – | – |
| | 35 × R6 | | | | | □ | – | – |
| | 35 × R8 | | | | | □ | – | – |
| | 35 × R10 | | | | | □ | – | – |
| | 40 × R3 | 350 | 90 | | | □ | – | – |
| | 40 × R4 | | | | | □ | – | – |
| | 40 × R5 | | | | | □ | – | – |
| | 40 × R6 | | | | | □ | – | – |
| | 40 × R8 | | | | | □ | – | – |
| | 40 × R10 | | | | | □ | – | – |
| | 45 × R5 | | 125 | 42 | | □ | – | – |
| | 45 × R6 | | | | | □ | – | – |
| | 45 × R8 | | | | | □ | – | – |
| | 45 × R10 | | | | | □ | – | – |
| | 50 × R5 | 400 | | | | □ | – | – |
| | 50 × R6 | | | | | □ | – | – |
| | 50 × R8 | | | | | □ | – | – |
| | 50 × R10 | | | | | □ | – | – |

## 発泡スチロール加工用多刃ハイスラジアスエンドミルエキストラロング形
**Multi-flute End Mill Extra Long Length with Corner Radius for Expanded Polystyrene**

# PS-CR-EXML




HSS-Co　R 0～+0.03　15°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 20 × 3R | 250 | 100 | 20 | 6 | – | □ | – | – |
| | 20 × 5R | 300 | | | | | □ | – | – |
| | 20 × 3R | | 200 | | | | □ | – | – |
| | 20 × 5R | | | | | | □ | – | – |
| | 30 × 5R | 250 | 100 | 32 | | | □ | – | – |
| | 30 × 5R | 300 | | | | | □ | – | – |
| | 30 × 5R | | 200 | | | | □ | – | – |
| | 30 × 5R | 350 | 250 | | | | □ | – | – |
| | 30 × 10R | | | | | | □ | – | – |
| | 30 × 10R | | | | 8 | | □ | – | – |
| | 30 × 10R | 400 | 300 | | 6 | | □ | – | – |
| | 30 × 10R | | | | 8 | | □ | – | – |
| | 35 × 10R | 350 | 250 | | 6 | | □ | – | – |
| | 35 × 10R | 400 | 300 | | | | □ | – | – |
| | 35 × 10R | 450 | 350 | | | | □ | – | – |
| | 40 × 10R | 400 | 300 | 42 | | | □ | – | – |
| | 40 × 10R | | | | 8 | | □ | – | – |
| | 40 × 15R | 450 | 350 | | 6 | | □ | – | – |

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイスエンドミルコーナC面付きショート形
**2-flute End Mill Short Length with Corner Chamfering**

## CS-EDS



HSS-Co　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 1 × 0.2 | 45 | 2.5 | 6 | – | □ | – | – |
| | 2 × 0.2 | 50 | 5 | | | □ | – | – |
| | 2 × 0.3 | | | | | □ | – | – |
| | 2 × 0.5 | | | | | □ | – | – |
| | 3 × 0.2 | | 8 | | | □ | – | – |
| | 3 × 0.3 | | | | | □ | – | – |
| | 3 × 0.5 | | | | | □ | – | – |
| | 3 × 1 | | | | | □ | – | – |
| | 4 × 0.2 | 60 | | 8 | | □ | – | – |
| | 4 × 0.3 | | | | | □ | – | – |
| | 4 × 0.5 | | | | | □ | – | – |
| | 4 × 1 | | | | | □ | – | – |
| | 4 × 1.5 | | | | | □ | – | – |
| | 5 × 0.2 | | 10 | | | □ | – | – |
| | 5 × 0.3 | | | | | □ | – | – |
| | 5 × 0.5 | | | | | □ | – | – |
| | 5 × 1 | | | | | □ | – | – |
| | 5 × 1.5 | | | | | □ | – | – |
| | 6 × 0.2 | | 12 | | | □ | – | – |
| | 6 × 0.3 | | | | | □ | – | – |
| | 6 × 0.5 | | | | | □ | – | – |
| | 6 × 1 | | | | | □ | – | – |
| | 6 × 1.5 | | | | | □ | – | – |
| | 6 × 2 | | | | | □ | – | – |
| | 8 × 0.2 | | 14 | 10 | | □ | – | – |
| | 8 × 0.3 | | | | | □ | – | – |
| | 8 × 0.5 | | | | | □ | – | – |
| | 8 × 1 | | | | | □ | – | – |
| | 8 × 1.5 | | | | | □ | – | – |
| | 8 × 2 | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 8 × 3 | 60 | 14 | 10 | – | □ | – | – |
| | 10 × 0.2 | 70 | 18 | | | □ | – | – |
| | 10 × 0.3 | | | | | □ | – | – |
| | 10 × 0.5 | | | | | □ | – | – |
| | 10 × 1 | | | | | □ | – | – |
| | 10 × 1.5 | | | | | □ | – | – |
| | 10 × 2 | | | | | □ | – | – |
| | 10 × 3 | | | | | □ | – | – |
| | 12 × 0.2 | 80 | 22 | 12 | | □ | – | – |
| | 12 × 0.3 | | | | | □ | – | – |
| | 12 × 0.5 | | | | | □ | – | – |
| | 12 × 1 | | | | | □ | – | – |
| | 12 × 1.5 | | | | | □ | – | – |
| | 12 × 2 | | | | | □ | – | – |
| | 12 × 3 | | | | | □ | – | – |
| | 16 × 0.5 | 95 | 30 | 16 | | □ | – | – |
| | 16 × 1 | | | | | □ | – | – |
| | 16 × 1.5 | | | | | □ | – | – |
| | 16 × 2 | | | | | □ | – | – |
| | 16 × 3 | | | | | □ | – | – |
| | 20 × 0.5 | 110 | 38 | 20 | | □ | – | – |
| | 20 × 1 | | | | | □ | – | – |
| | 20 × 1.5 | | | | | □ | – | – |
| | 20 × 2 | | | | | □ | – | – |
| | 20 × 3 | | | | | □ | – | – |
| | 25 × 0.5 | 120 | 50 | 25 | | □ | – | – |
| | 25 × 1 | | | | | □ | – | – |
| | 25 × 1.5 | | | | | □ | – | – |
| | 25 × 2 | | | | | □ | – | – |
| | 25 × 3 | | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

デジタルカタログで最新情報を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# NC旋盤用WXLコート2枚刃ハイスエンドミル コーナC面付きショート形

**WXL Coated 2-flute End Mill Short Length with Corner Chamfering for Lathes**

## WH-NC-CSDS



HSS-Co　WXL　0〜-0.03　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × C0.2 | 60 | 6 | 6 | – | □ | – | – |
| | 4 × C0.2 | | | | | □ | – | – |
| | 4 × C0.5 | | | | | □ | – | – |
| | 5 × C0.2 | | | | | □ | – | – |
| | 5 × C0.5 | | | | | □ | – | – |
| | 5 × C1 | | | | | □ | – | – |
| | 6 × C0.2 | | | | | □ | – | – |
| | 6 × C0.5 | | | | | □ | – | – |
| | 6 × C1.5 | | | | | □ | – | – |
| | 8 × C0.2 | | | | | □ | – | – |
| | 8 × C0.5 | | | | | □ | – | – |
| | 8 × C1 | | | | | □ | – | – |
| | 10 × C0.2 | | | 10 | | □ | – | – |
| | 10 × C0.5 | | | | | □ | – | – |
| | 10 × C1 | | | | | □ | – | – |
| | 12 × C0.2 | | | | | □ | – | – |
| | 12 × C0.5 | | | | | □ | – | – |
| | 12 × C1 | | | | | □ | – | – |


**OZTツールプリセッタ**
OZT Tool Presetter
※詳細は▶P.1193を参照下さい。
See p.1193 for details
迅速で高精度な測定!外段取りで生産効率アップ!



**OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6**


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



# WXLコートCPMファインピッチラフィング エンドミルショート形サイレントタイプ

**WXL Coated CPM Roughing End Mill Fine Pitch Short Length and Silent Type**

## SI-WH-RESF

切削条件 Cutting Conditions | P916



底刃の不等分割形状、外周刃の不等リード形状で“静かなる重切削”を実現します。

Introducing unequal spacing of end teeth and variable-lead of peripheral cutting edge,allowing for 'silent heavy duty'.

CAD

CPM | WXL

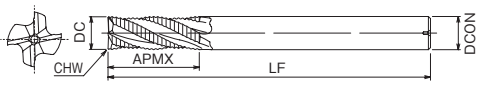
DC≦6 ±0.06
6<DC≦10 ±0.075
10<DC≦18 ±0.09
18<DC≦30 ±0.105

25°~31.5°

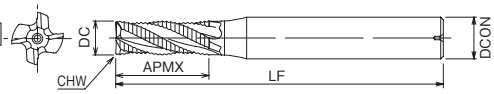
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | コーナ面取幅 CHW | 刃数 ZEFP | 形状タイプ Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **5** | 80 | 13 | 6 | – | – | 0.5 | 3 | 2 | – | □ | – | – |
| 8409806 | **6** | | | | | | | 4 | 1 | B | ● | 23 | 11,600 |
| | **7** | | 16 | 10 | | | | | 2 | – | □ | – | – |
| 8409808 | **8** | 85 | 19 | | | | | | | B | ● | 51 | 12,800 |
| | **9** | 95 | | | | | | | | – | □ | – | – |
| 8409810 | **10** | 100 | 22 | | | | | | 1 | B | ● | 67 | 14,500 |
| | **11** | 105 | | 12 | | | 0.6 | | 2 | – | □ | – | – |
| 8409812 | **12** | 110 | 26 | | | | | | 1 | B | ● | 100 | 18,300 |
| | **13** | | | | | | | | 4 | – | □ | – | – |
| | **14** | | | | | | | | | | □ | – | – |
| | **15** | 120 | | | | | | | | | □ | – | – |
| 8409816 | **16** | 125 | 32 | 16 | 50 | 15 | | | 3 | B | ● | 199 | 22,600 |
| | **17** | | | | – | – | | | 4 | – | □ | – | – |
| | **18** | | | | | | | | | | □ | – | – |
| | **19** | 135 | | | | | | | | | □ | – | – |
| 8409820 | **20** | 140 | 38 | 20 | 60 | 19 | | | 3 | B | ● | 338 | 26,200 |
| | **21** | | | | – | – | | | 4 | – | □ | – | – |
| | **22** | | | | | | | 5 | | | □ | – | – |
| | **23** | | | | | | 0.8 | | | | □ | – | – |
| | **24** | 160 | 45 | 25 | 70 | 23 | | | 3 | | □ | – | – |
| 8409825 | **25** | | | | | 24 | | | | B | ● | 600 | 37,000 |
| | **26** | | | | – | – | | | 4 | – | □ | – | – |
| | **27** | | | | | | | | | | □ | – | – |
| | **28** | | | | | | | | | | □ | – | – |
| | **29** | | | | | | | | | | □ | – | – |
| 8409830 | **30** | | | | | | | 6 | | B | ● | 679 | 54,900 |

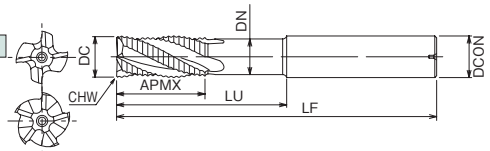
Type 1



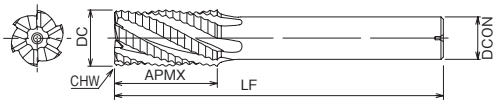

Type 2




Type 3




Type 4




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **SI-WH-RESF** | ◎ | | | ◎ | ○ | ○ | ○ | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## WXLコートハイスファインピッチラフィングエンドミルショート形
**WXL Coated Roughing End Mill Fine Pitch Short Length**

## WH-RESF

切削条件 Cutting Conditions | P917




ドライもウェットも幅広く切削可能な次世代ハイスラフィングエンドミルです。
The next generation of HSS roughing end mill. Supporting a wide range of machining applications, wet or dry.

CAD

HSS-Co | WXL | 30°

DC=6 ±0.06
6<DC≦10 ±0.075
10<DC≦18 ±0.09
18<DC≦30 ±0.105
30<DC≦40 ±0.125

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8408806 | 6 | 80 | 13 | 6 | 4 | A | ● | 22 | 10,300 |
| 8408807 | 7 | | 16 | 10 | | | ● | 46 | 11,500 |
| 8408808 | 8 | 85 | 19 | | | | ● | 49 | 11,500 |
| 8408809 | 9 | 95 | | | | D | ● | 60 | 16,900 |
| 8408810 | 10 | 100 | 22 | | | A | ● | 64 | 12,900 |
| 8408811 | 11 | 105 | | 12 | | D | ● | 91 | 21,400 |
| 8408812 | 12 | 110 | 26 | | | A | ● | 96 | 16,300 |
| 8408813 | 13 | | | | | D | ● | 99 | 23,500 |
| 8408814 | 14 | | | | | A | ● | 108 | 18,100 |
| 8408815 | 15 | 120 | | | | | ● | 125 | 18,900 |
| 8408816 | 16 | 125 | 32 | 16 | | D | ● | 196 | 20,100 |
| 8408817 | 17 | | | | | | ● | 201 | 28,500 |
| 8408818 | 18 | | | | | A | ● | 204 | 22,200 |
| 8408819 | 19 | 135 | | | | D | ● | 226 | 30,500 |
| 8408820 | 20 | 140 | 38 | 20 | | A | ● | 332 | 23,500 |
| 8408821 | 21 | | | | | D | ● | 338 | 36,000 |
| 8408822 | 22 | | | | 5 | A | ● | 347 | 27,400 |
| 8408823 | 23 | | | | | D | ● | 359 | 42,700 |
| 8408824 | 24 | 160 | 45 | 25 | | | ● | 584 | 42,700 |
| 8408825 | 25 | | | | | A | ● | 595 | 33,000 |
| 8408826 | 26 | | | | | D | ● | 620 | 47,100 |
| 8408827 | 27 | | | | | | ● | 637 | 51,000 |
| 8408828 | 28 | | | | | | ● | 644 | 41,600 |
| 8408829 | 29 | | | | | | ● | 649 | 64,000 |
| 8408830 | 30 | | | | 6 | A | ● | 675 | 49,100 |
| 8408831 | 31 | 170 | 53 | 32 | | D | ● | 1,045 | 74,100 |
| 8408832 | 32 | | | | | B | ● | 1,072 | 56,700 |
| 8408833 | 33 | | | | | D | ● | 1,078 | 87,500 |
| 8408834 | 34 | 175 | | | | | ● | 1,133 | 87,500 |
| 8408835 | 35 | | | | | B | ● | 1,141 | 67,000 |
| 8408836 | 36 | | | | | D | ● | 1,159 | 103,000 |
| 8408837 | 37 | | | | | | ● | 1,177 | 113,000 |
| 8408838 | 38 | 185 | 63 | | | | ● | 1,251 | 115,000 |
| 8408839 | 39 | | | | | | ● | 1,265 | 120,000 |
| 8408840 | 40 | | | | | B | ● | 1,294 | 92,200 |

## WXLコートハイスラフィングエンドミルショート形
**WXL Coated Roughing End Mill Short Length**

## WH-REES

切削条件 Cutting Conditions | P917




ドライもウェットも幅広く切削可能な次世代ハイスラフィングエンドミルです。
The next generation of HSS roughing end mill. Supporting a wide range of machining applications, wet or dry.

CAD

HSS-Co | WXL | 30°

DC=6 ±0.06
6<DC≦10 ±0.075
10<DC≦18 ±0.09
18<DC≦30 ±0.105
30<DC≦40 ±0.125

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8408606 | 6 | 80 | 13 | 6 | 4 | A | ● | 30 | 10,300 |
| 8408607 | 7 | | 16 | 10 | | | ● | 46 | 11,500 |
| 8408608 | 8 | 85 | 19 | | | | ● | 49 | 11,500 |
| 8408609 | 9 | 95 | | | | D | ● | 61 | 16,900 |
| 8408610 | 10 | 100 | 22 | | | A | ● | 64 | 12,900 |
| 8408611 | 11 | 105 | | 12 | | D | ● | 92 | 21,400 |
| 8408612 | 12 | 110 | 26 | | | A | ● | 96 | 16,300 |
| 8408613 | 13 | | | | | D | ● | 98 | 23,500 |
| 8408614 | 14 | | | | | | ● | 107 | 18,100 |
| 8408615 | 15 | 120 | | | | A | ● | 125 | 18,900 |
| 8408616 | 16 | 125 | 32 | 16 | | | ● | 194 | 20,100 |
| 8408617 | 17 | | | | | D | ● | 201 | 28,500 |
| 8408618 | 18 | | | | | A | ● | 204 | 22,200 |
| 8408619 | 19 | 135 | | | | D | ● | 225 | 30,500 |
| 8408620 | 20 | 140 | 38 | 20 | | A | ● | 331 | 23,500 |
| 8408621 | 21 | | | | | | ● | 335 | 36,000 |
| 8408622 | 22 | | | | 5 | D | ● | 348 | 29,400 |
| 8408623 | 23 | | | | | | ● | 357 | 42,700 |
| 8408624 | 24 | 160 | 45 | 25 | | | ● | 584 | 42,700 |
| 8408625 | 25 | | | | | A | ● | 592 | 33,000 |
| 8408626 | 26 | | | | | D | ● | 628 | 47,100 |
| 8408627 | 27 | | | | | | ● | 635 | 51,000 |
| 8408628 | 28 | | | | | | ● | 647 | 41,600 |
| 8408629 | 29 | | | | | | ● | 653 | 64,000 |
| 8408630 | 30 | | | | 6 | A | ● | 671 | 49,100 |
| 8408632 | 32 | 170 | 53 | 32 | | B | ● | 1,063 | 56,700 |
| 8408635 | 35 | 175 | | | | | ● | 1,140 | 67,000 |
| 8408640 | 40 | 185 | 63 | | | | ● | 1,288 | 92,200 |

CADデータ (DXF・STEP) ダウンロードサービス公開中 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| WH-RESF | ◎ | | | ◎ | ○ | ○ | ○ | ◎ | ◎ | |
| WH-REES | ◎ | | | ○ | ◎ | ○ | ○ | ○ | ○ | |

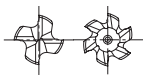
**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

# VコートXPMファインピッチラフィングエンドミル ショート形
**V Coated XPM Roughing End Mill Fine Pitch Short Length**

## VP-RESF

切削条件 Cutting Conditions | P908





Vコーティングを施した粉末ハイスXPMラフィングショート刃シリーズです。難削材にも効果を発揮します。

Vcoated roughing end mill with short flute. Made of powder metallurgy XPM and suitable for milling difficult to machine materials.

CAD

XPM | V | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **5** | 80 | 11 | 6 | 0.5 | 3 | – | □ | – | – |
| 8455756 | **6** | | | | | 4 | B | ● | 22 | 13,900 |
| 8455757 | **7** | | 14 | 8 | | | B | ● | 35 | 15,600 |
| 8455758 | **8** | 85 | 17 | | | | | ● | 37 | 15,600 |
| | **9** | 95 | 19 | 10 | | | – | □ | – | – |
| 8455760 | **10** | 100 | 22 | | 0.6 | | B | ● | 63 | 17,400 |
| | **11** | 105 | | 12 | | | – | □ | – | – |
| 8455762 | **12** | | | | | | B | ● | 98 | 22,200 |
| | **13** | 110 | 26 | | | | – | □ | – | – |
| 8455764 | **14** | | | | | | | ● | 106 | 25,700 |
| 8455765 | **15** | 120 | | 16 | | | B | ● | 192 | 27,400 |
| 8455766 | **16** | | | | | | | ● | 193 | 29,000 |
| | **17** | 125 | 32 | | | | – | □ | – | – |
| 8455768 | **18** | | | | | | B | ● | 201 | 31,700 |
| | **19** | 135 | | 20 | | | – | □ | – | – |
| 8455770 | **20** | 140 | 38 | | | | B | ● | 339 | 33,900 |
| | **21** | | | | | | – | □ | – | – |
| 8455772 | **22** | | | | | 5 | B | ● | 350 | 39,600 |
| | **23** | | | | 0.8 | | – | □ | – | – |
| ◆ | **24** | 160 | 45 | 25 | | | – | □ | – | – |
| 8455775 | **25** | | | | | | B | ● | 585 | 47,600 |
| ◆ | **26** | | | | | | – | □ | – | – |
| ◆ | **27** | | | | | | | □ | – | – |
| 8455778 | **28** | | | | | | B | ● | 638 | 56,500 |
| ◆ | **29** | | | | | | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8455780 | **30** | 160 | 45 | 25 | 0.8 | 6 | B | ● | 685 | 70,600 |
| ◆ | **31** | 170 | 53 | | | | – | □ | – | – |
| 8455782 | **32** | | | | | | B | ● | 795 | 86,200 |
| ◆ | **33** | | | | | | – | □ | – | – |
| ◆ | **34** | | | 32 | | | | □ | – | – |
| 8455785 | **35** | 175 | | | | | B | ● | 1,164 | 103,000 |
| ◆ | **36** | | | | | | – | □ | – | – |
| ◆ | **37** | | | | | | | □ | – | – |
| ◆ | **38** | | | | | | | □ | – | – |
| ◆ | **39** | | | | | | | □ | – | – |
| 8455790 | **40** | 185 | | | | | B | ● | 1,279 | 141,000 |
| ◆ | **41** | | | | | | – | □ | – | – |
| ◆ | **43** | | 63 | | | | | □ | – | – |
| ◆ | **44** | | | | | | | □ | – | – |
| 8455795 | **45** | 200 | | 42 | | | B | ● | 2,229 | 174,000 |
| ◆ | **46** | 185 | | 32 | | | – | □ | – | – |
| ◆ | **47** | | | | | | | □ | – | – |
| ◆ | **48** | | | | | | | □ | – | – |
| ◆ | **49** | 210 | 75 | 42 | 1 | | | □ | – | – |
| 8455800 | **50** | | | | | | B | ● | 2,400 | 231,000 |

外径32mm以上はセンタ穴付きです。Mill Dia.≧φ32 : with center hole.

◆は2面平切り欠け付きシャンクです。◆: Shank with two flat face.

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **VP-RESF** | ◎ | | ○ | ◎ | ◎ | ○ | ○ | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# VコートXPMファインピッチラフィングエンドミル ロングシャンクショート形

**V Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank**

## VLS-XPM-RESF

切削条件 Cutting Conditions | P908



Vコーティングを施した粉末ハイスXPMラフィングです。切りくず排出性を重視した刃形となっています。

Vcoated roughing end mill made of powder metallurgy XPM. Flute form is designed for smooth chip discharge.

CAD

XPM | V | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **5** | 70 | 11 | 6 | 0.5 | 3 | — | □ | — | — |
| 8455656 | **6** | 80 | | | | | B | ● | 22 | 13,900 |
| 8455657 | **7** | | 14 | 8 | | | B | ● | 33 | 15,600 |
| 8455658 | **8** | 85 | 17 | | | | B | ● | 37 | 15,600 |
| | **9** | 95 | 19 | 10 | | | — | □ | — | — |
| 8455660 | **10** | 100 | 22 | | 0.6 | | B | ● | 62 | 17,400 |
| | **11** | 105 | | 12 | | | — | □ | — | — |
| 8455662 | **12** | 110 | 26 | | | | B | ● | 95 | 22,200 |
| | **13** | | | | | | — | □ | — | — |
| 8455664 | **14** | | | 16 | | | B | ● | 104 | 25,700 |
| 8455665 | **15** | 120 | | | | | B | ● | 183 | 27,400 |
| 8455666 | **16** | 125 | 32 | | | | B | ● | 189 | 29,000 |
| | **17** | | | | | | — | □ | — | — |
| 8455668 | **18** | | | | | | B | ● | 203 | 31,700 |
| | **19** | 135 | | 20 | | | — | □ | — | — |
| 8455670 | **20** | 140 | 38 | | | | B | ● | 333 | 33,900 |
| | **21** | | | | | | — | □ | — | — |
| 8455672 | **22** | | | | | | B | ● | 350 | 39,600 |
| | **23** | | | | 0.8 | 4 | — | □ | — | — |
| | **24** | 160 | 45 | 25 | | | — | □ | — | — |
| 8455675 | **25** | | | | | | B | ● | 591 | 47,600 |
| | **26** | | | | | | — | □ | — | — |
| | **27** | | | | | | | | — | — |
| 8455678 | **28** | | | | | | B | ● | 620 | 56,500 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **29** | 160 | 45 | 25 | 0.8 | 4 | — | □ | — | — |
| 8455680 | **30** | | | | | | B | ● | 663 | 70,600 |
| | **31** | | 53 | | | | — | □ | — | — |
| 8455682 | **32** | 170 | | | | | B | ● | 734 | 86,200 |
| | **33** | | | | | | — | □ | — | — |
| | **34** | 175 | | 32 | | 6 | — | □ | — | — |
| 8455685 | **35** | | | | | | B | ● | 1,145 | 103,000 |
| | **36** | | | | | | — | □ | — | — |
| | **37** | | | | | | — | □ | — | — |
| | **38** | 185 | 63 | | | | — | □ | — | — |
| | **39** | | | | | | — | □ | — | — |
| 8455690 | **40** | | | | | | B | ● | 1,305 | 141,000 |
| | **41** | | | | | | — | □ | — | — |
| | **42** | | | | | | — | □ | — | — |
| | **43** | | | | | | — | □ | — | — |
| | **44** | | | | | | — | □ | — | — |
| 8455695 | **45** | | | | | | B | ● | 1,465 | 167,000 |
| | **46** | | | | | | — | □ | — | — |
| | **47** | | | | | | — | □ | — | — |
| | **48** | 210 | 75 | 42 | 1 | | — | □ | — | — |
| | **49** | | | | | | — | □ | — | — |
| 8455700 | **50** | | | | | | B | ● | 2,400 | 231,000 |

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶ P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **VLS-XPM-RESF** | ◎ | | ○ | ◎ | ◎ | ○ | ○ | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# VコートXPMファインピッチラフィングエンドミル スリムシャンク

**V Coated XPM Roughing End Mill Fine Pitch Short Length with Slim Shank**

## VSS-XPM-RESF

切削条件 Cutting Conditions | P908



シャンク径を刃径マイナス1mmに設定したスリムシャンクタイプラフィングエンドミルです。突出し長さを自由に調整できます。
Slim shank type. Shank diameter is 1mm smaller than the mill diameter. Extension length can be adjusted.

CAD

XPM | V | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8407510 | **10** | 100 | 22 | 9 | 0.6 | 4 | D | ● | 56 | 19,500 |
| 8407512 | **12** | 110 | 26 | 11 | | | | ● | 85 | 24,900 |
| 8407516 | **16** | 125 | 32 | 15 | | | | ● | 175 | 32,200 |
| 8407520 | **20** | 140 | 38 | 19 | | | | ● | 310 | 37,300 |
| 8407525 | **25** | 160 | 45 | 24 | 0.8 | 5 | | ● | 546 | 53,300 |


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
吹き飛ばし・吸込・搬送1台で三役!
※詳細は▶P.1178 を参照下さい。 See p.1178 for details





製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| VSS-XPM-RESF | ◎ | | ○ | ◎ | ◎ | ○ | ○ | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 深彫り用VコートXPMファインピッチラフィングエンドミルショート形

**V Coated XPM Roughing End Mill Fine Pitch Short Length for Deep Contouring**

## VP-DE-RESF

切削条件 Cutting Conditions | P908



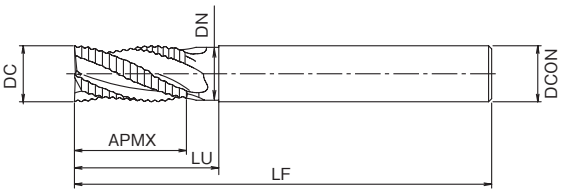
CAD

XPM | V | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 首下長 LU | 首径 DN | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8456716 | **16** | 180 | 32 | 16 | 44 | 15.6 | 0.6 | 4 | B | ● | 295 | 29,000 |
| 8456718 | **18** | | | | – | – | | | | ● | 298 | 31,700 |
| 8456720 | **20** | 200 | 38 | 20 | 54 | 19.6 | | | | ● | 505 | 33,900 |
| 8456722 | **22** | | | | – | – | | 5 | | ● | 520 | 39,600 |
| 8456725 | **25** | 225 | 45 | 25 | 65 | 24.4 | 0.8 | | | ● | 821 | 47,600 |
| 8456728 | **28** | | | | – | – | | | | ● | 900 | 56,500 |
| 8456730 | **30** | | | | – | – | | 6 | | ● | 932 | 70,600 |
| 8456735 | **35** | 250 | 53 | 32 | – | – | | | | ● | 1,562 | 103,000 |
| 8456740 | **40** | | 63 | | – | – | | | | ● | 1,655 | 141,000 |

外径35mm以上はセンタ穴付きです。Mill Dia.≧φ35:with center hole.




OSGのPSシリーズ
商品シリーズ Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177を参照下さい。 See p.1177 for details

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **VP-DE-RESF** | ◎ | | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコートXPMファインピッチラフィング エンドミルロングシャンク

**TiN Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank**

## TLS-XPM-RESF

切削条件 Cutting Conditions | P913



XPM | TiN | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **7** | 80 | 14 | 8 | | | □ | – | – |
| | **10** | 100 | 22 | 10 | | – | □ | – | – |
| | **12** | 110 | 26 | 12 | 3 | | □ | – | – |
| | **14** | | | | | | □ | – | – |
| 8403615 | **15** | 120 | | 16 | | D | ▲ | 180 | 32,200 |
| | **18** | 125 | 32 | | | – | □ | – | – |
| 8403628 | **28** | 160 | 45 | 25 | 4 | D | ▲ | 625 | 66,800 |

▲＝この製品は、VLS-XPM-RESF（P.841）へ切り替え生産させていただいております。（在庫をご確認下さい。）

▲＝These products have been stopped producing and replaced by VLS-XPM-RESF(p.841)


OSGのPSシリーズ

**商品シリーズ** Parts & Supply series

※詳細は▶P.1170 を参照下さい。
See p.1170 for details

標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TLS-XPM-RESF** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● ＝ 標準在庫品 Standard stock item
- ○ ＝ 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ ＝ 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ ＝ 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ ＝ 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコートハイスファインピッチラフィングエンドミルショート形
**TiN Coated Roughing End Mill Fine Pitch Short Length**

## EX-TIN-RESF

切削条件 Cutting Conditions | P919



TiNコーティングを施した重切削用ラフィングエンドミルショート刃シリーズです。
TiN coated roughing end mill with short flute for heavy milling.

CAD

HSS-Co | TiN | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88506 | 6 | 57 | 13 | 6 | 4 | A | ● | 15 | 10,300 |
| 88507 | 7 | 66 | 16 | 10 | 4 | A | ● | 37 | 11,500 |
| 88508 | 8 | 69 | 19 | 10 | 4 | A | ● | 38 | 11,500 |
| 88509 | 9 | 69 | 19 | 10 | 4 | D | ● | 38 | 16,900 |
| 88510 | 10 | 72 | 22 | 10 | 4 | A | ● | 44 | 12,900 |
| 88511 | 11 | 79 | 22 | 12 | 4 | D | ● | 66 | 21,400 |
| 88512 | 12 | 83 | 26 | 12 | 4 | A | ● | 72 | 16,300 |
| 88513 | 13 | 83 | 26 | 12 | 4 | D | ● | 74 | 23,500 |
| 88514 | 14 | 83 | 26 | 12 | 4 | A | ● | 83 | 18,100 |
| 88515 | 15 | 83 | 26 | 12 | 4 | A | ● | 85 | 18,900 |
| 88516 | 16 | 92 | 32 | 16 | 4 | A | ● | 136 | 20,100 |
| 88517 | 17 | 92 | 32 | 16 | 4 | D | ● | 141 | 28,500 |
| 88518 | 18 | 92 | 32 | 16 | 4 | A | ● | 144 | 22,200 |
| 88519 | 19 | 92 | 32 | 16 | 4 | D | ● | 150 | 30,500 |
| 88520 | 20 | 104 | 38 | 20 | 4 | A | ● | 232 | 23,500 |
| 88521 | 21 | 104 | 38 | 20 | 4 | D | ● | 239 | 36,000 |
| 88522 | 22 | 104 | 38 | 20 | 5 | A | ● | 249 | 27,400 |
| 88523 | 23 | 104 | 38 | 20 | 5 | D | ● | 270 | 42,700 |
| 88524 | 24 | 121 | 45 | 25 | 5 | D | ● | 418 | 42,700 |
| 88525 | 25 | 121 | 45 | 25 | 5 | A | ● | 429 | 33,000 |
| 88526 | 26 | 121 | 45 | 25 | 5 | D | ● | 456 | 47,100 |
| 88527 | 27 | 121 | 45 | 25 | 5 | D | ● | 465 | 51,000 |
| 88528 | 28 | 121 | 45 | 25 | 5 | A | ● | 475 | 39,000 |
| 88529 | 29 | 121 | 45 | 25 | 5 | D | ● | 488 | 64,000 |
| 88530 | 30 | 121 | 45 | 25 | 6 | A | ● | 507 | 49,100 |
| 88531 | 31 | 133 | 53 | 32 | 6 | D | ● | 811 | 74,100 |

外径31mm以上はセンタ穴付きです。Mill Dia.≧φ31 : with center hole.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88532 | 32 | 133 | 53 | 32 | 6 | B | ● | 832 | 56,700 |
| 88533 | 33 | 133 | 53 | 32 | 6 | D | ● | 842 | 87,500 |
| 88534 | 34 | 133 | 53 | 32 | 6 | D | ● | 867 | 87,500 |
| 88535 | 35 | 133 | 53 | 32 | 6 | B | ● | 870 | 67,000 |
| 88536 | 36 | 133 | 53 | 32 | 6 | D | ● | 888 | 103,000 |
| 88537 | 37 | 133 | 53 | 32 | 6 | D | ● | 910 | 113,000 |
| 88538 | 38 | 143 | 63 | 32 | 6 | D | ● | 976 | 115,000 |
| 88539 | 39 | 143 | 63 | 32 | 6 | D | ● | 1,000 | 120,000 |
| 88540 | 40 | 143 | 63 | 32 | 6 | B | ● | 1,018 | 92,200 |
| 88541 | 41 | 165 | 63 | 42 | 6 | D | ● | 1,713 | 137,000 |
| 88542 | 42 | 165 | 63 | 42 | 6 | D | ● | 1,761 | 138,000 |
| 88543 | 43 | 165 | 63 | 42 | 6 | D | ● | 1,764 | 157,000 |
| 88544 | 44 | 165 | 63 | 42 | 6 | D | ● | 1,766 | 157,000 |
| 88545 | 45 | 165 | 63 | 42 | 6 | B | ● | 1,782 | 119,000 |
| 88546 | 46 | 165 | 63 | 42 | 6 | D | ● | 1,820 | 169,000 |
| 88547 | 47 | 165 | 63 | 42 | 6 | D | ● | 1,827 | 174,000 |
| 88548 | 48 | 177 | 75 | 42 | 6 | D | ● | 1,960 | 174,000 |
| 88549 | 49 | 177 | 75 | 42 | 6 | D | ● | 2,000 | 193,000 |
| 88550 | 50 | 177 | 75 | 42 | 6 | B | ● | 2,040 | 147,000 |
| ◆ | 55 | 177 | 75 | 42 | 6 | – | □ | – | – |
| ◆ | 60 | 177 | 75 | 42 | 6 | – | □ | – | – |
| ◆ | 65 | 177 | 75 | 42 | 6 | – | □ | – | – |
| ◆ | 70 | 192 | 90 | 42 | 6 | – | □ | – | – |
| ◆ | 75 | 192 | 90 | 42 | 6 | – | □ | – | – |
| ◆ | 80 | 208 | 106 | 42 | 6 | – | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

最新の加工動画を公開中 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EX-TIN-RESF | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコートハイスファインピッチラフィング エンドミルロングシャンクショート形
**TiN Coated Roughing End Mill Fine Pitch Short Length with Long Shank**

## TIN-LS-RESF



TiNコーティングを施したラフィングエンドミルです。切りくず排出性を重視した刃形となっています。
TiN coated roughing end mill. Flute form is designed for smooth chip discharge.

CAD

HSS-Co | TiN | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 71356 | **6** | 80 | 11 | 6 | 3 | B | ● | 22 | 10,300 |
| 71357 | **7** | | 14 | 8 | | B | ● | 33 | 11,500 |
| 71358 | **8** | 85 | 17 | | | | ● | 36 | 11,500 |
| | **9** | 95 | 19 | 10 | | – | □ | – | – |
| 71360 | **10** | 100 | 22 | | | B | ● | 62 | 12,900 |
| | **11** | 105 | | 12 | | – | □ | – | – |
| 71362 | **12** | 110 | 26 | | | B | ● | 94 | 16,300 |
| | **13** | | | | | – | □ | – | – |
| 71364 | **14** | | | | | B | ● | 105 | 18,100 |
| 71365 | **15** | 120 | | 16 | | | ● | 186 | 18,900 |
| 71366 | **16** | 125 | 32 | | | | ● | 191 | 20,100 |
| | **17** | | | | | – | □ | – | – |
| 71368 | **18** | | | | | B | ● | 201 | 22,200 |
| | **19** | 135 | | 20 | | – | □ | – | – |
| 71370 | **20** | 140 | 38 | | | B | ● | 327 | 23,500 |
| | **21** | | | | | – | □ | – | – |
| 71372 | **22** | | | | | B | ● | 340 | 27,400 |
| | **23** | | | | | – | □ | – | – |
| ◆ | **24** | 160 | 45 | 25 | 4 | | □ | – | – |
| 71375 | **25** | | | | | B | ● | 580 | 33,000 |
| ◆ | **26** | | | | | – | □ | – | – |
| ◆ | **27** | | | | | | □ | – | – |
| 71378 | **28** | | | | | B | ● | 627 | 39,000 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | **29** | 160 | 45 | 25 | 4 | – | □ | – | – |
| 71380 | **30** | | | | | B | ● | 653 | 49,100 |
| ◆ | **31** | 170 | 53 | | | – | □ | – | – |
| 71382 | **32** | | | | | B | ● | 749 | 56,700 |
| ◆ | **33** | | | | | – | □ | – | – |
| ◆ | **34** | 175 | | 32 | 6 | – | □ | – | – |
| 71385 | **35** | | | | | B | ● | 1,137 | 67,000 |
| ◆ | **36** | | | | | – | □ | – | – |
| ◆ | **37** | | | | | | □ | – | – |
| ◆ | **38** | 185 | 63 | | | – | □ | – | – |
| ◆ | **39** | | | | | | □ | – | – |
| 71390 | **40** | | | | | B | ● | 1,289 | 92,200 |
| ◆ | **41** | | | | | – | □ | – | – |
| ◆ | **42** | | | | | | □ | – | – |
| ◆ | **43** | | | | | | □ | – | – |
| ◆ | **44** | | | | | | □ | – | – |
| 71395 | **45** | | | | | B | ● | 1,457 | 119,000 |
| ◆ | **46** | | | | | – | □ | – | – |
| ◆ | **47** | | | | | | □ | – | – |
| ◆ | **48** | 210 | 75 | 42 | | – | □ | – | – |
| ◆ | **49** | | | | | | □ | – | – |
| 71400 | **50** | | | | | B | ● | 2,376 | 147,000 |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。 See p.1175 for details





デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TIN-LS-RESF** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ハイスファインピッチラフィングエンドミル ロングシャンクショート形

**Roughing End Mill Fine Pitch Short Length with Long Shank**

## EX-LS-RESF

切削条件 Cutting Conditions | P922



HSS-Co　25°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 87806 | **6** | 80 | 11 | 6 | 3 | D | ● | 30 | 8,880 |
| 87807 | **7** | | 14 | 8 | | | ● | 34 | 9,660 |
| 87808 | **8** | 85 | 17 | | | | ● | 36 | 9,660 |
| 87809 | **9** | 95 | 19 | 10 | | | ● | 60 | 12,000 |
| 87810 | **10** | 100 | 22 | | | | ● | 62 | 10,700 |
| 87811 | **11** | 105 | | 12 | | | ● | 89 | 13,200 |
| 87812 | **12** | 110 | 26 | | | | ● | 94 | 13,100 |
| 87813 | **13** | | | | | | ● | 97 | 16,100 |
| 87814 | **14** | | | | | | ● | 105 | 15,200 |
| 87815 | **15** | 120 | | 16 | | | ● | 185 | 16,000 |
| 87816 | **16** | 125 | 32 | | | | ● | 195 | 16,900 |
| 87817 | **17** | | | | | | ● | 197 | 21,700 |
| 87818 | **18** | | | | | | ● | 201 | 19,000 |
| 87819 | **19** | 135 | | 20 | | | ● | 316 | 23,300 |
| 87820 | **20** | 140 | 38 | | | | ● | 328 | 20,400 |
| 87821 | **21** | | | | | | ● | 335 | 25,300 |
| 87822 | **22** | | | | | | ● | 338 | 25,300 |
| 87823 | **23** | | | | | | ● | 346 | 31,400 |
| 87824 | **24** | 160 | 45 | 25 | 4 | | ● | 574 | 37,300 |
| 87825 | **25** | | | | | | ● | 584 | 28,200 |
| 87826 | **26** | | | | | | ● | 614 | 38,000 |
| 87827 | **27** | | | | | | ● | 615 | 41,600 |
| 87828 | **28** | | | | | | ● | 631 | 35,200 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 87829 | **29** | 160 | 45 | 25 | 4 | D | ● | 642 | 52,300 |
| 87830 | **30** | | | | | | ● | 653 | 42,300 |
| 87831 | **31** | 170 | 53 | | | | ● | 739 | 60,900 |
| 87832 | **32** | | | | | | ● | 755 | 53,600 |
| 87833 | **33** | | | | | | ● | 766 | 68,100 |
| 87834 | **34** | 175 | | 32 | 6 | | ● | 1,128 | 71,400 |
| 87835 | **35** | | | | | | ● | 1,108 | 58,500 |
| 87836 | **36** | | | | | | ● | 1,140 | 83,200 |
| 87837 | **37** | | | | | | ● | 1,167 | 89,400 |
| 87838 | **38** | 185 | 63 | | | | ● | 1,246 | 94,500 |
| 87839 | **39** | | | | | | ● | 1,266 | 101,000 |
| 87840 | **40** | | | | | | ● | 1,281 | 77,900 |
| 87841 | **41** | | | | | | ● | 1,377 | 104,000 |
| 87842 | **42** | | | | | | ● | 1,399 | 104,000 |
| 87843 | **43** | | | | | | ● | 1,409 | 124,000 |
| 87844 | **44** | | | | | | ● | 1,430 | 124,000 |
| 87845 | **45** | | | | | | ● | 1,454 | 109,000 |
| 87846 | **46** | | | | | | ● | 1,480 | 132,000 |
| 87847 | **47** | | | | | | ● | 1,497 | 140,000 |
| 87848 | **48** | 210 | 75 | 42 | | | ● | 2,320 | 152,000 |
| 87849 | **49** | | | | | | ● | 2,340 | 160,000 |
| 87850 | **50** | | | | | | ● | 2,400 | 131,000 |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1176を参照下さい。 See p.1176 for details
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、水・油・ヘドロをスピード吸入・スピード吐出



**デジタルカタログで最新情報を公開中** ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-LS-RESF** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ハイスラフィングエンドミルショート形
**Roughing End Mill Short Length**

## EX-REES

切削条件 Cutting Conditions | P921



重切削ラフィングエンドミルのショート刃シリーズです。
Roughing end mill with short flute for heavy milling.

CAD

HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **3** | 52 | 8 | 6 | 3 | – | □ | – | – |
| | **4** | | | | | | □ | – | – |
| | **5** | 57 | 13 | | | | □ | – | – |
| 81506 | **6** | | | | 4 | A | ● | 15 | 6,860 |
| 81507 | **7** | 66 | 16 | 10 | | | ● | 37 | 7,580 |
| 81508 | **8** | | | | | | ● | 40 | 7,580 |
| 81509 | **9** | 69 | 19 | | | B | ● | 41 | 8,600 |
| 81510 | **10** | 72 | 22 | | | A | ● | 43 | 8,600 |
| 81511 | **11** | 79 | | 12 | | B | ● | 65 | 10,800 |
| 81512 | **12** | 83 | 26 | | | A | ● | 72 | 10,800 |
| 81513 | **13** | | | | | B | ● | 73 | 11,900 |
| 81514 | **14** | | | | | A | ● | 83 | 11,900 |
| 81515 | **15** | | | | | | ● | 86 | 12,500 |
| 81516 | **16** | 92 | 32 | 16 | | D | ● | 135 | 13,200 |
| 81517 | **17** | | | | | | ● | 140 | 20,600 |
| 81518 | **18** | | | | | A | ● | 144 | 14,800 |
| 81519 | **19** | | | | | D | ● | 149 | 22,200 |
| 81520 | **20** | 104 | 38 | 20 | | A | ● | 234 | 15,700 |
| 81521 | **21** | | | | | | ● | 240 | 25,800 |
| 81522 | **22** | | | | 5 | D | ● | 249 | 20,600 |
| 81523 | **23** | | | | | | ● | 268 | 30,500 |
| 81524 | **24** | 121 | 45 | 25 | | B | ● | 416 | 22,200 |
| 81525 | **25** | | | | | A | ● | 433 | 22,200 |
| 81526 | **26** | | | | | D | ● | 456 | 33,000 |
| 81527 | **27** | | | | | | ● | 465 | 36,500 |
| 81528 | **28** | | | | | | ● | 474 | 29,400 |
| 81529 | **29** | | | | | | ● | 483 | 46,100 |

外径31mm以上はセンタ穴付きです。 Mill Dia.≧φ31 : with center hole.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 81530 | **30** | 121 | 45 | 25 | 6 | A | ● | 509 | 33,300 |
| 81531 | **31** | 133 | 53 | 32 | | D | ● | 806 | 53,300 |
| 81532 | **32** | | | | | A | ● | 830 | 38,100 |
| 81533 | **33** | | | | | D | ● | 837 | 63,700 |
| 81534 | **34** | | | | | | ● | 856 | 63,700 |
| 81535 | **35** | | | | | A | ● | 872 | 45,400 |
| 81536 | **36** | | | | | D | ● | 889 | 68,700 |
| 81537 | **37** | | | | | | ● | 876 | 78,900 |
| 81538 | **38** | 143 | 63 | | | B | ● | 978 | 56,500 |
| 81539 | **39** | | | | | D | ● | 990 | 87,300 |
| 81540 | **40** | | | | | A | ● | 1,024 | 62,500 |
| 81541 | **41** | 165 | | 42 | | D | ● | 1,678 | 95,600 |
| 81542 | **42** | | | | | B | ● | 1,747 | 68,000 |
| 81543 | **43** | | | | | D | ● | 1,739 | 116,000 |
| 81544 | **44** | | | | | | ● | 1,744 | 116,000 |
| 81545 | **45** | | | | | | ● | 1,793 | 92,000 |
| 81546 | **46** | | | | | | ● | 1,800 | 116,000 |
| 81547 | **47** | | | | | | ● | 1,822 | 123,000 |
| 81548 | **48** | 177 | 75 | | | B | ● | 1,966 | 89,300 |
| 81549 | **49** | | | | | D | ● | 1,987 | 138,000 |
| 81550 | **50** | | | | | | ● | 2,043 | 110,000 |
| ◆ | **55** | 192 | 90 | | | – | □ | – | – |
| ◆ | **60** | | | | | | □ | – | – |
| ◆ | **65** | | | | | | □ | – | – |
| ◆ | **70** | | | | | | □ | – | – |
| ◆ | **75** | | | | | | □ | – | – |
| ◆ | **80** | 208 | 106 | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。 ◆ : Shank with two flat face.


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。 See p.1175 for details





OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-REES** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ハイスラフィングエンドミルロングシャンク ショート形
**Roughing End Mill Short Length with Long Shank**

## EX-LS-REES



重切削ラフィングエンドミルのロングシャンクシリーズです。
Roughing end mill with long shank for heavy milling.

CAD

HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 70806 | **6** | 80 | 13 | 6 | 4 | D | ● | 22 | 9,820 |
| 70807 | **7** | | 16 | 8 | | | ● | 34 | 10,700 |
| 70808 | **8** | 85 | 19 | | | | ● | 36 | 10,700 |
| 70809 | **9** | 95 | | 10 | | | ● | 60 | 12,000 |
| 70810 | **10** | 100 | 22 | | | | ● | 64 | 11,700 |
| 70811 | **11** | 105 | | 12 | | | ● | 91 | 13,200 |
| 70812 | **12** | 110 | 26 | | | | ● | 96 | 14,300 |
| 70813 | **13** | | | | | | ● | 103 | 16,100 |
| 70814 | **14** | | | | | | ● | 108 | 16,800 |
| 70815 | **15** | 120 | | 16 | | | ● | 183 | 17,900 |
| 70816 | **16** | 125 | 32 | | | | ● | 195 | 18,500 |
| 70817 | **17** | | | | | | ● | 200 | 21,700 |
| 70818 | **18** | | | | | | ● | 207 | 20,600 |
| 70819 | **19** | 135 | | 20 | | | ● | 321 | 23,300 |
| 70820 | **20** | 140 | 38 | | | | ● | 332 | 22,300 |
| 70821 | **21** | | | | | | ● | 339 | 25,300 |
| 70822 | **22** | | | | | | ● | 349 | 28,000 |
| 70823 | **23** | | | | | | ● | 362 | 31,400 |
| 70824 | **24** | 160 | 45 | 25 | | | ● | 569 | 37,300 |
| 70825 | **25** | | | | | | ● | 597 | 30,700 |
| 70826 | **26** | | | | | | ● | 628 | 38,000 |
| 70827 | **27** | | | | | | ● | 635 | 41,600 |
| 70828 | **28** | | | | | | ● | 647 | 38,900 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 70829 | **29** | 160 | 45 | 25 | 4 | D | ● | 656 | 52,300 |
| 70830 | **30** | | | | 6 | | ● | 673 | 46,400 |
| 70831 | **31** | 170 | 53 | | | | ● | 741 | 60,900 |
| 70832 | **32** | | | | | | ● | 762 | 59,300 |
| 70833 | **33** | | | | | | ● | 782 | 68,100 |
| 70834 | **34** | 175 | | 32 | | | ● | 1,128 | 71,400 |
| 70835 | **35** | | | | | | ● | 1,151 | 64,300 |
| 70836 | **36** | | | | | | ● | 1,131 | 83,200 |
| 70837 | **37** | | | | | | ● | 1,136 | 89,400 |
| 70838 | **38** | 185 | 63 | | | | ● | 1,213 | 94,500 |
| 70839 | **39** | | | | | | ● | 1,236 | 101,000 |
| 70840 | **40** | | | | | | ● | 1,290 | 85,500 |
| 70841 | **41** | | | | | | ● | 1,389 | 104,000 |
| 70842 | **42** | | | | | | ● | 1,415 | 104,000 |
| 70843 | **43** | | | | | | ● | 1,411 | 124,000 |
| 70844 | **44** | | | | | | ● | 1,429 | 124,000 |
| 70845 | **45** | | | | | | ● | 1,472 | 120,000 |
| 70846 | **46** | | | | | | ● | 1,490 | 132,000 |
| 70847 | **47** | | | | | | ● | 1,512 | 140,000 |
| 70848 | **48** | 210 | 75 | 42 | | | ● | 2,300 | 152,000 |
| 70849 | **49** | | | | | | ● | 2,337 | 160,000 |
| 70850 | **50** | | | | | | ● | 2,380 | 143,000 |

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-LS-REES** | ○ | | | ○ | ○ | ○ | ○ | | | |

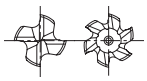
**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

## VコートXPMファインピッチラフィングエンドミル ミディアム形
**V Coated XPM Roughing End Mill Fine Pitch Medium Length**

## VP-RENF

切削条件 Cutting Conditions | P909





Vコーティングを施した粉末ハイスXPMラフィングミディアム刃シリーズです。難削材にも効果を発揮します。

Vcoated roughing end mill with medium flute. This tool is made of powder metallurgy XPM and is suitable for milling difficult to machine materials.

CAD

XPM | V | 30°

（単位:mm）(Unit:mm)

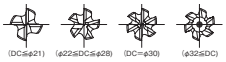
| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8456606 | 6 | 80 | 16 | 6 | 0.5 | 4 | B | ● | 22 | 13,900 |
| 8456607 | 7 | | 20 | 8 | | | | ● | 34 | 16,900 |
| 8456608 | 8 | 85 | 25 | | | | | ● | 36 | 16,900 |
| 8456610 | 10 | 100 | 32 | 10 | 0.6 | | | ● | 62 | 18,900 |
| 8456612 | 12 | 110 | 40 | 12 | | | | ● | 95 | 23,300 |
| 8456614 | 14 | | | | | | | ● | 106 | 27,200 |
| 8456615 | 15 | 120 | | 16 | | | | ● | 179 | 29,000 |
| 8456616 | 16 | 125 | 48 | | | | | ● | 186 | 29,700 |
| 8456618 | 18 | | | | | | | ● | 200 | 33,500 |
| 8456620 | 20 | 140 | 56 | 20 | | | | ● | 326 | 41,400 |
| 8456622 | 22 | | | | | 5 | | ● | 343 | 50,900 |
| 8456625 | 25 | 160 | 67 | 25 | 0.8 | | | ● | 571 | 58,500 |
| 8456628 | 28 | | | | | | | ● | 631 | 73,300 |
| 8456630 | 30 | | | | | 6 | | ● | 676 | 89,900 |
| 8456632 | 32 | 180 | 80 | 32 | | | | ● | 1,008 | 108,000 |
| 8456635 | 35 | | | | | | | ● | 1,149 | 125,000 |
| 8456640 | 40 | 200 | 95 | 42 | | | | ● | 1,405 | 164,000 |
| 8456645 | 45 | 210 | | | | | | ● | 2,228 | 189,000 |
| 8456650 | 50 | 225 | 112 | | 1 | | | ● | 2,582 | 244,000 |

外径32mm以上はセンタ穴付きシャンクです。
Mill Dia.≧φ32 : with center hole.

## WXLコートハイスファインピッチラフィング エンドミルミディアム形
**WXL Coated Roughing End Mill Fine Pitch Medium Length**

## WH-RENF

切削条件 Cutting Conditions | P918






ドライもウェットも幅広く切削可能な次世代ハイスラフィングエンドミルです。

The next generation of HSS roughing end mill. Supporting a wide range of machining applications, wet or dry.

CAD

HSS-Co | WXL | DC= 6 ±0.06 / 6<DC≦10 ±0.075 / 10<DC≦18 ±0.09 / 18<DC≦30 ±0.105 / 30<DC≦40 ±0.125 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8408856 | 6 | 80 | 16 | 6 | 4 | B | ● | 22 | 12,000 |
| 8408857 | 7 | | 20 | 10 | | | ● | 44 | 13,200 |
| 8408858 | 8 | 85 | 25 | | | | ● | 47 | 13,200 |
| 8408859 | 9 | | | | | D | ● | 50 | 19,500 |
| 8408860 | 10 | 100 | 32 | 12 | | B | ● | 62 | 15,100 |
| 8408861 | 11 | | | | | D | ● | 83 | 25,300 |
| 8408862 | 12 | 110 | 40 | | | B | ● | 93 | 19,600 |
| 8408863 | 13 | | | | | D | ● | 97 | 26,900 |
| 8408864 | 14 | | | | | B | ● | 108 | 20,800 |
| 8408865 | 15 | 120 | | | | | ● | 127 | 23,300 |
| 8408866 | 16 | 125 | 48 | 16 | | | ● | 188 | 24,700 |
| 8408867 | 17 | | | | | D | ● | 198 | 33,000 |
| 8408868 | 18 | | | | | B | ● | 204 | 25,700 |
| 8408869 | 19 | | | | | D | ● | 211 | 37,100 |
| 8408870 | 20 | 140 | 56 | 20 | | B | ● | 320 | 29,000 |
| 8408871 | 21 | | | | | D | ● | 329 | 44,400 |
| 8408872 | 22 | | | | 5 | | ● | 336 | 36,000 |
| 8408873 | 23 | | | | | | ● | 350 | 51,600 |
| 8408874 | 24 | 160 | 67 | 25 | | B | ● | 546 | 51,600 |
| 8408875 | 25 | | | | | | ● | 562 | 39,600 |
| 8408876 | 26 | | | | | D | ● | 600 | 57,600 |
| 8408877 | 27 | | | | | | ● | 612 | 61,600 |
| 8408878 | 28 | | | | | | ● | 622 | 50,300 |
| 8408880 | 30 | | | | 6 | B | ● | 650 | 54,200 |
| 8408882 | 32 | 180 | 80 | 32 | | | ● | 1,080 | 67,000 |
| 8408885 | 35 | | | | | | ● | 1,143 | 75,600 |
| 8408890 | 40 | 200 | 95 | | | | ● | 1,397 | 106,000 |

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| VP-RENF | ◎ | ○ | ◎ | ◎ | ○ | ○ | ◎ | ◎ | |
| WH-RENF | ◎ | | ◎ | ◎ | ○ | ○ | ◎ | ◎ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコートハイスファインピッチラフィングエンドミルミディアム形

**TiN Coated Roughing End Mill Fine Pitch Medium Length**

## EX-TIN-RENF

切削条件 Cutting Conditions | P920



TiNコーティングを施した重切削用ラフィングエンドミルミディアム刃シリーズです。

TiN coated roughing end mill with medium flute for heavy milling.

CAD

HSS-Co | TiN | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88456 | **6** | 60 | 16 | 6 | 4 | B | ● | 16 | 12,000 |
| 88457 | **7** | 70 | 20 | 10 | | B | ● | 38 | 13,200 |
| 88458 | **8** | 75 | 25 | | | | ● | 41 | 13,200 |
| 88459 | **9** | | | | | D | ● | 44 | 19,500 |
| 88460 | **10** | 82 | 32 | | | B | ● | 49 | 15,100 |
| 88461 | **11** | 89 | | 12 | | D | ● | 73 | 25,300 |
| 88462 | **12** | 97 | 40 | | | B | ● | 80 | 19,600 |
| 88463 | **13** | | | | | D | ● | 84 | 26,900 |
| 88464 | **14** | | | | | B | ● | 96 | 20,800 |
| 88465 | **15** | | | | | | ● | 100 | 23,300 |
| 88466 | **16** | 108 | 48 | 16 | | | ● | 155 | 24,700 |
| 88467 | **17** | | | | | D | ● | 164 | 33,000 |
| 88468 | **18** | | | | | B | ● | 170 | 25,700 |
| 88469 | **19** | | | | | D | ● | 177 | 37,100 |
| 88470 | **20** | 122 | 56 | 20 | | B | ● | 273 | 29,000 |
| 88471 | **21** | | | | | D | ● | 280 | 44,400 |
| 88472 | **22** | | | | 5 | B | ● | 290 | 33,900 |
| 88473 | **23** | | | | | D | ● | 306 | 51,600 |
| 88474 | **24** | 143 | 67 | 25 | | | ● | 465 | 51,600 |
| 88475 | **25** | | | | | B | ● | 484 | 39,600 |
| 88476 | **26** | | | | | D | ● | 520 | 57,600 |
| 88477 | **27** | | | | | | ● | 530 | 61,600 |
| 88478 | **28** | | | | | B | ● | 542 | 46,900 |
| 88479 | **29** | | | | | D | ● | 557 | 70,700 |
| 88480 | **30** | | | | 6 | B | ● | 585 | 54,200 |
| 88481 | **31** | 160 | 80 | 32 | | D | ● | 918 | 87,300 |
| 88482 | **32** | | | | | B | ● | 942 | 67,000 |
| 88483 | **33** | | | | | D | ● | 940 | 98,200 |
| 88484 | **34** | | | | | | ● | 991 | 98,200 |
| 88485 | **35** | | | | | B | ● | 1,019 | 75,600 |
| 88486 | **36** | | | | | D | ● | 1,032 | 119,000 |
| 88487 | **37** | | | | | | ● | 1,058 | 131,000 |
| 88488 | **38** | 175 | 95 | | | | ● | 1,169 | 131,000 |
| 88489 | **39** | | | | | | ● | 1,188 | 138,000 |
| 88490 | **40** | | | | | B | ● | 1,243 | 106,000 |
| 88491 | **41** | 197 | | 42 | | D | ● | 1,925 | 160,000 |
| 88492 | **42** | | | | | | ● | 1,974 | 160,000 |
| 88493 | **43** | | | | | | ● | 1,974 | 171,000 |
| 88494 | **44** | | | | | | ● | 2,010 | 171,000 |
| 88495 | **45** | | | | | B | ● | 2,072 | 142,000 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88496 | **46** | 197 | 95 | 42 | 6 | D | ● | 2,079 | 193,000 |
| 88497 | **47** | | | | | | ● | 2,146 | 202,000 |
| 88498 | **48** | 214 | 112 | | | | ● | 2,347 | 202,000 |
| 88499 | **49** | | | | | | ● | 2,352 | 223,000 |
| 88500 | **50** | | | | | B | ● | 2,360 | 173,000 |

外径31mm以上はセンタ穴付きです。

Mill Dia.≧φ31:with center hole.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-TIN-RENF** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# WXLコートハイスラフィングエンドミル ミディアム形
**WXL Coated Roughing End Mill Medium Length**

## WH-REEN

切削条件 Cutting Conditions | P918




ドライもウェットも幅広く切削可能な次世代ハイスラフィングエンドミルです。
The next generation of HSS roughing end mill. Supporting a wide range of machining applications, wet or dry.

CAD

HSS-Co | WXL | 30°

DC= 6 ±0.06
6<DC≦ 10 ±0.075
10<DC≦ 18 ±0.09
18<DC≦ 30 ±0.105
30<DC≦ 40 ±0.125

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8408656 | **6** | 80 | 16 | 6 | 4 | B | ● | 22 | 12,000 |
| 8408657 | **7** | | 20 | 10 | | | ● | 44 | 13,200 |
| 8408658 | **8** | 85 | 25 | | | | ● | 47 | 13,200 |
| 8408659 | **9** | | | | | D | ● | 52 | 19,500 |
| 8408660 | **10** | 100 | 32 | | | B | ● | 62 | 15,100 |
| 8408661 | **11** | | | 12 | | D | ● | 82 | 25,300 |
| 8408662 | **12** | 110 | 40 | | | B | ● | 92 | 19,600 |
| 8408663 | **13** | | | | | D | ● | 97 | 26,900 |
| 8408664 | **14** | | | | | B | ● | 107 | 20,800 |
| 8408665 | **15** | 120 | | | | | ● | 126 | 23,300 |
| 8408666 | **16** | 125 | 48 | 16 | | | ● | 187 | 24,700 |
| 8408667 | **17** | | | | | D | ● | 196 | 33,000 |
| 8408668 | **18** | | | | | B | ● | 201 | 25,700 |
| 8408669 | **19** | | | | | D | ● | 208 | 37,100 |
| 8408670 | **20** | 140 | 56 | 20 | | B | ● | 320 | 29,000 |
| 8408671 | **21** | | | | | D | ● | 329 | 44,400 |
| 8408672 | **22** | | | | 5 | | ● | 335 | 36,000 |
| 8408673 | **23** | | | | | | ● | 348 | 51,600 |
| 8408674 | **24** | 160 | 67 | 25 | | | ● | 542 | 51,600 |
| 8408675 | **25** | | | | | B | ● | 561 | 39,600 |
| 8408676 | **26** | | | | | D | ● | 596 | 57,600 |
| 8408677 | **27** | | | | | | ● | 613 | 61,600 |
| 8408678 | **28** | | | | | | ● | 629 | 50,300 |
| 8408680 | **30** | | | | 6 | B | ● | 668 | 54,200 |
| 8408682 | **32** | 180 | 80 | 32 | | | ● | 1,067 | 67,000 |
| 8408685 | **35** | | | | | | ● | 1,130 | 75,600 |
| 8408690 | **40** | 200 | 95 | | | | ● | 1,397 | 106,000 |


形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

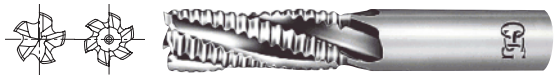

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **WH-REEN** | ○ | | | ○ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ハイスラフィングエンドミルミディアム形
**Roughing End Mill Medium Length**

## EX-REEN



重切削ラフィングエンドミルのミディアム刃シリーズです。
Roughing end mill with medium flute for heavy milling.

CAD

HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 82106 | **6** | 60 | 16 | 6 | 4 | A | ● | 16 | 8,010 |
| 82107 | **7** | 70 | 20 | 10 | | A | ● | 38 | 8,820 |
| 82108 | **8** | 75 | 25 | | | | ● | 42 | 8,820 |
| 82109 | **9** | | | | | D | ● | 44 | 14,000 |
| 82110 | **10** | 82 | 32 | | | A | ● | 48 | 9,990 |
| 82111 | **11** | 89 | | 12 | | D | ● | 72 | 18,200 |
| 82112 | **12** | 97 | 40 | | | A | ● | 81 | 13,000 |
| 82113 | **13** | | | | | D | ● | 84 | 19,300 |
| 82114 | **14** | | | | | A | ● | 96 | 13,800 |
| 82115 | **15** | | | | | | ● | 101 | 15,400 |
| 82116 | **16** | 108 | 48 | 16 | | | ● | 154 | 16,400 |
| 82117 | **17** | | | | | D | ● | 161 | 23,900 |
| 82118 | **18** | | | | | A | ● | 168 | 17,200 |
| 82119 | **19** | | | | | D | ● | 176 | 26,700 |
| 82120 | **20** | 122 | 56 | 20 | | A | ● | 273 | 19,100 |
| 82121 | **21** | | | | | D | ● | 283 | 31,400 |
| 82122 | **22** | | | | 5 | | ● | 292 | 25,300 |
| 82123 | **23** | | | | | | ● | 304 | 36,800 |
| 82124 | **24** | 143 | 67 | 25 | | | ● | 468 | 36,800 |
| 82125 | **25** | | | | | A | ● | 483 | 27,000 |
| 82126 | **26** | | | | | D | ● | 516 | 39,600 |
| 82127 | **27** | | | | | | ● | 531 | 43,700 |
| 82128 | **28** | | | | | | ● | 544 | 34,400 |
| 82129 | **29** | | | | | | ● | 547 | 51,000 |
| 82130 | **30** | | | | 6 | A | ● | 589 | 36,000 |
| 82131 | **31** | 160 | 80 | 32 | | D | ● | 887 | 62,100 |
| 82132 | **32** | | | | | A | ● | 945 | 44,900 |
| 82133 | **33** | | | | | D | ● | 955 | 69,800 |
| 82134 | **34** | | | | | | ● | 985 | 69,800 |
| 82135 | **35** | | | | | A | ● | 1,013 | 50,200 |
| 82136 | **36** | | | | | D | ● | 1,030 | 79,000 |
| 82137 | **37** | | | | | | ● | 1,048 | 90,900 |
| 82138 | **38** | 175 | 95 | | | | ● | 1,168 | 90,900 |
| 82139 | **39** | | | | | | ● | 1,159 | 98,400 |
| 82140 | **40** | | | | | A | ● | 1,233 | 70,300 |
| 82141 | **41** | 197 | | 42 | | D | ● | 1,886 | 106,000 |
| 82142 | **42** | | | | | | ● | 1,916 | 106,000 |
| 82143 | **43** | | | | | | ● | 2,024 | 119,000 |
| 82144 | **44** | | | | | | ● | 1,969 | 119,000 |
| 82145 | **45** | | | | | | ● | 2,050 | 106,000 |

外径31mm以上はセンタ穴付きです。Mill Dia.≧φ31:with center hole.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 82146 | **46** | 197 | 95 | 42 | 6 | D | ● | 2,136 | 128,000 |
| 82147 | **47** | | | | | | ● | 1,998 | 137,000 |
| 82148 | **48** | 214 | 112 | | | | ● | 2,215 | 148,000 |
| 82149 | **49** | | | | | | ● | 2,358 | 159,000 |
| 82150 | **50** | | | | | | ● | 2,400 | 129,000 |

外径31mm以上はセンタ穴付きです。Mill Dia.≧φ31:with center hole.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-REEN** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

## WXLコートハイスファインピッチラフィングエンドミルロング形
**WXL Coated Roughing End Mill Fine Pitch Long Length**

## WH-RELF

切削条件 Cutting Conditions | P918




ドライもウェットも幅広く切削可能な次世代ハイスラフィングエンドミルです。
The next generation of HSS roughing end mill. Supporting a wide range of machining applications, wet or dry.

CAD

HSS-Co | WXL | 10<DC≦18 ±0.09, 18<DC≦30 ±0.105, 30<DC≦40 ±0.125 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8408910 | 10 | 100 | 45 | 10 | 4 | B | ● | 59 | 16,700 |
| 8408912 | 12 | 110 | 53 | 12 | | | ● | 88 | 21,700 |
| 8408914 | 14 | | | | | | ● | 104 | 23,300 |
| 8408915 | 15 | 115 | | | | | ● | 122 | 25,700 |
| 8408916 | 16 | 125 | 63 | 16 | | | ● | 180 | 27,200 |
| 8408918 | 18 | | | | | | ● | 197 | 28,600 |
| 8408920 | 20 | 140 | 75 | 20 | | | ● | 301 | 31,700 |
| 8408922 | 22 | | | | 5 | | ● | 336 | 37,200 |
| 8408925 | 25 | 170 | 90 | 25 | | | ● | 585 | 44,900 |
| 8408928 | 28 | | | | | | ● | 666 | 51,900 |
| 8408930 | 30 | | | | 6 | | ● | 731 | 60,400 |
| 8408932 | 32 | 200 | 106 | 32 | | | ● | 1,187 | 74,100 |
| 8408935 | 35 | | | | | | ● | 1,300 | 87,900 |
| 8408940 | 40 | 220 | 125 | | | | ● | 1,593 | 123,000 |

## WXLコートハイスラフィングエンドミルロング形
**WXL Coated Roughing End Mill Long Length**

## WH-REEL

切削条件 Cutting Conditions | P918




ドライもウェットも幅広く切削可能な次世代ハイスラフィングエンドミルです。
The next generation of HSS roughing end mill. Supporting a wide range of machining applications, wet or dry.

CAD

HSS-Co | WXL | 10<DC≦18 ±0.09, 18<DC≦30 ±0.105, 30<DC≦40 ±0.125 | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8408710 | 10 | 100 | 45 | 10 | 4 | B | ● | 59 | 16,700 |
| 8408712 | 12 | 110 | 53 | 12 | | | ● | 87 | 21,700 |
| 8408714 | 14 | | | | | | ● | 106 | 23,300 |
| 8408715 | 15 | 115 | | | | | ● | 121 | 25,700 |
| 8408716 | 16 | 125 | 63 | 16 | | | ● | 178 | 27,200 |
| 8408718 | 18 | | | | | | ● | 195 | 28,600 |
| 8408720 | 20 | 140 | 75 | 20 | | | ● | 301 | 31,700 |
| 8408722 | 22 | | | | 5 | | ● | 335 | 37,200 |
| 8408725 | 25 | 170 | 90 | 25 | | | ● | 585 | 44,900 |
| 8408728 | 28 | | | | | | ● | 668 | 51,900 |
| 8408730 | 30 | | | | 6 | | ● | 732 | 60,400 |
| 8408732 | 32 | 200 | 106 | 32 | | | ● | 1,180 | 74,100 |
| 8408735 | 35 | | | | | | ● | 1,250 | 87,900 |
| 8408740 | 40 | 220 | 125 | | | | ● | 1,587 | 123,000 |




工具自販機 MONOlithbox モノリスボックス
※詳細はこちら▶ Scan for details
「労働人口減少の2030年問題」対策を! 自動化・省人化に貢献します


OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| WH-RELF | ◎ | | | ◎ | ○ | ○ | ○ | ○ | ○ | |
| WH-REEL | ◎ | | | ○ | ◎ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# VコートXPMファインピッチラフィングエンドミル ロング形
**V Coated XPM Roughing End Mill Fine Pitch Long Length**

## VP-RELF

切削条件 Cutting Conditions | **P909**



Vコーティングを施した粉末ハイスXPMラフィングロング刃シリーズです。
Vcoated roughing end mill with long flute. This tool is made of powder metallurgy XPM.

CAD

XPM | V | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | コーナ面取幅 CHW | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8456660 | **10** | 100 | 45 | 10 | 0.5 | 4 | B | ● | 58 | 20,800 |
| 8456662 | **12** | 110 | 53 | 12 | | | | ● | 89 | 25,200 |
| 8456664 | **14** | | | | | | | ● | 107 | 29,700 |
| 8456665 | **15** | 115 | | 16 | | | | ● | 165 | 31,000 |
| 8456666 | **16** | 125 | 63 | | 0.6 | | | ● | 177 | 32,300 |
| 8456668 | **18** | | | | | | | ● | 199 | 37,000 |
| 8456670 | **20** | 140 | 75 | 20 | | | | ● | 305 | 44,900 |
| 8456672 | **22** | | | | | 5 | | ● | 341 | 54,900 |
| 8456675 | **25** | 170 | 90 | 25 | 0.8 | | | ● | 591 | 63,300 |
| 8456678 | **28** | | | | | | | ● | 675 | 79,600 |
| 8456680 | **30** | | | | | 6 | | ● | 744 | 96,800 |
| 8456682 | **32** | 200 | 106 | 32 | | | | ● | 1,203 | 116,000 |
| 8456685 | **35** | | | | | | | ● | 1,316 | 134,000 |
| 8456690 | **40** | 220 | 125 | | | | | ● | 1,557 | 174,000 |
| 8456695 | **45** | 225 | | 42 | | | | ● | 2,394 | 201,000 |
| 8456700 | **50** | 250 | 150 | | 1 | | | ● | 2,910 | 257,000 |

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **VP-RELF** | ◎ | ○ | ◎ | ○ | ○ | ○ | ○ | ○ | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコートハイスファインピッチラフィング エンドミルロング形
**TiN Coated Roughing End Mill Fine Pitch Long Length**

## EX-TIN-RELF



HSS-Co | TiN | 30°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 6 | 68 | 24 | 6 | 4 | — | □ | — | — |
| | 7 | 80 | 30 | 10 | | | □ | — | — |
| | 8 | 88 | 38 | | | | □ | — | — |
| | 9 | | | | | | □ | — | — |
| 88410 | 10 | 95 | 45 | | | B | ● | 55 | 16,700 |
| | 11 | 102 | | 12 | | — | □ | — | — |
| 88412 | 12 | 110 | 53 | | | B | ● | 89 | 21,700 |
| | 13 | | | | | — | □ | — | — |
| 88414 | 14 | | | | | B | ● | 106 | 23,300 |
| 88415 | 15 | | | | | | ● | 112 | 25,700 |
| 88416 | 16 | 123 | 63 | 16 | | | ● | 175 | 27,200 |
| | 17 | | | | | — | □ | — | — |
| 88418 | 18 | | | | | B | ● | 195 | 28,600 |
| | 19 | | | | | — | □ | — | — |
| 88420 | 20 | 141 | 75 | 20 | | B | ● | 320 | 31,700 |
| | 21 | | | | | — | □ | — | — |
| 88422 | 22 | | | | 5 | B | ● | 342 | 37,200 |
| | 23 | | | | | — | □ | — | — |
| ◆ | 24 | 166 | 90 | 25 | | — | □ | — | — |
| 88425 | 25 | | | | | B | ● | 575 | 44,900 |
| ◆ | 26 | | | | | — | □ | — | — |
| ◆ | 27 | | | | | | □ | — | — |
| 88428 | 28 | | | | | B | ● | 653 | 51,900 |
| ◆ | 29 | | | | | — | □ | — | — |
| 88430 | 30 | | | | 6 | B | ● | 723 | 60,400 |
| ◆ | 31 | 186 | 106 | 32 | | — | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88432 | 32 | 186 | 106 | 32 | 6 | B | ● | 1,100 | 74,100 |
| ◆ | 33 | | | | | — | □ | — | — |
| ◆ | 34 | | | | | | □ | — | — |
| 88435 | 35 | | | | | B | ● | 1,188 | 87,900 |
| ◆ | 36 | | | | | — | □ | — | — |
| ◆ | 37 | | | | | | □ | — | — |
| ◆ | 38 | 205 | 125 | 42 | | | □ | — | — |
| ◆ | 39 | | | | | | □ | — | — |
| 88440 | 40 | | | | | B | ● | 1,521 | 123,000 |
| ◆ | 41 | 227 | | | | — | □ | — | — |
| ◆ | 42 | | | | | | □ | — | — |
| ◆ | 43 | | | | | | □ | — | — |
| ◆ | 44 | | | | | | □ | — | — |
| 88445 | 45 | | | | | B | ● | 2,382 | 165,000 |
| ◆ | 46 | | | | | — | □ | — | — |
| ◆ | 47 | | | | | | □ | — | — |
| ◆ | 48 | 252 | 150 | | | | □ | — | — |
| ◆ | 49 | | | | | | □ | — | — |
| 88450 | 50 | | | | | B | ● | 2,955 | 204,000 |
| ◆ | 55 | | | | | — | □ | — | — |
| ◆ | 60 | | | | | | □ | — | — |
| ◆ | 65 | | | | | | □ | — | — |
| ◆ | 70 | 282 | 180 | | | | □ | — | — |
| ◆ | 75 | | | | | | □ | — | — |
| ◆ | 80 | 314 | 212 | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| EX-TIN-RELF | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# ハイスラフィングエンドミルロング形
**Roughing End Mill Long Length**

## EX-REEL



重切削ラフィングエンドミルのロング刃シリーズです。
Roughing end mill with long flute for heavy milling.

CAD

HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **3** | 62 | 18 | 6 | 3 | – | □ | – | – |
| | **4** | | | | | | □ | – | – |
| | **5** | 68 | 24 | | | | □ | – | – |
| 80846 | **6** | | | | 4 | D | ● | 40 | 12,800 |
| 80847 | **7** | 80 | 30 | 10 | | | ● | 40 | 13,800 |
| 80848 | **8** | 88 | 38 | | | | ● | 48 | 13,800 |
| 80849 | **9** | | | | | | ● | 51 | 15,700 |
| 80850 | **10** | 95 | 45 | | | A | ● | 56 | 11,200 |
| 80851 | **11** | 102 | | 12 | | D | ● | 79 | 20,200 |
| 80852 | **12** | 110 | 53 | | | A | ● | 88 | 14,500 |
| 80853 | **13** | | | | | D | ● | 93 | 21,500 |
| 80854 | **14** | | | | | A | ● | 105 | 15,400 |
| 80855 | **15** | | | | | | ● | 111 | 17,200 |
| 80856 | **16** | 123 | 63 | 16 | | D | ● | 175 | 18,300 |
| 80857 | **17** | | | | | A | ● | 185 | 26,700 |
| 80858 | **18** | | | | | D | ● | 194 | 19,000 |
| 80859 | **19** | | | | | A | ● | 202 | 29,900 |
| 80860 | **20** | 141 | 75 | 20 | | D | ● | 303 | 21,500 |
| 80861 | **21** | | | | | A | ● | 317 | 35,000 |
| 80862 | **22** | | | | 5 | D | ● | 340 | 25,200 |
| 80863 | **23** | | | | | | ● | 349 | 41,400 |
| 80864 | **24** | 166 | 90 | 25 | | A | ● | 547 | 41,400 |
| 80865 | **25** | | | | | D | ● | 571 | 29,500 |
| 80866 | **26** | | | | | | ● | 610 | 43,700 |
| 80867 | **27** | | | | | A | ● | 633 | 48,400 |
| 80868 | **28** | | | | | D | ● | 652 | 34,000 |
| 80869 | **29** | | | | | | ● | 674 | 55,700 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 80870 | **30** | 166 | 90 | 25 | 6 | A | ● | 721 | 40,300 |
| 80871 | **31** | 186 | 106 | 32 | | D | ● | 1,032 | 68,700 |
| 80872 | **32** | | | | | A | ● | 1,099 | 49,500 |
| 80873 | **33** | | | | | D | ● | 1,088 | 82,500 |
| 80874 | **34** | | | | | | ● | 1,160 | 82,500 |
| 80875 | **35** | | | | | A | ● | 1,195 | 60,000 |
| 80876 | **36** | | | | | D | ● | 1,227 | 94,500 |
| 80877 | **37** | | | | | | ● | 1,258 | 108,000 |
| 80878 | **38** | 205 | 125 | | | | ● | 1,398 | 108,000 |
| 80879 | **39** | | | | | | ● | 1,422 | 117,000 |
| 80880 | **40** | | | | | A | ● | 1,496 | 83,100 |
| 80881 | **41** | 227 | | 42 | | D | ● | 2,120 | 126,000 |
| 80882 | **42** | | | | | | ● | 2,180 | 126,000 |
| 80883 | **43** | | | | | | ● | 2,260 | 141,000 |
| 80884 | **44** | | | | | | ● | 2,328 | 141,000 |
| 80885 | **45** | | | | | | ● | 2,380 | 125,000 |
| 80886 | **46** | | | | | | ● | 2,420 | 150,000 |
| 80887 | **47** | | | | | | ● | 2,480 | 161,000 |
| 80888 | **48** | 252 | 150 | | | | ● | 2,750 | 174,000 |
| 80889 | **49** | | | | | | ● | 2,820 | 185,000 |
| 80890 | **50** | | | | | | ● | 2,900 | 154,000 |
| ◆ | **55** | | | | | – | □ | – | – |
| ◆ | **60** | | | | | | □ | – | – |
| ◆ | **65** | 282 | 180 | | | | □ | – | – |
| ◆ | **70** | | | | | | □ | – | – |
| ◆ | **75** | | | | | | □ | – | – |
| ◆ | **80** | 314 | 212 | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-REEL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# ハイスラフィングエンドミルエキストラロング形
**Roughing End Mill Extra Long Length**

## EX-REXL



重切削ラフィングエンドミルの超ロング刃シリーズです。
Roughing end mill with extra long flute for heavy milling.

CAD

HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **6** | 80 | 30 | 6 | 4 | — | □ | — | — |
| | **6** | 90 | 40 | | | | □ | — | — |
| | **7** | | | 8 | | | □ | — | — |
| | **7** | 100 | 50 | | | | □ | — | — |
| | **8** | | 45 | | | | □ | — | — |
| | **8** | 120 | 60 | | | | □ | — | — |
| | **9** | 110 | 50 | 10 | | | □ | — | — |
| | **9** | 120 | 60 | | | | □ | — | — |
| | **10** | | 50 | | | | □ | — | — |
| | **10** | 130 | 60 | | | | □ | — | — |
| | **10** | 140 | 80 | | | | □ | — | — |
| | **10** | 160 | 100 | | | | □ | — | — |
| | **12** | 130 | 60 | 12 | | | □ | — | — |
| | **12** | 150 | 80 | | | | □ | — | — |
| | **12** | 165 | 100 | | | | □ | — | — |
| | **15** | 110 | 60 | 16 | | | □ | — | — |
| | **15** | 150 | 80 | | | | □ | — | — |
| | **15** | 170 | 100 | | | | □ | — | — |
| | **15** | 190 | 120 | | | | □ | — | — |
| | **15** | 220 | 150 | | | | □ | — | — |
| | **16** | 110 | 60 | | | | □ | — | — |
| | **16** | 150 | 80 | | | | □ | — | — |
| | **16** | 170 | 100 | | | | □ | — | — |
| | **16** | 190 | 120 | | | | □ | — | — |
| | **16** | 220 | 150 | | | | □ | — | — |
| | **18** | 115 | 60 | | | | □ | — | — |
| | **18** | 200 | 120 | 20 | | | □ | — | — |
| | **18** | 230 | 150 | | | | □ | — | — |
| | **20** | 125 | 60 | | | | □ | — | — |
| | **20** | 145 | 80 | | | | □ | — | — |
| | **20** | 165 | 100 | | | | □ | — | — |
| 83231 | **20** | 180 | 106 | | | B | ● | 371 | 40,500 |
| 83232 | **20** | 200 | 125 | | | | ● | 418 | 48,400 |
| | **20** | 230 | 150 | | | — | □ | — | — |
| | **22** | 165 | 100 | | 5 | | □ | — | — |
| ◆ | **22** | 240 | 150 | 25 | 4 | | □ | — | — |
| ◆ | **24** | 190 | 100 | | | | □ | — | — |
| ◆ | **24** | 210 | 120 | | | | □ | — | — |
| ◆ | **24** | 240 | 150 | | | | □ | — | — |
| ◆ | **25** | 170 | 100 | | 5 | | □ | — | — |
| ◆ | **25** | 190 | 120 | | | | □ | — | — |
| 83240 | **25** | 210 | 125 | | | B | ● | 678 | 51,900 |
| 83241 | **25** | 235 | 150 | | | | ● | 796 | 60,800 |
| ◆ | **28** | 170 | 100 | | | — | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | **28** | 190 | 120 | 25 | 5 | — | □ | — | — |
| ◆ | **28** | 220 | 150 | | | | □ | — | — |
| ◆ | **30** | 185 | 100 | 32 | 6 | | □ | — | — |
| ◆ | **30** | 205 | 120 | | | | □ | — | — |
| 83249 | **30** | 210 | 125 | 25 | | B | ● | 914 | 55,200 |
| 83250 | **30** | 235 | 150 | | | | ● | 1,016 | 70,600 |
| ◆ | **30** | | | 32 | | — | □ | — | — |
| ◆ | **30** | 285 | 200 | | | | □ | — | — |
| ◆ | **32** | 235 | 150 | | | | □ | — | — |
| ◆ | **32** | 285 | 200 | | | | □ | — | — |
| ◆ | **35** | 205 | 120 | | | | □ | — | — |
| 83258 | **35** | 215 | 125 | | | B | ● | 1,362 | 79,600 |
| 83259 | **35** | 240 | 150 | | | | ● | 1,486 | 97,300 |
| ◆ | **35** | 285 | 200 | | | — | □ | — | — |
| ◆ | **38** | 235 | 120 | | | | □ | — | — |
| ◆ | **38** | | 150 | | | | □ | — | — |
| ◆ | **38** | 285 | 200 | | | | □ | — | — |
| ◆ | **40** | 205 | 120 | | | | □ | — | — |
| 83267 | **40** | 240 | 150 | | | B | ● | 1,727 | 107,000 |
| 83268 | **40** | 270 | 180 | | | | ● | 1,938 | 146,000 |
| ◆ | **40** | 285 | 200 | | | — | □ | — | — |
| ◆ | **40** | 335 | 250 | | | | □ | — | — |
| ◆ | **42** | 240 | 150 | | | | □ | — | — |
| ◆ | **42** | 290 | 200 | | | | □ | — | — |
| 83276 | **45** | 250 | 150 | | | B | ● | 2,650 | 128,000 |
| 83277 | **45** | 280 | 180 | | | | ● | 2,839 | 174,000 |
| ◆ | **45** | 290 | 200 | | | — | □ | — | — |
| ◆ | **45** | 340 | 250 | | | | □ | — | — |
| ◆ | **50** | 240 | 150 | | | | □ | — | — |
| 83285 | **50** | 280 | 180 | | | B | ● | 3,238 | 205,000 |
| ◆ | **50** | 290 | 200 | 42 | | — | □ | — | — |
| 83286 | **50** | 315 | 212 | | | B | ● | 3,662 | 231,000 |
| ◆ | **50** | 340 | 250 | | | — | □ | — | — |
| ◆ | **50** | 390 | 300 | | | | □ | — | — |
| ◆ | **60** | 240 | 150 | | | | □ | — | — |
| ◆ | **60** | 290 | 200 | | | | □ | — | — |
| ◆ | **60** | 340 | 250 | | | | □ | — | — |
| ◆ | **60** | 390 | 300 | | | | □ | — | — |
| ◆ | **60** | 490 | 400 | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel / プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **EX-REXL** | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## VコートXPMエンドミル ハイヘリックスニック付ショート形
**V Coated High Helix XPM Nicked End Mill Short Length**

# V-XPM-NHS

切削条件 Cutting Conditions | P906



切りくずはニックにより適度に分断されます。ステンレス鋼などの溝荒加工に抜群の効果を発揮します。
Chips are broken by specially designed nicks. Suitable for rough slotting in materials such as Stainless Steels.

CAD

XPM | V | DC≦ 6 0~-0.035 / 6<DC≦10 0~-0.04 / 10<DC≦18 0~-0.045 / 18<DC 0~-0.05 | 50°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃数 DC × ZEFP | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8455606 | **6** | 65 | 15 | 8 | 3 | D | ● | 24 | 10,800 |
| 8455607 | **7** | 75 | 20 | 10 | | | ● | 41 | 11,600 |
| 8455608 | **8** | | | | | | ● | 43 | 11,600 |
| 8455609 | **9** | 80 | 25 | | | | ● | 55 | 13,600 |
| 8455610 | **10** | 90 | | 12 | | | ● | 75 | 13,600 |
| 8455611 | **11** | 95 | 30 | | | | ● | 79 | 17,900 |
| 8455612 | **12** | | | | | | ● | 82 | 17,900 |
| 8455614 | **14** | 105 | 35 | 16 | | | ● | 147 | 22,300 |
| 8455615 | **15** | 110 | 40 | | | | ● | 160 | 25,800 |
| 8455616 | **16** | | | | | | ● | 165 | 26,400 |
| 8455618 | **18** | 120 | | 20 | | | ● | 266 | 33,000 |
| 8455620 | **20** | 125 | 45 | | | | ● | 294 | 39,100 |
| 8455622 | **22 × 3F** | 135 | | 25 | | | ● | 443 | 48,900 |
| 8455642 | **22 × 4F** | | | | 4 | | ● | 451 | 48,900 |
| 8455624 | **24 × 3F** | 140 | 50 | | 3 | | ● | 480 | 59,300 |
| 8455644 | **24 × 4F** | | | | 4 | | ● | 480 | 59,300 |
| 8455625 | **25 × 3F** | | | | 3 | | ● | 490 | 59,300 |
| 8455645 | **25 × 4F** | | | | 4 | | ● | 504 | 59,300 |
| 8455628 | **28 × 3F** | 150 | 55 | 32 | 3 | | ● | 815 | 85,000 |
| 8455648 | **28 × 4F** | | | | 4 | | ● | 838 | 85,000 |
| 8455630 | **30 × 3F** | | | | 3 | | ● | 854 | 94,500 |
| 8455650 | **30 × 4F** | | | | 4 | | ● | 854 | 94,500 |

## TiNコートハイスタフニックゴールドエンドミル ショート形
**TiN Coated TUF-NICK End Mill Short Length**

# TFGS

切削条件 Cutting Conditions | P923



CAD

HSS-Co | TiN | DC≦10 0~+0.03 / 10<DC≦50 0~+0.05 | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **5** | 57 | 13 | 6 | 4 | – | □ | – | – |
| 88606 | **6** | | | | | B | ● | 15 | 8,420 |
| 88607 | **7** | 66 | 16 | 10 | | | ● | 37 | 8,790 |
| 88608 | **8** | 69 | 19 | | | | ● | 39 | 9,100 |
| 88609 | **9** | | | | | D | ● | 40 | 13,100 |
| 88610 | **10** | 72 | 22 | | | B | ● | 43 | 11,200 |
| 88611 | **11** | 79 | | 12 | | D | ● | 66 | 15,400 |
| 88612 | **12** | 83 | 26 | | | B | ● | 72 | 13,000 |
| 88613 | **13** | | | | | D | ● | 76 | 19,200 |
| 88614 | **14** | 86 | | 16 | | B | ● | 126 | 16,400 |
| 88615 | **15** | | | | | | ● | 129 | 17,900 |
| 88616 | **16** | 92 | 32 | | | | ● | 142 | 19,000 |
| 88617 | **17** | | | | | D | ● | 144 | 25,900 |
| 88618 | **18** | | | | | B | ● | 147 | 21,700 |
| 88619 | **19** | | | | | D | ● | 154 | 28,800 |
| 88620 | **20** | 104 | 38 | 20 | | B | ● | 237 | 23,100 |
| 88621 | **21** | | | | | D | ● | 240 | 35,200 |
| 88622 | **22** | | | | 5 | B | ● | 255 | 28,600 |
| 88623 | **23** | | | | | D | ● | 273 | 41,400 |
| 88624 | **24** | 121 | 45 | 25 | | | ● | 424 | 44,400 |
| 88625 | **25** | | | | | B | ● | 431 | 32,300 |
| 88626 | **26** | | | | | D | ● | 463 | 43,900 |
| 88627 | **27** | | | | | | ● | 466 | 48,000 |
| 88628 | **28** | | | | | B | ● | 482 | 37,200 |
| 88629 | **29** | | | | | D | ● | 494 | 62,100 |
| 88630 | **30** | 133 | 53 | 32 | 6 | B | ● | 508 | 49,500 |
| 88631 | **31** | | | | | D | ● | 806 | 71,800 |
| 88632 | **32** | | | | | B | ● | 833 | 56,900 |
| 88633 | **33** | | | | | D | ● | 852 | 86,600 |
| 88634 | **34** | | | | | | ● | 867 | 86,600 |
| 88635 | **35** | | | | | B | ● | 879 | 68,000 |
| 88636 | **36** | | | | | D | ● | 899 | 103,000 |
| 88637 | **37** | | | | | | ● | 910 | 107,000 |
| 88638 | **38** | 143 | 63 | 42 | | | ● | 974 | 107,000 |
| 88639 | **39** | | | | | | ● | 991 | 116,000 |
| 88640 | **40** | | | | | B | ● | 1,035 | 92,000 |
| 88641 | **41** | 165 | | | | D | ● | 1,701 | 141,000 |
| 88642 | **42** | | | | | | ● | 1,719 | 141,000 |
| 88643 | **43** | | | | | | ● | 1,778 | 152,000 |
| 88644 | **44** | | | | | | ● | 1,778 | 152,000 |
| 88645 | **45** | | | | | B | ● | 1,788 | 128,000 |
| 88646 | **46** | | | | | D | ● | 1,821 | 168,000 |

次ページへ
外径 DC 47~50 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **V-XPM-NHS** | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | ○ | ○ |
| **TFGS** | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## TiNコートハイスタフニックゴールドエンドミル ショート形
**TiN Coated TUF-NICK End Mill Short Length**

# TFGS

切削条件 Cutting Conditions | P923



HSS-Co | TiN | DC≦10 0〜+0.03 / 10<DC≦50 0〜+0.05 | 25°

CAD

前ページより FROM 外径 DC 5〜46

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88647 | **47** | 165 | 63 | 42 | 6 | D | ● | 1,843 | 178,000 |
| 88648 | **48** | 177 | 75 | | | | ● | 1,999 | 178,000 |
| 88649 | **49** | | | | | | ● | 2,015 | 192,000 |
| 88650 | **50** | | | | | B | ● | 2,041 | 151,000 |

## ハイスタフニックエンドミルショート形
**TUF-NICK End Mill Short Length**

# TFS

切削条件 Cutting Conditions | P923



HSS-Co | DC≦10 0〜+0.03 / 10<DC≦50 0〜+0.05 | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **5** | 57 | 13 | 6 | 4 | – | □ | – | – |
| | **6** | | | | | | □ | – | – |
| 88807 | **7** | 66 | 16 | 10 | | D | ▲ | 37 | 6,620 |
| | **9** | 69 | 19 | | | – | □ | – | – |
| | **10** | 72 | 22 | | | | □ | – | – |
| | **11** | 79 | | 12 | | | □ | – | – |
| | **12** | 83 | 26 | | | | □ | – | – |
| 88814 | **14** | 86 | | 16 | | D | ▲ | 126 | 12,400 |
| 88817 | **17** | 92 | 32 | | | | ▲ | 144 | 18,200 |
| 88819 | **19** | | | | | | ▲ | 151 | 20,600 |
| | **20** | 104 | 38 | 20 | | – | □ | – | – |
| 88821 | **21** | | | | | D | ▲ | 244 | 24,400 |
| 88823 | **23** | | | | 5 | | ▲ | 274 | 29,000 |
| | **24** | 121 | 45 | 25 | | – | □ | – | – |
| 88826 | **26** | | | | | D | ▲ | 463 | 30,700 |
| 88827 | **27** | | | | | | ▲ | 467 | 34,100 |
| 88828 | **28** | | | | | | ▲ | 495 | 28,800 |
| 88829 | **29** | | | | | | ▲ | 495 | 42,300 |
| 88831 | **31** | 133 | 53 | 32 | 6 | | ▲ | 781 | 49,800 |
| 88833 | **33** | | | | | | ▲ | 825 | 58,900 |
| 88834 | **34** | | | | | | ▲ | 843 | 58,900 |
| 88835 | **35** | | | | | | ▲ | 857 | 48,900 |
| 88836 | **36** | | | | | | ▲ | 868 | 65,500 |
| 88837 | **37** | | | | | | ▲ | 890 | 68,500 |
| 88839 | **39** | 143 | 63 | 42 | | | ▲ | 987 | 77,700 |
| 88841 | **41** | 165 | | | | | ▲ | 1,700 | 90,500 |
| 88842 | **42** | | | | | | ▲ | 1,726 | 90,500 |
| | **43** | | | | | – | □ | – | – |
| 88844 | **44** | | | | | D | ▲ | 1,787 | 102,000 |

▲＝この製品は、EX-REES(P.848)・TFGS(P.859)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲＝These products have been stopped producing and replaced by EX-REES(p.848), and TFGS(p.859)

次ページへ 外径 DC 45〜60 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| TFGS | ○ | | | ○ | ○ | ○ | ○ | | | |
| TFS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ハイスタフニックエンドミルショート形
**TUF-NICK End Mill Short Length**

## TFS

切削条件 Cutting Conditions | P923



HSS-Co

DC ≦10 0～+0.03
10<DC ≦50 0～+0.05

25°

前ページより
FROM 外径 DC 5～44

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88845 | **45** | 165 | 63 | 42 | 6 | D | ▲ | 1,796 | 91,500 |
| 88846 | **46** | | | | | | ▲ | 1,814 | 108,000 |
| 88847 | **47** | | | | | | ▲ | 1,854 | 119,000 |
| 88848 | **48** | 177 | 75 | | | | ▲ | 1,984 | 119,000 |
| 88849 | **49** | | | | | | ▲ | 2,025 | 132,000 |
| 88850 | **50** | | | | | | ▲ | 2,073 | 110,000 |
| ◆ | **55** | | | | 8 | – | □ | – | – |
| ◆ | **60** | | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

▲＝この製品は、EX-REES(P.848)・TFGS(P.859)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲＝These products have been stopped producing and replaced by EX-REES(p.848), and TFGS(p.859)

次ページへ
外径 DC 47～50 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TFS** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

## ハイスラフアンドフィニッシュショート形
**Roughing and Finishing End Mill Short Length**

# RFES



ラフアンドフィニッシュエンドミルは、重切削と同時に仕上げ切削も考慮した独特の台形刃形を採用し、重切削に耐える軸直角ニックと刃先強度を持たせてあります。

This series is made for heavy milling operations, yet still provides a high quality surface finish. The tools employ unique trapezoidal cutting edges with a leadless nick on the cutting edge.

CAD

HSS-Co

DC＝ 6 0〜+0.04
6<DC≦10 0〜+0.05
10<DC≦18 0〜+0.07
18<DC≦30 0〜+0.08
30<DC 0〜+0.085

25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 81606 | **6** | 56 | 15 | 6 | 4 | D | ● | 15 | 8,550 |
| 81607 | **7** | | 20 | 8 | | | ● | 21 | 9,350 |
| 81608 | **8** | 63 | | | | | ● | 27 | 9,350 |
| 81610 | **10** | 70 | 25 | 10 | | | ● | 42 | 10,600 |
| 81612 | **12** | 80 | 32 | 12 | | | ● | 67 | 13,200 |
| 81614 | **14** | | | | | | ● | 80 | 14,800 |
| 81615 | **15** | 90 | 36 | 16 | | | ● | 129 | 15,600 |
| 81616 | **16** | | | | | | ● | 132 | 16,400 |
| 81618 | **18** | 100 | 40 | | | | ● | 156 | 17,900 |
| 81620 | **20** | 110 | 45 | 20 | | | ● | 243 | 19,300 |
| 81622 | **22** | | | | 5 | | ● | 250 | 22,300 |
| 81625 | **25** | 125 | 50 | 25 | | | ● | 470 | 26,400 |
| 81628 | **28** | | 56 | | | | ● | 480 | 31,400 |
| 81630 | **30** | 140 | 63 | | 6 | | ● | 665 | 38,300 |
| 81632 | **32** | | | | | | ● | 672 | 44,600 |
| 81635 | **35** | 160 | 70 | 32 | | | ● | 1,036 | 53,300 |
| 81640 | **40** | | | | | | ● | 1,150 | 72,500 |

最新の加工動画を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / 合金鋼 Alloy Steel / プリハードン鋼 Prehardened Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **RFES** | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

## ハイスラフアンドフィニッシュロングシャンクショート形
**Roughing and Finishing End Mill Short Length with Long Shank**

# LS-RFES



ラフアンドフィニッシュエンドミルは、重切削と同時に仕上げ切削も考慮した独特の台形刃形を採用し、重切削に耐える軸直角ニックと刃先強度を持たせてあります。

This series is made for heavy milling operations, yet still provides a high quality surface finish. The tools employ unique trapezoidal cutting edges with a leadless nick on the cutting edge.

CAD

HSS-Co

DC≦10 0〜+0.05
10<DC≦18 0〜+0.07
18<DC≦30 0〜+0.08
30<DC 0〜+0.085

25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 83468 | **8** | 90 | 20 | 8 | 4 | D | ● | 38 | 10,700 |
| 83472 | **10** | 100 | 25 | 10 | | | ● | 64 | 11,700 |
| 83476 | **12** | 115 | 32 | 12 | | | ● | 99 | 14,300 |
| 83480 | **14** | | | | | | ● | 118 | 16,800 |
| 83484 | **15** | 130 | 36 | 16 | | | ● | 193 | 17,900 |
| 83488 | **16** | | | | | | ● | 203 | 18,500 |
| 83492 | **18** | | 40 | | | | ● | 213 | 20,400 |
| 83496 | **20** | 145 | 45 | 20 | | | ● | 339 | 22,200 |
| 83500 | **22** | | | | 5 | | ● | 350 | 27,400 |
| 83504 | **25** | 165 | 50 | 25 | | | ● | 612 | 30,500 |
| 83508 | **28** | 170 | 56 | | | | ● | 683 | 38,000 |
| 83512 | **30** | 180 | 63 | | 6 | | ● | 758 | 44,600 |
| 83516 | **32** | | | | | | ● | 815 | 57,200 |
| 83520 | **35** | 190 | 70 | 32 | | | ● | 1,195 | 61,600 |
| 83524 | **40** | | | | | | ● | 1,343 | 82,300 |
| 83528 | **45** | 215 | 80 | 42 | | | ● | 2,300 | 109,000 |
| 83532 | **50** | 225 | 90 | | 8 | | ● | 2,580 | 138,000 |

## 多刃ハイスベストカットショート形
**Multi-flute Best-Kut End Mill Short Length**

# BKMS

切削条件 Cutting Conditions P924



HSS-Co

0〜+0.05

30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **11** | 90 | 30 | 12 | 4 | — | □ | — | — |
| 8401412 | **12** | | | | | D | ▲ | 75 | 13,400 |
| 8401413 | **13** | 95 | 35 | 16 | | | ▲ | 128 | 15,000 |
| | **14** | | | | | — | □ | — | — |
| 8401416 | **16** | 100 | 40 | | | D | ▲ | 141 | 16,500 |
| | **17** | 110 | | 20 | | — | □ | — | — |
| 8401418 | **18** | | | | | D | ▲ | 227 | 18,400 |
| | **19** | 115 | 45 | | | — | □ | — | — |
| | **20** | | | | | | □ | — | — |
| 8401421 | **21** | | | | | D | ▲ | 262 | 29,500 |
| 8401422 | **22** | | | | | | ▲ | 262 | 23,000 |
| | **24** | 125 | 50 | 25 | | — | □ | — | — |
| | **25** | | | | | | □ | — | — |
| | **26** | | | | | | □ | — | — |
| | **28** | 130 | 55 | | | | □ | — | — |
| 8401430 | **30** | | | | | D | ▲ | 501 | 42,700 |
| | **31** | 160 | 60 | 32 | 6 | — | □ | — | — |
| | **32** | | | | | | □ | — | — |
| | **33** | | | | | | □ | — | — |
| | **34** | | | | | | □ | — | — |
| | **37** | 165 | 65 | | | | □ | — | — |
| | **38** | | | | | | □ | — | — |
| | **39** | | | | | | □ | — | — |
| 8401440 | **40** | | | | | D | ▲ | 1,131 | 78,300 |
| | **50** | 185 | 75 | 42 | | — | □ | — | — |

▲＝この製品は、EX-REES（P.848）へ切り替え生産させていただいております。（在庫をご確認下さい。）

▲＝These products have been stopped producing and replaced by EX-REES(p.848)

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **LS-RFES** | ○ | | | ○ | ○ | ○ | ○ | | | |
| **BKMS** | ○ | | | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ●＝標準在庫品 Standard stock item
- ○＝準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲＝新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □＝特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △＝生産中止品（在庫をご確認下さい。）Discontinued item

# 多刃ハイスベストカットロングシャンクショート形
**Multi-flute Best-Kut End Mill Short Length with Long Shank**

## LS-BKMS



HSS-Co



0～+0.05




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **12** | 150 | 26 | 12 | 4 | – | □ | – | – |
| | **14** | | | | | | □ | – | – |
| | **15** | 155 | | | | | □ | – | – |
| | **16** | | 32 | 16 | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **20** | 185 | 38 | 20 | | | □ | – | – |
| | **22** | | | | | | □ | – | – |
| 8401625 | **25** | 220 | 45 | 25 | | D | ▲ | 794 | 37,300 |
| | **30** | | | | | – | □ | – | – |
| | **32** | 235 | 53 | 32 | 6 | | □ | – | – |
| 8401640 | **40** | | 63 | | | D | ▲ | 1,563 | 100,000 |
| 8401650 | **50** | 285 | 75 | 42 | | | ▲ | 3,171 | 150,000 |

▲＝この製品は、EX-LS-REES（P.849）へ切り替え生産させていただいております。（在庫をご確認下さい。）

▲＝These products have been stopped producing and replaced by EX-LS-REES(p.849)

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **LS-BKMS** | ○ | | | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

● ＝ 標準在庫品 Standard stock item

○ ＝ 準標準在庫品（在庫をご確認下さい。）Limited standard stock item

▲ ＝ 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item

□ ＝ 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.

△ ＝ 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコートハイスタフニックゴールドエンドミル ミディアム形

**TiN Coated TUF-NICK End Mill Medium Length**

## TFGN

切削条件 Cutting Conditions | P923



HSS-Co | TiN | DC≦10 0～+0.03 / 10<DC≦50 0～+0.05 | 25°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **5** | 60 | 16 | 6 | 4 | – | □ | – | – |
| 88656 | **6** | | | | | B | ● | 16 | 9,220 |
| 88657 | **7** | 70 | 20 | 10 | | | ● | 38 | 9,680 |
| 88658 | **8** | 75 | 25 | | | | ● | 41 | 9,990 |
| 88659 | **9** | | | | | D | ● | 43 | 14,300 |
| 88660 | **10** | 82 | 32 | | | B | ● | 47 | 12,100 |
| 88661 | **11** | 89 | | 12 | | D | ● | 72 | 16,900 |
| 88662 | **12** | 97 | 40 | | | B | ● | 80 | 14,500 |
| 88663 | **13** | | | | | D | ● | 84 | 20,900 |
| 88664 | **14** | 100 | | 16 | | B | ● | 136 | 18,100 |
| 88665 | **15** | | | | | | ● | 143 | 19,700 |
| 88666 | **16** | 108 | 48 | | | | ● | 154 | 20,900 |
| 88667 | **17** | | | | | D | ● | 160 | 27,400 |
| 88668 | **18** | | | | | B | ● | 167 | 22,900 |
| 88669 | **19** | | | | | D | ● | 174 | 29,900 |
| 88670 | **20** | 122 | 56 | 20 | | B | ● | 273 | 24,700 |
| 88671 | **21** | | | | | D | ● | 283 | 36,800 |
| 88672 | **22** | | | | 5 | B | ● | 300 | 30,000 |
| 88673 | **23** | | | | | D | ● | 310 | 42,300 |
| 88674 | **24** | 143 | 67 | 25 | | | ● | 477 | 42,300 |
| 88675 | **25** | | | | | B | ● | 485 | 34,000 |
| 88676 | **26** | | | | | D | ● | 530 | 45,800 |
| 88677 | **27** | | | | | | ● | 541 | 50,300 |
| 88678 | **28** | | | | | B | ● | 550 | 40,300 |
| 88679 | **29** | | | | | D | ● | 581 | 67,600 |
| 88680 | **30** | 160 | 80 | 32 | 6 | B | ● | 593 | 52,800 |
| 88681 | **31** | | | | | D | ● | 902 | 76,200 |
| 88682 | **32** | | | | | B | ● | 951 | 60,800 |
| 88683 | **33** | | | | | D | ● | 953 | 92,400 |
| 88684 | **34** | | | | | | ● | 971 | 92,400 |
| 88685 | **35** | | | | | B | ● | 1,027 | 73,300 |
| 88686 | **36** | | | | | D | ● | 1,041 | 117,000 |
| 88687 | **37** | | | | | | ● | 1,072 | 121,000 |
| 88688 | **38** | 175 | 95 | | | | ● | 1,183 | 121,000 |
| 88689 | **39** | | | | | | ● | 1,190 | 131,000 |
| 88690 | **40** | | | | | B | ● | 1,262 | 105,000 |
| 88691 | **41** | 197 | | 42 | | D | ● | 1,943 | 161,000 |
| 88692 | **42** | | | | | | ● | 1,967 | 161,000 |
| 88693 | **43** | | | | | | ● | 1,989 | 173,000 |
| 88694 | **44** | | | | | | ● | 2,073 | 173,000 |
| 88695 | **45** | | | | | B | ● | 2,083 | 139,000 |
| 88696 | **46** | | | | | D | ● | 2,126 | 184,000 |
| 88697 | **47** | | | | | | ● | 2,181 | 195,000 |
| 88698 | **48** | 214 | 112 | | | | ● | 2,359 | 195,000 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88699 | **49** | 214 | 112 | 42 | 6 | D | ● | 2,419 | 214,000 |
| 88700 | **50** | | | | | B | ● | 2,440 | 167,000 |

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TFGN** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# ハイスタフニックエンドミルミディアム形
**TUF-NICK End Mill Medium Length**

## TFN

切削条件 Cutting Conditions | P923



HSS-Co



＜DC ≦10　0～+0.03
10＜DC ≦50　0～+0.05

25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **5** | 60 | 16 | 6 | 4 | – | □ | – | – |
| | **7** | 70 | 20 | 10 | | – | □ | – | – |
| 88858 | **8** | 75 | 25 | | | D | ▲ | 40 | 7,350 |
| | **12** | 97 | 40 | 12 | | – | □ | – | – |
| 88863 | **13** | | | | | D | ▲ | 86 | 14,200 |
| | **14** | 100 | | 16 | | – | □ | – | – |
| | **16** | 108 | 48 | | | | □ | – | – |
| 88867 | **17** | | | | | D | ▲ | 158 | 19,600 |
| 88869 | **19** | | | | | | ▲ | 175 | 22,700 |
| | **20** | 122 | 56 | 20 | | – | □ | – | – |
| 88871 | **21** | | | | | D | ▲ | 283 | 26,700 |
| 88874 | **24** | 143 | 67 | 25 | 5 | | ▲ | 460 | 32,200 |
| | **25** | | | | | – | □ | – | – |
| 88877 | **27** | | | | | D | ▲ | 557 | 38,000 |
| | **29** | | | | | – | □ | – | – |
| 88881 | **31** | 160 | 80 | 32 | 6 | D | ▲ | 912 | 54,600 |
| | **32** | | | | | – | □ | – | – |
| 88883 | **33** | | | | | D | ▲ | 950 | 65,500 |
| 88884 | **34** | | | | | | ▲ | 976 | 65,500 |
| | **35** | | | | | – | □ | – | – |
| 88886 | **36** | | | | | D | ▲ | 1,018 | 77,700 |
| 88887 | **37** | | | | | | ▲ | 1,040 | 82,300 |
| 88888 | **38** | 175 | 95 | | | | ▲ | 1,168 | 82,300 |
| 88889 | **39** | | | | | | ▲ | 1,204 | 92,400 |
| 88891 | **41** | 197 | | 42 | | | ▲ | 1,939 | 105,000 |
| 88892 | **42** | | | | | | ▲ | 1,978 | 105,000 |
| 88893 | **43** | | | | | | ▲ | 2,010 | 117,000 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 88894 | **44** | 197 | 95 | 42 | 6 | D | ▲ | 2,060 | 117,000 |
| 88895 | **45** | | | | | | ▲ | 2,080 | 99,300 |
| 88896 | **46** | | | | | | ▲ | 2,120 | 126,000 |
| 88897 | **47** | | | | | | ▲ | 2,176 | 138,000 |
| 88898 | **48** | 214 | 112 | | | | ▲ | 2,421 | 138,000 |
| 88899 | **49** | | | | | | ▲ | 2,408 | 156,000 |
| 88900 | **50** | | | | | | ▲ | 2,400 | 129,000 |

▲＝この製品は、EX-REEN(P.853)・TFGN(P.865)へ切り替え生産させていただいております。(在庫をご確認下さい。)

▲＝These products have been stopped producing and replaced by EX-REEN(p.853), and TFGN(p.865)

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TFN** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

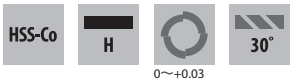
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ホモ処理ハイスクラフトミルレギュラ形
**Kraft Mill End Mill Regular Length (with Steam Oxide)**

## KFR



リードニックの採用とびびり振動の少ない刃形設計により、
従来の中仕上げ用エンドミルよりもさらに高性能です。
These end mills employ a lead-less nick and special cutting edge that minimizes vibration. They perform better than ordinary roughing and finishing end mills.




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **6** | 65 | 15 | 8 | | — | □ | — | — |
| 8400515 | **15** | 100 | 40 | 16 | | D | ▲ | 136 | 13,500 |
| 8400516 | **16** | | | | | | ▲ | 147 | 14,300 |
| 8400518 | **18** | 110 | | 20 | 4 | | ▲ | 237 | 16,000 |
| 8400520 | **20** | 115 | 45 | | | | ▲ | 254 | 17,300 |
| 8400522 | **22** | | | | | | ▲ | 270 | 20,200 |
| 8400525 | **25** | 125 | 50 | 25 | | | ▲ | 416 | 24,100 |
| | **35** | 160 | 60 | 32 | 6 | — | □ | — | — |

▲＝この製品は、EX-REEN(P.853)・TFGN(P.865) へ切り替え生産させていただいております。(在庫をご確認下さい。)
▲＝These products have been stopped producing and replaced by EX-REEN(p.853), and TFGN(p.865)

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1176を参照下さい。
See p.1176 for details
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、
水・油・ヘドロをスピード吸入・スピード吐出

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| **KFR** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols
● = 標準在庫品 Standard stock item
○ = 準標準在庫品(在庫をご確認下さい。) Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産(在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品(在庫をご確認下さい。) Discontinued item

# ハイスラフアンドフィニッシュレギュラ形
**Roughing and Finishing End Mill Regular Length**

## RFE



ラフアンドフィニッシュエンドミルは、重切削と同時に仕上げ切削も考慮した独特の台形刃形を採用し、重切削に耐える軸直角ニックと刃先強度を持たせてあります。

This series is made for heavy milling operations, yet still provides a high quality surface finish. The tools employ unique trapezoidal cutting edges with a leadless nick on the cutting edge.

CAD

HSS-Co

DC ≦18 0～+0.07
18＜DC ≦30 0～+0.08
30＜DC 0～+0.085

25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **10** | 80 | 30 | 10 | 4 | – | □ | – | – |
| | **11** | 90 | 40 | 12 | | – | □ | – | – |
| 80912 | **12** | | | | | D | ● | 80 | 17,800 |
| | **13** | 95 | 45 | 16 | | – | □ | – | – |
| | **14** | | | | | – | □ | – | – |
| 80915 | **15** | | | | | D | ● | 130 | 21,400 |
| | **16** | 105 | 50 | | | – | □ | – | – |
| | **17** | | | | | – | □ | – | – |
| 80918 | **18** | | | | | D | ● | 162 | 23,500 |
| | **19** | 120 | 55 | 20 | | – | □ | – | – |
| 80920 | **20** | | | | | D | ● | 269 | 26,400 |
| | **21** | | 60 | | | – | □ | – | – |
| 80922 | **22** | | | | 5 | D | ● | 287 | 30,700 |
| ◆ | **23** | 140 | 70 | 25 | | – | □ | – | – |
| ◆ | **24** | | | | | – | □ | – | – |
| 80925 | **25** | | | | | D | ● | 467 | 36,000 |
| ◆ | **26** | | | | | – | □ | – | – |
| 80928 | **28** | | | | | D | ● | 545 | 42,300 |
| 80930 | **30** | 165 | 80 | 32 | 6 | | ● | 885 | 49,200 |
| 80932 | **32** | | | | | | ● | 973 | 60,700 |
| 80935 | **35** | | 90 | | | | ● | 1,113 | 68,500 |
| ◆ | **36** | 175 | | | | – | □ | – | – |
| ◆ | **38** | | | | | – | □ | – | – |
| 80940 | **40** | 185 | 100 | | | D | ● | 1,320 | 95,600 |
| ◆ | **42** | 190 | | 42 | | – | □ | – | – |
| 80945 | **45** | 200 | 110 | | | D | ● | 1,390 | 130,000 |
| ◆ | **48** | | | | | – | □ | – | – |
| 80950 | **50** | 210 | 120 | | 8 | D | ● | 2,500 | 158,000 |
| ◆ | **55** | 220 | 130 | | | – | □ | – | – |
| ◆ | **60** | 230 | 140 | | | – | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **RFE** | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# ハイスラフアンドフィニッシュロング形
**Roughing and Finishing End Mill Long Length**

## RFEL



ラフアンドフィニッシュエンドミルは、重切削と同時に仕上げ切削も考慮した独特の台形刃形を採用し、重切削に耐える軸直角ニックと刃先強度を持たせてあります。

This series is made for heavy milling operations, yet still provides a high quality surface finish. The tools employ unique trapezoidal cutting edges with a leadless nick on the cutting edge.

CAD

HSS-Co

DC ≦30 0～+0.08
30＜DC 0～+0.085

25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **15** | 110 | 60 | 16 | 4 | – | □ | – | – |
| | **18** | 115 | | | | | □ | – | – |
| | **20** | 145 | 80 | 20 | | | □ | – | – |
| 83301 | **20** | 180 | 106 | | | D | ● | 375 | 50,300 |
| 83302 | **20** | 200 | 125 | | | | ● | 426 | 59,300 |
| | **22** | 165 | 100 | | 5 | – | □ | – | – |
| ◆ | **25** | 170 | | 25 | | | □ | – | – |
| 83310 | **25** | 210 | 125 | | | D | ● | 690 | 63,700 |
| 83311 | **25** | 235 | 150 | | | | ● | 809 | 74,300 |
| ◆ | **30** | 185 | 100 | 32 | 6 | – | □ | – | – |
| 83319 | **30** | 210 | 125 | 25 | | D | ● | 933 | 67,600 |
| 83320 | **30** | 235 | 150 | | | | ● | 1,020 | 86,600 |
| ◆ | **35** | 205 | 120 | 32 | | – | □ | – | – |
| 83328 | **35** | 215 | 125 | | | D | ● | 1,300 | 97,900 |
| 83329 | **35** | 240 | 150 | | | | ● | 1,452 | 120,000 |
| 83337 | **40** | | | | | | ● | 1,724 | 131,000 |
| 83338 | **40** | 270 | 180 | | | | ● | 1,956 | 179,000 |
| ◆ | **40** | 285 | 200 | | | – | □ | – | – |
| 83346 | **45** | 250 | 150 | 42 | | D | ● | 2,600 | 157,000 |
| 83347 | **45** | 280 | 180 | | | | ● | 2,880 | 215,000 |
| ◆ | **45** | 290 | 200 | | | – | □ | – | – |
| ◆ | **50** | 240 | 150 | | 8 | | □ | – | – |
| 83355 | **50** | 280 | 180 | | 6 | D | ● | 3,450 | 249,000 |
| ◆ | **50** | 290 | 200 | | 8 | – | □ | – | – |
| 83356 | **50** | 315 | 212 | | 6 | D | ● | 3,700 | 282,000 |
| ◆ | **50** | 340 | 250 | | 8 | – | □ | – | – |
| ◆ | **50** | 390 | 300 | | | | □ | – | – |
| ◆ | **60** | 240 | 150 | | | | □ | – | – |
| ◆ | **60** | 290 | 200 | | | | □ | – | – |
| ◆ | **60** | 340 | 250 | | | | □ | – | – |
| ◆ | **60** | 390 | 300 | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆: Shank with two flat face.

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **RFEL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

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○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# ハイスラフィングボールエンドミル ロングシャンクショート形
**Roughing Ball End Mill Short Length with Long Shank**

## EX-LS-REBS



CAD

HSS-Co　30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 81868 | R 4 × 8 | 90 | 20 | 8 | 4 | D | ● | 38 | 19,300 |
| 81872 | R 5 × 10 | 100 | 25 | 10 | | | ● | 62 | 21,500 |
| 81876 | R 6 × 12 | 115 | 32 | 12 | | | ● | 97 | 23,900 |
| 81880 | R 7 × 14 | | | | | | ● | 116 | 26,400 |
| 81888 | R 8 × 16 | 130 | 36 | 16 | | | ● | 200 | 28,800 |
| 81892 | R 9 × 18 | | 40 | | | | ● | 250 | 31,400 |
| 81896 | R10 × 20 | 145 | 45 | 20 | | | ● | 332 | 34,400 |
| 81904 | R12.5 × 25 | 165 | 50 | 25 | | | ● | 596 | 48,000 |
| 81912 | R15 × 30 | 180 | 63 | | | | ● | 733 | 62,500 |
| 81916 | R16 × 32 | | | | | | ● | 794 | 75,900 |
| 81920 | R17.5 × 35 | 190 | 70 | 32 | | | ● | 1,160 | 82,500 |
| 81924 | R20 × 40 | | | | | | ● | 1,290 | 106,000 |
| 81932 | R25 × 50 | 225 | 90 | 42 | 6 | | ● | 2,460 | 168,000 |


OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1177 を参照下さい。
See p.1177 for details
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| EX-LS-REBS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

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- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# XPMファインピッチラフィングエンドミル ロングシャンク
**XPM Roughing End Mill Fine Pitch Short Length with Long Shank**

## LS-XPM-RESF

切削条件 Cutting Conditions | P913



粉末ハイスXPMを母材に採用したラフィングです。切りくず排出性を重視した刃形となっています。
Roughing end mill with powder metallurgy XPM base material. Flute form is designed for smooth chip discharge.

XPM　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **6** | 80 | 11 | 6 | 3 | | □ | — | — |
| ◆ | **38** | 185 | 63 | 32 | 6 | — | □ | — | — |
| ◆ | **42** | | | | | | □ | — | — |
| ◆ | **48** | 210 | 75 | 42 | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1276を参照下さい。 See p.1276 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能



形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **LS-XPM-RESF** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## NC旋盤用WXLコートハイスラフィング エンドミル
**WXL Coated Roughing End Mill for Lathes**

# WH-NC-RESF



HSS-Co | WXL | 30°

DC=3 ±0.05
3<DC≦6 ±0.06
6<DC≦10 ±0.075
10<DC≦18 ±0.09
18<DC≦20 ±0.105

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **3** | 60 | 6 | 6 | 3 | – | □ | – | – |
| | **4** | | | | | | □ | – | – |
| | **5** | | | | | | □ | – | – |
| | **6** | | | | 4 | | □ | – | – |
| | **8** | | | | | | □ | – | – |
| | **10** | | | 10 | | | □ | – | – |
| | **12** | | | | | | □ | – | – |
| | **14** | | 8 | | | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **16** | | | | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **20** | | | | | | □ | – | – |

## CPMファインピッチラフィングエンドミル ロングシャンクショート形
**CPM Roughing End Mill Fine Pitch Short Length with Long Shank**

# CPM-LS-RESF




CPM | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **6** | 80 | 11 | 6 | 3 | – | □ | – | – |
| | **7** | | 14 | 8 | | | □ | – | – |
| | **8** | 85 | 17 | | | | □ | – | – |
| | **10** | 100 | 22 | 10 | | | □ | – | – |
| | **12** | 110 | 26 | 12 | | | □ | – | – |
| | **14** | | | | | | □ | – | – |
| | **15** | 120 | | 16 | | | □ | – | – |
| | **16** | 125 | 32 | | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **20** | 140 | 38 | 20 | | | □ | – | – |
| | **22** | | | | | | □ | – | – |
| | **25** | 160 | 45 | 25 | 4 | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **30** | | | | | | □ | – | – |
| | **32** | 170 | 53 | | | | □ | – | – |
| | **35** | 175 | | 32 | 6 | | □ | – | – |
| | **40** | 185 | 63 | | | | □ | – | – |
| | **45** | | | | | | □ | – | – |
| | **50** | 210 | 75 | 42 | | | □ | – | – |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## ハイスラフィングエンドミルショート形
**Roughing End Mill Short Length**

# REES



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **4** | 55 | 10 | 6 | 3 | | □ | — | — |
| | **5** | 56 | 15 | | | | □ | — | — |
| | **6** | | | | 4 | | □ | — | — |
| | **7** | | 20 | 8 | | | □ | — | — |
| | **8** | 63 | | | | | □ | — | — |
| | **10** | 70 | 25 | 10 | | | □ | — | — |
| | **12** | 80 | 32 | 12 | | | □ | — | — |
| | **14** | | | | | | □ | — | — |
| | **15** | 90 | 36 | 16 | | | □ | — | — |
| | **16** | | | | | | □ | — | — |
| | **18** | 100 | 40 | | | | □ | — | — |
| | **20** | 110 | 45 | 20 | | — | □ | — | — |
| | **22** | | | | | | □ | — | — |
| | **25** | 125 | 50 | 25 | 5 | | □ | — | — |
| | **28** | | 56 | | | | □ | — | — |
| | **30** | 140 | 63 | | 6 | | □ | — | — |
| | **32** | | | | | | □ | — | — |
| | **35** | 160 | 70 | 32 | | | □ | — | — |
| | **38** | | | | | | □ | — | — |
| | **40** | | | | | | □ | — | — |
| | **45** | 165 | | 42 | | | □ | — | — |
| | **50** | 177 | 75 | | 8 | | □ | — | — |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.
シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

## ハイスラフィングエンドミルロングシャンクショート形
**Roughing End Mill Short Length with Long Shank**

# LS-REES



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **5** | 70 | 13 | 6 | 4 | | □ | — | — |
| | **6** | 80 | 15 | | | | □ | — | — |
| | **7** | | 20 | 8 | | | □ | — | — |
| | **8** | 90 | | | | | □ | — | — |
| | **9** | | 25 | | | | □ | — | — |
| | **10** | 100 | | 10 | | | □ | — | — |
| | **12** | 115 | 32 | 12 | | | □ | — | — |
| | **14** | | | | | | □ | — | — |
| | **15** | 130 | 36 | 16 | | | □ | — | — |
| | **16** | | | | | | □ | — | — |
| | **17** | | 40 | | | | □ | — | — |
| | **18** | | | | | — | □ | — | — |
| | **20** | 145 | 45 | 20 | | | □ | — | — |
| | **22** | | | | 5 | | □ | — | — |
| | **25** | 165 | 50 | 25 | | | □ | — | — |
| | **28** | 170 | 56 | | | | □ | — | — |
| | **30** | 180 | 63 | | 6 | | □ | — | — |
| | **32** | | | | | | □ | — | — |
| | **35** | 190 | 70 | 32 | | | □ | — | — |
| | **40** | | | | | | □ | — | — |
| | **45** | 215 | 80 | 42 | | | □ | — | — |
| | **50** | 225 | 90 | | | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコートハイスラフィングエンドミル
**TiN Coated Roughing End Mill**

## EX-TIN-REE



HSS-Co | TiN | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **10** | 80 | 30 | 10 | 4 | – | □ | – | – |
| | **11** | 90 | 40 | 12 | | | □ | – | – |
| | **12** | | | | | | □ | – | – |
| | **13** | 95 | 45 | 16 | | | □ | – | – |
| | **14** | | | | | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **16** | 105 | 50 | | | | □ | – | – |
| | **17** | | | | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **19** | 120 | 55 | 20 | | | □ | – | – |
| | **20** | | | | | | □ | – | – |
| | **21** | | 60 | | | | □ | – | – |
| | **22** | | | | 5 | | □ | – | – |
| | **23** | 140 | 70 | 25 | | | □ | – | – |
| | **24** | | | | | | □ | – | – |
| | **25** | | | | | | □ | – | – |
| | **26** | | | | | | □ | – | – |
| | **27** | | | | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **29** | 165 | 80 | 32 | 6 | | □ | – | – |
| | **30** | | | | | | □ | – | – |
| | **31** | | | | | | □ | – | – |
| | **32** | | | | | | □ | – | – |
| | **35** | 175 | 90 | | | | □ | – | – |
| | **36** | | | | | | □ | – | – |
| | **38** | | | | | | □ | – | – |
| | **40** | 185 | 100 | | | | □ | – | – |
| | **42** | 190 | | 42 | | | □ | – | – |
| | **45** | 200 | 110 | | | | □ | – | – |
| | **48** | | | | | | □ | – | – |
| | **50** | 210 | 120 | | | | □ | – | – |
| | **55** | 220 | 130 | | | | □ | – | – |
| | **60** | 230 | 140 | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## ハイスラフィングエンドミルミディアム形
**Roughing End Mill Medium Length**

# REEM



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **12** | 110 | 53 | 12 | 4 | – | □ | – | – |
| | **14** | | | | | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **18** | 123 | 63 | 16 | | | □ | – | – |
| | **20** | 141 | 75 | 20 | | | □ | – | – |
| | **22** | | | | 5 | | □ | – | – |
| | **25** | 166 | 90 | 25 | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **30** | | | | 6 | | □ | – | – |
| | **32** | 186 | 106 | 32 | | | □ | – | – |
| | **35** | | | | | | □ | – | – |
| | **40** | 205 | 125 | 42 | | | □ | – | – |
| | **45** | 227 | | | | | □ | – | – |
| | **50** | 252 | 150 | | 8 | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

## ハイスラフィングエンドミル
**Roughing End Mill**

# EX-REE



HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **10** | 80 | 30 | 10 | 4 | – | □ | – | – |
| | **11** | 90 | 40 | 12 | | | □ | – | – |
| | **12** | | | | | | □ | – | – |
| | **13** | 95 | 45 | 16 | | | □ | – | – |
| | **14** | | | | | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **16** | 105 | 50 | | | | □ | – | – |
| | **17** | | | | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **19** | 120 | 55 | 20 | | | □ | – | – |
| | **20** | | | | | | □ | – | – |
| | **21** | | 60 | | | | □ | – | – |
| | **22** | | | | 5 | | □ | – | – |
| | **23** | 140 | 70 | 25 | | | □ | – | – |
| | **24** | | | | | | □ | – | – |
| | **25** | | | | | | □ | – | – |
| | **26** | | | | | | □ | – | – |
| | **27** | | | | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **29** | 165 | 80 | 32 | 6 | | □ | – | – |
| | **30** | | | | | | □ | – | – |
| | **31** | | | | | | □ | – | – |
| | **32** | | | | | | □ | – | – |
| | **33** | 175 | 90 | | | | □ | – | – |
| | **34** | | | | | | □ | – | – |
| | **35** | | | | | | □ | – | – |
| | **36** | | | | | | □ | – | – |
| | **37** | | | | | | □ | – | – |
| | **38** | | | | | | □ | – | – |
| | **39** | | | | | | □ | – | – |
| | **40** | 185 | 100 | | | | □ | – | – |
| | **42** | 190 | | 42 | | | □ | – | – |
| | **45** | 200 | 110 | | | | □ | – | – |
| | **48** | | | | | | □ | – | – |
| | **50** | 210 | 120 | | | | □ | – | – |
| | **55** | 220 | 130 | | | | □ | – | – |
| | **60** | 230 | 140 | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能 ▶▶▶ P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 3枚刃ハイスラフィングエンドミル
**3-flute Roughing End Mill**

# EX-REE-3F



HSS-Co　35°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **6** | 68 | 20 | 6 | 3 | – | □ | – | – |
| | **7** | 80 | 25 | 10 | | | □ | – | – |
| | **8** | 88 | 30 | | | | □ | – | – |
| | **10** | 95 | 35 | | | | □ | – | – |
| | **12** | 110 | 42 | 12 | | | □ | – | – |
| | **14** | 115 | | 16 | | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **16** | 123 | 52 | | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **20** | 141 | 60 | 20 | | | □ | – | – |
| | **22** | | | | | | □ | – | – |
| | **25** | 166 | 72 | 25 | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **30** | | | | | | □ | – | – |
| | **32** | 186 | 85 | 32 | | | □ | – | – |
| | **35** | | | | | | □ | – | – |
| | **36** | | | | | | □ | – | – |
| | **40** | 205 | 100 | 42 | | | □ | – | – |
| | **42** | 227 | | | | | □ | – | – |
| | **45** | | | | | | □ | – | – |
| | **50** | 252 | 120 | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

## ハイスラフィングエンドミル
**Roughing End Mill**

# REE



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **10** | 80 | 30 | 10 | 4 | – | □ | – | – |
| | **11** | 90 | 40 | 12 | | | □ | – | – |
| | **12** | | | | | | □ | – | – |
| | **13** | 95 | 45 | 16 | | | □ | – | – |
| | **14** | | | | | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **16** | 105 | 50 | | | | □ | – | – |
| | **17** | | | | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **19** | 120 | 55 | 20 | | | □ | – | – |
| | **20** | | | | | | □ | – | – |
| | **21** | | 60 | | | | □ | – | – |
| | **22** | | | | 5 | | □ | – | – |
| | **23** | 140 | 70 | 25 | | | □ | – | – |
| | **24** | | | | | | □ | – | – |
| | **25** | | | | | | □ | – | – |
| | **26** | | | | | | □ | – | – |
| | **27** | | | | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **29** | | | | | | □ | – | – |
| | **30** | 165 | 80 | 32 | 6 | | □ | – | – |
| | **31** | | | | | | □ | – | – |
| | **32** | | | | | | □ | – | – |
| | **33** | 175 | 90 | | | | □ | – | – |
| | **34** | | | | | | □ | – | – |
| | **35** | | | | | | □ | – | – |
| | **36** | | | | | | □ | – | – |
| | **37** | | | | | | □ | – | – |
| | **38** | | | | | | □ | – | – |
| | **39** | | | | | | □ | – | – |
| | **40** | 185 | 100 | 42 | | | □ | – | – |
| | **42** | 190 | | | | | □ | – | – |
| | **45** | 200 | 110 | | | | □ | – | – |
| | **48** | | | | | | □ | – | – |
| | **50** | 210 | 120 | | 8 | | □ | – | – |
| | **55** | 220 | 130 | | | | □ | – | – |
| | **60** | 230 | 140 | | | | □ | – | – |
| | **65** | 260 | 150 | | | | □ | – | – |
| | **70** | | | | | | □ | – | – |
| | **75** | | | | | | □ | – | – |
| | **80** | | | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

最新の加工動画を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## ハイスラフィングエンドミル エキストラロングシャンク
**Roughing End Mill with Extra Long Shank**

# EX-XLS-REE



HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **6** | 150 | 20 | 6 | 4 | – | □ | – | – |
| | **8** | | | 8 | | | □ | – | – |
| | **10** | 200 | 30 | 10 | | | □ | – | – |
| | **12** | | | 12 | | | □ | – | – |
| | **14** | | 35 | | | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **16** | 250 | 40 | 16 | | | □ | – | – |
| | **18** | | | | | | □ | – | – |
| | **20** | 300 | 50 | 20 | | | □ | – | – |
| | **20** | 400 | 75 | | | | □ | – | – |
| | **20** | 500 | 100 | | | | □ | – | – |
| | **22** | 300 | 50 | | 5 | | □ | – | – |
| | **25** | | 60 | 25 | | | □ | – | – |
| | **25** | 400 | 90 | | | | □ | – | – |
| | **25** | 500 | 120 | | | | □ | – | – |
| | **28** | 300 | 60 | | | | □ | – | – |
| | **30** | | | | 6 | | □ | – | – |
| | **30** | 400 | 90 | 32 | | | □ | – | – |
| | **30** | 500 | 120 | | | | □ | – | – |
| | **32** | 300 | 60 | | | | □ | – | – |
| | **32** | 400 | 100 | | | | □ | – | – |
| | **32** | 500 | 150 | | | | □ | – | – |
| | **35** | 350 | 70 | | | | □ | – | – |
| | **35** | 400 | 100 | | | | □ | – | – |
| | **35** | 500 | 150 | | | | □ | – | – |
| | **38** | 350 | 70 | | | | □ | – | – |
| | **40** | | 80 | | | | □ | – | – |
| | **40** | 400 | 110 | | | | □ | – | – |
| | **40** | 500 | 150 | | | | □ | – | – |
| | **45** | 350 | 90 | 42 | | | □ | – | – |
| | **45** | 400 | 125 | | | | □ | – | – |
| | **45** | 500 | 150 | | | | □ | – | – |
| | **50** | 400 | 100 | | | | □ | – | – |
| | **50** | | 150 | | | | □ | – | – |
| | **50** | 500 | 200 | | | | □ | – | – |
| | **60** | 400 | 150 | | | | □ | – | – |
| | **60** | | 100 | | | | □ | – | – |
| | **60** | 500 | 200 | | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

## CPMラフィングエンドミルレギュラ形
**CPM Roughing End Mill Regular Length**

# CPM-REE



CPM　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **12** | 90 | 40 | 12 | 4 | – | □ | – | – |
| | **15** | 95 | 45 | 16 | | | □ | – | – |
| | **18** | 105 | 50 | | | | □ | – | – |
| | **20** | 120 | 55 | 20 | 5 | | □ | – | – |
| | **22** | | 60 | | | | □ | – | – |
| | **25** | 140 | 70 | 25 | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **30** | 165 | 80 | 32 | 6 | | □ | – | – |
| | **32** | | | | | | □ | – | – |
| | **35** | 175 | 90 | | | | □ | – | – |
| | **40** | 185 | 100 | | | | □ | – | – |
| | **45** | 200 | 110 | 42 | 8 | | □ | – | – |
| | **50** | 210 | 120 | | | | □ | – | – |
| | **55** | 220 | 130 | | | | □ | – | – |
| | **60** | 230 | 140 | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコートハイスラフィングエンドミル エキストラロング形
**TiN Coated Roughing End Mill Extra Length**

## EX-TIN-REXL



HSS-Co | TiN | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **8** | 110 | 60 | 8 | 4 | – | □ | – | – |
| | **10** | 120 | | 10 | | | □ | – | – |
| | **10** | 140 | 80 | | | | □ | – | – |
| | **12** | 145 | | 12 | | | □ | – | – |
| | **12** | 165 | 100 | | | | □ | – | – |
| | **14** | 150 | 80 | 16 | | | □ | – | – |
| | **14** | 170 | 100 | | | | □ | – | – |
| | **15** | 110 | 60 | | | | □ | – | – |
| | **15** | 170 | 100 | | | | □ | – | – |
| | **16** | 110 | 60 | | | | □ | – | – |
| | **16** | 170 | 100 | | | | □ | – | – |
| | **18** | 115 | 60 | | | | □ | – | – |
| | **18** | 180 | 100 | 20 | | | □ | – | – |
| | **20** | 125 | 60 | | | | □ | – | – |
| | **20** | 145 | 80 | | | | □ | – | – |
| | **20** | 165 | 100 | | | | □ | – | – |
| | **20** | 180 | 106 | | | | □ | – | – |
| | **20** | 200 | 125 | | | | □ | – | – |
| | **22** | 165 | 100 | | 5 | | □ | – | – |
| | **25** | 170 | | 25 | | | □ | – | – |
| | **25** | 190 | 120 | | | | □ | – | – |
| | **25** | 210 | 125 | | | | □ | – | – |
| | **25** | 235 | 150 | | | | □ | – | – |
| | **28** | 170 | 100 | | | | □ | – | – |
| | **28** | 190 | 120 | | | | □ | – | – |
| | **28** | 220 | 150 | | | | □ | – | – |
| | **30** | 185 | 100 | 32 | 6 | | □ | – | – |
| | **30** | 205 | 120 | | | | □ | – | – |
| | **30** | 210 | 125 | 25 | | | □ | – | – |
| | **30** | 235 | 150 | | | | □ | – | – |
| | **30** | 285 | 200 | 32 | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **32** | 235 | 150 | 32 | 6 | – | □ | – | – |
| | **32** | 285 | 200 | | | | □ | – | – |
| | **35** | 205 | 120 | | | | □ | – | – |
| | **35** | 215 | 125 | | | | □ | – | – |
| | **35** | 240 | 150 | | | | □ | – | – |
| | **35** | 285 | 200 | | | | □ | – | – |
| | **38** | 235 | 150 | | | | □ | – | – |
| | **38** | 285 | 200 | | | | □ | – | – |
| | **40** | 205 | 120 | | | | □ | – | – |
| | **40** | 240 | 150 | | | | □ | – | – |
| | **40** | 270 | 180 | | | | □ | – | – |
| | **40** | 285 | 200 | | | | □ | – | – |
| | **40** | 335 | 250 | | | | □ | – | – |
| | **42** | 240 | 150 | 42 | | | □ | – | – |
| | **42** | 290 | 200 | | | | □ | – | – |
| | **45** | 250 | 150 | | | | □ | – | – |
| | **45** | 280 | 180 | | | | □ | – | – |
| | **45** | 290 | 200 | | | | □ | – | – |
| | **45** | 340 | 250 | | | | □ | – | – |
| | **50** | 240 | 150 | | | | □ | – | – |
| | **50** | 280 | 180 | | | | □ | – | – |
| | **50** | 290 | 200 | | | | □ | – | – |
| | **50** | 315 | 212 | | | | □ | – | – |
| | **50** | 340 | 250 | | | | □ | – | – |
| | **50** | 390 | 300 | | | | □ | – | – |
| | **60** | 240 | 150 | | | | □ | – | – |
| | **60** | 290 | 200 | | | | □ | – | – |
| | **60** | 340 | 250 | | | | □ | – | – |
| | **60** | 390 | 300 | | | | □ | – | – |
| | **60** | 490 | 400 | | | | □ | – | – |

シャンク径25mm以上は２面平切り欠け付きシャンクです。
Shank Dia.≧25mm :Shank with two flat face.

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

デジタルカタログで最新情報を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ハイスラフィングエンドミルロング形
**Roughing End Mill Long Length**

## REEL



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **4** | 70 | 22 | 6 | 3 | | □ | — | — |
| | **5** | 75 | 30 | | 4 | | □ | — | — |
| | **6** | | | | | | □ | — | — |
| | **7** | 85 | 40 | 8 | | | □ | — | — |
| | **8** | | | | | | □ | — | — |
| | **9** | 100 | 50 | 10 | | | □ | — | — |
| | **10** | | | | | | □ | — | — |
| | **11** | 110 | 60 | 12 | | | □ | — | — |
| | **12** | | | | | | □ | — | — |
| | **13** | | | | | | □ | — | — |
| | **14** | | | 16 | | | □ | — | — |
| | **15** | | | | | | □ | — | — |
| | **16** | | | | | | □ | — | — |
| | **18** | 115 | | 20 | | | □ | — | — |
| | **20** | 125 | | | | | □ | — | — |
| | **20** | 145 | 80 | | | | □ | — | — |
| | **20** | 165 | 100 | | | | □ | — | — |
| | **20** | 180 | 106 | | | — | □ | — | — |
| | **20** | 200 | 125 | | | | □ | — | — |
| | **22** | 165 | 100 | 25 | 5 | | □ | — | — |
| | **24** | 170 | | | | | □ | — | — |
| | **24** | 195 | 125 | | | | □ | — | — |
| | **24** | 220 | 150 | | | | □ | — | — |
| | **25** | 170 | 100 | | | | □ | — | — |
| | **25** | 190 | 120 | | | | □ | — | — |
| | **25** | 210 | 125 | | | | □ | — | — |
| | **25** | 220 | 150 | | | | □ | — | — |
| | **26** | 170 | 100 | | | | □ | — | — |
| | **26** | 195 | 125 | | | | □ | — | — |
| | **26** | 220 | 150 | | | | □ | — | — |
| | **28** | 170 | 100 | | | | □ | — | — |
| | **28** | 190 | 120 | | | | □ | — | — |
| | **28** | 220 | 150 | | | | □ | — | — |
| | **30** | 185 | 100 | 32 | 6 | | □ | — | — |
| | **30** | 205 | 120 | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **30** | 210 | 125 | 32 | 6 | | □ | — | — |
| | **30** | 235 | 150 | 25 | | | □ | — | — |
| | **30** | | | 32 | | | □ | — | — |
| | **30** | 285 | 200 | | | | □ | — | — |
| | **32** | 235 | 150 | | | | □ | — | — |
| | **32** | 285 | 200 | | | | □ | — | — |
| | **35** | 205 | 120 | | | | □ | — | — |
| | **35** | 215 | 125 | | | | □ | — | — |
| | **35** | 240 | 150 | | | | □ | — | — |
| | **35** | 285 | 200 | | | | □ | — | — |
| | **38** | 235 | 150 | | | | □ | — | — |
| | **38** | 285 | 200 | | | | □ | — | — |
| | **40** | 205 | 120 | | | | □ | — | — |
| | **40** | 235 | 150 | | | | □ | — | — |
| | **40** | 270 | 180 | | | | □ | — | — |
| | **40** | 285 | 200 | | | | □ | — | — |
| | **40** | 335 | 250 | | | | □ | — | — |
| | **42** | 240 | 150 | 42 | | — | □ | — | — |
| | **42** | 290 | 200 | | | | □ | — | — |
| | **45** | 250 | 150 | | | | □ | — | — |
| | **45** | 280 | 180 | | | | □ | — | — |
| | **45** | 295 | 200 | | | | □ | — | — |
| | **45** | 340 | 250 | | | | □ | — | — |
| | **50** | 240 | 150 | | 8 | | □ | — | — |
| | **50** | 280 | 180 | | | | □ | — | — |
| | **50** | 290 | 200 | | | | □ | — | — |
| | **50** | 315 | 212 | | | | □ | — | — |
| | **50** | 340 | 250 | | | | □ | — | — |
| | **50** | 390 | 300 | | | | □ | — | — |
| | **50** | 500 | 400 | | | | □ | — | — |
| | **60** | 240 | 150 | | | | □ | — | — |
| | **60** | 290 | 200 | | | | □ | — | — |
| | **60** | 340 | 250 | | | | □ | — | — |
| | **60** | 390 | 300 | | | | □ | — | — |
| | **60** | 490 | 400 | | | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶ P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 8枚刃ハイスラフィングエンドミル コンビネーションシャンクロング形
**8-flute Roughing End Mill Long Length with Combination Shank**

# CN-REE



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **50** | 245 | 150 | 50.8 | 8 | – | □ | – | – |
| | **50** | 295 | 200 | | | | □ | – | – |
| | **50** | 345 | 250 | | | | □ | – | – |
| | **60** | 245 | 150 | | | | □ | – | – |
| | **60** | 295 | 200 | | | | □ | – | – |
| | **60** | 345 | 250 | | | | □ | – | – |

## ハイスラフィングエンドミルBSシャンクロング形
**Roughing End Mill Long Length with BS Shank**

# BS-REE



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 CZC | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **15** | 135 | 45 | BS7 | 4 | – | □ | – | – |
| | **20** | 145 | 55 | | | | □ | – | – |
| | **25** | 190 | 70 | BS9 | 5 | | □ | – | – |
| | **30** | 200 | 80 | | 6 | | □ | – | – |
| | **35** | 210 | 90 | | | | □ | – | – |
| | **40** | 220 | 100 | | | | □ | – | – |
| | **45** | 230 | 110 | | | | □ | – | – |
| | **50** | 240 | 120 | | 8 | | □ | – | – |

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 6枚刃ハイスラフィングエンドミル コンビネーションシャンクロング形
**6-flute Roughing End Mill Long Length with Combination Shank**

# EX-CN-REE



コンビネーションシャンクによる強力な把握力により、重切削が可能です。また脱着も容易で作業性が良好です。
Heavy milling possible with these end mills because of the strong gripping power of the combination shank.

HSS-Co　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **45** | 201 | 106 | 50.8 | — | □ | — | — |
| | **45** | 220 | 125 | | | □ | — | — |
| | **45** | 245 | 150 | | | □ | — | — |
| | **50** | 201 | 106 | | | □ | — | — |
| | **50** | 220 | 125 | | | □ | — | — |
| | **50** | 245 | 150 | | | □ | — | — |
| | **50** | 307 | 212 | | | □ | — | — |
| | **50** | 345 | 250 | | | □ | — | — |
| | **60** | 201 | 106 | | | □ | — | — |
| | **60** | 220 | 125 | | | □ | — | — |
| | **60** | 245 | 150 | | | □ | — | — |
| | **60** | 307 | 212 | | | □ | — | — |
| | **60** | 345 | 250 | | | □ | — | — |
| | **70** | 201 | 106 | | | □ | — | — |
| | **70** | 220 | 125 | | | □ | — | — |
| | **70** | 245 | 150 | | | □ | — | — |

## ハイスラフィングエンドミル モールステーパシャンクロング形
**Roughing End Mill Long Length with Morse Taper Shank**

# MT-REE



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 CZC | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **15** | 125 | 45 | MT2 | 4 | — | □ | — | — |
| | **20** | 135 | 55 | | | | □ | — | — |
| | **22** | 140 | 60 | | 5 | | □ | — | — |
| | **25** | 170 | 70 | MT3 | | | □ | — | — |
| | **28** | | | | | | □ | — | — |
| | **30** | 205 | 80 | MT4 | 6 | | □ | — | — |
| | **32** | | | | | | □ | — | — |
| | **35** | 215 | 90 | | | | □ | — | — |
| | **38** | | | | | | □ | — | — |
| | **40** | 225 | 100 | | | | □ | — | — |
| | **42** | 255 | | MT5 | | | □ | — | — |
| | **45** | 265 | 110 | | | | □ | — | — |
| | **48** | | | | | | □ | — | — |
| | **50** | 275 | 120 | | 8 | | □ | — | — |
| | **55** | 290 | 130 | | | | □ | — | — |
| | **60** | 305 | 140 | | | | □ | — | — |

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX-CN-REE** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## ハイスラフィングエンドミル モールステーパシャンクロング形
**Roughing End Mill Long Length with Morse Taper Shank**

# MT-REEL



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク CZC | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **45** | 305 | 150 | MT5 | 6 | – | □ | – | – |
| | **45** | 355 | 200 | | | | □ | – | – |
| | **45** | 405 | 250 | | | | □ | – | – |
| | **50** | 305 | 150 | | 8 | | □ | – | – |
| | **50** | 355 | 200 | | | | □ | – | – |
| | **50** | 405 | 250 | | | | □ | – | – |
| | **60** | 315 | 150 | | | | □ | – | – |
| | **60** | 365 | 200 | | | | □ | – | – |
| | **60** | 415 | 250 | | | | □ | – | – |

## ハイスラフィングエンドミル エキストラロング形（NT50）
**Extra Long Roughing End Mill (NT50)**

# REXL-NT50



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク CZC | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **50** | 295 | 120 | NT50 | 8 | – | □ | – | – |
| | **50** | 325 | 150 | | | | □ | – | – |
| | **50** | 375 | 200 | | | | □ | – | – |
| | **50** | 425 | 250 | | | | □ | – | – |
| | **55** | 325 | 150 | | | | □ | – | – |
| | **55** | 375 | 200 | | | | □ | – | – |
| | **55** | 425 | 250 | | | | □ | – | – |
| | **60** | 330 | 150 | | | | □ | – | – |
| | **60** | 380 | 200 | | | | □ | – | – |
| | **60** | 430 | 250 | | | | □ | – | – |
| | **65** | 380 | 200 | | | | □ | – | – |
| | **65** | 430 | 250 | | | | □ | – | – |
| | **70** | 385 | 200 | | | | □ | – | – |
| | **70** | 435 | 250 | | | | □ | – | – |
| | **75** | 385 | 200 | | | | □ | – | – |
| | **75** | 435 | 250 | | | | □ | – | – |
| | **80** | 385 | 200 | | | | □ | – | – |
| | **80** | 435 | 250 | | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# ハイスタフニックエンドミルロングシャンクショート形
**TUF-NICK End Mill Short Length with Long Shank**

## LS-TFS



HSS-Co

DC≦10 0～+0.03
10<DC≦50 0～+0.05

25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **5** | 80 | 13 | 6 | 4 | – | □ | – | – |
| | **8** | 85 | 19 | 8 | | | □ | – | – |
| | **9** | 95 | | 10 | | | □ | – | – |
| | **12** | 110 | 26 | 12 | | | □ | – | – |
| | **17** | 125 | 32 | 16 | | | □ | – | – |
| | **22** | 140 | 38 | 20 | | | □ | – | – |
| | **24** | 160 | 45 | 25 | | | □ | – | – |
| | **27** | | | | | | □ | – | – |

次ページへ 外径 DC 47～50 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **LS-TFS** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# ハイスタフニックエンドミルロング形
**TUF-NICK End Mill Long Length**

## TFL



HSS-Co

DC ≦10　0～+0.03
10＜DC ≦50　0～+0.05

25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **5** | 68 | 24 | 6 | 4 | | □ | – | – |
| | **7** | 80 | 30 | 10 | | | □ | – | – |
| | **8** | 88 | 38 | | | | □ | – | – |
| | **9** | | | | | | □ | – | – |
| | **10** | 95 | 45 | | | | □ | – | – |
| | **12** | 110 | 53 | 12 | | | □ | – | – |
| | **13** | | | | | | □ | – | – |
| | **14** | 113 | | 16 | | | □ | – | – |
| | **15** | | | | | | □ | – | – |
| | **18** | 123 | 63 | | | | □ | – | – |
| | **20** | 141 | 75 | 20 | | | □ | – | – |
| | **21** | | | | | | □ | – | – |
| | **23** | | | | 5 | | □ | – | – |
| ◆ | **24** | 166 | 90 | 25 | | – | □ | – | – |
| | **25** | | | | | | □ | – | – |
| ◆ | **26** | | | | | | □ | – | – |
| ◆ | **27** | | | | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| ◆ | **29** | | | | | | □ | – | – |
| ◆ | **31** | 186 | 106 | 32 | 6 | | □ | – | – |
| ◆ | **33** | | | | | | □ | – | – |
| ◆ | **34** | | | | | | □ | – | – |
| ◆ | **36** | | | | | | □ | – | – |
| ◆ | **37** | | | | | | □ | – | – |
| ◆ | **38** | 205 | 125 | | | | □ | – | – |
| ◆ | **39** | | | | | | □ | – | – |
| | **40** | | | | | | □ | – | – |
| ◆ | **41** | 227 | | 42 | | | □ | – | – |
| ◆ | **42** | | | | | | □ | – | – |
| ◆ | **43** | | | | | | □ | – | – |
| ◆ | **44** | | | | | | □ | – | – |
| ◆ | **46** | | | | | | □ | – | – |
| ◆ | **47** | | | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | **48** | 252 | 150 | 42 | 6 | – | □ | – | – |
| ◆ | **49** | | | | | | □ | – | – |
| | **50** | | | | | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel | 合金鋼 Alloy Steel | プリハードン鋼 Prehardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | プリハードン鋼 Prehardened Steel | 工具鋼 Tool Steel | 焼き入れ鋼 Hardened Steel | | ダクタイル鋳鉄 Ductile Cast Iron | | | | | |
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| **TFL** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 多刃CPMベストカットショート形
**Multi-flute CPM Best-Kut End Mill Short Length**

## CPM-BKMS

切削条件 Cutting Conditions | P924



CPM



0～+0.05




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **11** | 90 | 30 | 12 | 4 | □ | — | — |
| | **12** | | | | | □ | — | — |
| | **13** | 95 | 35 | 16 | | □ | — | — |
| | **15** | 100 | 40 | | | □ | — | — |
| | **16** | | | | | □ | — | — |
| | **17** | 110 | | 20 | | □ | — | — |
| | **18** | | | | | □ | — | — |
| | **19** | 115 | 45 | | | □ | — | — |
| | **20** | | | | | □ | — | — |
| | **21** | | | | | □ | — | — |
| | **22** | | | | | □ | — | — |
| ◆ | **23** | 125 | 50 | 25 | | □ | — | — |
| ◆ | **24** | | | | | □ | — | — |
| | **25** | | | | | □ | — | — |
| ◆ | **26** | | | | | □ | — | — |
| ◆ | **27** | 130 | 55 | | | □ | — | — |
| ◆ | **29** | | | | | □ | — | — |
| ◆ | **31** | 160 | 60 | 32 | 6 | □ | — | — |
| | **32** | | | | | □ | — | — |
| ◆ | **33** | | | | | □ | — | — |
| ◆ | **34** | | | | | □ | — | — |
| | **35** | | | | | □ | — | — |
| ◆ | **36** | 165 | 65 | | | □ | — | — |
| ◆ | **37** | | | | | □ | — | — |
| ◆ | **38** | | | | | □ | — | — |
| ◆ | **39** | | | | | □ | — | — |
| ◆ | **42** | 180 | 70 | 42 | | □ | — | — |
| ◆ | **48** | 185 | 75 | | | □ | — | — |
| ◆ | **55** | 190 | 80 | | | □ | — | — |
| ◆ | **60** | | | | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **CPM-BKMS** | ○ | | | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 多刃ハイスベストカットロング形
**Multi-flute Best-Kut End Mill Long Length**

## BKML

切削条件 Cutting Conditions | P924



HSS-Co



0～+0.05




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **12** | 115 | 55 | 12 | 4 | – | □ | – | – |
| | **14** | | | 16 | | | □ | – | – |
| | **20** | 145 | 75 | 20 | | | □ | – | – |
| | **22** | | | | | | □ | – | – |
| | **25** | 165 | 90 | 25 | | | □ | – | – |
| | **30** | | | | | | □ | – | – |
| | **32** | 195 | 95 | 32 | 6 | | □ | – | – |
| | **35** | 200 | 100 | | | | □ | – | – |

OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **BKML** | ○ | | | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## Vコート多刃CPMベストカットショート形コーナR
**V Coated Multi-flute CPM Best-Kut End Mill with Corner Radius Short Length**

## VP-CR-BKMS




CPM　V　R 0~+0.05　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径 DC × RE | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12 × R1 | 110 | 26 | 12 | | □ | – | – |
| | 12 × R2 | | | | | □ | – | – |
| | 12 × R2.5 | | | | | □ | – | – |
| | 12 × R3 | | | | | □ | – | – |
| | 16 × R1 | 125 | 32 | 16 | | □ | – | – |
| | 16 × R2 | | | | | □ | – | – |
| | 16 × R2.5 | | | | | □ | – | – |
| | 16 × R3 | | | | | □ | – | – |
| | 20 × R1 | 140 | 38 | 20 | – | □ | – | – |
| | 20 × R2 | | | | | □ | – | – |
| | 20 × R2.5 | | | | | □ | – | – |
| | 20 × R3 | | | | | □ | – | – |
| | 25 × R1 | 160 | 45 | 25 | | □ | – | – |
| | 25 × R2 | | | | | □ | – | – |
| | 25 × R2.5 | | | | | □ | – | – |
| | 25 × R3 | | | | | □ | – | – |
| | 32 × R1 | | 53 | 32 | | □ | – | – |
| | 32 × R2 | | | | | □ | – | – |
| | 32 × R2.5 | | | | | □ | – | – |
| | 32 × R3 | | | | | □ | – | – |

## CPMラフアンドフィニッシュレギュラ形
**CPM Roughing and Finishing End Mill Regular Length**

## CPM-RFE



CPM　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 12 | 90 | 40 | 12 | 4 | – | □ | – | – |
| | 15 | 95 | 45 | 16 | | | □ | – | – |
| | 18 | 105 | 50 | | | | □ | – | – |
| | 20 | 120 | 55 | 20 | | | □ | – | – |
| | 22 | | 60 | | 5 | | □ | – | – |
| | 25 | 140 | 70 | 25 | | | □ | – | – |
| | 28 | | | | | | □ | – | – |
| | 30 | 165 | 80 | 32 | 6 | | □ | – | – |
| | 32 | | | | | | □ | – | – |
| | 35 | 175 | 90 | | | | □ | – | – |
| | 40 | 185 | 100 | | | | □ | – | – |
| | 45 | 200 | 110 | 42 | | | □ | – | – |
| | 50 | 210 | 120 | | 8 | | □ | – | – |
| | 55 | 220 | 130 | | | | □ | – | – |
| | 60 | 230 | 140 | | | | □ | – | – |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

OSGのPSシリーズ
PS 商品シリーズ Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。 See p.1175 for details



製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## TiNコートハイスクラフトミルレギュラ形
**TiN Coated Kraft Mill End Mill Regular Length**

# TIN-KFR



**リードニックの採用とびびり振動の少ない刃形設計により、従来の中仕上げ用エンドミルよりもさらに高性能です。**

These end mills employ a lead-less nick and special cutting edge that minimizes vibration. They perform better than ordinary roughing and finishing end mills.




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **6** | 65 | 15 | 8 | 4 | — | □ | — | — |
| | **12** | 90 | 30 | 12 | | | □ | — | — |
| | **15** | 100 | 40 | 16 | | | □ | — | — |
| | **20** | 115 | 45 | 20 | | | □ | — | — |
| | **22** | | | | | | □ | — | — |
| | **32** | 160 | 60 | 32 | 6 | | □ | — | — |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TIN-KFR** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 多刃ハイスエンドミルニック付 エキストラロング形
**Multi-flute Nicked End Mill Extra Long Length**

# NI-EXML



HSS-Co　45°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **40** | 250 | 150 | 42 | – | □ | – | – |
| | **40** | 300 | 200 | | | □ | – | – |
| | **40** | 350 | 250 | | | □ | – | – |
| | **40** | 400 | 300 | | | □ | – | – |
| | **40** | 500 | 400 | | | □ | – | – |
| | **50** | 250 | 150 | | | □ | – | – |
| | **50** | 300 | 200 | | | □ | – | – |
| | **50** | 350 | 250 | | | □ | – | – |
| | **50** | 400 | 300 | | | □ | – | – |
| | **50** | 500 | 400 | | | □ | – | – |
| | **60** | 250 | 150 | | | □ | – | – |
| | **60** | 300 | 200 | | | □ | – | – |
| | **60** | 350 | 250 | | | □ | – | – |
| | **60** | 400 | 300 | | | □ | – | – |
| | **60** | 500 | 400 | | | □ | – | – |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

## ハイスラフアンドフィニッシュBSシャンク ロング形
**Roughing and Finishing End Mill Long Length with BS Shank**

# BS-RFE



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク CZC | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **20** | 145 | 55 | BS7 | 4 | – | □ | – | – |
| | **25** | 190 | 70 | BS9 | 5 | – | □ | – | – |
| | **30** | 200 | 80 | | 6 | – | □ | – | – |
| | **35** | 210 | 90 | | | | □ | – | – |
| | **40** | 220 | 100 | | | | □ | – | – |
| | **45** | 230 | 110 | | | | □ | – | – |
| | **50** | 240 | 120 | | 8 | | □ | – | – |

デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## ハイスラフアンドフィニッシュモールステーパシャンク ロング形
**Roughing and Finishing End Mill Long Length with Morse Taper Shank**

# MT-RFE



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 刃長 APMX | シャンク CZC | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **20** | 135 | 55 | MT2 | 4 | | □ | — | — |
| | **22** | 140 | 60 | | 5 | | □ | — | — |
| | **25** | 170 | 70 | MT3 | | | □ | — | — |
| | **28** | | | | | | □ | — | — |
| | **30** | 205 | 80 | MT4 | 6 | — | □ | — | — |
| | **32** | | | | | | □ | — | — |
| | **35** | 215 | 90 | | | | □ | — | — |
| | **38** | | | | | | □ | — | — |
| | **40** | 225 | 100 | | | | □ | — | — |
| | **42** | 255 | | MT5 | | | □ | — | — |
| | **45** | 265 | 110 | | | | □ | — | — |
| | **48** | | | | | | □ | — | — |
| | **50** | 275 | 120 | | 8 | | □ | — | — |
| | **55** | 290 | 130 | | | | □ | — | — |
| | **60** | 305 | 140 | | | | □ | — | — |

## TiNコートハイスラフィングボールエンドミル ロングシャンク
**TiN Coated Roughing Ball End Mill with Long Shank**

# EX-TIN-LS-REBS



HSS-Co　TiN　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 4 × 8 | 90 | 20 | 8 | 4 | — | □ | — | — |
| | R 5 × 10 | 100 | 25 | 10 | | | □ | — | — |
| | R 6 × 12 | 115 | 32 | 12 | | | □ | — | — |
| | R 7 × 14 | | | | | | □ | — | — |
| | R 8 × 16 | 130 | 36 | 16 | | | □ | — | — |
| | R 9 × 18 | | 40 | | | | □ | — | — |
| | R 10 × 20 | 145 | 45 | 20 | | | □ | — | — |
| | R 12.5 × 25 | 165 | 50 | 25 | | | □ | — | — |
| | R 15 × 30 | 180 | 63 | | | | □ | — | — |
| | R 16 × 32 | | | | | | □ | — | — |
| | R 17.5 × 35 | 190 | 70 | 32 | | | □ | — | — |
| | R 20 × 40 | | | | | | □ | — | — |
| | R 25 × 50 | 225 | 90 | 42 | 6 | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能 ▶▶▶ P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## ハイスラフィングボールエンドミル ロングシャンク
**Roughing Ball End Mill with Long Shank**

# LS-REBS



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 4 × 8 | 90 | 20 | 8 | 4 | – | □ | – | – |
| | R 5 × 10 | 100 | 25 | 10 | | | □ | – | – |
| | R 6 × 12 | 115 | 32 | 12 | | | □ | – | – |
| | R 7 × 14 | | | | | | □ | – | – |
| | R 8 × 16 | 130 | 36 | 16 | | | □ | – | – |
| | R 9 × 18 | | 40 | | | | □ | – | – |
| | R10 × 20 | 145 | 45 | 20 | | | □ | – | – |
| | R12.5 × 25 | 165 | 50 | 25 | | | □ | – | – |
| | R15 × 30 | 180 | 63 | | | | □ | – | – |
| | R16 × 32 | | | | | | □ | – | – |
| | R17.5 × 35 | 190 | 70 | 32 | 6 | | □ | – | – |
| | R20 × 40 | | | | | | □ | – | – |
| | R25 × 50 | 225 | 90 | 42 | | | □ | – | – |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

## ハイスラフィングボールエンドミル
**Roughing Ball End Mill**

# REB



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 5 ×10 | 80 | 30 | 10 | 4 | – | □ | – | – |
| | R 6 ×12 | 90 | 40 | 12 | | | □ | – | – |
| | R 8 ×16 | 105 | 50 | 16 | | | □ | – | – |
| | R10 ×20 | 120 | 55 | 20 | | | □ | – | – |
| | R11 ×22 | | 60 | | | | □ | – | – |
| | R12 ×24 | 140 | 70 | 25 | | | □ | – | – |
| | R12.5×25 | | | | | | □ | – | – |
| | R13 ×26 | | | | | | □ | – | – |
| | R14 ×28 | | | | | | □ | – | – |
| | R15 ×30 | 165 | 80 | 32 | 6 | | □ | – | – |
| | R16 ×32 | | | | | | □ | – | – |
| | R17.5×35 | 175 | 90 | | | | □ | – | – |
| | R18 ×36 | | | | | | □ | – | – |
| | R19 ×38 | | | | | | □ | – | – |
| | R20 ×40 | 185 | 100 | | | | □ | – | – |
| | R22.5×45 | 200 | 110 | 42 | | | □ | – | – |
| | R25 ×50 | 210 | 120 | | | | □ | – | – |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

OSGのPSシリーズ
PS 商品シリーズ Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177を参照下さい。
See p.1177 for details



最新の加工動画を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## ハイスラフィングボールエンドミル エキストラロングシャンク
**Roughing Ball End Mill with Extra Long Shank**

# XLS-REB



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 5 ×10 | 200 | 40 | 10 | 4 | — | □ | — | — |
| | R 6 ×12 | | 45 | 12 | | | □ | — | — |
| | R 7 ×14 | | 50 | | | | □ | — | — |
| | R 8 ×16 | 250 | 55 | 16 | | | □ | — | — |
| | R 9 ×18 | | 60 | | | | □ | — | — |
| | R 10 ×20 | 300 | 65 | 20 | | | □ | — | — |
| | R 11 ×22 | | | | | | □ | — | — |
| | R 12 ×24 | | 70 | 25 | | | □ | — | — |
| | R 12.5×25 | | | | | | □ | — | — |
| | R 13 ×26 | | | | | | □ | — | — |
| | R 14 ×28 | | 75 | | | | □ | — | — |
| | R 15 ×30 | | | | 6 | | □ | — | — |
| | R 16 ×32 | | 80 | | | | □ | — | — |
| | R 17 ×34 | 350 | | 32 | | | □ | — | — |
| | R 17.5×35 | | | | | | □ | — | — |
| | R 18 ×36 | | | | | | □ | — | — |
| | R 19 ×38 | | 100 | | | | □ | — | — |
| | R 20 ×40 | | | | | | □ | — | — |
| | R 22.5×45 | | 125 | 42 | | | □ | — | — |
| | R 25 ×50 | | | | | | □ | — | — |

ご使用に際しましては、試し削りで切削状況を確認した上で、切削条件を決定して下さい。
Prior to use, select proper cutting conditions after carrying out a test operation.

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

## ハイスラフアンドフィニッシュボールエンドミル
**Roughing and Finishing Ball End Mill**

# RFB



HSS-Co　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×外径 RE × DC | 全長 LF | 刃長 APMX | シャンク径 DCON | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 5 × 10 | 80 | 30 | 10 | 4 | — | □ | — | — |
| | R 5.5× 11 | 90 | 40 | 12 | | | □ | — | — |
| | R 6 × 12 | | | | | | □ | — | — |
| | R 6.5× 13 | 95 | 45 | 16 | | | □ | — | — |
| | R 7 × 14 | | | | | | □ | — | — |
| | R 7.5× 15 | | | | | | □ | — | — |
| | R 8 × 16 | 105 | 50 | | | | □ | — | — |
| | R 8.5× 17 | | | | | | □ | — | — |
| | R 9 × 18 | | | | | | □ | — | — |
| | R 9.5× 19 | 120 | 55 | 20 | | | □ | — | — |
| | R 10 × 20 | | | | | | □ | — | — |
| | R 10.5× 21 | | 60 | | | | □ | — | — |
| | R 11 × 22 | | | | | | □ | — | — |
| | R 12 × 24 | 140 | 70 | 25 | | | □ | — | — |
| | R 12.5× 25 | | | | | | □ | — | — |
| | R 13 × 26 | | | | | | □ | — | — |
| | R 14 × 28 | | | | | | □ | — | — |
| | R 15 × 30 | 165 | 80 | 32 | 6 | | □ | — | — |
| | R 16 × 32 | | | | | | □ | — | — |
| | R 17.5× 35 | 175 | 90 | | | | □ | — | — |
| | R 19 × 38 | | | | | | □ | — | — |
| | R 20 × 40 | 185 | 100 | | | | □ | — | — |
| | R 21 × 42 | 190 | | 42 | | | □ | — | — |
| | R 22.5× 45 | 200 | 110 | | | | □ | — | — |
| | R 24 × 48 | | | | | | □ | — | — |
| | R 25 × 50 | 210 | 120 | | | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.


OSGのPSシリーズ
PS 商品シリーズ Parts & Supply series
吹き飛ばし・吸込・搬送1台で三役!
※詳細は▶P.1178 を参照下さい。
See p.1178 for details





デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6


**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃XPMテーパエンドミルスタブ形
**2-flute XPM Taper End Mill Stub Length**

# XPM-TPDSS



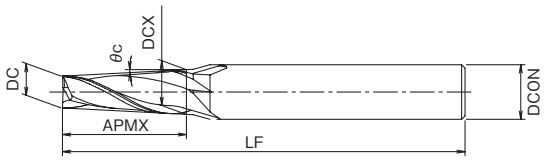
粉末ハイスXPMを母材に採用したテーパ刃エンドミルです。
Taper end mill with powder metallurgy XPM base material.

XPM | ±10′ | 25°

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | | | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86801 | 1 | × | 0.5° | 47 | 2.5 | 6 | 1.04 | D | ● | 15 | 14,300 |
| 86811 | 1 | × | 1° | 48 | 3.5 | | 1.12 | | ● | 14 | 14,300 |
| 86821 | 1 | × | 1.5° | | | | 1.18 | | ● | 15 | 14,300 |
| 86831 | 1 | × | 2° | | 4 | | 1.28 | | ● | 14 | 14,300 |
| 86841 | 1 | × | 2.5° | | | | 1.35 | | ● | 14 | 14,300 |
| 86851 | 1 | × | 3° | | | | 1.42 | | ● | 13 | 14,300 |
| 86802 | 1.5 | × | 0.5° | 47 | 3 | | 1.55 | | ● | 13 | 12,500 |
| 86812 | 1.5 | × | 1° | 48 | 4 | | 1.64 | | ● | 13 | 12,500 |
| 86822 | 1.5 | × | 1.5° | | | | 1.71 | | ● | 14 | 12,500 |
| 86832 | 1.5 | × | 2° | 49 | 5 | | 1.85 | | ● | 13 | 12,500 |
| 86842 | 1.5 | × | 2.5° | | | | 1.94 | | ● | 13 | 12,500 |
| 86852 | 1.5 | × | 3° | | | | 2.02 | | ● | 13 | 12,500 |
| 86803 | 2 | × | 0.5° | | | | 2.09 | | ● | 13 | 8,960 |
| 86813 | 2 | × | 1° | 51 | 7 | | 2.24 | | ● | 13 | 8,960 |
| 86823 | 2 | × | 1.5° | | | | 2.37 | | ● | 14 | 8,960 |
| 86833 | 2 | × | 2° | 53 | 9 | | 2.63 | | ● | 13 | 9,560 |
| 86843 | 2 | × | 2.5° | | | | 2.79 | | ● | 13 | 9,560 |
| 86853 | 2 | × | 3° | | | | 2.94 | | ● | 13 | 9,560 |
| 86804 | 2.5 | × | 0.5° | 49 | 5 | | 2.59 | | ● | 13 | 8,960 |
| 86814 | 2.5 | × | 1° | 51 | 7 | | 2.74 | | ● | 13 | 8,960 |
| 86824 | 2.5 | × | 1.5° | | | | 2.87 | | ● | 14 | 8,960 |
| 86834 | 2.5 | × | 2° | 53 | 9 | | 3.13 | | ● | 13 | 9,560 |
| 86844 | 2.5 | × | 2.5° | | | | 3.29 | | ● | 13 | 9,560 |
| 86854 | 2.5 | × | 3° | | | | 3.44 | | ● | 14 | 9,560 |
| 86805 | 3 | × | 0.5° | 50 | 6 | | 3.1 | | ● | 14 | 8,960 |
| 86815 | 3 | × | 1° | 52 | 8 | | 3.28 | | ● | 13 | 8,960 |
| 86825 | 3 | × | 1.5° | | | | 3.42 | | ● | 14 | 8,960 |
| 86835 | 3 | × | 2° | 55 | 11 | | 3.77 | | ● | 13 | 9,560 |
| 86845 | 3 | × | 2.5° | | | | 3.96 | | ● | 15 | 9,560 |
| 86855 | 3 | × | 3° | | | | 4.15 | | ● | 14 | 9,560 |
| 86806 | 4 | × | 0.5° | 52 | 8 | | 4.14 | | ● | 14 | 8,960 |
| 86816 | 4 | × | 1° | 55 | 11 | | 4.38 | | ● | 14 | 8,960 |
| 86826 | 4 | × | 1.5° | | | | 4.58 | | ● | 14 | 8,960 |
| 86836 | 4 | × | 2° | 59 | 15 | | 5.05 | | ● | 15 | 9,560 |
| 86846 | 4 | × | 2.5° | | | | 5.31 | | ● | 15 | 9,560 |
| 86856 | 4 | × | 3° | | | | 5.57 | | ● | 15 | 9,560 |




## 2枚刃ハイステーパエンドミルスタブ形
**2-flute Taper End Mill Stub Length**

# TPDSS

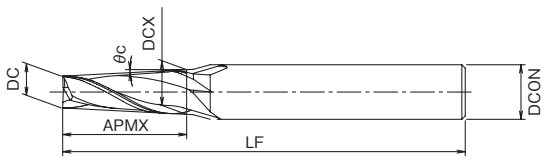


HSS-Co | ±10′ | 25°

CAD

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | | | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 87301 | 1 | × | 0.5° | 47 | 2.5 | 6 | 1.04 | D | ● | 13 | 11,000 |
| 87311 | 1 | × | 1° | 48 | 3.5 | | 1.12 | | ● | 13 | 11,000 |
| 87321 | 1 | × | 1.5° | | | | 1.18 | | ● | 14 | 11,000 |
| 87331 | 1 | × | 2° | | 4 | | 1.28 | | ● | 14 | 11,000 |
| 87341 | 1 | × | 2.5° | | | | 1.35 | | ● | 14 | 11,000 |
| 87351 | 1 | × | 3° | | | | 1.42 | | ● | 15 | 11,000 |
| 87302 | 1.5 | × | 0.5° | 47 | 3 | | 1.55 | | ● | 13 | 9,640 |
| 87312 | 1.5 | × | 1° | 48 | 4 | | 1.64 | | ● | 13 | 9,640 |
| 87322 | 1.5 | × | 1.5° | | | | 1.71 | | ● | 14 | 9,640 |
| 87332 | 1.5 | × | 2° | 49 | 5 | | 1.85 | | ● | 13 | 9,640 |
| 87342 | 1.5 | × | 2.5° | | | | 1.94 | | ● | 14 | 9,640 |
| 87352 | 1.5 | × | 3° | | | | 2.02 | | ● | 15 | 9,640 |
| 87303 | 2 | × | 0.5° | | | | 2.09 | | ● | 13 | 6,850 |
| 87313 | 2 | × | 1° | 51 | 7 | | 2.24 | | ● | 13 | 6,850 |
| 87323 | 2 | × | 1.5° | | | | 2.37 | | ● | 14 | 6,850 |
| 87333 | 2 | × | 2° | 53 | 9 | | 2.63 | | ● | 14 | 7,300 |
| 87343 | 2 | × | 2.5° | | | | 2.79 | | ● | 15 | 7,300 |
| 87353 | 2 | × | 3° | | | | 2.94 | | ● | 15 | 7,300 |
| 87304 | 2.5 | × | 0.5° | 49 | 5 | | 2.59 | | ● | 13 | 6,850 |
| 87314 | 2.5 | × | 1° | 51 | 7 | | 2.74 | | ● | 13 | 6,850 |
| 87324 | 2.5 | × | 1.5° | | | | 2.87 | | ● | 14 | 6,850 |
| 87334 | 2.5 | × | 2° | 55 | 9 | | 3.13 | | ● | 14 | 7,300 |
| 87344 | 2.5 | × | 2.5° | 53 | | | 3.29 | | ● | 14 | 7,300 |
| 87354 | 2.5 | × | 3° | | | | 3.44 | | ● | 15 | 7,300 |
| 87305 | 3 | × | 0.5° | 50 | 6 | | 3.1 | | ● | 13 | 6,850 |
| 87315 | 3 | × | 1° | 52 | 8 | | 3.28 | | ● | 13 | 6,850 |
| 87325 | 3 | × | 1.5° | | | | 3.42 | | ● | 14 | 6,850 |
| 87335 | 3 | × | 2° | 55 | 11 | | 3.77 | | ● | 14 | 7,300 |
| 87345 | 3 | × | 2.5° | | | | 3.96 | | ● | 15 | 7,300 |
| 87355 | 3 | × | 3° | | | | 4.15 | | ● | 15 | 7,300 |
| 87306 | 4 | × | 0.5° | 52 | 8 | | 4.14 | | ● | 14 | 6,850 |
| 87316 | 4 | × | 1° | 55 | 11 | | 4.38 | | ● | 14 | 6,850 |
| 87326 | 4 | × | 1.5° | | | | 4.58 | | ● | 14 | 6,850 |
| 87336 | 4 | × | 2° | 59 | 15 | | 5.05 | | ● | 15 | 7,300 |
| 87346 | 4 | × | 2.5° | | | | 5.31 | | ● | 15 | 7,300 |
| 87356 | 4 | × | 3° | | | | 5.57 | | ● | 15 | 7,300 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel / プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| XPM-TPDSS | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |
| TPDSS | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

# 2枚刃XPMテーパエンドミルショート形
**2-flute XPM Taper End Mill Short Length**

## XPM-TPDS



粉末ハイスXPMを母材に採用したテーパ刃エンドミルです。
Taper end mill with powder metallurgy XPM base material.

CAD

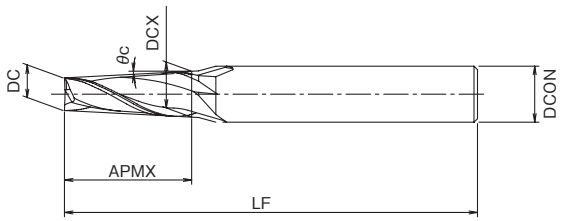
XPM　± 10′　25°

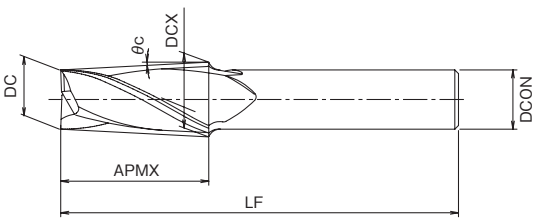
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 86401 | 2 × 0.5° | 54 | 10 | 6 | 2.17 | D | ● | 14 | 9,950 |
| 86411 | 2 × 1° | 57 | 13 | | 2.45 | | ● | 12 | 9,950 |
| 86421 | 2 × 1.5° | | | | 2.68 | | ● | 13 | 9,950 |
| 86431 | 2 × 2° | 62 | 18 | | 3.26 | | ● | 13 | 10,600 |
| 86441 | 2 × 2.5° | | | | 3.57 | | ● | 14 | 10,600 |
| 86451 | 2 × 3° | | | | 3.89 | | ● | 13 | 10,600 |
| 86402 | 2.5 × 0.5° | 54 | 10 | | 2.67 | | ● | 14 | 9,950 |
| 86412 | 2.5 × 1° | 57 | 13 | | 2.95 | | ● | 13 | 9,950 |
| 86422 | 2.5 × 1.5° | | | | 3.18 | | ● | 13 | 9,950 |
| 86432 | 2.5 × 2° | 62 | 18 | | 3.76 | | ● | 14 | 10,600 |
| 86442 | 2.5 × 2.5° | | | | 4.07 | | ● | 14 | 10,600 |
| 86452 | 2.5 × 3° | | | | 4.39 | | ● | 14 | 10,600 |
| 86462 | 2.5 × 4° | | | | 5.02 | | ● | 15 | 10,700 |
| 86472 | 2.5 × 5° | | | | 5.65 | | ● | 15 | 10,900 |
| 86482 | 2.5 × 7° | 74 | 24 | 10 | 8.64 | | ● | 40 | 13,400 |
| 86492 | 2.5 × 10° | 81 | | 12 | 10.96 | | ● | 65 | 16,100 |
| 86403 | 3 × 0.5° | 54 | 10 | 6 | 3.17 | | ● | 14 | 9,950 |
| 86413 | 3 × 1° | 57 | 13 | | 3.45 | | ● | 13 | 9,950 |
| 86423 | 3 × 1.5° | | | | 3.68 | | ● | 13 | 9,950 |
| 86433 | 3 × 2° | 62 | 18 | | 4.26 | | ● | 14 | 10,600 |
| 86443 | 3 × 2.5° | | | | 4.57 | | ● | 15 | 10,600 |
| 86453 | 3 × 3° | | | | 4.89 | | ● | 15 | 10,600 |
| 86463 | 3 × 4° | | | | 5.52 | | ● | 15 | 10,700 |
| 86473 | 3 × 5° | | | 8 | 6.15 | | ● | 22 | 10,900 |
| 86483 | 3 × 7° | 74 | 24 | 10 | 8.89 | | ● | 39 | 13,400 |
| 86493 | 3 × 10° | 81 | | 12 | 11.46 | | ● | 65 | 16,100 |
| 86404 | 4 × 0.5° | 56 | 12 | 6 | 4.21 | | ● | 14 | 9,950 |
| 86414 | 4 × 1° | 60 | 16 | | 4.56 | | ● | 14 | 9,950 |
| 86424 | 4 × 1.5° | | | | 4.84 | | ● | 14 | 9,950 |
| 86434 | 4 × 2° | 65 | 21 | | 5.47 | | ● | 15 | 10,600 |
| 86444 | 4 × 2.5° | | | | 5.83 | | ● | 15 | 10,600 |
| 86454 | 4 × 3° | | | 8 | 6.2 | | ● | 22 | 10,600 |
| 86464 | 4 × 4° | | | | 6.94 | | ● | 23 | 11,800 |
| 86474 | 4 × 5° | | | | 7.67 | | ● | 24 | 11,800 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 86484 | 4 × 7° | 85 | 28 | 12 | 10.88 | D | ● | 65 | 15,900 |
| 86494 | 4 × 10° | | | | 13.87 | | ● | 75 | 20,400 |
| 86405 | 5 × 0.5° | 58 | 14 | 6 | 5.24 | | ● | 15 | 9,950 |
| 86415 | 5 × 1° | 63 | 19 | | 5.66 | | ● | 15 | 9,950 |
| 86425 | 5 × 1.5° | | | | 6 | | ● | 16 | 9,950 |
| 86435 | 5 × 2° | 69 | 25 | 8 | 6.75 | | ● | 25 | 10,600 |
| 86445 | 5 × 2.5° | | | | 7.18 | | ● | 25 | 10,600 |
| 86455 | 5 × 3° | | | | 7.62 | | ● | 24 | 10,600 |
| 86465 | 5 × 4° | 75 | | 10 | 8.5 | | ● | 41 | 12,500 |
| 86475 | 5 × 5° | | | | 9.37 | | ● | 42 | 12,100 |
| 86485 | 5 × 7° | 91 | 34 | 12 | 13.35 | | ● | 84 | 19,600 |
| 86495 | 5 × 10° | 94 | | 16 | 16.99 | | ● | 130 | 28,800 |
| 86406 | 6 × 0.5° | 58 | 14 | 8 | 6.24 | | ● | 21 | 10,800 |
| 86416 | 6 × 1° | 63 | 19 | | 6.66 | | ● | 23 | 9,950 |
| 86426 | 6 × 1.5° | | | | 7 | | ● | 23 | 9,950 |
| 86436 | 6 × 2° | 69 | 25 | | 7.75 | | ● | 25 | 10,600 |
| 86446 | 6 × 2.5° | 75 | | 10 | 8.18 | | ● | 42 | 11,400 |
| 86456 | 6 × 3° | | | | 8.62 | | ● | 40 | 11,400 |
| 86466 | 6 × 4° | | | | 9.5 | | ● | 41 | 12,500 |
| 86476 | 6 × 5° | 82 | | 12 | 10.37 | | ● | 65 | 15,700 |
| 86486 | 6 × 7° | 91 | 34 | | 14.35 | | ● | 81 | 22,000 |
| 86496 | 6 × 10° | 94 | | 16 | 17.99 | | ● | 133 | 28,800 |
| 86427 | 8 × 1.5° | 72 | 22 | 10 | 9.15 | | ● | 42 | 13,400 |
| 86437 | 8 × 2° | 87 | 30 | 12 | 10.1 | | ● | 66 | 13,800 |
| 86447 | 8 × 2.5° | | | | 10.62 | | ● | 68 | 13,800 |
| 86457 | 8 × 3° | | | | 11.14 | | ● | 69 | 13,800 |
| 86467 | 8 × 4° | | | | 12.2 | | ● | 75 | 19,400 |
| 86477 | 8 × 5° | | | | 13.25 | | ● | 80 | 19,400 |
| 86428 | 10 × 1.5° | 79 | 22 | | 11.15 | | ● | 65 | 15,200 |
| 86438 | 10 × 2° | 87 | 30 | | 12.1 | | ● | 76 | 15,200 |
| 86448 | 10 × 2.5° | | | | 12.62 | | ● | 73 | 19,400 |
| 86458 | 10 × 3° | | | | 13.14 | | ● | 81 | 19,400 |
| 86468 | 10 × 4° | | | | 14.2 | | ● | 82 | 20,500 |
| 86478 | 10 × 5° | 90 | | 16 | 15.25 | | ● | 123 | 22,200 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| XPM-TPDS | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 台形ランナ用2枚刃XPMテーパエンドミル
**2-flute XPM Taper End Mill for Trapezoidal Runner**

## XPM-TRC



台形ランナ加工用XPMテーパ刃エンドミルです。
Taper end mill for trapezoidal runners. Powder metallurgy XPM base material.

CAD

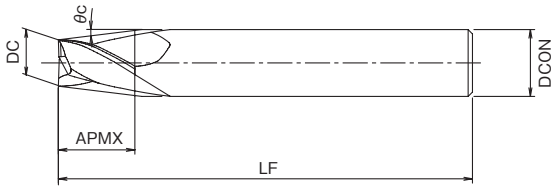
XPM　±10′　30°

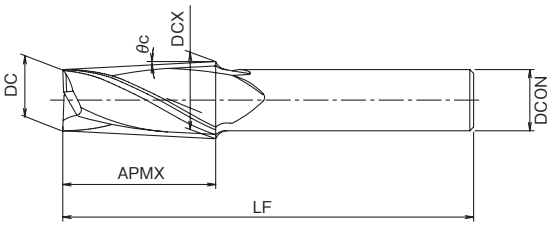
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8404901 | 2 × 7° | 45 | 4 | 4 | D | ● | 7 | 11,000 |
| 8404921 | 2 × 10° | | | | | ● | 7 | 11,300 |
| 8404941 | 2 × 12° | | | | | ● | 7 | 11,400 |
| 8404961 | 2 × 15° | 50 | | 6 | | ● | 14 | 11,400 |
| 8404902 | 2.5 × 7° | 45 | 5 | 4 | | ● | 10 | 11,000 |
| 8404922 | 2.5 × 10° | 50 | | 6 | | ● | 14 | 11,300 |
| 8404942 | 2.5 × 12° | | | | | ● | 14 | 11,400 |
| 8404962 | 2.5 × 15° | | | | | ● | 14 | 11,400 |
| 8404903 | 3 × 7° | | 6 | | | ● | 14 | 11,000 |
| 8404923 | 3 × 10° | | | | | ● | 14 | 11,300 |
| 8404943 | 3 × 12° | | | | | ● | 14 | 11,400 |
| 8404963 | 3 × 15° | 60 | | 8 | | ● | 26 | 12,500 |
| 8404904 | 3.5 × 7° | 50 | 7 | 6 | | ● | 15 | 11,000 |
| 8404924 | 3.5 × 10° | | | | | ● | 15 | 11,300 |
| 8404944 | 3.5 × 12° | 60 | | 8 | | ● | 27 | 12,500 |
| 8404964 | 3.5 × 15° | | | | | ● | 29 | 12,500 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8404905 | 4 × 7° | 50 | 8 | 6 | D | ● | 14 | 11,000 |
| 8404925 | 4 × 10° | 60 | | 8 | | ● | 25 | 12,400 |
| 8404945 | 4 × 12° | | | | | ● | 26 | 12,500 |
| 8404965 | 4 × 15° | 70 | | 10 | | ● | 45 | 14,600 |
| 8404906 | 4.5 × 7° | 60 | 9 | 8 | | ● | 27 | 12,100 |
| 8404926 | 4.5 × 10° | | | | | ● | 28 | 12,400 |
| 8404946 | 4.5 × 12° | 70 | | 10 | | ● | 48 | 14,600 |
| 8404966 | 4.5 × 15° | | | | | ● | 45 | 14,600 |
| 8404907 | 5 × 7° | 60 | 10 | 8 | | ● | 26 | 12,100 |
| 8404927 | 5 × 10° | 70 | | 10 | | ● | 43 | 14,300 |
| 8404947 | 5 × 12° | | | | | ● | 44 | 14,600 |
| 8404967 | 5 × 15° | 75 | | 12 | | ● | 67 | 18,200 |
| 8404908 | 6 × 7° | 70 | 12 | 10 | | ● | 43 | 14,100 |
| 8404928 | 6 × 10° | 75 | | 12 | | ● | 65 | 18,000 |
| 8404948 | 6 × 12° | | | | | ● | 66 | 18,200 |
| 8404968 | 6 × 15° | | | | | ● | 67 | 18,200 |




| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| XPM-TRC | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイステーパエンドミルショート形
**2-flute Taper End Mill Short Length**

## TPDS



CAD

HSS-Co　± 10′　25°

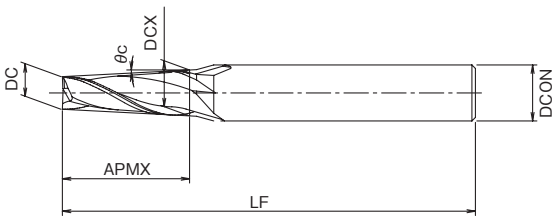
（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 0.8 × 0.5° | 45 | 2 | 6 | 0.83 | | □ | — | — |
| | 0.8 × 0.75° | | | | 0.85 | | □ | — | — |
| | 0.8 × 1° | | | | 0.87 | | □ | — | — |
| | 0.8 × 1.25° | | | | 0.89 | | □ | — | — |
| | 0.8 × 1.5° | | | | 0.9 | | □ | — | — |
| | 0.8 × 1.75° | | | | 0.92 | | □ | — | — |
| | 0.8 × 2° | | | | 0.94 | | □ | — | — |
| | 1 × 0.5° | 50 | 4 | | 1.07 | | □ | — | — |
| | 1 × 0.75° | | | | 1.1 | | □ | — | — |
| | 1 × 1° | | | | 1.14 | | □ | — | — |
| | 1 × 1.25° | | | | 1.17 | | □ | — | — |
| | 1 × 1.5° | | | | 1.21 | | □ | — | — |
| | 1 × 1.75° | | | | 1.24 | | □ | — | — |
| | 1 × 2° | | | | 1.28 | | □ | — | — |
| | 1 × 2.25° | | | | 1.31 | | □ | — | — |
| | 1 × 2.5° | | | | 1.35 | | □ | — | — |
| | 1 × 2.75° | | | | 1.38 | — | □ | — | — |
| | 1 × 3° | | | | 1.42 | | □ | — | — |
| | 1 × 3.5° | 52 | 7 | | 1.86 | | □ | — | — |
| | 1 × 4° | | | | 1.98 | | □ | — | — |
| | 1 × 5° | | | | 2.22 | | □ | — | — |
| | 1.2 × 0.5° | 50 | 4 | | 1.27 | | □ | — | — |
| | 1.2 × 0.75° | | | | 1.3 | | □ | — | — |
| | 1.2 × 1° | | | | 1.34 | | □ | — | — |
| | 1.2 × 1.25° | | | | 1.37 | | □ | — | — |
| | 1.2 × 1.5° | | | | 1.41 | | □ | — | — |
| | 1.2 × 1.75° | | | | 1.44 | | □ | — | — |
| | 1.2 × 2° | | | | 1.48 | | □ | — | — |
| | 1.2 × 2.25° | | | | 1.51 | | □ | — | — |
| | 1.2 × 2.5° | | | | 1.55 | | □ | — | — |
| | 1.2 × 2.75° | | | | 1.58 | | □ | — | — |
| | 1.2 × 3° | | | | 1.62 | | □ | — | — |
| | 1.2 × 3.5° | 52 | 7 | | 2.06 | | □ | — | — |
| | 1.2 × 4° | | | | 2.18 | | □ | — | — |

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 1.2 × 5° | 52 | 7 | 6 | 2.42 | | □ | — | — |
| | 1.5 × 0.5° | 50 | 5 | | 1.59 | | □ | — | — |
| | 1.5 × 0.75° | | | | 1.63 | | □ | — | — |
| | 1.5 × 1° | | | | 1.67 | | □ | — | — |
| | 1.5 × 1.25° | | | | 1.72 | | □ | — | — |
| | 1.5 × 1.5° | | | | 1.76 | | □ | — | — |
| | 1.5 × 1.75° | | | | 1.81 | | □ | — | — |
| | 1.5 × 2° | | | | 1.85 | | □ | — | — |
| | 1.5 × 2.25° | | | | 1.89 | — | □ | — | — |
| | 1.5 × 2.5° | | | | 1.94 | | □ | — | — |
| | 1.5 × 2.75° | | | | 1.98 | | □ | — | — |
| | 1.5 × 3° | | | | 2.02 | | □ | — | — |
| | 1.5 × 3.5° | 52 | 8 | | 2.48 | | □ | — | — |
| | 1.5 × 4° | | | | 2.62 | | □ | — | — |
| | 1.5 × 5° | | | | 2.9 | | □ | — | — |
| | 1.5 × 6° | | | | 3.18 | | □ | — | — |
| 85001 | 2 × 0.5° | 54 | 10 | | 2.17 | D | ● | 12 | 7,660 |
| | 2 × 0.75° | | | | 2.26 | — | □ | — | — |
| 85011 | 2 × 1° | 57 | 13 | | 2.45 | D | ● | 13 | 7,660 |
| | 2 × 1.25° | | | | 2.57 | — | □ | — | — |
| 85021 | 2 × 1.5° | | | | 2.68 | D | ● | 13 | 7,660 |
| | 2 × 1.75° | | | | 2.79 | — | □ | — | — |
| 85031 | 2 × 2° | 62 | 18 | | 3.26 | D | ● | 14 | 8,190 |
| | 2 × 2.25° | | | | 3.41 | — | □ | — | — |
| 85041 | 2 × 2.5° | | | | 3.57 | D | ● | 13 | 8,190 |
| | 2 × 2.75° | | | | 3.73 | — | □ | — | — |
| 85051 | 2 × 3° | | | | 3.89 | D | ● | 14 | 8,190 |
| | 2 × 3.5° | | | | 4.2 | | □ | — | — |
| | 2 × 4° | | | | 4.52 | | □ | — | — |
| | 2 × 5° | | | | 5.15 | | □ | — | — |
| | 2 × 6° | 68 | 24 | 8 | 7.05 | — | □ | — | — |
| | 2 × 7° | | | | 7.89 | | □ | — | — |
| | 2 × 8° | | | | 8.75 | | □ | — | — |
| | 2 × 10° | 81 | | 12 | 10.46 | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




刃部テーパ半角早見表
Convertion Table

| | | |
|---|---|---|
| 0.25° | → | 15′ |
| 0.75° | → | 45′ |

次ページへ
外径 DC 2〜6 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| TPDS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品
Standard stock item

○ = 準標準在庫品（在庫をご確認下さい。）
Limited standard stock item

▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）
Scheduled to be replaced by new product or successor item

□ = 特定代理店在庫品
Stocked by specific distributors. Contact us for price & availability.

△ = 生産中止品（在庫をご確認下さい。）
Discontinued item

# 2枚刃ハイステーパエンドミルショート形
**2-flute Taper End Mill Short Length**

## TPDS



HSS-Co　±10′　25°

CAD

前ページより FROM 外径 DC 0.8～2

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 2 × 15° | 80 | 18.6 | 12 | 11.97 | – | □ | – | – |
| | 2 × 20° | | 13.7 | | 11.97 | – | □ | – | – |
| 85002 | 2.5 × 0.5° | 54 | 10 | 6 | 2.67 | D | ● | 13 | 7,660 |
| | 2.5 × 0.75° | | | | 2.76 | – | □ | – | – |
| 85012 | 2.5 × 1° | 57 | 13 | | 2.95 | D | ● | 13 | 7,660 |
| | 2.5 × 1.25° | | | | 3.07 | – | □ | – | – |
| 85022 | 2.5 × 1.5° | | | | 3.18 | D | ● | 13 | 7,660 |
| | 2.5 × 1.75° | | | | 3.29 | – | □ | – | – |
| 85032 | 2.5 × 2° | 62 | 18 | | 3.76 | D | ● | 14 | 8,190 |
| | 2.5 × 2.25° | | | | 3.91 | – | □ | – | – |
| 85042 | 2.5 × 2.5° | | | | 4.07 | D | ● | 14 | 8,190 |
| | 2.5 × 2.75° | | | | 4.23 | – | □ | – | – |
| 85052 | 2.5 × 3° | | | | 4.39 | D | ● | 14 | 8,190 |
| | 2.5 × 3.5° | | | | 4.7 | – | □ | – | – |
| 85062 | 2.5 × 4° | | | | 5.02 | D | ● | 14 | 8,230 |
| 85072 | 2.5 × 5° | | | | 5.65 | | ● | 15 | 8,390 |
| | 2.5 × 6° | 68 | | 8 | 7.55 | – | □ | – | – |
| 85082 | 2.5 × 7° | 74 | 24 | 10 | 8.39 | D | ● | 39 | 10,300 |
| | 2.5 × 8° | | | | 9.25 | – | □ | – | – |
| 85092 | 2.5 × 10° | 81 | | 12 | 10.96 | D | ● | 64 | 12,500 |
| | 2.5 × 15° | 80 | 17.7 | | 11.99 | – | □ | – | – |
| | 2.5 × 20° | | 13 | | 11.96 | | □ | – | – |
| 85003 | 3 × 0.5° | 54 | 10 | 6 | 3.17 | D | ● | 13 | 7,660 |
| | 3 × 0.75° | | | | 3.26 | – | □ | – | – |
| 85013 | 3 × 1° | 57 | 13 | | 3.45 | D | ● | 13 | 7,660 |
| | 3 × 1.25° | | | | 3.57 | – | □ | – | – |
| 85023 | 3 × 1.5° | | | | 3.68 | D | ● | 13 | 7,660 |
| | 3 × 1.75° | | | | 3.79 | – | □ | – | – |
| 85033 | 3 × 2° | 62 | 18 | | 4.26 | D | ● | 14 | 8,190 |
| | 3 × 2.25° | | | | 4.1 | – | □ | – | – |
| 85043 | 3 × 2.5° | | | | 4.57 | D | ● | 15 | 8,190 |
| | 3 × 2.75° | | | | 4.73 | – | □ | – | – |
| 85053 | 3 × 3° | | | | 4.89 | D | ● | 14 | 8,190 |
| | 3 × 3.5° | | | | 5.2 | – | □ | – | – |
| 85063 | 3 × 4° | | | | 5.52 | D | ● | 15 | 8,230 |
| 85073 | 3 × 5° | | | 8 | 6.15 | | ● | 22 | 8,390 |
| | 3 × 6° | 74 | 24 | 10 | 8.05 | – | □ | – | – |
| 85083 | 3 × 7° | | | | 8.89 | D | ● | 39 | 10,300 |
| | 3 × 8° | | 24.9 | | 9.75 | – | □ | – | – |
| | 3 × 9° | 81 | 24 | 12 | 10.6 | | □ | – | – |
| 85093 | 3 × 10° | | | | 11.46 | D | ● | 65 | 12,500 |
| | 3 × 15° | 85 | 25 | 16 | 16.4 | – | □ | – | – |
| | 3 × 20° | | | | 21.2 | | □ | – | – |
| 85004 | 4 × 0.5° | 56 | 12 | 6 | 4.21 | D | ● | 14 | 7,660 |
| | 4 × 0.75° | | | | 4.31 | – | □ | – | – |
| 85014 | 4 × 1° | 60 | 16 | | 4.56 | D | ● | 14 | 7,660 |
| | 4 × 1.25° | | | | 4.7 | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 85024 | 4 × 1.5° | 60 | 16 | 6 | 4.84 | D | ● | 14 | 7,660 |
| | 4 × 1.75° | | | | 4.98 | – | □ | – | – |
| 85034 | 4 × 2° | 65 | 21 | | 5.47 | D | ● | 15 | 8,190 |
| | 4 × 2.25° | | | | 5.65 | – | □ | – | – |
| 85044 | 4 × 2.5° | | | | 5.83 | D | ● | 16 | 8,190 |
| | 4 × 2.75° | | | 8 | 6.02 | – | □ | – | – |
| 85054 | 4 × 3° | | | | 6.2 | D | ● | 22 | 8,190 |
| | 4 × 3.5° | | | | 6.57 | – | □ | – | – |
| 85064 | 4 × 4° | | | | 6.94 | D | ● | 23 | 8,990 |
| 85074 | 4 × 5° | | | | 7.67 | | ● | 24 | 8,990 |
| | 4 × 6° | 78 | 28 | 10 | 9.89 | – | □ | – | – |
| 85084 | 4 × 7° | 85 | | 12 | 10.88 | D | ● | 66 | 12,300 |
| | 4 × 8° | | | | 11.87 | – | □ | – | – |
| | 4 × 9° | | | | 12.87 | | □ | – | – |
| 85094 | 4 × 10° | | | | 13.87 | D | ● | 77 | 15,700 |
| | 4 × 15° | 90 | 30 | 16 | 20.08 | – | □ | – | – |
| | 4 × 20° | | | 20 | 25.84 | | □ | – | – |
| 85005 | 5 × 0.5° | 58 | 14 | 6 | 5.24 | D | ● | 14 | 7,660 |
| | 5 × 0.75° | | | | 5.37 | – | □ | – | – |
| 85015 | 5 × 1° | 63 | 19 | | 5.66 | D | ● | 15 | 7,660 |
| | 5 × 1.25° | | | | 5.83 | – | □ | – | – |
| 85025 | 5 × 1.5° | | | | 6 | D | ● | 15 | 7,660 |
| | 5 × 1.75° | | | | 6.16 | – | □ | – | – |
| 85035 | 5 × 2° | 69 | 25 | 8 | 6.75 | D | ● | 24 | 8,190 |
| | 5 × 2.25° | | | | 6.96 | – | □ | – | – |
| 85045 | 5 × 2.5° | | | | 7.18 | D | ● | 23 | 8,190 |
| | 5 × 2.75° | | | | 7.4 | – | □ | – | – |
| 85055 | 5 × 3° | | | | 7.62 | D | ● | 24 | 8,190 |
| | 5 × 3.5° | 75 | | 10 | 8.06 | – | □ | – | – |
| 85065 | 5 × 4° | | | | 8.5 | D | ● | 40 | 9,590 |
| 85075 | 5 × 5° | | | | 9.37 | | ● | 41 | 9,280 |
| | 5 × 6° | 91 | 34 | 12 | 12.15 | – | □ | – | – |
| 85085 | 5 × 7° | | | | 13.35 | D | ● | 78 | 15,200 |
| | 5 × 8° | | | | 14.56 | – | □ | – | – |
| | 5 × 9° | 94 | | 16 | 15.77 | | □ | – | – |
| 85095 | 5 × 10° | | | | 16.99 | D | ● | 131 | 22,300 |
| | 5 × 15° | 110 | 35 | 20 | 23.76 | – | □ | – | – |
| | 5 × 20° | | | 25 | 30.48 | | □ | – | – |
| 85006 | 6 × 0.5° | 58 | 14 | 8 | 6.24 | D | ● | 22 | 8,250 |
| | 6 × 0.75° | | | | 6.37 | – | □ | – | – |
| 85016 | 6 × 1° | 63 | 19 | | 6.66 | D | ● | 23 | 7,660 |
| | 6 × 1.25° | | | | 6.83 | – | □ | – | – |
| 85026 | 6 × 1.5° | | | | 7 | D | ● | 23 | 7,660 |
| | 6 × 1.75° | | | | 7.16 | – | □ | – | – |
| 85036 | 6 × 2° | 69 | 25 | | 7.75 | D | ● | 25 | 8,190 |
| | 6 × 2.25° | 75 | | 10 | 7.96 | – | □ | – | – |
| 85046 | 6 × 2.5° | | | | 8.18 | D | ● | 40 | 8,660 |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

次ページへ 外径 DC 6～20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパエンドミルショート形
**2-flute Taper End Mill Short Length**

## TPDS



CAD

HSS-Co　± 10′　25°

前ページより FROM 外径 DC 2～6

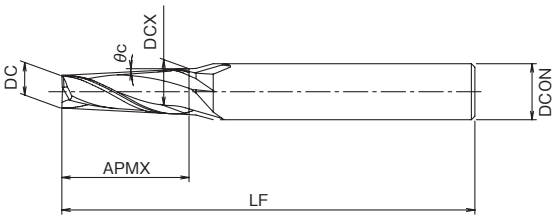
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 6 × 2.75° | 75 | 25 | 10 | 8.4 | — | □ | — | — |
| 85056 | 6 × 3° | | | | 8.62 | D | ● | 42 | 8,660 |
| | 6 × 3.5° | | | | 9.06 | — | □ | — | — |
| 85066 | 6 × 4° | | | | 9.5 | D | ● | 42 | 9,590 |
| 85076 | 6 × 5° | 82 | | 12 | 10.37 | D | ● | 70 | 12,000 |
| | 6 × 6° | 91 | 34 | | 13.15 | — | □ | — | — |
| 85086 | 6 × 7° | | | | 14.35 | D | ● | 80 | 16,900 |
| | 6 × 8° | | | 16 | 15.56 | — | □ | — | — |
| | 6 × 9° | 94 | | | 16.77 | — | □ | — | — |
| 85096 | 6 × 10° | | | | 17.99 | D | ● | 133 | 22,300 |
| | 6 × 15° | 120 | 40 | 25 | 27.44 | — | □ | — | — |
| | 6 × 20° | | | | 35.12 | — | □ | — | — |
| | 6 × 30° | 100 | 20 | | 29.09 | — | □ | — | — |
| | 8 × 0.5° | 67 | 17 | 10 | 8.3 | — | □ | — | — |
| | 8 × 1° | 72 | 22 | | 8.77 | — | □ | — | — |
| | 8 × 1.25° | | | | 8.96 | — | □ | — | — |
| 85027 | 8 × 1.5° | | | | 9.15 | D | ● | 41 | 10,300 |
| | 8 × 1.75° | | | | 9.34 | — | □ | — | — |
| 85037 | 8 × 2° | 87 | 30 | 12 | 10.1 | D | ● | 66 | 10,600 |
| | 8 × 2.25° | | | | 10.36 | — | □ | — | — |
| 85047 | 8 × 2.5° | | | | 10.62 | D | ● | 67 | 10,600 |
| | 8 × 2.75° | | | | 10.88 | — | □ | — | — |
| 85057 | 8 × 3° | | | | 11.14 | D | ● | 68 | 10,600 |
| | 8 × 3.5° | | | | 11.67 | — | □ | — | — |
| 85067 | 8 × 4° | | | | 12.2 | D | ● | 71 | 14,900 |
| 85077 | 8 × 5° | | | | 13.25 | D | ● | 78 | 14,900 |
| | 8 × 6° | 95 | 35 | 16 | 15.36 | — | □ | — | — |
| | 8 × 7° | | | | 16.59 | — | □ | — | — |
| | 8 × 8° | | | | 17.84 | — | □ | — | — |
| | 8 × 10° | 106 | 40 | 20 | 22.11 | — | □ | — | — |
| | 8 × 15° | 130 | 50 | 32 | 34.79 | — | □ | — | — |
| | 8 × 20° | 120 | 40 | | 37.12 | — | □ | — | — |
| | 8 × 20° | 145 | 53 | 42 | 46.58 | — | □ | — | — |
| | 8 × 30° | 105 | 25 | 32 | 36.87 | — | □ | — | — |
| | 10 × 0.5° | 74 | 17 | 12 | 10.3 | — | □ | — | — |
| | 10 × 1° | 79 | 22 | | 10.77 | — | □ | — | — |
| | 10 × 1.25° | | | | 10.96 | — | □ | — | — |
| 85028 | 10 × 1.5° | | | | 11.15 | D | ● | 65 | 11,700 |
| | 10 × 1.75° | | | | 11.34 | — | □ | — | — |
| 85038 | 10 × 2° | 87 | 30 | | 12.1 | D | ● | 71 | 11,700 |
| | 10 × 2.25° | | | | 12.36 | — | □ | — | — |
| 85048 | 10 × 2.5° | | | | 12.62 | D | ● | 72 | 14,900 |
| | 10 × 2.75° | | | | 12.88 | — | □ | — | — |
| 85058 | 10 × 3° | | | | 13.14 | D | ● | 77 | 14,900 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 10 × 3.5° | 87 | 30 | 12 | 13.67 | — | □ | — | — |
| 85068 | 10 × 4° | | | | 14.2 | D | ● | 84 | 15,800 |
| 85078 | 10 × 5° | 90 | | 16 | 15.25 | | ● | 125 | 17,000 |
| | 10 × 6° | 95 | 35 | | 17.36 | | □ | — | — |
| | 10 × 7° | | | | 18.59 | | □ | — | — |
| | 10 × 8° | 101 | | 20 | 19.84 | | □ | — | — |
| | 10 × 10° | 121 | 45 | 25 | 25.87 | | □ | — | — |
| | 10 × 15° | 130 | 50 | 32 | 36.79 | | □ | — | — |
| | 10 × 20° | 120 | 40 | | 39.12 | | □ | — | — |
| | 10 × 20° | 145 | 53 | 42 | 48.58 | | □ | — | — |
| | 10 × 30° | 127 | 35 | | 50.41 | | □ | — | — |
| | 12 × 2.5° | 87 | 30 | 16 | 14.62 | | □ | — | — |
| | 12 × 10° | 126 | 50 | 25 | 29.63 | | □ | — | — |
| | 12 × 15° | 130 | | 32 | 38.79 | | □ | — | — |
| | 12 × 20° | 120 | 40 | | 41.12 | | □ | — | — |
| | 12 × 20° | 155 | 63 | 42 | 57.86 | — | □ | — | — |
| | 12 × 25° | 152 | 60 | | 67.96 | | □ | — | — |
| | 12 × 30° | 127 | 35 | | 52.41 | | □ | — | — |
| | 16 × 15° | 130 | 50 | 32 | 42.79 | | □ | — | — |
| | 16 × 20° | 120 | 40 | | 45.12 | | □ | — | — |
| | 16 × 20° | 155 | 63 | 42 | 61.86 | | □ | — | — |
| | 16 × 25° | 152 | 60 | | 71.96 | | □ | — | — |
| | 16 × 30° | 142 | 50 | | 73.74 | | □ | — | — |
| | 20 × 15° | 130 | | 32 | 46.79 | | □ | — | — |
| | 20 × 20° | 120 | 40 | | 49.12 | | □ | — | — |
| | 20 × 20° | 167 | 75 | 42 | 74.6 | | □ | — | — |
| | 20 × 25° | 152 | 60 | | 75.96 | | □ | — | — |
| | 20 × 30° | 142 | 50 | | 77.74 | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




### 刃部テーパ半角早見表
Convertion Table

| | | |
|---|---|---|
| 0.25° | → | 15′ |
| 0.75° | → | 45′ |

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| TPDS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃XPMテーパエンドミルレギュラ形
**2-flute XPM Taper End Mill Regular Length**

## XPM-TPDR



XPM　±10′　25°

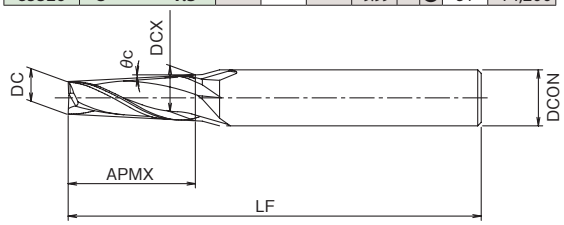
CAD

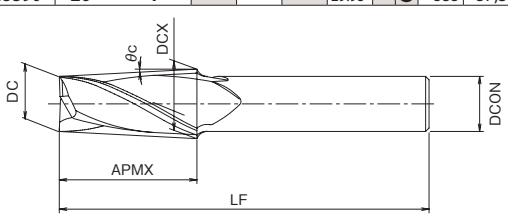
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 85310 | 2 × 1° | 66 | 22 | 6 | 2.77 | ● | 13 | 12,800 |
| 85320 | 2 × 1.5° | | | | 3.15 | ● | 13 | 14,200 |
| 85301 | 2.5 × 0.5° | 61 | 17 | | 2.8 | ● | 14 | 11,600 |
| 85311 | 2.5 × 1° | 66 | 22 | | 3.27 | ● | 14 | 12,800 |
| 85321 | 2.5 × 1.5° | | | | 3.65 | ● | 14 | 14,200 |
| 85331 | 2.5 × 2° | 74 | 30 | | 4.6 | ● | 15 | 16,400 |
| 85351 | 2.5 × 2.5° | | | | 5.12 | ● | 15 | 16,400 |
| 85371 | 2.5 × 3° | | | | 5.64 | ● | 16 | 16,400 |
| 85302 | 3 × 0.5° | 61 | 17 | | 3.3 | ● | 14 | 11,600 |
| 85312 | 3 × 1° | 66 | 22 | | 3.77 | ● | 14 | 12,800 |
| 85322 | 3 × 1.5° | | | | 4.15 | ● | 15 | 14,200 |
| 85332 | 3 × 2° | 74 | 30 | | 5.1 | ● | 15 | 16,400 |
| 85352 | 3 × 2.5° | | | | 5.62 | ● | 23 | 16,400 |
| 85372 | 3 × 3° | | | 8 | 6.14 | ● | 24 | 16,400 |
| 85303 | 4 × 0.5° | 64 | 20 | 6 | 4.35 | ● | 14 | 11,600 |
| 85313 | 4 × 1° | 70 | 26 | | 4.91 | ● | 15 | 12,800 |
| 85323 | 4 × 1.5° | | | | 5.36 | ● | 16 | 14,200 |
| 85333 | 4 × 2° | 80 | 36 | 8 | 6.51 | D ● | 26 | 16,900 |
| 85353 | 4 × 2.5° | | | | 7.14 | ● | 27 | 16,900 |
| 85373 | 4 × 3° | | | | 7.77 | ● | 28 | 16,900 |
| 85304 | 5 × 0.5° | 68 | 24 | 6 | 5.42 | ● | 16 | 11,600 |
| 85314 | 5 × 1° | 76 | 32 | 8 | 6.12 | ● | 26 | 12,800 |
| 85324 | 5 × 1.5° | | | | 6.68 | ● | 31 | 14,200 |
| 85334 | 5 × 2° | 86 | 42 | | 7.93 | ● | 31 | 19,300 |
| 85354 | 5 × 2.5° | 92 | | 10 | 8.67 | ● | 49 | 20,400 |
| 85374 | 5 × 3° | | | | 9.4 | ● | 49 | 20,400 |
| 85305 | 6 × 0.5° | 68 | 24 | 8 | 6.42 | ● | 23 | 11,600 |
| 85315 | 6 × 1° | 76 | 32 | | 7.12 | ● | 28 | 12,800 |
| 85325 | 6 × 1.5° | | | | 7.68 | ● | 33 | 14,200 |
| 85335 | 6 × 2° | 92 | 42 | 10 | 8.93 | ● | 48 | 20,400 |
| 85355 | 6 × 2.5° | | | | 9.67 | ● | 52 | 22,800 |
| 85375 | 6 × 3° | 99 | | 12 | 10.4 | ● | 70 | 24,400 |
| 85306 | 8 × 0.5° | 78 | 28 | 10 | 8.49 | ● | 42 | 12,100 |
| 85316 | 8 × 1° | 88 | 38 | | 9.33 | ● | 50 | 14,200 |
| 85326 | 8 × 1.5° | | | | 9.99 | ● | 51 | 14,200 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 85336 | 8 × 2° | 107 | 50 | 12 | 11.49 | ● | 75 | 22,200 |
| 85356 | 8 × 2.5° | | | | 12.37 | ● | 91 | 22,800 |
| 85376 | 8 × 3° | | | | 13.24 | ● | 89 | 24,400 |
| 85397 | 8 × 5° | 110 | | 16 | 16.75 | ● | 138 | 30,300 |
| 85407 | 8 × 7° | 143 | 67 | 25 | 24.45 | ● | 395 | 56,500 |
| 85417 | 8 × 10° | 147 | | 32 | 31.63 | ● | 695 | 99,300 |
| 85307 | 10 × 0.5° | 85 | 28 | 12 | 10.49 | ● | 69 | 13,800 |
| 85317 | 10 × 1° | 95 | 38 | | 11.33 | ● | 75 | 16,500 |
| 85327 | 10 × 1.5° | | | | 11.99 | ● | 74 | 16,500 |
| 85337 | 10 × 2° | 107 | 50 | | 13.49 | ● | 94 | 22,200 |
| 85357 | 10 × 2.5° | | | | 14.37 | ● | 102 | 22,800 |
| 85377 | 10 × 3° | 110 | | 16 | 15.24 | ● | 142 | 24,400 |
| 85398 | 10 × 5° | | | | 18.75 | ● | 148 | 34,100 |
| 85408 | 10 × 7° | 143 | 67 | 25 | 26.45 | ● | 435 | 70,200 |
| 85418 | 10 × 10° | 147 | | 32 | 33.63 | ● | 748 | 116,000 |
| 85308 | 12 × 0.5° | 91 | 34 | 12 | 12.59 | ● | 78 | 18,400 |
| 85318 | 12 × 1° | 102 | 45 | | 13.57 | ● | 94 | 20,900 |
| 85328 | 12 × 1.5° | | | | 14.36 | D ● | 95 | 22,000 |
| 85338 | 12 × 2° | 120 | 60 | 16 | 16.19 | ● | 160 | 31,400 |
| 85358 | 12 × 2.5° | | | | 17.24 | ● | 163 | 33,000 |
| 85378 | 12 × 3° | | | | 18.29 | ● | 167 | 36,000 |
| 85388 | 12 × 4° | 126 | | 20 | 20.39 | ● | 254 | 44,400 |
| 85399 | 12 × 5° | | | | 22.5 | ● | 268 | 49,800 |
| 85409 | 12 × 7° | 160 | 80 | 32 | 31.65 | ● | 721 | 105,000 |
| 85419 | 12 × 10° | 172 | | 42 | 40.21 | ● | 1,318 | 184,000 |
| 85329 | 16 × 1.5° | 105 | 45 | 16 | 18.36 | ● | 158 | 30,700 |
| 85339 | 16 × 2° | 126 | 60 | 20 | 20.19 | ● | 254 | 43,700 |
| 85359 | 16 × 2.5° | | | | 21.24 | ● | 293 | 43,700 |
| 85379 | 16 × 3° | | | | 22.29 | ● | 271 | 47,100 |
| 85389 | 16 × 4° | 136 | | 25 | 24.39 | ● | 416 | 50,500 |
| 85400 | 16 × 5° | | | | 26.5 | ● | 457 | 62,500 |
| 85340 | 20 × 2° | 147 | 71 | | 24.96 | ● | 478 | 53,300 |
| 85360 | 20 × 2.5° | | | | 26.2 | ● | 508 | 65,500 |
| 85380 | 20 × 3° | | | | 27.44 | ● | 519 | 66,200 |
| 85390 | 20 × 4° | | | | 29.93 | ● | 535 | 87,500 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| XPM-TPDR | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイステーパエンドミルレギュラ形
**2-flute Taper End Mill Regular Length**

## TPDR



HSS-Co　± 10′　25°

CAD

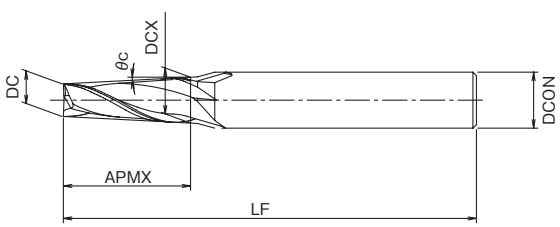
（単位:mm）(Unit:mm)

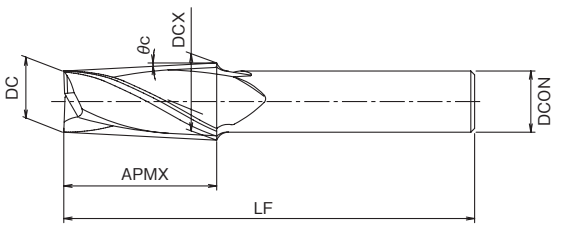
| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **2 × 0.5°** | 61 | 17 | 6 | 2.3 | — | □ | — | — |
| 85110 | **2 × 1°** | 66 | 22 | 6 | 2.77 | D | ● | 13 | 9,820 |
| 85120 | **2 × 1.5°** | 66 | 22 | 6 | 3.15 | D | ● | 13 | 10,900 |
| | **2 × 2°** | 74 | 30 | 6 | 4.1 | — | □ | — | — |
| | **2 × 2.5°** | 74 | 30 | 6 | 4.62 | — | □ | — | — |
| | **2 × 3°** | 74 | 30 | 6 | 5.14 | — | □ | — | — |
| | **2 × 4°** | 74 | 30 | 8 | 6.2 | — | □ | — | — |
| | **2 × 5°** | 74 | 30 | 8 | 7.25 | — | □ | — | — |
| 85101 | **2.5 × 0.5°** | 61 | 17 | 6 | 2.8 | D | ● | 13 | 8,940 |
| 85111 | **2.5 × 1°** | 66 | 22 | 6 | 3.27 | D | ● | 13 | 9,820 |
| 85121 | **2.5 × 1.5°** | 66 | 22 | 6 | 3.65 | D | ● | 14 | 10,900 |
| 85131 | **2.5 × 2°** | 74 | 30 | 6 | 4.6 | D | ● | 15 | 12,600 |
| 85151 | **2.5 × 2.5°** | 74 | 30 | 6 | 5.12 | D | ● | 15 | 12,600 |
| 85171 | **2.5 × 3°** | 74 | 30 | 6 | 5.64 | D | ● | 15 | 12,600 |
| | **2.5 × 4°** | 74 | 30 | 8 | 6.7 | — | □ | — | — |
| | **2.5 × 5°** | 74 | 30 | 8 | 7.75 | — | □ | — | — |
| | **2.5 × 6°** | 97 | 40 | 12 | 10.91 | — | □ | — | — |
| | **2.5 × 7°** | 97 | 40 | 12 | 12.32 | — | □ | — | — |
| | **2.5 × 10°** | 100 | 40 | 16 | 16.61 | — | □ | — | — |
| 85102 | **3 × 0.5°** | 61 | 17 | 6 | 3.3 | D | ● | 13 | 8,940 |
| 85112 | **3 × 1°** | 66 | 22 | 6 | 3.77 | D | ● | 14 | 9,820 |
| 85122 | **3 × 1.5°** | 66 | 22 | 6 | 4.15 | D | ● | 14 | 10,900 |
| 85132 | **3 × 2°** | 74 | 30 | 6 | 5.1 | D | ● | 15 | 12,600 |
| 85152 | **3 × 2.5°** | 74 | 30 | 6 | 5.62 | D | ● | 16 | 12,600 |
| 85172 | **3 × 3°** | 74 | 30 | 8 | 6.14 | D | ● | 23 | 12,600 |
| | **3 × 4°** | 74 | 30 | 8 | 7.2 | — | □ | — | — |
| | **3 × 5°** | 80 | 40 | 10 | 8.25 | — | □ | — | — |
| | **3 × 6°** | 97 | 40 | 12 | 11.41 | — | □ | — | — |
| | **3 × 7°** | 97 | 40 | 12 | 12.82 | — | □ | — | — |
| | **3 × 8°** | 97 | 40 | 12 | 14.24 | — | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **3 × 10°** | 100 | 40 | 16 | 17.11 | — | □ | — | — |
| 85103 | **4 × 0.5°** | 64 | 20 | 6 | 4.35 | D | ● | 14 | 8,940 |
| 85113 | **4 × 1°** | 70 | 26 | 6 | 4.91 | D | ● | 15 | 9,820 |
| 85123 | **4 × 1.5°** | 70 | 26 | 6 | 5.36 | D | ● | 15 | 10,900 |
| 85133 | **4 × 2°** | 80 | 36 | 8 | 6.51 | D | ● | 26 | 12,900 |
| 85153 | **4 × 2.5°** | 80 | 36 | 8 | 7.14 | D | ● | 27 | 12,900 |
| 85173 | **4 × 3°** | 80 | 36 | 8 | 7.77 | D | ● | 28 | 12,900 |
| | **4 × 4°** | 86 | 36 | 10 | 9.03 | — | □ | — | — |
| | **4 × 5°** | 93 | 36 | 12 | 10.3 | — | □ | — | — |
| | **4 × 6°** | 105 | 48 | 12 | 14.09 | — | □ | — | — |
| | **4 × 7°** | 108 | 48 | 16 | 15.79 | — | □ | — | — |
| | **4 × 8°** | 108 | 48 | 16 | 17.49 | — | □ | — | — |
| | **4 × 10°** | 114 | 48 | 20 | 20.93 | — | □ | — | — |
| 85104 | **5 × 0.5°** | 68 | 24 | 6 | 5.42 | D | ● | 16 | 8,940 |
| 85114 | **5 × 1°** | 76 | 32 | 8 | 6.12 | D | ● | 26 | 9,820 |
| 85124 | **5 × 1.5°** | 76 | 32 | 8 | 6.68 | D | ● | 27 | 10,900 |
| 85134 | **5 × 2°** | 86 | 42 | 8 | 7.93 | D | ● | 29 | 14,800 |
| 85154 | **5 × 2.5°** | 92 | 42 | 10 | 8.67 | D | ● | 46 | 15,700 |
| 85174 | **5 × 3°** | 92 | 42 | 10 | 9.4 | D | ● | 47 | 15,700 |
| | **5 × 4°** | 99 | 42 | 12 | 10.87 | — | □ | — | — |
| | **5 × 5°** | 99 | 42 | 12 | 12.35 | — | □ | — | — |
| | **5 × 6°** | 116 | 56 | 16 | 16.77 | — | □ | — | — |
| | **5 × 7°** | 116 | 56 | 16 | 18.75 | — | □ | — | — |
| | **5 × 8°** | 122 | 56 | 20 | 20.74 | — | □ | — | — |
| ◆ | **5 × 10°** | 132 | 56 | 25 | 24.75 | — | □ | — | — |
| 85105 | **6 × 0.5°** | 68 | 24 | 8 | 6.42 | D | ● | 23 | 8,940 |
| 85115 | **6 × 1°** | 76 | 32 | 8 | 7.12 | D | ● | 28 | 9,790 |
| 85125 | **6 × 1.5°** | 76 | 32 | 8 | 7.68 | D | ● | 28 | 10,900 |
| 85135 | **6 × 2°** | 92 | 42 | 10 | 8.93 | D | ● | 47 | 15,700 |
| 85155 | **6 × 2.5°** | 92 | 42 | 10 | 9.67 | D | ● | 49 | 17,400 |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.




次ページへ
外径 DC 6〜20 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| **TPDR** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパエンドミルレギュラ形
**2-flute Taper End Mill Regular Length**

## TPDR



HSS-Co　±10′　25°

CAD

前ページより FROM 外径 DC 2～6

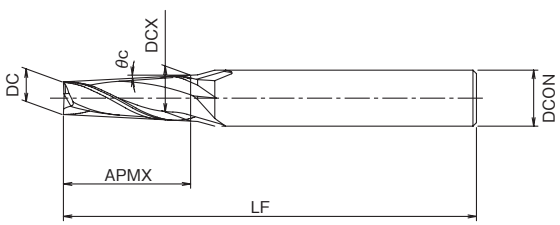
（単位:mm）(Unit:mm)

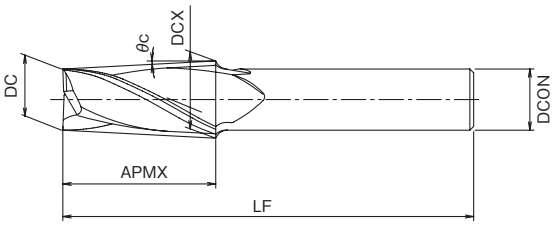
| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 85175 | 6 × 3° | 99 | 42 | 12 | 10.4 | D | ● | 69 | 18,500 |
| | 6 × 4° | | | | 11.87 | | □ | — | — |
| | 6 × 5° | | | | 13.35 | | □ | — | — |
| | 6 × 6° | 116 | 56 | 16 | 17.77 | | □ | — | — |
| | 6 × 7° | 122 | | 20 | 19.75 | | □ | — | — |
| | 6 × 8° | | | | 21.74 | | □ | — | — |
| ◆ | 6 × 10° | 132 | | 25 | 25.75 | | □ | — | — |
| ◆ | 6 × 15° | 136 | | 32 | 36.01 | | □ | — | — |
| ◆ | 6 × 15° | 159 | 67 | 42 | 41.91 | | □ | — | — |
| 85106 | 8 × 0.5° | 78 | 28 | 10 | 8.49 | | ● | 42 | 9,300 |
| 85116 | 8 × 1° | 88 | 38 | | 9.33 | | ● | 49 | 10,900 |
| 85126 | 8 × 1.5° | | | | 9.99 | D | ● | 50 | 10,900 |
| 85136 | 8 × 2° | 107 | 50 | 12 | 11.49 | | ● | 76 | 17,000 |
| 85156 | 8 × 2.5° | | | | 12.37 | | ● | 76 | 17,400 |
| 85176 | 8 × 3° | | | | 13.24 | | ● | 86 | 18,500 |
| | 8 × 4° | | | | 14.99 | — | □ | — | — |
| 85197 | 8 × 5° | 110 | | 16 | 16.75 | D | ● | 140 | 23,500 |
| | 8 × 6° | 133 | 67 | 20 | 22.08 | — | □ | — | — |
| 85207 | 8 × 7° | 143 | | 25 | 24.45 | D | ● | 394 | 43,700 |
| ◆ | 8 × 8° | | | | 26.83 | — | □ | — | — |
| 85217 | 8 × 10° | 147 | | 32 | 31.63 | D | ● | 682 | 76,200 |
| ◆ | 8 × 15° | 159 | | 42 | 43.91 | — | □ | — | — |
| 85107 | 10 × 0.5° | 85 | 28 | 12 | 10.49 | | ● | 68 | 10,600 |
| 85117 | 10 × 1° | 95 | 38 | | 11.33 | | ● | 74 | 12,800 |
| 85127 | 10 × 1.5° | | | | 11.99 | | ● | 76 | 12,800 |
| 85137 | 10 × 2° | 107 | 50 | | 13.49 | D | ● | 90 | 17,000 |
| 85157 | 10 × 2.5° | | | | 14.37 | | ● | 91 | 17,400 |
| 85177 | 10 × 3° | 110 | | 16 | 15.24 | | ● | 136 | 18,500 |
| | 10 × 4° | | | | 16.99 | — | □ | — | — |
| 85198 | 10 × 5° | | | | 18.75 | D | ● | 150 | 26,700 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | 10 × 6° | 143 | 67 | 25 | 24.08 | — | □ | — | — |
| 85208 | 10 × 7° | | | | 26.45 | D | ● | 431 | 54,200 |
| ◆ | 10 × 8° | | | | 28.83 | — | □ | — | — |
| 85218 | 10 × 10° | 147 | | 32 | 33.63 | D | ● | 743 | 88,200 |
| ◆ | 10 × 15° | 159 | | 42 | 45.91 | — | □ | — | — |
| 85108 | 12 × 0.5° | 91 | 34 | 12 | 12.59 | | ● | 79 | 14,200 |
| 85118 | 12 × 1° | 102 | 45 | | 13.57 | | ● | 94 | 16,000 |
| 85128 | 12 × 1.5° | | | | 14.36 | | ● | 97 | 16,900 |
| 85138 | 12 × 2° | 120 | 60 | 16 | 16.19 | D | ● | 158 | 24,400 |
| 85158 | 12 × 2.5° | | | | 17.24 | | ● | 155 | 25,800 |
| 85178 | 12 × 3° | | | | 18.29 | | ● | 164 | 27,800 |
| 85188 | 12 × 4° | 126 | | 20 | 20.39 | | ● | 251 | 34,100 |
| 85199 | 12 × 5° | | | | 22.5 | | ● | 266 | 37,300 |
| ◆ | 12 × 6° | 156 | 80 | 25 | 28.82 | — | □ | — | — |
| 85209 | 12 × 7° | 160 | | 32 | 31.65 | D | ● | 719 | 80,800 |
| 85219 | 12 × 10° | 172 | | 42 | 40.21 | | ● | 1,293 | 142,000 |
| ◆ | 12 × 15° | | | | 54.87 | | □ | — | — |
| | 16 × 0.5° | 94 | 34 | 16 | 16.59 | — | □ | — | — |
| | 16 × 1° | 105 | 45 | | 17.57 | | □ | — | — |
| 85129 | 16 × 1.5° | | | | 18.36 | | ● | 160 | 23,900 |
| 85139 | 16 × 2° | 126 | 60 | 20 | 20.19 | | ● | 250 | 33,700 |
| 85159 | 16 × 3° | | | | 21.24 | D | ● | 260 | 33,700 |
| 85179 | 16 × 4° | | | | 22.29 | | ● | 267 | 36,000 |
| 85189 | 16 × 5° | 136 | | 25 | 24.39 | | ● | 395 | 38,300 |
| 85200 | 16 × 6° | | | | 26.5 | | ● | 415 | 48,200 |
| ◆ | 16 × 6° | 160 | 80 | 32 | 32.82 | | □ | — | — |
| ◆ | 16 × 7° | | | | 35.65 | | □ | — | — |
| ◆ | 16 × 10° | 172 | | 42 | 44.21 | — | □ | — | — |
| ◆ | 16 × 15° | | | | 58.87 | | □ | — | — |
| | 20 × 0.5° | 106 | 40 | 20 | 20.7 | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.




次ページへ 外径 DC 20 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| TPDR | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイステーパエンドミルレギュラ形
**2-flute Taper End Mill Regular Length**

## TPDR



CAD

HSS-Co　± 10′　25°

前ページより FROM 外径 DC 6～20

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 20 × 1° | 119 | 53 | 20 | 21.85 | — | □ | — | — |
| | 20 × 1.5° | | | | 22.78 | | □ | — | — |
| 85140 | 20 × 2° | 147 | 71 | 25 | 24.96 | D | ● | 449 | 41,400 |
| 85160 | 20 × 2.5° | | | | 26.2 | | ● | 479 | 51,000 |
| 85180 | 20 × 3° | | | | 27.44 | | ● | 487 | 51,000 |
| 85190 | 20 × 4° | | | | 29.93 | | ● | 501 | 67,000 |
| ◆ | 20 × 5° | 151 | 95 | 32 | 32.42 | — | □ | — | — |
| ◆ | 20 × 6° | 187 | | 42 | 39.97 | | □ | — | — |
| ◆ | 20 × 7° | | | | 43.33 | | □ | — | — |
| ◆ | 20 × 10° | | | | 53.5 | | □ | — | — |
| ◆ | 20 × 15° | | | | 70.91 | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1170 を参照下さい。 See p.1170 for details
標準サイズ在庫完備!JIS1級めねじ・MS規格品(NASA・米軍規格品)にも対応可能




デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| TPDR | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃XPMテーパエンドミルショート形
**4-flute XPM Taper End Mill Short Length**

## XPM-TPMS



粉末ハイスＸＰＭを母材に採用したテーパ刃エンドミルです。
Taper end mill with powder metallurgy XPM base material.

CAD

XPM　±10′　25°

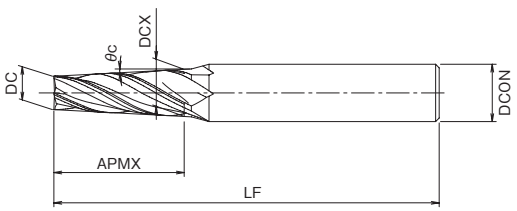
（単位:mm）(Unit:mm)

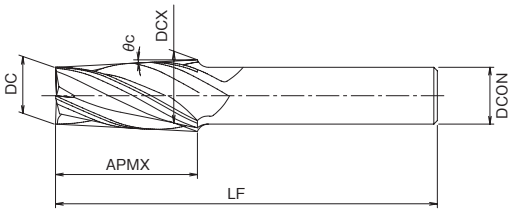
| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 86501 | 2 × 0.5° | 54 | 10 | 6 | 2.17 | D | 14 | 12,300 |
| 86511 | 2 × 1° | 57 | 13 | | 2.45 | | 13 | 13,400 |
| 86521 | 2 × 1.5° | | | | 2.68 | | 14 | 13,400 |
| 86531 | 2 × 2° | 62 | 18 | | 3.26 | | 14 | 15,400 |
| 86541 | 2 × 2.5° | | | | 3.57 | | 14 | 15,400 |
| 86551 | 2 × 3° | | | | 3.89 | | 14 | 15,400 |
| 86502 | 2.5 × 0.5° | 54 | 10 | | 2.67 | | 14 | 12,300 |
| 86512 | 2.5 × 1° | 57 | 13 | | 2.95 | | 14 | 13,400 |
| 86522 | 2.5 × 1.5° | | | | 3.18 | | 14 | 13,400 |
| 86532 | 2.5 × 2° | 62 | 18 | | 3.76 | | 14 | 15,400 |
| 86542 | 2.5 × 2.5° | | | | 4.07 | | 14 | 15,400 |
| 86552 | 2.5 × 3° | | | | 4.39 | | 14 | 15,400 |
| 86562 | 2.5 × 4° | | | | 5.02 | | 17 | 15,400 |
| 86572 | 2.5 × 5° | | | | 5.65 | | 23 | 15,400 |
| 86582 | 2.5 × 7° | 74 | 24 | 10 | 8.39 | | 39 | 17,800 |
| 86592 | 2.5 × 10° | 81 | | 12 | 10.96 | | 63 | 22,000 |
| 86503 | 3 × 0.5° | 54 | 10 | 6 | 3.17 | | 13 | 12,300 |
| 86513 | 3 × 1° | 57 | 13 | | 3.45 | | 14 | 13,400 |
| 86523 | 3 × 1.5° | | | | 3.68 | | 14 | 13,400 |
| 86533 | 3 × 2° | 62 | 18 | | 4.26 | | 14 | 15,400 |
| 86543 | 3 × 2.5° | | | | 4.57 | | 16 | 15,400 |
| 86553 | 3 × 3° | | | | 4.89 | | 15 | 15,400 |
| 86563 | 3 × 4° | | | | 5.52 | | 17 | 15,400 |
| 86573 | 3 × 5° | | | 8 | 6.15 | | 23 | 15,400 |
| 86583 | 3 × 7° | 74 | 24 | 10 | 8.89 | | 41 | 17,800 |
| 86593 | 3 × 10° | 81 | | 12 | 11.46 | | 66 | 22,000 |
| 86504 | 4 × 0.5° | 56 | 12 | 6 | 4.21 | | 14 | 12,300 |
| 86514 | 4 × 1° | 60 | 16 | | 4.56 | | 14 | 13,400 |
| 86524 | 4 × 1.5° | | | | 4.84 | | 15 | 13,400 |
| 86534 | 4 × 2° | 65 | 21 | | 5.47 | | 15 | 15,400 |
| 86544 | 4 × 2.5° | | | | 5.83 | | 17 | 15,400 |
| 86554 | 4 × 3° | | | 8 | 6.2 | | 24 | 16,400 |
| 86564 | 4 × 4° | | | | 6.94 | | 24 | 16,400 |
| 86574 | 4 × 5° | | | | 7.67 | | 25 | 16,400 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 86584 | 4 × 7° | 85 | 28 | 12 | 10.88 | D | 66 | 22,000 |
| 86594 | 4 × 10° | | | | 13.87 | | 77 | 26,400 |
| 86505 | 5 × 0.5° | 58 | 14 | 6 | 5.24 | | 16 | 12,300 |
| 86515 | 5 × 1° | 63 | 19 | | 5.66 | | 16 | 13,400 |
| 86525 | 5 × 1.5° | | | | 6 | | 23 | 13,400 |
| 86535 | 5 × 2° | 69 | 25 | 8 | 6.75 | | 24 | 15,400 |
| 86545 | 5 × 2.5° | | | | 7.18 | | 25 | 15,400 |
| 86555 | 5 × 3° | | | | 7.62 | | 25 | 16,400 |
| 86565 | 5 × 4° | 75 | | 10 | 8.5 | | 41 | 17,800 |
| 86575 | 5 × 5° | | | | 9.37 | | 42 | 17,800 |
| 86585 | 5 × 7° | 91 | 34 | 12 | 13.35 | | 81 | 26,400 |
| 86595 | 5 × 10° | 94 | | 16 | 16.99 | | 124 | 37,300 |
| 86506 | 6 × 0.5° | 58 | 14 | 8 | 6.24 | | 22 | 13,200 |
| 86516 | 6 × 1° | 63 | 19 | | 6.66 | | 24 | 13,400 |
| 86526 | 6 × 1.5° | | | | 7 | | 24 | 13,400 |
| 86536 | 6 × 2° | 69 | 25 | | 7.75 | | 26 | 15,400 |
| 86546 | 6 × 2.5° | 75 | | 10 | 8.18 | | 40 | 17,800 |
| 86556 | 6 × 3° | | | | 8.62 | | 42 | 17,800 |
| 86566 | 6 × 4° | | | | 9.5 | | 49 | 17,800 |
| 86576 | 6 × 5° | 82 | | 12 | 10.37 | | 67 | 21,400 |
| 86586 | 6 × 7° | 91 | 34 | | 14.35 | | 83 | 29,500 |
| 86596 | 6 × 10° | 94 | | 16 | 17.99 | | 129 | 37,300 |
| 86527 | 8 × 1.5° | 72 | 22 | 10 | 9.15 | | 42 | 16,500 |
| 86537 | 8 × 2° | 87 | 30 | 12 | 10.1 | | 67 | 18,500 |
| 86547 | 8 × 2.5° | | | | 10.62 | | 66 | 22,000 |
| 86557 | 8 × 3° | | | | 11.14 | | 71 | 22,000 |
| 86567 | 8 × 4° | | | | 12.2 | | 77 | 26,400 |
| 86577 | 8 × 5° | | | | 13.25 | | 81 | 28,000 |
| 86528 | 10 × 1.5° | 79 | 22 | | 11.15 | | 66 | 18,500 |
| 86538 | 10 × 2° | 87 | 30 | | 12.1 | | 74 | 22,000 |
| 86548 | 10 × 2.5° | | | | 12.62 | | 74 | 26,400 |
| 86558 | 10 × 3° | | | | 13.14 | | 83 | 26,400 |
| 86568 | 10 × 4° | | | | 14.2 | | 85 | 29,500 |
| 86578 | 10 × 5° | 90 | | 16 | 15.25 | | 126 | 31,400 |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.




| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼<br>Prehardened Steel<br>焼き入れ鋼<br>Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| XPM-TPMS | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイステーパエンドミルショート形
**4-flute Taper End Mill Short Length**

## TPMS



HSS-Co　± 10′　25°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 85501 | 2 × 0.5° | 54 | 10 | 6 | 2.17 | D | ● | 13 | 9,390 |
| | 2 × 0.75° | | | | 2.26 | — | □ | — | — |
| 85511 | 2 × 1° | 57 | 13 | | 2.45 | D | ● | 13 | 10,300 |
| | 2 × 1.25° | | | | 2.57 | — | □ | — | — |
| 85521 | 2 × 1.5° | | | | 2.68 | D | ● | 13 | 10,300 |
| | 2 × 1.75° | | | | 2.79 | — | □ | — | — |
| 85531 | 2 × 2° | 62 | 18 | | 3.26 | D | ● | 13 | 11,800 |
| | 2 × 2.25° | | | | 3.41 | — | □ | — | — |
| 85541 | 2 × 2.5° | | | | 3.57 | D | ● | 13 | 11,800 |
| | 2 × 2.75° | | | | 3.73 | — | □ | — | — |
| 85551 | 2 × 3° | | | | 3.89 | D | ● | 14 | 11,800 |
| | 2 × 4° | | | | 4.52 | — | □ | — | — |
| | 2 × 5° | | | | 5.15 | | □ | — | — |
| | 2 × 6° | 68 | 24 | 8 | 7.05 | | □ | — | — |
| | 2 × 7° | | | | 7.89 | | □ | — | — |
| | 2 × 8° | | | | 8.75 | | □ | — | — |
| | 2 × 10° | 81 | | 12 | 10.46 | | □ | — | — |
| 85502 | 2.5 × 0.5° | 54 | 10 | 6 | 2.67 | D | ● | 13 | 9,390 |
| | 2.5 × 0.75° | | | | 2.76 | — | □ | — | — |
| 85512 | 2.5 × 1° | 57 | 13 | | 2.95 | D | ● | 13 | 10,300 |
| | 2.5 × 1.25° | | | | 3.07 | — | □ | — | — |
| 85522 | 2.5 × 1.5° | | | | 3.18 | D | ● | 13 | 10,300 |
| | 2.5 × 1.75° | | | | 3.29 | — | □ | — | — |
| 85532 | 2.5 × 2° | 62 | 18 | | 3.76 | D | ● | 14 | 11,800 |
| | 2.5 × 2.25° | | | | 3.91 | — | □ | — | — |
| 85542 | 2.5 × 2.5° | | | | 4.07 | D | ● | 14 | 11,800 |
| | 2.5 × 2.75° | | | | 4.23 | — | □ | — | — |
| 85552 | 2.5 × 3° | | | | 4.39 | D | ● | 14 | 11,800 |
| 85562 | 2.5 × 4° | | | | 5.02 | | ● | 14 | 11,800 |
| 85572 | 2.5 × 5° | | | | 5.65 | | ● | 15 | 11,800 |
| | 2.5 × 6° | 68 | 24 | 8 | 7.55 | — | □ | — | — |
| 85582 | 2.5 × 7° | 74 | | 10 | 8.39 | D | ● | 39 | 13,600 |
| | 2.5 × 8° | | | | 9.25 | — | □ | — | — |
| 85592 | 2.5 × 10° | 81 | | 12 | 10.96 | D | ● | 64 | 16,800 |
| 85503 | 3 × 0.5° | 54 | 10 | 6 | 3.17 | | ● | 13 | 9,390 |
| | 3 × 0.75° | | | | 3.26 | — | □ | — | — |
| 85513 | 3 × 1° | 57 | 13 | | 3.45 | D | ● | 14 | 10,300 |
| | 3 × 1.25° | | | | 3.57 | — | □ | — | — |
| 85523 | 3 × 1.5° | | | | 3.68 | D | ● | 14 | 10,300 |
| | 3 × 1.75° | | | | 3.79 | — | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 85533 | 3 × 2° | 62 | 18 | 6 | 4.26 | D | ● | 14 | 11,800 |
| | 3 × 2.25° | | | | 4.41 | — | □ | — | — |
| 85543 | 3 × 2.5° | | | | 4.57 | D | ● | 14 | 11,800 |
| | 3 × 2.75° | | | | 4.73 | — | □ | — | — |
| 85553 | 3 × 3° | | | | 4.89 | | ● | 14 | 11,800 |
| 85563 | 3 × 4° | | | | 5.52 | D | ● | 15 | 11,800 |
| 85573 | 3 × 5° | | | 8 | 6.15 | | ● | 22 | 11,800 |
| | 3 × 6° | 74 | 24 | 10 | 8.05 | — | □ | — | — |
| 85583 | 3 × 7° | | | | 8.89 | D | ● | 40 | 13,600 |
| | 3 × 8° | | | | 9.75 | — | □ | — | — |
| 85593 | 3 × 10° | 81 | | 12 | 11.46 | D | ● | 65 | 16,800 |
| | 3 × 15° | 85 | 25 | 16 | 16.4 | — | □ | — | — |
| | 3 × 20° | | | | 21.2 | | □ | — | — |
| 85504 | 4 × 0.5° | 56 | 12 | 6 | 4.21 | D | ● | 14 | 9,390 |
| | 4 × 0.75° | | | | 4.31 | — | □ | — | — |
| 85514 | 4 × 1° | 60 | 16 | | 4.56 | D | ● | 14 | 10,300 |
| | 4 × 1.25° | | | | 4.7 | — | □ | — | — |
| 85524 | 4 × 1.5° | | | | 4.84 | D | ● | 15 | 10,300 |
| | 4 × 1.75° | | | | 4.98 | — | □ | — | — |
| 85534 | 4 × 2° | 65 | 21 | | 5.47 | D | ● | 15 | 11,800 |
| | 4 × 2.25° | | | | 5.65 | — | □ | — | — |
| 85544 | 4 × 2.5° | | | | 5.83 | D | ● | 16 | 11,800 |
| | 4 × 2.75° | | | 8 | 6.02 | — | □ | — | — |
| 85554 | 4 × 3° | | | | 6.2 | | ● | 23 | 12,600 |
| 85564 | 4 × 4° | | | | 6.94 | D | ● | 23 | 12,600 |
| 85574 | 4 × 5° | | | | 7.67 | | ● | 24 | 12,600 |
| | 4 × 6° | 78 | 28 | 10 | 9.89 | — | □ | — | — |
| 85584 | 4 × 7° | 85 | | 12 | 10.88 | D | ● | 66 | 16,800 |
| | 4 × 8° | | | | 11.87 | — | □ | — | — |
| 85594 | 4 × 10° | | | | 13.87 | D | ● | 76 | 20,500 |
| | 4 × 15° | 90 | 30 | 16 | 20.08 | — | □ | — | — |
| | 4 × 20° | | | 20 | 25.84 | | □ | — | — |
| 85505 | 5 × 0.5° | 58 | 14 | 6 | 5.24 | D | ● | 15 | 9,390 |
| | 5 × 0.75° | | | | 5.37 | — | □ | — | — |
| 85515 | 5 × 1° | 63 | 19 | | 5.66 | D | ● | 16 | 10,300 |
| | 5 × 1.25° | | | | 5.83 | — | □ | — | — |
| 85525 | 5 × 1.5° | | | | 6 | D | ● | 16 | 10,300 |
| | 5 × 1.75° | | | | 6.16 | — | □ | — | — |
| 85535 | 5 × 2° | 69 | 25 | 8 | 6.75 | D | ● | 24 | 11,800 |
| | 5 × 2.25° | | | | 6.96 | — | □ | — | — |

次ページへ
外径 DC 5〜20 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | 〜40HRC | | 〜45HRC | 〜35HRC | 〜350HB | | | | | |
| TPMS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイステーパエンドミルショート形
**4-flute Taper End Mill Short Length**

## TPMS



HSS-Co　±10′　25°

CAD

前ページより
FROM 外径 DC 2～5

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 85545 | 5 × 2.5° | 69 | 25 | 8 | 7.18 | D | ● | 24 | 11,800 |
| | 5 × 2.75° | | | | 7.4 | – | □ | – | – |
| 85555 | 5 × 3° | | | | 7.62 | | ● | 25 | 12,600 |
| 85565 | 5 × 4° | 75 | | 10 | 8.5 | D | ● | 37 | 13,600 |
| 85575 | 5 × 5° | | | | 9.37 | | ● | 41 | 13,600 |
| | 5 × 6° | 91 | 34 | 12 | 12.15 | – | □ | – | – |
| 85585 | 5 × 7° | | | | 13.35 | D | ● | 78 | 20,400 |
| | 5 × 8° | | | | 14.56 | – | □ | – | – |
| 85595 | 5 × 10° | 94 | | 16 | 16.99 | D | ● | 129 | 29,000 |
| | 5 × 15° | 110 | 35 | 20 | 23.76 | – | □ | – | – |
| ◆ | 5 × 20° | | | 25 | 30.48 | | □ | – | – |
| 85506 | 6 × 0.5° | 58 | 14 | 8 | 6.24 | D | ● | 22 | 10,100 |
| | 6 × 0.75° | | | | 6.37 | – | □ | – | – |
| 85516 | 6 × 1° | 63 | 19 | | 6.66 | D | ● | 24 | 10,300 |
| | 6 × 1.25° | | | | 6.83 | – | □ | – | – |
| 85526 | 6 × 1.5° | | | | 7 | D | ● | 24 | 10,300 |
| | 6 × 1.75° | | | | 7.16 | – | □ | – | – |
| 85536 | 6 × 2° | 69 | 25 | | 7.75 | D | ● | 25 | 11,800 |
| | 6 × 2.25° | 75 | | 10 | 7.96 | – | □ | – | – |
| 85546 | 6 × 2.5° | | | | 8.18 | D | ● | 40 | 13,600 |
| | 6 × 2.75° | | | | 8.4 | – | □ | – | – |
| 85556 | 6 × 3° | | | | 8.62 | | ● | 41 | 13,600 |
| 85566 | 6 × 4° | | | | 9.5 | D | ● | 42 | 13,600 |
| 85576 | 6 × 5° | 82 | | | 10.37 | | ● | 64 | 16,400 |
| | 6 × 6° | 91 | 34 | 12 | 13.15 | – | □ | – | – |
| 85586 | 6 × 7° | | | | 14.35 | D | ● | 81 | 22,700 |
| | 6 × 8° | | | 16 | 15.56 | – | □ | – | – |
| 85596 | 6 × 10° | 94 | | | 17.99 | D | ● | 140 | 29,000 |
| ◆ | 6 × 15° | 130 | 50 | 32 | 32.79 | – | □ | – | – |
| ◆ | 6 × 20° | 120 | 40 | | 35.12 | | □ | – | – |
| ◆ | 6 × 30° | 100 | 20 | 25 | 29.09 | | □ | – | – |
| | 8 × 0.5° | 67 | 17 | 10 | 8.3 | | □ | – | – |
| | 8 × 1° | 72 | 22 | | 8.77 | | □ | – | – |
| | 8 × 1.25° | | | | 8.96 | | □ | – | – |
| 85527 | 8 × 1.5° | | | | 9.15 | D | ● | 42 | 12,800 |
| | 8 × 1.75° | | | | 9.34 | – | □ | – | – |
| 85537 | 8 × 2° | 87 | 30 | 12 | 10.1 | D | ● | 68 | 14,300 |
| | 8 × 2.25° | | | | 10.36 | – | □ | – | – |
| 85547 | 8 × 2.5° | | | | 10.62 | D | ● | 69 | 16,800 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 8 × 2.75° | 87 | 30 | 12 | 10.88 | – | □ | – | – |
| 85557 | 8 × 3° | | | | 11.14 | | ● | 70 | 16,800 |
| 85567 | 8 × 4° | | | | 12.2 | D | ● | 71 | 20,500 |
| 85577 | 8 × 5° | | | | 13.25 | | ● | 79 | 21,500 |
| | 8 × 8° | 95 | 35 | 16 | 17.84 | | □ | – | – |
| ◆ | 8 × 15° | 130 | 50 | 32 | 34.79 | | □ | – | – |
| ◆ | 8 × 20° | 120 | 40 | | 37.12 | | □ | – | – |
| ◆ | 8 × 20° | 145 | 53 | 42 | 46.58 | | □ | – | – |
| ◆ | 8 × 30° | 105 | 25 | 32 | 36.87 | – | □ | – | – |
| | 10 × 0.5° | 74 | 17 | 12 | 10.3 | | □ | – | – |
| | 10 × 1° | 79 | 22 | | 10.77 | | □ | – | – |
| | 10 × 1.25° | | | | 10.96 | | □ | – | – |
| 85528 | 10 × 1.5° | | | | 11.15 | D | ● | 66 | 14,300 |
| | 10 × 1.75° | | | | 11.34 | – | □ | – | – |
| 85538 | 10 × 2° | 87 | 30 | | 12.1 | D | ● | 74 | 16,800 |
| | 10 × 2.25° | | | | 12.36 | – | □ | – | – |
| 85548 | 10 × 2.5° | | | | 12.62 | D | ● | 74 | 20,500 |
| | 10 × 2.75° | | | | 12.88 | – | □ | – | – |
| 85558 | 10 × 3° | | | | 13.14 | | ● | 82 | 20,500 |
| 85568 | 10 × 4° | | | | 14.2 | D | ● | 83 | 22,700 |
| 85578 | 10 × 5° | 90 | | 16 | 15.25 | | ● | 128 | 24,400 |
| | 10 × 8° | 101 | 35 | 20 | 19.84 | | □ | – | – |
| ◆ | 10 × 15° | 130 | 50 | 32 | 36.79 | | □ | – | – |
| ◆ | 10 × 20° | 120 | 40 | | 39.12 | | □ | – | – |
| ◆ | 10 × 20° | 145 | 53 | 42 | 48.58 | | □ | – | – |
| ◆ | 10 × 30° | 127 | 35 | | 50.41 | | □ | – | – |
| | 12 × 2.5° | 87 | 30 | 16 | 14.62 | | □ | – | – |
| ◆ | 12 × 15° | 130 | 50 | 32 | 38.79 | | □ | – | – |
| ◆ | 12 × 20° | 120 | 40 | | 41.12 | | □ | – | – |
| ◆ | 12 × 20° | 155 | 63 | 42 | 57.86 | – | □ | – | – |
| ◆ | 12 × 25° | 152 | 60 | | 67.96 | | □ | – | – |
| ◆ | 12 × 30° | 127 | 35 | | 52.41 | | □ | – | – |
| ◆ | 16 × 15° | 130 | 50 | 32 | 42.79 | | □ | – | – |
| ◆ | 16 × 20° | 120 | 40 | | 45.12 | | □ | – | – |
| ◆ | 16 × 20° | 155 | 63 | 42 | 61.86 | | □ | – | – |
| ◆ | 16 × 25° | 152 | 60 | | 71.96 | | □ | – | – |
| ◆ | 16 × 30° | 142 | 50 | | 73.74 | | □ | – | – |
| ◆ | 20 × 15° | 130 | | 32 | 46.79 | | □ | – | – |
| ◆ | 20 × 20° | 120 | 40 | | 49.12 | | □ | – | – |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6:with center hole.
外径16mm以上は6枚刃です。Mill Dia.≧φ16:6Flutes.
◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

次ページへ
外径 DC 20 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| TPMS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 4枚刃ハイステーパエンドミルショート形
**4-flute Taper End Mill Short Length**

# TPMS



HSS-Co | ± 10′ | 25°

CAD

## 4枚刃XPMテーパエンドミルレギュラ形
**4-flute XPM Taper End Mill Regular Length**

# XPM-TPMR



XPM | ± 10′ | 25°

CAD

前ページより FROM 外径 DC 5～20

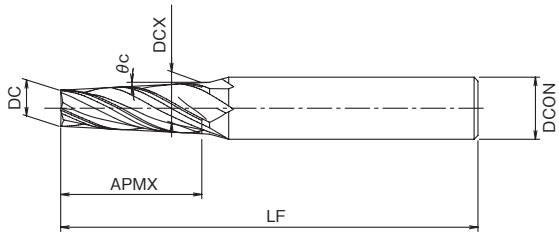
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ◆ | **20 × 20°** | 167 | 75 | 42 | 74.6 | □ | — | — |
| ◆ | **20 × 25°** | 152 | 60 | | 75.96 | □ | — | — |
| ◆ | **20 × 30°** | 142 | 50 | | 77.74 | □ | — | — |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6:with center hole.
外径16mm以上は6枚刃です。Mill Dia.≧φ16:6Flutes.
◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

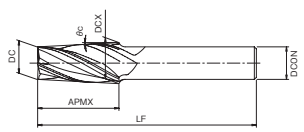
### 刃部テーパ半角早見表
Convertion Table

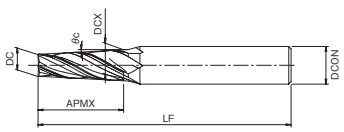
| | | |
|---|---|---|
| 0.25° | → | 15′ |
| 0.75° | → | 45′ |

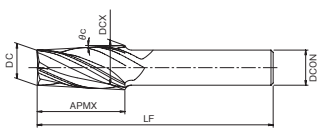



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 85705 | **6 × 0.5°** | 68 | 24 | 8 | 6.42 | ● | 24 | 16,400 |
| 85715 | **6 × 1°** | 76 | 32 | | 7.12 | ● | 28 | 18,200 |
| 85706 | **8 × 0.5°** | 78 | 28 | 10 | 8.49 | ● | 43 | 16,900 |
| 85716 | **8 × 1°** | 88 | 38 | | 9.33 | ● | 50 | 20,900 |
| 85726 | **8 × 1.5°** | | | | 9.99 | ● | 53 | 20,900 |
| 85777 | **8 × 5°** | 110 | 50 | 16 | 16.75 | ● | 143 | 59,300 |
| 85787 | **8 × 7°** | 143 | 67 | 25 | 24.45 | ● | 394 | 82,500 |
| 85797 | **8 × 10°** | 147 | | 32 | 31.63 | ● | 699 | 147,000 |
| 85707 | **10 × 0.5°** | 85 | 28 | 12 | 10.49 | ● | 68 | 18,200 |
| 85717 | **10 × 1°** | 95 | 38 | | 11.33 | ● | 73 | 27,400 |
| 85727 | **10 × 1.5°** | | | | 11.99 | ● | 79 | 28,000 |
| 85737 | **10 × 2°** | 107 | 50 | | 13.49 | ● | 95 | 36,800 |
| 85747 | **10 × 2.5°** | | | | 14.37 | ● | 475 | 46,100 |
| 85757 | **10 × 3°** | 110 | | 16 | 15.24 | ● | 138 | 46,100 |
| 85778 | **10 × 5°** | | | | 18.75 | ● | 155 | 62,100 |
| 85788 | **10 × 7°** | 143 | 67 | 25 | 26.45 | ● | 444 | 103,000 |
| 85798 | **10 × 10°** | 147 | | 32 | 33.63 | ● | 757 | 170,000 |
| 85708 | **12 × 0.5°** | 91 | 34 | 12 | 12.59 | ● | 79 | 25,800 |
| 85718 | **12 × 1°** | 102 | 45 | | 13.57 | D ● | 94 | 29,500 |
| 85728 | **12 × 1.5°** | | | | 14.36 | ● | 93 | 32,600 |
| 85738 | **12 × 2°** | 120 | 60 | 16 | 16.19 | ● | 163 | 51,000 |
| 85748 | **12 × 2.5°** | | | | 17.24 | ● | 167 | 67,000 |
| 85758 | **12 × 3°** | | | | 18.29 | ● | 172 | 67,000 |
| 85768 | **12 × 4°** | 126 | | 20 | 20.39 | ● | 255 | 73,000 |
| 85779 | **12 × 5°** | | | | 22.5 | ● | 267 | 108,000 |
| 85789 | **12 × 7°** | 160 | 80 | 32 | 31.65 | ● | 718 | 156,000 |
| 85799 | **12 × 10°** | 172 | | 42 | 40.21 | ● | 1,328 | 274,000 |
| 85729 | **16 × 1.5°** | 105 | 45 | 16 | 18.36 | ● | 161 | 43,700 |
| 85739 | **16 × 2°** | 126 | 60 | 20 | 20.19 | ● | 257 | 66,800 |
| 85749 | **16 × 2.5°** | | | | 21.24 | ● | 288 | 76,200 |
| 85759 | **16 × 3°** | | | | 22.29 | ● | 278 | 86,600 |
| 85769 | **16 × 4°** | 136 | | 25 | 24.39 | ● | 405 | 85,500 |
| 85780 | **16 × 5°** | | | | 26.5 | ● | 456 | 110,000 |
| 85740 | **20 × 2°** | 147 | 71 | | 24.96 | ● | 460 | 77,700 |
| 85750 | **20 × 2.5°** | | | | 26.2 | ● | 497 | 95,900 |
| 85760 | **20 × 3°** | | | | 27.44 | ● | 501 | 96,600 |
| 85770 | **20 × 4°** | | | | 29.93 | ● | 522 | 130,000 |



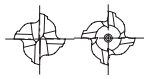

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **TPMS** | ○ | | | ○ | ○ | ○ | ○ | | | |
| **XPM-TPMR** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイステーパエンドミルレギュラ形
**4-flute Taper End Mill Regular Length**

## TPMR




HSS-Co　±10′　25°

CAD

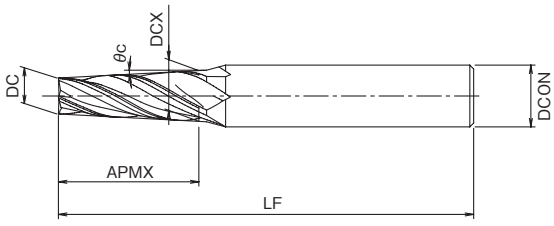
（単位:mm）(Unit:mm)

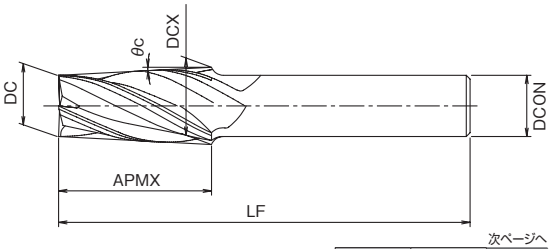
| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 2 × 0.5° | 61 | 17 | 6 | 2.3 | | □ | – | – |
| | 2 × 1° | 66 | 22 | | 2.77 | | □ | – | – |
| | 2 × 1.5° | | | | 3.15 | | □ | – | – |
| | 2 × 2° | 74 | 30 | | 4.1 | | □ | – | – |
| | 2 × 2.5° | | | | 4.62 | | □ | – | – |
| | 2 × 3° | | | | 5.14 | | □ | – | – |
| | 2 × 4° | | | 8 | 6.2 | | □ | – | – |
| | 2 × 5° | | | | 7.25 | | □ | – | – |
| | 2.5 × 0.5° | 61 | 17 | 6 | 2.8 | | □ | – | – |
| | 2.5 × 1° | 66 | 22 | | 3.27 | | □ | – | – |
| | 2.5 × 1.5° | | | | 3.65 | | □ | – | – |
| | 2.5 × 2° | 74 | 30 | | 4.6 | | □ | – | – |
| | 2.5 × 2.5° | | | | 5.12 | | □ | – | – |
| | 2.5 × 3° | | | | 5.64 | | □ | – | – |
| | 2.5 × 4° | | | 8 | 6.7 | – | □ | – | – |
| | 2.5 × 5° | | | | 7.75 | | □ | – | – |
| | 2.5 × 6° | 97 | 40 | 12 | 10.91 | | □ | – | – |
| | 2.5 × 7° | | | | 12.32 | | □ | – | – |
| | 2.5 × 10° | 100 | | 16 | 16.61 | | □ | – | – |
| | 3 × 0.5° | 61 | 17 | 6 | 3.3 | | □ | – | – |
| | 3 × 1° | 66 | 22 | | 3.77 | | □ | – | – |
| | 3 × 1.5° | | | | 4.15 | | □ | – | – |
| | 3 × 2° | 74 | 30 | | 5.1 | | □ | – | – |
| | 3 × 2.5° | | | | 5.62 | | □ | – | – |
| | 3 × 3° | | | 8 | 6.14 | | □ | – | – |
| | 3 × 4° | | | | 7.2 | | □ | – | – |
| | 3 × 5° | 80 | | 10 | 8.25 | | □ | – | – |
| | 3 × 6° | 97 | 40 | 12 | 11.41 | | □ | – | – |
| | 3 × 7° | | | | 12.82 | | □ | – | – |
| | 3 × 8° | | | | 14.24 | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 3 × 10° | 100 | 40 | 16 | 17.11 | | □ | – | – |
| | 4 × 0.5° | 64 | 20 | 6 | 4.35 | | □ | – | – |
| | 4 × 1° | 70 | 26 | | 4.91 | | □ | – | – |
| | 4 × 1.5° | | | | 5.36 | | □ | – | – |
| | 4 × 2° | 80 | 36 | 8 | 6.51 | | □ | – | – |
| | 4 × 2.5° | | | | 7.14 | | □ | – | – |
| | 4 × 3° | | | | 7.77 | | □ | – | – |
| | 4 × 4° | 86 | | 10 | 9.03 | | □ | – | – |
| | 4 × 5° | 93 | | 12 | 10.3 | | □ | – | – |
| | 4 × 6° | 105 | 48 | | 14.09 | | □ | – | – |
| | 4 × 7° | 108 | | 16 | 15.79 | | □ | – | – |
| | 4 × 8° | | | | 17.49 | | □ | – | – |
| | 4 × 10° | 114 | | 20 | 20.93 | – | □ | – | – |
| | 5 × 0.5° | 68 | 24 | 6 | 5.42 | | □ | – | – |
| | 5 × 1° | 76 | 32 | 8 | 6.12 | | □ | – | – |
| | 5 × 1.5° | | | | 6.68 | | □ | – | – |
| | 5 × 2° | 86 | 42 | | 7.93 | | □ | – | – |
| | 5 × 2.5° | 92 | | 10 | 8.67 | | □ | – | – |
| | 5 × 3° | | | | 9.4 | | □ | – | – |
| | 5 × 4° | 99 | | 12 | 10.87 | | □ | – | – |
| | 5 × 5° | | | | 12.35 | | □ | – | – |
| | 5 × 6° | 116 | 56 | 16 | 16.77 | | □ | – | – |
| | 5 × 7° | | | | 18.75 | | □ | – | – |
| | 5 × 8° | 122 | | 20 | 20.74 | | □ | – | – |
| ◆ | 5 × 10° | 132 | | 25 | 24.75 | | □ | – | – |
| 85605 | 6 × 0.5° | 68 | 24 | 8 | 6.42 | D | ● | 24 | 12,600 |
| 85615 | 6 × 1° | 76 | 32 | | 7.12 | | ● | 28 | 13,800 |
| | 6 × 1.5° | | | | 7.68 | | □ | – | – |
| | 6 × 2° | 92 | 42 | 10 | 8.93 | – | □ | – | – |
| | 6 × 2.5° | | | | 9.67 | | □ | – | – |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.
◆は2面平切り欠け付きシャンクです。◆ : Shank with two flat face.



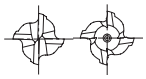

次ページへ
外径 DC 6〜20 NEXT

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| TPMR | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイステーパエンドミルレギュラ形
**4-flute Taper End Mill Regular Length**

## TPMR





CAD

HSS-Co　± 10′　25°

前ページより FROM 外径 DC 2～6

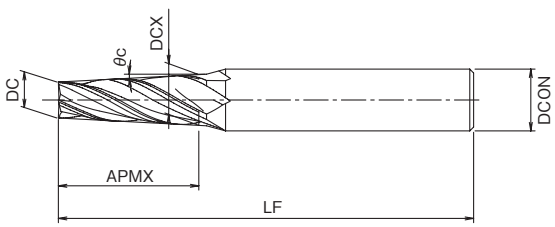
（単位:mm）(Unit:mm)

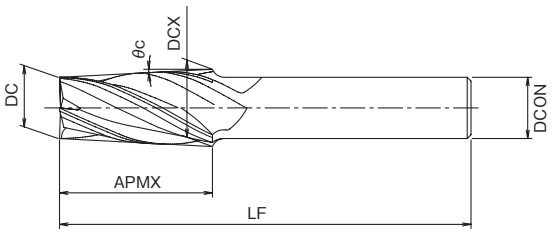
| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 6 × 3° | 99 | 42 | 12 | 10.4 | | □ | – | – |
| | 6 × 4° | | | | 11.87 | | □ | – | – |
| | 6 × 5° | | | | 13.35 | | □ | – | – |
| | 6 × 6° | 116 | 56 | 16 | 17.77 | | □ | – | – |
| | 6 × 7° | 122 | | 20 | 19.75 | – | □ | – | – |
| | 6 × 8° | | | | 21.74 | | □ | – | – |
| ◆ | 6 × 10° | 132 | | 25 | 25.75 | | □ | – | – |
| ◆ | 6 × 15° | 136 | | 32 | 36.01 | | □ | – | – |
| ◆ | 6 × 15° | 159 | 67 | 42 | 41.91 | | □ | – | – |
| 85606 | 8 × 0.5° | 78 | 28 | 10 | 8.49 | | ● | 43 | 13,000 |
| 85616 | 8 × 1° | 88 | 38 | | 9.33 | D | ● | 50 | 16,000 |
| 85626 | 8 × 1.5° | | | | 9.99 | | ● | 51 | 16,000 |
| | 8 × 2° | 107 | 50 | 12 | 11.49 | | □ | – | – |
| | 8 × 2.5° | | | | 12.37 | – | □ | – | – |
| | 8 × 3° | | | | 13.24 | | □ | – | – |
| | 8 × 4° | | | | 14.99 | | □ | – | – |
| 85677 | 8 × 5° | 110 | | 16 | 16.75 | D | ● | 142 | 45,600 |
| | 8 × 6° | 133 | 67 | 20 | 22.08 | – | □ | – | – |
| 85687 | 8 × 7° | 143 | | 25 | 24.45 | D | ● | 400 | 64,000 |
| ◆ | 8 × 8° | | | | 26.83 | – | □ | – | – |
| 85697 | 8 × 10° | 147 | | 32 | 31.63 | D | ● | 693 | 113,000 |
| ◆ | 8 × 15° | 159 | | 42 | 43.91 | – | □ | – | – |
| 85607 | 10 × 0.5° | 85 | 28 | 12 | 10.49 | D | ● | 69 | 13,800 |
| 85617 | 10 × 1° | 95 | 38 | | 11.33 | | ● | 76 | 21,300 |
| 85627 | 10 × 1.5° | | | | 11.99 | | ● | 77 | 21,500 |
| 85637 | 10 × 2° | 107 | 50 | | 13.49 | | ● | 94 | 28,500 |
| 85647 | 10 × 2.5° | | | | 14.37 | | ● | 95 | 35,000 |
| 85657 | 10 × 3° | 110 | | 16 | 15.24 | | ● | 140 | 35,000 |
| | 10 × 4° | | | | 16.99 | – | □ | – | – |
| 85678 | 10 × 5° | | | | 18.75 | D | ● | 153 | 48,000 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | 10 × 6° | 143 | 67 | 25 | 24.08 | – | □ | – | – |
| 85688 | 10 × 7° | | | | 26.45 | D | ● | 440 | 79,000 |
| ◆ | 10 × 8° | | | | 28.83 | – | □ | – | – |
| 85698 | 10 × 10° | 147 | | 32 | 33.63 | D | ● | 751 | 131,000 |
| ◆ | 10 × 15° | 159 | | 42 | 45.91 | – | □ | – | – |
| 85608 | 12 × 0.5° | 91 | 34 | 12 | 12.59 | D | ● | 78 | 19,600 |
| 85618 | 12 × 1° | 102 | 45 | | 13.57 | | ● | 94 | 22,700 |
| 85628 | 12 × 1.5° | | | | 14.36 | | ● | 95 | 25,300 |
| 85638 | 12 × 2° | 120 | 60 | 16 | 16.19 | | ● | 160 | 39,100 |
| 85648 | 12 × 2.5° | | | | 17.24 | | ● | 167 | 51,600 |
| 85658 | 12 × 3° | | | | 18.29 | | ● | 851 | 51,600 |
| 85668 | 12 × 4° | 126 | | 20 | 20.39 | | ● | 256 | 56,500 |
| 85679 | 12 × 5° | | | | 22.5 | | ● | 265 | 83,200 |
| ◆ | 12 × 6° | 156 | 80 | 25 | 28.82 | – | □ | – | – |
| 85689 | 12 × 7° | 160 | | 32 | 31.65 | D | ● | 730 | 120,000 |
| 85699 | 12 × 10° | 172 | | 42 | 40.21 | | ● | 1,312 | 213,000 |
| ◆ | 12 × 15° | | | | 54.87 | | □ | – | – |
| | 16 × 0.5° | 94 | 34 | 16 | 16.59 | – | □ | – | – |
| | 16 × 1° | 105 | 45 | | 17.57 | | □ | – | – |
| 85629 | 16 × 1.5° | | | | 18.36 | D | ● | 163 | 33,700 |
| 85639 | 16 × 2° | 126 | 60 | 20 | 20.19 | | ● | 263 | 51,000 |
| 85649 | 16 × 2.5° | | | | 21.24 | | ● | 267 | 58,500 |
| 85659 | 16 × 3° | | | | 22.29 | | ● | 275 | 66,200 |
| 85669 | 16 × 4° | 136 | | 25 | 24.39 | | ● | 402 | 65,500 |
| 85680 | 16 × 5° | | | | 26.5 | | ● | 454 | 85,000 |
| ◆ | 16 × 6° | 160 | 80 | 32 | 32.82 | | □ | – | – |
| ◆ | 16 × 7° | | | | 35.65 | | □ | – | – |
| ◆ | 16 × 10° | 172 | | 42 | 44.21 | – | □ | – | – |
| ◆ | 16 × 15° | | | | 58.87 | | □ | – | – |
| | 20 × 0.5° | 106 | 40 | 20 | 20.7 | | □ | – | – |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.
◆は2面平切り欠け付きシャンクです。◆ : Shank with two flat face.




次ページへ 外径 DC 20 NEXT

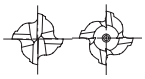
| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| TPMR | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃ハイステーパエンドミルレギュラ形
**4-flute Taper End Mill Regular Length**

## TPMR




CAD

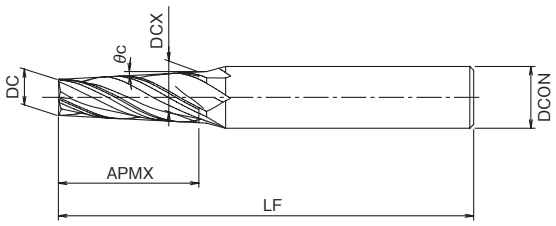
HSS-Co　±10′　25°

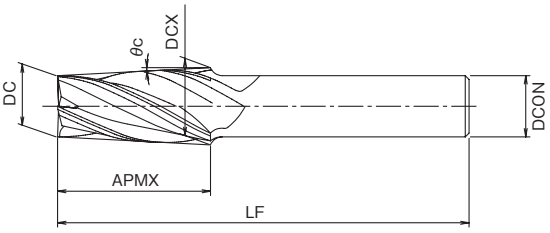
前ページより FROM 外径 DC 6～20

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 20 × 1° | 119 | 53 | 20 | 21.85 | – | □ | – | – |
| | 20 × 1.5° | | | | 22.78 | | □ | – | – |
| 85640 | 20 × 2° | 147 | 71 | 25 | 24.96 | D | ● | 475 | 59,300 |
| 85650 | 20 × 2.5° | | | | 26.2 | | ● | 504 | 73,500 |
| 85660 | 20 × 3° | | | | 27.44 | | ● | 512 | 74,300 |
| 85670 | 20 × 4° | | | | 29.93 | | ● | 528 | 99,300 |
| ◆ | 20 × 5° | 151 | | 32 | 32.42 | | □ | – | – |
| ◆ | 20 × 6° | 187 | 95 | 42 | 39.97 | | □ | – | – |
| ◆ | 20 × 7° | | | | 43.33 | – | □ | – | – |
| ◆ | 20 × 10° | | | | 53.5 | | □ | – | – |
| ◆ | 20 × 15° | | | | 70.91 | | □ | – | – |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.
◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| TPMR | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイステーパエンドミル ショート形
**TiN Coated 2-flute Taper End Mill Short Length**

## EX-TIN-TPDS



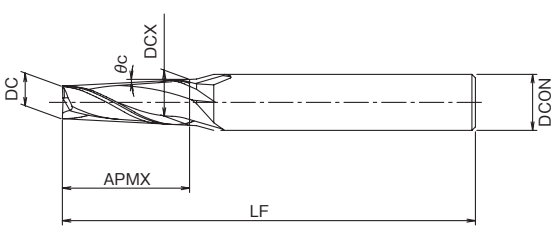
HSS-Co | TiN | ±10′ | 25°

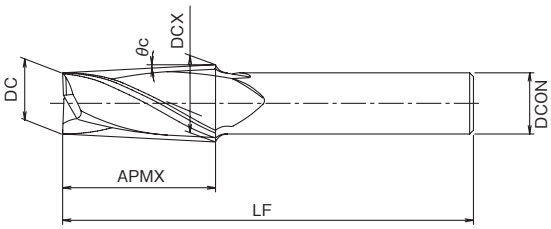
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × 0.5° | 54 | 10 | 6 | 2.17 | □ | — | — |
| | 2 × 1° | 57 | 13 | | 2.45 | □ | — | — |
| | 2 × 1.5° | | | | 2.68 | □ | — | — |
| | 2 × 2° | 62 | 18 | | 3.26 | □ | — | — |
| | 2 × 2.5° | | | | 3.57 | □ | — | — |
| | 2 × 3° | | | | 3.89 | □ | — | — |
| | 2.5 × 0.5° | 54 | 10 | | 2.67 | □ | — | — |
| | 2.5 × 1° | 57 | 13 | | 2.95 | □ | — | — |
| | 2.5 × 1.5° | | | | 3.18 | □ | — | — |
| | 2.5 × 2° | 62 | 18 | | 3.76 | □ | — | — |
| | 2.5 × 2.5° | | | | 4.07 | □ | — | — |
| | 2.5 × 3° | | | | 4.39 | □ | — | — |
| | 2.5 × 4° | | | | 5.02 | □ | — | — |
| | 2.5 × 5° | | | | 5.65 | □ | — | — |
| | 2.5 × 7° | 74 | 24 | 10 | 8.64 | □ | — | — |
| | 2.5 × 10° | 81 | | 12 | 10.96 | □ | — | — |
| | 3 × 0.5° | 54 | 10 | 6 | 3.17 | □ | — | — |
| | 3 × 1° | 57 | 13 | | 3.45 | □ | — | — |
| | 3 × 1.5° | | | | 3.68 | □ | — | — |
| | 3 × 2° | 62 | 18 | | 4.26 | □ | — | — |
| | 3 × 2.5° | | | | 4.57 | □ | — | — |
| | 3 × 3° | | | | 4.89 | □ | — | — |
| | 3 × 4° | | | | 5.52 | □ | — | — |
| | 3 × 5° | | | 8 | 6.15 | □ | — | — |
| | 3 × 7° | 74 | 24 | 10 | 8.89 | □ | — | — |
| | 3 × 10° | 81 | | 12 | 11.46 | □ | — | — |
| | 4 × 0.5° | 56 | 12 | 6 | 4.21 | □ | — | — |
| | 4 × 1° | 60 | 16 | | 4.56 | □ | — | — |
| | 4 × 1.5° | | | | 4.84 | □ | — | — |
| | 4 × 2° | 65 | 21 | | 5.47 | □ | — | — |
| | 4 × 2.5° | | | | 5.83 | □ | — | — |
| | 4 × 3° | | | 8 | 6.2 | □ | — | — |
| | 4 × 4° | | | | 6.94 | □ | — | — |
| | 4 × 5° | | | | 7.67 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 4 × 7° | 85 | 28 | 12 | 10.88 | □ | — | — |
| | 4 × 10° | | | | 13.87 | □ | — | — |
| | 5 × 0.5° | 58 | 14 | 6 | 5.24 | □ | — | — |
| | 5 × 1° | 63 | 19 | | 5.66 | □ | — | — |
| | 5 × 1.5° | | | | 6 | □ | — | — |
| | 5 × 2° | 69 | 25 | 8 | 6.75 | □ | — | — |
| | 5 × 2.5° | | | | 7.18 | □ | — | — |
| | 5 × 3° | | | | 7.62 | □ | — | — |
| | 5 × 4° | 75 | | 10 | 8.5 | □ | — | — |
| | 5 × 5° | | | | 9.37 | □ | — | — |
| | 5 × 7° | 91 | 34 | 12 | 13.35 | □ | — | — |
| | 5 × 10° | 94 | | 16 | 16.99 | □ | — | — |
| | 6 × 0.5° | 58 | 14 | 8 | 6.24 | □ | — | — |
| | 6 × 1° | 63 | 19 | | 6.66 | □ | — | — |
| | 6 × 1.5° | | | | 7 | □ | — | — |
| | 6 × 2° | 69 | 25 | | 7.75 | □ | — | — |
| | 6 × 2.5° | 75 | | 10 | 8.18 | □ | — | — |
| | 6 × 3° | | | | 8.62 | □ | — | — |
| | 6 × 4° | | | | 9.5 | □ | — | — |
| | 6 × 5° | 82 | | 12 | 10.37 | □ | — | — |
| | 6 × 7° | 91 | 34 | | 14.35 | □ | — | — |
| | 6 × 10° | 94 | | 16 | 17.99 | □ | — | — |
| | 8 × 1.5° | 72 | 22 | 10 | 9.15 | □ | — | — |
| | 8 × 2° | 87 | 30 | 12 | 10.1 | □ | — | — |
| | 8 × 2.5° | | | | 10.62 | □ | — | — |
| | 8 × 3° | | | | 11.14 | □ | — | — |
| | 8 × 4° | | | | 12.2 | □ | — | — |
| | 8 × 5° | | | | 13.25 | □ | — | — |
| | 10 × 1.5° | 79 | 22 | | 11.15 | □ | — | — |
| | 10 × 2° | 87 | 30 | | 12.1 | □ | — | — |
| | 10 × 2.5° | | | | 12.62 | □ | — | — |
| | 10 × 3° | | | | 13.14 | □ | — | — |
| | 10 × 4° | | | | 14.2 | □ | — | — |
| | 10 × 5° | 90 | | 16 | 15.25 | □ | — | — |




**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 台形ランナ用2枚刃CPMテーパエンドミル
**2-flute CPM Taper End Mill for Trapezoidal Runner**

## CPM-TPED



CPM　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 2 × 9°28′ | 60 | 4 | 6 | 3.33 | | □ | — | — |
| | 2.5 × 8°08′ | | 4.5 | | 3.79 | | □ | — | — |
| | 3 × 7°08′ | | 5.5 | | 4.38 | | □ | — | — |
| | 4 × 6°20′ | | 6 | 8 | 5.33 | | □ | — | — |
| | 5 × 5°12′ | | 7.5 | | 6.37 | — | □ | — | — |
| | 6 × 8°45′ | | 8.7 | 10 | 8.68 | | □ | — | — |
| | 8 × 6°43′ | 70 | 11 | 12 | 10.59 | | □ | — | — |
| | 10 × 5°26′ | | 13.5 | 16 | 12.57 | | □ | — | — |
| | 12 × 4°46′ | | 16 | | 14.67 | | □ | — | — |

OSGのPSシリーズ
商品シリーズ Parts & Supply series
※詳細は▶P.1167 を参照下さい。
See p.1167 for details
標準サイズ在庫完備!タングが無し!タングレスインサートあります



OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイステーパエンドミル レギュラ形
**TiN Coated 2-flute Taper End Mill Regular Length**

## EX-TIN-TPDR



HSS-Co | TiN | ±10′ | 25°

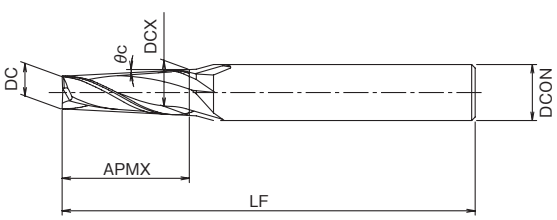
（単位:mm）（Unit:mm）

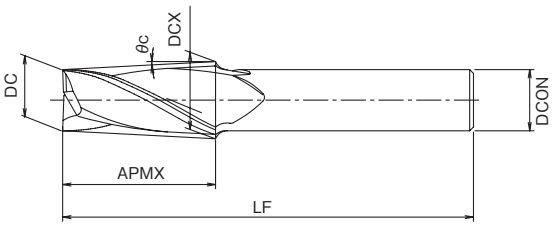
| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × 1° | 66 | 22 | 6 | 3 | □ | — | — |
| | 2 × 1.5° | | | | | □ | — | — |
| | 2.5 × 0.5° | 61 | 17 | | | □ | — | — |
| | 2.5 × 1° | 66 | 22 | | | □ | — | — |
| | 2.5 × 1.5° | | | | 4 | □ | — | — |
| | 2.5 × 2° | 74 | 30 | | 5 | □ | — | — |
| | 2.5 × 2.5° | | | | | □ | — | — |
| | 2.5 × 3° | | | | 6 | □ | — | — |
| | 3 × 0.5° | 61 | 17 | | 3 | □ | — | — |
| | 3 × 1° | 66 | 22 | | 4 | □ | — | — |
| | 3 × 1.5° | | | | | □ | — | — |
| | 3 × 2° | 74 | 30 | | 5 | □ | — | — |
| | 3 × 2.5° | | | | 6 | □ | — | — |
| | 3 × 3° | | | 8 | | □ | — | — |
| | 4 × 0.5° | 64 | 20 | 6 | 4 | □ | — | — |
| | 4 × 1° | 70 | 26 | | 5 | □ | — | — |
| | 4 × 1.5° | | | | | □ | — | — |
| | 4 × 2° | 80 | 36 | 8 | 7 | □ | — | — |
| | 4 × 2.5° | | | | | □ | — | — |
| | 4 × 3° | | | | 8 | □ | — | — |
| | 5 × 0.5° | 68 | 24 | 6 | 5 | □ | — | — |
| | 5 × 1° | 76 | 32 | 8 | 6 | □ | — | — |
| | 5 × 1.5° | | | | 7 | □ | — | — |
| | 5 × 2° | 86 | 42 | | 8 | □ | — | — |
| | 5 × 2.5° | 92 | | 10 | 9 | □ | — | — |
| | 5 × 3° | | | | | □ | — | — |
| | 6 × 0.5° | 68 | 24 | 8 | 6 | □ | — | — |
| | 6 × 1° | 76 | 32 | | 7 | □ | — | — |
| | 6 × 1.5° | | | | 8 | □ | — | — |
| | 6 × 2° | 92 | 42 | 10 | 9 | □ | — | — |
| | 6 × 2.5° | | | | 10 | □ | — | — |
| | 6 × 3° | 99 | | 12 | | □ | — | — |
| | 8 × 0.5° | 78 | 28 | 10 | 8 | □ | — | — |
| | 8 × 1° | 88 | 38 | | 9 | □ | — | — |
| | 8 × 1.5° | | | | 10 | □ | — | — |

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 8 × 2° | 107 | 50 | 12 | 11 | □ | — | — |
| | 8 × 2.5° | | | | 12 | □ | — | — |
| | 8 × 3° | | | | 13 | □ | — | — |
| | 8 × 5° | 110 | | 16 | 17 | □ | — | — |
| | 8 × 7° | 143 | 67 | 25 | 24 | □ | — | — |
| | 8 × 10° | 147 | | 32 | 32 | □ | — | — |
| | 10 × 0.5° | 85 | 28 | 12 | 10 | □ | — | — |
| | 10 × 1° | 95 | 38 | | 11 | □ | — | — |
| | 10 × 1.5° | | | | 12 | □ | — | — |
| | 10 × 2° | 107 | 50 | | 13 | □ | — | — |
| | 10 × 2.5° | | | | 14 | □ | — | — |
| | 10 × 3° | 110 | | 16 | 15 | □ | — | — |
| | 10 × 5° | | | | 19 | □ | — | — |
| | 10 × 7° | 143 | 67 | 25 | 26 | □ | — | — |
| | 10 × 10° | 147 | | 32 | 34 | □ | — | — |
| | 12 × 0.5° | 91 | 34 | 12 | 13 | □ | — | — |
| | 12 × 1° | 102 | 45 | | 14 | □ | — | — |
| | 12 × 1.5° | | | | | □ | — | — |
| | 12 × 2° | 120 | 60 | 16 | 16 | □ | — | — |
| | 12 × 2.5° | | | | 17 | □ | — | — |
| | 12 × 3° | | | | 18 | □ | — | — |
| | 12 × 4° | 126 | | 20 | 20 | □ | — | — |
| | 12 × 5° | | | | 23 | □ | — | — |
| | 12 × 7° | 160 | 80 | 32 | 32 | □ | — | — |
| | 12 × 10° | 172 | | 42 | 40 | □ | — | — |
| | 16 × 1.5° | 105 | 45 | 16 | 18 | □ | — | — |
| | 16 × 2° | 126 | 60 | 20 | 20 | □ | — | — |
| | 16 × 2.5° | | | | 21 | □ | — | — |
| | 16 × 3° | | | | 22 | □ | — | — |
| | 16 × 4° | 136 | | 25 | 24 | □ | — | — |
| | 16 × 5° | | | | 27 | □ | — | — |
| | 20 × 2° | 147 | 71 | | 25 | □ | — | — |
| | 20 × 2.5° | | | | 26 | □ | — | — |
| | 20 × 3° | | | | 27 | □ | — | — |
| | 20 × 4° | | | | 30 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパエンドミルミディアム形
**2-flute Taper End Mill Medium Length**

## TPDN



HSS-Co　±10′　25°

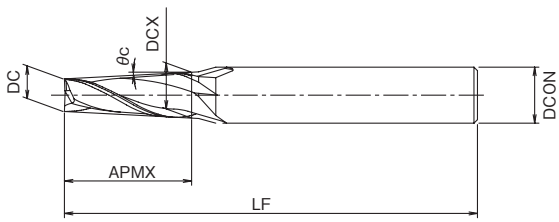
（単位:mm）(Unit:mm)

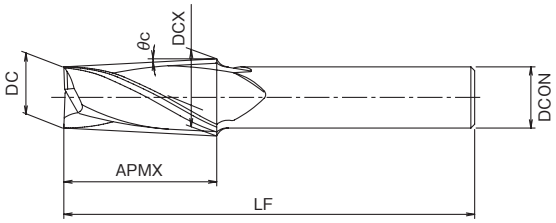
| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 2 × 0.5° | 72 | 28 | 6 | 2.49 | | □ | – | – |
| | 2 × 1° | 82 | 38 | | 3.33 | | □ | – | – |
| | 2 × 1.5° | | | | 3.99 | | □ | – | – |
| | 2 × 2° | 94 | 50 | | 5.49 | | □ | – | – |
| | 2 × 2.5° | | | 8 | 6.37 | | □ | – | – |
| | 2 × 3° | | | | 7.24 | | □ | – | – |
| | 2 × 4° | 100 | | 10 | 8.99 | | □ | – | – |
| | 2 × 5° | 107 | | 12 | 10.75 | | □ | – | – |
| | 2.5 × 0.5° | 72 | 28 | 6 | 2.99 | | □ | – | – |
| | 2.5 × 1° | 82 | 38 | | 3.83 | | □ | – | – |
| | 2.5 × 1.5° | | | | 4.49 | | □ | – | – |
| | 2.5 × 2° | 94 | 50 | | 5.99 | | □ | – | – |
| | 2.5 × 2.5° | | | 8 | 6.87 | | □ | – | – |
| | 2.5 × 3° | | | | 7.74 | | □ | – | – |
| | 2.5 × 4° | 100 | | 10 | 9.49 | – | □ | – | – |
| | 2.5 × 5° | 107 | | 12 | 11.25 | | □ | – | – |
| | 2.5 × 7° | 127 | 67 | 16 | 18.95 | | □ | – | – |
| | 3 × 0.5° | 72 | 28 | 6 | 3.49 | | □ | – | – |
| | 3 × 1° | 82 | 38 | | 4.33 | | □ | – | – |
| | 3 × 1.5° | | | | 4.99 | | □ | – | – |
| | 3 × 2° | 94 | 50 | 8 | 6.49 | | □ | – | – |
| | 3 × 2.5° | | | | 7.37 | | □ | – | – |
| | 3 × 3° | 100 | | 10 | 8.24 | | □ | – | – |
| | 3 × 4° | | | | 9.99 | | □ | – | – |
| | 3 × 5° | 107 | | 12 | 11.75 | | □ | – | – |
| | 3 × 7° | 133 | 67 | 20 | 19.45 | | □ | – | – |
| | 4 × 0.5° | 78 | 34 | 6 | 4.59 | | □ | – | – |
| | 4 × 1° | 89 | 45 | | 5.57 | | □ | – | – |
| | 4 × 1.5° | | | 8 | 6.36 | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 4 × 2° | 110 | 60 | 10 | 8.19 | | □ | – | – |
| | 4 × 2.5° | | | | 9.24 | | □ | – | – |
| | 4 × 3° | 117 | | 12 | 10.29 | | □ | – | – |
| | 4 × 4° | | | | 12.39 | | □ | – | – |
| | 4 × 5° | | | | 14.5 | | □ | – | – |
| | 4 × 6° | 146 | 80 | 20 | 20.82 | | □ | – | – |
| | 4 × 7° | 156 | | 25 | 23.65 | | □ | – | – |
| | 4 × 10° | 160 | | 32 | 32.21 | | □ | – | – |
| | 5 × 0.5° | 84 | 40 | 6 | 5.7 | | □ | – | – |
| | 5 × 1° | 97 | 53 | 8 | 6.85 | | □ | – | – |
| | 5 × 1.5° | | | | 7.78 | | □ | – | – |
| | 5 × 2° | 121 | 71 | 10 | 9.96 | | □ | – | – |
| | 5 × 2.5° | | | | 11.2 | | □ | – | – |
| | 5 × 3° | 128 | | 12 | 12.44 | | □ | – | – |
| | 5 × 4° | | | | 14.93 | – | □ | – | – |
| | 5 × 5° | 131 | | 16 | 17.42 | | □ | – | – |
| | 5 × 6° | 171 | 95 | 25 | 24.97 | | □ | – | – |
| | 5 × 7° | | | | 28.33 | | □ | – | – |
| | 5 × 10° | 187 | | 42 | 38.5 | | □ | – | – |
| | 6 × 0.5° | 84 | 40 | 8 | 6.7 | | □ | – | – |
| | 6 × 1° | 97 | 53 | | 7.85 | | □ | – | – |
| | 6 × 1.5° | 103 | | 10 | 8.78 | | □ | – | – |
| | 6 × 2° | 128 | 71 | 12 | 10.96 | | □ | – | – |
| | 6 × 2.5° | | | | 12.2 | | □ | – | – |
| | 6 × 3° | | | | 13.44 | | □ | – | – |
| | 6 × 4° | 131 | | 16 | 15.93 | | □ | – | – |
| | 6 × 5° | | | | 18.42 | | □ | – | – |
| | 6 × 6° | 171 | 95 | 25 | 25.97 | | □ | – | – |
| | 6 × 7° | | | | 29.33 | | □ | – | – |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




次ページへ
外径 DC 6～20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパエンドミルミディアム形
**2-flute Taper End Mill Medium Length**

## TPDN



HSS-Co　± 10′　25°

前ページより FROM 外径 DC 2～6

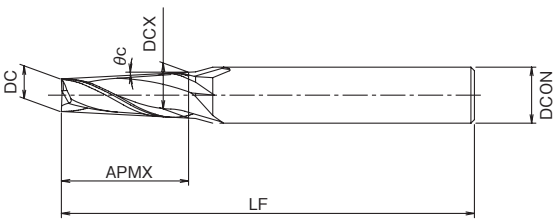
（単位:mm）(Unit:mm)

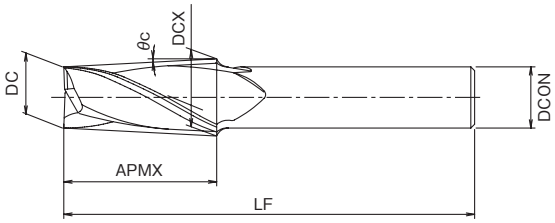
| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × 10° | 187 | 95 | 42 | 39.5 | □ | — | — |
| | 8 × 0.5° | 98 | 48 | 10 | 8.84 | □ | — | — |
| | 8 × 1° | 120 | 63 | 12 | 10.2 | □ | — | — |
| | 8 × 1.5° | | | | 11.3 | □ | — | — |
| | 8 × 2° | 142 | 85 | | 13.94 | □ | — | — |
| | 8 × 2.5° | 145 | | 16 | 15.42 | □ | — | — |
| | 8 × 3° | | | | 16.91 | □ | — | — |
| | 8 × 4° | 151 | | 20 | 19.89 | □ | — | — |
| | 8 × 5° | | | | 22.87 | □ | — | — |
| | 8 × 6° | 192 | 112 | 32 | 31.54 | □ | — | — |
| | 8 × 7° | | | | 35.5 | □ | — | — |
| | 8 × 10° | 204 | | 42 | 47.5 | □ | — | — |
| | 10 × 0.5° | 105 | 48 | 12 | 10.84 | □ | — | — |
| | 10 × 1° | 120 | 63 | | 12.2 | □ | — | — |
| | 10 × 1.5° | | | | 13.3 | □ | — | — |
| | 10 × 2° | 145 | 85 | 16 | 15.94 | □ | — | — |
| | 10 × 2.5° | | | | 17.42 | □ | — | — |
| | 10 × 3° | | | | 18.91 | □ | — | — |
| | 10 × 4° | 151 | | 20 | 21.89 | □ | — | — |
| | 10 × 5° | 161 | | 25 | 24.87 | □ | — | — |
| | 10 × 6° | 192 | 112 | 32 | 33.54 | □ | — | — |
| | 10 × 7° | 204 | | 42 | 37.5 | □ | — | — |
| | 10 × 10° | | | | 49.5 | □ | — | — |
| | 12 × 0.5° | 113 | 56 | 12 | 12.98 | □ | — | — |
| | 12 × 1° | 132 | 75 | | 14.62 | □ | — | — |
| | 12 × 1.5° | 135 | | 16 | 15.93 | □ | — | — |
| | 12 × 2° | 160 | 100 | | 18.98 | □ | — | — |
| | 12 × 2.5° | 166 | | 20 | 20.73 | □ | — | — |
| | 12 × 3° | | | | 22.48 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12 × 4° | 176 | 100 | 25 | 25.99 | □ | — | — |
| | 12 × 5° | | | | 29.5 | □ | — | — |
| | 12 × 6° | 224 | 132 | 42 | 39.75 | □ | — | — |
| | 12 × 7° | | | | 44.42 | □ | — | — |
| | 12 × 10° | | | | 58.55 | □ | — | — |
| | 16 × 0.5° | 116 | 56 | 16 | 16.98 | □ | — | — |
| | 16 × 1° | 135 | 75 | | 18.62 | □ | — | — |
| | 16 × 1.5° | 141 | | 20 | 19.93 | □ | — | — |
| | 16 × 2° | 166 | 100 | | 22.98 | □ | — | — |
| | 16 × 2.5° | 176 | | 25 | 24.73 | □ | — | — |
| | 16 × 3° | | | | 26.48 | □ | — | — |
| | 16 × 4° | | | | 29.99 | □ | — | — |
| | 16 × 5° | 180 | | 32 | 33.5 | □ | — | — |
| | 16 × 6° | 224 | 132 | 42 | 43.75 | — □ | — | — |
| | 16 × 7° | | | | 48.42 | □ | — | — |
| | 16 × 10° | | | | 62.55 | □ | — | — |
| | 20 × 0.5° | 123 | 57 | 20 | 20.99 | □ | — | — |
| | 20 × 1° | 156 | 90 | | 23.14 | □ | — | — |
| | 20 × 1.5° | 166 | | 25 | 24.71 | □ | — | — |
| | 20 × 2° | 194 | 118 | | 28.24 | □ | — | — |
| | 20 × 2.5° | 198 | | 32 | 30.3 | □ | — | — |
| | 20 × 3° | | | | 32.37 | □ | — | — |
| | 20 × 4° | | | | 36.5 | □ | — | — |
| | 20 × 5° | 210 | | 42 | 40.65 | □ | — | — |
| | 20 × 6° | 228 | 136 | | 48.59 | □ | — | — |
| | 20 × 7° | | | | 53.4 | □ | — | — |
| | 20 × 10° | 252 | 160 | | 76.42 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃ハイステーパエンドミルロング形
**2-flute Taper End Mill Long Length**

# TPDL



HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2.5 × 0.5° | 78 | 34 | 6 | 3.09 | □ | — | — |
| | 2.5 × 1° | 89 | 45 | | 4.07 | □ | — | — |
| | 2.5 × 1.5° | | | | 4.86 | □ | — | — |
| | 2.5 × 2° | 104 | 60 | 8 | 6.69 | □ | — | — |
| | 2.5 × 2.5° | | | | 7.74 | □ | — | — |
| | 2.5 × 3° | 110 | | 10 | 8.79 | □ | — | — |
| | 2.5 × 4° | 117 | | 12 | 10.89 | □ | — | — |
| | 2.5 × 5° | | | | 13 | □ | — | — |
| | 3 × 0.5° | 78 | 34 | 6 | 3.59 | □ | — | — |
| | 3 × 1° | 89 | 45 | | 4.57 | □ | — | — |
| | 3 × 1.5° | | | | 5.36 | □ | — | — |
| | 3 × 2° | 104 | 60 | 8 | 7.19 | □ | — | — |
| | 3 × 2.5° | 110 | | 10 | 8.24 | □ | — | — |
| | 3 × 3° | | | | 9.29 | □ | — | — |
| | 3 × 4° | 117 | | 12 | 11.39 | □ | — | — |
| | 3 × 5° | | | | 13.5 | □ | — | — |
| | 4 × 0.5° | 84 | 40 | 6 | 4.7 | □ | — | — |
| | 4 × 1° | 97 | 53 | | 5.85 | □ | — | — |
| | 4 × 1.5° | | | 8 | 6.78 | □ | — | — |
| | 4 × 2° | 121 | 71 | 10 | 8.96 | □ | — | — |
| | 4 × 2.5° | 128 | | 12 | 10.2 | □ | — | — |
| | 4 × 3° | | | | 11.44 | □ | — | — |
| | 4 × 4° | | | | 13.93 | □ | — | — |
| | 4 × 5° | 131 | | 16 | 16.42 | □ | — | — |
| | 4 × 6° | 171 | 95 | 25 | 23.97 | □ | — | — |
| | 4 × 7° | | | | 27.33 | □ | — | — |
| | 4 × 10° | 187 | | 42 | 37.5 | □ | — | — |
| | 5 × 0.5° | 92 | 48 | 6 | 5.84 | □ | — | — |
| | 5 × 1° | 107 | 63 | 8 | 7.2 | □ | — | — |
| | 5 × 1.5° | 113 | | 10 | 8.3 | □ | — | — |
| | 5 × 2° | 142 | 85 | 12 | 10.94 | □ | — | — |
| | 5 × 2.5° | | | | 12.42 | □ | — | — |
| | 5 × 3° | | | | 13.91 | □ | — | — |
| | 5 × 4° | 145 | | 16 | 16.89 | □ | — | — |
| | 5 × 5° | 151 | | 20 | 19.87 | □ | — | — |
| | 5 × 6° | 188 | 112 | 25 | 28.54 | □ | — | — |
| | 5 × 7° | 192 | | 32 | 32.5 | □ | — | — |
| | 5 × 10° | 204 | | 42 | 44.5 | □ | — | — |
| | 6 × 0.5° | 92 | 48 | 8 | 6.84 | □ | — | — |
| | 6 × 1° | 113 | 63 | 10 | 8.2 | □ | — | — |
| | 6 × 1.5° | | | | 9.3 | □ | — | — |
| | 6 × 2° | 142 | 85 | 12 | 11.94 | □ | — | — |
| | 6 × 2.5° | | | | 13.42 | □ | — | — |
| | 6 × 3° | | | | 14.91 | □ | — | — |
| | 6 × 4° | 145 | | 16 | 17.89 | □ | — | — |
| | 6 × 5° | 151 | | 20 | 20.87 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × 6° | 188 | 112 | 25 | 29.54 | □ | — | — |
| | 6 × 7° | 192 | | 32 | 33.5 | □ | — | — |
| | 6 × 10° | 204 | | 42 | 45.5 | □ | — | — |
| | 8 × 0.5° | 106 | 56 | 10 | 8.98 | □ | — | — |
| | 8 × 1° | 132 | 75 | 12 | 10.62 | □ | — | — |
| | 8 × 1.5° | | | | 11.93 | □ | — | — |
| | 8 × 2° | 157 | 100 | 16 | 14.98 | □ | — | — |
| | 8 × 2.5° | 160 | | | 16.73 | □ | — | — |
| | 8 × 3° | | | | 18.48 | □ | — | — |
| | 8 × 4° | 166 | | 20 | 21.99 | □ | — | — |
| | 8 × 5° | 176 | | 25 | 25.5 | □ | — | — |
| | 8 × 6° | 212 | 132 | 32 | 35.75 | □ | — | — |
| | 8 × 7° | 224 | | 42 | 40.42 | □ | — | — |
| | 8 × 10° | | | | 54.55 | □ | — | — |
| | 10 × 0.5° | 113 | 56 | 12 | 10.98 | □ | — | — |
| | 10 × 1° | 132 | 75 | | 12.62 | □ | — | — |
| | 10 × 1.5° | | | | 13.93 | □ | — | — |
| | 10 × 2° | 160 | 100 | 16 | 16.98 | □ | — | — |
| | 10 × 2.5° | | | | 18.73 | □ | — | — |
| | 10 × 3° | 166 | | 20 | 20.48 | □ | — | — |
| | 10 × 4° | 176 | | 25 | 23.99 | □ | — | — |
| | 10 × 5° | | | | 27.5 | □ | — | — |
| | 10 × 6° | 224 | 132 | 42 | 37.75 | □ | — | — |
| | 10 × 7° | | | | 42.42 | □ | — | — |
| | 10 × 10° | | | | 56.55 | □ | — | — |
| | 12 × 0.5° | 124 | 67 | 12 | 13.17 | □ | — | — |
| | 12 × 1° | 150 | 90 | 16 | 15.14 | □ | — | — |
| | 12 × 1.5° | | | | 16.71 | □ | — | — |
| | 12 × 2° | 184 | 118 | 20 | 20.24 | □ | — | — |
| | 12 × 2.5° | | | | 22.3 | □ | — | — |
| | 12 × 3° | 194 | | 25 | 24.37 | □ | — | — |
| | 12 × 4° | | | | 28.5 | □ | — | — |
| | 12 × 5° | 198 | | 32 | 32.65 | □ | — | — |
| | 12 × 6° | 252 | 160 | 42 | 45.63 | □ | — | — |
| | 12 × 7° | | | | 51.29 | □ | — | — |
| | 12 × 10° | | | | 68.42 | □ | — | — |
| | 16 × 0.5° | 127 | 67 | 16 | 17.17 | □ | — | — |
| | 16 × 1° | 156 | 90 | 20 | 19.14 | □ | — | — |
| | 16 × 1.5° | | | | 20.71 | □ | — | — |
| | 16 × 2° | 194 | 118 | 25 | 24.24 | □ | — | — |
| | 16 × 2.5° | | | | 26.3 | □ | — | — |
| | 16 × 3° | | | | 28.37 | □ | — | — |
| | 16 × 4° | 198 | | 32 | 32.5 | □ | — | — |
| | 16 × 5° | | | | 36.65 | □ | — | — |
| | 16 × 6° | 252 | 160 | 42 | 49.63 | □ | — | — |
| | 16 × 7° | | | | 55.29 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

次ページへ
外径 DC 16〜20 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃ハイステーパエンドミルロング形
**2-flute Taper End Mill Long Length**

# TPDL



HSS-Co　± 10′　25°

前ページより FROM 外径 DC 2.5～16

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **16 × 10°** | 252 | 160 | 42 | 72.42 | □ | — | — |
| | **20 × 0.5°** | 146 | 80 | 20 | 21.4 | □ | — | — |
| | **20 × 1°** | 182 | 106 | 25 | 23.7 | □ | — | — |
| | **20 × 1.5°** | | | | 25.55 | □ | — | — |
| | **20 × 2°** | 216 | 140 | | 29.78 | □ | — | — |
| | **20 × 2.5°** | 220 | | 32 | 32.23 | □ | — | — |
| | **20 × 3°** | | | | 34.67 | □ | — | — |
| | **20 × 4°** | 232 | | 42 | 39.58 | □ | — | — |
| | **20 × 5°** | | | | 44.5 | □ | — | — |
| | **20 × 6°** | 252 | 160 | | 53.63 | □ | — | — |
| | **20 × 7°** | 255 | 163 | | 60.03 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.


OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。
See p.1175 for details




CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート4枚刃ハイステーパエンドミル ショート形
**TiN Coated 4-flute Taper End Mill Short Length**

## EX-TIN-TPMS



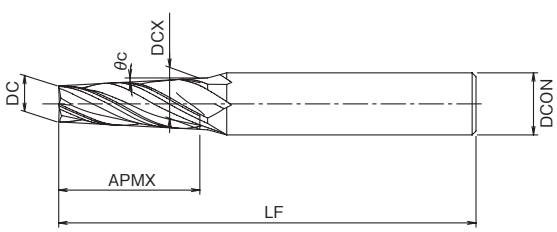
HSS-Co　TiN　±10′　25°

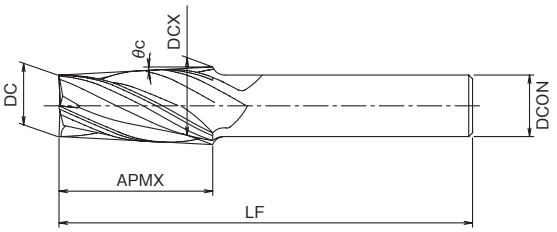
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × 0.5° | 54 | 10 | 6 | 2 | □ | – | – |
| | 2 × 1° | 57 | 13 | | | □ | – | – |
| | 2 × 1.5° | | | | 3 | □ | – | – |
| | 2 × 2° | 62 | 18 | | | □ | – | – |
| | 2 × 2.5° | | | | 4 | □ | – | – |
| | 2 × 3° | | | | | □ | – | – |
| | 2.5 × 0.5° | 54 | 10 | | 3 | □ | – | – |
| | 2.5 × 1° | 57 | 13 | | | □ | – | – |
| | 2.5 × 1.5° | | | | | □ | – | – |
| | 2.5 × 2° | 62 | 18 | | 4 | □ | – | – |
| | 2.5 × 2.5° | | | | | □ | – | – |
| | 2.5 × 3° | | | | | □ | – | – |
| | 2.5 × 4° | | | | 5 | □ | – | – |
| | 2.5 × 5° | | | | 6 | □ | – | – |
| | 2.5 × 7° | 74 | 24 | 10 | 8 | □ | – | – |
| | 2.5 × 10° | 81 | | 12 | 11 | □ | – | – |
| | 3 × 0.5° | 54 | 10 | 6 | 3 | □ | – | – |
| | 3 × 1° | 57 | 13 | | | □ | – | – |
| | 3 × 1.5° | | | | 4 | □ | – | – |
| | 3 × 2° | 62 | 18 | | | □ | – | – |
| | 3 × 2.5° | | | | 5 | □ | – | – |
| | 3 × 3° | | | | | □ | – | – |
| | 3 × 4° | | | | 6 | □ | – | – |
| | 3 × 5° | | | 8 | | □ | – | – |
| | 3 × 7° | 74 | 24 | 10 | 9 | □ | – | – |
| | 3 × 10° | 81 | | 12 | 11 | □ | – | – |
| | 4 × 0.5° | 56 | 12 | 6 | 4 | □ | – | – |
| | 4 × 1° | 60 | 16 | | 5 | □ | – | – |
| | 4 × 1.5° | | | | | □ | – | – |
| | 4 × 2° | 65 | 21 | | 6 | □ | – | – |
| | 4 × 2.5° | | | | | □ | – | – |
| | 4 × 3° | | | 8 | | □ | – | – |
| | 4 × 4° | | | | 7 | □ | – | – |
| | 4 × 5° | | | | 8 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 4 × 7° | 85 | 28 | 12 | 11 | □ | – | – |
| | 4 × 10° | | | | 14 | □ | – | – |
| | 5 × 0.5° | 58 | 14 | 6 | 5 | □ | – | – |
| | 5 × 1° | 63 | 19 | | 6 | □ | – | – |
| | 5 × 1.5° | | | | | □ | – | – |
| | 5 × 2° | 69 | 25 | 8 | 7 | □ | – | – |
| | 5 × 2.5° | | | | | □ | – | – |
| | 5 × 3° | | | | 8 | □ | – | – |
| | 5 × 4° | 75 | | 10 | 9 | □ | – | – |
| | 5 × 5° | | | | | □ | – | – |
| | 5 × 7° | 91 | 34 | 12 | 13 | □ | – | – |
| | 5 × 10° | 94 | | 16 | 17 | □ | – | – |
| | 6 × 0.5° | 58 | 14 | 8 | 6 | □ | – | – |
| | 6 × 1° | 63 | 19 | | 7 | □ | – | – |
| | 6 × 1.5° | | | | | □ | – | – |
| | 6 × 2° | 69 | 25 | | 8 | □ | – | – |
| | 6 × 2.5° | 75 | | 10 | | □ | – | – |
| | 6 × 3° | | | | 9 | □ | – | – |
| | 6 × 4° | | | | 10 | □ | – | – |
| | 6 × 5° | 82 | | 12 | | □ | – | – |
| | 6 × 7° | 91 | 34 | | 14 | □ | – | – |
| | 6 × 10° | 94 | | 16 | 18 | □ | – | – |
| | 8 × 1.5° | 72 | 22 | 10 | 9 | □ | – | – |
| | 8 × 2° | 87 | 30 | 12 | 10 | □ | – | – |
| | 8 × 2.5° | | | | 11 | □ | – | – |
| | 8 × 3° | | | | | □ | – | – |
| | 8 × 4° | | | | 12 | □ | – | – |
| | 8 × 5° | | | | 13 | □ | – | – |
| | 10 × 1.5° | 79 | 22 | | 11 | □ | – | – |
| | 10 × 2° | 87 | 30 | | 12 | □ | – | – |
| | 10 × 2.5° | | | | 13 | □ | – | – |
| | 10 × 3° | | | | | □ | – | – |
| | 10 × 4° | | | | 14 | □ | – | – |
| | 10 × 5° | 90 | | 16 | 15 | □ | – | – |




**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート4枚刃ハイステーパエンドミル レギュラ形
**TiN Coated 4-flute Taper End Mill Regular Length**

## EX-TIN-TPMR

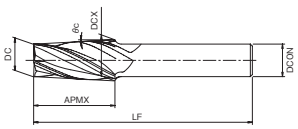


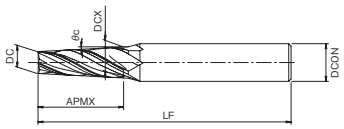
HSS-Co | TiN | ±10′ | 25°

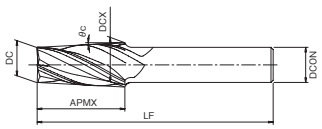
（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × 0.5° | 68 | 24 | 8 | 6.42 | □ | — | — |
| | 6 × 1° | 76 | 32 | | 7.12 | □ | — | — |
| | 8 × 0.5° | 78 | 28 | 10 | 8.49 | □ | — | — |
| | 8 × 1° | 88 | 38 | | 9.33 | □ | — | — |
| | 8 × 1.5° | | | | 9.99 | □ | — | — |
| | 8 × 5° | 110 | 50 | 16 | 16.75 | □ | — | — |
| | 8 × 7° | 143 | 67 | 25 | 24.45 | □ | — | — |
| | 8 × 10° | 147 | | 32 | 31.63 | □ | — | — |
| | 10 × 0.5° | 85 | 28 | 12 | 10.49 | □ | — | — |
| | 10 × 1° | 95 | 38 | | 11.33 | □ | — | — |
| | 10 × 1.5° | | | | 11.99 | □ | — | — |
| | 10 × 2° | 107 | 50 | | 13.49 | □ | — | — |
| | 10 × 2.5° | | | | 14.37 | □ | — | — |
| | 10 × 3° | 110 | | 16 | 15.24 | □ | — | — |
| | 10 × 5° | | | | 18.75 | □ | — | — |
| | 10 × 7° | 143 | 67 | 25 | 26.45 | □ | — | — |
| | 10 × 10° | 147 | | 32 | 33.63 | □ | — | — |
| | 12 × 0.5° | 91 | 34 | 12 | 12.59 | □ | — | — |
| | 12 × 1° | 102 | 45 | | 13.57 | □ | — | — |
| | 12 × 1.5° | | | | 14.36 | □ | — | — |
| | 12 × 2° | 120 | 60 | 16 | 16.19 | □ | — | — |
| | 12 × 2.5° | | | | 17.24 | □ | — | — |
| | 12 × 3° | | | | 18.29 | □ | — | — |
| | 12 × 4° | 126 | | 20 | 20.39 | □ | — | — |
| | 12 × 5° | | | | 22.5 | □ | — | — |
| | 12 × 7° | 160 | 80 | 32 | 31.65 | □ | — | — |
| | 12 × 10° | 172 | | 42 | 40.21 | □ | — | — |
| | 16 × 1.5° | 105 | 45 | 16 | 18.36 | □ | — | — |
| | 16 × 2° | 126 | 60 | 20 | 20.19 | □ | — | — |
| | 16 × 2.5° | | | | 21.24 | □ | — | — |
| | 16 × 3° | | | | 22.29 | □ | — | — |
| | 16 × 4° | 136 | | 25 | 24.39 | □ | — | — |
| | 16 × 5° | | | | 26.5 | □ | — | — |
| | 20 × 2° | 147 | 71 | | 24.96 | □ | — | — |
| | 20 × 2.5° | | | | 26.2 | □ | — | — |
| | 20 × 3° | | | | 27.44 | □ | — | — |
| | 20 × 4° | | | | 29.93 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.



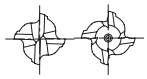




**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃ハイステーパエンドミルミディアム形
**4-flute Taper End Mill Medium Length**

## TPMN




HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 2 × 0.5° | 72 | 28 | 6 | 2.49 | □ | – | – |
| | 2 × 1° | 82 | 38 | | 3.33 | □ | – | – |
| | 2 × 1.5° | | | | 3.99 | □ | – | – |
| | 2 × 2° | 94 | 50 | | 5.49 | □ | – | – |
| | 2 × 2.5° | | | 8 | 6.37 | □ | – | – |
| | 2 × 3° | | | | 7.24 | □ | – | – |
| | 2 × 4° | 100 | | 10 | 8.99 | □ | – | – |
| | 2 × 5° | 107 | | 12 | 10.75 | □ | – | – |
| | 2.5 × 0.5° | 72 | 28 | 6 | 2.99 | □ | – | – |
| | 2.5 × 1° | 82 | 38 | | 3.83 | □ | – | – |
| | 2.5 × 1.5° | | | | 4.49 | □ | – | – |
| | 2.5 × 2° | 94 | 50 | 8 | 5.99 | □ | – | – |
| | 2.5 × 2.5° | | | | 6.87 | □ | – | – |
| | 2.5 × 3° | | | | 7.74 | □ | – | – |
| | 2.5 × 4° | 100 | | 10 | 9.49 | □ | – | – |
| | 2.5 × 5° | 107 | | 12 | 11.25 | □ | – | – |
| | 2.5 × 7° | 127 | 67 | 16 | 18.95 | □ | – | – |
| | 3 × 0.5° | 72 | 28 | 6 | 3.49 | □ | – | – |
| | 3 × 1° | 82 | 38 | | 4.33 | □ | – | – |
| | 3 × 1.5° | | | | 4.99 | □ | – | – |
| | 3 × 2° | 94 | 50 | 8 | 6.49 | □ | – | – |
| | 3 × 2.5° | | | | 7.37 | □ | – | – |
| | 3 × 3° | 100 | | 10 | 8.24 | □ | – | – |
| | 3 × 4° | | | | 9.99 | □ | – | – |
| | 3 × 5° | 107 | | 12 | 11.75 | □ | – | – |
| | 3 × 7° | 133 | 67 | 20 | 19.45 | □ | – | – |
| | 4 × 0.5° | 78 | 34 | 6 | 4.59 | □ | – | – |
| | 4 × 1° | 89 | 45 | | 5.57 | □ | – | – |
| | 4 × 1.5° | | | 8 | 6.36 | □ | – | – |
| | 4 × 2° | 110 | 60 | 10 | 8.19 | □ | – | – |
| | 4 × 2.5° | | | | 9.24 | □ | – | – |
| | 4 × 3° | 117 | | 12 | 10.29 | □ | – | – |
| | 4 × 4° | | | | 12.39 | □ | – | – |
| | 4 × 5° | | | | 14.5 | □ | – | – |
| | 4 × 6° | 146 | 80 | 20 | 20.82 | □ | – | – |
| | 4 × 7° | 156 | | 25 | 23.65 | □ | – | – |
| | 4 × 10° | 160 | | 32 | 32.21 | □ | – | – |
| | 5 × 0.5° | 84 | 40 | 6 | 5.7 | □ | – | – |
| | 5 × 1° | 97 | 53 | 8 | 6.85 | □ | – | – |
| | 5 × 1.5° | | | | 7.78 | □ | – | – |
| | 5 × 2° | 121 | 71 | 10 | 9.96 | □ | – | – |
| | 5 × 2.5° | 128 | | 12 | 11.2 | □ | – | – |
| | 5 × 3° | | | | 12.44 | □ | – | – |
| | 5 × 4° | | | | 14.93 | □ | – | – |
| | 5 × 5° | 131 | | 16 | 17.42 | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 5 × 6° | 171 | 95 | 25 | 24.97 | □ | – | – |
| | 5 × 7° | | | | 28.33 | □ | – | – |
| | 5 × 10° | 187 | | 42 | 38.5 | □ | – | – |
| | 6 × 0.5° | 84 | 40 | 8 | 6.7 | □ | – | – |
| | 6 × 1° | 97 | 53 | | 7.85 | □ | – | – |
| | 6 × 1.5° | 103 | | 10 | 8.78 | □ | – | – |
| | 6 × 2° | 128 | 71 | 12 | 10.96 | □ | – | – |
| | 6 × 2.5° | | | | 12.2 | □ | – | – |
| | 6 × 3° | | | | 13.44 | □ | – | – |
| | 6 × 4° | 131 | | 16 | 15.93 | □ | – | – |
| | 6 × 5° | | | | 18.42 | □ | – | – |
| | 6 × 6° | 171 | 95 | 25 | 25.97 | □ | – | – |
| | 6 × 7° | | | | 29.33 | □ | – | – |
| | 6 × 10° | 187 | | 42 | 39.5 | □ | – | – |
| | 8 × 0.5° | 98 | 48 | 10 | 8.84 | □ | – | – |
| | 8 × 1° | 120 | 63 | 12 | 10.2 | □ | – | – |
| | 8 × 1.5° | | | | 11.3 | □ | – | – |
| | 8 × 2° | 142 | 85 | 16 | 13.94 | □ | – | – |
| | 8 × 2.5° | 145 | | | 15.42 | □ | – | – |
| | 8 × 3° | | | | 16.91 | □ | – | – |
| | 8 × 4° | 151 | | 20 | 19.89 | □ | – | – |
| | 8 × 5° | | | | 22.87 | □ | – | – |
| | 8 × 6° | 192 | 112 | 32 | 31.54 | □ | – | – |
| | 8 × 7° | | | | 35.5 | □ | – | – |
| | 8 × 10° | 204 | | 42 | 47.5 | □ | – | – |
| | 10 × 0.5° | 105 | 48 | 12 | 10.84 | □ | – | – |
| | 10 × 1° | 120 | 63 | | 12.2 | □ | – | – |
| | 10 × 1.5° | | | | 13.3 | □ | – | – |
| | 10 × 2° | 145 | 85 | 16 | 15.94 | □ | – | – |
| | 10 × 2.5° | | | | 17.42 | □ | – | – |
| | 10 × 3° | | | | 18.91 | □ | – | – |
| | 10 × 4° | 151 | | 20 | 21.89 | □ | – | – |
| | 10 × 5° | 161 | | 25 | 24.87 | □ | – | – |
| | 10 × 6° | 192 | 112 | 32 | 33.54 | □ | – | – |
| | 10 × 7° | 204 | | 42 | 37.5 | □ | – | – |
| | 10 × 10° | | | | 49.5 | □ | – | – |
| | 12 × 0.5° | 113 | 56 | 12 | 12.98 | □ | – | – |
| | 12 × 1° | 132 | 75 | | 14.62 | □ | – | – |
| | 12 × 1.5° | 135 | | 16 | 15.93 | □ | – | – |
| | 12 × 2° | 160 | 100 | | 18.98 | □ | – | – |
| | 12 × 2.5° | 166 | | 20 | 20.73 | □ | – | – |
| | 12 × 3° | | | | 22.48 | □ | – | – |
| | 12 × 4° | 176 | | 25 | 25.99 | □ | – | – |
| | 12 × 5° | | | | 29.5 | □ | – | – |
| | 12 × 6° | 224 | 132 | 42 | 39.75 | □ | – | – |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.
シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

次ページへ
外径 DC　12～20　NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイステーパエンドミルミディアム形
**4-flute Taper End Mill Medium Length**

## TPMN



HSS-Co　± 10′　25°

前ページより FROM 外径 DC 2～12

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | **12 × 7°** | 224 | 132 | 42 | 44.42 | | □ | — | — |
| | **12 × 10°** | | | | 58.55 | | □ | — | — |
| | **16 × 0.5°** | 116 | 56 | 16 | 16.98 | | □ | — | — |
| | **16 × 1°** | 135 | 75 | | 18.62 | | □ | — | — |
| | **16 × 1.5°** | 141 | | 20 | 19.93 | | □ | — | — |
| | **16 × 2°** | 166 | | | 22.98 | | □ | — | — |
| | **16 × 2.5°** | 176 | 100 | 25 | 24.73 | | □ | — | — |
| | **16 × 3°** | | | | 26.48 | | □ | — | — |
| | **16 × 4°** | | | | 29.99 | | □ | — | — |
| | **16 × 5°** | 180 | | 32 | 33.5 | | □ | — | — |
| | **16 × 6°** | 224 | 132 | 42 | 43.75 | | □ | — | — |
| | **16 × 7°** | | | | 48.42 | | □ | — | — |
| | **16 × 10°** | | | | 62.55 | — | □ | — | — |
| | **20 × 0.5°** | 123 | 57 | 20 | 20.99 | | □ | — | — |
| | **20 × 1°** | 156 | 90 | | 23.14 | | □ | — | — |
| | **20 × 1.5°** | 166 | | 25 | 24.71 | | □ | — | — |
| | **20 × 2°** | 194 | | | 28.24 | | □ | — | — |
| | **20 × 2.5°** | 198 | 118 | 32 | 30.3 | | □ | — | — |
| | **20 × 3°** | | | | 32.37 | | □ | — | — |
| | **20 × 4°** | | | | 36.5 | | □ | — | — |
| | **20 × 5°** | 210 | | 42 | 40.65 | | □ | — | — |
| | **20 × 6°** | 228 | 136 | | 48.59 | | □ | — | — |
| | **20 × 7°** | | | | 53.4 | | □ | — | — |
| | **20 × 10°** | 252 | 160 | | 76.42 | | □ | — | — |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.
シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃ハイステーパエンドミルロング形
**4-flute Taper End Mill Long Length**

## TPML



HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 2.5 × 0.5° | 78 | 34 | 6 | 3.09 | □ | | — | — |
| | 2.5 × 1° | 89 | 45 | | 4.07 | □ | | — | — |
| | 2.5 × 1.5° | | | | 4.86 | □ | | — | — |
| | 2.5 × 2° | 104 | 60 | 8 | 6.69 | □ | | — | — |
| | 2.5 × 2.5° | | | | 7.74 | □ | | — | — |
| | 2.5 × 3° | 110 | | 10 | 8.79 | □ | | — | — |
| | 2.5 × 4° | 117 | | 12 | 10.89 | □ | | — | — |
| | 2.5 × 5° | | | | 13 | □ | | — | — |
| | 3 × 0.5° | 78 | 34 | 6 | 3.59 | □ | | — | — |
| | 3 × 1° | 89 | 45 | | 4.57 | □ | | — | — |
| | 3 × 1.5° | | | | 5.36 | □ | | — | — |
| | 3 × 2° | 104 | 60 | 8 | 7.19 | □ | | — | — |
| | 3 × 2.5° | 110 | | 10 | 8.24 | □ | | — | — |
| | 3 × 3° | | | | 9.29 | □ | | — | — |
| | 3 × 4° | 117 | | 12 | 11.39 | □ | | — | — |
| | 3 × 5° | | | | 13.5 | □ | | — | — |
| | 4 × 0.5° | 84 | 40 | 6 | 4.7 | □ | | — | — |
| | 4 × 1° | 97 | 53 | | 5.85 | □ | | — | — |
| | 4 × 1.5° | | | 8 | 6.78 | □ | | — | — |
| | 4 × 2° | 121 | 71 | 10 | 8.96 | □ | | — | — |
| | 4 × 2.5° | 128 | | 12 | 10.2 | □ | | — | — |
| | 4 × 3° | | | | 11.44 | □ | | — | — |
| | 4 × 4° | | | | 13.93 | □ | — | — | — |
| | 4 × 5° | 131 | | 16 | 16.42 | □ | | — | — |
| | 4 × 6° | 171 | 95 | 25 | 23.97 | □ | | — | — |
| | 4 × 7° | | | | 27.33 | □ | | — | — |
| | 4 × 10° | 187 | | 42 | 37.5 | □ | | — | — |
| | 5 × 0.5° | 92 | 48 | 6 | 5.84 | □ | | — | — |
| | 5 × 1° | 107 | 63 | 8 | 7.2 | □ | | — | — |
| | 5 × 1.5° | 113 | | 10 | 8.3 | □ | | — | — |
| | 5 × 2° | 142 | 85 | 12 | 10.94 | □ | | — | — |
| | 5 × 2.5° | | | | 12.42 | □ | | — | — |
| | 5 × 3° | | | | 13.91 | □ | | — | — |
| | 5 × 4° | 145 | | 16 | 16.89 | □ | | — | — |
| | 5 × 5° | 151 | | 20 | 19.87 | □ | | — | — |
| | 5 × 6° | 188 | 112 | 25 | 28.54 | □ | | — | — |
| | 5 × 7° | 192 | | 32 | 32.5 | □ | | — | — |
| | 5 × 10° | 204 | | 42 | 44.5 | □ | | — | — |
| | 6 × 0.5° | 92 | 48 | 8 | 6.84 | □ | | — | — |
| | 6 × 1° | 113 | 63 | 10 | 8.2 | □ | | — | — |
| | 6 × 1.5° | | | | 9.3 | □ | | — | — |
| | 6 × 2° | 142 | 85 | 12 | 11.94 | □ | | — | — |
| | 6 × 2.5° | | | | 13.42 | □ | | — | — |
| | 6 × 3° | | | | 14.91 | □ | | — | — |
| | 6 × 4° | 145 | | 16 | 17.89 | □ | | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 6 × 5° | 151 | 85 | 20 | 20.87 | □ | | — | — |
| | 6 × 6° | 188 | 112 | 25 | 29.54 | □ | | — | — |
| | 6 × 7° | 192 | | 32 | 33.5 | □ | | — | — |
| | 6 × 10° | 204 | | 42 | 45.5 | □ | | — | — |
| | 8 × 0.5° | 106 | 56 | 10 | 8.98 | □ | | — | — |
| | 8 × 1° | 132 | 75 | 12 | 10.62 | □ | | — | — |
| | 8 × 1.5° | | | | 11.93 | □ | | — | — |
| | 8 × 2° | 157 | 100 | | 14.98 | □ | | — | — |
| | 8 × 2.5° | 160 | | 16 | 16.73 | □ | | — | — |
| | 8 × 3° | | | | 18.48 | □ | | — | — |
| | 8 × 4° | 166 | | 20 | 21.99 | □ | | — | — |
| | 8 × 5° | 176 | | 25 | 25.5 | □ | | — | — |
| | 8 × 6° | 212 | 132 | 32 | 35.75 | □ | | — | — |
| | 8 × 7° | 224 | | 42 | 40.42 | □ | | — | — |
| | 8 × 10° | | | | 54.55 | □ | | — | — |
| | 10 × 0.5° | 113 | 56 | 12 | 10.98 | □ | | — | — |
| | 10 × 1° | 132 | 75 | | 12.62 | □ | | — | — |
| | 10 × 1.5° | | | | 13.93 | □ | | — | — |
| | 10 × 2° | 160 | 100 | 16 | 16.98 | □ | | — | — |
| | 10 × 2.5° | | | | 18.73 | □ | | — | — |
| | 10 × 3° | 166 | | 20 | 20.48 | □ | | — | — |
| | 10 × 4° | 176 | | 25 | 23.99 | □ | | — | — |
| | 10 × 5° | | | | 27.5 | □ | — | — | — |
| | 10 × 6° | 224 | 132 | 42 | 37.75 | □ | | — | — |
| | 10 × 7° | | | | 42.42 | □ | | — | — |
| | 10 × 10° | | | | 56.55 | □ | | — | — |
| | 12 × 0.5° | 124 | 67 | 12 | 13.17 | □ | | — | — |
| | 12 × 1° | 150 | 90 | 16 | 15.14 | □ | | — | — |
| | 12 × 1.5° | | | | 16.71 | □ | | — | — |
| | 12 × 2° | 184 | 118 | 20 | 20.24 | □ | | — | — |
| | 12 × 2.5° | | | | 22.3 | □ | | — | — |
| | 12 × 3° | 194 | | 25 | 24.37 | □ | | — | — |
| | 12 × 4° | | | | 28.5 | □ | | — | — |
| | 12 × 5° | 198 | | 32 | 32.65 | □ | | — | — |
| | 12 × 6° | 252 | 160 | 42 | 45.63 | □ | | — | — |
| | 12 × 7° | | | | 51.29 | □ | | — | — |
| | 12 × 10° | | | | 68.42 | □ | | — | — |
| | 16 × 0.5° | 127 | 67 | 16 | 17.17 | □ | | — | — |
| | 16 × 1° | 156 | 90 | 20 | 19.14 | □ | | — | — |
| | 16 × 1.5° | | | | 20.71 | □ | | — | — |
| | 16 × 2° | 194 | 118 | 25 | 24.24 | □ | | — | — |
| | 16 × 2.5° | | | | 26.3 | □ | | — | — |
| | 16 × 3° | | | | 28.37 | □ | | — | — |
| | 16 × 4° | 198 | | 32 | 32.5 | □ | | — | — |
| | 16 × 5° | | | | 36.65 | □ | | — | — |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.
シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

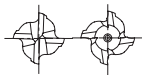
次ページへ
外径 DC　16〜20　NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 4枚刃ハイステーパエンドミルロング形
**4-flute Taper End Mill Long Length**

## TPML





HSS-Co | ± 10′ | 25°

前ページより FROM 外径 DC 2.5～16

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | **16 × 6°** | 252 | 160 | 42 | 49.63 | □ | — | — |
| | **16 × 7°** | | | | 55.29 | □ | — | — |
| | **16 × 10°** | | | | 72.42 | □ | — | — |
| | **20 × 0.5°** | 146 | 80 | 20 | 21.4 | □ | — | — |
| | **20 × 1°** | 182 | 106 | 25 | 23.7 | □ | — | — |
| | **20 × 1.5°** | | | | 25.55 | □ | — | — |
| | **20 × 2°** | 216 | 140 | | 29.78 | □ | — | — |
| | **20 × 2.5°** | 220 | | 32 | 32.23 | □ | — | — |
| | **20 × 3°** | | | | 34.67 | □ | — | — |
| | **20 × 4°** | 232 | | 42 | 39.58 | □ | — | — |
| | **20 × 5°** | | | | 44.5 | □ | — | — |
| | **20 × 6°** | 252 | 160 | | 53.63 | □ | — | — |
| | **20 × 7°** | 255 | 163 | | 60.03 | □ | — | — |

外径6mm以上はセンタ穴付きです。Mill Dia.≧φ6 : with center hole.
シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



## 2枚刃XPMテーパボールエンドミルショート形
**2-flute XPM Taper Ball End Mills Short Length**

# XPM-TPBDS



粉末ハイスXPMを母材に採用したテーパ刃ボールエンドミルです。
Taper ball-end mill with powder metallurgy XPM base material.

CAD

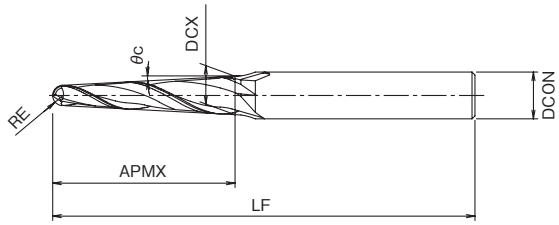
XPM　± 10′　25°

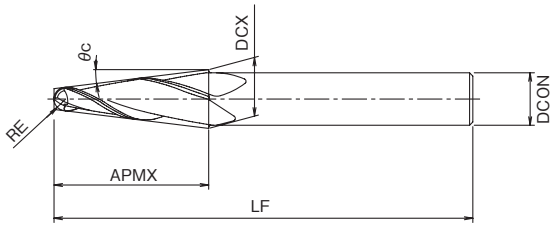
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 86601 | R1 × 0.5° | 54 | 10 | 6 | 2.16 | ● | 14 | 17,900 |
| 86611 | R1 × 1° | 57 | 13 | | 2.42 | ● | 13 | 19,000 |
| 86621 | R1 × 1.5° | | | | 2.63 | ● | 13 | 19,000 |
| 86631 | R1 × 2° | 62 | 18 | | 3.19 | ● | 14 | 20,900 |
| 86641 | R1 × 2.5° | | | | 3.49 | ● | 14 | 20,900 |
| 86651 | R1 × 3° | | | | 3.78 | ● | 13 | 20,900 |
| 86602 | R1.25 × 0.5° | 54 | 10 | | 2.65 | ● | 14 | 17,900 |
| 86612 | R1.25 × 1° | 57 | 13 | | 2.91 | ● | 14 | 19,000 |
| 86622 | R1.25 × 1.5° | | | | 3.12 | ● | 13 | 19,000 |
| 86632 | R1.25 × 2° | 62 | 18 | | 3.67 | ● | 14 | 20,900 |
| 86642 | R1.25 × 2.5° | | | | 3.97 | ● | 15 | 20,900 |
| 86652 | R1.25 × 3° | | | | 4.26 | ● | 15 | 20,900 |
| 86662 | R1.25 × 4° | | | | 4.85 | ● | 15 | 20,900 |
| 86672 | R1.25 × 5° | | | | 5.44 | ● | 15 | 20,900 |
| 86682 | R1.25 × 7° | 74 | 24 | 10 | 8.11 | ● | 39 | 22,800 |
| 86692 | R1.25 × 10° | 81 | | 12 | 10.56 | ● | 65 | 26,400 |
| 86603 | R1.5 × 0.5° | 54 | 10 | 6 | 3.15 | ● | 14 | 17,900 |
| 86613 | R1.5 × 1° | 57 | 13 | | 3.4 | ● | 13 | 19,000 |
| 86623 | R1.5 × 1.5° | | | | 3.6 | ● | 14 | 19,000 |
| 86633 | R1.5 × 2° | 62 | 18 | | 4.15 | ● | 14 | 20,900 |
| 86643 | R1.5 × 2.5° | | | | 4.44 | ● | 14 | 20,900 |
| 86653 | R1.5 × 3° | | | | 4.73 | ● | 15 | 20,900 |
| 86663 | R1.5 × 4° | | | | 5.31 | ● | 14 | 20,900 |
| 86673 | R1.5 × 5° | | | 8 | 5.9 | ● | 22 | 20,900 |
| 86683 | R1.5 × 7° | 74 | 24 | 10 | 8.55 | ● | 40 | 22,800 |
| 86693 | R1.5 × 10° | 81 | | 12 | 10.98 | ● | 65 | 26,400 |
| 86604 | R2 × 0.5° | 56 | 12 | 6 | 4.17 | ● | 16 | 17,900 |
| 86614 | R2 × 1° | 60 | 16 | | 4.49 | ● | 15 | 19,000 |
| 86624 | R2 × 1.5° | | | | 4.73 | ● | 15 | 19,000 |
| 86634 | R2 × 2° | 65 | 21 | | 5.33 | ● | 16 | 20,900 |
| 86644 | R2 × 2.5° | | | | 5.66 | ● | 16 | 20,900 |
| 86654 | R2 × 3° | | | 8 | 6 | ● | 22 | 21,700 |
| 86664 | R2 × 4° | | | | 6.67 | ● | 23 | 21,700 |
| 86674 | R2 × 5° | | | | 7.34 | ● | 23 | 21,700 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 86684 | R2 × 7° | 85 | 28 | 12 | 10.41 | ● | 64 | 26,400 |
| 86694 | R2 × 10° | | | | 13.23 | ● | 74 | 30,700 |
| 86605 | R2.5 × 0.5° | 58 | 14 | 6 | 5.2 | ● | 17 | 17,900 |
| 86615 | R2.5 × 1° | 63 | 19 | | 5.58 | ● | 18 | 19,000 |
| 86625 | R2.5 × 1.5° | | | | 5.87 | ● | 16 | 19,000 |
| 86635 | R2.5 × 2° | 69 | 25 | 8 | 6.57 | ● | 24 | 20,900 |
| 86645 | R2.5 × 2.5° | | | | 6.97 | ● | 25 | 20,900 |
| 86655 | R2.5 × 3° | | | | 7.37 | ● | 26 | 21,700 |
| 86665 | R2.5 × 4° | 75 | | 10 | 8.16 | ● | 45 | 22,700 |
| 86675 | R2.5 × 5° | | | | 8.96 | ● | 41 | 22,800 |
| 86685 | R2.5 × 7° | 91 | 34 | 12 | 12.77 | ● | 70 | 30,700 |
| 86695 | R2.5 × 10° | 94 | | 16 | 16.19 | ● | 127 | 41,400 |
| 86606 | R3 × 0.5° | 58 | 14 | 8 | 6.19 | ● | 25 | 18,500 |
| 86616 | R3 × 1° | 63 | 19 | | 6.56 | ● | 24 | 19,000 |
| 86626 | R3 × 1.5° | | | | 6.84 | ● | 23 | 19,000 |
| 86636 | R3 × 2° | 69 | 25 | | 7.54 | ● | 25 | 20,900 |
| 86646 | R3 × 2.5° | 75 | | 10 | 7.93 | ● | 40 | 22,700 |
| 86656 | R3 × 3° | | | | 8.31 | ● | 39 | 22,700 |
| 86666 | R3 × 4° | | | | 9.09 | ● | 42 | 22,700 |
| 86676 | R3 × 5° | 82 | | 12 | 9.87 | ● | 62 | 26,400 |
| 86686 | R3 × 7° | 91 | 34 | | 13.66 | ● | 80 | 33,700 |
| 86696 | R3 × 10° | 94 | | 16 | 17.02 | ● | 127 | 41,400 |
| 86627 | R4 × 1.5° | 72 | 22 | 10 | 8.95 | ● | 42 | 22,000 |
| 86637 | R4 × 2° | 87 | 30 | 12 | 9.82 | ● | 70 | 24,900 |
| 86647 | R4 × 2.5° | | | | 10.28 | ● | 70 | 27,800 |
| 86657 | R4 × 3° | | | | 10.74 | ● | 71 | 27,800 |
| 86667 | R4 × 4° | | | | 11.66 | ● | 73 | 32,200 |
| 86677 | R4 × 5° | | | | 12.58 | ● | 71 | 29,900 |
| 86628 | R5 × 1.5° | 79 | 22 | | 10.89 | ● | 70 | 25,800 |
| 86638 | R5 × 2° | 87 | 30 | | 11.75 | ● | 75 | 28,200 |
| 86648 | R5 × 2.5° | | | | 12.19 | ● | 75 | 32,600 |
| 86658 | R5 × 3° | | | | 12.63 | ● | 76 | 32,600 |
| 86668 | R5 × 4° | | | | 13.52 | ● | 84 | 35,200 |
| 86678 | R5 × 5° | 90 | | 16 | 14.41 | ● | 123 | 37,100 |



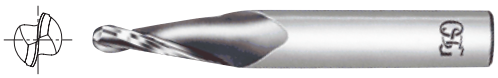

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **XPM-TPBDS** | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイステーパボールエンドミルショート形
**2-flute Taper Ball End Mill Short Length**

## TPBDS



HSS-Co　±10′　25°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R0.4 × 0.5° | 45 | 2 | 6 | 0.83 | | □ | — | — |
| | R0.4 × 1° | | | | 0.86 | | □ | — | — |
| | R0.5 × 0.5° | 50 | 4 | | 1.06 | | □ | — | — |
| | R0.5 × 0.75° | | | | 1.09 | | □ | — | — |
| | R0.5 × 1° | | | | 1.12 | | □ | — | — |
| | R0.5 × 1.25° | | | | 1.15 | | □ | — | — |
| | R0.5 × 1.5° | | | | 1.18 | | □ | — | — |
| | R0.5 × 1.75° | | | | 1.21 | | □ | — | — |
| | R0.5 × 2° | | | | 1.25 | | □ | — | — |
| | R0.5 × 2.25° | | | | 1.28 | | □ | — | — |
| | R0.5 × 2.5° | | | | 1.31 | | □ | — | — |
| | R0.5 × 2.75° | | | | 1.34 | | □ | — | — |
| | R0.5 × 3° | | | | 1.37 | | □ | — | — |
| | R0.5 × 4° | 52 | 7 | | 1.91 | | □ | — | — |
| | R0.5 × 5° | | | | 2.14 | | □ | — | — |
| | R0.6 × 0.5° | 50 | 4 | | 1.26 | | □ | — | — |
| | R0.6 × 0.75° | | | | 1.29 | | □ | — | — |
| | R0.6 × 1° | | | | 1.32 | | □ | — | — |
| | R0.6 × 1.25° | | | | 1.35 | | □ | — | — |
| | R0.6 × 1.5° | | | | 1.38 | | □ | — | — |
| | R0.6 × 1.75° | | | | 1.41 | — | □ | — | — |
| | R0.6 × 2° | | | | 1.44 | | □ | — | — |
| | R0.6 × 2.25° | | | | 1.47 | | □ | — | — |
| | R0.6 × 2.5° | | | | 1.5 | | □ | — | — |
| | R0.6 × 2.75° | | | | 1.53 | | □ | — | — |
| | R0.6 × 3° | | | | 1.56 | | □ | — | — |
| | R0.6 × 4° | 52 | 7 | | 2.1 | | □ | — | — |
| | R0.6 × 5° | | | | 2.32 | | □ | — | — |
| | R0.75 × 0.5° | 50 | 5 | | 1.57 | | □ | — | — |
| | R0.75 × 0.75° | | | | 1.61 | | □ | — | — |
| | R0.75 × 1° | | | | 1.65 | | □ | — | — |
| | R0.75 × 1.25° | | | | 1.69 | | □ | — | — |
| | R0.75 × 1.5° | | | | 1.72 | | □ | — | — |
| | R0.75 × 1.75° | | | | 1.76 | | □ | — | — |
| | R0.75 × 2° | | | | 1.8 | | □ | — | — |
| | R0.75 × 2.25° | | | | 1.84 | | □ | — | — |
| | R0.75 × 2.5° | | | | 1.87 | | □ | — | — |
| | R0.75 × 2.75° | | | | 1.91 | | □ | — | — |
| | R0.75 × 3° | | | | 1.95 | | □ | — | — |
| | R0.75 × 4° | 52 | 8 | | 2.52 | | □ | — | — |
| | R0.75 × 5° | | | | 2.77 | | □ | — | — |
| | R0.75 × 6° | | | | 3.03 | | □ | — | — |
| 85901 | R1 × 0.5° | 54 | 10 | | 2.16 | D | ● | 13 | 13,700 |
| | R1 × 0.75° | | | | 2.24 | — | □ | — | — |
| 85911 | R1 × 1° | 57 | 13 | | 2.42 | D | ● | 13 | 14,600 |
| | R1 × 1.25° | | | | 2.52 | — | □ | — | — |
| 85921 | R1 × 1.5° | | | | 2.63 | D | ● | 13 | 14,600 |
| | R1 × 1.75° | | | | 2.73 | — | □ | — | — |
| 85931 | R1 × 2° | 62 | 18 | | 3.19 | D | ● | 14 | 16,000 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R1 × 2.25° | 62 | 18 | 6 | 3.34 | — | □ | — | — |
| 85941 | R1 × 2.5° | | | | 3.49 | D | ● | 14 | 16,000 |
| | R1 × 2.75° | | | | 3.64 | — | □ | — | — |
| 85951 | R1 × 3° | | | | 3.78 | D | ● | 14 | 16,000 |
| | R1 × 4° | | | | 4.38 | | □ | — | — |
| | R1 × 5° | | | | 4.98 | | □ | — | — |
| | R1 × 6° | 68 | 24 | 8 | 6.85 | — | □ | — | — |
| | R1 × 7° | | | | 7.66 | | □ | — | — |
| | R1 × 10° | 81 | | 12 | 10.14 | | □ | — | — |
| 85902 | R1.25 × 0.5° | 54 | 10 | 6 | 2.65 | D | ● | 13 | 13,700 |
| | R1.25 × 0.75° | | | | 2.73 | — | □ | — | — |
| 85912 | R1.25 × 1° | 57 | 13 | | 2.91 | D | ● | 13 | 14,600 |
| | R1.25 × 1.25° | | | | 3.01 | — | □ | — | — |
| 85922 | R1.25 × 1.5° | | | | 3.12 | D | ● | 13 | 14,600 |
| | R1.25 × 1.75° | | | | 3.22 | — | □ | — | — |
| 85932 | R1.25 × 2° | 62 | 18 | | 3.67 | D | ● | 14 | 16,000 |
| | R1.25 × 2.25° | | | | 3.82 | — | □ | — | — |
| 85942 | R1.25 × 2.5° | | | | 3.97 | D | ● | 14 | 16,000 |
| | R1.25 × 2.75° | | | | 4.11 | — | □ | — | — |
| 85952 | R1.25 × 3° | | | | 4.26 | | ● | 14 | 16,000 |
| 85962 | R1.25 × 4° | | | | 4.85 | D | ● | 14 | 16,000 |
| 85972 | R1.25 × 5° | | | | 5.44 | | ● | 15 | 16,000 |
| | R1.25 × 6° | 68 | 24 | 8 | 7.3 | — | □ | — | — |
| 85982 | R1.25 × 7° | 74 | | 10 | 8.11 | | ● | 38 | 17,400 |
| 85992 | R1.25 × 10° | 81 | | 12 | 10.56 | D | ● | 63 | 20,500 |
| 85903 | R1.5 × 0.5° | 54 | 10 | 6 | 3.15 | | ● | 13 | 13,700 |
| | R1.5 × 0.75° | | | | 3.22 | — | □ | — | — |
| 85913 | R1.5 × 1° | 57 | 13 | | 3.4 | D | ● | 13 | 14,600 |
| | R1.5 × 1.25° | | | | 3.5 | — | □ | — | — |
| 85923 | R1.5 × 1.5° | | | | 3.6 | D | ● | 14 | 14,600 |
| | R1.5 × 1.75° | | | | 3.7 | — | □ | — | — |
| 85933 | R1.5 × 2° | 62 | 18 | | 4.15 | D | ● | 14 | 16,000 |
| | R1.5 × 2.25° | | | | 4.3 | — | □ | — | — |
| 85943 | R1.5 × 2.5° | | | | 4.44 | D | ● | 14 | 16,000 |
| | R1.5 × 2.75° | | | | 4.59 | — | □ | — | — |
| 85953 | R1.5 × 3° | | | | 4.73 | | ● | 14 | 16,000 |
| 85963 | R1.5 × 4° | | | | 5.31 | D | ● | 15 | 16,000 |
| 85973 | R1.5 × 5° | | | 8 | 5.9 | | ● | 22 | 16,000 |
| | R1.5 × 6° | 74 | 24 | 10 | 7.75 | — | □ | — | — |
| 85983 | R1.5 × 7° | | | | 8.55 | | ● | 39 | 17,400 |
| 85993 | R1.5 × 10° | 81 | | 12 | 10.98 | D | ● | 64 | 20,500 |
| 85904 | R2 × 0.5° | 56 | 12 | 6 | 4.17 | | ● | 15 | 13,700 |
| | R2 × 0.75° | | | | 4.26 | — | □ | — | — |
| 85914 | R2 × 1° | 60 | 16 | | 4.49 | D | ● | 14 | 14,600 |
| | R2 × 1.25° | | | | 4.61 | — | □ | — | — |
| 85924 | R2 × 1.5° | | | | 4.73 | D | ● | 14 | 14,600 |
| | R2 × 1.75° | | | | 4.86 | — | □ | — | — |
| 85934 | R2 × 2° | 65 | 21 | | 5.33 | D | ● | 15 | 16,000 |
| | R2 × 2.25° | | | | 5.5 | — | □ | — | — |

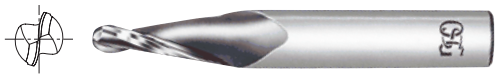
次ページへ
ボール半径 RE　2〜4　NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイステーパボールエンドミルショート形
**2-flute Taper Ball End Mill Short Length**

## TPBDS



CAD

HSS-Co　± 10′　25°

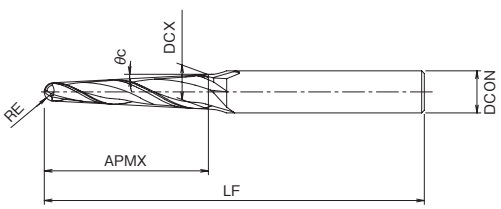
前ページより FROM ボール半径 RE 0.4～2

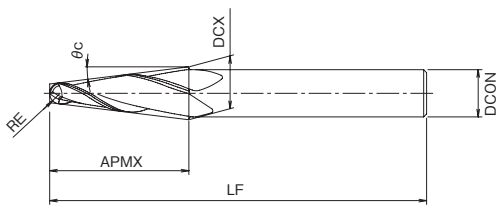
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 85944 | R2 × 2.5° | 65 | 21 | 6 | 5.66 | D | ● | 15 | 16,000 |
| | R2 × 2.75° | | | 8 | 5.83 | – | □ | – | – |
| 85954 | R2 × 3° | | | | 6 | | ● | 22 | 16,800 |
| 85964 | R2 × 4° | | | | 6.67 | D | ● | 23 | 16,800 |
| 85974 | R2 × 5° | | | | 7.34 | | ● | 23 | 16,800 |
| | R2 × 6° | 78 | 28 | 10 | 9.49 | – | □ | – | – |
| 85984 | R2 × 7° | 85 | | 12 | 10.41 | | ● | 65 | 20,500 |
| 85994 | R2 × 10° | | | | 13.23 | D | ● | 76 | 23,900 |
| 85905 | R2.5 × 0.5° | 58 | 14 | 6 | 5.2 | | ● | 15 | 13,700 |
| | R2.5 × 0.75° | | | | 5.3 | – | □ | – | – |
| 85915 | R2.5 × 1° | 63 | 19 | | 5.58 | D | ● | 15 | 14,600 |
| | R2.5 × 1.25° | | | | 5.72 | – | □ | – | – |
| 85925 | R2.5 × 1.5° | | | | 5.87 | D | ● | 16 | 14,600 |
| | R2.5 × 1.75° | | | | 6.01 | – | □ | – | – |
| 85935 | R2.5 × 2° | 69 | 25 | 8 | 6.57 | D | ● | 23 | 16,000 |
| | R2.5 × 2.25° | | | | 6.77 | – | □ | – | – |
| 85945 | R2.5 × 2.5° | | | | 6.97 | D | ● | 24 | 16,000 |
| | R2.5 × 2.75° | | | | 7.17 | – | □ | – | – |
| 85955 | R2.5 × 3° | | | | 7.37 | | ● | 24 | 16,800 |
| 85965 | R2.5 × 4° | 75 | | 10 | 8.16 | D | ● | 38 | 17,400 |
| 85975 | R2.5 × 5° | | | | 8.96 | | ● | 40 | 17,400 |
| | R2.5 × 6° | 91 | 34 | 12 | 11.65 | – | □ | – | – |
| 85985 | R2.5 × 7° | | | | 12.77 | | ● | 71 | 23,900 |
| 85995 | R2.5 × 10° | 94 | | 16 | 16.19 | D | ● | 128 | 31,400 |
| 85906 | R3 × 0.5° | 58 | 14 | 8 | 6.19 | | ● | 22 | 14,300 |
| | R3 × 0.75° | | | | 6.29 | – | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 85916 | R3 × 1° | 63 | 19 | 8 | 6.56 | D | ● | 23 | 14,600 |
| | R3 × 1.25° | | | | 6.7 | – | □ | – | – |
| 85926 | R3 × 1.5° | | | | 6.84 | D | ● | 23 | 14,600 |
| | R3 × 1.75° | | | | 6.98 | – | □ | – | – |
| 85936 | R3 × 2° | 69 | 25 | | 7.54 | D | ● | 25 | 16,000 |
| | R3 × 2.25° | 75 | | 10 | 7.73 | – | □ | – | – |
| 85946 | R3 × 2.5° | | | | 7.93 | D | ● | 38 | 17,400 |
| | R3 × 2.75° | | | | 8.12 | – | □ | – | – |
| 85956 | R3 × 3° | | | | 8.31 | D | ● | 39 | 17,400 |
| 85966 | R3 × 4° | | | | 9.09 | | ● | 41 | 17,400 |
| 85976 | R3 × 5° | 82 | | 12 | 9.87 | | ● | 63 | 20,500 |
| | R3 × 6° | 91 | 34 | | 12.55 | – | □ | – | – |
| 85986 | R3 × 7° | | | | 13.66 | D | ● | 78 | 26,200 |
| 85996 | R3 × 10° | 94 | | 16 | 17.02 | | ● | 41 | 31,400 |
| | R4 × 0.5° | 67 | 17 | 10 | 8.23 | | □ | – | – |
| | R4 × 1° | 72 | 22 | | 8.63 | – | □ | – | – |
| | R4 × 1.25° | | | | 8.79 | | □ | – | – |
| 85927 | R4 × 1.5° | | | | 8.95 | D | ● | 41 | 16,900 |
| | R4 × 1.75° | | | | 9.1 | – | □ | – | – |
| 85937 | R 4 × 2° | 87 | 30 | 12 | 9.82 | D | ● | 66 | 19,300 |
| | R 4 × 2.25° | | | | 10.05 | – | □ | – | – |
| 85947 | R 4 × 2.5° | | | | 10.28 | D | ● | 69 | 21,500 |
| | R 4 × 2.75° | | | | 10.51 | – | □ | – | – |
| 85957 | R 4 × 3° | | | | 10.74 | | ● | 67 | 21,500 |
| 85967 | R 4 × 4° | | | | 11.66 | D | ● | 70 | 24,900 |
| 85977 | R 4 × 5° | | | | 12.58 | | ● | 70 | 23,000 |




### 刃部テーパ半角早見表
Convertion Table

| | | |
|---|---|---|
| 0.25° | → | 15′ |
| 0.75° | → | 45′ |

次ページへ ボール半径 RE 4～10 NEXT

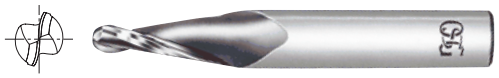
| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| TPBDS | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃ハイステーパボールエンドミルショート形
**2-flute Taper Ball End Mill Short Length**

# TPBDS



HSS-Co　±10′　25°

CAD

前ページより FROM ボール半径 RE 2～4

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | R 4 × 15° | 130 | 50 | 32 | 32.93 | | □ | — | — |
| ◆ | R 4 × 20° | 120 | 40 | | 34.72 | | □ | — | — |
| ◆ | R 4 × 20° | 145 | 53 | 42 | 44.18 | — | □ | — | — |
| | R 5 × 0.5° | 74 | 17 | | 10.21 | | □ | — | — |
| | R 5 × 1° | | | | 10.59 | | □ | — | — |
| | R 5 × 1.25° | 79 | 22 | | 10.74 | | □ | — | — |
| 85928 | R 5 × 1.5° | | | | 10.89 | D | ● | 65 | 19,600 |
| | R 5 × 1.75° | | | | 11.04 | — | □ | — | — |
| 85938 | R 5 × 2° | | | 12 | 11.75 | D | ● | 70 | 22,000 |
| | R 5 × 2.25° | | | | 11.97 | — | □ | — | — |
| 85948 | R 5 × 2.5° | 87 | 30 | | 12.19 | D | ● | 74 | 25,100 |
| | R 5 × 2.75° | | | | 12.41 | — | □ | — | — |
| 85958 | R 5 × 3° | | | | 12.63 | | ● | 71 | 25,100 |
| 85968 | R 5 × 4° | | | | 13.52 | D | ● | 81 | 27,400 |
| 85978 | R 5 × 5° | 90 | | 16 | 14.41 | | ● | 121 | 28,800 |
| ◆ | R 5 × 15° | 130 | 50 | 32 | 34.47 | | □ | — | — |
| ◆ | R 5 × 20° | 120 | 40 | | 36.12 | | □ | — | — |
| ◆ | R 5 × 20° | 145 | 53 | 42 | 45.58 | | □ | — | — |
| | R 6 × 2.5° | 87 | 30 | 16 | 14.11 | | □ | — | — |
| ◆ | R 6 × 15° | 130 | 50 | 32 | 36 | | □ | — | — |
| ◆ | R 6 × 20° | 120 | 40 | | 37.52 | | □ | — | — |
| ◆ | R 6 × 20° | 155 | 63 | 42 | 54.26 | | □ | — | — |
| ◆ | R 6 × 25° | 152 | 60 | | 63.6 | | □ | — | — |
| ◆ | R 8 × 15° | 130 | 50 | 32 | 39.07 | — | □ | — | — |
| ◆ | R 8 × 20° | 120 | 40 | | 40.32 | | □ | — | — |
| ◆ | R 8 × 20° | 155 | 63 | 42 | 57.06 | | □ | — | — |
| ◆ | R 8 × 25° | 152 | 60 | | 66.15 | | □ | — | — |
| ◆ | R 8 × 30° | 142 | 50 | | 66.97 | | □ | — | — |
| ◆ | R10 × 15° | 130 | | 32 | 42.14 | | □ | — | — |
| ◆ | R10 × 20° | 120 | 40 | | 43.12 | | □ | — | — |
| ◆ | R10 × 20° | 167 | 75 | 42 | 68.6 | | □ | — | — |
| ◆ | R10 × 25° | 152 | 60 | | 68.7 | | □ | — | — |
| ◆ | R10 × 30° | 142 | 50 | | 69.28 | | □ | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

## 2枚刃XPMテーパボールエンドミルレギュラ形
**2-flute XPM Taper Ball End Mill Regular Length**

# XPM-TPBDR

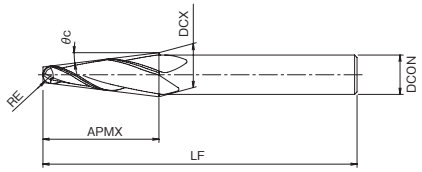


XPM　±10′　25°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 86705 | R 3 × 0.5° | 68 | 24 | 8 | 6.37 | | ● | 25 | 22,700 |
| 86715 | R 3 × 1° | 76 | 32 | | 7.01 | | ● | 32 | 24,400 |
| 86706 | R 4 × 0.5° | 78 | 28 | 10 | 8.42 | | ● | 48 | 24,900 |
| 86716 | R 4 × 1° | 88 | 38 | | 9.19 | | ● | 51 | 28,200 |
| 86726 | R 4 × 1.5° | | | | 9.78 | | ● | 50 | 28,200 |
| 86777 | R 4 × 5° | 110 | 50 | 16 | 16.08 | | ● | 139 | 64,300 |
| 86787 | R 4 × 7° | 143 | 67 | 25 | 23.53 | | ● | 390 | 86,600 |
| 86797 | R 4 × 10° | 147 | | 32 | 30.34 | | ● | 674 | 146,000 |
| 86707 | R 5 × 0.5° | 85 | 28 | 12 | 10.4 | | ● | 72 | 26,700 |
| 86717 | R 5 × 1° | 95 | 38 | | 11.15 | | ● | 77 | 35,000 |
| 86727 | R 5 × 1.5° | | | | 11.73 | | ● | 79 | 36,000 |
| 86737 | R 5 × 2° | 107 | 50 | | 13.15 | | ● | 90 | 44,400 |
| 86747 | R 5 × 2.5° | | | | 13.94 | | ● | 94 | 52,300 |
| 86757 | R 5 × 3° | 110 | | 16 | 14.73 | | ● | 137 | 52,300 |
| 86778 | R 5 × 5° | | | | 17.91 | | ● | 144 | 68,500 |
| 86788 | R 5 × 7° | 143 | 67 | 25 | 25.3 | | ● | 427 | 107,000 |
| 86798 | R 5 × 10° | 147 | | 32 | 32.02 | | ● | 718 | 169,000 |
| 86708 | R 6 × 0.5° | 91 | 34 | 12 | 12.49 | | ● | 82 | 33,900 |
| 86718 | R 6 × 1° | 102 | 45 | | 13.36 | D | ● | 101 | 37,100 |
| 86728 | R 6 × 1.5° | | | | 14.05 | | ● | 98 | 40,400 |
| 86738 | R 6 × 2° | 120 | 60 | 16 | 15.78 | | ● | 156 | 57,800 |
| 86748 | R 6 × 2.5° | | | | 16.73 | | ● | 158 | 70,200 |
| 86758 | R 6 × 3° | | | | 17.68 | | ● | 164 | 73,000 |
| 86768 | R 6 × 4° | 126 | | 20 | 19.58 | | ● | 240 | 77,700 |
| 86779 | R 6 × 5° | | | | 21.49 | | ● | 248 | 110,000 |
| 86789 | R 6 × 7° | 160 | 80 | 32 | 30.26 | | ● | 692 | 156,000 |
| 86799 | R 6 × 10° | 172 | | 42 | 38.28 | | ● | 1,269 | 264,000 |
| 86729 | R 8 × 1.5° | 105 | 45 | 16 | 17.94 | | ● | 160 | 51,600 |
| 86739 | R 8 × 2° | 126 | 60 | 20 | 19.64 | | ● | 253 | 72,500 |
| 86749 | R 8 × 2.5° | | | | 20.56 | | ● | 265 | 76,600 |
| 86759 | R 8 × 3° | | | | 21.47 | | ● | 275 | 91,500 |
| 86769 | R 8 × 4° | 136 | | 25 | 23.31 | | ● | 393 | 92,000 |
| 86780 | R 8 × 5° | | | | 25.16 | | ● | 418 | 115,000 |
| 86740 | R10 × 2° | 147 | 71 | | 24.27 | | ● | 445 | 85,500 |
| 86750 | R10 × 2.5° | | | | 25.35 | | ● | 500 | 102,000 |
| 86760 | R10 × 3° | | | | 26.42 | | ● | 518 | 103,000 |
| 86770 | R10 × 4° | | | | 28.58 | | ● | 533 | 135,000 |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| XPM-TPBDR | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイステーパボールエンドミルレギュラ形
**2-flute Taper Ball End Mill Regular Length**

## TPBDR



HSS-Co　± 10′　25°

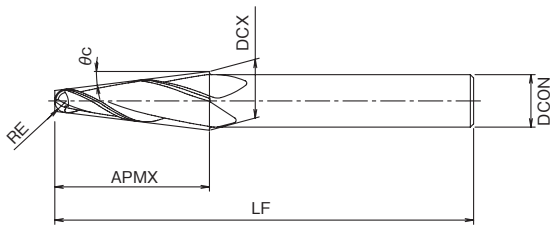
CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R1 × 0.5° | 61 | 17 | 6 | 2.28 | | □ | — | — |
| | R1 × 1° | 66 | 22 | | 2.73 | | □ | — | — |
| | R1 × 1.5° | | | | 3.1 | | □ | — | — |
| | R1 × 2° | 74 | 30 | | 4.03 | | □ | — | — |
| | R1 × 2.5° | | | | 4.53 | | □ | — | — |
| | R1 × 3° | | | | 5.04 | | □ | — | — |
| | R1 × 4° | | | 8 | 6.06 | | □ | — | — |
| | R1 × 5° | | | | 7.08 | | □ | — | — |
| | R1.25 × 0.5° | 61 | 17 | 6 | 2.77 | | □ | — | — |
| | R1.25 × 1° | 66 | 22 | | 3.22 | | □ | — | — |
| | R1.25 × 1.5° | | | | 3.59 | | □ | — | — |
| | R1.25 × 2° | 74 | 30 | | 4.51 | | □ | — | — |
| | R1.25 × 2.5° | | | | 5.01 | | □ | — | — |
| | R1.25 × 3° | | | | 5.52 | | □ | — | — |
| | R1.25 × 4° | | | 8 | 6.53 | | □ | — | — |
| | R1.25 × 5° | | | | 7.54 | — | □ | — | — |
| | R1.25 × 6° | 97 | 40 | 12 | 10.66 | | □ | — | — |
| | R1.25 × 7° | | | | 12.03 | | □ | — | — |
| | R1.25 × 10° | 100 | | 16 | 16.2 | | □ | — | — |
| | R1.5 × 0.5° | 61 | 17 | 6 | 3.27 | | □ | — | — |
| | R1.5 × 1° | 66 | 22 | | 3.72 | | □ | — | — |
| | R1.5 × 1.5° | | | | 4.07 | | □ | — | — |
| | R1.5 × 2° | 74 | 30 | | 4.99 | | □ | — | — |
| | R1.5 × 2.5° | | | | 5.49 | | □ | — | — |
| | R1.5 × 3° | | | 8 | 5.99 | | □ | — | — |
| | R1.5 × 4° | | | | 6.99 | | □ | — | — |
| | R1.5 × 5° | 80 | | 10 | 8 | | □ | — | — |
| | R1.5 × 6° | 97 | 40 | 12 | 11.11 | | □ | — | — |
| | R1.5 × 7° | | | | 12.48 | | □ | — | — |
| | R1.5 × 10° | 100 | | 16 | 16.62 | | □ | — | — |
| | R2 × 0.5° | 64 | 20 | 6 | 4.31 | | □ | — | — |
| | R2 × 1° | 70 | 26 | | 4.84 | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R2 × 1.5° | 70 | 26 | 6 | 5.26 | | □ | — | — |
| | R2 × 2° | 80 | 36 | 8 | 6.38 | | □ | — | — |
| | R2 × 2.5° | | | | 6.97 | | □ | — | — |
| | R2 × 3° | | | | 7.57 | | □ | — | — |
| | R2 × 4° | 86 | | 10 | 8.76 | | □ | — | — |
| | R2 × 5° | 93 | | 12 | 9.96 | | □ | — | — |
| | R2 × 6° | 105 | 48 | | 13.69 | | □ | — | — |
| | R2 × 7° | 108 | | 16 | 15.33 | | □ | — | — |
| | R2 × 10° | 114 | | 20 | 20.28 | | □ | — | — |
| | R2.5 × 0.5° | 68 | 24 | 6 | 5.38 | | □ | — | — |
| | R2.5 × 1° | 76 | 32 | 8 | 6.03 | — | □ | — | — |
| | R2.5 × 1.5° | | | | 6.55 | | □ | — | — |
| | R2.5 × 2° | 86 | 42 | | 7.76 | | □ | — | — |
| | R2.5 × 2.5° | 92 | | 10 | 8.45 | | □ | — | — |
| | R2.5 × 3° | | | | 9.15 | | □ | — | — |
| | R2.5 × 4° | 99 | | 12 | 10.54 | | □ | — | — |
| | R2.5 × 5° | | | | 11.93 | | □ | — | — |
| | R2.5 × 6° | 116 | 56 | 16 | 16.27 | | □ | — | — |
| | R2.5 × 7° | | | | 18.18 | | □ | — | — |
| | R2.5 × 10° | 132 | | 25 | 23.94 | | □ | — | — |
| 86305 | R3 × 0.5° | 68 | 24 | 8 | 6.37 | D | ● | 25 | 17,400 |
| 86315 | R3 × 1° | 76 | 32 | | 7.01 | | ● | 27 | 18,500 |
| | R3 × 1.5° | | | | 7.52 | | □ | — | — |
| | R3 × 2° | 92 | 42 | 10 | 8.73 | | □ | — | — |
| | R3 × 2.5° | | | | 9.41 | | □ | — | — |
| | R3 × 3° | 99 | | 12 | 10.1 | | □ | — | — |
| | R3 × 4° | | | | 11.47 | — | □ | — | — |
| | R3 × 5° | | | | 12.85 | | □ | — | — |
| | R3 × 6° | 116 | 56 | 16 | 17.17 | | □ | — | — |
| | R3 × 7° | 122 | | 20 | 19.06 | | □ | — | — |
| | R3 × 10° | 132 | | 25 | 24.78 | | □ | — | — |




次ページへ
ボール半径 RE 3〜10 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| TPBDR | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパボールエンドミルレギュラ形
**2-flute Taper Ball End Mill Regular Length**

## TPBDR



HSS-Co　±10′　25°

CAD

前ページより FROM ボール半径 RE 1〜3

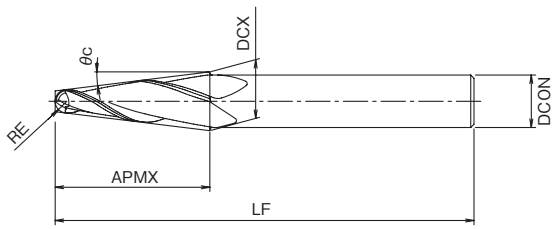
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ◆ | R3 × 15° | 136 | 56 | 32 | 34.61 | – | □ | – | – |
| ◆ | R3 × 15° | 159 | 67 | 42 | 40.51 | – | □ | – | – |
| 86306 | R4 × 0.5° | 78 | 28 | 10 | 8.42 | D | ● | 41 | 19,200 |
| 86316 | R4 × 1° | 88 | 38 | | 9.19 | | ● | 48 | 22,000 |
| 86326 | R4 × 1.5° | | | | 9.78 | | ● | 50 | 22,000 |
| | R4 × 2° | 107 | 50 | 12 | 11.22 | – | □ | – | – |
| | R4 × 2.5° | | | | 12.02 | | □ | – | – |
| | R4 × 3° | | | | 12.83 | | □ | – | – |
| | R4 × 4° | | | | 14.45 | | □ | – | – |
| 86377 | R4 × 5° | 110 | | 16 | 16.08 | D | ● | 133 | 49,800 |
| | R4 × 6° | 133 | 67 | 20 | 21.29 | – | □ | – | – |
| 86387 | R4 × 7° | 143 | | 25 | 23.53 | D | ● | 382 | 66,200 |
| 86397 | R4 × 10° | 147 | | 32 | 30.34 | | ● | 663 | 113,000 |
| ◆ | R4 × 15° | 159 | | 42 | 42.04 | – | □ | – | – |
| 86307 | R5 × 0.5° | 85 | 28 | 12 | 10.4 | D | ● | 70 | 20,600 |
| 86317 | R5 × 1° | 95 | 38 | | 11.15 | | ● | 73 | 26,900 |
| 86327 | R5 × 1.5° | | | | 11.73 | | ● | 75 | 27,800 |
| 86337 | R5 × 2° | 107 | 50 | | 13.15 | | ● | 88 | 34,100 |
| 86347 | R5 × 2.5° | | | | 13.94 | | ● | 95 | 40,100 |
| 86357 | R5 × 3° | 110 | | 16 | 14.73 | | ● | 132 | 40,400 |
| | R5 × 4° | | | | 16.32 | – | □ | – | – |
| 86378 | R5 × 5° | | | | 17.91 | D | ● | 143 | 52,300 |
| ◆ | R5 × 6° | 143 | 67 | 25 | 23.09 | – | □ | – | – |
| 86388 | R5 × 7° | | | | 25.3 | D | ● | 416 | 82,100 |
| 86398 | R5 × 10° | 147 | | 32 | 32.02 | | ● | 717 | 130,000 |
| ◆ | R5 × 15° | 159 | | 42 | 43.58 | – | □ | – | – |
| 86308 | R6 × 0.5° | 91 | 34 | 12 | 12.49 | D | ● | 81 | 26,200 |
| 86318 | R6 × 1° | 102 | 45 | | 13.36 | | ● | 92 | 28,800 |
| 86328 | R6 × 1.5° | | | | 14.05 | | ● | 95 | 30,700 |
| 86338 | R6 × 2° | 120 | 60 | 16 | 15.78 | | ● | 152 | 44,400 |
| 86348 | R6 × 2.5° | | | | 16.73 | | ● | 153 | 54,200 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 86358 | R 6 × 3° | 120 | 60 | 16 | 17.68 | D | ● | 156 | 56,500 |
| 86368 | R 6 × 4° | 126 | | 20 | 19.58 | | ● | 246 | 59,300 |
| 86379 | R 6 × 5° | | | | 21.49 | | ● | 256 | 84,500 |
| ◆ | R 6 × 6° | 156 | 80 | 25 | 27.62 | – | □ | – | – |
| 86389 | R 6 × 7° | 160 | | 32 | 30.26 | D | ● | 680 | 119,000 |
| 86399 | R 6 × 10° | 172 | | 42 | 38.28 | | ● | 1,230 | 204,000 |
| ◆ | R 6 × 15° | | | | 52.08 | – | □ | – | – |
| | R 8 × 0.5° | 94 | 34 | 16 | 16.45 | – | □ | – | – |
| | R 8 × 1° | 105 | 45 | | 17.29 | | □ | – | – |
| 86329 | R 8 × 1.5° | | | | 17.94 | D | ● | 157 | 40,100 |
| 86339 | R 8 × 2° | 126 | 60 | 20 | 19.64 | | ● | 248 | 55,700 |
| 86349 | R 8 × 2.5° | | | | 20.56 | | ● | 255 | 58,900 |
| 86359 | R 8 × 3° | | | | 21.47 | | ● | 256 | 70,200 |
| 86369 | R 8 × 4° | 136 | | 25 | 23.31 | | ● | 396 | 70,700 |
| 86380 | R 8 × 5° | | | | 25.16 | | ● | 432 | 87,500 |
| ◆ | R 8 × 6° | 160 | 80 | 32 | 31.22 | – | □ | – | – |
| ◆ | R 8 × 7° | | | | 33.8 | | □ | – | – |
| ◆ | R 8 × 10° | 172 | | 42 | 41.64 | | □ | – | – |
| ◆ | R 8 × 15° | | | | 55.15 | | □ | – | – |
| | R10 × 0.5° | 106 | 40 | 20 | 20.52 | | □ | – | – |
| | R10 × 1° | 119 | 53 | | 21.5 | | □ | – | – |
| | R10 × 1.5° | | | | 22.26 | | □ | – | – |
| 86340 | R10 × 2° | 147 | 71 | 25 | 24.27 | D | ● | 437 | 65,500 |
| 86350 | R10 × 2.5° | | | | 25.35 | | ● | 452 | 78,300 |
| 86360 | R10 × 3° | | | | 26.42 | | ● | 463 | 78,900 |
| 86370 | R10 × 4° | | | | 28.58 | | ● | 503 | 103,000 |
| ◆ | R10 × 5° | 151 | | 32 | 30.75 | – | □ | – | – |
| ◆ | R10 × 6° | 187 | 95 | 42 | 37.98 | – | □ | – | – |
| ◆ | R10 × 7° | | | | 41.02 | | □ | – | – |
| ◆ | R10 × 10° | | | | 50.28 | | □ | – | – |
| ◆ | R10 × 15° | | | | 66.26 | | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel　合金鋼 Alloy Steel　プリハードン鋼 Prehardened Steel　工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel　焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron　ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| TPBDR | ○ | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコート2枚刃ハイステーパボールエンドミル ショート形
**TiN Coated 2-flute Taper Ball End Mill Short Length**

## EX-TIN-TPBDS



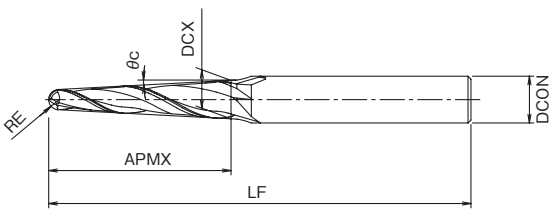
HSS-Co | TiN | ±10′ | 25°

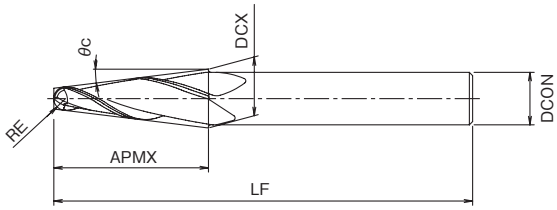
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1 × 0.5° | 54 | 10 | 6 | 2.16 | □ | — | — |
| | R1 × 1° | 57 | 13 | | 2.42 | □ | — | — |
| | R1 × 1.5° | | | | 2.63 | □ | — | — |
| | R1 × 2° | 62 | 18 | | 3.19 | □ | — | — |
| | R1 × 2.5° | | | | 3.49 | □ | — | — |
| | R1 × 3° | | | | 3.78 | □ | — | — |
| | R1.25 × 0.5° | 54 | 10 | | 2.65 | □ | — | — |
| | R1.25 × 1° | 57 | 13 | | 2.91 | □ | — | — |
| | R1.25 × 1.5° | | | | 3.12 | □ | — | — |
| | R1.25 × 2° | 62 | 18 | | 3.67 | □ | — | — |
| | R1.25 × 2.5° | | | | 3.97 | □ | — | — |
| | R1.25 × 3° | | | | 4.26 | □ | — | — |
| | R1.25 × 4° | | | | 4.85 | □ | — | — |
| | R1.25 × 5° | | | | 5.44 | □ | — | — |
| | R1.25 × 7° | 74 | 24 | 10 | 8.11 | □ | — | — |
| | R1.25 × 10° | 81 | | 12 | 10.56 | □ | — | — |
| | R1.5 × 0.5° | 54 | 10 | 6 | 3.15 | □ | — | — |
| | R1.5 × 1° | 57 | 13 | | 3.4 | □ | — | — |
| | R1.5 × 1.5° | | | | 3.6 | □ | — | — |
| | R1.5 × 2° | 62 | 18 | | 4.15 | □ | — | — |
| | R1.5 × 2.5° | | | | 4.44 | □ | — | — |
| | R1.5 × 3° | | | | 4.73 | □ | — | — |
| | R1.5 × 4° | | | | 5.31 | □ | — | — |
| | R1.5 × 5° | | | 8 | 5.9 | □ | — | — |
| | R1.5 × 7° | 74 | 24 | 10 | 8.55 | □ | — | — |
| | R1.5 × 10° | 81 | | 12 | 10.98 | □ | — | — |
| | R2 × 0.5° | 56 | 12 | 6 | 4.17 | □ | — | — |
| | R2 × 1° | 60 | 16 | | 4.49 | □ | — | — |
| | R2 × 1.5° | | | | 4.73 | □ | — | — |
| | R2 × 2° | 65 | 21 | | 5.33 | □ | — | — |
| | R2 × 2.5° | | | | 5.66 | □ | — | — |
| | R2 × 3° | | | 8 | 6 | □ | — | — |
| | R2 × 4° | | | | 6.67 | □ | — | — |
| | R2 × 5° | | | | 7.34 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R2 × 7° | 85 | 28 | 12 | 10.41 | □ | — | — |
| | R2 × 10° | | | | 13.23 | □ | — | — |
| | R2.5 × 0.5° | 58 | 14 | 6 | 5.2 | □ | — | — |
| | R2.5 × 1° | 63 | 19 | | 5.58 | □ | — | — |
| | R2.5 × 1.5° | | | | 5.87 | □ | — | — |
| | R2.5 × 2° | 69 | 25 | 8 | 6.57 | □ | — | — |
| | R2.5 × 2.5° | | | | 6.97 | □ | — | — |
| | R2.5 × 3° | | | | 7.37 | □ | — | — |
| | R2.5 × 4° | 75 | | 10 | 8.16 | □ | — | — |
| | R2.5 × 5° | | | | 8.96 | □ | — | — |
| | R2.5 × 7° | 91 | 34 | 12 | 12.77 | □ | — | — |
| | R2.5 × 10° | 94 | | 16 | 16.19 | □ | — | — |
| | R3 × 0.5° | 58 | 14 | 8 | 6.19 | □ | — | — |
| | R3 × 1° | 63 | 19 | | 6.56 | □ | — | — |
| | R3 × 1.5° | | | | 6.84 | □ | — | — |
| | R3 × 2° | 69 | 25 | | 7.54 | □ | — | — |
| | R3 × 2.5° | 75 | | 10 | 7.93 | □ | — | — |
| | R3 × 3° | | | | 8.31 | □ | — | — |
| | R3 × 4° | | | | 9.09 | □ | — | — |
| | R3 × 5° | 82 | | 12 | 9.87 | □ | — | — |
| | R3 × 7° | 91 | 34 | | 13.66 | □ | — | — |
| | R3 × 10° | 94 | | 16 | 17.02 | □ | — | — |
| | R4 × 1.5° | 72 | 22 | 10 | 8.95 | □ | — | — |
| | R4 × 2° | 87 | 30 | 12 | 9.82 | □ | — | — |
| | R4 × 2.5° | | | | 10.28 | □ | — | — |
| | R4 × 3° | | | | 10.74 | □ | — | — |
| | R4 × 4° | | | | 11.66 | □ | — | — |
| | R4 × 5° | | | | 12.58 | □ | — | — |
| | R5 × 1.5° | 79 | 22 | | 10.89 | □ | — | — |
| | R5 × 2° | 87 | 30 | | 11.75 | □ | — | — |
| | R5 × 2.5° | | | | 12.19 | □ | — | — |
| | R5 × 3° | | | | 12.63 | □ | — | — |
| | R5 × 4° | | | | 13.52 | □ | — | — |
| | R5 × 5° | 90 | | 16 | 14.41 | □ | — | — |




**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃ハイステーパボールエンドミル ミディアム形
**2-flute Taper Ball End Mill Medium Length**

# TPBD.E

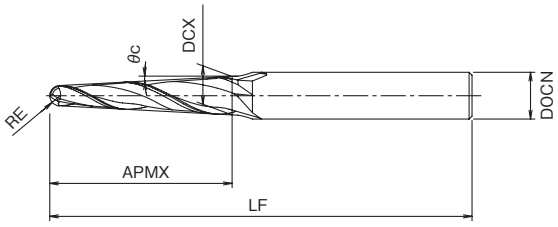


HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1 × 4° | 80 | 38 | 8 | 7.18 | □ | — | — |
| | R1 × 5° | | 35.2 | | 7.99 | □ | — | — |
| | R1 × 7° | | 25.3 | | 7.98 | □ | — | — |
| | R1.5 × 4° | 90 | 45 | 10 | 9.09 | □ | — | — |
| | R1.5 × 5° | | 41.5 | | 10.01 | □ | — | — |
| | R1.5 × 7° | | 30 | | 10.02 | □ | — | — |
| | R2 × 4° | 100 | 45 | 12 | 10.02 | □ | — | — |
| | R2 × 5° | | 47.6 | | 13.61 | □ | — | — |
| | R2 × 7° | | 34.4 | | 11.99 | □ | — | — |
| | R2.5 × 4° | 110 | 52.4 | | 11.99 | □ | — | — |
| | R2.5 × 5° | | 42.3 | | 11.98 | □ | — | — |
| | R2.5 × 7° | | 47.1 | 16 | 15.99 | □ | — | — |
| | R3 × 4° | 120 | 60 | | 13.99 | □ | — | — |
| | R3 × 5° | | | | 16 | □ | — | — |
| | R4 × 4° | 130 | 61 | | 15.99 | □ | — | — |
| | R4 × 5° | | 49.6 | | 16.01 | □ | — | — |
| | R4 × 7° | | 52.6 | 20 | 19.99 | □ | — | — |
| | R5 × 4° | 140 | 63 | | 18.14 | □ | — | — |
| | R5 × 7° | | 45.4 | | 20 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




## 2枚刃ハイステーパボールエンドミル ミディアム形
**2-flute Taper Ball End Mill Medium Length**

# TPBD.K

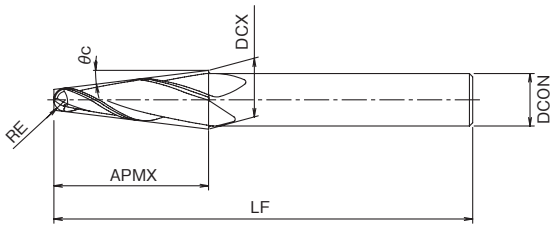


HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1.5 × 2° | 85 | 44.4 | 6 | 6 | □ | — | — |
| | R1.5 × 3° | | 30 | | 5.99 | □ | — | — |
| | R1.5 × 5° | 90 | | 8 | 8 | □ | — | — |
| | R1.5 × 7° | 95 | | 10 | 10.02 | □ | — | — |
| | R1.5 × 10° | 100 | 26.8 | 12 | 11.97 | □ | — | — |
| | R2 × 2° | 95 | 35 | 8 | 6.31 | □ | — | — |
| | R2 × 3° | | | | 7.46 | □ | — | — |
| | R2 × 5° | 100 | | 10 | 9.79 | □ | — | — |
| | R2 × 7° | 105 | 34.5 | 12 | 12.01 | □ | — | — |
| | R2 × 10° | 110 | 35 | 16 | 15.7 | □ | — | — |
| | R3 × 2° | | 60.2 | 10 | 10 | □ | — | — |
| | R3 × 3° | | 41 | | 9.99 | □ | — | — |
| | R3 × 5° | 115 | 37.1 | 12 | 11.99 | □ | — | — |
| | R3 × 7° | 120 | 43.5 | 16 | 15.99 | □ | — | — |
| | R3 × 10° | 125 | 42.5 | 20 | 20.02 | □ | — | — |
| | R5 × 2° | 130 | 63 | 16 | 14.06 | □ | — | — |
| | R5 × 3° | | 62.1 | | 16 | □ | — | — |
| | R5 × 5° | 140 | 62 | 20 | 20.01 | □ | — | — |
| | R5 × 7° | 150 | 65.8 | 25 | 25.01 | □ | — | — |
| | R5 × 10° | | 47.1 | | 25 | □ | — | — |
| | R8 × 2° | 140 | 65.1 | 20 | 20 | □ | — | — |
| | R8 × 3° | | 46 | | 20 | □ | — | — |
| | R8 × 5° | 150 | 59.1 | 25 | 25 | □ | — | — |
| | R8 × 7° | | 44.1 | | 24.99 | □ | — | — |
| | R8 × 10° | 155 | 52.7 | 32 | 32.01 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# TiNコート2枚刃ハイステーパボールエンドミル レギュラ形
**TiN Coated 2-flute Taper Ball End Mill Regular Length**

## EX-TIN-TPBDR

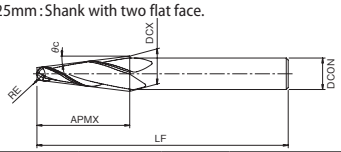


HSS-Co | TiN | ±10′ | 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R3 × 0.5° | 68 | 24 | 8 | 6.37 | □ | — | — |
| | R3 × 1° | 76 | 32 | | 7.01 | □ | — | — |
| | R4 × 0.5° | 78 | 28 | 10 | 8.42 | □ | — | — |
| | R4 × 1° | 88 | 38 | | 9.19 | □ | — | — |
| | R4 × 1.5° | | | | 9.78 | □ | — | — |
| | R4 × 5° | 110 | 50 | 16 | 16.08 | □ | — | — |
| | R4 × 7° | 143 | 67 | 25 | 23.53 | □ | — | — |
| | R4 × 10° | 147 | | 32 | 30.34 | □ | — | — |
| | R5 × 0.5° | 85 | 28 | 12 | 10.4 | □ | — | — |
| | R5 × 1° | 95 | 38 | | 11.15 | □ | — | — |
| | R5 × 1.5° | | | | 11.73 | □ | — | — |
| | R5 × 2° | 107 | 50 | | 13.15 | □ | — | — |
| | R5 × 2.5° | | | | 13.94 | □ | — | — |
| | R5 × 3° | 110 | | 16 | 14.73 | □ | — | — |
| | R5 × 5° | | | | 17.91 | □ | — | — |
| | R5 × 7° | 143 | 67 | 25 | 25.3 | □ | — | — |
| | R5 × 10° | 147 | | 32 | 32.02 | □ | — | — |
| | R6 × 0.5° | 91 | 34 | 12 | 12.49 | □ | — | — |
| | R6 × 1° | 102 | 45 | | 13.36 | □ | — | — |
| | R6 × 1.5° | | | | 14.05 | □ | — | — |
| | R6 × 2° | 120 | 60 | 16 | 15.78 | □ | — | — |
| | R6 × 2.5° | | | | 16.73 | □ | — | — |
| | R6 × 3° | | | | 17.68 | □ | — | — |
| | R6 × 4° | 126 | | 20 | 19.58 | □ | — | — |
| | R6 × 5° | | | | 21.49 | □ | — | — |
| | R6 × 7° | 160 | 80 | 32 | 30.26 | □ | — | — |
| | R6 × 10° | 172 | | 42 | 38.28 | □ | — | — |
| | R8 × 1.5° | 105 | 45 | 16 | 17.94 | □ | — | — |
| | R8 × 2° | 126 | 60 | 20 | 19.64 | □ | — | — |
| | R8 × 2.5° | | | | 20.56 | □ | — | — |
| | R8 × 3° | | | | 21.47 | □ | — | — |
| | R8 × 4° | 136 | | 25 | 23.31 | □ | — | — |
| | R8 × 5° | | | | 25.16 | □ | — | — |
| | R10 × 2° | 147 | 71 | | 24.27 | □ | — | — |
| | R10 × 2.5° | | | | 25.35 | □ | — | — |
| | R10 × 3° | | | | 26.42 | □ | — | — |
| | R10 × 4° | | | | 28.58 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel | ステンレス鋼 Stainless Steel | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| | ～40HRC | | ～45HRC | ～35HRC | ～350HB | | | | | |
| EX-TIN-TPBDR | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイステーパボールエンドミル ミディアム形
**2-flute Taper Ball End Mill Medium Length**

## TPBDN



HSS-Co　±10′　25°

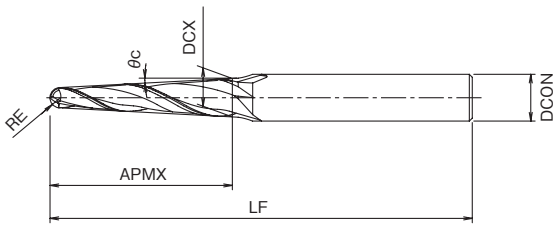
（単位:mm）(Unit:mm)

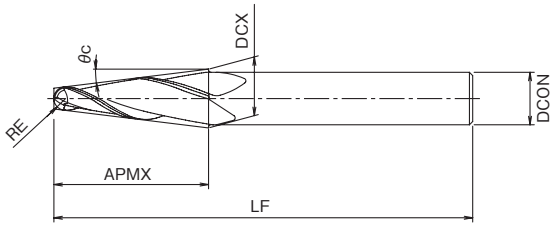
| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1 × 0.5° | 72 | 28 | 6 | 2.47 | □ | — | — |
| | R1 × 1° | 82 | 38 | | 3.29 | □ | — | — |
| | R1 × 1.5° | | | | 3.94 | □ | — | — |
| | R1 × 2° | 94 | 50 | 8 | 5.42 | □ | — | — |
| | R1 × 2.5° | | | | 6.28 | □ | — | — |
| | R1 × 3° | | | | 7.14 | □ | — | — |
| | R1.25 × 0.5° | 72 | 28 | 6 | 2.97 | □ | — | — |
| | R1.25 × 1° | 82 | 38 | | 3.78 | □ | — | — |
| | R1.25 × 1.5° | | | | 4.43 | □ | — | — |
| | R1.25 × 2° | 94 | 50 | 8 | 5.91 | □ | — | — |
| | R1.25 × 2.5° | | | | 6.76 | □ | — | — |
| | R1.25 × 3° | | | | 7.61 | □ | — | — |
| | R1.25 × 4° | 100 | | 10 | 9.32 | □ | — | — |
| | R1.25 × 5° | 107 | | 12 | 11.04 | □ | — | — |
| | R1.25 × 7° | 127 | 67 | 16 | 18.66 | □ | — | — |
| | R1.5 × 0.5° | 72 | 28 | 6 | 3.46 | □ | — | — |
| | R1.5 × 1° | 82 | 38 | | 4.27 | □ | — | — |
| | R1.5 × 1.5° | | | | 4.91 | □ | — | — |
| | R1.5 × 2° | 94 | 50 | 8 | 6.39 | □ | — | — |
| | R1.5 × 2.5° | | | | 7.24 | □ | — | — |
| | R1.5 × 3° | 100 | | 10 | 8.09 | □ | — | — |
| | R1.5 × 4° | | | | 9.79 | □ | — | — |
| | R1.5 × 5° | 107 | | 12 | 11.5 | □ | — | — |
| | R1.5 × 7° | 133 | 67 | 20 | 19.11 | □ | — | — |
| | R2 × 0.5° | 78 | 34 | 6 | 4.56 | □ | — | — |
| | R2 × 1° | 89 | 45 | | 5.5 | □ | — | — |
| | R2 × 1.5° | | | 8 | 6.25 | □ | — | — |
| | R2 × 2° | 110 | 60 | 10 | 8.05 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R2 × 2.5° | 110 | 60 | 10 | 9.07 | □ | — | — |
| | R2 × 3° | 117 | | 12 | 10.08 | □ | — | — |
| | R2 × 4° | | | | 12.12 | □ | — | — |
| | R2 × 5° | | | | 14.16 | □ | — | — |
| | R2 × 6° | 146 | 80 | 20 | 20.42 | □ | — | — |
| | R2 × 7° | 156 | | 25 | 23.18 | □ | — | — |
| | R2 × 10° | 160 | | 32 | 31.57 | □ | — | — |
| | R2.5 × 0.5° | 84 | 40 | 6 | 5.65 | □ | — | — |
| | R2.5 × 1° | 97 | 53 | 8 | 6.76 | □ | — | — |
| | R2.5 × 1.5° | | | | 7.65 | □ | — | — |
| | R2.5 × 2° | 121 | 71 | 10 | 9.79 | □ | — | — |
| | R2.5 × 2.5° | 128 | | 12 | 10.99 | □ | — | — |
| | R2.5 × 3° | | | | 12.19 | □ | — | — |
| | R2.5 × 4° | | | | 14.59 | □ | — | — |
| | R2.5 × 5° | 131 | | 16 | 17.01 | □ | — | — |
| | R2.5 × 6° | 171 | 95 | 25 | 24.47 | □ | — | — |
| | R2.5 × 7° | | | | 27.75 | □ | — | — |
| | R2.5 × 10° | 187 | | 42 | 37.7 | □ | — | — |
| | R3 × 0.5° | 84 | 40 | 8 | 6.65 | □ | — | — |
| | R3 × 1° | 97 | 53 | | 7.75 | □ | — | — |
| | R3 × 1.5° | 103 | | 10 | 8.62 | □ | — | — |
| | R3 × 2° | 128 | 71 | 12 | 10.75 | □ | — | — |
| | R3 × 2.5° | | | | 11.94 | □ | — | — |
| | R3 × 3° | | | | 13.14 | □ | — | — |
| | R3 × 4° | 131 | | 16 | 15.52 | □ | — | — |
| | R3 × 5° | | | | 17.92 | □ | — | — |
| | R3 × 6° | 171 | 95 | 25 | 25.37 | □ | — | — |
| | R3 × 7° | | | | 28.64 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6

次ページへ
ボール半径 RE 3〜10 NEXT

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパボールエンドミル ミディアム形
**2-flute Taper Ball End Mill Medium Length**

## TPBDN



HSS-Co　± 10′　25°

前ページより FROM ボール半径 RE 1～3

（単位:mm）(Unit:mm)

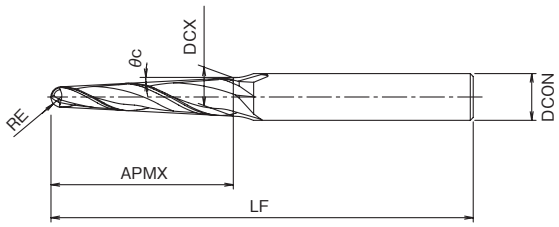
| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R3 × 10° | 187 | 95 | 42 | 38.54 | | □ | — | — |
| | R4 × 0.5° | 98 | 48 | 10 | 8.77 | | □ | — | — |
| | R4 × 1° | 120 | 63 | 12 | 10.06 | | □ | — | — |
| | R4 × 1.5° | | | | 11.09 | | □ | — | — |
| | R4 × 2° | 142 | 85 | 16 | 13.66 | | □ | — | — |
| | R4 × 2.5° | 145 | | | 15.08 | | □ | — | — |
| | R4 × 3° | | | | 16.5 | | □ | — | — |
| | R4 × 4° | 151 | | 20 | 19.35 | | □ | — | — |
| | R4 × 5° | | | | 22.2 | | □ | — | — |
| | R4 × 6° | 192 | 112 | 32 | 30.75 | | □ | — | — |
| | R4 × 7° | | | | 34.58 | | □ | — | — |
| | R4 × 10° | 204 | | 42 | 46.21 | | □ | — | — |
| | R5 × 0.5° | 105 | 48 | 12 | 10.75 | | □ | — | — |
| | R5 × 1° | 120 | 63 | | 12.03 | — | □ | — | — |
| | R5 × 1.5° | | | | 13.04 | | □ | — | — |
| | R5 × 2° | 145 | 85 | 16 | 15.59 | | □ | — | — |
| | R5 × 2.5° | | | | 17 | | □ | — | — |
| | R5 × 3° | | | | 18.4 | | □ | — | — |
| | R5 × 4° | 151 | | 20 | 21.21 | | □ | — | — |
| | R5 × 5° | 161 | | 25 | 24.04 | | □ | — | — |
| | R5 × 6° | 192 | 112 | 32 | 32.55 | | □ | — | — |
| | R5 × 7° | 204 | | 42 | 36.35 | | □ | — | — |
| | R5 × 10° | | | | 47.89 | | □ | — | — |
| | R6 × 0.5° | 113 | 56 | 12 | 12.87 | | □ | — | — |
| | R6 × 1° | 132 | 75 | | 14.41 | | □ | — | — |
| | R6 × 1.5° | 135 | | 16 | 15.62 | | □ | — | — |
| | R6 × 2° | 160 | 100 | | 18.57 | | □ | — | — |
| | R6 × 2.5° | 166 | | 20 | 20.22 | | □ | — | — |

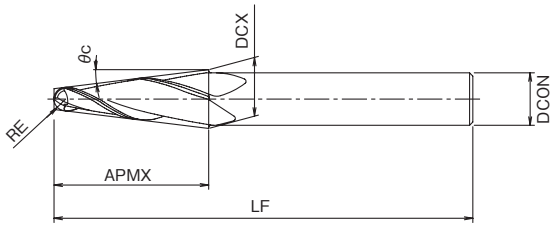
シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 6 × 3° | 166 | 100 | 20 | 21.87 | | □ | — | — |
| | R 6 × 4° | 176 | | 25 | 25.18 | | □ | — | — |
| | R 6 × 5° | | | | 28.49 | | □ | — | — |
| | R 6 × 6° | 224 | 132 | 42 | 38.55 | | □ | — | — |
| | R 6 × 7° | | | | 43.03 | | □ | — | — |
| | R 6 × 10° | | | | 56.62 | | □ | — | — |
| | R 8 × 0.5° | 116 | 56 | 16 | 16.84 | | □ | — | — |
| | R 8 × 1° | 135 | 75 | | 18.34 | | □ | — | — |
| | R 8 × 1.5° | 141 | | 20 | 19.51 | | □ | — | — |
| | R 8 × 2° | 166 | 100 | | 22.44 | | □ | — | — |
| | R 8 × 2.5° | | | 25 | 24.05 | | □ | — | — |
| | R 8 × 3° | 176 | | | 25.66 | | □ | — | — |
| | R 8 × 4° | | | | 28.91 | | □ | — | — |
| | R 8 × 5° | 180 | | 32 | 32.16 | | □ | — | — |
| | R 8 × 6° | 224 | 132 | 42 | 42.15 | — | □ | — | — |
| | R 8 × 7° | | | | 46.57 | | □ | — | — |
| | R 8 × 10° | | | | 59.98 | | □ | — | — |
| | R10 × 0.5° | 123 | 57 | 20 | 20.82 | | □ | — | — |
| | R10 × 1° | 156 | 90 | | 22.8 | | □ | — | — |
| | R10 × 1.5° | 166 | | 25 | 24.2 | | □ | — | — |
| | R10 × 2° | 194 | 118 | | 27.56 | | □ | — | — |
| | R10 × 2.5° | 198 | | 32 | 29.45 | | □ | — | — |
| | R10 × 3° | | | | 31.35 | | □ | — | — |
| | R10 × 4° | | | | 35.15 | | □ | — | — |
| | R10 × 5° | 210 | | 42 | 38.97 | | □ | — | — |
| | R10 × 6° | 228 | 136 | | 46.6 | | □ | — | — |
| | R10 × 7° | | | | 51.09 | | □ | — | — |
| | R10 × 10° | 252 | 160 | | 73.21 | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




デジタルカタログは付箋やしおりの追加など機能が充実 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパボールエンドミルロング形
**2-flute Taper Ball End Mill Long Length**

## TPBDL



HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1.25 × 3° | 110 | 60 | 10 | 8.66 | □ | — | — |
| | R1.25 × 4° | 117 | | 12 | 10.72 | □ | — | — |
| | R1.25 × 5° | | | | 12.79 | □ | — | — |
| | R1.5 × 0.5° | 78 | 34 | 6 | 3.57 | □ | — | — |
| | R1.5 × 1° | 89 | 45 | | 4.52 | □ | — | — |
| | R1.5 × 1.5° | | | | 5.28 | □ | — | — |
| | R1.5 × 2° | 104 | 60 | 8 | 7.09 | □ | — | — |
| | R1.5 × 2.5° | 110 | | 10 | 8.11 | □ | — | — |
| | R1.5 × 3° | | | | 9.14 | □ | — | — |
| | R1.5 × 4° | 117 | | 12 | 11.19 | □ | — | — |
| | R1.5 × 5° | | | | 13.25 | □ | — | — |
| | R2 × 0.5° | 84 | 40 | 6 | 4.66 | □ | — | — |
| | R2 × 1° | 97 | 53 | | 5.78 | □ | — | — |
| | R2 × 1.5° | | | 8 | 6.67 | □ | — | — |
| | R2 × 2° | 121 | 71 | 10 | 8.82 | □ | — | — |
| | R2 × 2.5° | 128 | | 12 | 10.03 | □ | — | — |
| | R2 × 3° | | | | 11.24 | □ | — | — |
| | R2 × 4° | | | | 13.66 | □ | — | — |
| | R2 × 5° | 131 | | 16 | 16.09 | □ | — | — |
| | R2 × 6° | 171 | 95 | 25 | 23.57 | □ | — | — |
| | R2 × 7° | | | | 26.87 | □ | — | — |
| | R2 × 10° | 187 | | 42 | 36.86 | □ | — | — |
| | R2.5 × 0.5° | 92 | 48 | 6 | 5.79 | □ | — | — |
| | R2.5 × 1° | 107 | 63 | 8 | 7.11 | □ | — | — |
| | R2.5 × 1.5° | 113 | | 10 | 8.17 | □ | — | — |
| | R2.5 × 2° | 142 | 85 | 12 | 10.76 | □ | — | — |
| | R2.5 × 2.5° | | | | 12.21 | □ | — | — |
| | R2.5 × 3° | | | | 13.65 | □ | — | — |
| | R2.5 × 4° | 145 | | 16 | 16.55 | □ | — | — |
| | R2.5 × 5° | 151 | | 20 | 19.45 | □ | — | — |
| | R2.5 × 6° | 188 | 112 | 25 | 28.05 | □ | — | — |
| | R2.5 × 7° | 192 | | 32 | 31.93 | □ | — | — |
| | R2.5 × 10° | 204 | | 42 | 43.69 | □ | — | — |
| | R3 × 0.5° | 92 | 48 | 8 | 6.79 | □ | — | — |
| | R3 × 1° | 113 | 63 | 10 | 8.1 | □ | — | — |
| | R3 × 1.5° | | | | 9.14 | □ | — | — |
| | R3 × 2° | 142 | 85 | 12 | 11.73 | □ | — | — |
| | R3 × 2.5° | | | | 13.17 | □ | — | — |
| | R3 × 3° | | | | 14.6 | □ | — | — |
| | R3 × 4° | 145 | | 16 | 17.48 | □ | — | — |
| | R3 × 5° | 151 | | 20 | 20.37 | □ | — | — |
| | R3 × 6° | 188 | 112 | 25 | 28.95 | □ | — | — |
| | R3 × 7° | 192 | | 32 | 32.81 | □ | — | — |
| | R3 × 10° | 204 | | 42 | 44.53 | □ | — | — |
| | R4 × 0.5° | 106 | 56 | 10 | 8.91 | □ | — | — |
| | R4 × 1° | 132 | 75 | 12 | 10.48 | □ | — | — |
| | R4 × 1.5° | | | | 11.72 | □ | — | — |
| | R4 × 2° | 157 | 100 | 12 | 14.71 | □ | — | — |
| | R4 × 2.5° | 160 | | 16 | 16.39 | □ | — | — |
| | R4 × 3° | | | | 18.07 | □ | — | — |
| | R4 × 4° | 166 | | 20 | 21.45 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 4 × 5° | 176 | 100 | 25 | 24.83 | □ | — | — |
| | R 4 × 6° | 212 | 132 | 32 | 34.95 | □ | — | — |
| | R 4 × 7° | 224 | | 42 | 39.49 | □ | — | — |
| | R 4 × 10° | | | | 53.26 | □ | — | — |
| | R 5 × 0.5° | 113 | 56 | 12 | 10.89 | □ | — | — |
| | R 5 × 1° | 132 | 75 | | 12.45 | □ | — | — |
| | R 5 × 1.5° | | | | 13.67 | □ | — | — |
| | R 5 × 2° | 160 | 100 | 16 | 16.64 | □ | — | — |
| | R 5 × 2.5° | | | | 18.31 | □ | — | — |
| | R 5 × 3° | 166 | | 20 | 19.97 | □ | — | — |
| | R 5 × 4° | 176 | | 25 | 23.31 | □ | — | — |
| | R 5 × 5° | | | | 26.66 | □ | — | — |
| | R 5 × 6° | 224 | 132 | 42 | 36.75 | □ | — | — |
| | R 5 × 7° | | | | 41.26 | □ | — | — |
| | R 5 × 10° | | | | 54.94 | □ | — | — |
| | R 6 × 0.5° | 124 | 67 | 12 | 13.07 | □ | — | — |
| | R 6 × 1° | 150 | 90 | 16 | 14.93 | □ | — | — |
| | R 6 × 1.5° | | | | 16.4 | □ | — | — |
| | R 6 × 2° | 184 | 118 | 20 | 19.83 | □ | — | — |
| | R 6 × 2.5° | | | | 21.79 | □ | — | — |
| | R 6 × 3° | 194 | | 25 | 23.76 | □ | — | — |
| | R 6 × 4° | | | | 27.69 | □ | — | — |
| | R 6 × 5° | 198 | | 32 | 31.64 | □ | — | — |
| | R 6 × 6° | 252 | 160 | 42 | 44.44 | — □ | — | — |
| | R 6 × 7° | | | | 49.91 | □ | — | — |
| | R 6 × 10° | | | | 66.49 | □ | — | — |
| | R 8 × 0.5° | 127 | 67 | 16 | 17.03 | □ | — | — |
| | R 8 × 1° | 156 | 90 | 20 | 18.87 | □ | — | — |
| | R 8 × 1.5° | | | | 20.3 | □ | — | — |
| | R 8 × 2° | 194 | 118 | 25 | 23.69 | □ | — | — |
| | R 8 × 2.5° | | | | 25.62 | □ | — | — |
| | R 8 × 3° | | | | 27.55 | □ | — | — |
| | R 8 × 4° | 198 | | 32 | 31.42 | □ | — | — |
| | R 8 × 5° | | | | 35.31 | □ | — | — |
| | R 8 × 6° | 252 | 160 | 42 | 48.04 | □ | — | — |
| | R 8 × 7° | | | | 53.45 | □ | — | — |
| | R 8 × 10° | | | | 69.85 | □ | — | — |
| | R10 × 0.5° | 146 | 80 | 20 | 21.22 | □ | — | — |
| | R10 × 1° | 182 | 106 | 25 | 23.35 | □ | — | — |
| | R10 × 1.5° | | | | 25.03 | □ | — | — |
| | R10 × 2° | 216 | 140 | 32 | 29.09 | □ | — | — |
| | R10 × 2.5° | 220 | | | 31.37 | □ | — | — |
| | R10 × 3° | | | | 33.65 | □ | — | — |
| | R10 × 4° | 232 | | 42 | 38.23 | □ | — | — |
| | R10 × 5° | | | | 42.82 | □ | — | — |
| | R10 × 6° | 252 | 160 | | 51.64 | □ | — | — |
| | R10 × 7° | 255 | 163 | | 57.72 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

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- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃ハイステーパボールエンドミルショート形
**4-flute Taper Ball End Mill Short Length**

## TPBMS



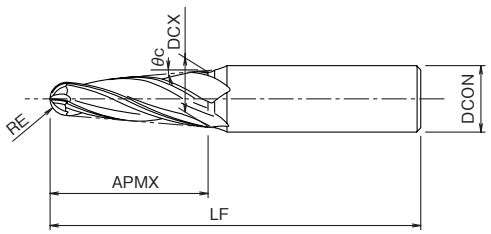
HSS-Co　± 10′　25°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1 × 1° | 57 | 13 | 6 | 2.42 | □ | — | — |
| | R1.25 × 0.5° | 54 | 10 | | 2.96 | □ | — | — |
| | R1.25 × 1° | 57 | 13 | | 2.91 | □ | — | — |
| | R1.25 × 1.5° | | | | 3.12 | □ | — | — |
| | R1.25 × 2° | 62 | 18 | | 3.67 | □ | — | — |
| | R1.25 × 2.5° | | | | 3.97 | □ | — | — |
| | R1.25 × 3° | | | | 4.26 | □ | — | — |
| | R1.5 × 0.5° | 54 | 10 | | 3.15 | □ | — | — |
| | R1.5 × 1° | 57 | 13 | | 3.4 | □ | — | — |
| | R1.5 × 1.5° | | | | 3.6 | □ | — | — |
| | R1.5 × 2° | 62 | 18 | | 4.15 | □ | — | — |
| | R1.5 × 2.5° | | | | 4.44 | □ | — | — |
| | R1.5 × 3° | | | | 4.73 | □ | — | — |
| | R1.5 × 4° | | | | 5.31 | □ | — | — |
| | R1.5 × 5° | | | 8 | 5.9 | □ | — | — |
| | R1.5 × 6° | 74 | 24 | 10 | 7.75 | □ | — | — |
| | R1.5 × 7° | | | | 8.55 | □ | — | — |
| | R1.5 × 10° | 81 | | 12 | 10.98 | □ | — | — |
| | R2 × 0.5° | 56 | 12 | 6 | 4.17 | □ | — | — |
| | R2 × 1° | 60 | 16 | | 4.49 | □ | — | — |
| | R2 × 1.5° | | | | 4.73 | □ | — | — |
| | R2 × 2° | 65 | 21 | | 5.33 | □ | — | — |
| | R2 × 2.5° | | | | 5.66 | □ | — | — |
| | R2 × 3° | | | 8 | 6 | □ | — | — |
| | R2 × 4° | | | | 6.67 | □ | — | — |
| | R2 × 5° | | | | 7.34 | □ | — | — |
| | R2 × 6° | 78 | 28 | 10 | 9.49 | □ | — | — |
| | R2 × 7° | 85 | | 12 | 10.41 | □ | — | — |
| | R2 × 10° | | | | 13.23 | □ | — | — |
| | R2.5 × 0.5° | 58 | 14 | 6 | 5.2 | □ | — | — |
| | R2.5 × 1° | 63 | 19 | | 5.58 | □ | — | — |
| | R2.5 × 1.5° | | | | 5.87 | □ | — | — |
| | R2.5 × 2° | 69 | 25 | 8 | 6.57 | □ | — | — |
| | R2.5 × 2.5° | | | | 6.97 | □ | — | — |
| | R2.5 × 3° | | | | 7.37 | □ | — | — |
| | R2.5 × 4° | 75 | | 10 | 8.16 | □ | — | — |
| | R2.5 × 5° | | | | 8.96 | □ | — | — |
| | R2.5 × 6° | 91 | 34 | 12 | 11.65 | □ | — | — |
| | R2.5 × 7° | | | | 12.77 | □ | — | — |
| | R2.5 × 10° | 94 | | 16 | 16.19 | □ | — | — |

（単位:mm）（Unit:mm）

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 3 × 0.5° | 58 | 14 | 8 | 6.19 | □ | — | — |
| | R 3 × 1° | 63 | 19 | | 6.56 | □ | — | — |
| | R 3 × 1.5° | | | | 6.84 | □ | — | — |
| | R 3 × 2° | 69 | 25 | | 7.54 | □ | — | — |
| | R 3 × 2.5° | 75 | | 10 | 7.93 | □ | — | — |
| | R 3 × 3° | | | | 8.31 | □ | — | — |
| | R 3 × 4° | | | | 9.09 | □ | — | — |
| | R 3 × 5° | 82 | | | 9.87 | □ | — | — |
| | R 3 × 6° | 91 | 34 | 12 | 12.55 | □ | — | — |
| | R 3 × 7° | | | | 13.66 | □ | — | — |
| | R 3 × 10° | 94 | | 16 | 17.02 | □ | — | — |
| | R 3 × 15° | 130 | 50 | 32 | 31.4 | □ | — | — |
| | R 4 × 1.5° | 72 | 22 | 10 | 8.95 | □ | — | — |
| | R 4 × 2° | 87 | 30 | 12 | 9.82 | □ | — | — |
| | R 4 × 2.5° | | | | 10.28 | □ | — | — |
| | R 4 × 3° | | | | 10.74 | □ | — | — |
| | R 4 × 4° | | | | 11.66 | □ | — | — |
| | R 4 × 5° | | | | 12.58 | □ | — | — |
| | R 4 × 15° | 130 | 50 | 32 | 32.93 | □ | — | — |
| | R 4 × 20° | 120 | 40 | | 34.72 | □ | — | — |
| | R 4 × 20° | 145 | 53 | 42 | 44.18 | □ | — | — |
| | R 5 × 1.5° | 79 | 22 | 12 | 10.89 | □ | — | — |
| | R 5 × 2° | 87 | 30 | | 11.75 | □ | — | — |
| | R 5 × 2.5° | | | | 12.19 | □ | — | — |
| | R 5 × 3° | | | | 12.63 | □ | — | — |
| | R 5 × 4° | | | | 13.52 | □ | — | — |
| | R 5 × 5° | 90 | | 16 | 14.41 | □ | — | — |
| | R 5 × 15° | 130 | 50 | 32 | 34.47 | □ | — | — |
| | R 5 × 20° | 120 | 40 | | 36.12 | □ | — | — |
| | R 5 × 20° | 145 | 53 | 42 | 45.58 | □ | — | — |
| | R 6 × 2.5° | 87 | 30 | 16 | 14.11 | □ | — | — |
| | R 6 × 15° | 130 | 50 | 32 | 36 | □ | — | — |
| | R 6 × 20° | 120 | 40 | | 37.52 | □ | — | — |
| | R 6 × 20° | 155 | 63 | 42 | 54.26 | □ | — | — |
| | R 6 × 25° | 152 | 60 | | 63.6 | □ | — | — |
| | R 8 × 15° | 130 | 50 | 32 | 39.07 | □ | — | — |
| | R 8 × 20° | 120 | 40 | | 40.32 | □ | — | — |
| | R 8 × 20° | 155 | 63 | 42 | 57.06 | □ | — | — |
| | R 8 × 25° | 152 | 60 | | 66.15 | □ | — | — |
| | R 8 × 30° | 142 | 50 | | 66.97 | □ | — | — |
| | R10 × 15° | 130 | | 32 | 42.14 | □ | — | — |
| | R10 × 20° | 120 | 40 | | 43.12 | □ | — | — |
| | R10 × 20° | 167 | 75 | 42 | 68.6 | □ | — | — |
| | R10 × 25° | 152 | 60 | | 68.7 | □ | — | — |
| | R10 × 30° | 142 | 50 | | 69.28 | □ | — | — |




シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 4枚刃ハイステーパボールエンドミルレギュラ形
**4-flute Taper Ball End Mill Regular Length**

# TPBMR

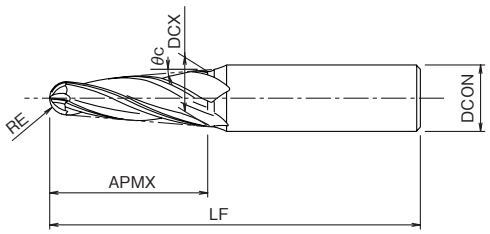


HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R 3 × 15° | 136 | 56 | 32 | 34.61 | □ | — | — |
| | R 3 × 15° | 159 | 67 | 42 | 40.51 | □ | — | — |
| | R 4 × 15° | | | | 42.04 | □ | — | — |
| | R 5 × 15° | | | | 43.58 | □ | — | — |
| | R 6 × 15° | 172 | 80 | | 52.08 | □ | — | — |
| | R 8 × 15° | | | | 55.15 | □ | — | — |
| | R10 × 15° | 187 | 95 | | 66.26 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




## 4枚刃ハイステーパボールエンドミルロング形
**4-flute Taper Ball End Mill Long Length**

# TPBML

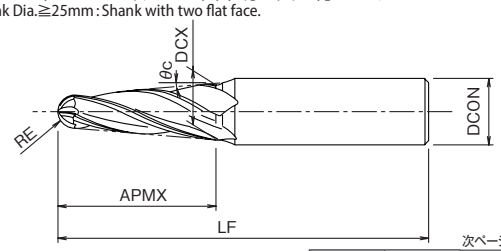


HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | R1.5 × 0.5° | 78 | 34 | 6 | 3.57 | □ | — | — |
| | R1.5 × 1° | 89 | 45 | | 4.52 | □ | — | — |
| | R1.5 × 1.5° | | | | 5.28 | □ | — | — |
| | R1.5 × 2° | 104 | 60 | 8 | 7.09 | □ | — | — |
| | R1.5 × 2.5° | 110 | | 10 | 8.11 | □ | — | — |
| | R1.5 × 3° | | | | 9.14 | □ | — | — |
| | R1.5 × 4° | 117 | | 12 | 11.19 | □ | — | — |
| | R1.5 × 5° | | | | 13.25 | □ | — | — |
| | R2 × 0.5° | 84 | 40 | 6 | 4.66 | □ | — | — |
| | R2 × 1° | 97 | 53 | | 5.78 | □ | — | — |
| | R2 × 1.5° | | | 8 | 6.67 | □ | — | — |
| | R2 × 2° | 121 | 71 | 10 | 8.82 | □ | — | — |
| | R2 × 2.5° | 128 | | 12 | 10.03 | □ | — | — |
| | R2 × 3° | | | | 11.24 | □ | — | — |
| | R2 × 4° | | | | 13.66 | □ | — | — |
| | R2 × 5° | 131 | | 16 | 16.09 | □ | — | — |
| | R2 × 6° | 171 | 95 | 25 | 23.57 | □ | — | — |
| | R2 × 7° | | | | 26.87 | □ | — | — |
| | R2 × 10° | 187 | | 42 | 36.86 | □ | — | — |
| | R2.5 × 0.5° | 92 | 48 | 6 | 5.79 | □ | — | — |
| | R2.5 × 1° | 107 | 63 | 8 | 7.11 | □ | — | — |
| | R2.5 × 1.5° | 113 | | 10 | 8.17 | □ | — | — |
| | R2.5 × 2° | 142 | 85 | 12 | 10.76 | □ | — | — |
| | R2.5 × 2.5° | | | | 12.21 | □ | — | — |
| | R2.5 × 3° | | | | 13.65 | □ | — | — |
| | R2.5 × 4° | 145 | | 16 | 16.55 | □ | — | — |
| | R2.5 × 5° | 151 | | 20 | 19.45 | □ | — | — |
| | R2.5 × 6° | 188 | 112 | 25 | 28.05 | □ | — | — |
| | R2.5 × 7° | 192 | | 32 | 31.93 | □ | — | — |
| | R2.5 × 10° | 204 | | 42 | 43.69 | □ | — | — |
| | R3 × 0.5° | 92 | 48 | 8 | 6.79 | □ | — | — |
| | R3 × 1° | 113 | 63 | 10 | 8.1 | □ | — | — |
| | R3 × 1.5° | | | | 9.14 | □ | — | — |
| | R3 × 2° | 142 | 85 | 12 | 11.73 | □ | — | — |
| | R3 × 2.5° | | | | 13.17 | □ | — | — |
| | R3 × 3° | | | | 14.6 | □ | — | — |
| | R3 × 4° | 145 | | 16 | 17.48 | □ | — | — |
| | R3 × 5° | 151 | | 20 | 20.37 | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




次ページへ
ボール半径 RE 3〜10 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃ハイステーパボールエンドミルロング形
**4-flute Taper Ball End Mill Long Length**

## TPBML



HSS-Co　± 10′　25°

前ページより FROM ボール半径 RE 1.5～3

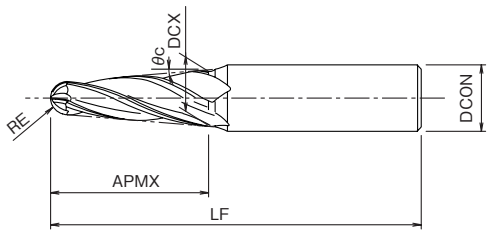
（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R3 × 6° | 188 | 112 | 25 | 28.95 | | □ | — | — |
| | R3 × 7° | 192 | | 32 | 32.81 | | □ | — | — |
| | R3 × 10° | 204 | | 42 | 44.53 | | □ | — | — |
| | R4 × 0.5° | 106 | 56 | 10 | 8.91 | | □ | — | — |
| | R4 × 1° | 132 | 75 | 12 | 10.48 | | □ | — | — |
| | R4 × 1.5° | | | | 11.72 | | □ | — | — |
| | R4 × 2° | 157 | 100 | 16 | 14.71 | | □ | — | — |
| | R4 × 2.5° | 160 | | | 16.39 | | □ | — | — |
| | R4 × 3° | | | | 18.07 | | □ | — | — |
| | R4 × 4° | 166 | | 20 | 21.45 | | □ | — | — |
| | R4 × 5° | 176 | | 25 | 24.83 | | □ | — | — |
| | R4 × 6° | 212 | 132 | 32 | 34.95 | | □ | — | — |
| | R4 × 7° | 224 | | 42 | 39.49 | | □ | — | — |
| | R4 × 10° | | | | 53.26 | | □ | — | — |
| | R5 × 0.5° | 113 | 56 | 12 | 10.89 | | □ | — | — |
| | R5 × 1° | 132 | 75 | | 12.45 | — | □ | — | — |
| | R5 × 1.5° | | | | 13.67 | | □ | — | — |
| | R5 × 2° | 160 | 100 | 16 | 16.64 | | □ | — | — |
| | R5 × 2.5° | | | | 18.31 | | □ | — | — |
| | R5 × 3° | 166 | | 20 | 19.97 | | □ | — | — |
| | R5 × 4° | 176 | | 25 | 23.31 | | □ | — | — |
| | R5 × 5° | | | | 26.66 | | □ | — | — |
| | R5 × 6° | 224 | 132 | 42 | 36.75 | | □ | — | — |
| | R5 × 7° | | | | 41.26 | | □ | — | — |
| | R5 × 10° | | | | 54.94 | | □ | — | — |
| | R6 × 0.5° | 124 | 67 | 12 | 13.07 | | □ | — | — |
| | R6 × 1° | 150 | 90 | 16 | 14.93 | | □ | — | — |
| | R6 × 1.5° | | | | 16.4 | | □ | — | — |
| | R6 × 2° | 184 | 118 | 20 | 19.83 | | □ | — | — |
| | R6 × 2.5° | | | | 21.79 | | □ | — | — |
| | R6 × 3° | 194 | | 25 | 23.76 | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | ボール半径×刃部テーパ半角 RE×θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | R 6 × 4° | 194 | 118 | 25 | 27.69 | | □ | — | — |
| | R 6 × 5° | 198 | | 32 | 31.64 | | □ | — | — |
| | R 6 × 6° | 252 | 160 | 42 | 44.44 | | □ | — | — |
| | R 6 × 7° | | | | 49.91 | | □ | — | — |
| | R 6 × 10° | | | | 66.49 | | □ | — | — |
| | R 8 × 0.5° | 127 | 67 | 16 | 17.03 | | □ | — | — |
| | R 8 × 1° | 156 | 90 | 20 | 18.87 | | □ | — | — |
| | R 8 × 1.5° | | | | 20.3 | | □ | — | — |
| | R 8 × 2° | 194 | 118 | 25 | 23.69 | | □ | — | — |
| | R 8 × 2.5° | | | | 25.62 | | □ | — | — |
| | R 8 × 3° | | | | 27.55 | | □ | — | — |
| | R 8 × 4° | 198 | | 32 | 31.42 | | □ | — | — |
| | R 8 × 5° | | | | 35.31 | | □ | — | — |
| | R 8 × 6° | 252 | 160 | 42 | 48.04 | — | □ | — | — |
| | R 8 × 7° | | | | 53.45 | | □ | — | — |
| | R 8 × 10° | | | | 69.85 | | □ | — | — |
| | R10 × 0.5° | 146 | 80 | 20 | 21.22 | | □ | — | — |
| | R10 × 1° | 182 | 106 | 25 | 23.35 | | □ | — | — |
| | R10 × 1.5° | | | | 25.03 | | □ | — | — |
| | R10 × 2° | 216 | 140 | | 29.09 | | □ | — | — |
| | R10 × 2.5° | 220 | | 32 | 31.37 | | □ | — | — |
| | R10 × 3° | | | | 33.65 | | □ | — | — |
| | R10 × 4° | 232 | | 42 | 38.23 | | □ | — | — |
| | R10 × 5° | | | | 42.82 | | □ | — | — |
| | R10 × 6° | 252 | 160 | | 51.64 | | □ | — | — |
| | R10 × 7° | 255 | 163 | | 57.72 | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.




**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃XPMテーパラジアスエンドミルショート形
**2-flute XPM Taper End Mill Short Length with Corner Radius**

## XPM-CR-TPDS



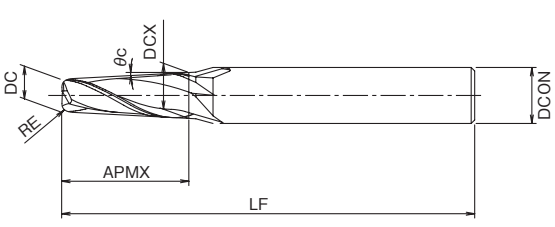
XPM　±10′　25°

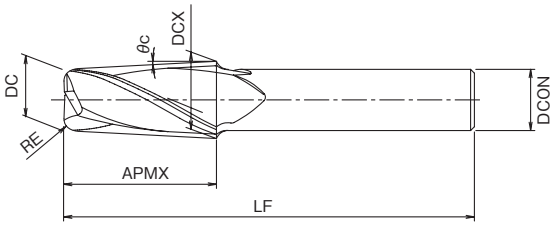
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.5 × 1° | 57 | 13 | 6 | 3.45 | □ | — | — |
| | 3 × R0.5 × 1.5° | | | | 3.68 | □ | — | — |
| | 3 × R0.5 × 2° | 62 | 18 | | 4.26 | □ | — | — |
| | 3 × R0.5 × 3° | | | | 4.89 | □ | — | — |
| | 3 × R1 × 1° | 57 | 13 | | 3.45 | □ | — | — |
| | 3 × R1 × 1.5° | | | | 3.68 | □ | — | — |
| | 3 × R1 × 2° | 62 | 18 | | 4.26 | □ | — | — |
| | 3 × R1 × 3° | | | | 4.89 | □ | — | — |
| | 4 × R0.5 × 1° | 60 | 16 | | 4.56 | □ | — | — |
| | 4 × R0.5 × 1.5° | | | | 4.84 | □ | — | — |
| | 4 × R0.5 × 2° | 65 | 21 | | 5.47 | □ | — | — |
| | 4 × R0.5 × 3° | | | 8 | 6.2 | □ | — | — |
| | 4 × R1 × 1° | 60 | 16 | 6 | 4.56 | □ | — | — |
| | 4 × R1 × 1.5° | | | | 4.84 | □ | — | — |
| | 4 × R1 × 2° | 65 | 21 | | 5.47 | □ | — | — |
| | 4 × R1 × 3° | | | 8 | 6.2 | □ | — | — |
| | 5 × R0.5 × 1° | 63 | 19 | 6 | 5.66 | □ | — | — |
| | 5 × R0.5 × 1.5° | | | | 6 | □ | — | — |
| | 5 × R0.5 × 2° | 69 | 25 | 8 | 6.75 | □ | — | — |
| | 5 × R0.5 × 3° | | | | 7.62 | □ | — | — |
| | 5 × R1 × 1° | 63 | 19 | 6 | 5.66 | □ | — | — |
| | 5 × R1 × 1.5° | | | | 6 | □ | — | — |
| | 5 × R1 × 2° | 69 | 25 | 8 | 6.75 | □ | — | — |
| | 5 × R1 × 3° | | | | 7.62 | □ | — | — |
| | 5 × R1.5 × 1° | 63 | 19 | 6 | 5.66 | □ | — | — |
| | 5 × R1.5 × 1.5° | | | | 6 | □ | — | — |
| | 5 × R1.5 × 2° | 69 | 25 | 8 | 6.75 | □ | — | — |
| | 5 × R1.5 × 3° | | | | 7.62 | □ | — | — |
| | 6 × R0.5 × 1° | 63 | 19 | | 6.66 | □ | — | — |
| | 6 × R0.5 × 1.5° | | | | 7 | □ | — | — |
| | 6 × R0.5 × 2° | 69 | 25 | | 7.75 | □ | — | — |
| | 6 × R0.5 × 3° | 75 | | 10 | 8.62 | □ | — | — |
| | 6 × R1 × 1° | 63 | 19 | 8 | 6.66 | □ | — | — |
| | 6 × R1 × 1.5° | | | | 7 | □ | — | — |
| | 6 × R1 × 2° | 69 | 25 | | 7.75 | □ | — | — |
| | 6 × R1 × 3° | 75 | | 10 | 8.62 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × R1.5 × 1° | 63 | 19 | 8 | 6.66 | □ | — | — |
| | 6 × R1.5 × 1.5° | | | | 7 | □ | — | — |
| | 6 × R1.5 × 2° | 69 | 25 | | 7.75 | □ | — | — |
| | 6 × R1.5 × 3° | 75 | | 10 | 8.62 | □ | — | — |
| | 6 × R2 × 1° | 63 | 19 | 8 | 6.66 | □ | — | — |
| | 6 × R2 × 1.5° | | | | 7 | □ | — | — |
| | 6 × R2 × 2° | 69 | 25 | | 7.75 | □ | — | — |
| | 6 × R2 × 3° | 75 | | 10 | 8.62 | □ | — | — |
| | 8 × R0.5 × 1° | 72 | 22 | | 8.77 | □ | — | — |
| | 8 × R0.5 × 1.5° | | | | 9.15 | □ | — | — |
| | 8 × R0.5 × 2° | 87 | 30 | 12 | 10.1 | □ | — | — |
| | 8 × R0.5 × 3° | | | | 11.14 | □ | — | — |
| | 8 × R1 × 1° | 72 | 22 | 10 | 8.77 | □ | — | — |
| | 8 × R1 × 1.5° | | | | 9.15 | □ | — | — |
| | 8 × R1 × 2° | 87 | 30 | 12 | 10.1 | □ | — | — |
| | 8 × R1 × 3° | | | | 11.14 | □ | — | — |
| | 8 × R1.5 × 1° | 72 | 22 | 10 | 8.77 | □ | — | — |
| | 8 × R1.5 × 1.5° | | | | 9.15 | □ | — | — |
| | 8 × R1.5 × 2° | 87 | 30 | 12 | 10.1 | □ | — | — |
| | 8 × R1.5 × 3° | | | | 11.14 | □ | — | — |
| | 8 × R2 × 1° | 72 | 22 | 10 | 8.77 | □ | — | — |
| | 8 × R2 × 1.5° | | | | 9.15 | □ | — | — |
| | 8 × R2 × 2° | 87 | 30 | 12 | 10.1 | □ | — | — |
| | 8 × R2 × 3° | | | | 11.14 | □ | — | — |
| | 10 × R0.5 × 1° | 79 | 22 | | 10.77 | □ | — | — |
| | 10 × R0.5 × 1.5° | | | | 11.15 | □ | — | — |
| | 10 × R0.5 × 2° | 87 | 30 | | 12.1 | □ | — | — |
| | 10 × R0.5 × 3° | | | | 13.14 | □ | — | — |
| | 10 × R1 × 1° | 79 | 22 | | 10.77 | □ | — | — |
| | 10 × R1 × 1.5° | | | | 11.15 | □ | — | — |
| | 10 × R1 × 2° | 87 | 30 | | 12.1 | □ | — | — |
| | 10 × R1 × 3° | | | | 13.14 | □ | — | — |
| | 10 × R1.5 × 1° | 79 | 22 | | 10.77 | □ | — | — |
| | 10 × R1.5 × 1.5° | | | | 11.15 | □ | — | — |
| | 10 × R1.5 × 2° | 87 | 30 | | 12.1 | □ | — | — |
| | 10 × R1.5 × 3° | | | | 13.14 | □ | — | — |




次ページへ
外径 DC 10 NEXT

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 2枚刃XPMテーパラジアスエンドミルショート形
**2-flute XPM Taper End Mill Short Length with Corner Radius**

# XPM-CR-TPDS

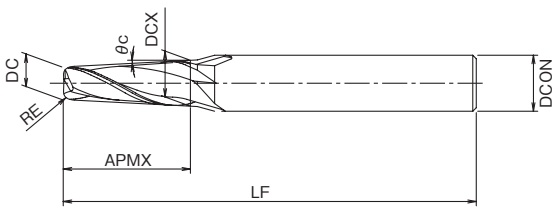


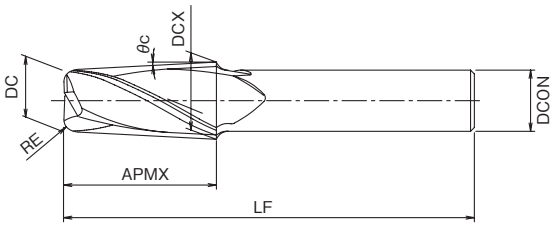
XPM　± 10′　25°

前ページより FROM 外径 DC 3～10

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 10 × R2 × 1° | 79 | 22 | 12 | 10.77 | □ | — | — |
| | 10 × R2 × 1.5° | | | | 11.15 | □ | — | — |
| | 10 × R2 × 2° | 87 | 30 | | 12.1 | □ | — | — |
| | 10 × R2 × 3° | | | | 13.14 | □ | — | — |
| | 10 × R2.5 × 1° | 79 | 22 | | 10.77 | □ | — | — |
| | 10 × R2.5 × 1.5° | | | | 11.15 | □ | — | — |
| | 10 × R2.5 × 2° | 87 | 30 | | 12.1 | □ | — | — |
| | 10 × R2.5 × 3° | | | | 13.14 | □ | — | — |
| | 10 × R3 × 1° | 79 | 22 | | 10.77 | □ | — | — |
| | 10 × R3 × 1.5° | | | | 11.15 | □ | — | — |
| | 10 × R3 × 2° | 87 | 30 | | 12.1 | □ | — | — |
| | 10 × R3 × 3° | | | | 13.14 | □ | — | — |




OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
粉塵・紛体の処理におすすめ!強い吸引力・消音型のクリーナ
※詳細は▶P.1177 を参照下さい。
See p.1177 for details



製品検索サイトならタップの下穴径に該当するドリルを簡単に検索可能▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパラジアスエンドミルショート形
**2-flute Taper End Mill Short Length with Corner Radius**

## CR-TPDS



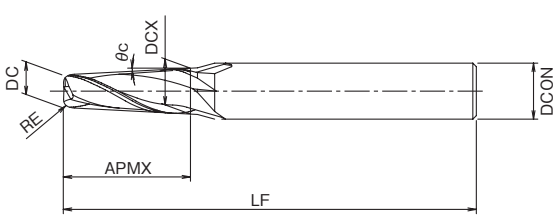
HSS-Co　±10′　25°

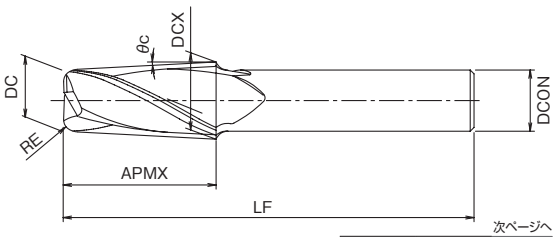
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.5 × 1° | 57 | 13 | 6 | 3.45 | □ | — | — |
| | 3 × R1 × 1° | | | | | □ | — | — |
| | 3 × R0.5 × 1.5° | | | | 3.68 | □ | — | — |
| | 3 × R1 × 1.5° | | | | | □ | — | — |
| | 3 × R0.5 × 2° | 62 | 18 | | 4.26 | □ | — | — |
| | 3 × R1 × 2° | | | | | □ | — | — |
| | 3 × R0.5 × 3° | | | | 4.89 | □ | — | — |
| | 3 × R1 × 3° | | | | | □ | — | — |
| | 4 × R0.5 × 1° | 60 | 16 | | 4.56 | □ | — | — |
| | 4 × R1 × 1° | | | | | □ | — | — |
| | 4 × R0.5 × 1.5° | | | | 4.84 | □ | — | — |
| | 4 × R1 × 1.5° | | | | | □ | — | — |
| | 4 × R0.5 × 2° | 65 | 21 | | 5.47 | □ | — | — |
| | 4 × R1 × 2° | | | | | □ | — | — |
| | 4 × R0.5 × 3° | | | 8 | 6.2 | □ | — | — |
| | 4 × R1 × 3° | | | | | □ | — | — |
| | 5 × R0.5 × 1° | 63 | 19 | 6 | 5.66 | □ | — | — |
| | 5 × R1 × 1° | | | | | □ | — | — |
| | 5 × R1.5 × 1° | | | | | □ | — | — |
| | 5 × R0.5 × 1.5° | | | | 6 | □ | — | — |
| | 5 × R1 × 1.5° | | | | | □ | — | — |
| | 5 × R1.5 × 1.5° | | | | | □ | — | — |
| | 5 × R0.5 × 2° | 69 | 25 | 8 | 6.75 | □ | — | — |
| | 5 × R1 × 2° | | | | | □ | — | — |
| | 5 × R1.5 × 2° | | | | | □ | — | — |
| | 5 × R0.5 × 3° | | | | 7.62 | □ | — | — |
| | 5 × R1 × 3° | | | | | □ | — | — |
| | 5 × R1.5 × 3° | | | | | □ | — | — |
| | 6 × R0.5 × 1° | 63 | 19 | | 6.66 | □ | — | — |
| | 6 × R1 × 1° | | | | | □ | — | — |
| | 6 × R1.5 × 1° | | | | | □ | — | — |
| | 6 × R2 × 1° | | | | | □ | — | — |
| | 6 × R0.5 × 1.5° | | | | 7 | □ | — | — |
| | 6 × R1 × 1.5° | | | | | □ | — | — |
| | 6 × R1.5 × 1.5° | | | | | □ | — | — |
| | 6 × R2 × 1.5° | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × R0.5 × 2° | 69 | 25 | 8 | 7.75 | □ | — | — |
| | 6 × R1 × 2° | | | | | □ | — | — |
| | 6 × R1.5 × 2° | | | | | □ | — | — |
| | 6 × R2 × 2° | | | | | □ | — | — |
| | 6 × R0.5 × 3° | 75 | | 10 | 8.62 | □ | — | — |
| | 6 × R1 × 3° | | | | | □ | — | — |
| | 6 × R1.5 × 3° | | | | | □ | — | — |
| | 6 × R2 × 3° | | | | | □ | — | — |
| | 8 × R0.5 × 1° | 72 | 22 | | 8.77 | □ | — | — |
| | 8 × R1 × 1° | | | | | □ | — | — |
| | 8 × R1.5 × 1° | | | | | □ | — | — |
| | 8 × R2 × 1° | | | | | □ | — | — |
| | 8 × R0.5 × 1.5° | | | | 9.15 | □ | — | — |
| | 8 × R1 × 1.5° | | | | | □ | — | — |
| | 8 × R1.5 × 1.5° | | | | | □ | — | — |
| | 8 × R2 × 1.5° | | | | | □ | — | — |
| | 8 × R0.5 × 2° | 87 | 30 | 12 | 10.1 | □ | — | — |
| | 8 × R1 × 2° | | | | | □ | — | — |
| | 8 × R1.5 × 2° | | | | | □ | — | — |
| | 8 × R2 × 2° | | | | | □ | — | — |
| | 8 × R0.5 × 3° | | | | 11.14 | □ | — | — |
| | 8 × R1 × 3° | | | | | □ | — | — |
| | 8 × R1.5 × 3° | | | | | □ | — | — |
| | 8 × R2 × 3° | | | | | □ | — | — |
| | 10 × R0.5 × 1° | 79 | 22 | | 10.77 | □ | — | — |
| | 10 × R1 × 1° | | | | | □ | — | — |
| | 10 × R1.5 × 1° | | | | | □ | — | — |
| | 10 × R2 × 1° | | | | | □ | — | — |
| | 10 × R2.5 × 1° | | | | | □ | — | — |
| | 10 × R3 × 1° | | | | | □ | — | — |
| | 10 × R0.5 × 1.5° | | | | 11.15 | □ | — | — |
| | 10 × R1 × 1.5° | | | | | □ | — | — |
| | 10 × R1.5 × 1.5° | | | | | □ | — | — |
| | 10 × R2 × 1.5° | | | | | □ | — | — |
| | 10 × R2.5 × 1.5° | | | | | □ | — | — |
| | 10 × R3 × 1.5° | | | | | □ | — | — |




次ページへ
外径 DC 10 NEXT

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃ハイステーパラジアスエンドミルショート形
**2-flute Taper End Mill Short Length with Corner Radius**

## CR-TPDS

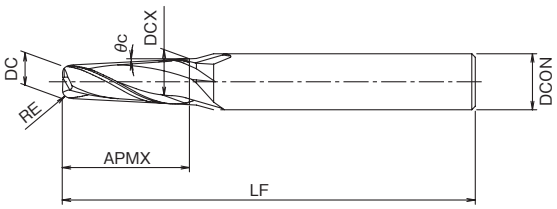


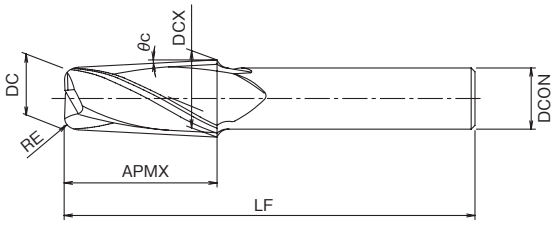
HSS-Co　± 10′　25°

前ページより FROM 外径 DC 3〜10

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 10 × R0.5 × 2° | 87 | 30 | 12 | 12.1 | □ | — | — |
| | 10 × R1 × 2° | | | | | □ | — | — |
| | 10 × R1.5 × 2° | | | | | □ | — | — |
| | 10 × R2 × 2° | | | | | □ | — | — |
| | 10 × R2.5 × 2° | | | | | □ | — | — |
| | 10 × R3 × 2° | | | | | □ | — | — |
| | 10 × R0.5 × 3° | | | | 13.14 | □ | — | — |
| | 10 × R1 × 3° | | | | | □ | — | — |
| | 10 × R1.5 × 3° | | | | | □ | — | — |
| | 10 × R2 × 3° | | | | | □ | — | — |
| | 10 × R2.5 × 3° | | | | | □ | — | — |
| | 10 × R3 × 3° | | | | | □ | — | — |




OSGのPSシリーズ
商品シリーズ Parts & Supply series
圧縮空気を利用した産業用バキュームクリーナー
※詳細は▶P.1175を参照下さい。
See p.1175 for details



最新の加工動画を公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 2枚刃XPMテーパラジアスエンドミルレギュラ形
**2-flute XPM Taper End Mill Regular Length with Corner Radius**

## XPM-CR-TPDR



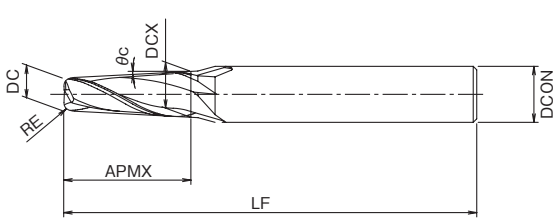
XPM　±10′　25°

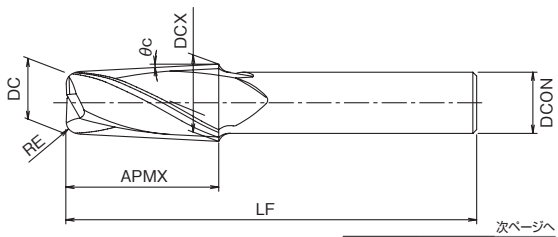
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.5 × 1° | 66 | 22 | 6 | 3.77 | □ | — | — |
| | 3 × R0.5 × 1.5° | | | | 4.15 | □ | — | — |
| | 3 × R0.5 × 2° | 74 | 30 | | 5.1 | □ | — | — |
| | 3 × R0.5 × 3° | | | 8 | 6.14 | □ | — | — |
| | 3 × R1 × 1° | 66 | 22 | 6 | 3.77 | □ | — | — |
| | 3 × R1 × 1.5° | | | | 4.15 | □ | — | — |
| | 3 × R1 × 2° | 74 | 30 | | 5.1 | □ | — | — |
| | 3 × R1 × 3° | | | 8 | 6.14 | □ | — | — |
| | 4 × R0.5 × 1° | 70 | 26 | 6 | 4.91 | □ | — | — |
| | 4 × R0.5 × 1.5° | | | | 5.36 | □ | — | — |
| | 4 × R0.5 × 2° | 80 | 36 | 8 | 6.51 | □ | — | — |
| | 4 × R0.5 × 3° | | | | 7.77 | □ | — | — |
| | 4 × R1 × 1° | 70 | 26 | 6 | 4.91 | □ | — | — |
| | 4 × R1 × 1.5° | | | | 5.36 | □ | — | — |
| | 4 × R1 × 2° | 80 | 36 | 8 | 6.51 | □ | — | — |
| | 4 × R1 × 3° | | | | 7.77 | □ | — | — |
| | 5 × R0.5 × 1° | 76 | 32 | | 6.12 | □ | — | — |
| | 5 × R0.5 × 1.5° | | | | 6.68 | □ | — | — |
| | 5 × R0.5 × 2° | 86 | 42 | | 7.93 | □ | — | — |
| | 5 × R0.5 × 3° | 92 | | 10 | 9.4 | □ | — | — |
| | 5 × R1 × 1° | 76 | 32 | 8 | 6.12 | □ | — | — |
| | 5 × R1 × 1.5° | | | | 6.68 | □ | — | — |
| | 5 × R1 × 2° | 86 | 42 | | 7.93 | □ | — | — |
| | 5 × R1 × 3° | 92 | | 10 | 9.4 | □ | — | — |
| | 5 × R1.5 × 1° | 76 | 32 | 8 | 6.12 | □ | — | — |
| | 5 × R1.5 × 1.5° | | | | 6.68 | □ | — | — |
| | 5 × R1.5 × 2° | 86 | 42 | | 7.93 | □ | — | — |
| | 5 × R1.5 × 3° | 92 | | 10 | 9.4 | □ | — | — |
| | 6 × R0.5 × 1° | 76 | 32 | 8 | 7.12 | □ | — | — |
| | 6 × R0.5 × 1.5° | | | | 7.68 | □ | — | — |
| | 6 × R0.5 × 2° | 92 | 42 | 10 | 8.93 | □ | — | — |
| | 6 × R0.5 × 3° | 99 | | 12 | 10.4 | □ | — | — |
| | 6 × R1 × 1° | 76 | 32 | 8 | 7.12 | □ | — | — |
| | 6 × R1 × 1.5° | | | | 7.68 | □ | — | — |
| | 6 × R1 × 2° | 92 | 42 | 10 | 8.93 | □ | — | — |
| | 6 × R1 × 3° | 99 | | 12 | 10.4 | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 × R1.5 × 1° | 76 | 32 | 8 | 7.12 | □ | — | — |
| | 6 × R1.5 × 1.5° | | | | 7.68 | □ | — | — |
| | 6 × R1.5 × 2° | 92 | 42 | 10 | 8.93 | □ | — | — |
| | 6 × R1.5 × 3° | 99 | | 12 | 10.4 | □ | — | — |
| | 8 × R0.5 × 1° | 88 | 38 | 10 | 9.33 | □ | — | — |
| | 8 × R0.5 × 1.5° | | | | 9.99 | □ | — | — |
| | 8 × R0.5 × 2° | 107 | 50 | 12 | 11.49 | □ | — | — |
| | 8 × R0.5 × 3° | | | | 13.24 | □ | — | — |
| | 8 × R1 × 1° | 88 | 38 | 10 | 9.33 | □ | — | — |
| | 8 × R1 × 1.5° | | | | 9.99 | □ | — | — |
| | 8 × R1 × 2° | 107 | 50 | 12 | 11.49 | □ | — | — |
| | 8 × R1 × 3° | | | | 13.24 | □ | — | — |
| | 8 × R1.5 × 1° | 88 | 38 | 10 | 9.33 | □ | — | — |
| | 8 × R1.5 × 1.5° | | | | 9.99 | □ | — | — |
| | 8 × R1.5 × 2° | 107 | 50 | 12 | 11.49 | □ | — | — |
| | 8 × R1.5 × 3° | | | | 13.24 | □ | — | — |
| | 8 × R2 × 1° | 88 | 38 | 10 | 9.33 | □ | — | — |
| | 8 × R2 × 1.5° | | | | 9.99 | □ | — | — |
| | 8 × R2 × 2° | 107 | 50 | 12 | 11.49 | □ | — | — |
| | 8 × R2 × 3° | | | | 13.24 | □ | — | — |
| | 10 × R0.5 × 1° | 95 | 38 | | 11.33 | □ | — | — |
| | 10 × R0.5 × 1.5° | | | | 11.99 | □ | — | — |
| | 10 × R0.5 × 2° | 107 | 50 | | 13.49 | □ | — | — |
| | 10 × R0.5 × 3° | 110 | | 16 | 15.24 | □ | — | — |
| | 10 × R1 × 1° | 95 | 38 | 12 | 11.33 | □ | — | — |
| | 10 × R1 × 1.5° | | | | 11.99 | □ | — | — |
| | 10 × R1 × 2° | 107 | 50 | | 13.49 | □ | — | — |
| | 10 × R1 × 3° | 110 | | 16 | 15.24 | □ | — | — |
| | 10 × R1.5 × 1° | 95 | 38 | 12 | 11.33 | □ | — | — |
| | 10 × R1.5 × 1.5° | | | | 11.99 | □ | — | — |
| | 10 × R1.5 × 2° | 107 | 50 | | 13.49 | □ | — | — |
| | 10 × R1.5 × 3° | 110 | | 16 | 15.24 | □ | — | — |
| | 10 × R2 × 1° | 95 | 38 | 12 | 11.33 | □ | — | — |
| | 10 × R2 × 1.5° | | | | 11.99 | □ | — | — |
| | 10 × R2 × 2° | 107 | 50 | | 13.49 | □ | — | — |
| | 10 × R2 × 3° | 110 | | 16 | 15.24 | □ | — | — |




次ページへ
外径 DC 12～16 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃XPMテーパラジアスエンドミルレギュラ形
**2-flute XPM Taper End Mill Regular Length with Corner Radius**

## XPM-CR-TPDR

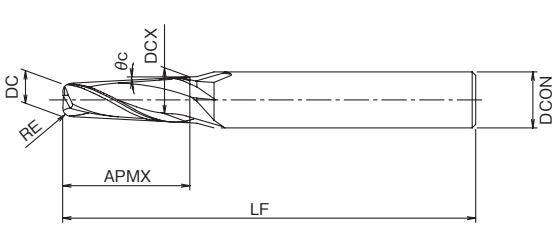


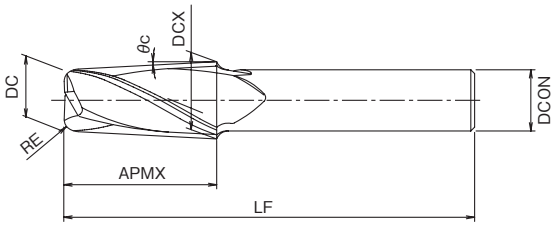
XPM　± 10′　25°

前ページより FROM 外径 DC 3〜10

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 12 × R1 × 1° | 102 | 45 | 12 | 13.57 | □ | — | — |
| | 12 × R1 × 1.5° | | | | 14.36 | □ | — | — |
| | 12 × R1 × 2° | 120 | 60 | 16 | 16.19 | □ | — | — |
| | 12 × R1 × 3° | | | | 18.29 | □ | — | — |
| | 12 × R1.5 × 1° | 102 | 45 | 12 | 13.57 | □ | — | — |
| | 12 × R1.5 × 1.5° | | | | 14.36 | □ | — | — |
| | 12 × R1.5 × 2° | 120 | 60 | 16 | 16.19 | □ | — | — |
| | 12 × R1.5 × 3° | | | | 18.29 | □ | — | — |
| | 12 × R2 × 1° | 102 | 45 | 12 | 13.57 | □ | — | — |
| | 12 × R2 × 1.5° | | | | 14.36 | □ | — | — |
| | 12 × R2 × 2° | 120 | 60 | 16 | 16.19 | □ | — | — |
| | 12 × R2 × 3° | | | | 18.29 | □ | — | — |
| | 12 × R3 × 1° | 102 | 45 | 12 | 13.57 | □ | — | — |
| | 12 × R3 × 1.5° | | | | 14.36 | □ | — | — |
| | 12 × R3 × 2° | 120 | 60 | 16 | 16.19 | □ | — | — |
| | 12 × R3 × 3° | | | | 18.29 | □ | — | — |
| | 16 × R1 × 1° | 105 | 45 | | 17.57 | □ | — | — |
| | 16 × R1 × 1.5° | | | | 18.36 | □ | — | — |
| | 16 × R1 × 2° | 126 | 60 | 20 | 20.19 | □ | — | — |
| | 16 × R1 × 3° | | | | 22.29 | □ | — | — |
| | 16 × R1.5 × 1° | 105 | 45 | 16 | 17.57 | □ | — | — |
| | 16 × R1.5 × 1.5° | | | | 18.36 | □ | — | — |
| | 16 × R1.5 × 2° | 126 | 60 | 20 | 20.19 | □ | — | — |
| | 16 × R1.5 × 3° | | | | 22.29 | □ | — | — |
| | 16 × R2 × 1° | 105 | 45 | 16 | 17.57 | □ | — | — |
| | 16 × R2 × 1.5° | | | | 18.36 | □ | — | — |
| | 16 × R2 × 2° | 126 | 60 | 20 | 20.19 | □ | — | — |
| | 16 × R2 × 3° | | | | 22.29 | □ | — | — |
| | 16 × R3 × 1° | 105 | 45 | 16 | 17.57 | □ | — | — |
| | 16 × R3 × 1.5° | | | | 18.36 | □ | — | — |
| | 16 × R3 × 2° | 126 | 60 | 20 | 20.19 | □ | — | — |
| | 16 × R3 × 3° | | | | 22.29 | □ | — | — |




**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 2枚刃ハイステーパラジアスエンドミル レギュラ形
**2-flute Taper End Mill Regular Length with Corner Radius**

## CR-TPDR



HSS-Co　±10′　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × R0.5 × 1° | 66 | 22 | 6 | 3.77 | □ | — | — |
| | 3 × R1 × 1° | | | | | □ | — | — |
| | 3 × R0.5 × 1.5° | | | | 4.15 | □ | — | — |
| | 3 × R1 × 1.5° | | | | | □ | — | — |
| | 3 × R0.5 × 2° | 74 | 30 | | 5.1 | □ | — | — |
| | 3 × R1 × 2° | | | | | □ | — | — |
| | 3 × R0.5 × 3° | | | 8 | 6.14 | □ | — | — |
| | 3 × R1 × 3° | | | | | □ | — | — |
| | 4 × R0.5 × 1° | 70 | 26 | 6 | 4.91 | □ | — | — |
| | 4 × R1 × 1° | | | | | □ | — | — |
| | 4 × R0.5 × 1.5° | | | | 5.36 | □ | — | — |
| | 4 × R1 × 1.5° | | | | | □ | — | — |
| | 4 × R0.5 × 2° | 80 | 36 | 8 | 6.51 | □ | — | — |
| | 4 × R1 × 2° | | | | | □ | — | — |
| | 4 × R0.5 × 3° | | | | 7.77 | □ | — | — |
| | 4 × R1 × 3° | | | | | □ | — | — |
| | 5 × R0.5 × 1° | 76 | 32 | | 6.12 | □ | — | — |
| | 5 × R1 × 1° | | | | | □ | — | — |
| | 5 × R1.5 × 1° | | | | | □ | — | — |
| | 5 × R0.5 × 1.5° | | | | 6.68 | □ | — | — |
| | 5 × R1 × 1.5° | | | | | □ | — | — |
| | 5 × R1.5 × 1.5° | | | | | □ | — | — |
| | 5 × R0.5 × 2° | 86 | 42 | | 7.93 | □ | — | — |
| | 5 × R1 × 2° | | | | | □ | — | — |
| | 5 × R1.5 × 2° | | | | | □ | — | — |
| | 5 × R0.5 × 3° | 92 | | 10 | 9.4 | □ | — | — |
| | 5 × R1 × 3° | | | | | □ | — | — |
| | 5 × R1.5 × 3° | | | | | □ | — | — |
| | 6 × R0.5 × 1° | 76 | 32 | 8 | 7.12 | □ | — | — |
| | 6 × R1 × 1° | | | | | □ | — | — |
| | 6 × R1.5 × 1° | | | | | □ | — | — |
| | 6 × R0.5 × 1.5° | | | | 7.68 | □ | — | — |
| | 6 × R1 × 1.5° | | | | | □ | — | — |
| | 6 × R1.5 × 1.5° | | | | | □ | — | — |
| | 6 × R0.5 × 2° | 92 | 42 | 10 | 8.93 | □ | — | — |
| | 6 × R1 × 2° | | | | | □ | — | — |
| | 6 × R1.5 × 2° | | | | | □ | — | — |
| | 6 × R0.5 × 3° | 99 | | 12 | 10.4 | □ | — | — |
| | 6 × R1 × 3° | | | | | □ | — | — |
| | 6 × R1.5 × 3° | | | | | □ | — | — |
| | 8 × R0.5 × 1° | 88 | 38 | 10 | 9.33 | □ | — | — |
| | 8 × R1 × 1° | | | | | □ | — | — |
| | 8 × R1.5 × 1° | | | | | □ | — | — |
| | 8 × R2 × 1° | | | | | □ | — | — |
| | 8 × R0.5 × 1.5° | | | | 9.99 | □ | — | — |
| | 8 × R1 × 1.5° | | | | | □ | — | — |
| | 8 × R1.5 × 1.5° | | | | | □ | — | — |
| | 8 × R2 × 1.5° | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 8 × R0.5 × 2° | 107 | 50 | 12 | 11.49 | □ | — | — |
| | 8 × R1 × 2° | | | | | □ | — | — |
| | 8 × R1.5 × 2° | | | | | □ | — | — |
| | 8 × R2 × 2° | | | | | □ | — | — |
| | 8 × R0.5 × 3° | | | | 13.24 | □ | — | — |
| | 8 × R1 × 3° | | | | | □ | — | — |
| | 8 × R1.5 × 3° | | | | | □ | — | — |
| | 8 × R2 × 3° | | | | | □ | — | — |
| | 10 × R0.5 × 1° | 95 | 38 | | 11.33 | □ | — | — |
| | 10 × R1 × 1° | | | | | □ | — | — |
| | 10 × R1.5 × 1° | | | | | □ | — | — |
| | 10 × R2 × 1° | | | | | □ | — | — |
| | 10 × R0.5 × 1.5° | | | | 11.99 | □ | — | — |
| | 10 × R1 × 1.5° | | | | | □ | — | — |
| | 10 × R1.5 × 1.5° | | | | | □ | — | — |
| | 10 × R2 × 1.5° | | | | | □ | — | — |
| | 10 × R0.5 × 2° | 107 | 50 | | 13.49 | □ | — | — |
| | 10 × R1 × 2° | | | | | □ | — | — |
| | 10 × R1.5 × 2° | | | | | □ | — | — |
| | 10 × R2 × 2° | | | | | □ | — | — |
| | 10 × R0.5 × 3° | 110 | | 16 | 15.24 | □ | — | — |
| | 10 × R1 × 3° | | | | | □ | — | — |
| | 10 × R1.5 × 3° | | | | | □ | — | — |
| | 10 × R2 × 3° | | | | | □ | — | — |
| | 12 × R1 × 1° | 102 | 45 | 12 | 13.57 | □ | — | — |
| | 12 × R1.5 × 1° | | | | | □ | — | — |
| | 12 × R2 × 1° | | | | | □ | — | — |
| | 12 × R3 × 1° | | | | | □ | — | — |
| | 12 × R1 × 1.5° | | | | 14.36 | □ | — | — |
| | 12 × R1.5 × 1.5° | | | | | □ | — | — |
| | 12 × R2 × 1.5° | | | | | □ | — | — |
| | 12 × R3 × 1.5° | | | | | □ | — | — |
| | 12 × R1 × 2° | 120 | 60 | 16 | 16.19 | □ | — | — |
| | 12 × R1.5 × 2° | | | | | □ | — | — |
| | 12 × R2 × 2° | | | | | □ | — | — |
| | 12 × R3 × 2° | | | | | □ | — | — |
| | 12 × R1 × 3° | | | | 18.29 | □ | — | — |
| | 12 × R1.5 × 3° | | | | | □ | — | — |
| | 12 × R2 × 3° | | | | | □ | — | — |
| | 12 × R3 × 3° | | | | | □ | — | — |
| | 16 × R1 × 1° | 105 | 45 | | 17.57 | □ | — | — |
| | 16 × R1.5 × 1° | | | | | □ | — | — |
| | 16 × R2 × 1° | | | | | □ | — | — |
| | 16 × R3 × 1° | | | | | □ | — | — |
| | 16 × R1 × 1.5° | | | | 18.36 | □ | — | — |
| | 16 × R1.5 × 1.5° | | | | | □ | — | — |
| | 16 × R2 × 1.5° | | | | | □ | — | — |
| | 16 × R3 × 1.5° | | | | | □ | — | — |

次ページへ
外径 DC 16 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 2枚刃ハイステーパラジアスエンドミル レギュラ形
**2-flute Taper End Mill Regular Length with Corner Radius**

# CR-TPDR



HSS-Co　± 10′　25°

前ページより FROM 外径 DC 3～16

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×コーナ半径×刃部テーパ半角 DC × RE × θc | 全長 LF | 刃長 APMX | シャンク径 DCON | 大端径 DCX | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 16 × R1 × 2° | 126 | 60 | 20 | 20.19 | – | □ | – | – |
| | 16 × R1.5 × 2° | | | | | | □ | – | – |
| | 16 × R2 × 2° | | | | | | □ | – | – |
| | 16 × R3 × 2° | | | | | | □ | – | – |
| | 16 × R1 × 3° | | | | 22.29 | | □ | – | – |
| | 16 × R1.5 × 3° | | | | | | □ | – | – |
| | 16 × R2 × 3° | | | | | | □ | – | – |
| | 16 × R3 × 3° | | | | | | □ | – | – |

OSGのPSシリーズ
**商品シリーズ** Parts & Supply series
※詳細は▶P.1176を参照下さい。 See p.1176 for details
圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、水・油・ヘドロをスピード吸入・スピード吐出



デジタルカタログならメールでカタログを共有可能 ▶▶▶P.6

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 4枚刃ハイス逆テーパエンドミルショート形
**Inverted 4-flute Taper End Mill Short Length**

## RTPMS



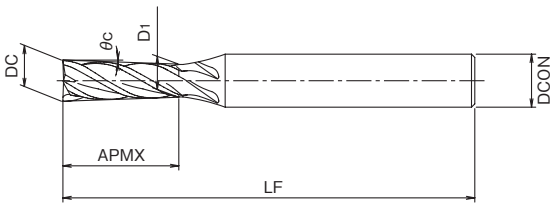
刃径がシャンク側で細くなっている逆テーパ刃のエンドミルです。
Inverted taper end mill. Mill diameter is smaller on the shank side.

HSS-Co

30°
先端で

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 外径×刃部テーパ半角 DC×θc | 全長 LF | 刃長 APMX | ｼｬﾝｸ径 DCON | 小端径 D1 | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 3 × -30′ | 55 | 10 | 6 | 2.83 | □ | — | — |
| | 3 × -45′ | | | | 2.74 | □ | — | — |
| | 3 × -1° | | | | 2.65 | □ | — | — |
| | 4 × -15′ | 65 | 12 | 8 | 3.9 | □ | — | — |
| | 4 × -30′ | | | | 3.79 | □ | — | — |
| | 4 × -45′ | | | | 3.69 | □ | — | — |
| | 4 × -1° | | | | 3.58 | □ | — | — |
| | 4 × -1° 30′ | | | | 3.37 | □ | — | — |
| | 5 × -30′ | | 15 | | 4.74 | □ | — | — |
| | 5 × -1° 30′ | | | | 4.21 | □ | — | — |
| | 6 × -15′ | | | | 5.87 | □ | — | — |
| | 6 × -1° | | | | 5.48 | □ | — | — |
| | 6 × -1° 30′ | | | | 5.21 | □ | — | — |
| | 8 × -15′ | 75 | 20 | 10 | 7.83 | □ | — | — |
| | 8 × -30′ | | | | 7.65 | □ | — | — |
| | 8 × -2° | | | | 6.6 | □ | — | — |
| | 10 × -15′ | | 25 | | 9.78 | □ | — | — |
| | 10 × -1° | | | | 9.13 | □ | — | — |
| | 10 × -2° | | | | 8.25 | □ | — | — |
| | 12 × -30′ | 90 | 30 | 12 | 11.48 | □ | — | — |
| | 12 × -1° | | | | 10.95 | □ | — | — |
| | 12 × -2° | | | | 9.91 | □ | — | — |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| RTPMS | ○ | | | ○ | ○ | ○ | ○ | | | |

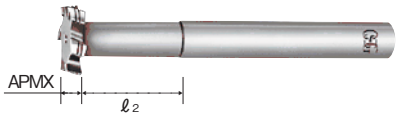
**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品 (在庫をご確認下さい。) Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産 (在庫をご確認下さい。) Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品 (在庫をご確認下さい。) Discontinued item

# ハイスTスロットカッタ
**End Mill for T-slots**

## RF-TSC

切削条件 Cutting Conditions | P925




●刃幅の許容差　tolerance for width of cut

| | | | | |
|---|---|---|---|---|
| | APMX≦ | 6 | −0.03 | ～−0.105 |
| 6＜ | APMX≦ | 10 | −0.04 | ～−0.13 |
| 10＜ | APMX≦ | 18 | −0.05 | ～−0.16 |
| 18＜ | APMX≦ | 30 | −0.065 | ～−0.195 |

HSS-Co

DC≦18 -0.05 ～-0.16
18＜DC≦30 -0.065～-0.195
30＜DC -0.08 ～-0.24

25°

CAD

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 刃幅 APMX | 全長 LF | シャンク径 DCON | 首長 ℓ2 | 首径 DN | 刃数 ZEFP | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 83565 | **15** | 5 | | | 30 | | | B | ● | 114 | 24,900 |
| 83566 | **15** | 6 | | | 29 | | | B | ● | 114 | 24,900 |
| | **15** | 7 | 120 | | 28 | 8 | | – | □ | – | – |
| | **15** | 8 | | | 27 | | | – | □ | – | – |
| | **15** | 10 | | | 25 | | | – | □ | – | – |
| 83587 | **20** | 5 | | 12 | 40 | | 4 | | | | |
| 83588 | **20** | 6 | | | 39 | | | B | ● | 132 | 27,200 |
| 83589 | **20** | 7 | 130 | | 38 | 10 | | B | ● | 132 | 27,200 |
| | **20** | 8 | | | 37 | | | B | ● | 133 | 27,200 |
| | **20** | 10 | | | 35 | | | – | □ | – | – |
| 83609 | **25** | 5 | | | 45 | | | – | □ | – | – |
| 83610 | **25** | 6 | | | 44 | | | B | ● | 226 | 35,500 |
| 83611 | **25** | 7 | | | 43 | | | B | ● | 227 | 35,500 |
| 83612 | **25** | 8 | | | 42 | | | B | ● | 229 | 35,500 |
| 83613 | **25** | 10 | | | 40 | 12 | 5 | B | ● | 230 | 35,500 |
| | **25** | 11 | | | 39 | | | B | ● | 232 | 35,500 |
| | **25** | 12 | | | 38 | | | – | □ | – | – |
| | **25** | 14 | | | 36 | | | – | □ | – | – |
| | **25** | 15 | 145 | 16 | 35 | | | – | □ | – | – |
| 83631 | **30** | 5 | | | 45 | | | – | □ | – | – |
| 83632 | **30** | 6 | | | 44 | | | B | ● | 273 | 45,800 |
| 83633 | **30** | 7 | | | 43 | | | B | ● | 276 | 45,800 |
| 83634 | **30** | 8 | | | 42 | | | B | ● | 278 | 45,800 |
| 83635 | **30** | 10 | | | 40 | 15 | | B | ● | 279 | 45,800 |
| 83636 | **30** | 12 | | | 38 | | | B | ● | 284 | 45,800 |
| | **30** | 14 | | | 36 | | | B | ● | 286 | 45,800 |
| | **30** | 15 | | | 35 | | | – | □ | – | – |
| 83655 | **35** | 7 | | | 50 | | | – | □ | – | – |
| 83656 | **35** | 8 | | | 49 | | | B | ● | 471 | 55,700 |
| 83657 | **35** | 10 | | | 47 | | | B | ● | 478 | 55,700 |
| 83658 | **35** | 12 | | | 45 | | 6 | B | ● | 480 | 55,700 |
| | **35** | 14 | 160 | | 43 | 17 | | B | ● | 486 | 55,700 |
| | **35** | 15 | | | 42 | | | – | □ | – | – |
| | **35** | 16 | | 20 | 41 | | | – | □ | – | – |
| | **35** | 18 | | | 39 | | | – | □ | – | – |
| | **35** | 20 | | | 37 | | | – | □ | – | – |
| 83677 | **40** | 7 | | | 55 | | | – | □ | – | – |
| 83678 | **40** | 8 | | | 54 | | | B | ● | 528 | 67,000 |
| 83679 | **40** | 10 | 165 | | 52 | 19.6 | | B | ● | 525 | 67,000 |
| 83680 | **40** | 12 | | | 50 | | | B | ● | 537 | 67,000 |
| | **40** | 14 | | | 48 | | | B | ● | 539 | 67,000 |
| | **40** | 15 | | | 47 | | | – | □ | – | – |
| | **40** | 16 | | | 46 | | | – | □ | – | – |
| | **40** | 20 | 165 | 20 | 42 | 19.6 | | – | □ | – | – |
| 83700 | **45** | 8 | | | 55 | | | – | □ | – | – |
| 83701 | **45** | 10 | | | 53 | | | B | ● | 827 | 86,900 |
| 83702 | **45** | 12 | | | 51 | | | B | ● | 841 | 86,900 |
| | **45** | 14 | | | 49 | | | B | ● | 850 | 86,900 |
| | **45** | 15 | | | 48 | | | – | □ | – | – |
| | **45** | 16 | | | 47 | | | – | □ | – | – |
| | **45** | 18 | | | 45 | | | – | □ | – | – |
| | **45** | 20 | 175 | | 43 | 22 | | – | □ | – | – |
| 83722 | **50** | 8 | | | 65 | | | – | □ | – | – |
| 83723 | **50** | 10 | | | 63 | | | B | ● | 922 | 106,000 |
| 83724 | **50** | 12 | | | 61 | | | B | ● | 935 | 106,000 |
| | **50** | 14 | | | 59 | | | B | ● | 942 | 106,000 |
| | **50** | 15 | | | 58 | | | – | □ | – | – |
| | **50** | 16 | | | 57 | | | – | □ | – | – |
| | **50** | 18 | | | 55 | | | – | □ | – | – |
| | **50** | 20 | | | 53 | | | – | □ | – | – |
| | **50** | 22 | | | 51 | | | – | □ | – | – |
| | **50** | 25 | | | 48 | | | – | □ | – | – |
| | **50** | 30 | 185 | 25 | 43 | 24.4 | 6 | – | □ | – | – |
| | **60** | 10 | | | 63 | | | – | □ | – | – |
| | **60** | 12 | | | 61 | | | – | □ | – | – |
| | **60** | 14 | | | 59 | | | – | □ | – | – |
| | **60** | 15 | | | 58 | | | – | □ | – | – |
| | **60** | 16 | | | 57 | | | – | □ | – | – |
| | **60** | 18 | | | 55 | | | – | □ | – | – |
| | **60** | 20 | | | 53 | | | – | □ | – | – |
| | **60** | 22 | | | 51 | | | – | □ | – | – |
| | **60** | 25 | | | 48 | | | – | □ | – | – |
| | **60** | 28 | | | 45 | | | – | □ | – | – |
| | **60** | 30 | 195 | 32 | 43 | 31.2 | | – | □ | – | – |
| | **75** | 8 | | | 70 | | | – | □ | – | – |
| | **75** | 12 | | | 66 | | | – | □ | – | – |
| | **75** | 14 | | | 64 | | | – | □ | – | – |
| | **75** | 15 | | | 63 | | | – | □ | – | – |
| | **75** | 20 | | | 58 | | | – | □ | – | – |
| | **75** | 25 | | | 53 | | | – | □ | – | – |
| | **75** | 30 | 220 | 42 | 48 | 41.2 | 8 | – | □ | – | – |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

次ページへ
外径 DC 75～100 NEXT

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **RF-TSC** | ○ | | | ○ | ○ | ○ | ○ | | | |

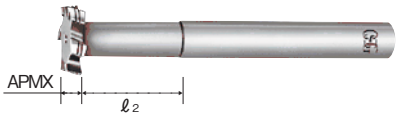
**在庫記号について** Inventory symbols

●＝標準在庫品 Standard stock item
○＝準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲＝新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□＝特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△＝生産中止品（在庫をご確認下さい。）Discontinued item

# ハイスTスロットカッタ
**End Mill for T-slots**

## RF-TSC

切削条件 Cutting Conditions | P925




●刃幅の許容差　tolerance for width of cut

| | | | | |
|---|---|---|---|---|
| | APMX≦ | 6 | −0.03 | 〜−0.105 |
| 6< | APMX≦ | 10 | −0.04 | 〜−0.13 |
| 10< | APMX≦ | 18 | −0.05 | 〜−0.16 |
| 18< | APMX≦ | 30 | −0.065 | 〜−0.195 |

HSS-Co

DC≦18 -0.05 〜-0.16
18<DC≦30 -0.065〜-0.195
30<DC -0.08 〜-0.24

25°

CAD

前ページより FROM 外径 DC 15〜75

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 刃幅 APMX | 全長 LF | シャンク径 DCON | 首長 ℓ2 | 首径 DN | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ◆ | **75** | 10 | 220 | 42 | 68 | 41.2 | 8 | – | — | — |
| ◆ | **75** | 16 | | | 62 | | | | — | — |
| ◆ | **75** | 18 | | | 60 | | | | — | — |
| ◆ | **75** | 22 | | | 56 | | | | — | — |
| ◆ | **80** | 10 | 230 | | 78 | | | | — | — |
| ◆ | **80** | 12 | | | 76 | | | | — | — |
| ◆ | **80** | 14 | | | 74 | | | | — | — |
| ◆ | **80** | 15 | | | 73 | | | | — | — |
| ◆ | **80** | 16 | | | 72 | | | | — | — |
| ◆ | **80** | 18 | | | 70 | | | | — | — |
| ◆ | **80** | 20 | | | 68 | | | | — | — |
| ◆ | **80** | 22 | | | 66 | | | | — | — |
| ◆ | **80** | 25 | | | 63 | | | | — | — |
| ◆ | **80** | 30 | | | 58 | | | | — | — |
| ◆ | **100** | 10 | 245 | | 93 | | | | — | — |
| ◆ | **100** | 12 | | | 91 | | | | — | — |
| ◆ | **100** | 14 | | | 89 | | | | — | — |
| ◆ | **100** | 15 | | | 88 | | | | — | — |
| ◆ | **100** | 16 | | | 87 | | | | — | — |
| ◆ | **100** | 18 | | | 85 | | | | — | — |
| ◆ | **100** | 20 | | | 83 | | | | — | — |
| ◆ | **100** | 22 | | | 81 | | | | — | — |
| ◆ | **100** | 25 | | | 78 | | | | — | — |
| ◆ | **100** | 30 | | | 73 | | | | — | — |

◆は2面平切り欠け付きシャンクです。◆:Shank with two flat face.

デジタルカタログで最新情報を公開中 ▶▶▶P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 〜40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel / 〜45HRC | ステンレス鋼 Stainless Steel / 〜35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron / 〜350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **RF-TSC** | ○ | | | ○ | ○ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

# TiNコートハイスTスロットカッタ
**TiN Coated TUF-NICK End Mill for T-slots**

## TIN-TUF-TSC




●刃幅の許容差　tolerance for width of cut

| | | | | |
|---|---|---|---|---|
| | APMX≦ | 6 | −0.03 | 〜−0.105 |
| 6< | APMX≦ | 10 | −0.04 | 〜−0.13 |
| 10< | APMX≦ | 18 | −0.05 | 〜−0.16 |
| 18< | APMX≦ | 30 | −0.065 | 〜−0.195 |

HSS-Co　TiN　DC≦18 -0.05 〜-0.16 / 18<DC≦30 -0.065〜-0.195 / 30<DC -0.08 〜-0.24　25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 刃幅 APMX | 全長 LF | シャンク径 DCON | 首長 ℓ2 | 首径 DN | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15 | 5 | 120 | 12 | 20 | 8 | 4 | □ | — | — |
| | 15 | 6 | | | | | | □ | — | — |
| | 15 | 7 | | | | | | □ | — | — |
| | 15 | 8 | | | | | | □ | — | — |
| | 15 | 10 | | | | | | □ | — | — |
| | 16 | 5 | | | | | | □ | — | — |
| | 16 | 6 | | | | | | □ | — | — |
| | 16 | 7 | | | | | | □ | — | — |
| | 16 | 8 | | | | | | □ | — | — |
| | 16 | 10 | | | | | | □ | — | — |
| | 18 | 5 | | | | 10 | | □ | — | — |
| | 18 | 6 | | | | | | □ | — | — |
| | 18 | 7 | | | | | | □ | — | — |
| | 18 | 8 | | | | | | □ | — | — |
| | 18 | 10 | | | | | | □ | — | — |
| | 19 | 5 | | | | | | □ | — | — |
| | 19 | 6 | | | | | | □ | — | — |
| | 19 | 7 | | | | | | □ | — | — |
| | 19 | 8 | | | | | | □ | — | — |
| | 19 | 10 | | | | | | □ | — | — |
| | 20 | 5 | | | | | | □ | — | — |
| | 20 | 6 | | | | | | □ | — | — |
| | 20 | 7 | | | | | | □ | — | — |
| | 20 | 8 | | | | | | □ | — | — |
| | 20 | 10 | | | | | | □ | — | — |
| | 22 | 5 | | | 23 | 11.5 | 5 | □ | — | — |
| | 22 | 6 | | | | | | □ | — | — |
| | 22 | 7 | | | | | | □ | — | — |
| | 22 | 8 | | | | | | □ | — | — |
| | 22 | 10 | | | | | | □ | — | — |
| | 22 | 12 | | | | | | □ | — | — |
| | 24 | 5 | | | | | | □ | — | — |
| | 24 | 6 | | | | | | □ | — | — |
| | 24 | 7 | | | | | | □ | — | — |
| | 24 | 8 | | | | | | □ | — | — |
| | 24 | 10 | | | | | | □ | — | — |
| | 24 | 12 | | | | | | □ | — | — |
| | 25 | 5 | 150 | 16 | | 12 | | □ | — | — |
| | 25 | 6 | | | | | | □ | — | — |
| | 25 | 7 | | | | | | □ | — | — |
| | 25 | 8 | | | | | | □ | — | — |
| | 25 | 10 | | | | | | □ | — | — |
| | 25 | 12 | | | | | | □ | — | — |
| | 25 | 15 | | | | | | □ | — | — |
| | 26 | 5 | | | 25 | 14 | | □ | — | — |
| | 26 | 6 | | | | | | □ | — | — |
| | 26 | 7 | | | | | | □ | — | — |
| | 26 | 8 | | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 刃幅 APMX | 全長 LF | シャンク径 DCON | 首長 ℓ2 | 首径 DN | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 26 | 10 | 150 | 16 | 25 | 14 | 5 | □ | — | — |
| | 26 | 12 | | | | | | □ | — | — |
| | 26 | 15 | | | | | | □ | — | — |
| | 28 | 5 | | | | | | □ | — | — |
| | 28 | 6 | | | | | | □ | — | — |
| | 28 | 7 | | | | | | □ | — | — |
| | 28 | 8 | | | | | | □ | — | — |
| | 28 | 10 | | | | | | □ | — | — |
| | 28 | 12 | | | | | | □ | — | — |
| | 28 | 15 | | | | | | □ | — | — |
| | 30 | 5 | | | | 15 | 6 | □ | — | — |
| | 30 | 6 | | | | | | □ | — | — |
| | 30 | 7 | | | | | | □ | — | — |
| | 30 | 8 | | | | | | □ | — | — |
| | 30 | 10 | | | | | | □ | — | — |
| | 30 | 12 | | | | | | □ | — | — |
| | 30 | 15 | | | | | | □ | — | — |
| | 32 | 7 | | | 30 | 15.5 | | □ | — | — |
| | 32 | 8 | | | | | | □ | — | — |
| | 32 | 10 | | | | | | □ | — | — |
| | 32 | 12 | | | | | | □ | — | — |
| | 32 | 15 | | | | | | □ | — | — |
| | 32 | 16 | | | | | | □ | — | — |
| | 32 | 18 | | | | | | □ | — | — |
| | 32 | 20 | | | | | | □ | — | — |
| | 35 | 7 | 180 | | | | | □ | — | — |
| | 35 | 8 | | | | | | □ | — | — |
| | 35 | 10 | | | | | | □ | — | — |
| | 35 | 12 | | | | | | □ | — | — |
| | 35 | 15 | | | | | | □ | — | — |
| | 35 | 16 | | | | | | □ | — | — |
| | 35 | 18 | | | | | | □ | — | — |
| | 35 | 20 | | | | | | □ | — | — |
| | 38 | 7 | | 20 | 34 | 19.5 | | □ | — | — |
| | 38 | 8 | | | | | | □ | — | — |
| | 38 | 10 | | | | | | □ | — | — |
| | 38 | 12 | | | | | | □ | — | — |
| | 38 | 15 | | | | | | □ | — | — |
| | 38 | 16 | | | | | | □ | — | — |
| | 38 | 18 | | | | | | □ | — | — |
| | 38 | 20 | | | | | | □ | — | — |
| | 40 | 7 | 200 | | | | | □ | — | — |
| | 40 | 8 | | | | | | □ | — | — |
| | 40 | 10 | | | | | | □ | — | — |
| | 40 | 12 | | | | | | □ | — | — |
| | 40 | 15 | | | | | | □ | — | — |
| | 40 | 16 | | | | | | □ | — | — |
| | 40 | 18 | | | | | | □ | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

次ページへ
外径 DC　40〜60　NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
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# TiNコートハイスTスロットカッタ
**TiN Coated TUF-NICK End Mill for T-slots**

## TIN-TUF-TSC




●刃幅の許容差　tolerance for width of cut

| | | | | |
|---|---|---|---|---|
| | APMX≦ | 6 | −0.03 | 〜−0.105 |
| 6< | APMX≦ | 10 | −0.04 | 〜−0.13 |
| 10< | APMX≦ | 18 | −0.05 | 〜−0.16 |
| 18< | APMX≦ | 30 | −0.065 | 〜−0.195 |

HSS-Co　TiN

DC≦18 -0.05 〜-0.16
18<DC≦30 -0.065〜-0.195
30<DC -0.08 〜-0.24

25°

前ページより FROM 外径 DC 15〜40

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 刃幅 APMX | 全長 LF | シャンク径 DCON | 首長 ℓ2 | 首径 DN | 刃数 ZEFP | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | **40** | 20 | 200 | 20 | 34 | 19.5 | 6 | — | — | — |
| | **45** | 8 | | | 36 | | | | — | — |
| | **45** | 10 | | | | | | | — | — |
| | **45** | 12 | | | | | | | — | — |
| | **45** | 15 | | | | | | | — | — |
| | **45** | 16 | | | | | | | — | — |
| | **45** | 18 | | | | | | | — | — |
| | **45** | 20 | | | | | | | — | — |
| | **45** | 22 | | | | | | | — | — |
| | **45** | 25 | | | | | | | — | — |
| | **50** | 8 | | 25 | 42 | 24.5 | | | — | — |
| | **50** | 10 | | | | | | | — | — |
| | **50** | 12 | | | | | | | — | — |
| | **50** | 15 | | | | | | | — | — |
| | **50** | 16 | | | | | | | — | — |
| | **50** | 18 | | | | | | | — | — |
| | **50** | 20 | | | | | | | — | — |
| | **50** | 22 | | | | | | | — | — |
| | **50** | 25 | | | | | | | — | — |
| | **50** | 30 | | | | | | | — | — |
| | **55** | 10 | | | 47 | | | | — | — |
| | **55** | 12 | | | | | | | — | — |
| | **55** | 15 | | | | | | | — | — |
| | **55** | 16 | | | | | | | — | — |
| | **55** | 18 | | | | | | | — | — |
| | **55** | 20 | | | | | | | — | — |
| | **55** | 22 | | | | | | | — | — |
| | **55** | 25 | | | | | | | — | — |
| | **55** | 30 | | | | | | | — | — |
| | **60** | 10 | | 32 | 51 | 30 | | | — | — |
| | **60** | 12 | | | | | | | — | — |
| | **60** | 15 | | | | | | | — | — |
| | **60** | 16 | | | | | | | — | — |
| | **60** | 18 | | | | | | | — | — |
| | **60** | 20 | | | | | | | — | — |
| | **60** | 22 | | | | | | | — | — |
| | **60** | 25 | | | | | | | — | — |
| | **60** | 30 | | | | | | | — | — |

シャンク径25mm以上は2面平切り欠け付きシャンクです。
Shank Dia.≧25mm : Shank with two flat face.

OSGアプリで製品のバーコードを読み込んでスペック情報を入手 ▶▶▶P.6

**在庫記号について** Inventory symbols

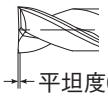
●＝標準在庫品 Standard stock item
○＝準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲＝新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□＝特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△＝生産中止品（在庫をご確認下さい。）Discontinued item

# 座ぐり用Vコート2枚刃CPMエンドミルショート形
**V Coated 2-flute XPM End Mill Short Length for Counterboring**

## VP-ZDS

切削条件 Cutting Conditions | P910



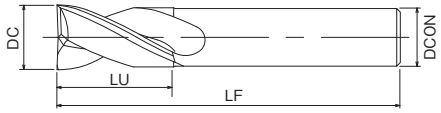


平坦度0.05mm以下（φ20以下）
平坦度0.1mm以下（φ20超え）
Flatness ≦ 0.05mm(DC ≦ 20)
Flatness ≦ 0.1mm(20<DC)

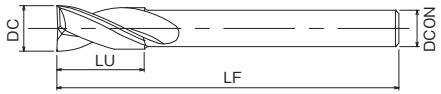
CAD

CPM | V | 0〜-0.03 | 約25° ABOUT 25°

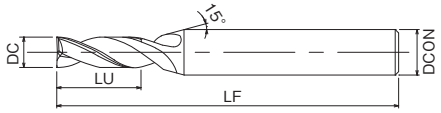
Type 1




Type 2




Type 3




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8463030 | 3 | 50 | 8 | 6 | 3 | ● | 13 | 8,660 |
| 8463031 | 3.1 | | 10 | | | ● | 13 | 8,660 |
| 8463032 | 3.2 | | | | | ● | 13 | 8,660 |
| 8463033 | 3.3 | | | | | ● | 13 | 8,660 |
| 8463034 | 3.4 | | | | | ● | 13 | 8,660 |
| 8463035 | 3.5 | | | | | ● | 13 | 8,660 |
| 8463036 | 3.6 | | | | | ● | 13 | 8,660 |
| 8463037 | 3.7 | | | | | ● | 13 | 8,660 |
| 8463038 | 3.8 | | 11 | | | ● | 13 | 8,660 |
| 8463039 | 3.9 | | | | | ● | 13 | 8,660 |
| 8463040 | 4 | | | | | ● | 13 | 8,660 |
| 8463041 | 4.1 | | | | | ● | 13 | 8,660 |
| 8463042 | 4.2 | | | | | ● | 13 | 8,660 |
| 8463043 | 4.3 | | | | | ● | 13 | 8,660 |
| 8463044 | 4.4 | | | | | ● | 13 | 8,660 |
| 8463045 | 4.5 | | | | | ● | 13 | 8,660 |
| 8463046 | 4.6 | | | | | ● | 13 | 8,660 |
| 8463047 | 4.7 | | | | | ● | 13 | 8,660 |
| 8463048 | 4.8 | 60 | 13 | | | ● | 15 | 9,240 |
| 8463049 | 4.9 | | | | | ● | 15 | 9,240 |
| 8463050 | 5 | | | | | ● | 15 | 9,240 |
| 8463051 | 5.1 | | | | | ● | 15 | 9,240 |
| 8463052 | 5.2 | | | | | ● | 16 | 9,240 |
| 8463053 | 5.3 | | | | | ● | 15 | 9,240 |
| 8463054 | 5.4 | | | | | ● | 15 | 9,240 |
| 8463055 | 5.5 | | | | | ● | 16 | 9,240 |
| 8463056 | 5.6 | | | | | ● | 16 | 9,240 |
| 8463057 | 5.7 | | | | | ● | 15 | 9,240 |
| 8463058 | 5.8 | | | | | ● | 16 | 9,240 |
| 8463059 | 5.9 | | | | | ● | 16 | 9,240 |
| 8463060 | 6 | | | | 1 | ● | 16 | 9,240 |
| 8463061 | 6.1 | 70 | 16 | | 2 | ● | 18 | 9,890 |
| 8463062 | 6.2 | | | | | ● | 18 | 9,890 |
| 8463063 | 6.3 | | | | | ● | 18 | 9,890 |
| 8463064 | 6.4 | | | | | ● | 18 | 9,890 |
| 8463065 | 6.5 | | | | | ● | 19 | 9,890 |
| 8463066 | 6.6 | | | | | ● | 19 | 9,890 |
| 8463067 | 6.7 | | | | | ● | 19 | 9,890 |
| 8463068 | 6.8 | | | | | ● | 19 | 9,890 |
| 8463069 | 6.9 | | | | | ● | 19 | 9,890 |
| 8463070 | 7 | | | | | ● | 19 | 9,890 |
| 8463071 | 7.1 | | | | | ● | 19 | 9,890 |
| 8463072 | 7.2 | | | | | ● | 19 | 9,890 |
| 8463073 | 7.3 | | | | | ● | 19 | 9,890 |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8463074 | 7.4 | 70 | 16 | 6 | 2 | ● | 19 | 9,890 |
| 8463075 | 7.5 | | | | | ● | 19 | 9,890 |
| 8463076 | 7.6 | | 19 | | | ● | 19 | 9,890 |
| 8463077 | 7.7 | | | | | ● | 19 | 9,890 |
| 8463078 | 7.8 | | | | | ● | 19 | 9,890 |
| 8463079 | 7.9 | | | | | ● | 19 | 9,890 |
| 8463080 | 8 | | | 8 | 1 | ● | 28 | 9,890 |
| 8463081 | 8.1 | 80 | | | 2 | ● | 34 | 11,300 |
| 8463082 | 8.2 | | | | | ● | 34 | 11,300 |
| 8463083 | 8.3 | | | | | ● | 34 | 11,300 |
| 8463084 | 8.4 | | | | | ● | 34 | 11,300 |
| 8463085 | 8.5 | | | | | ● | 34 | 11,300 |
| 8463086 | 8.6 | | | | | ● | 34 | 11,300 |
| 8463087 | 8.7 | | | | | ● | 34 | 11,300 |
| 8463088 | 8.8 | | | | | ● | 35 | 11,300 |
| 8463089 | 8.9 | | | | | ● | 34 | 11,300 |
| 8463090 | 9 | | | | | ● | 35 | 11,300 |
| 8463091 | 9.1 | | | | | ● | 34 | 11,300 |
| 8463092 | 9.2 | | | | | ● | 35 | 11,300 |
| 8463093 | 9.3 | | | | | ● | 34 | 11,300 |
| 8463094 | 9.4 | | | | | ● | 36 | 11,300 |
| 8463095 | 9.5 | | | | | ● | 36 | 11,300 |
| 8463096 | 9.6 | | 22 | | | ● | 36 | 11,300 |
| 8463097 | 9.7 | | | | | ● | 36 | 11,300 |
| 8463098 | 9.8 | | | | | ● | 36 | 11,300 |
| 8463099 | 9.9 | | | | | ● | 38 | 11,300 |
| 8463100 | 10 | | | 10 | 1 | ● | 57 | 11,300 |
| 8463101 | 10.1 | 90 | | | 2 | ● | 57 | 14,100 |
| 8463102 | 10.2 | | | | | ● | 57 | 14,100 |
| 8463103 | 10.3 | | | | | ● | 58 | 14,100 |
| 8463104 | 10.4 | | | | | ● | 58 | 14,100 |
| 8463105 | 10.5 | | | | | ● | 58 | 14,100 |
| 8463106 | 10.6 | | | | | ● | 59 | 14,100 |
| 8463107 | 10.7 | | | | | ● | 59 | 14,100 |
| 8463108 | 10.8 | | | | | ● | 59 | 14,100 |
| 8463109 | 10.9 | | | | | ● | 62 | 14,100 |
| 8463110 | 11 | | | | | ● | 60 | 14,100 |
| 8463111 | 11.1 | | | | | ● | 60 | 14,100 |
| 8463112 | 11.2 | | | | | ● | 61 | 14,100 |
| 8463113 | 11.3 | | | | | ● | 61 | 14,100 |
| 8463114 | 11.4 | | | | | ● | 61 | 14,100 |
| 8463115 | 11.5 | | | | | ● | 61 | 14,100 |
| 8463116 | 11.6 | | | | | ● | 61 | 14,100 |
| 8463117 | 11.7 | | | | | ● | 61 | 14,100 |

※横引き不可です。※Specialized for plunging.

次ページへ
外径 DC 11.8〜32 NEXT

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

# 座ぐり用Vコート2枚刃CPMエンドミルショート形
**V Coated 2-flute XPM End Mill Short Length for Counterboring**

## VP-ZDS

切削条件 Cutting Conditions | P910

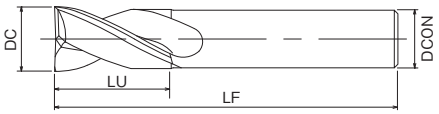


平坦度0.05mm以下（φ20以下）
平坦度0.1mm以下（φ20超え）
Flatness ≦ 0.05mm(DC ≦ 20)
Flatness ≦ 0.1mm(20<DC)

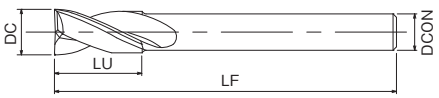
CAD

CPM | V | 0〜-0.03 | 約25° ABOUT 25°

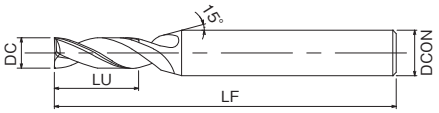
Type 1




Type 2




Type 3




前ページより FROM 外径 DC 3〜11.7

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8463118 | **11.8** | 90 | 22 | 10 | 2 | D | ● | 61 | 14,100 |
| 8463119 | **11.9** | | 26 | | | | ● | 61 | 14,100 |
| 8463120 | **12** | | | 12 | 1 | | ● | 78 | 14,100 |
| 8463125 | **12.5** | 100 | | | 2 | | ● | 89 | 17,800 |
| 8463130 | **13** | | | | | | ● | 94 | 17,800 |
| 8463135 | **13.5** | | | | | | ● | 97 | 17,800 |
| 8463140 | **14** | | | | | | ● | 99 | 17,800 |
| 8463145 | **14.5** | 105 | | | | | ● | 103 | 19,600 |
| 8463150 | **15** | | | | | | ● | 105 | 19,600 |
| 8463155 | **15.5** | 115 | 32 | | | | ● | 121 | 20,900 |
| 8463160 | **16** | | | 16 | 1 | | ● | 181 | 22,200 |
| 8463165 | **16.5** | | | | 2 | | ● | 182 | 26,200 |
| 8463170 | **17** | | | | | | ● | 183 | 26,200 |
| 8463175 | **17.5** | | | | | | ● | 184 | 26,200 |
| 8463180 | **18** | | | | | | ● | 187 | 26,200 |
| 8463185 | **18.5** | | | | | | ● | 189 | 29,900 |
| 8463190 | **19** | | | | | | ● | 191 | 29,900 |
| 8463195 | **19.5** | | | | | | ● | 250 | 30,500 |
| 8463200 | **20** | | | 20 | 1 | | ● | 288 | 30,500 |
| | **20.5** | 125 | 38 | | 2 | – | □ | – | – |
| | **21** | | | | | | □ | – | – |
| | **21.5** | | | | | | □ | – | – |
| | **22** | | | | | | □ | – | – |
| | **22.5** | 135 | 45 | | | | □ | – | – |
| | **23** | | | | | | □ | – | – |
| | **23.5** | | | | | | □ | – | – |
| | **24** | | | | | | □ | – | – |
| | **24.5** | | | | | | □ | – | – |
| | **25** | 140 | 48 | 25 | 1 | | □ | – | – |
| | **25.5** | | | | 2 | | □ | – | – |
| | **26** | | | | | | □ | – | – |
| | **26.5** | | | | | | □ | – | – |
| | **27** | 145 | 50 | | | | □ | – | – |
| | **27.5** | | | | | | □ | – | – |
| | **28** | | | | | | □ | – | – |
| | **28.5** | | 53 | | | | □ | – | – |
| | **29** | | | | | | □ | – | – |
| | **29.5** | | | | | | □ | – | – |
| | **30** | | | | | | □ | – | – |
| | **30.5** | 150 | 56 | | | | □ | – | – |
| | **31** | | | | | | □ | – | – |
| | **31.5** | | | | | | □ | – | – |
| | **32** | 160 | 60 | 32 | 1 | | □ | – | – |

※横引き不可です。※Specialized for plunging.

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel<br>プリハードン鋼 Prehardened Steel<br>～40HRC | 合金鋼 Alloy Steel<br>工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel<br>焼き入れ鋼 Hardened Steel<br>～45HRC | ステンレス鋼 Stainless Steel<br>～35HRC | 鋳鉄 Cast Iron<br>ダクタイル鋳鉄 Ductile Cast Iron<br>～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **VP-ZDS** | ◎ | | | ◎ | ◎ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

● = 標準在庫品 Standard stock item
○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
□ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
△ = 生産中止品（在庫をご確認下さい。）Discontinued item

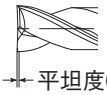
# 座ぐり用Vコート2枚刃CPMエンドミル ロングシャンクショート形

**V Coated 2-flute XPM End Mill Short Length with Long Shank for Counterboring**

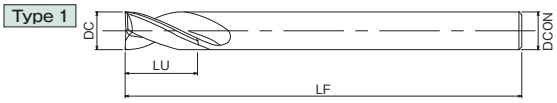
## VP-LS-ZDS

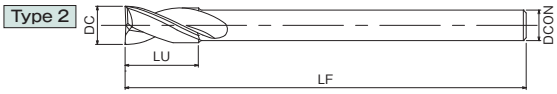
切削条件 Cutting Conditions | P910





平坦度0.05mm以下
Flatness ≦ 0.05mm




CPM | V | 0〜-0.03 | 約25° ABOUT 25°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 6 | 120 | 13 | 6 | 1 | □ | — | — |
| | 6.1 | | 16 | | 2 | □ | — | — |
| | 6.2 | | | | | □ | — | — |
| | 6.3 | | | | | □ | — | — |
| | 6.4 | | | | | □ | — | — |
| | 6.5 | | | | | □ | — | — |
| | 6.6 | | | | | □ | — | — |
| | 6.7 | | | | | □ | — | — |
| | 6.8 | | | | | □ | — | — |
| | 6.9 | | | | | □ | — | — |
| | 7 | | | | | □ | — | — |
| | 7.1 | | | | | □ | — | — |
| | 7.2 | | | | | □ | — | — |
| | 7.3 | | | | | □ | — | — |
| | 7.4 | | | | | □ | — | — |
| | 7.5 | | | | | □ | — | — |
| | 7.6 | | 19 | | | □ | — | — |
| | 7.7 | | | | | □ | — | — |
| | 7.8 | | | | | □ | — | — |
| | 7.9 | | | | | □ | — | — |
| | 8 | 130 | | 8 | 1 | □ | — | — |
| | 8.1 | | | | 2 | □ | — | — |
| | 8.2 | | | | | □ | — | — |
| | 8.3 | | | | | □ | — | — |
| | 8.4 | | | | | □ | — | — |
| | 8.5 | | | | | □ | — | — |
| | 8.6 | | | | | □ | — | — |
| | 8.7 | | | | | □ | — | — |
| | 8.8 | | | | | □ | — | — |
| | 8.9 | | | | | □ | — | — |
| | 9 | | | | | □ | — | — |
| | 9.1 | | | | | □ | — | — |
| | 9.2 | | | | | □ | — | — |
| | 9.3 | | | | | □ | — | — |
| | 9.4 | | | | | □ | — | — |
| | 9.5 | | | | | □ | — | — |
| | 9.6 | | 22 | | | □ | — | — |
| | 9.7 | | | | | □ | — | — |
| | 9.8 | | | | | □ | — | — |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径 DC | 全長 LF | 有効溝長 LU | シャンク径 DCON | 形状 Type | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | 9.9 | 150 | 22 | 8 | 2 | □ | — | — |
| | 10 | | | 10 | 1 | □ | — | — |
| | 10.1 | | | | 2 | □ | — | — |
| | 10.2 | | | | | □ | — | — |
| | 10.3 | | | | | □ | — | — |
| | 10.4 | | | | | □ | — | — |
| | 10.5 | | | | | □ | — | — |
| | 10.6 | | | | | □ | — | — |
| | 10.7 | | | | | □ | — | — |
| | 10.8 | | | | | □ | — | — |
| | 10.9 | | | | | □ | — | — |
| | 11 | | | | | □ | — | — |
| | 11.1 | | | | | □ | — | — |
| | 11.2 | | | | | □ | — | — |
| | 11.3 | | | | | □ | — | — |
| | 11.4 | | | | | □ | — | — |
| | 11.5 | | | | | □ | — | — |
| | 11.6 | | | | | □ | — | — |
| | 11.7 | | | | | □ | — | — |
| | 11.8 | | | | | □ | — | — |
| | 11.9 | | | | | □ | — | — |
| | 12 | 180 | 26 | 12 | 1 | □ | — | — |
| | 12.5 | | | | 2 | □ | — | — |
| | 13 | | | | | □ | — | — |
| | 13.5 | | | | | □ | — | — |
| | 14 | | | | | □ | — | — |
| | 14.5 | | | | | □ | — | — |
| | 15 | | | | | □ | — | — |
| | 15.5 | | | | | □ | — | — |
| | 16 | 200 | 32 | 16 | 1 | □ | — | — |
| | 16.5 | | | | 2 | □ | — | — |
| | 17 | | | | | □ | — | — |
| | 17.5 | | | | | □ | — | — |
| | 18 | | | | | □ | — | — |
| | 18.5 | | | | | □ | — | — |
| | 19 | | | | | □ | — | — |
| | 19.5 | | 38 | | | □ | — | — |
| | 20 | 220 | | 20 | 1 | □ | — | — |

※横引き不可です。※Specialized for plunging.

CADデータ（DXF・STEP）ダウンロードサービス公開中 ▶▶▶P.6

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。） Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。） Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。） Discontinued item

## 面取り用Vコート2枚刃XPMエンドミル
**V Coated 2-flute XPM End Mill for Chamfering**

## VP-SCC
切削条件 Cutting Conditions | P911



切れ味の良いねじれ刃の採用により、バリの少ないきれいな加工面が得られます。
Good surface finish provided by helix sharp cutting edge

CAD

XPM | V | 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×半角×大端径 DC × KAPR × DCX | 全長 LF | 刃長 APMX | シャンク径 DCON | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 8454883 | **0.8 × 45° × 3** | 50 | 1.1 | 3 | D | ● | 6 | 10,400 |
| 8454884 | **0.8 × 45° × 4** | | 1.6 | 4 | | ● | 8 | 10,400 |
| 8454906 | **1 × 45° × 6** | 60 | 2.5 | 6 | | ● | 18 | 10,800 |
| 8454908 | **1 × 45° × 8** | 70 | 3.5 | 8 | | ● | 31 | 11,000 |
| 8454910 | **1 × 45° × 10** | 80 | 4.5 | 10 | | ● | 53 | 12,900 |
| 8454912 | **1 × 45° × 12** | 90 | 5.5 | 12 | | ● | 87 | 15,400 |

## Vコート3枚刃XPMコーナラウンディング
**V coated 3-flute XPM End Mill with Corner Rounding**

## V-XPM-ECR
切削条件 Cutting Conditions | P926



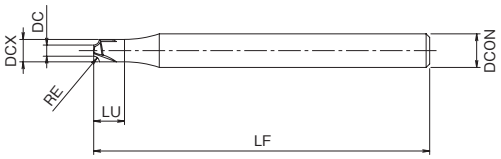
Vコーティングを施した粉末ハイスXPMコーナラウンディングカッタです。
Vcoated powder metallurgy XPM end mill with corner rounding.

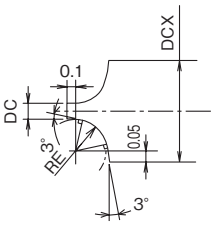
CAD

XPM | V | R ±0.03

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 先端径×コーナ半径 DC × RE | 外径 DCX | 全長 LF | シャンク径 DCON | 首下長 LU | | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 8405121 | **2 × R0.5** | 3 | 60 | 6 | 4 | D | ● | 16 | 14,900 |
| 8405122 | **2 × R0.75** | 3.5 | | | 5 | | ● | 16 | 14,900 |
| 8405123 | **2 × R1** | 4 | | | 5.5 | | ● | 16 | 14,900 |
| 8405124 | **2 × R1.25** | 4.5 | | | 6 | | ● | 16 | 14,900 |
| 8405125 | **2 × R1.5** | 5 | | | 7 | | ● | 17 | 14,900 |
| 8405126 | **2 × R1.75** | 5.5 | | | 7.5 | | ● | 17 | 14,900 |
| 8405127 | **2 × R2** | 6 | | | — | | ● | 17 | 14,900 |
| 8405128 | **2 × R2.25** | 6.5 | | 8 | 9 | | ● | 26 | 14,900 |
| 8405129 | **2 × R2.5** | 7 | | | 10 | | ● | 27 | 14,900 |
| 8405130 | **2 × R2.75** | 7.5 | | | 10.5 | | ● | 27 | 14,900 |
| 8405131 | **2 × R3** | 8 | | | — | | ● | 26 | 14,900 |
| 8405133 | **2 × R3.5** | 9 | | 10 | 12 | | ● | 39 | 17,300 |
| 8405135 | **2 × R4** | 10 | | | — | | ● | 39 | 17,300 |




OSGアプリなら「Myカタログ」に登録でオリジナルのカタログ棚を作成可能 ▶▶▶ P.6

| 製品記号 Abbreviation ＼ 被削材質 Work Material | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel / 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|
| **VP-SCC** | ◎ | ○ | ◎ | ◎ | ○ | ○ | ○ | | ○ |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# Vコート3枚刃カウンターシンク
**V Coated 3-flute Countersink**

## V-UCS

切削条件 Cutting Conditions | P927



HSS | V | 0～-30°

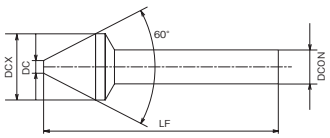
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端角 DCX × SIG | 先端径 DC | 大端径 DCX | 全長 LF | シャンク径 DCON | テーパ部長 Lt | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 9106063 | **6.3 × 60°** | 1.4 | 6.3 | 47 | 5 | (4.16) | | ● | 9 | 5,140 |
| 9106083 | **8.3 × 60°** | 1.9 | 8.3 | 52 | 6 | (5.46) | | ● | 14 | 6,130 |
| 9106104 | **10.4 × 60°** | 2.4 | 10.4 | 53 | | (6.84) | | ● | 16 | 7,070 |
| 9106124 | **12.4 × 60°** | 2.7 | 12.4 | 60 | 8 | (8.14) | | ● | 30 | 7,520 |
| 9106165 | **16.5 × 60°** | 3.1 | 16.5 | 65 | 10 | (10.83) | | ● | 46 | 8,990 |
| 9106205 | **20.5 × 60°** | 3.4 | 20.5 | 69 | | (14.29) | | ● | 52 | 12,600 |
| 9106250 | **25 × 60°** | 3.7 | 25 | 75 | | (17.32) | | ● | 71 | 15,900 |
| 9109043 | **4.3 × 90°** | 1.3 | 4.3 | 40 | 4 | (1.5) | | ● | 5 | 3,930 |
| 9109053 | **5.3 × 90°** | 1.4 | 5.3 | | | (1.9) | | ● | 5 | 4,070 |
| 9109063 | **6.3 × 90°** | | 6.3 | 45 | 5 | (2.4) | C | ● | 9 | 4,110 |
| 9109073 | **7.3 × 90°** | 1.7 | 7.3 | 50 | 6 | (2.75) | | ● | 13 | 4,840 |
| 9109083 | **8.3 × 90°** | 1.9 | 8.3 | | | (3.15) | | ● | 14 | 4,980 |
| 9109094 | **9.4 × 90°** | 2.1 | 9.4 | | | (3.6) | | ● | 15 | 5,560 |
| 9109104 | **10.4 × 90°** | 2.4 | 10.4 | | | (3.95) | | ● | 15 | 5,670 |
| 9109115 | **11.5 × 90°** | 2.7 | 11.5 | 56 | 8 | (4.5) | | ● | 28 | 5,880 |
| 9109124 | **12.4 × 90°** | | 12.4 | | | (4.8) | | ● | 28 | 6,020 |
| 9109134 | **13.4 × 90°** | 2.8 | 13.4 | | | (5.3) | | ● | 26 | 6,980 |
| 9109144 | **14.4 × 90°** | | 14.4 | | | (5.75) | | ● | 27 | 6,980 |
| 9109150 | **15 × 90°** | 3.1 | 15 | 60 | 10 | (5.9) | | ● | 41 | 6,980 |

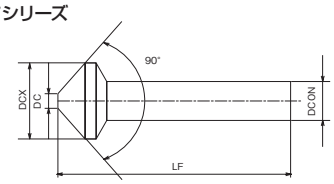
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端角 DCX × SIG | 先端径 DC | 大端径 DCX | 全長 LF | シャンク径 DCON | テーパ部長 Lt | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 9109165 | **16.5 × 90°** | 3.1 | 16.5 | 60 | 10 | (6.65) | | ● | 43 | 7,090 |
| 9109190 | **19 × 90°** | 3.4 | 19 | 63 | | (7.75) | | ● | 50 | 9,300 |
| 9109205 | **20.5 × 90°** | | 20.5 | | | (8.5) | | ● | 51 | 10,200 |
| 9109230 | **23 × 90°** | 3.7 | 23 | 67 | | (9.6) | | ● | 61 | 11,700 |
| 9109250 | **25 × 90°** | | 25 | | | (10.6) | | ● | 66 | 12,400 |
| 9109260 | **26 × 90°** | | 26 | | | (11.1) | | ● | 66 | 15,200 |
| 9109280 | **28 × 90°** | 3.9 | 28 | 71 | 12 | (12) | | ● | 92 | 16,200 |
| 9109300 | **30 × 90°** | 4.1 | 30 | | | (12.9) | | ● | 96 | 17,500 |
| 9109310 | **31 × 90°** | | 31 | | | (13.4) | | ● | 108 | 18,700 |
| 9109340 | **34 × 90°** | 4.5 | 34 | 103 | 16 | (14.75) | C | ● | 245 | 29,900 |
| 9109370 | **37 × 90°** | | 37 | 118 | | (16.25) | | ● | 304 | 38,500 |
| 9112063 | **6.3 ×120°** | 1.4 | 6.3 | 44 | 5 | (1.39) | | ● | 9 | 5,670 |
| 9112083 | **8.3 ×120°** | 1.9 | 8.3 | 48 | 6 | (1.82) | | ● | 14 | 6,660 |
| 9112104 | **10.4 ×120°** | 2.4 | 10.4 | | | (2.28) | | ● | 15 | 7,780 |
| 9112124 | **12.4 ×120°** | 2.7 | 12.4 | 54 | 8 | (2.86) | | ● | 28 | 8,770 |
| 9112165 | **16.5 ×120°** | 3.1 | 16.5 | 57 | 10 | (3.95) | | ● | 42 | 10,600 |
| 9112205 | **20.5 ×120°** | 3.4 | 20.5 | 59 | | (4.91) | | ● | 47 | 13,900 |
| 9112250 | **25 ×120°** | 3.7 | 25 | 62 | | (6.12) | | ● | 63 | 17,700 |

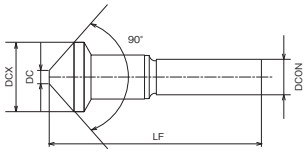
### 60°シリーズ




### 90°シリーズ

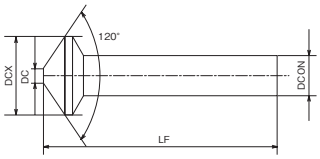



DCX<ϕ34




ϕ34≦DCX

### 120°シリーズ




形状やサイズ、被削材などの条件から最適な工具を選定 ▶▶▶P.6

| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel ～40HRC | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| **V-UCS** | ◎ | | ○ | ○ | ◎ | ○ | ○ | | | |

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

## 面取り用Vコート2枚刃XPMエンドミルVカットショート形
**V Coated 2-flute XPM End Mill V Cut Short Type**

# V-XPM-VCMS



XPM | V | ±30′ | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端角 DCX × SIG | 刃長 平行部 | 全長 OAL | 刃長 APMX | シャンク径 DCON | 先端径 DC | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3× 60° | | | 4.6 | | | | □ | — | — |
| | 3× 90° | 2 | | 3.5 | | (0.2) | | □ | — | — |
| | 3×120° | | 50 | 2.9 | | | | □ | — | — |
| | 4× 60° | | | 6.5 | | | | □ | — | — |
| | 4× 90° | 3 | | 5 | 6 | | | □ | — | — |
| | 4×120° | | | 4.2 | | | | □ | — | — |
| | 6× 60° | | | 9.2 | | | | □ | — | — |
| | 6× 90° | 4 | 60 | 7 | | (0.3) | | □ | — | — |
| | 6×120° | | | 5.7 | | | | □ | — | — |
| | 8× 60° | | | 12.9 | | | | □ | — | — |
| | 8× 90° | 6 | 70 | 10 | 8 | | | □ | — | — |
| | 8×120° | | | 8.3 | | | | □ | — | — |
| | 10× 60° | | | 16.7 | | | | □ | — | — |
| | 10× 90° | 8 | 75 | 13 | 10 | | — | □ | — | — |
| | 10×120° | | | 10.9 | | | | □ | — | — |
| | 12× 60° | | | 20.4 | | | | □ | — | — |
| | 12× 90° | 10 | 80 | 16 | 12 | (0.55) | | □ | — | — |
| | 12×120° | | | 13.5 | | | | □ | — | — |
| | 16× 60° | | | 25.9 | | | | □ | — | — |
| | 16× 90° | 12 | 90 | 20 | 16 | | | □ | — | — |
| | 16×120° | | | 16.6 | | | | □ | — | — |
| | 20× 60° | | | 33.3 | | | | □ | — | — |
| | 20× 90° | 16 | 100 | 26 | 20 | | | □ | — | — |
| | 20×120° | | | 21.8 | | (0.8) | | □ | — | — |
| | 25× 60° | | | 41.7 | | | | □ | — | — |
| | 25× 90° | 20 | 120 | 32.5 | 25 | | | □ | — | — |
| | 25×120° | | | 27.2 | | | | □ | — | — |

## 面取り用Vコート2枚刃XPMエンドミルVカット
**V Coated 2-flute XPM End Mill V Cut Type**

# V-XPM-VCM



XPM | V | ±30′ | 約30° ABOUT 30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端角 DCX × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 先端径 DC | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 3 × 60° | | | | | | □ | — | — |
| | 3 × 90° | | 8 | | (0.2) | | □ | — | — |
| | 3 × 120° | 75 | | | | | □ | — | — |
| | 4 × 60° | | | | | | □ | — | — |
| | 4 × 90° | | 11 | 6 | | | □ | — | — |
| | 4 × 120° | | | | | | □ | — | — |
| | 6 × 60° | | | | | | □ | — | — |
| | 6 × 90° | 85 | 13 | | (0.3) | | □ | — | — |
| | 6 × 120° | | | | | | □ | — | — |
| | 8 × 60° | | | | | | □ | — | — |
| | 8 × 90° | 100 | 19 | 8 | | | □ | — | — |
| | 8 × 120° | | | | | | □ | — | — |
| | 10 × 60° | | | | | | □ | — | — |
| | 10 × 90° | 120 | 22 | 10 | | — | □ | — | — |
| | 10 × 120° | | | | | | □ | — | — |
| | 12 × 60° | | | | | | □ | — | — |
| | 12 × 90° | 125 | 26 | 12 | (0.55) | | □ | — | — |
| | 12 × 120° | | | | | | □ | — | — |
| | 16 × 60° | | | | | | □ | — | — |
| | 16 × 90° | 145 | 32 | 16 | | | □ | — | — |
| | 16 × 120° | | | | | | □ | — | — |
| | 20 × 60° | | | | | | □ | — | — |
| | 20 × 90° | 165 | 38 | 20 | | | □ | — | — |
| | 20 × 120° | | | | (0.8) | | □ | — | — |
| | 25 × 60° | | | | | | □ | — | — |
| | 25 × 90° | 170 | 45 | 25 | | | □ | — | — |
| | 25 × 120° | | | | | | □ | — | — |

OZT Tool Presetter
**OZTツールプリセッタ**
OZT Tool Presetter
※詳細は▶P.1193 を参照下さい。
See p.1193 for details
迅速で高精度な測定!外段取りで生産効率アップ!

**OSGアプリにカタログをダウンロードすればオフラインで閲覧可能 ▶▶▶P.6**

**在庫記号について** Inventory symbols

- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 面取り用WXLコート2枚刃ハイスエンドミル Vカット
**WXL Coated 2-flute End Mill V Cut Type**

## WH-NC-VCM



HSS-Co | WXL | 0〜-0.03 | ±30′ | 30°

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×先端角 DCX×SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 先端径 DC | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 3 × 60° | 65 | 8 | 6 | (0.2) | – | □ | – | – |
| | 4 × 60° | | 10 | | (0.3) | | □ | – | – |
| | 5 × 60° | | | | | | □ | – | – |
| | 6 × 60° | | | | | | □ | – | – |
| | 7 × 60° | 70 | 12 | | | | □ | – | – |
| | 8 × 60° | | | | | | □ | – | – |
| | 10 × 60° | | 14 | | | | □ | – | – |
| | 12 × 60° | | 16 | | | | □ | – | – |
| | 14 × 60° | 80 | 18 | 10 | (0.55) | | □ | – | – |
| | 16 × 60° | | 20 | | | | □ | – | – |
| | 18 × 60° | | 25 | | | | □ | – | – |
| | 20 × 60° | | | | (0.8) | | □ | – | – |
| | 3 × 90° | 65 | 8 | 6 | (0.2) | | □ | – | – |
| | 4 × 90° | | 10 | | (0.3) | | □ | – | – |
| | 5 × 90° | | | | | | □ | – | – |
| | 6 × 90° | | | | | | □ | – | – |
| | 7 × 90° | 70 | 12 | | | | □ | – | – |
| | 8 × 90° | | | | | | □ | – | – |

（単位:mm）（Unit:mm）

| ツール No. EDP No. | 外径×先端角 DCX×SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 先端径 DC | 在庫 Stock | | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | 10 × 90° | 70 | 14 | 10 | (0.55) | | □ | – | – |
| | 12 × 90° | | 16 | | | | □ | – | – |
| | 14 × 90° | 80 | 18 | | | | □ | – | – |
| | 16 × 90° | | 20 | | | | □ | – | – |
| | 18 × 90° | | 25 | | | | □ | – | – |
| | 20 × 90° | | | | (0.8) | | □ | – | – |
| | 3 × 120° | 65 | 8 | 6 | (0.2) | | □ | – | – |
| | 4 × 120° | | 10 | | (0.3) | | □ | – | – |
| | 5 × 120° | | | | | | □ | – | – |
| | 6 × 120° | | | | | | □ | – | – |
| | 7 × 120° | 70 | 12 | | | | □ | – | – |
| | 8 × 120° | | | | | | □ | – | – |
| | 10 × 120° | | 14 | 10 | (0.55) | | □ | – | – |
| | 12 × 120° | | 16 | | | | □ | – | – |
| | 14 × 120° | 80 | 18 | | | | □ | – | – |
| | 16 × 120° | | 20 | | | | □ | – | – |
| | 18 × 120° | | 25 | | | | □ | – | – |
| | 20 × 120° | | | | (0.8) | | □ | – | – |


**OZTツールプリセッタ**
OZT Tool Presetter
※詳細は▶P.1193を参照下さい。
See p.1193 for details
迅速で高精度な測定!外段取りで生産効率アップ!

製品検索サイトから見積依頼書・注文書を作成できます ▶▶▶P.6


| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| WH-NC-VCM | ◎ | | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols
- ● = 標準在庫品 Standard stock item
- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
- □ = 特定代理店在庫品 Stocked by specific distributors. Contact us for price & availability.
- △ = 生産中止品（在庫をご確認下さい。）Discontinued item

# 面取り用WXLコート2枚刃ハイスエンドミル Vカット
**WXL Coated 2-flute End Mill V Cut Type**

## WH-NC-VCMF



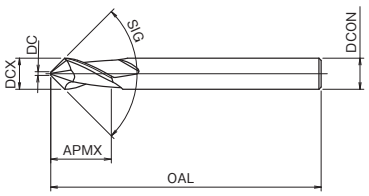

HSS-Co　WXL　0〜−0.03　±30′　30°

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端径×先端角 DCX × DC × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 3 × 0.5 × 60° | 65 | 8 | 6 | □ | – | – |
| | 3 × 1.0 × 60° | | | | □ | – | – |
| | 4 × 0.5 × 60° | | 10 | | □ | – | – |
| | 4 × 1.0 × 60° | | | | □ | – | – |
| | 5 × 0.5 × 60° | | | | □ | – | – |
| | 5 × 1.0 × 60° | | | | □ | – | – |
| | 6 × 0.5 × 60° | | | | □ | – | – |
| | 6 × 1.0 × 60° | | | | □ | – | – |
| | 7 × 0.5 × 60° | 70 | 12 | | □ | – | – |
| | 7 × 1.0 × 60° | | | | □ | – | – |
| | 8 × 0.5 × 60° | | | | □ | – | – |
| | 8 × 1.0 × 60° | | | | □ | – | – |
| | 10 × 0.5 × 60° | | 14 | 10 | □ | – | – |
| | 10 × 1.0 × 60° | | | | □ | – | – |
| | 12 × 0.5 × 60° | | 16 | | □ | – | – |
| | 12 × 1.0 × 60° | | | | □ | – | – |
| | 14 × 0.5 × 60° | 80 | 18 | | □ | – | – |
| | 14 × 1.0 × 60° | | | | □ | – | – |
| | 16 × 0.5 × 60° | | 20 | | □ | – | – |
| | 16 × 1.0 × 60° | | | | □ | – | – |
| | 18 × 0.5 × 60° | | 25 | | □ | – | – |
| | 18 × 1.0 × 60° | | | | □ | – | – |
| | 20 × 0.5 × 60° | | | | □ | – | – |
| | 20 × 1.0 × 60° | | | | □ | – | – |

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 外径×先端径×先端角 DCX × DC × SIG | 全長 OAL | 刃長 APMX | シャンク径 DCON | 在庫 Stock | 重量 (g) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | 3 × 0.5 × 90° | 65 | 8 | 6 | □ | – | – |
| | 3 × 1.0 × 90° | | | | □ | – | – |
| | 4 × 0.5 × 90° | | 10 | | □ | – | – |
| | 4 × 1.0 × 90° | | | | □ | – | – |
| | 5 × 0.5 × 90° | | | | □ | – | – |
| | 5 × 1.0 × 90° | | | | □ | – | – |
| | 6 × 0.5 × 90° | | | | □ | – | – |
| | 6 × 1.0 × 90° | | | | □ | – | – |
| | 7 × 0.5 × 90° | 70 | 12 | | □ | – | – |
| | 7 × 1.0 × 90° | | | | □ | – | – |
| | 8 × 0.5 × 90° | | | | □ | – | – |
| | 8 × 1.0 × 90° | | | | □ | – | – |
| | 10 × 0.5 × 90° | | 14 | 10 | □ | – | – |
| | 10 × 1.0 × 90° | | | | □ | – | – |
| | 12 × 0.5 × 90° | | 16 | | □ | – | – |
| | 12 × 1.0 × 90° | | | | □ | – | – |
| | 14 × 0.5 × 90° | 80 | 18 | | □ | – | – |
| | 14 × 1.0 × 90° | | | | □ | – | – |
| | 16 × 0.5 × 90° | | 20 | | □ | – | – |
| | 16 × 1.0 × 90° | | | | □ | – | – |
| | 18 × 0.5 × 90° | | 25 | | □ | – | – |
| | 18 × 1.0 × 90° | | | | □ | – | – |
| | 20 × 0.5 × 90° | | | | □ | – | – |
| | 20 × 1.0 × 90° | | | | □ | – | – |




| 被削材質 Work Material / 製品記号 Abbreviation | 炭素鋼 Carbon Steel / プリハードン鋼 Prehardened Steel ～40HRC | 合金鋼 Alloy Steel / 工具鋼 Tool Steel | プリハードン鋼 Prehardened Steel / 焼き入れ鋼 Hardened Steel ～45HRC | ステンレス鋼 Stainless Steel ～35HRC | 鋳鉄 Cast Iron / ダクタイル鋳鉄 Ductile Cast Iron ～350HB | 銅合金 Copper Alloy | アルミ合金 Aluminum Alloy | チタン合金 Titanium Alloy | 耐熱合金 Heat Resistant Alloy | プラスチック Plastic |
|---|---|---|---|---|---|---|---|---|---|---|
| WH-NC-VCMF | ◎ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | |

**在庫記号について** Inventory symbols

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- ○ = 準標準在庫品（在庫をご確認下さい。）Limited standard stock item
- ▲ = 新製品及び後継品へ切り替え生産（在庫をご確認下さい。）Scheduled to be replaced by new product or successor item
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- △ = 生産中止品（在庫をご確認下さい。）Discontinued item




## デジタルカタログ

カタログ

最新の総合カタログや製品カタログを時間・場所問わず閲覧できます。しおりを挟んだり、メールでカタログを共有することも可能です。




### 総合カタログ

いつでもどこでもカタログを。

### 製品カタログ

最新カタログをいち早く。




## コードスキャン

コードスキャン

アプリ限定

バーコード・二次元コードに対応したスキャン機能です。工具のスペック情報や切削条件、検査成績表などの各種データを取得することができます。



※二次元コードは一部製品に限ります

## CADデータダウンロード

CADデータダウンロード

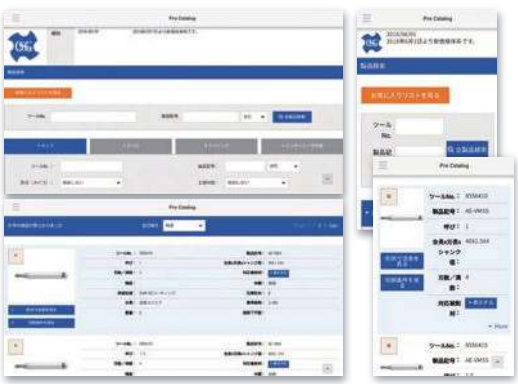
工具のDXFファイル・STEPファイルをパソコンやスマートフォンからいつでもダウンロードできます。



## 製品検索

製品検索

形状やサイズなどの条件から最適な工具を選定できます。また、検索した工具をお気に入りリストに登録したり、「見積依頼書」や「注文書」を作成することもできます。



アプリの使い方・ダウンロードはこちら

**さらに、製品動画やFAQサイトなどOSG情報が満載！**

**最新情報を掲載中　今すぐダウンロード！**

# エンドミル特殊品製作事例 END MILLS MADE SPECIALLY UPON REQUEST



テーパラフィングボールエンドミル
TAPER BALL NOSE ROUGHING END MILLS



段付きエンドミル
MULTI DIAMETER END MILLS



特殊溝加工用エンドミル
DOVETAIL CUTTER END MILLS



特殊溝加工用エンドミル
SPECIAL SLOT CUTTER END MILLS



複溝エンドミル
SUBLAND END MILLS



ニック付き強ねじれ刃ラジアスエンドミル
HIGH-HELIX END MILLS WITH NICKS AND CORNER RADIUS

# END MILLS MADE SPECIALLY UPON REQUEST エンドミル特殊品製作事例



総形エンドミル
PROFILE CUTTER END MILLS



T溝フライス（千鳥刃）
T-SLOT CUTTER



総形エンドミル
PROFILE CUTTER END MILLS



シェルタイプラフィングエンドミル
ROUGHING END MILLS SHELL TYPE



特殊勾配加工用テーパエンドミル
SPECIAL TAPER END MILLS

詳細は当社営業所へお問い合わせ下さい。
Please contact our sales department for details.

# ハイスエンドミル 切削条件 目次 INDEX OF CUTTING CONDITIONS FOR HIGH SPEED STEEL END MILLS


| 製品記号 Abbreviation | 仕様 Specification | 切削条件 Type of process | ページ Page |
|---|---|---|---|
| **V-XPM-EDS** | Vコート2枚刃XPMスクエアエンドミルショート形<br>V Coated 2-flute XPM End Mill Short Length | 溝切削<br>SLOTTING | **905** |
| **V-XPM-EMS** | Vコート4枚刃XPMスクエアエンドミルショート形<br>V Coated 4-flute XPM End Mill Short Length | 溝切削<br>SLOTTING | **905** |
| **V-XPM-EDS** | Vコート2枚刃XPMスクエアエンドミルショート形<br>V Coated 2-flute XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **905** |
| **V-XPM-EMS** | Vコート4枚刃XPMスクエアエンドミルショート形<br>V Coated 4-flute XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **905** |
| **V-XPM-EHS** | VコートXPMスクエアエンドミルハイヘリックスショート形<br>V Coated High Helix XPM End Mill Short Length | 溝切削<br>SLOTTING | **906** |
| **V-XPM-NHS** | VコートXPMエンドミルハイヘリックスニック付ショート形<br>V Coated High Helix XPM Nicked End Mill Short Length | 溝切削<br>SLOTTING | **906** |
| **V-XPM-EHS** | VコートXPMスクエアエンドミルハイヘリックスショート形<br>V Coated High Helix XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **906** |
| **V-XPM-NHS** | VコートXPMエンドミルハイヘリックスニック付ショート形<br>V Coated High Helix XPM Nicked End Mill Short Length | 側面切削<br>SIDE MILLING | **906** |
| **V-XPM-EBD** | Vコート2枚刃XPMボールエンドミル<br>V Coated 2-flute XPM Ball End Mill | | **907** |
| **VPS-EMS** | Vコート多刃XPMエンドミルショート形高剛性タイプ<br>V Coated Multi-flute XPM End Mill Short Length (Highly Rigid Type) | 側面切削<br>SIDE MILLING | **907** |
| **VP-RESF** | VコートXPMファインピッチラフィングエンドミルショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length | 側面切削<br>SIDE MILLING | **908** |
| **VLS-XPM-RESF** | VコートXPMファインピッチラフィングエンドミルロングシャンクショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank | 側面切削<br>SIDE MILLING | **908** |
| **VP-DE-RESF** | 深彫り用VコートXPMファインピッチラフィングエンドミルショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length for Deep Contouring | 側面切削<br>SIDE MILLING | **908** |
| **VSS-XPM-RESF** | VコートXPMファインピッチラフィングエンドミルスリムシャンク<br>V Coated XPM Roughing End Mill Fine Pitch Short Length with Slim Shank | 側面切削<br>SIDE MILLING | **908** |
| **VP-RESF** | VコートXPMファインピッチラフィングエンドミルショート形<br>V Coated XPM Roughing End Mill Fine Pitch Short Length | 溝切削<br>SLOTTING | **908** |
| **VP-RENF** | VコートXPMファインピッチラフィングエンドミルミディアム形<br>V Coated XPM Roughing End Mill Fine Pitch Medium Length | 側面切削<br>SIDE MILLING | **909** |
| **VP-RELF** | VコートXPMファインピッチラフィングエンドミルロング形<br>V Coated XPM Roughing End Mill Fine Pitch Long Length | 側面切削<br>SIDE MILLING | **909** |
| **VP-ZDS** | 座ぐり用Vコート2枚刃CPMエンドミルショート形<br>V Coated 2-flute XPM End Mill Short Length for Counterboring | | **910** |
| **VP-LS-ZDS** | 座ぐり用Vコート2枚刃CPMエンドミルロングシャンクショート形<br>V Coated 2-flute XPM End Mill Short Length with Long Shank for Counterboring | | **910** |
| **VP-SCC** | 面取り用Vコート2枚刃XPMエンドミル<br>V Coated 2-flute XPM End Mill for Chamfering | 穴面取り（突込み加工）<br>COUNTER SINKING | **911** |
| **VP-SCC** | 面取り用Vコート2枚刃XPMエンドミル<br>V Coated 2-flute XPM End Mill for Chamfering | 角面取り（側面切削）<br>CHAMFERING | **911** |
| **XPM-EDS** | 2枚刃XPMスクエアエンドミルショート形<br>2-flute XPM End Mill Short Length | 溝切削<br>SLOTTING | **912** |
| **XPM-EMS** | 4枚刃XPMスクエアエンドミルショート形<br>4-flute XPM End Mill Short Length | 溝切削<br>SLOTTING | **912** |
| **XPM-EDS** | 2枚刃XPMスクエアエンドミルショート形<br>2-flute XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **912** |
| **XPM-EMS** | 4枚刃XPMスクエアエンドミルショート形<br>4-flute XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **912** |
| **TIN-XPM-EDS** | TiNコート2枚刃XPMスクエアエンドミルショート形<br>TiN Coated 2-flute XPM End Mill Short Length | 溝切削<br>SLOTTING | **912** |
| **TIN-XPM-EMS** | TiNコート4枚刃XPMスクエアエンドミルショート形<br>TiN Coated 4-flute XPM End Mill Short Length | 溝切削<br>SLOTTING | **912** |
| **TIN-XPM-EDS** | TiNコート2枚刃XPMスクエアエンドミルショート形<br>TiN Coated 2-flute XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **912** |
| **TIN-XPM-EMS** | TiNコート4枚刃XPMスクエアエンドミルショート形<br>TiN Coated 4-flute XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **912** |
| **XPM-EHS** | XPMスクエアエンドミルハイヘリックスショート形<br>High Helix XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **913** |
| **TIN-XPM-EHS** | TiNコートXPMスクエアエンドミルハイヘリックスショート形<br>TiN Coated High Helix XPM End Mill Short Length | 側面切削<br>SIDE MILLING | **913** |
| **LS-XPM-RESF** | XPMファインピッチラフィングエンドミルロングシャンク<br>XPM Roughing End Mill Fine Pitch Short Length with Long Shank | 側面切削<br>SIDE MILLING | **913** |
| **TLS-XPM-RESF** | TiNコートXPMファインピッチラフィングエンドミルロングシャンク<br>TiN Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank | 側面切削<br>SIDE MILLING | **913** |
| **EX-TIN-EDS** | TiNコート2枚刃ハイススクエアエンドミルショート形<br>TiN Coated 2-flute End Mill Short Length | 溝切削<br>SLOTTING | **914** |
| **EX-TIN-EMS** | TiNコート多刃ハイススクエアエンドミルショート形<br>TiN Coated Multi-flute End Mill Short Length | 溝切削<br>SLOTTING | **914** |
| **EX-TIN-EDS** | TiNコート2枚刃ハイススクエアエンドミルショート形<br>TiN Coated 2-flute End Mill Short Length | 側面切削<br>SIDE MILLING | **914** |
| **EX-TIN-EMS** | TiNコート多刃ハイススクエアエンドミルショート形<br>TiN Coated Multi-flute End Mill Short Length | 側面切削<br>SIDE MILLING | **914** |
| **EDS** | 2枚刃ハイススクエアエンドミルショート形<br>2-flute End Mill Short Length | 溝切削<br>SLOTTING | **915** |
| **CC-EMS** | 4枚刃ハイススクエアエンドミルセンタカットショート形<br>4-flute End Mill Center Cut Short Length | 溝切削<br>SLOTTING | **915** |

# ハイスエンドミル 切削条件 目次


| 製品記号<br>Abbreviation | 仕様<br>Specification | 切削条件<br>Type of process | ページ<br>Page |
|---|---|---|---|
| **CE-EMS** | 多刃ハイススクエアエンドミルセンタ付きショート形<br>Multi-flute End Mill Short Length with Center Hole | 溝切削<br>SLOTTING | **915** |
| **CPM-EDS** | 2枚刃CPMスクエアエンドミルショート形<br>2-flute CPM End Mill Short Length | 溝切削<br>SLOTTING | **915** |
| **CPM-EMS** | 多刃CPMスクエアエンドミルショート形<br>Multiple-flute CPM End Mill Short Length | 溝切削<br>SLOTTING | **915** |
| **EDS** | 2枚刃ハイススクエアエンドミルショート形<br>2-flute End Mill Short Length | 側面切削<br>SIDE MILLING | **915** |
| **CC-EMS** | 4枚刃ハイススクエアエンドミルセンタカットショート形<br>4-flute End Mill Center Cut Short Length | 側面切削<br>SIDE MILLING | **915** |
| **CE-EMS** | 多刃ハイススクエアエンドミルセンタ付きショート形<br>Multi-flute End Mill Short Length with Center Hole | 側面切削<br>SIDE MILLING | **915** |
| **CPM-EDS** | 2枚刃CPMスクエアエンドミルショート形<br>2-flute CPM End Mill Short Length | 側面切削<br>SIDE MILLING | **915** |
| **CPM-EMS** | 多刃CPMスクエアエンドミルショート形<br>Multiple-flute CPM End Mill Short Length | 側面切削<br>SIDE MILLING | **915** |
| **SI-WH-RESF** | WXLコートCPMファインピッチラフィングエンドミルショート形<br>WXL Coated CPM Roughing End Mill Fine Pitch Short Length and Silent Type | 側面切削<br>SIDE MILLING | **916** |
| **SI-WH-RESF** | WXLコートCPMファインピッチラフィングエンドミルショート形<br>WXL Coated CPM Roughing End Mill Fine Pitch Short Length and Silent Type | 溝切削<br>SLOTTING | **916** |
| **WH-RESF** | WXLコートハイスファインピッチラフィングエンドミルショート形<br>WXL Coated Roughing End Mill Fine Pitch Short Length | 側面切削<br>SIDE MILLING | **917** |
| **WH-REES** | WXLコートハイスラフィングエンドミルショート形<br>WXL Coated Roughing End Mill Short Length | 側面切削<br>SIDE MILLING | **917** |
| **WH-RESF** | WXLコートハイスファインピッチラフィングエンドミルショート形<br>WXL Coated Roughing End Mill Fine Pitch Short Length | 溝切削<br>SLOTTING | **917** |
| **WH-REES** | WXLコートハイスラフィングエンドミルショート形<br>WXL Coated Roughing End Mill Short Length | 溝切削<br>SLOTTING | **917** |
| **WH-RENF** | WXLコートハイスファインピッチラフィングエンドミルミディアム形<br>WXL Coated Roughing End Mill Fine Pitch Medium Length | 側面切削<br>SIDE MILLING | **918** |
| **WH-REEN** | WXLコートハイスラフィングエンドミルミディアム形<br>WXL Coated Roughing End Mill Medium Length | 側面切削<br>SIDE MILLING | **918** |
| **WH-RELF** | WXLコートハイスファインピッチラフィングエンドミルロング形<br>WXL Coated Roughing End Mill Fine Pitch Long Length | 側面切削<br>SIDE MILLING | **918** |
| **WH-REEL** | WXLコートハイスラフィングエンドミルロング形<br>WXL Coated Roughing End Mill Long Length | 側面切削<br>SIDE MILLING | **918** |
| **EX-TIN-RESF** | TiNコートハイスファインピッチラフィングエンドミルショート形<br>TiN Coated Roughing End Mill Fine Pitch Short Length | 側面切削<br>SIDE MILLING | **919** |
| **EX-TIN-RENF** | TiNコートハイスファインピッチラフィングエンドミルミディアム形<br>TiN Coated Roughing End Mill Fine Pitch Medium Length | 側面切削<br>SIDE MILLING | **920** |
| **EX-REES** | ハイスラフィングエンドミルショート形<br>Roughing End Mill Short Length | 側面切削<br>SIDE MILLING | **921** |
| **EX-LS-RESF** | ハイスファインピッチラフィングエンドミルロングシャンクショート形<br>Roughing End Mill Fine Pitch Short Length with Long Shank | 溝切削<br>SLOTTING | **922** |
| **EX-LS-RESF** | ハイスファインピッチラフィングエンドミルロングシャンクショート形<br>Roughing End Mill Fine Pitch Short Length with Long Shank | 側面切削<br>SIDE MILLING | **922** |
| **TFGS** | TiNコートハイスタフニックゴールドエンドミルショート形<br>TiN Coated TUF-NICK End Mill Short Length | 側面切削<br>SIDE MILLING | **923** |
| **TFGN** | TiNコートハイスタフニックゴールドエンドミルミディアム形<br>TiN Coated TUF-NICK End Mill Medium Length | 側面切削<br>SIDE MILLING | **923** |
| **TFS** | ハイスタフニックエンドミルショート形<br>TUF-NICK End Mill Short Length | 側面切削<br>SIDE MILLING | **923** |
| **TFN** | ハイスタフニックエンドミルミディアム形<br>TUF-NICK End Mill Medium Length | 側面切削<br>SIDE MILLING | **923** |
| **BKMS** | 多刃ハイスベストカットショート形<br>Multi-flute Best-Kut End Mill Short Length | 溝切削<br>SLOTTING | **924** |
| **CPM-BKMS** | 多刃CPMベストカットショート形<br>Multi-flute CPM Best-Kut End Mill Short Length | 溝切削<br>SLOTTING | **924** |
| **BKMS** | 多刃ハイスベストカットショート形<br>Multi-flute Best-Kut End Mill Short Length | 側面切削<br>SIDE MILLING | **924** |
| **CPM-BKMS** | 多刃CPMベストカットショート形<br>Multi-flute CPM Best-Kut End Mill Short Length | 側面切削<br>SIDE MILLING | **924** |
| **BKML** | 多刃ハイスベストカットロング形<br>Multi-flute Best-Kut End Mill Long Length | 側面切削<br>SIDE MILLING | **924** |
| **RF-TSC** | ハイスTスロットカッタ<br>End Mill for T-slots | | **925** |
| **CPM-EHS** | CPMスクエアエンドミルハイヘリックスショート形<br>High Helix CPM End Mill Short Length | 側面切削<br>SIDE MILLING | **925** |
| **V-XPM-ECR** | Vコート3枚刃XPMコーナラウンディング<br>V Coated 3-flute XPM End Mill with Corner Rounding | | **926** |
| **V-UCS** | Vコート3枚刃カウンターシンク<br>V Coated 3-flute Countersink | | **927** |
| **ED-EQ-80** | 電着ダイヤモンドボールエンドミル#80タイプ<br>Electroplated Diamond Ball End Mill #80 | | **927-1 WEB** |
| **ED-EQ-100** | 電着ダイヤモンドボールエンドミル#100タイプ<br>Electroplated Diamond Ball End Mill #100 | | **927-1 WEB** |

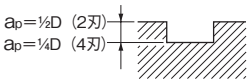
形状寸法表 SPECIFICATION CHARTS V-XPM-EDS▶P753
形状寸法表 SPECIFICATION CHARTS V-XPM-EMS▶P795

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## V-XPM-EDS/V-XPM-EMS

### 溝切削 SLOTTING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | 超耐熱合金鋼・チタン合金 インコネル®・ハステロイ® Heat Resistant Alloy Steel・Titanium Alloy Steel Inconel®・Hastelloy® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 | 12,500 | 63 | 11,200 | 56 | 8,000 | 30 | 6,000 | 25 | — | — |
| 2 | 6,300 | 75 | 5,600 | 56 | 4,000 | 30 | 3,000 | 25 | — | — |
| 3 | 4,500 | 95 | 3,750 | 63 | 2,650 | 45 | 2,000 | 25 | 1,250 | 16 |
| 4 | 3,550 | 105 | 2,650 | 63 | 2,000 | 50 | 1,500 | 32 | 900 | 16 |
| 5 | 2,800 | 110 | 2,250 | 75 | 1,600 | 56 | 1,200 | 32 | 710 | 16 |
| 6 | 2,350 | 125 | 1,900 | 90 | 1,300 | 56 | 1,000 | 32 | 600 | 19 |
| 8 | 1,800 | 140 | 1,400 | 105 | 1,000 | 63 | 710 | 40 | 400 | 19 |
| 10 | 1,400 | 160 | 1,100 | 105 | 800 | 63 | 630 | 50 | 375 | 24 |
| 12 | 1,200 | 160 | 950 | 110 | 670 | 63 | 500 | 50 | 315 | 24 |
| 14 | 1,000 | 150 | 800 | 100 | 560 | 63 | 450 | 50 | 280 | 24 |
| 16 | 900 | 150 | 670 | 90 | 500 | 63 | 400 | 50 | 235 | 24 |
| 18 | 800 | 140 | 630 | 90 | 450 | 63 | 355 | 50 | 200 | 19 |
| 20 | 710 | 140 | 560 | 85 | 400 | 63 | 300 | 50 | 190 | 19 |
| 22 | 630 | 125 | 500 | 75 | 375 | 56 | 265 | 50 | 170 | 16 |
| 24 | 600 | 110 | 475 | 75 | 335 | 50 | 250 | 40 | 160 | 16 |
| 25 | 560 | 110 | 450 | 71 | 315 | 50 | 235 | 40 | 150 | 16 |
| 26 | 530 | 105 | 425 | 63 | 300 | 50 | 225 | 32 | 140 | 14 |
| 28 | 500 | 100 | 400 | 63 | 280 | 45 | 210 | 32 | 130 | 14 |
| 30 | 475 | 95 | 375 | 56 | 265 | 45 | 200 | 32 | 125 | 13 |
| 32 | 450 | 90 | 355 | 56 | 250 | 40 | 190 | 30 | 120 | 12 |
| 35 | 400 | 80 | 315 | 50 | 225 | 35 | 170 | 26 | 105 | 10 |
| 38 | 375 | 75 | 300 | 48 | 210 | 34 | 160 | 25 | 100 | 10 |
| 40 | 355 | 71 | 280 | 45 | 200 | 34 | 150 | 24 | 95 | 9 |

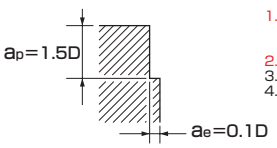



1. この表は、2刃ショート形apを1/2D、4刃ショート形apを1/4Dを基準に作成してあります。
2. apが上記を越えるときは、送り速度を20～50%落して下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 切削油剤は、被削材に適したものを選定して下さい。

1. The indicated speeds and feeds are for slotting to a depth ＝ 0.5 × D (2 flutes), and 0.25 × D (4 flutes).
2. For deeper slotting, the feed should be decreased by 20～50% .
3. Use a rigid and precise machine and holder.
4. Use suitable cutting fluids.

### 側面切削 SIDE MILLING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel(Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | 超耐熱合金鋼・チタン合金 インコネル®・ハステロイ® Heat Resistant Alloy Steel・Titanium Alloy Steel Inconel®・Hastelloy® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 6,300 | 265 | 5,600 | 235 | 4,000 | 140 | 3,550 | 140 | 1,900 | 71 |
| 4 | 5,000 | 375 | 4,250 | 235 | 2,800 | 160 | 2,650 | 150 | 1,400 | 71 |
| 5 | 4,000 | 355 | 3,350 | 300 | 2,250 | 190 | 2,100 | 170 | 1,100 | 71 |
| 6 | 3,350 | 355 | 2,800 | 300 | 2,000 | 200 | 1,800 | 170 | 950 | 100 |
| 8 | 2,500 | 475 | 2,100 | 300 | 1,400 | 200 | 1,300 | 170 | 670 | 100 |
| 10 | 2,000 | 500 | 1,700 | 355 | 1,100 | 225 | 1,050 | 170 | 560 | 100 |
| 12 | 1,700 | 500 | 1,400 | 355 | 950 | 225 | 900 | 180 | 475 | 100 |
| 14 | 1,500 | 500 | 1,200 | 355 | 850 | 225 | 750 | 180 | 400 | 100 |
| 16 | 1,250 | 450 | 1,050 | 355 | 710 | 225 | 670 | 180 | 355 | 95 |
| 18 | 1,100 | 450 | 950 | 335 | 630 | 200 | 600 | 180 | 315 | 95 |
| 20 | 1,000 | 425 | 850 | 335 | 560 | 200 | 530 | 180 | 280 | 95 |
| 22 | 950 | 425 | 750 | 300 | 500 | 200 | 475 | 170 | 250 | 85 |
| 24 | 850 | 400 | 710 | 265 | 475 | 190 | 450 | 160 | 235 | 85 |
| 25 | 800 | 375 | 670 | 265 | 450 | 180 | 425 | 160 | 225 | 75 |
| 26 | 750 | 355 | 630 | 235 | 450 | 180 | 400 | 150 | 210 | 71 |
| 28 | 710 | 335 | 600 | 235 | 425 | 170 | 375 | 140 | 200 | 67 |
| 30 | 670 | 315 | 560 | 210 | 375 | 150 | 355 | 130 | 190 | 60 |
| 32 | 630 | 300 | 530 | 210 | 355 | 140 | 335 | 125 | 180 | 60 |
| 35 | 560 | 265 | 475 | 190 | 315 | 125 | 300 | 110 | 160 | 53 |
| 38 | 530 | 250 | 450 | 180 | 300 | 120 | 280 | 105 | 150 | 50 |
| 40 | 500 | 235 | 425 | 170 | 280 | 110 | 265 | 100 | 140 | 47 |




1. この表は、4刃ショート形エンドミルのae＝0.1D×ap＝1.5Dを基準に作成しております。2刃ショート形エンドミルは送り速度を1/2に下げて下さい。
2. 仕上切削を行うときは、回転速度を1.2～1.4倍にして下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 切削油剤は、被削材に適したものを選定して下さい。

1. The indicated speeds and feeds are for side milling with 4-fluted end mills, for a depth ＝ 0.1 × D and a width of cut ＝ 1.5 × D. For milling with 2-fluted end mills, the feed should be half of that listed above.
2. For finishing operations, the speed should be increased by 20～40% .
3. Use a rigid and precise machine and holder.
4. Use suitable cutting fluids.

CUTTING CONDITIONS FOR HSS END MILLS

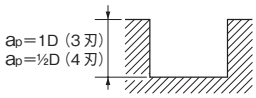
# ハイスエンドミル切削条件基準表

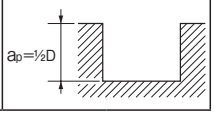


## V-XPM-EHS/V-XPM-NHS※
### 溝切削

SLOTTING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM (735～980N/mm²) | | ステンレス鋼・プリハードン鋼 Stainless Steel・Prehardened Steel SUS304・NAK80 (30～38HRC) | | 調質鋼 Hardened Steel SKD・SKT (38～45HRC) | | 超耐熱合金鋼・チタン合金・インコネル® Heat Resistant Alloy Steel・Titanium Alloy Steel・Inconel® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 1,500 | 60 | 1,400 | 56 | 1,300 | 45 | 1,000 | 40 | 750 | 25 |
| 8 | 1,200 | 60 | 1,050 | 56 | 950 | 45 | 710 | 40 | 560 | 25 |
| 10 | 950 | 60 | 850 | 63 | 710 | 56 | 600 | 50 | 450 | 35 |
| 12 | 800 | 71 | 750 | 63 | 600 | 56 | 500 | 50 | 375 | 35 |
| 14 | 800 | 71 | 750 | 63 | 600 | 56 | 400 | 50 | 315 | 35 |
| 16 | 710 | 71 | 630 | 63 | 450 | 56 | 400 | 50 | 280 | 35 |
| 18 | 630 | 71 | 530 | 63 | 450 | 56 | 300 | 50 | 250 | 35 |
| 20 | 475 | 60 | 450 | 55 | 355 | 45 | 300 | 50 | 225 | 35 |
| 25 | 425 | 60 | 400 | 50 | 355 | 45 | 200 | 40 | 180 | 30 |
| 30 | 280 | 60 | 280 | 50 | 225 | 40 | 200 | 40 | 150 | 30 |




1. この条件表は荒加工を基準に作成してあります。
2. apを半分に下げた場合は、送り速度を2倍程度上げることができます。
3. 4枚刃を使用する際には、apを半分に下げてご使用下さい。
4. 重切削の場合は発煙性の少ない切削油剤をご使用下さい。
5. 把握力の強いミーリングチャックをご使用下さい。

※ V-XPM-NHS(ニック付)で荒加工を行う場合、送り速度を1.3～1.5倍程上げることができます。

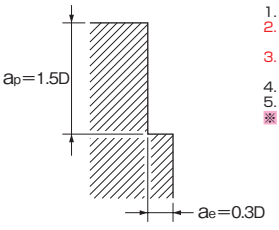
1. The indicated speeds and feeds are for a roughing operations.
2. When reducing cutting depth by half, the feeds can be increased approximately 2 times the above figures.
3. For milling with 4-fluted end mills, reduce the cutting depth by half when slotting.
4. For heavy milling, use cutting fluids with high smoke retardant.
5. Use a rigid milling chuck with high holding power.

※ For roughing operations with V-XPM-NHS, the feed can be increased by 30～50%.

## V-XPM-EHS/V-XPM-NHS※
### 側面切削

SIDE MILLING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM (735～980N/mm²) | | ステンレス鋼・プリハードン鋼 Stainless Steel・Prehardened Steel SUS304・NAK80 (30～38HRC) | | 調質鋼 Hardened Steel SKD・SKT (38～45HRC) | | 超耐熱合金鋼・チタン合金・インコネル® Heat Resistant Alloy Steel・Titanium Alloy Steel・Inconel® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,500 | 90 | 2,350 | 90 | 1,900 | 71 | 1,400 | 60 | 1,050 | 40 |
| 8 | 1,800 | 120 | 1,700 | 90 | 1,400 | 75 | 1,050 | 60 | 800 | 40 |
| 10 | 1,500 | 125 | 1,300 | 100 | 1,100 | 95 | 850 | 71 | 630 | 60 |
| 12 | 1,250 | 140 | 1,200 | 120 | 950 | 95 | 750 | 71 | 530 | 60 |
| 14 | 1,000 | 150 | 1,000 | 125 | 800 | 110 | 630 | 71 | 450 | 60 |
| 16 | 850 | 150 | 900 | 125 | 710 | 110 | 560 | 80 | 400 | 60 |
| 18 | 800 | 140 | 750 | 120 | 630 | 110 | 475 | 75 | 355 | 40 |
| 20 | 750 | 140 | 670 | 120 | 560 | 100 | 450 | 75 | 315 | 40 |
| 25 | 600 | 160 | 560 | 120 | 450 | 80 | 355 | 60 | 250 | 40 |
| 30 | 425 | 180 | 400 | 110 | 335 | 60 | 265 | 45 | 210 | 35 |




1. この条件表は荒加工を基準に作成してあります。
2. apを半分に下げた場合は、送り速度を2倍程度上げることができます。
3. 4枚刃を使用する際には、送り速度を1.2～1.3倍程上げることができます。
4. 重切削の場合は発煙性の少ない切削油剤をご使用下さい。
5. 把握力の強いミーリングチャックをご使用下さい。

※ V-XPM-NHS(ニック付)で荒加工を行う場合、送り速度を1.3～1.5倍程上げることができます。

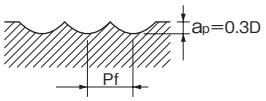
1. The indicated speeds and feeds are for a roughing operations.
2. When reducing cutting depth by half, the feeds can be increased approximately 2 times the above figures.
3. For side milling with 4-fluted end mills, the feed can be increased by 20～30%.
4. For heavy milling, use cutting fluids with high smoke retardant.
5. Use a rigid milling chuck with high holding power.

※ For roughing operations with V-XPM-NHS, the feed can be increased by 30～50%.

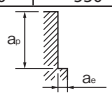
形状寸法表 SPECIFICATION CHARTS V-XPM-EBD▶P824
形状寸法表 SPECIFICATION CHARTS VPS-EMS▶P796・837

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## V-XPM-EBD

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | |
|---|---|---|---|---|---|---|---|---|
| 呼び RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| R 1 × 2 | 6,700 | 120 | 3,150 | 63 | 3,000 | 45 | 1,900 | 31 |
| R 2 × 4 | 3,550 | 140 | 1,800 | 71 | 1,600 | 56 | 1,200 | 42 |
| R 3 × 6 | 2,350 | 170 | 1,100 | 85 | 1,100 | 75 | 850 | 60 |
| R 4 × 8 | 1,800 | 170 | 900 | 85 | 800 | 75 | 630 | 60 |
| R 5 ×10 | 1,300 | 170 | 710 | 85 | 630 | 75 | 475 | 60 |
| R 6 ×12 | 1,100 | 170 | 600 | 85 | 530 | 75 | 425 | 60 |
| R 8 ×16 | 850 | 170 | 450 | 85 | 375 | 75 | 315 | 60 |
| R10 ×20 | 710 | 170 | 355 | 85 | 315 | 75 | 250 | 60 |
| R12.5 ×25 | 560 | 170 | 280 | 85 | 250 | 75 | 190 | 56 |
| R15 ×30 | 450 | 140 | 250 | 80 | 210 | 63 | 150 | 45 |
| 切込深さ Depth of Cut | ap 0.3D / Pf 0.1D   | | | | | | | |

## VPS-EMS
## 側面切削 SIDE MILLING

| | 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・CarbonSteel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKT・SKS・SKD (～30HRC) | | ステンレス鋼・合金鋼・調質鋼 Stainless Steel・alloySteel・Hardened Steel SUS304・SCM・SUJ (30～38HRC) | | 調質鋼 Hardened Steel SKD・SUJ (38～45HRC) | | 超耐熱合金・チタン合金・インコネル® Heat Resistant Alloy Steel・Titanium Alloy Steel Inconel® | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6枚刃 6 Flutes | 10 | 2,050 | 870 | 1,750 | 735 | 1,250 | 495 | 1,050 | 410 | 635 | 230 |
| | 12 | 1,650 | 840 | 1,450 | 735 | 1,050 | 495 | 875 | 410 | 530 | 230 |
| | 16 | 1,250 | 810 | 1,100 | 720 | 795 | 495 | 655 | 410 | 400 | 230 |
| | 20 | 955 | 630 | 875 | 575 | 635 | 400 | 525 | 330 | 320 | 190 |
| | 25 | 765 | 505 | 675 | 445 | 485 | 305 | 405 | 255 | 255 | 155 |
| | 30 | 635 | 420 | 530 | 350 | 370 | 235 | 320 | 200 | 210 | 125 |
| 10枚刃 10 Flutes | 12 | 1,650 | 1,400 | 1,450 | 1,250 | 1,050 | 830 | 875 | 680 | 530 | 380 |
| | 16 | 1,250 | 1,350 | 1,100 | 1,200 | 795 | 830 | 655 | 680 | 400 | 380 |
| | 20 | 955 | 1,050 | 875 | 985 | 635 | 670 | 525 | 550 | 320 | 320 |
| | 25 | 765 | 840 | 675 | 740 | 485 | 510 | 405 | 430 | 255 | 255 |
| | 30 | 635 | 700 | 530 | 585 | 370 | 390 | 320 | 335 | 210 | 210 |
| 切込深さ Depth of Cut |   | | | | | | | | | | |

| | ap | ae |
|---|---|---|
| DC＜φ16 | 1.5D | 0.05D |
| φ16≦DC | 1D | 0.03D |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切削油剤は、被削材に適したものを選定して下さい。
3. 加工形状、切込深さ、機械剛性、ワーク保持等使用状況により、異常な切削音、振動、びびりが発生する場合、回転速度、送り速度、切込深さを調整下さい。
4. この切削条件表は、エンドミルの突出し量が、刃径×３倍以下を基準としたものです。突出し量が大きな場合は、回転速度、送り速度、切込深さを調整下さい。
5. 仕上げ加工で使用される場合（上表の条件で被削面の送りマークが気になる場合）は、上表の送り速度50%～60%に下げてご使用下さい。

＜エンドミル選定の目安＞
コーナ部の曲率が小さな負荷の掛かる加工には６枚刃を、曲率の大きな負荷の掛からない加工には10枚刃をご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use suitable cutting fluids.
3. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. These milling conditions are for an end mill where the tool extension length is 3 times the diameter of the end mill. When length of the tool extention from the machine is long, reduce the speed and feed and milling depth.
5. When it is used for finishing operation and feed mark on surface finish is a problem, please reduce the feed rate on the above chart by 50 ～60% .

<Guideline Line for End-mill Selection>
Please choose 6-flute type if it is used in internal corner milling with small radius that gives high load to an end mill. Otherwise, please select 10-flute type.

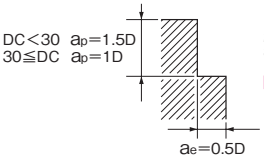
CUTTING CONDITIONS FOR HSS END MILLS

# ハイスエンドミル切削条件基準表

## VP-RESF/VLS-XPM-RESF/VP-DE-RESF※/VSS-XPM-RESF
## 側面切削

SIDE MILLING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | 超耐熱合金鋼・チタン合金 インコネル®・ハステロイ® Heat Resistant Alloy Steel・Titanium Alloy Steel Inconel®・Hastelloy® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,650 | 190 | 2,100 | 130 | 1,400 | 90 | 1,200 | 70 | 800 | 30 |
| 8 | 2,000 | 225 | 1,700 | 180 | 1,100 | 120 | 900 | 95 | 630 | 35 |
| 10 | 1,600 | 250 | 1,300 | 200 | 900 | 130 | 710 | 105 | 450 | 40 |
| 12 | 1,300 | 265 | 1,100 | 200 | 750 | 130 | 600 | 105 | 355 | 45 |
| 14 | 1,100 | 280 | 950 | 225 | 630 | 150 | 500 | 110 | 300 | 45 |
| 15 | 1,050 | 300 | 900 | 225 | 600 | 150 | 475 | 120 | 280 | 50 |
| 16 | 1,000 | 315 | 850 | 225 | 560 | 150 | 450 | 120 | 265 | 50 |
| 18 | 900 | 335 | 750 | 250 | 500 | 170 | 400 | 130 | 235 | 55 |
| 20 | 800 | 335 | 670 | 250 | 450 | 170 | 355 | 130 | 210 | 55 |
| 22 | 710 | 335 | 600 | 250 | 400 | 170 | 335 | 130 | 190 | 55 |
| 25 | 630 | 335 | 530 | 225 | 355 | 150 | 280 | 120 | 170 | 50 |
| 28 | 560 | 315 | 475 | 225 | 315 | 150 | 250 | 120 | 150 | 50 |
| 30 | 530 | 315 | 450 | 225 | 300 | 150 | 235 | 120 | 140 | 50 |
| 35 | 450 | 265 | 375 | 225 | 250 | 150 | 200 | 110 | 120 | 45 |
| 40 | 400 | 265 | 335 | 210 | 225 | 140 | 180 | 105 | 105 | 45 |
| 45 | 355 | 235 | 300 | 190 | 200 | 125 | 160 | 90 | 95 | 35 |
| 50 | 315 | 210 | 265 | 170 | 180 | 110 | 140 | 75 | 85 | 35 |




1. この表は、ae＝0.5D×ap＝1.5D,1.0Dを基準に作成してあります。
2. 機械、ホルダは剛性の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

※ 深彫り対応用のVP-DE-RESFにて大きな突出し量で加工を行なう場合は、ae＝0.1Dを基準にし、回転速度・送り速度をともに上表の40%～70%に下げてご使用下さい。

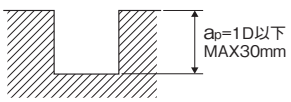
1. The indicated speeds and feeds are for side milling to a depth ＝ 0.5× D and a width of cut = 1.5× D, 1.0D.
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

※ When the amount of overhang is large with VP-DE-RESF, use the following cutting conditions: Milling Depth ＝ 0.1D (D ＝ mill diameter), Speed and Feed ＝40 ～70% of the above settings.

## VP-RESF
## 溝切削

SLOTTING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | チタン合金 Titanium Alloy | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,400 | 160 | 2,000 | 110 | 1,300 | 80 | 1,100 | 60 | 700 | 25 |
| 8 | 1,800 | 190 | 1,500 | 150 | 990 | 100 | 850 | 80 | 500 | 25 |
| 10 | 1,440 | 210 | 1,200 | 170 | 810 | 110 | 670 | 90 | 400 | 30 |
| 12 | 1,200 | 225 | 995 | 170 | 675 | 110 | 570 | 90 | 355 | 36 |
| 14 | 1,000 | 235 | 855 | 190 | 565 | 130 | 470 | 95 | 300 | 36 |
| 15 | 950 | 255 | 810 | 190 | 540 | 130 | 450 | 100 | 280 | 40 |
| 16 | 900 | 265 | 760 | 190 | 500 | 130 | 420 | 100 | 265 | 40 |
| 18 | 800 | 285 | 670 | 210 | 450 | 145 | 380 | 110 | 235 | 45 |
| 20 | 720 | 285 | 600 | 210 | 400 | 145 | 330 | 110 | 210 | 45 |
| 22 | 650 | 285 | 545 | 210 | 360 | 145 | 310 | 110 | 190 | 45 |
| 25 | 570 | 285 | 480 | 190 | 320 | 130 | 265 | 100 | 170 | 40 |
| 28 | 510 | 265 | 430 | 190 | 285 | 130 | 240 | 100 | 150 | 40 |
| 30 | 480 | 265 | 400 | 190 | 270 | 130 | 225 | 100 | 140 | 40 |
| 35 | 410 | 225 | 345 | 190 | 225 | 130 | 190 | 95 | 120 | 40 |
| 40 | 360 | 225 | 300 | 180 | 200 | 120 | 170 | 90 | 105 | 40 |
| 45 | 320 | 200 | 270 | 160 | 180 | 110 | 150 | 80 | 95 | 30 |
| 50 | 280 | 180 | 240 | 145 | 160 | 100 | 135 | 65 | 85 | 30 |

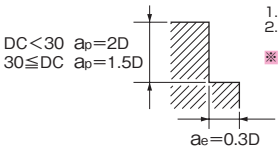


形状寸法表 SPECIFICATION CHARTS VP-RENF▶P850
形状寸法表 SPECIFICATION CHARTS VP-RELF▶P855

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## VP-RENF/VP-RELF※
## 側面切削 SIDE MILLING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | 超耐熱合金鋼・チタン合金 インコネル®・ハステロイ® Heat Resistant Alloy Steel・Titanium Alloy Steel Inconel®・Hastelloy® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 2,650 | 170 | 2,100 | 125 | 1,400 | 80 | 1,200 | 63 | 800 | 30 |
| 8 | 2,000 | 200 | 1,700 | 150 | 1,100 | 100 | 900 | 63 | 630 | 35 |
| 10 | 1,600 | 210 | 1,300 | 160 | 900 | 110 | 710 | 63 | 450 | 40 |
| 12 | 1,300 | 210 | 1,100 | 170 | 850 | 125 | 600 | 63 | 355 | 45 |
| 14 | 1,100 | 225 | 950 | 170 | 630 | 125 | 500 | 80 | 300 | 45 |
| 15 | 1,050 | 250 | 900 | 190 | 600 | 125 | 475 | 90 | 280 | 50 |
| 16 | 1,000 | 250 | 850 | 190 | 560 | 125 | 450 | 90 | 265 | 50 |
| 18 | 900 | 280 | 750 | 190 | 500 | 125 | 400 | 95 | 235 | 53 |
| 20 | 800 | 250 | 670 | 170 | 450 | 120 | 355 | 95 | 210 | 53 |
| 22 | 630 | 210 | 560 | 170 | 375 | 120 | 335 | 90 | 190 | 53 |
| 25 | 500 | 180 | 450 | 160 | 315 | 105 | 280 | 80 | 170 | 50 |
| 28 | 400 | 170 | 375 | 160 | 280 | 105 | 250 | 80 | 150 | 50 |
| 30 | 315 | 170 | 300 | 150 | 270 | 105 | 235 | 80 | 140 | 50 |
| 35 | 280 | 170 | 265 | 140 | 210 | 90 | 200 | 80 | 120 | 45 |
| 40 | 250 | 160 | 225 | 125 | 170 | 75 | 180 | 71 | 105 | 45 |
| 45 | 210 | 150 | 200 | 110 | 160 | 71 | 160 | 67 | 95 | 36 |
| 50 | 180 | 130 | 170 | 95 | 140 | 67 | 140 | 56 | 85 | 36 |




1. 機械、ホルダは剛性の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

※ ロング刃は、ae＝0.1D、ap＝3Dを基準にし、回転速度・送り速度ともに上表の70～80%でご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

※ For long flute end mills, use the following cutting conditions: Milling Depth＝0.1D (D＝mill diameter), Milling Width＝3D, Speed and Feed＝70～80% of the above settings.

CUTTING CONDITIONS FOR HSS END MILLS

# ハイスエンドミル切削条件基準表

## VP-ZDS/VP-LS-ZDS

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S45C・FC250 (～750N/mm²) | | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKJ・SKS (～30HRC) | | | 調質鋼・ステンレス鋼 Hardened Steel・Stainless Steel SKD・SKT・SUS (30～40HRC) | | | アルミニウム合金・アルミニウム合金鋳物 Aluminum Alloy・Aluminum Alloy Casting A7075・<Si 13% | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 16～30m/min | | | 12～25m/min | | | 10～20m/min | | | 30～80m/min | | |
| 外径 Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 送り量 Feed Rate (mm/rev) |
| 3 | 2,700 | 80 | 0.01～0.05 | 2,200 | 65 | 0.01～0.05 | 1,600 | 48 | 0.01～0.05 | 5,300 | 180 | 0.01～0.06 |
| 4 | 2,000 | 80 | 0.02～0.06 | 1,600 | 65 | 0.02～0.06 | 1,200 | 48 | 0.02～0.06 | 4,000 | 180 | 0.02～0.07 |
| 5 | 1,600 | 80 | 0.03～0.08 | 1,300 | 65 | 0.03～0.08 | 960 | 48 | 0.03～0.08 | 3,200 | 180 | 0.03～0.09 |
| 6 | 1,350 | 80 | 0.04～0.09 | 1,100 | 65 | 0.04～0.09 | 800 | 48 | 0.04～0.09 | 2,700 | 180 | 0.04～0.1 |
| 8 | 1,000 | 80 | 0.05～0.1 | 800 | 65 | 0.05～0.1 | 630 | 48 | 0.05～0.1 | 2,000 | 180 | 0.05～0.11 |
| 10 | 840 | 80 | 0.06～0.12 | 680 | 65 | 0.06～0.12 | 500 | 48 | 0.06～0.12 | 1,600 | 180 | 0.06～0.13 |
| 12 | 700 | 80 | 0.09～0.15 | 550 | 65 | 0.09～0.15 | 400 | 48 | 0.09～0.15 | 1,350 | 180 | 0.09～0.17 |
| 14 | 570 | 80 | 0.11～0.17 | 460 | 65 | 0.11～0.17 | 360 | 48 | 0.11～0.17 | 1,150 | 180 | 0.11～0.19 |
| 16 | 500 | 80 | 0.12～0.19 | 400 | 65 | 0.12～0.19 | 300 | 48 | 0.12～0.19 | 1,000 | 180 | 0.12～0.21 |
| 18 | 450 | 80 | 0.14～0.22 | 360 | 65 | 0.14～0.22 | 280 | 48 | 0.14～0.22 | 900 | 180 | 0.14～0.25 |
| 20 | 400 | 80 | 0.15～0.25 | 320 | 65 | 0.15～0.25 | 240 | 48 | 0.15～0.25 | 795 | 180 | 0.15～0.28 |
| 21 | 380 | 80 | 0.16～0.26 | 300 | 65 | 0.16～0.26 | 230 | 48 | 0.16～0.26 | 760 | 180 | 0.16～0.29 |
| 22 | 360 | 80 | 0.17～0.27 | 290 | 65 | 0.17～0.27 | 220 | 48 | 0.17～0.27 | 730 | 180 | 0.17～0.3 |
| 23 | 350 | 80 | 0.18～0.28 | 280 | 65 | 0.18～0.28 | 210 | 48 | 0.18～0.28 | 690 | 180 | 0.18～0.31 |
| 24 | 330 | 80 | 0.19～0.29 | 270 | 65 | 0.19～0.29 | 200 | 48 | 0.19～0.29 | 660 | 180 | 0.19～0.32 |
| 25 | 320 | 80 | 0.2 ～0.3 | 260 | 65 | 0.2 ～0.3 | 190 | 48 | 0.2 ～0.3 | 640 | 180 | 0.2 ～0.33 |
| 26 | 310 | 80 | 0.21～0.31 | 250 | 65 | 0.21～0.31 | 185 | 48 | 0.21～0.31 | 610 | 180 | 0.22～0.35 |
| 27 | 300 | 80 | 0.22～0.32 | 240 | 65 | 0.22～0.32 | 180 | 48 | 0.22～0.32 | 590 | 180 | 0.23～0.36 |
| 28 | 290 | 80 | 0.23～0.33 | 230 | 65 | 0.23～0.33 | 170 | 48 | 0.23～0.33 | 570 | 180 | 0.24～0.37 |
| 29 | 280 | 80 | 0.24～0.34 | 220 | 65 | 0.24～0.34 | 165 | 48 | 0.24～0.34 | 550 | 180 | 0.25～0.38 |
| 30 | 270 | 80 | 0.25～0.35 | 210 | 65 | 0.25～0.35 | 160 | 48 | 0.25～0.35 | 530 | 180 | 0.26～0.39 |
| 31 | 260 | 80 | 0.26～0.36 | 205 | 65 | 0.26～0.36 | 155 | 48 | 0.26～0.36 | 510 | 180 | 0.27～0.4 |
| 32 | 250 | 80 | 0.27～0.37 | 200 | 65 | 0.27～0.37 | 150 | 48 | 0.27～0.37 | 500 | 180 | 0.28～0.41 |
| 切込深さ Depth Of Cut |  H=1D以下 H≦1D 下穴有り With pilot hole | | | | | | | | | | | |

注) VP-LS-ZDSをご使用の場合は、上表の回転速度、送り速度を60%～80%として下さい。
When using VP-LS-ZDS, please decrease the RPM and feed rate to 60 - 80% of the figures in the above table.

1．上表は、ドリルによる下穴加工があることを前提としたものです。下穴径は、使用工具の外径50%以上を推奨します。
2．上表は、穴深さが1D以下の場合のものです。
3．下穴無しの加工の場合は、送り速度を上表の40～70%を目安として下さい。
4．機械、ホルダは剛性のある精度の高いものをご使用下さい。
5．加工物の形状や保持方法の状況によって切削条件を調整して下さい。
6．切削油剤は被削材に適したものをご使用いただき、十分に注油下さい。
7．加工穴の拡大が問題となるときは、回転速度、送り量を上表の値より下げて下さい。
8．切りくずを分断する必要があるときは必ずステップ送りを実施して下さい。
9．横形マシニングセンタで加工される場合は、特に切りくずの排出に注意下さい。
10.マグネシウム合金切削において、切削油剤を使用する場合は、切削油剤メーカの推奨するものを必ずご使用下さい。また、切くずの処理・管理に注意下さい。発火の恐れがあります。
11.斜面のドリリング前加工には、超硬ZDSシリーズを推奨します。選定の目安を参考にして下さい。

1. The chart above is based on the assumption that pilot holes are processed. For the diameter of the pilot hole, a value of over 50% of the selected tool's outer diameter is recommended.
2. These machining conditions apply to hole depths of 1D or less. (D=outer diameter)
3. For machining without pilot holes, set the feed rate to between 40 and 70% of the values indicated in the table above.
4. Use a rigid and precise machine and holder.
5. Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
6. Please use a suitable coolant for the work material and apply sufficiently.
7. If the problem of hole oversizing occurs, reduce the spindle RPM and feed amount lower than the amounts shown above.
8. We recommend step feeding when you require better chip breakage.
9. Pay particular attention to chip evacuation when using a horizonal machining center.
10. When machining magnesium alloy materials, please use the coolant oil recommended by the coolant oil manufacturer. Please also properly dispose the cutting chips to prevent fire hazards.
11. The ZDS Carbide Series is highly recommended for machining inclined surfaces. For more information, please refer to the application guide.

形状寸法表
SPECIFICATION CHARTS
VP-SCC▶P899

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## VP-SCC
## 穴面取り（突込み加工） COUNTER SINKING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKT・SKS・SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT・SKD・NAK55・HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304・SKD (38～45HRC) | |
|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 20～50m/min | | 15～30m/min | | 10～15m/min | | 8～14m/min | |
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 3,700 | 300 | 1,900 | 150 | 1,400 | 110 | 1,150 | 90 |
| 4 | 2,800 | 280 | 1,450 | 150 | 1,050 | 110 | 900 | 90 |
| 6 | 1,850 | 220 | 950 | 110 | 700 | 80 | 600 | 70 |
| 8 | 1,400 | 220 | 700 | 110 | 500 | 80 | 450 | 70 |
| 10 | 1,100 | 210 | 550 | 100 | 400 | 80 | 350 | 70 |
| 12 | 950 | 210 | 500 | 110 | 350 | 80 | 300 | 70 |
| 切込深さ Depth of Cut | ae = 0.2D | | | | ae = 0.1D | | | |

1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切り込みにより切削条件を以下のように変更して下さい。
・回転速度は実切削径（大端側）に合わせて設定して下さい。
・送り速度は切り込みを考慮した実切削径（小端側）により設定して下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切り込み量apを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30～40%程度下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式切削の場合はエアブローにより切りくずを強制排出して下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30～40% and use 1/2 of amount of cut ap (maximum 0.5mm).
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. During dry (no fluid) machining, please use an air blow to remove disposable chips from the machining area and to eliminate chip packing.

## 角面取り（側面切削） CHAMFERING

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400・S55C・FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKT・SKS・SKD (～30HRC) | | 調質鋼・プリハードン鋼（快削） Hardened Steel・Prehardened Steel (Free-Cutting) SKT・SKD・NAK55・HPM1 (30～38HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304・SKD (38～45HRC) | |
|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 3,700 | 130 | 1,900 | 60 | 1,400 | 40 | 1,150 | 40 |
| 4 | 2,800 | 130 | 1,450 | 60 | 1,050 | 40 | 900 | 40 |
| 6 | 1,850 | 180 | 950 | 60 | 700 | 50 | 600 | 40 |
| 8 | 1,400 | 170 | 700 | 70 | 500 | 50 | 450 | 50 |
| 10 | 1,100 | 160 | 550 | 60 | 400 | 40 | 350 | 40 |
| 12 | 950 | 150 | 500 | 60 | 350 | 40 | 300 | 40 |
| 切込深さ Depth of Cut | ae = 0.2D(ap = 0.2D) | | | | ae = 0.1D(ap = 0.1D) | | | |

1. この切削条件表は、呼び径（大端径）を基準にしています。実切削径および切込みにより切削条件を以下のように変更下さい。
・回転速度は実切削径（大端側）に合わせて設定下さい。
・送り速度は切込みを考慮した実切削径（小端側）により設定下さい。
2. 溝切削の場合は、側面切削の条件表を参考に切込深さapを1/2以下（Max0.5mm）として、回転速度、送り速度ともに30～40%程度下げてご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式切削の場合はエアブローにより切りくずを強制排出下さい。

1. This cutting condition is based upon tool diameter (larger size). Please change the cutting condition according to actual cutting diameter and depth of cut.
・Fix speed by actual cutting diameter (larger dia. side).
・Fix feed by actual cutting diameter (smaller dia. side) considering depth of cut.
2. When slotting, please reduce the above valves for speed and feed by 30～40% and use 1/2 of amount of cut ap (maximum 0.5mm).
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. During dry (no fluid) machining, please use an air blow to remove disposable chips from the machining area and to eliminate chip packing.

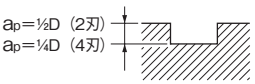
CUTTING CONDITIONS FOR HSS END MILLS

# ハイスエンドミル切削条件基準表

## XPM-EDS/XPM-EMS/TIN-XPM-EDS※/TIN-XPM-EMS※

### 溝切削 SLOTTING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | 超耐熱合金鋼・チタン合金（時効） インコネル®・ハステロイ® Heat Resistant Alloy Steel・Titanium Alloy Steel (Age Hardened) Inconel®・Hastelloy® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 1 | 8,000 | 50 | 7,000 | 45 | 5,000 | 25 | 3,750 | 20 | — | — |
| 2 | 4,000 | 60 | 3,550 | 45 | 2,500 | 25 | 1,900 | 20 | — | — |
| 3 | 2,800 | 75 | 2,350 | 50 | 1,700 | 35 | 1,250 | 20 | 630 | 10 |
| 4 | 2,250 | 85 | 1,700 | 50 | 1,250 | 40 | 950 | 25 | 450 | 10 |
| 5 | 1,800 | 90 | 1,400 | 60 | 1,000 | 45 | 750 | 25 | 355 | 10 |
| 6 | 1,500 | 100 | 1,200 | 71 | 850 | 45 | 630 | 25 | 300 | 12 |
| 8 | 1,100 | 110 | 900 | 85 | 630 | 50 | 450 | 30 | 200 | 12 |
| 10 | 900 | 125 | 710 | 85 | 500 | 50 | 400 | 35 | 190 | 15 |
| 12 | 750 | 125 | 600 | 90 | 425 | 50 | 315 | 40 | 160 | 15 |
| 14 | 630 | 120 | 500 | 80 | 355 | 50 | 280 | 40 | 140 | 15 |
| 16 | 560 | 120 | 425 | 71 | 315 | 50 | 250 | 40 | 120 | 15 |
| 18 | 500 | 110 | 400 | 71 | 280 | 50 | 225 | 40 | 100 | 12 |
| 20 | 450 | 110 | 355 | 67 | 250 | 50 | 190 | 40 | 95 | 12 |
| 22 | 400 | 100 | 315 | 60 | 235 | 45 | 170 | 35 | 85 | 10 |
| 24 | 375 | 90 | 300 | 60 | 210 | 40 | 160 | 30 | 80 | 10 |
| 25 | 355 | 90 | 280 | 56 | 200 | 40 | 150 | 30 | 75 | 10 |
| 26 | 335 | 85 | 265 | 50 | 190 | 40 | 140 | 25 | 71 | 9 |
| 28 | 315 | 80 | 250 | 50 | 180 | 35 | 130 | 25 | 67 | 9 |
| 30 | 300 | 75 | 235 | 45 | 170 | 35 | 125 | 25 | 63 | 8 |




1. この表は、2刃ショート形 ap＝1/2D、4刃ショート形 ap＝1/4D を基準に作成してあります。
2. apが上記を越えるときは、送り速度を20～50%落して下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 切削油剤は、被削材に適したものを選定して下さい。

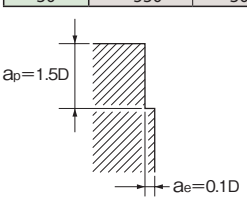
※ TiNコーティング品は回転速度、送り速度ともに上表の10～20%のアップが可能です。但し、この場合1刃あたりの送り量は、上表と同程度になるように回転速度、送り速度を調節して下さい。

1. The indicated speeds and feeds are for slotting to a depth = 0.5× D (2 flutes), and 0.25× D (4 flutes).
2. For deeper slotting, the feed should be decreased by 20～50% .
3. Use a rigid and precise machine and holder.
4. Use suitable cutting fluids.

※ When milling with the TiN coated version, both speed and feed can be increased by 10～20% . Make sure the feed rate per tooth is similar to the feed rate listed above.

### 側面切削 SIDE MILLING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | 超耐熱合金鋼・チタン合金（時効） インコネル®・ハステロイ® Heat Resistant Alloy Steel・Titanium Alloy Steel (Age Hardened) Inconel®・Hastelloy® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 3 | 4,500 | 225 | 3,750 | 200 | 2,600 | 120 | 2,350 | 100 | 1,250 | 60 |
| 4 | 3,550 | 315 | 2,800 | 200 | 1,900 | 130 | 1,800 | 125 | 950 | 60 |
| 5 | 3,150 | 335 | 2,250 | 250 | 1,500 | 160 | 1,400 | 140 | 750 | 60 |
| 6 | 2,650 | 335 | 1,950 | 250 | 1,300 | 170 | 1,200 | 140 | 630 | 85 |
| 8 | 1,900 | 425 | 1,400 | 250 | 950 | 170 | 900 | 140 | 450 | 85 |
| 10 | 1,500 | 450 | 1,100 | 300 | 750 | 190 | 710 | 140 | 375 | 85 |
| 12 | 1,300 | 450 | 950 | 300 | 630 | 190 | 600 | 150 | 315 | 85 |
| 14 | 1,100 | 450 | 800 | 300 | 560 | 190 | 500 | 150 | 265 | 85 |
| 16 | 950 | 400 | 710 | 300 | 475 | 190 | 450 | 150 | 235 | 80 |
| 18 | 850 | 400 | 630 | 280 | 425 | 170 | 400 | 150 | 210 | 80 |
| 20 | 750 | 375 | 560 | 280 | 375 | 170 | 355 | 150 | 190 | 80 |
| 22 | 710 | 375 | 500 | 250 | 335 | 170 | 315 | 140 | 170 | 71 |
| 24 | 670 | 375 | 475 | 225 | 315 | 160 | 300 | 130 | 160 | 71 |
| 25 | 630 | 355 | 455 | 225 | 300 | 150 | 280 | 130 | 150 | 63 |
| 26 | 600 | 335 | 420 | 200 | 300 | 150 | 265 | 125 | 140 | 60 |
| 28 | 560 | 315 | 400 | 200 | 280 | 140 | 250 | 120 | 130 | 56 |
| 30 | 530 | 300 | 370 | 180 | 250 | 125 | 235 | 110 | 125 | 50 |




1. この表は、4刃ショート形エンドミルの ae＝0.1D×ap＝1.5D を基準に作成してあります。2刃ショート形エンドミルは、送り速度を1/2に下げて下さい。
2. 仕上切削を行うときは、回転数を1.3～1.5倍にして下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 切削油剤は、被削材に適したものを選定して下さい。

※ TiNコーティング品は回転速度、送り速度ともに上表の10～20%のアップが可能です。但し、この場合1刃あたりの送り量は、上表と同程度になるように回転速度、送り速度を調節して下さい。

1. The indicated speeds and feeds are for side milling with 4-fluted end mills to a depth = 0.1× D and a width of cut = 1.5× D. For milling with 2 flutes end mills, the feed should be half the above figures.
2. For finishing operations, the speed should be increased by 30～50% .
3. Use a rigid and precise machine and holder.
4. Use suitable cutting fluids.

※ When milling with the TiN coated version, both speed and feed can be increased by 10～20% . Make sure the feed rate per tooth is similar to the feed rate listed above.

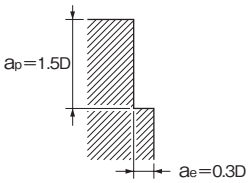
形状寸法表 SPECIFICATION CHARTS XPM-EHS▶P823
形状寸法表 SPECIFICATION CHARTS TIN-XPM-EHS▶P822
形状寸法表 SPECIFICATION CHARTS LS-XPM-RESF▶P870-1
形状寸法表 SPECIFICATION CHARTS TLS-XPM-RESF▶P844

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## XPM-EHS/TIN-XPM-EHS※

### 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・軟鋼 Low Carbon Steel・Mild Steel S25C・SS400 (～490N/mm²) | | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・プリハードン鋼 Stainless Steel・Prehardened Steel SUS304・HPM1・NAK80 (30～38HRC) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel SKD11・SKT・SKD (38～45HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 2,100 | 110 | 1,700 | 71 | 1,300 | 50 | 950 | 32 | 710 | 21 |
| 8 | 1,500 | 110 | 1,250 | 90 | 950 | 50 | 710 | 34 | 530 | 21 |
| 10 | 1,250 | 120 | 1,000 | 90 | 750 | 53 | 560 | 38 | 425 | 21 |
| 12 | 1,050 | 130 | 850 | 90 | 630 | 56 | 475 | 40 | 375 | 21 |
| 14 | 900 | 150 | 750 | 90 | 560 | 60 | 400 | 42 | 315 | 21 |
| 16 | 800 | 150 | 630 | 90 | 500 | 60 | 355 | 42 | 280 | 21 |
| 18 | 710 | 160 | 560 | 120 | 425 | 80 | 315 | 50 | 235 | 28 |
| 20 | 630 | 160 | 500 | 120 | 375 | 80 | 280 | 50 | 225 | 33 |
| 25 | 500 | 200 | 400 | 160 | 315 | 110 | 225 | 60 | 180 | 40 |
| 30 | 425 | 210 | 350 | 180 | 265 | 110 | 190 | 60 | 150 | 40 |




1. この表は、ae＝0.3D×ap＝1.5Dを基準に作成してあります。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

※ TiNコーティング品は回転速度、送り速度ともに上表の10～20%のアップが可能です。但し、この場合1刃あたりの送り量は、上表と同程度になるように回転速度、送り速度を調節して下さい。

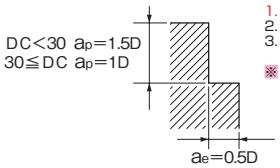
1. The indicated speeds and feeds are for side milling to a depth = 0.3× D and a width of cut = 1.5× D.
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

※ When milling with the TiN coated version, both speed and feed can be increased by 10～20% . Make sure the feed rate per tooth is similar to the feed rate listed above.

## LS-XPM-RESF/TLS-XPM-RESF※

### 側面切削 SIDE MILLING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・プリハードン鋼・調質鋼 Stainless Steel・Prehardened Steel・Hardened Steel SUS304・NAK55・HPM1・SKT (30～38HRC) | | 特殊鋼・プリハードン鋼・調質鋼 Special Alloy Steel・Prehardened Steel・Hardened Steel SKD11・SKD61・NAK80 (38～45HRC) | | 耐熱合金鋼・チタン合金 インコネル® Heat Resistant Alloy Steel・Titanium Alloy Steel Inconel® Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 2,000 | 125 | 1,500 | 90 | 1,000 | 60 | 850 | 45 | — | — |
| 8 | 1,500 | 150 | 1,200 | 120 | 800 | 80 | 630 | 63 | — | — |
| 10 | 1,200 | 170 | 950 | 130 | 630 | 90 | 500 | 70 | — | — |
| 12 | 1,000 | 180 | 800 | 130 | 530 | 90 | 425 | 70 | 210 | 25 |
| 14 | 850 | 190 | 670 | 150 | 450 | 100 | 355 | 75 | 180 | 25 |
| 15 | 800 | 200 | 630 | 150 | 425 | 100 | 335 | 80 | 170 | 28 |
| 16 | 750 | 210 | 600 | 150 | 400 | 100 | 315 | 80 | 160 | 28 |
| 18 | 670 | 225 | 530 | 170 | 355 | 110 | 280 | 90 | 140 | 30 |
| 20 | 600 | 225 | 475 | 170 | 315 | 110 | 250 | 90 | 125 | 30 |
| 22 | 530 | 225 | 425 | 170 | 280 | 110 | 235 | 90 | 110 | 30 |
| 25 | 475 | 225 | 375 | 150 | 250 | 100 | 200 | 80 | 100 | 28 |
| 28 | 425 | 210 | 335 | 150 | 225 | 100 | 180 | 80 | 90 | 28 |
| 30 | 400 | 210 | 315 | 150 | 210 | 100 | 170 | 80 | 85 | 28 |
| 35 | 355 | 180 | 265 | 150 | 180 | 100 | 140 | 75 | 71 | 25 |
| 40 | 300 | 180 | 235 | 140 | 160 | 95 | 125 | 70 | 63 | 25 |
| 45 | 265 | 160 | 210 | 125 | 140 | 85 | 110 | 60 | 56 | 20 |
| 50 | 235 | 140 | 190 | 110 | 125 | 75 | 100 | 50 | 50 | 20 |




1. この表は、ae＝0.5D×ap＝1.5Dを基準に作成してあります。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

※ TiNコーティング品は、回転速度、送り速度ともに上表の10～20%のアップが可能です。但し、この場合1刃あたりの送り量は、上表と同程度になるように回転速度、送り速度を調節して下さい。

1. The indicated speeds and feeds are for side milling to a depth = 0.5× D and a width of cut = 1.5× D.
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

※ When milling with the TiN coated version, both speed and feed can be increased by 10 ～20% . Change the speed and feed according to the feed rate per tooth. The feed rate per tooth should be similar to the feed listed above.

形状寸法表 SPECIFICATION CHARTS EX-TIN-EDS▶P761
形状寸法表 SPECIFICATION CHARTS EX-TIN-EMS▶P802

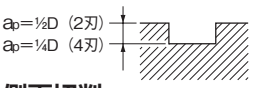




# EX-TIN-EDS/EX-TIN-EMS

## 溝切削 SLOTTING

| 被削材 Work Material | 低炭素鋼・軟鋼・銅合金・鋳鉄（軟質） Low Carbon Steel・Mild Steel・Copper Alloy・Cast Iron (Mild) (～490N/mm²) | | 中炭素鋼・硬質銅合金・硬質鋳鉄 Medium Carbon Steel・Hard Copper Alloy・Hard Cast Iron (490～735N/mm²) | | 高炭素鋼・合金鋼・ステンレス鋼 High Carbon Steel・Alloy Steel・Stainless Steel (735～980N/mm²) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel (30～40HRC) | | アルミニウム合金・亜鉛合金・プラスチック Aluminum Alloy・Zinc Alloy・Plastic | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 1 | 9,500 | 95 | 8,000 | 80 | 7,300 | 60 | 4,500 | 20 | 22,400 | 450 |
| 2 | 5,600 | 110 | 4,750 | 95 | 4,250 | 70 | 2,250 | 20 | 12,500 | 500 |
| 3 | 4,500 | 140 | 3,750 | 110 | 2,800 | 75 | 1,500 | 25 | 10,600 | 530 |
| 4 | 3,550 | 160 | 2,800 | 120 | 2,100 | 85 | 1,100 | 25 | 8,000 | 530 |
| 5 | 2,800 | 180 | 2,250 | 140 | 1,700 | 95 | 900 | 30 | 6,300 | 530 |
| 6 | 2,250 | 200 | 1,900 | 150 | 1,400 | 95 | 750 | 30 | 5,300 | 530 |
| 8 | 1,700 | 225 | 1,400 | 170 | 1,050 | 95 | 560 | 40 | 4,000 | 530 |
| 10 | 1,300 | 250 | 1,100 | 180 | 850 | 95 | 450 | 40 | 3,150 | 530 |
| 12 | 1,100 | 250 | 925 | 180 | 710 | 95 | 375 | 45 | 2,650 | 530 |
| 14 | 1,000 | 225 | 800 | 170 | 600 | 95 | 315 | 45 | 2,250 | 500 |
| 16 | 850 | 210 | 690 | 160 | 530 | 95 | 280 | 45 | 2,000 | 500 |
| 18 | 750 | 200 | 615 | 150 | 475 | 90 | 250 | 45 | 1,800 | 475 |
| 20 | 670 | 190 | 560 | 140 | 425 | 85 | 225 | 45 | 1,600 | 450 |
| 22 | 630 | 170 | 500 | 125 | 385 | 75 | 200 | 40 | 1,500 | 450 |
| 24 | 560 | 160 | 460 | 120 | 355 | 70 | 185 | 40 | 1,350 | 400 |
| 25 | 560 | 160 | 450 | 110 | 335 | 67 | 180 | 40 | 1,300 | 375 |
| 26 | 530 | 150 | 425 | 105 | 325 | 65 | 170 | 40 | 1,250 | 375 |
| 28 | 500 | 140 | 400 | 100 | 300 | 60 | 160 | 30 | 1,150 | 355 |
| 30 | 450 | 125 | 375 | 90 | 280 | 56 | 150 | 30 | 1,050 | 315 |
| 32 | 425 | 125 | 345 | 80 | 265 | 53 | 140 | 28 | 1,000 | 300 |
| 35 | 400 | 120 | 315 | 71 | 245 | 50 | 130 | 25 | 900 | 280 |
| 36 | 375 | 110 | 305 | 71 | 230 | 45 | 125 | 25 | 875 | 265 |
| 40 | 355 | 105 | 280 | 63 | 210 | 40 | 110 | 20 | 800 | 235 |
| 45 | 300 | 90 | 245 | 50 | 185 | 40 | 100 | 20 | 710 | 210 |
| 50 | 280 | 85 | 225 | 45 | 170 | 35 | 90 | 18 | 630 | 185 |

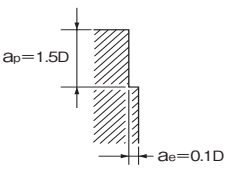



1. この表は、2刃ショート形ap＝1/2D、4刃ショート形ap＝1/4Dを基準に作成してあります。
2. apが上記を越えるときは、送り速度を20～50%落して下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 切削油剤は、被削材に適したものを選定して下さい。

1. The indicated speeds and feeds are for slotting to a depth = 0.5× D (2 flutes), and 0.25× D (4 flutes)
2. For deeper slotting, the feed should be decreased by 20～50% .
3. Use a rigid and precise machine and holder.
4. Use suitable cutting fluids.

## 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・軟鋼・銅合金・鋳鉄（軟質） Low Carbon Steel・Mild Steel・Copper Alloy・Cast Iron (Mild) (～490N/mm²) | | 中炭素鋼・硬質銅合金・硬質鋳鉄 Medium Carbon Steel・Hard Copper Alloy・Hard Cast Iron (490～735N/mm²) | | 高炭素鋼・合金鋼・ステンレス鋼 High Carbon Steel・Alloy Steel・Stainless Steel (735～980N/mm²) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel (30～40HRC) | | アルミニウム・アルミニウム合金・亜鉛合金 Aluminum・Aluminum Alloy・Zinc Alloy | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 5,300 | 450 | 4,250 | 300 | 2,800 | 170 | 1,500 | 60 | 12,500 | 1,400 |
| 4 | 4,000 | 475 | 3,150 | 315 | 2,000 | 180 | 1,100 | 67 | 9,500 | 1,600 |
| 5 | 3,150 | 475 | 2,500 | 335 | 1,600 | 180 | 900 | 80 | 7,500 | 1,800 |
| 6 | 2,650 | 500 | 2,100 | 355 | 1,400 | 190 | 750 | 80 | 6,300 | 2,000 |
| 8 | 2,000 | 560 | 1,600 | 400 | 1,000 | 200 | 560 | 90 | 4,750 | 2,250 |
| 10 | 1,600 | 600 | 1,250 | 425 | 800 | 200 | 450 | 100 | 3,750 | 2,250 |
| 12 | 1,300 | 600 | 1,050 | 400 | 710 | 225 | 375 | 105 | 3,150 | 2,000 |
| 14 | 1,100 | 545 | 900 | 485 | 600 | 225 | 315 | 105 | 2,800 | 1,800 |
| 16 | 1,000 | 515 | 800 | 375 | 500 | 210 | 280 | 105 | 2,500 | 1,700 |
| 18 | 900 | 475 | 710 | 355 | 450 | 200 | 250 | 105 | 2,100 | 1,600 |
| 20 | 800 | 475 | 630 | 335 | 400 | 180 | 225 | 95 | 1,900 | 1,500 |
| 22 | 730 | 425 | 560 | 315 | 375 | 170 | 200 | 85 | 1,700 | 1,400 |
| 24 | 670 | 400 | 530 | 280 | 355 | 160 | 190 | 80 | 1,600 | 1,320 |
| 25 | 630 | 375 | 500 | 265 | 335 | 150 | 180 | 75 | 1,500 | 1,250 |
| 26 | 600 | 355 | 475 | 250 | 315 | 140 | 170 | 71 | 1,400 | 1,100 |
| 28 | 560 | 335 | 450 | 235 | 300 | 140 | 160 | 67 | 1,300 | 1,050 |
| 30 | 530 | 315 | 425 | 210 | 280 | 130 | 150 | 67 | 1,250 | 1,000 |
| 32 | 500 | 300 | 400 | 200 | 265 | 120 | 140 | 67 | 1,200 | 950 |
| 35 | 450 | 280 | 375 | 190 | 235 | 105 | 130 | 60 | 1,100 | 900 |
| 36 | 450 | 265 | 355 | 180 | 225 | 100 | 125 | 56 | 1,050 | 850 |
| 40 | 400 | 250 | 315 | 170 | 200 | 90 | 110 | 50 | 950 | 750 |
| 45 | 350 | 235 | 280 | 160 | 180 | 85 | 100 | 50 | 850 | 670 |
| 50 | 315 | 235 | 250 | 140 | 160 | 85 | 90 | 45 | 750 | 600 |




1. この表は、4刃ショート形ae＝0.1D×ap＝1.5Dを基準に作成してあります。2刃ショート形は、送り速度を1/2に下げて下さい。
2. 仕上切削を行うときは、回転速度を1.3～1.5倍にして下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 切削油剤は、被削材に適したものを選定して下さい。

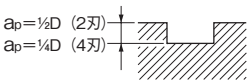
1. The indicated speeds and feeds are for side milling with 4-fluted end mills to a depth = 0.1 × D and a width of cut = 1.5 × D. For milling with 2-fluted end mills, the feed should be half of that listed above.
2. For finishing operations, the speed should be increased by 30～50% .
3. Use a rigid and precise machine and holder.
4. Use suitable cutting fluids.

形状寸法表 SPECIFICATION CHARTS EDS▶P766
形状寸法表 SPECIFICATION CHARTS CC-EMS▶P805
形状寸法表 SPECIFICATION CHARTS CE-EMS▶P809
形状寸法表 SPECIFICATION CHARTS CPM-EDS▶P774
形状寸法表 SPECIFICATION CHARTS CPM-EMS▶P811

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## EDS/CC-EMS/CE-EMS/CPM-EDS/CPM-EMS
## 溝切削 SLOTTING

| 被削材 Work Material | 低炭素鋼・銅合金・鋳鉄（軟質） Low Carbon Steel・Copper Alloy・Cast Iron (Mild) (～490N/mm²) | | 中炭素鋼・硬質銅合金・硬質鋳鉄 Medium Carbon Steel・Hard Copper Alloy・Hard Cast Iron (490～735N/mm²) | | 高炭素鋼・合金鋼・ステンレス鋼 High Carbon Steel・Alloy Steel・Stainless Steel (735～980N/mm²) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel (30～40HRC) | | アルミニウム・アルミニウム合金・プラスチック Aluminum・Aluminum Alloy・Plastic | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 0.6 | 13,200 | 65 | 12,500 | 48 | 10,000 | 36 | 7,100 | 20 | 17,000 | 80 |
| 0.8 | 11,200 | 71 | 9,500 | 53 | 7,100 | 36 | 5,000 | 20 | 16,000 | 100 |
| 1 | 9,000 | 71 | 7,500 | 53 | 5,600 | 36 | 4,000 | 20 | 14,000 | 100 |
| 2 | 5,600 | 90 | 4,500 | 65 | 2,800 | 36 | 2,000 | 20 | 12,500 | 160 |
| 3 | 4,500 | 105 | 3,350 | 75 | 2,000 | 36 | 1,400 | 20 | 11,200 | 250 |
| 4 | 3,150 | 125 | 2,350 | 85 | 1,400 | 40 | 1,000 | 25 | 8,000 | 290 |
| 5 | 2,500 | 140 | 1,900 | 95 | 1,100 | 45 | 800 | 28 | 6,300 | 315 |
| 6 | 2,250 | 150 | 1,700 | 100 | 1,000 | 48 | 710 | 28 | 5,600 | 315 |
| 8 | 1,600 | 180 | 1,200 | 120 | 710 | 56 | 500 | 34 | 4,000 | 387 |
| 10 | 1,250 | 200 | 950 | 130 | 560 | 63 | 400 | 38 | 3,150 | 400 |
| 12 | 1,000 | 190 | 750 | 120 | 450 | 60 | 315 | 38 | 2,500 | 375 |
| 14 | 900 | 180 | 670 | 120 | 400 | 60 | 280 | 40 | 2,250 | 355 |
| 16 | 800 | 170 | 600 | 110 | 355 | 60 | 250 | 40 | 2,000 | 345 |
| 18 | 710 | 165 | 530 | 105 | 315 | 56 | 225 | 40 | 1,800 | 345 |
| 20 | 630 | 160 | 475 | 95 | 280 | 56 | 200 | 40 | 1,600 | 315 |
| 22 | 560 | 150 | 425 | 85 | 250 | 50 | 180 | 36 | 1,400 | 300 |
| 24 | 500 | 140 | 375 | 75 | 225 | 45 | 160 | 32 | 1,250 | 280 |
| 25 | 500 | 140 | 375 | 75 | 225 | 45 | 160 | 32 | 1,250 | 280 |
| 26 | 500 | 140 | 375 | 75 | 225 | 45 | 160 | 32 | 1,250 | 280 |
| 28 | 450 | 125 | 335 | 65 | 200 | 40 | 140 | 28 | 1,120 | 265 |
| 30 | 450 | 125 | 335 | 65 | 200 | 40 | 140 | 28 | 1,150 | 265 |
| 32 | 400 | 120 | 300 | 60 | 180 | 36 | 125 | 25 | 1,000 | 235 |
| 35 | 355 | 105 | 265 | 53 | 160 | 32 | 110 | 22 | 900 | 225 |
| 36 | 355 | 105 | 265 | 53 | 160 | 32 | 110 | 22 | 900 | 225 |
| 40 | 315 | 100 | 235 | 48 | 140 | 28 | 100 | 20 | 800 | 200 |
| 45 | 280 | 90 | 210 | 42 | 125 | 25 | 90 | 18 | 710 | 180 |
| 50 | 250 | 80 | 190 | 38 | 110 | 22 | 80 | 16 | 630 | 160 |

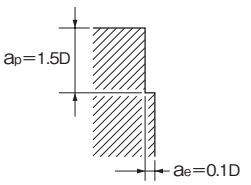



1. この表は、2刃ショート形 aₚ＝1/2D、4刃ショート形 aₚ＝1/4D を基準に作成してあります。
2. aₚが上記を越えるときは、送り速度を20～50%落として下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 切削油剤は、被削材に適したものを選定して下さい。
5. CPMは低炭素鋼、アルミニウムには適しません。

1. The indicated speeds and feeds are for slotting to a depth ＝ 0.5 × D (2 flutes), and 0.25 × D (4 flutes).
2. For deeper slotting, the feed should be decreased by 20～50% .
3. Use a rigid and precise machine and holder.
4. Use suitable cutting fluids.
5. CPM end mills are not suitable for machining low carbon steels or aluminum.

## EDS/CC-EMS/CE-EMS/CPM-EDS/CPM-EMS
## 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・銅合金・鋳鉄（軟質） Low Carbon Steel・Copper Alloy・Cast Iron (Mild) (～490N/mm²) | | 中炭素鋼・硬質銅合金・硬質鋳鉄 Medium Carbon Steel・Hard Copper Alloy・Hard Cast Iron (490～735N/mm²) | | 高炭素鋼・合金鋼・ステンレス鋼 High Carbon Steel・Alloy Steel・stainless Steel (735～980N/mm²) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel (30～40HRC) | | アルミニウム・アルミニウム合金・プラスチック Aluminum・Aluminum Alloy・Plastic | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 3 | 5,300 | 250 | 4,000 | 190 | 2,650 | 95 | 1,600 | 45 | 18,000 | 800 |
| 4 | 3,750 | 300 | 2,800 | 225 | 1,900 | 105 | 1,100 | 53 | 12,500 | 900 |
| 5 | 3,000 | 335 | 2,250 | 250 | 1,500 | 120 | 900 | 60 | 10,000 | 1,000 |
| 6 | 2,650 | 355 | 2,000 | 265 | 1,320 | 125 | 800 | 63 | 9,000 | 1,000 |
| 8 | 1,900 | 425 | 1,400 | 315 | 950 | 150 | 560 | 75 | 6,300 | 1,200 |
| 10 | 1,500 | 475 | 1,100 | 355 | 750 | 170 | 450 | 85 | 5,000 | 1,250 |
| 12 | 1,200 | 450 | 900 | 335 | 600 | 160 | 355 | 85 | 4,000 | 1,200 |
| 14 | 1,060 | 425 | 800 | 315 | 530 | 160 | 315 | 90 | 3,550 | 1,100 |
| 16 | 950 | 400 | 710 | 300 | 475 | 160 | 280 | 90 | 3,150 | 1,050 |
| 18 | 850 | 400 | 630 | 280 | 425 | 150 | 250 | 90 | 2,800 | 1,050 |
| 20 | 750 | 375 | 560 | 250 | 375 | 150 | 200 | 80 | 2,500 | 1,000 |
| 22 | 670 | 355 | 500 | 225 | 335 | 130 | 180 | 71 | 2,000 | 850 |
| 24 | 600 | 335 | 450 | 200 | 300 | 120 | 160 | 63 | 1,800 | 800 |
| 25 | 600 | 335 | 450 | 200 | 300 | 120 | 160 | 63 | 1,800 | 800 |
| 26 | 600 | 335 | 450 | 200 | 300 | 120 | 160 | 63 | 1,800 | 800 |
| 28 | 530 | 300 | 400 | 180 | 265 | 105 | 140 | 56 | 1,600 | 750 |
| 30 | 530 | 300 | 400 | 180 | 265 | 105 | 140 | 56 | 1,600 | 750 |
| 32 | 475 | 260 | 355 | 160 | 235 | 95 | 125 | 50 | 1,400 | 670 |
| 35 | 425 | 250 | 315 | 140 | 210 | 85 | 110 | 45 | 1,250 | 630 |
| 36 | 425 | 250 | 315 | 140 | 210 | 85 | 110 | 45 | 1,250 | 630 |
| 40 | 375 | 235 | 280 | 125 | 190 | 75 | 100 | 40 | 1,120 | 560 |
| 45 | 335 | 250 | 250 | 140 | 170 | 85 | 90 | 45 | 1,000 | 630 |
| 50 | 300 | 225 | 225 | 125 | 150 | 75 | 80 | 40 | 900 | 560 |




1. この表は、4刃ショート形エンドミルの aₑ＝0.1D × aₚ＝1.5D を基準に作成してあります。2刃ショート形エンドミルは、送り速度を1/2に下げて下さい。
2. 仕上切削を行うときは、回転速度を1.3～1.5倍にして下さい。
3. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
4. 切削油剤は、被削材に適したものを選定して下さい。
5. CPMは低炭素鋼、アルミニウムには適しません。

1. The indicated speeds and feeds are for side milling with 4-fluted end mills to a depth ＝ 0.1 × D and a width of cut ＝ 1.5 × D. For milling with 2-fluted end mills, the feed should be half that listed above.
2. For finishing operations, the speed should be increased by 30～50% .
3. Use a rigid and precise machine and holder.
4. Use suitable cutting fluids.
5. CPM end mills are not suitable for machining low carbon steels or aluminum.

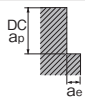
CUTTING CONDITIONS FOR HSS END MILLS

# ハイスエンドミル切削条件基準表

## SI-WH-RESF
## 側面切削

SIDE MILLING

| 被削材質 Work Material | 鋳鉄 Cast Iron FC250 | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400・S50C | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKT・SKS・SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKD・NAK80 (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 5 | 3,500 | 230 | 4,140 | 240 | 3,180 | 160 | 2,860 | 130 | 2,230 | 100 | 1,590 | 60 |
| 6 | 2,920 | 300 | 3,450 | 300 | 2,650 | 210 | 2,390 | 170 | 1,860 | 130 | 1,330 | 80 |
| 8 | 2,190 | 340 | 2,590 | 350 | 1,990 | 240 | 1,790 | 190 | 1,390 | 150 | 990 | 90 |
| 10 | 1,750 | 380 | 2,070 | 390 | 1,590 | 270 | 1,430 | 220 | 1,110 | 170 | 800 | 110 |
| 12 | 1,460 | 410 | 1,720 | 420 | 1,330 | 290 | 1,190 | 230 | 930 | 180 | 660 | 110 |
| 16 | 1,090 | 480 | 1,290 | 490 | 990 | 340 | 900 | 270 | 700 | 210 | 500 | 130 |
| 20 | 880 | 510 | 1,030 | 520 | 800 | 360 | 720 | 290 | 560 | 230 | 400 | 140 |
| 25 | 700 | 490 | 830 | 510 | 640 | 350 | 570 | 280 | 450 | 220 | 320 | 140 |
| 30 | 580 | 480 | 690 | 490 | 530 | 340 | 480 | 270 | 370 | 210 | 270 | 130 |
| 切込深さ Depth of Cut | | | | | DC / ap / ae<br><30 / ≦1.5D / ≦0.5D<br>≧30 / ≦1D | | | | | | | |



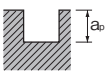

1. 機械、ホルダは剛性の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
3. 給油の際は充分切りくずが排出できるよう考慮して下さい。

1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
3. Consider the way of coolant supply to help smooth chip ejection.

## 溝切削

SLOTTING

| 被削材質 Work Material | 鋳鉄 Cast Iron FC250 | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400・S50C | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SKT・SKS・SKD (～30HRC) | | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel SKD・NAK80 (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | | チタン合金 Titanium Alloy Ti-6Al-4V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 5 | 2,860 | 130 | 3,180 | 120 | 2,550 | 90 | 2,230 | 70 | 1,590 | 50 | 950 | 30 |
| 6 | 2,390 | 160 | 2,650 | 160 | 2,120 | 110 | 1,860 | 90 | 1,330 | 60 | 800 | 30 |
| 8 | 1,790 | 200 | 1,990 | 190 | 1,590 | 140 | 1,390 | 110 | 990 | 80 | 600 | 40 |
| 10 | 1,430 | 220 | 1,590 | 210 | 1,270 | 150 | 1,110 | 120 | 800 | 80 | 480 | 40 |
| 12 | 1,190 | 230 | 1,330 | 220 | 1,060 | 160 | 930 | 120 | 660 | 90 | 400 | 50 |
| 16 | 900 | 270 | 990 | 260 | 800 | 190 | 700 | 150 | 500 | 110 | 300 | 60 |
| 20 | 720 | 290 | 800 | 280 | 640 | 210 | 560 | 160 | 400 | 110 | 240 | 60 |
| 25 | 570 | 280 | 640 | 280 | 510 | 200 | 450 | 150 | 320 | 110 | 190 | 60 |
| 30 | 480 | 270 | 530 | 260 | 420 | 190 | 370 | 150 | 270 | 110 | 160 | 60 |
| 切込深さ Depth of Cut | ap≦1D<br>ap Max＝20mm | | | | | | | | | | | |




1. 機械、ホルダは剛性の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
3. 給油の際は充分切りくずが排出できるよう考慮して下さい。

1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
3. Consider the way of coolant supply to help smooth chip ejection.

形状寸法表 SPECIFICATION CHARTS WH-RESF▶P839
形状寸法表 SPECIFICATION CHARTS WH-REES▶P839

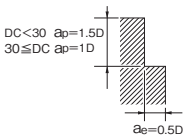
# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## WH-RESF/WH-REES

### 側面切削 SIDE MILLING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | 超耐熱合金鋼・チタン合金・インコネル®・ハステロイ® Heat Resistant Alloy Steel・Titanium Alloy Steel・Inconel®・Hastelloy® | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,650 | 190 | 2,100 | 130 | 1,400 | 90 | 1,200 | 70 | 800 | 30 |
| 7 | 2,250 | 200 | 1,800 | 150 | 1,250 | 100 | 1,050 | 85 | 700 | 35 |
| 8 | 2,000 | 225 | 1,700 | 180 | 1,100 | 120 | 900 | 95 | 630 | 35 |
| 10 | 1,600 | 250 | 1,300 | 200 | 900 | 130 | 710 | 105 | 450 | 40 |
| 12 | 1,300 | 265 | 1,100 | 200 | 750 | 130 | 600 | 105 | 355 | 45 |
| 14 | 1,100 | 280 | 950 | 225 | 630 | 150 | 500 | 110 | 300 | 45 |
| 15 | 1,050 | 300 | 900 | 225 | 600 | 150 | 475 | 120 | 280 | 50 |
| 16 | 1,000 | 315 | 850 | 225 | 560 | 150 | 450 | 120 | 265 | 50 |
| 18 | 900 | 335 | 750 | 250 | 500 | 170 | 400 | 130 | 235 | 55 |
| 20 | 800 | 335 | 670 | 250 | 450 | 170 | 355 | 130 | 210 | 55 |
| 22 | 710 | 335 | 600 | 250 | 400 | 170 | 335 | 130 | 190 | 55 |
| 25 | 630 | 335 | 530 | 225 | 355 | 150 | 280 | 120 | 170 | 50 |
| 28 | 560 | 315 | 475 | 225 | 315 | 150 | 250 | 120 | 150 | 50 |
| 30 | 530 | 315 | 450 | 225 | 300 | 150 | 235 | 120 | 140 | 50 |
| 32 | 500 | 280 | 420 | 225 | 280 | 150 | 215 | 115 | 130 | 50 |
| 35 | 450 | 265 | 375 | 225 | 250 | 150 | 200 | 110 | 120 | 45 |
| 40 | 400 | 265 | 335 | 210 | 225 | 140 | 180 | 105 | 105 | 45 |

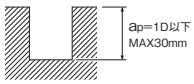
1. この表は、ae＝0.5D×ap＝1.5D,1Dを基準に作成してあります。
2. 機械、ホルダは剛性の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 給油の際は充分切りくずが排出できるよう考慮して下さい。




1. The indicated speeds and feeds are for side milling to a depth ＝ 0.5× D and a width of cut = 1.5× D, 1D.
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Consider the way of coolant supply to help smooth chip ejection.

### 溝切削 SLOTTING

| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | チタン合金 Titanium Alloy Steel | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,400 | 160 | 2,000 | 110 | 1,300 | 80 | 1,100 | 60 | 700 | 25 |
| 7 | 2,050 | 175 | 1,750 | 130 | 1,100 | 90 | 1,000 | 70 | 600 | 25 |
| 8 | 1,800 | 190 | 1,500 | 150 | 990 | 100 | 850 | 80 | 500 | 25 |
| 10 | 1,440 | 210 | 1,200 | 170 | 810 | 110 | 670 | 90 | 400 | 30 |
| 12 | 1,200 | 225 | 995 | 170 | 675 | 110 | 570 | 90 | 355 | 36 |
| 14 | 1,000 | 235 | 855 | 190 | 565 | 130 | 470 | 95 | 300 | 36 |
| 15 | 950 | 255 | 810 | 190 | 540 | 130 | 450 | 100 | 280 | 40 |
| 16 | 900 | 265 | 760 | 190 | 500 | 130 | 420 | 100 | 265 | 40 |
| 18 | 800 | 285 | 670 | 210 | 450 | 145 | 380 | 110 | 235 | 45 |
| 20 | 720 | 285 | 600 | 210 | 400 | 145 | 330 | 110 | 210 | 45 |
| 22 | 650 | 285 | 545 | 210 | 360 | 145 | 310 | 110 | 190 | 45 |
| 25 | 570 | 285 | 480 | 190 | 320 | 130 | 265 | 100 | 170 | 40 |
| 28 | 510 | 265 | 430 | 190 | 285 | 130 | 240 | 100 | 150 | 40 |
| 30 | 480 | 265 | 400 | 190 | 270 | 130 | 225 | 100 | 140 | 40 |
| 32 | 450 | 240 | 375 | 190 | 245 | 130 | 200 | 100 | 130 | 40 |
| 35 | 410 | 225 | 345 | 190 | 225 | 130 | 190 | 95 | 120 | 40 |
| 40 | 360 | 225 | 300 | 180 | 200 | 120 | 170 | 90 | 105 | 40 |



CUTTING CONDITIONS FOR HSS END MILLS

# ハイスエンドミル切削条件基準表

## WH-RENF/WH-REEN/WH-RELF/WH-REEL
## 側面切削

SIDE MILLING

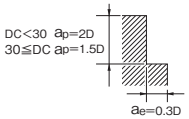
| 被削材 Work Material | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S50C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼・プリハードン鋼（快削） Stainless Steel・Hardened Steel・Prehardened Steel (Free-Cutting) SUS304・SKT (30～38HRC) | | 工具鋼・調質鋼・プリハードン鋼（非快削） Tool Steel・Hardened Steel・Prehardened Steel (Nonfree-Cutting) SKD・SKT・SKD61 (38～45HRC) | | 超耐熱合金鋼・チタン合金・インコネル®・ハステロイ® Heat Resistant Alloy Steel・Titanium Alloy Steel・Inconel®・Hastelloy® | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,650 | 170 | 2,100 | 125 | 1,400 | 80 | 1,200 | 63 | 800 | 30 |
| 7 | 2,250 | 185 | 1,900 | 140 | 1,200 | 90 | 1,100 | 63 | 700 | 35 |
| 8 | 2,000 | 200 | 1,700 | 150 | 1,100 | 100 | 900 | 63 | 630 | 35 |
| 10 | 1,600 | 210 | 1,300 | 160 | 900 | 110 | 710 | 63 | 450 | 40 |
| 12 | 1,300 | 210 | 1,100 | 170 | 850 | 125 | 600 | 63 | 355 | 45 |
| 14 | 1,100 | 225 | 950 | 170 | 630 | 125 | 500 | 80 | 300 | 45 |
| 15 | 1,050 | 250 | 900 | 190 | 600 | 125 | 475 | 90 | 280 | 50 |
| 16 | 1,000 | 250 | 850 | 190 | 560 | 125 | 450 | 90 | 265 | 50 |
| 18 | 900 | 280 | 750 | 190 | 500 | 125 | 400 | 95 | 235 | 53 |
| 20 | 800 | 250 | 670 | 170 | 450 | 120 | 355 | 95 | 210 | 53 |
| 22 | 630 | 210 | 560 | 170 | 375 | 120 | 335 | 90 | 190 | 53 |
| 25 | 500 | 180 | 450 | 160 | 315 | 105 | 280 | 80 | 170 | 50 |
| 28 | 400 | 170 | 375 | 160 | 280 | 105 | 250 | 80 | 150 | 50 |
| 30 | 315 | 170 | 300 | 150 | 270 | 105 | 235 | 80 | 140 | 50 |
| 32 | 295 | 170 | 185 | 150 | 240 | 95 | 215 | 80 | 130 | 45 |
| 35 | 280 | 170 | 265 | 140 | 210 | 90 | 200 | 80 | 120 | 45 |
| 40 | 250 | 160 | 225 | 125 | 170 | 75 | 180 | 71 | 105 | 45 |

1. 機械、ホルダは剛性の高いものをご使用下さい。
2. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
3. 給油の際は充分切りくずが排出できるよう考慮して下さい。

※ ロング刃は、ae＝0.1D、ap＝3Dを基準にし、回転速度・送り速度ともに上表の70～80%でご使用下さい。

1. Use a rigid and precise machine and holder.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
3. Consider the way of coolant supply to help smooth chip ejection.

※ For long flute end mills, use the following cutting conditions:Milling Depth＝0.1D (D＝mill diameter), Milling Width＝3D, Speed and Feed＝70～80% of the above settings.

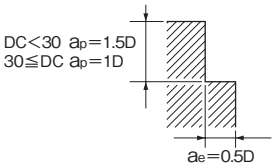


形状寸法表
SPECIFICATION CHARTS
EX-TIN-RESF▶P845

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## EX-TIN-RESF
## 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・軟鋼 Low Carbon Steel・Mild Steel S15C・SS400 (～490N/mm²) | | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S45C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304・SKT (30～40HRC) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel SKD・SKT・SKD61 (40～45HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 6 | 2,350 | 160 | 1,900 | 125 | 1,300 | 80 | 1,000 | 60 | 750 | 40 |
| 7 | 2,000 | 200 | 1,600 | 140 | 1,100 | 80 | 900 | 71 | 630 | 40 |
| 8 | 1,700 | 200 | 1,400 | 140 | 1,000 | 90 | 800 | 71 | 560 | 40 |
| 10 | 1,400 | 250 | 1,100 | 170 | 800 | 110 | 630 | 80 | 450 | 45 |
| 12 | 1,200 | 250 | 950 | 170 | 670 | 110 | 450 | 85 | 375 | 50 |
| 14 | 1,000 | 280 | 800 | 190 | 560 | 125 | 450 | 90 | 315 | 50 |
| 15 | 950 | 315 | 750 | 200 | 530 | 140 | 425 | 100 | 300 | 56 |
| 16 | 850 | 355 | 710 | 210 | 500 | 160 | 400 | 100 | 280 | 60 |
| 18 | 750 | 355 | 630 | 210 | 450 | 150 | 355 | 100 | 250 | 60 |
| 20 | 710 | 400 | 560 | 210 | 400 | 150 | 300 | 118 | 225 | 60 |
| 22 | 630 | 355 | 500 | 210 | 355 | 150 | 280 | 118 | 200 | 60 |
| 25 | 560 | 355 | 450 | 200 | 315 | 150 | 250 | 118 | 180 | 60 |
| 28 | 500 | 315 | 400 | 180 | 280 | 150 | 225 | 112 | 160 | 60 |
| 30 | 475 | 300 | 375 | 180 | 265 | 150 | 200 | 118 | 150 | 60 |
| 32 | 450 | 300 | 355 | 180 | 250 | 140 | 200 | 100 | 140 | 56 |
| 35 | 400 | 280 | 315 | 180 | 225 | 125 | 180 | 90 | 125 | 50 |
| 40 | 355 | 250 | 280 | 170 | 200 | 120 | 160 | 80 | 110 | 45 |
| 45 | 315 | 225 | 250 | 150 | 180 | 100 | 140 | 71 | 100 | 40 |
| 50 | 280 | 200 | 225 | 130 | 160 | 90 | 125 | 60 | 90 | 35 |




1. この表は呼び寸法
｛30㎜未満はae＝0.5D、ap＝1.5D｝
｛30㎜以上はae＝0.5D、ap＝1D｝
を基準にして作成してあります。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式切削の場合は、回転速度、送り速度ともに上表の70～80%でご使用下さい。

1. The indicated speeds and feeds are for side milling,
For end mill dia. ＜30.0mm a depth = 0.5× D
a width of cut = 1.5× D
For end mill dia. ≧30.0mm a depth = 0.5× D
a width of cut = 1× D
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. For dry milling, both speed and feed should be decreased by 20～30% .

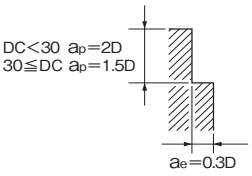
CUTTING CONDITIONS FOR HSS END MILLS

# ハイスエンドミル切削条件基準表

## EX-TIN-RENF
## 側面切削

SIDE MILLING

| 被削材 Work Material | 低炭素鋼・軟鋼 Low Carbon Steel・Mild Steel S15C・SS400 (～490N/mm²) | | 炭素鋼・鋳鉄 Carbon Steel・Cast Iron S45C・FC250 (490～735N/mm²) | | 合金鋼 Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304・SKT (30～40HRC) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel SKD・SKT・SKD61 (40～45HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,360 | 160 | 1,900 | 125 | 1,320 | 80 | 1,000 | 60 | 750 | 40 |
| 7 | 2,000 | 200 | 1,600 | 140 | 1,100 | 80 | 900 | 71 | 630 | 40 |
| 8 | 1,700 | 200 | 1,400 | 140 | 1,000 | 90 | 800 | 71 | 560 | 40 |
| 10 | 1,400 | 250 | 1,100 | 150 | 800 | 100 | 630 | 80 | 450 | 40 |
| 12 | 1,200 | 250 | 950 | 150 | 670 | 100 | 530 | 80 | 375 | 40 |
| 14 | 1,000 | 280 | 800 | 160 | 560 | 100 | 450 | 90 | 315 | 50 |
| 15 | 950 | 300 | 750 | 180 | 530 | 110 | 425 | 90 | 300 | 56 |
| 16 | 850 | 300 | 710 | 180 | 500 | 110 | 400 | 80 | 280 | 56 |
| 18 | 750 | 335 | 630 | 200 | 450 | 110 | 355 | 80 | 250 | 60 |
| 20 | 710 | 335 | 560 | 170 | 400 | 100 | 300 | 80 | 225 | 60 |
| 22 | 600 | 300 | 450 | 150 | 335 | 100 | 265 | 80 | 200 | 60 |
| 25 | 500 | 265 | 355 | 130 | 265 | 85 | 225 | 75 | 180 | 50 |
| 28 | 425 | 225 | 280 | 120 | 225 | 85 | 200 | 75 | 160 | 50 |
| 30 | 375 | 265 | 225 | 140 | 210 | 105 | 180 | 90 | 150 | 60 |
| 32 | 335 | 235 | 210 | 125 | 200 | 95 | 170 | 80 | 140 | 56 |
| 35 | 300 | 210 | 190 | 120 | 180 | 85 | 150 | 71 | 125 | 50 |
| 40 | 250 | 170 | 170 | 110 | 160 | 75 | 125 | 60 | 110 | 45 |
| 45 | 210 | 150 | 150 | 105 | 140 | 63 | 110 | 50 | 100 | 40 |
| 50 | 190 | 130 | 130 | 95 | 125 | 56 | 100 | 40 | 90 | 36 |




1. この表は呼び寸法
｜30㎜未満はae＝0.3D、ap＝2D　｜
｜30㎜以上はae＝0.3D、ap＝1.5D｜
を基準にして作成してあります。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式切削の場合は、回転速度、送り速度ともに上表の70～80%でご使用下さい。

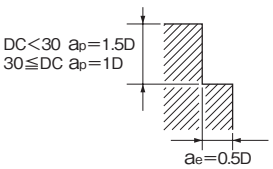
1. The indicated speeds and feeds are for side milling,
For end mill dia.＜30.0mm　a depth = 0.3×D
a width of cut = 2×D
For end mill dia.≧30.0mm　a depth = 0.3×D
a width of cut = 1.5×D
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. For dry milling, both speed and feed should be decreased by 20～30%.

形状寸法表
SPECIFICATION CHARTS
EX-REES▶P848

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## EX-REES
## 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・銅合金・鋳鉄（軟質） Low Carbon Steel・Copper Alloy・Cast Iron (Mild) (～490N/mm²) | | 中炭素鋼・硬質銅合金・硬質鋳鉄 Medium Carbon Steel・Hard Copper Alloy・Hard Cast Iron (490 ～735N/mm²) | | 高炭素鋼・合金鋼・ステンレス鋼 High Carbon Steel・Alloy Steel・Stainless Steel (735 ～980N/mm²) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel (30 ～40HRC) | | アルミニウム合金・亜鉛合金・プラスチック Aluminum Alloy・Zinc Alloy・Plastic | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,000 | 85 | 1,500 | 63 | 1,100 | 40 | 850 | 25 | 4,500 | 265 |
| 8 | 1,400 | 100 | 1,050 | 75 | 800 | 48 | 600 | 30 | 3,150 | 315 |
| 10 | 1,100 | 110 | 850 | 85 | 630 | 53 | 475 | 34 | 2,500 | 350 |
| 12 | 900 | 125 | 670 | 95 | 500 | 60 | 375 | 38 | 2,000 | 400 |
| 14 | 800 | 130 | 600 | 100 | 450 | 63 | 335 | 40 | 1,800 | 425 |
| 16 | 710 | 140 | 530 | 105 | 400 | 67 | 300 | 42 | 1,600 | 450 |
| 18 | 630 | 150 | 475 | 110 | 355 | 71 | 265 | 45 | 1,400 | 475 |
| 20 | 560 | 170 | 425 | 130 | 315 | 75 | 235 | 48 | 1,250 | 500 |
| 22 | 500 | 150 | 375 | 110 | 280 | 70 | 210 | 45 | 1,100 | 475 |
| 25 | 450 | 140 | 335 | 105 | 250 | 67 | 190 | 42 | 1,000 | 500 |
| 28 | 400 | 130 | 300 | 100 | 225 | 63 | 170 | 40 | 900 | 425 |
| 30 | 400 | 170 | 300 | 125 | 225 | 80 | 170 | 50 | 900 | 530 |
| 32 | 355 | 160 | 265 | 120 | 200 | 75 | 150 | 48 | 800 | 500 |
| 35 | 315 | 150 | 235 | 110 | 180 | 71 | 130 | 45 | 710 | 475 |
| 40 | 280 | 140 | 210 | 105 | 160 | 67 | 120 | 42 | 630 | 450 |
| 45 | 250 | 130 | 190 | 100 | 140 | 63 | 105 | 40 | 560 | 425 |
| 50 | 225 | 120 | 170 | 90 | 125 | 56 | 95 | 36 | 500 | 375 |
| 55 | 200 | 105 | 150 | 80 | 110 | 50 | 85 | 32 | 450 | 335 |
| 60 | 200 | 105 | 150 | 80 | 110 | 50 | 85 | 32 | 450 | 335 |




1. この表は呼び寸法
｛30㎜未満はae＝0.5D、ap＝1.5D｝
｛30㎜以上はae＝0.5D、ap＝1D　｝
を基準にして作成してあります。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. The indicated speeds and feeds are for side milling.
For end mill dia. ＜30.0mm　a depth = 0.5× D
a width of cut = 1.5× D
For end mill dia. ≧30.0mm　a depth = 0.5× D
a width of cut = 1× D
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

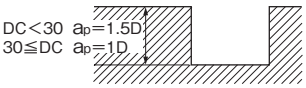
CUTTING CONDITIONS FOR HSS END MILLS

# ハイスエンドミル切削条件基準表

## EX-LS-RESF
## 溝切削

SLOTTING

| 被削材 Work Material | 低炭素鋼・鋳鉄（軟質） Low Carbon Steel・Cast Iron (Mild) (～490N/mm²) | | 中炭素鋼・硬質銅合金・硬質鋳鉄 Medium Carbon Steel・Hard Copper Alloy・Hard Cast Iron (490～735N/mm²) | | 高炭素鋼・合金鋼・ステンレス鋼 High Carbon Steel・Alloy Steel・Stainless Steel (735～980N/mm²) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel (30～40HRC) | |
|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,000 | 125 | 1,600 | 95 | 1,050 | 53 | 850 | 35 |
| 8 | 1,500 | 130 | 1,200 | 100 | 800 | 71 | 630 | 40 |
| 10 | 1,250 | 140 | 950 | 105 | 630 | 71 | 500 | 45 |
| 12 | 1,000 | 140 | 800 | 110 | 530 | 71 | 425 | 48 |
| 14 | 850 | 160 | 670 | 125 | 450 | 85 | 375 | 50 |
| 15 | 800 | 160 | 630 | 130 | 425 | 85 | 335 | 56 |
| 16 | 750 | 160 | 600 | 130 | 400 | 100 | 315 | 60 |
| 18 | 670 | 170 | 530 | 130 | 355 | 100 | 280 | 60 |
| 20 | 600 | 170 | 475 | 130 | 315 | 100 | 250 | 67 |
| 22 | 560 | 170 | 450 | 140 | 300 | 100 | 235 | 67 |
| 25 | 500 | 160 | 375 | 125 | 250 | 95 | 200 | 67 |
| 28 | 450 | 150 | 335 | 120 | 225 | 90 | 180 | 60 |
| 30 | 400 | 140 | 315 | 120 | 210 | 90 | 170 | 60 |
| 35 | 355 | 140 | 280 | 120 | 180 | 90 | 150 | 55 |
| 40 | 300 | 140 | 235 | 120 | 160 | 90 | 125 | 55 |
| 45 | 265 | 125 | 210 | 105 | 140 | 75 | 110 | 50 |
| 50 | 235 | 110 | 190 | 95 | 125 | 71 | 100 | 45 |



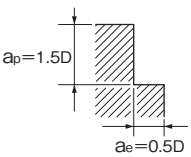

1. この表は呼び寸法
｛30㎜未満はae＝1.5D｝
｛30㎜以上はae＝1D　｝
を基準にして作成してあります。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は、冷却性が高く、発煙性の少ないものを選定して下さい。

1. The indicated speeds and feeds are for side milling,
For end mill dia.＜30mm　a depth＝1.5×D
For end mill dia.≧30mm　a depth＝1×D
2. Use a rigid and precise machine and holder.
3. Use suitable cutting fluids with hight cooling effect and smoke retardant.

## EX-LS-RESF
## 側面切削

SIDE MILLING

| 被削材 Work Material | 低炭素鋼・鋳鉄（軟質） Low Carbon Steel・Cast Iron (Mild) (～490N/mm²) | | 中炭素鋼・硬質銅合金・硬質鋳鉄 Medium Carbon Steel・Hard Copper Alloy・Hard Cast Iron (490～735N/mm²) | | 高炭素鋼・合金鋼・ステンレス鋼 High Carbon Steel・Alloy Steel・Stainless Steel (735～980N/mm²) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel (30～40HRC) | |
|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,000 | 125 | 1,600 | 100 | 1,050 | 71 | 850 | 48 |
| 8 | 1,500 | 140 | 1,200 | 120 | 800 | 90 | 630 | 60 |
| 10 | 1,250 | 180 | 950 | 140 | 630 | 90 | 500 | 67 |
| 12 | 1,000 | 180 | 800 | 140 | 530 | 95 | 425 | 71 |
| 14 | 850 | 190 | 670 | 150 | 450 | 120 | 375 | 80 |
| 15 | 800 | 200 | 630 | 160 | 425 | 120 | 335 | 80 |
| 16 | 750 | 210 | 600 | 170 | 400 | 130 | 315 | 90 |
| 18 | 670 | 225 | 530 | 180 | 355 | 130 | 280 | 90 |
| 20 | 600 | 250 | 475 | 190 | 315 | 130 | 250 | 90 |
| 22 | 560 | 265 | 450 | 200 | 300 | 140 | 235 | 100 |
| 25 | 500 | 250 | 375 | 190 | 250 | 125 | 200 | 95 |
| 28 | 450 | 225 | 335 | 180 | 225 | 125 | 180 | 90 |
| 30 | 400 | 210 | 315 | 170 | 210 | 120 | 170 | 85 |
| 35 | 355 | 190 | 280 | 150 | 180 | 120 | 150 | 80 |
| 40 | 300 | 180 | 235 | 150 | 160 | 120 | 125 | 75 |
| 45 | 265 | 160 | 210 | 125 | 140 | 85 | 110 | 67 |
| 50 | 235 | 140 | 190 | 110 | 125 | 75 | 100 | 60 |




1. この表は、ae＝0.5D×ap＝1.5Dを基準に作成してあります。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は、冷却性が高く、発煙性の少ないものを選定して下さい。

1. The indicated speeds and feeds are for side milling to a depth＝0.5×D and a width of cut＝1.5×D
2. Use a rigid and precise machine and holder.
3. Use suitable cutting fluids with high cooling effect and smoke retardant.

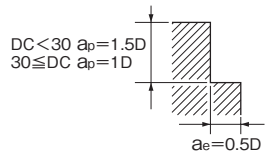
形状寸法表 SPECIFICATION CHARTS TFGS▶P859
形状寸法表 SPECIFICATION CHARTS TFGN▶P865
形状寸法表 SPECIFICATION CHARTS TFS▶P860
形状寸法表 SPECIFICATION CHARTS TFN▶P866

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

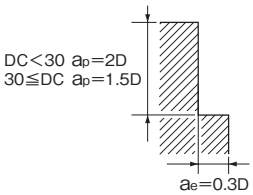
## TFGS/TFGN
### 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・軟鋼 Low Carbon Steel・Mild Steel S15C・SS400 (～490N/mm²) | | 中炭素鋼・鋳鉄 Medium Carbon Steel・Cast Iron S45C・FC250 (490～735N/mm²) | | 高炭素鋼・合金鋼 High Carbon Steel・Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304・SKT (30～40HRC) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel SKD・SKT・SKD61 (40～45HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 2,000 | 125 | 1,700 | 100 | 1,300 | 67 | 1,000 | 45 | 750 | 30 |
| 8 | 1,500 | 140 | 1,250 | 110 | 1,000 | 80 | 750 | 53 | 560 | 30 |
| 10 | 1,200 | 150 | 1,050 | 130 | 800 | 90 | 600 | 56 | 450 | 34 |
| 12 | 1,000 | 170 | 850 | 130 | 670 | 90 | 500 | 60 | 375 | 38 |
| 14 | 850 | 200 | 710 | 150 | 560 | 95 | 425 | 63 | 315 | 38 |
| 15 | 800 | 200 | 670 | 160 | 530 | 100 | 400 | 75 | 300 | 45 |
| 16 | 750 | 200 | 630 | 170 | 500 | 100 | 375 | 75 | 280 | 45 |
| 18 | 670 | 236 | 560 | 160 | 450 | 100 | 325 | 75 | 250 | 45 |
| 20 | 600 | 225 | 500 | 160 | 400 | 90 | 280 | 75 | 225 | 45 |
| 22 | 530 | 225 | 400 | 140 | 335 | 90 | 235 | 75 | 200 | 45 |
| 25 | 375 | 170 | 315 | 120 | 265 | 71 | 200 | 70 | 180 | 45 |
| 28 | 280 | 160 | 280 | 110 | 225 | 80 | 180 | 70 | 160 | 45 |
| 30 | 250 | 170 | 225 | 100 | 190 | 80 | 160 | 63 | 140 | 45 |
| 32 | 225 | 140 | 180 | 80 | 170 | 70 | 140 | 56 | 130 | 38 |
| 35 | 190 | 110 | 150 | 75 | 140 | 63 | 125 | 50 | 120 | 38 |
| 40 | 140 | 85 | 125 | 67 | 110 | 50 | 100 | 45 | 95 | 34 |
| 45 | 125 | 75 | 110 | 63 | 100 | 45 | 90 | 40 | 85 | 30 |
| 50 | 110 | 67 | 95 | 56 | 90 | 40 | 80 | 36 | 80 | 28 |

TFGS（ショート形）




TFGN（ミディアム形）



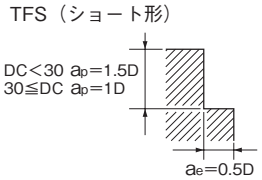

1. この表は荒削りの条件で仕上削りの場合は送り速度をこの60～70%にして下さい。
2. 機械、チャックは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。
4. 乾式切削は回転速度、送り速度ともに上表の70～80%でご使用下さい。

1. For finishing operations, the feed should be decreased by 30～40%.
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. For dry milling, both speed and feed should be decreased by 20～30%.

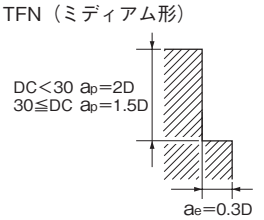
## TFS/TFN
### 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・軟鋼 Low Carbon Steel・Mild Steel S15C・SS400 (～490N/mm²) | | 中炭素鋼・鋳鉄 Medium Carbon Steel・Cast Iron S45C・FC250 (490～735N/mm²) | | 高炭素鋼・合金鋼 High Carbon Steel・Alloy Steel SCM・SNCM・SNC (735～980N/mm²) | | 特殊鋼・調質鋼・ステンレス鋼 Special Alloy Steel・Hardened Steel・Stainless Steel SKD・SKT・SUS304 (30～40HRC) | | アルミニウム合金・亜鉛合金・プラスチック Aluminum Alloy・Zinc Alloy・Plastic | |
|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 6 | 1,900 | 80 | 1,500 | 60 | 1,050 | 42 | 850 | 35 | 4,500 | 210 |
| 8 | 1,400 | 80 | 1,050 | 60 | 800 | 50 | 630 | 35 | 3,150 | 250 |
| 10 | 1,100 | 90 | 850 | 67 | 630 | 50 | 500 | 35 | 2,500 | 280 |
| 12 | 900 | 100 | 710 | 75 | 530 | 50 | 425 | 45 | 2,000 | 315 |
| 14 | 800 | 105 | 600 | 80 | 450 | 60 | 400 | 45 | 1,800 | 335 |
| 15 | 750 | 110 | 560 | 85 | 425 | 65 | 375 | 50 | 1,700 | 355 |
| 16 | 700 | 110 | 530 | 85 | 400 | 65 | 325 | 50 | 1,600 | 355 |
| 18 | 600 | 120 | 475 | 90 | 355 | 70 | 280 | 50 | 1,400 | 375 |
| 20 | 560 | 125 | 425 | 95 | 315 | 70 | 235 | 50 | 1,250 | 400 |
| 22 | 425 | 125 | 355 | 95 | 280 | 70 | 200 | 50 | 1,100 | 375 |
| 25 | 315 | 100 | 280 | 90 | 210 | 65 | 180 | 48 | 1,000 | 355 |
| 28 | 265 | 100 | 225 | 80 | 180 | 60 | 160 | 43 | 900 | 335 |
| 30 | 235 | 100 | 190 | 71 | 170 | 60 | 140 | 53 | 900 | 425 |
| 32 | 200 | 90 | 170 | 63 | 130 | 50 | 125 | 43 | 800 | 400 |
| 35 | 160 | 75 | 140 | 56 | 125 | 45 | 110 | 40 | 710 | 375 |
| 40 | 125 | 63 | 105 | 45 | 100 | 40 | 95 | 38 | 630 | 355 |
| 45 | 110 | 56 | 100 | 45 | 90 | 40 | 85 | 32 | 560 | 335 |
| 50 | 100 | 50 | 90 | 45 | 80 | 35 | 75 | 27 | 500 | 300 |

TFS（ショート形）




TFN（ミディアム形）




1. この表は荒削りの条件で仕上削りの場合は送り速度をこの60～70%にして下さい。
2. 機械、チャックは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. For finishing operations, the feed should be decreased by 30～40%.
2. Use a rigid and precise machine and holder.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

形状寸法表 SPECIFICATION CHARTS BKMS▶P863
形状寸法表 SPECIFICATION CHARTS CPM-BKMS▶P870-15
形状寸法表 SPECIFICATION CHARTS BKML▶P870-16



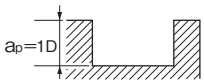
CUTTING CONDITIONS FOR HSS END MILLS

# ハイスエンドミル切削条件基準表

## BKMS/CPM-BKMS

### 溝切削 SLOTTING

| 被削材 Work Material | 低炭素鋼・軟鋼・鋳鉄 Low Carbon Steel・Mild Steel・Cast Iron (～490N/mm²) | | 中炭素鋼・銅合金 Medium Carbon Steel・Copper Alloy (490～735N/mm²) | | 高炭素鋼・合金鋼 High Carbon Steel・Alloy Steel (735～980N/mm²) | | 工具鋼・ステンレス鋼・プリハードン鋼（快削）・チタン合金 Tool Steel・Stainless Steel・Prehardened Steel (Free-Cutting) Titanium Alloy Steel (30～35HRC) | | 調質鋼 Hardened Steel (36～40HRC) | | 耐熱合金 Heat Resistant Alloy Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 1,100 | 71 | 950 | 56 | 730 | 40 | 580 | 32 | 425 | 24 | 250 | 13 |
| 12 | 900 | 71 | 800 | 63 | 600 | 48 | 475 | 36 | 355 | 26 | 210 | 14 |
| 14 | 800 | 80 | 670 | 67 | 530 | 53 | 425 | 38 | 300 | 26 | 180 | 14 |
| 16 | 710 | 95 | 600 | 80 | 450 | 56 | 350 | 40 | 265 | 28 | 160 | 16 |
| 18 | 600 | 95 | 530 | 85 | 400 | 63 | 315 | 45 | 225 | 30 | 140 | 18 |
| 20 | 560 | 106 | 475 | 90 | 375 | 67 | 280 | 48 | 210 | 34 | 125 | 19 |
| 22 | 500 | 100 | 450 | 85 | 335 | 63 | 265 | 48 | 190 | 32 | 120 | 19 |
| 25 | 450 | 95 | 375 | 80 | 290 | 60 | 225 | 42 | 170 | 30 | 100 | 17 |
| 28 | 400 | 80 | 350 | 71 | 265 | 53 | 200 | 38 | 150 | 26 | 90 | 15 |
| 30 | 375 | 75 | 315 | 63 | 235 | 48 | 190 | 36 | 125 | 22 | 85 | 14 |
| 32 | 300 | 90 | 250 | 75 | 200 | 60 | 160 | 42 | 100 | 24 | 63 | 15 |
| 35 | 280 | 85 | 235 | 71 | 180 | 53 | 150 | 40 | 90 | 21 | 60 | 14 |
| 40 | 235 | 71 | 200 | 60 | 160 | 48 | 125 | 34 | 80 | 19 | 50 | 12 |
| 45 | 210 | 63 | 180 | 53 | 140 | 42 | 110 | 30 | 70 | 17 | 45 | 11 |
| 50 | 190 | 56 | 160 | 48 | 125 | 38 | 100 | 26 | 63 | 15 | 40 | 10 |

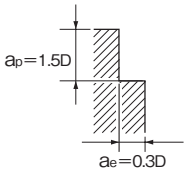



1. この表は、ap＝1Dを基準にして作成してあります。
2. 機械、チャックは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。やむをえず乾式切削するときは、必ずエアブローを使用して下さい。

1. The indicated speeds and feeds are for slotting to a depth = 1×D
2. Use a rigid and precise machine and holder.
3. Use plenty of nonflammable cutting fluid. When dry cutting, always use an air blow.

### 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・軟鋼・鋳鉄 Low Carbon Steel・Mild Steel・Cast Iron (～490N/mm²) | | 中炭素鋼・銅合金 Medium Carbon Steel・Copper Alloy (490～735N/mm²) | | 高炭素鋼・合金鋼 High Carbon Steel・Alloy Steel (735～980N/mm²) | | 工具鋼・ステンレス鋼・プリハードン鋼（快削）・チタン合金 Tool Steel・Stainless Steel・Prehardened Steel (Free-Cutting) Titanium Alloy Steel (30～35HRC) | | 調質鋼 Hardened Steel (36～40HRC) | | 耐熱合金 Heat Resistant Alloy Steel | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 1,250 | 125 | 1,100 | 105 | 800 | 75 | 630 | 56 | 475 | 42 | 315 | 26 |
| 12 | 1,050 | 130 | 900 | 110 | 670 | 85 | 530 | 63 | 400 | 45 | 265 | 28 |
| 14 | 900 | 140 | 800 | 125 | 600 | 90 | 450 | 63 | 335 | 45 | 225 | 30 |
| 16 | 800 | 150 | 710 | 130 | 530 | 100 | 400 | 71 | 300 | 50 | 200 | 32 |
| 18 | 710 | 160 | 630 | 140 | 450 | 100 | 355 | 75 | 265 | 53 | 180 | 36 |
| 20 | 630 | 180 | 560 | 160 | 400 | 105 | 315 | 80 | 235 | 56 | 160 | 38 |
| 22 | 560 | 170 | 500 | 150 | 375 | 100 | 280 | 75 | 210 | 53 | 140 | 36 |
| 25 | 500 | 160 | 450 | 140 | 335 | 95 | 250 | 71 | 190 | 45 | 125 | 34 |
| 28 | 450 | 140 | 400 | 125 | 300 | 85 | 225 | 63 | 170 | 45 | 110 | 30 |
| 30 | 425 | 130 | 375 | 120 | 280 | 80 | 210 | 60 | 160 | 42 | 100 | 26 |
| 32 | 355 | 130 | 300 | 110 | 225 | 80 | 180 | 60 | 125 | 42 | 80 | 25 |
| 35 | 315 | 120 | 280 | 105 | 210 | 75 | 170 | 56 | 120 | 40 | 71 | 22 |
| 40 | 280 | 105 | 235 | 90 | 180 | 63 | 140 | 48 | 100 | 34 | 63 | 20 |
| 45 | 250 | 95 | 210 | 80 | 160 | 56 | 125 | 42 | 90 | 30 | 56 | 18 |
| 50 | 210 | 80 | 190 | 71 | 150 | 54 | 110 | 38 | 80 | 27 | 50 | 16 |

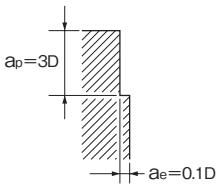



1. この表は、ae=0.3D×ap=1.5Dを基準にして作成してあります。
2. 機械、チャックは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。やむをえず乾式切削するときは、必ずエアブローを使用して下さい。
4. 仕上げ切削を行うときは、apを0.1D以下にして下さい。
5. 切削方向はダウンカットを推奨します。

1. The indicated speeds and feeds are for side milling to a depth = 1.5× D and a width of cut = 0.3× D
2. Use a rigid and precise machine and holder.
3. Use plenty of nonflammable cutting fluid. When dry cutting, always use an air blow.
4. For finishing operations, use a cutting depth less than 0.1 D.

## BKML

### 側面切削 SIDE MILLING




回転速度……ショート形切削基準条件表（側面切削）の回転速度の50%
送り速度……ショート形切削基準条件表（側面切削）の送り速度の50%
切込深さ……ae＝0.1D×ap＝3Dを基準にしてあります。
SPEED……50% of the speed of short type (side milling)
FEED……50% of the feed of short type (side milling)
CUTTING DEPTH……The recommendations above are applicable for side milling to a width of cut = 0.1×D and a cutting depth = 3×D

1. 仕上げ切削を行うときは、aeを0.05D以下にして下さい。
2. 切削方向はダウンカットを推奨します。

※BKLM（ロング形）は溝切削には推奨致しません。

1. For finishing operations, use a cutting depth less than 0.05 D.
2. We recommend a down-cut.

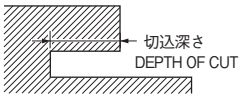
※ BKML (Long type) slotting is not recommended.

形状寸法表 SPECIFICATION CHARTS RF-TSC▶P894
形状寸法表 SPECIFICATION CHARTS CPM-EHS▶P823-22

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## RF-TSC

| 被削材 Work Material | | 炭素鋼 Carbon Steel S45C (～785N/mm²) | | 合金鋼・ステンレス鋼 Alloy Steel・Stainless Steel SKD61・SUS304 | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel SKD・SKT (30～40HRC) | |
|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 切込深さ Depth of Cut (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 15 | 3 | 560 | 90 | 425 | 53 | 315 | 32 |
| 20 | 4 | 425 | 95 | 315 | 60 | 235 | 38 |
| 25 | 5 | 335 | 95 | 250 | 60 | 190 | 38 |
| 30 | 6 | 300 | 100 | 225 | 63 | 170 | 40 |
| 35 | 7 | 235 | 90 | 180 | 56 | 130 | 35 |
| 40 | 8 | 210 | 85 | 160 | 53 | 120 | 34 |
| 45 | 9 | 190 | 80 | 140 | 50 | 105 | 32 |
| 50 | 10 | 170 | 72 | 125 | 45 | 95 | 28 |

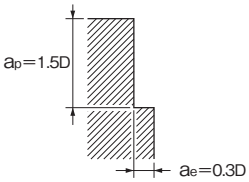



1. この表は、寸法表の刃幅を対象に上記切込みに対する基本条件表です。
2. 機械、チャックは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. The indicated speeds and feeds are for milling the dimensions listed above.
2. Use a rigid and precise machine and holder.
3. Use a suitable cutting fluid with high smoke retardant.

## CPM-EHS
### 側面切削 SIDE MILLING

| 被削材 Work Material | 低炭素鋼・銅合金・鋳鉄（軟質） Low Carbon Steel・Copper Alloy・Cast Iron (Mild) (～490N/mm²) | | 中炭素鋼・硬質銅合金・硬質鋳鉄 Medium Carbon Steel・Hard Copper Alloy・Hard Cast Iron (490～735N/mm²) | | 高炭素鋼・合金鋼・ステンレス鋼 High Carbon Steel・Alloy Steel・Stainless Steel (735～980N/mm²) | | 特殊鋼・調質鋼 Special Alloy Steel・Hardened Steel (30～40HRC) | |
|---|---|---|---|---|---|---|---|---|
| 呼び Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 6 | 2,000 | 100 | 1,800 | 71 | 1,250 | 50 | 1,000 | 32 |
| 8 | 1,400 | 115 | 1,250 | 80 | 900 | 53 | 710 | 34 |
| 10 | 1,120 | 120 | 1,000 | 85 | 710 | 53 | 560 | 38 |
| 12 | 900 | 125 | 800 | 90 | 560 | 56 | 450 | 40 |
| 14 | 800 | 130 | 710 | 95 | 500 | 56 | 400 | 42 |
| 16 | 710 | 140 | 630 | 100 | 450 | 60 | 355 | 42 |
| 18 | 630 | 140 | 560 | 105 | 400 | 60 | 315 | 45 |
| 20 | 560 | 150 | 500 | 105 | 355 | 63 | 280 | 48 |
| 22 | 500 | 180 | 450 | 125 | 315 | 75 | 250 | 56 |
| 25 | 450 | 160 | 400 | 110 | 280 | 67 | 225 | 50 |
| 28 | 400 | 140 | 355 | 100 | 250 | 60 | 200 | 45 |
| 30 | 400 | 140 | 355 | 100 | 250 | 60 | 200 | 45 |




1. この表は、$a_e$＝0.3D×$a_p$＝1.5Dを基準に作成してあります。
2. 機械、チャックは剛性のある精度の高いものをご使用下さい。
3. 切削油剤は被削材に適したもので、発煙性の少ないものを選定して下さい。

1. The indicated speeds and feeds are for milling to a depth = 0.3 × D and a width of cut = 1.5 × D.
2. Use a rigid and precise machine and holder.
3. Use a suitable cutting fluid with high smoke retardant.

形状寸法表
SPECIFICATION CHARTS
V-XPM-ECR▶P899

# CUTTING CONDITIONS FOR HSS END MILLS ハイスエンドミル切削条件基準表

## V-XPM-ECR

| 被削材 Work Material | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400・S45C (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM・SUJ・SKS (～30HRC) | | 調質鋼・ステンレス鋼 Hardened Steel・Stainless Steel SKD・SKT・SUS (30～40HRC) | |
|---|---|---|---|---|---|---|
| RE | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 2×R0.5 | 3,800 | 50 | 3,150 | 40 | 2,500 | 30 |
| 2×R0.75 | 3,450 | 50 | 2,850 | 40 | 2,300 | 30 |
| 2×R1 | 3,150 | 50 | 2,650 | 40 | 2,100 | 30 |
| 2×R1.25 | 2,900 | 50 | 2,400 | 40 | 1,950 | 30 |
| 2×R1.5 | 2,700 | 50 | 2,250 | 40 | 1,800 | 30 |
| 2×R1.75 | 2,500 | 50 | 2,100 | 40 | 1,650 | 30 |
| 2×R2 | 2,350 | 50 | 1,950 | 40 | 1,550 | 30 |
| 2×R2.25 | 2,200 | 50 | 1,850 | 40 | 1,450 | 30 |
| 2×R2.5 | 2,100 | 50 | 1,750 | 40 | 1,400 | 30 |
| 2×R2.75 | 2,000 | 50 | 1,650 | 40 | 1,300 | 30 |
| 2×R3 | 1,900 | 50 | 1,550 | 40 | 1,250 | 30 |
| 2×R3.5 | 1,700 | 50 | 1,400 | 40 | 1,150 | 30 |
| 2×R4 | 1,550 | 50 | 1,300 | 40 | 1,050 | 30 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 加工物の形状や保持方法の状況によって切削条件を調整して下さい。
3. 切削油剤は被削材に適したものをご使用いただき、十分に注油下さい。
4. びびりや振動を生ずる場合は切込み回数を数回に分けて下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
3. Use suitable cutting fluids, supply enough amount.
4. When chattering or vibration occurs, reduce cutting depth with multiple passes.

形状寸法表 SPECIFICATION CHARTS
V-UCS▶P900

# ハイスエンドミル切削条件基準表 CUTTING CONDITIONS FOR HSS END MILLS

## V-UCS（60°・90°・120°）

| 被削材 Work Material | 鋳鉄 Cast Iron FC250・FCD400 (～750N/mm²) | | 一般構造用鋼・炭素鋼 Mild Steel・Carbon Steel SS400・S45C (～750N/mm²) | | 合金鋼 Alloy Steel SCM435 (～30HRC) | | プリハードン鋼 Prehardened Steel NAK55 (30～38HRC) | | アルミニウム合金 Aluminum Alloy AC4D | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed | 10～30m/min | | 20～40m/min | | 10～14m/min | | 8～14m/min | | 30～60m/min | | 8～12m/min | |
| 外径 Mill Dia. (mm) | 回転速度 Speed (min-1) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min-1) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min-1) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min-1) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min-1) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min-1) | 送り量 Feed Rate (mm/rev) |
| 4.3 | 1,480 | 0.11 | 2,220 | 0.11 | 890 | 0.08 | 890 | 0.08 | 3,705 | 0.11 | 740 | 0.07 |
| 5.3 | 1,200 | 0.14 | 1,800 | 0.14 | 720 | 0.1 | 720 | 0.1 | 3,005 | 0.14 | 600 | 0.09 |
| 6.3 | 1,010 | 0.17 | 1,515 | 0.17 | 605 | 0.12 | 605 | 0.12 | 2,525 | 0.17 | 505 | 0.11 |
| 7.3 | 870 | 0.2 | 1,310 | 0.2 | 525 | 0.13 | 525 | 0.13 | 2,180 | 0.2 | 435 | 0.12 |
| 8.3 | 765 | 0.22 | 1,150 | 0.22 | 460 | 0.14 | 460 | 0.14 | 1,920 | 0.22 | 385 | 0.14 |
| 9.4 | 675 | 0.25 | 1,015 | 0.25 | 405 | 0.16 | 405 | 0.16 | 1,695 | 0.25 | 340 | 0.16 |
| 10.4 | 610 | 0.27 | 920 | 0.28 | 365 | 0.19 | 365 | 0.19 | 1,530 | 0.28 | 305 | 0.18 |
| 12.4 | 515 | 0.32 | 770 | 0.32 | 310 | 0.22 | 310 | 0.22 | 1,285 | 0.32 | 255 | 0.22 |
| 14.4 | 440 | 0.34 | 665 | 0.35 | 265 | 0.23 | 265 | 0.23 | 1,105 | 0.35 | 220 | 0.23 |
| 15 | 425 | 0.35 | 635 | 0.37 | 255 | 0.24 | 255 | 0.24 | 1,060 | 0.36 | 210 | 0.24 |
| 16 | 385 | 0.38 | 580 | 0.4 | 230 | 0.25 | 230 | 0.25 | 965 | 0.4 | 195 | 0.25 |
| 20.5 | 310 | 0.45 | 465 | 0.45 | 185 | 0.28 | 185 | 0.28 | 775 | 0.45 | 155 | 0.28 |
| 25 | 255 | 0.5 | 380 | 0.5 | 150 | 0.32 | 150 | 0.32 | 635 | 0.5 | 125 | 0.32 |
| 切込深さ Depth of Cut |  | | | | | | | | | | | |

1. 上記の切削条件基準表は、水溶性切削油剤を使用する場合のものです。
2. 不水溶性切削油剤を使用する場合は、切削速度を20%下げて下さい。

1. The "Recommended Milling Conditions" above are applicable when using a water-soluble cutting fluid.
2. When using a non-water-soluble cutting fluid, the cutting speed must be reduced 20% .

形状寸法表
SPECIFICATION CHARTS
ED-EQ-80▶P835-11

形状寸法表
SPECIFICATION CHARTS
ED-EQ-100▶P835-12

# CUTTING CONDITIONS FOR HSS END MILLS ハイスエンドミル切削条件基準表

## ED-EQ-80/ED-EQ-100

| 被削材 Work Material | ウレタンゴム・スポンジ Urethane Rubbers・Sponges | | |
|---|---|---|---|
| ボール半径 RE | 切削速度 Cutting Speed (m/min) | 回転速度 Speed ($min^{-1}$) | 送り量 Feed Rate (mm/rev) |
| R0.5 | 150〜250 | 20,000 | 0.01〜0.03 |
| R1 | 150〜250 | 20,000 | 0.01〜0.03 |
| R1.5 | 150〜250 | 20,000 | 0.01〜0.03 |
| R2 | 150〜250 | 16,000 | 0.01〜0.04 |
| R3 | 150〜250 | 10,000 | 0.01〜0.04 |
| R4 | 150〜250 | 8,000 | 0.01〜0.04 |
| R5 | 150〜250 | 6,000 | 0.01〜0.04 |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。

1. Use a rigid and precise machine and holder
2. Refer to the table above to set the milling conditions in accordance with the actualsituation.



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※二次元コードは一部製品に限ります

## CADデータダウンロード

CADデータダウンロード

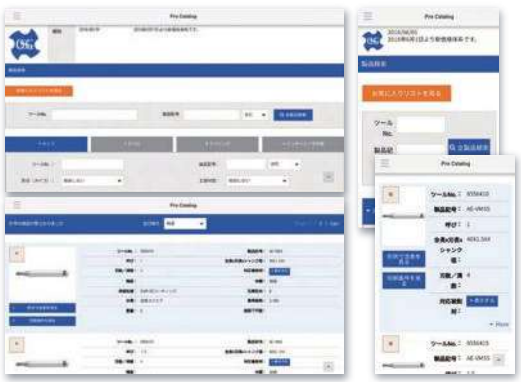
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| インサート・ボディ検索表 INSERT・CUTTER BODY SELECTION GUIDE | P.933～ |
| ボディ・インサート表示方法 DESIGNATION (BODY&INSERT) | P.934～ |
| インデキサブルツール 目次 INDEX OF INDEXABLE TOOL CUTTERS | P.937～ |
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| パーツ表・取付部寸法表 PARTS・DIMENTIONS | P.1066～ |
| 切削条件基準表目次 INDEX OF CUTTING CONDITIONS | P.1069～ |
| 切削条件基準表 CUTTING CONDITIONS | P.1071～ |

**CERATIZIT セラティジット**

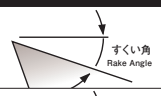
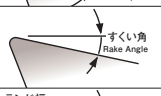
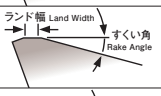
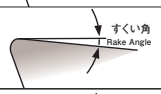
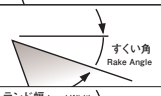
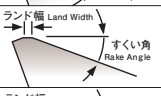
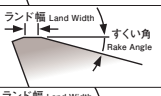
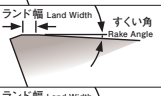
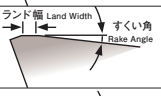
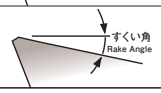
| | |
|---|---|
| MaxiMill 274 MaxiMill 274 | P.1131～ |
| MaxiMill HEC MaxiMill HEC | P.1137～ |
| 多機能 旋削用 ECO CUT | P.1143～ |
| 旋盤 CTCP 115/125/135 | P.1147～ |




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- 予告なく仕様、形状、表内の値等が変更となる場合がございます。
- The inventory status is indicated for respective products on this catalogue. However. the products may be improved or discontinued due to development of new materials and products. etc.
- Specifications. shapes. values in the tables. etc. are subject to change without prior notice.

インデキサブルツールのインサートの材料には
コバルトを含みます。
Inserts of indexable tools include Cobalt.

# ブレーカの種類と用途 Type of Insert Breakers

| | ブレーカ名 Insert Breaker | 切刃断面形状(目安) Cutting edge cross-section (approximate) | 用途 Application |
|---|---|---|---|
| ドリル用 For Drilling | DN |  | シャープな切れ刃とポリッシュ処理による切りくず排出性に優れた非鉄金属加工用ブレーカ<br>For drilling non-ferrous material: a breaker with sharp cutting edge and polish treatment for excellent chip evacuation. |
| | DM |  | 最適すくい角により様々な被削材に対応可能な汎用ブレーカ<br>General purpose breaker with an optimum rake angle suitable for various work materials. |
| | DR |  | すくい角とランドによる刃先強度に優れた鋳鉄加工用ブレーカ<br>For drilling cast iron: a breaker with high rigidity acquired by optimal land width and rake angle. |
| | SH |  | 刃先強度を高め、不安定な加工に対応可能なブレーカ<br>For unstable machining environment: breaker with reinforced cutting edge. |
| フライス用 For Milling | NM |  | シャープな切れ刃と大きなすくい角で凝着を抑制し、加工面の向上とバリ発生を防ぐ非鉄金属加工用ブレーカ<br>For machining nonferrous materials: a breaker with a sharp cutting edge and a large rake angle to suppress welding, improve the milling surface and prevent burrs. |
| | GL |  | 大きなすくい角と小さなフラットランドにより、切削抵抗を小さくした低抵抗形ブレーカ<br>For milling stainless-steel: a breaker with a large rake angle and a small flat land to reduce cutting force. |
| | GM |  | すくい角とフラットランドの高バランス化により、鋼～鋳鉄まで加工可能な汎用ブレーカ<br>For drilling various materials from steel to cast iron: a breaker with a superior balance of rake angle and flat land. |
| | GR |  | すくい角とフラットランドにより、刃先強度が高く鋳鉄・高硬度材加工向けの高剛性ブレーカ<br>For machining cast iron and high-hardness materials: a highly rigid breaker with optimal rake angle and flat land specification for high cutting edge strength. |
| | HR |  | シャープな切れ味と剛性を兼ね備えた高硬度鋼加工用ブレーカ<br>For milling high hardened steel: a breaker with sharpness and rigidity on the cutting edge. |
| | SM |  | シャープな切れ味により切削抵抗の低減とスムースな切りくず排出が可能となる難削材加工用ブレーカ<br>For machining difficult materials: a breaker with a sharp cutting edge to reduce cutting force and provide smooth chip evacuation. |

# インサート材種一覧 Type of Inserts

## ドリル　インサート材種一覧 List of insert grades for Drill

| 分類 Classification | 材種 Grades | コーティング法 Coating Method | 母材硬度 (HRA) Hardness | コーティング層 Surface Treatment | | 特長 Features | 対象製品 Product | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 主成分 Main Component | 膜厚 Coating Thickness | | PXD | PD | PHP | PDZ | PLDS |
| P | XP3425 | PVD | 91.8 | Cr系 複合多層 Composite multilayer | 7μm | 鋼加工用材種 For steel<br>厚膜のコーティングを施し、耐摩耗性に優れるPXD専用材種<br>Thick-film coating, wear-resistant material, for PXD operation | ○ | | | | |
| | XP8030 | PVD | 91.9 | TiAlN | 3μm | 鋼・ステンレス鋼加工用材種 For steel and stainless steel<br>幅広い用途、領域に対応可能、耐摩耗性と耐欠損性がバランスした材種<br>Wide range of applications and areas, well-balanced wear resistance and defect resistance | | | | ○ | |
| | XC8035 | CVD | 89.6 | TiCN+$Al_2O_3$ | 7μm | 鋼・鋳鉄加工用材種 For steel and cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜の鋼・鋳鉄加工用材種<br>High-strength and tough material, wear-resistant coating, for steel and cast iron | | | | ○ | |
| | XP9020 | PVD | 91.9 | TiAlN系 | 3μm | 鋼・ステンレス鋼加工用材種 For steel and stainless steel<br>幅広い用途、領域に対応可能、耐摩耗性と耐欠損性がバランスした穴あけ専用材種<br>Wide range of applications and areas, well-balanced wear resistance and defect resistance, for drilling operation | | ○ | | | ○ |
| | XP9040 | PVD | 91.9 | TiAlN系 | 3μm | 鋼・ステンレス鋼加工用材種 For steel and stainless steel<br>強じんな超硬母材と耐チッピング性及び耐摩耗性に優れたコーティング被膜の穴あけ専用材種<br>High-strength material, chipping-resistant and wear-resistant coating, for drilling operation | | | ○ | | |
| | XC9015 | CVD | 91.9 | TiCN+$Al_2O_3$ | 7μm | 鋼・鋳鉄加工用材種 For steel and cast iron<br>強靭な超硬母材と厚膜のCVDコーティングにより、耐摩耗性に優れる鋼・鋳鉄専用材種<br>High-strength material, thick-film CVD coating, wear-resistant material, for steel and cast iron | | ○ | | | |
| M | XP2040 | PVD | 89.6 | TiAlN系 | 5μm | ステンレス鋼・鋼加工用材種 For stainless steel and steel<br>強じんな超硬母材と耐チッピング性及び耐摩耗性に優れたコーティング被膜の汎用フライス用材種<br>High-strength material, chipping-resistant and wear-resistant coating, for general purpose milling operation | | | | | ○ |
| K | XP1010 | PVD | 91.4 | TiAlN系 | 6μm | 鋳鉄加工用材種 For cast iron<br>すくい角とランドによる刃先強度に優れた鋳鉄用材種<br>High rigidity of cutting edge is acquired by optimal land width and rake angle. | | ○ | | | |
| | XP1425 | PVD | 91.8 | Cr系 複合多層 Composite multilayer | 7μm | 鋳鉄加工用材種 For cast iron<br>高じん性な母材に耐摩耗性に優れた厚膜コーティングを施したPXD専用材種<br>Non-coated fine grain hard metal with high strengtn and toughness, specifically for PXD operation | ○ | | | | |
| | XC9025 | CVD | 90.8 | TiCN+$Al_2O_3$ | 6μm | 鋳鉄加工用材種 For cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜の鋳鉄穴あけ専用材種<br>High-strength and tough material, wear-resistant coating, for drilling operation | | | ○ | | |
| N | CK110 | — | 92.2 | – | – | アルミニウム合金・非鉄用材種 For aluminum alloy and non-ferrous material<br>シャープな切れ刃とポリッシュ処理を備えた非鉄金属加工用材種<br>Sharp cutting edge with polish treatment | | ○ | | | |
| | CF225 | — | 91.8 | – | – | 非鉄金属加工用材種 For non-ferrous material<br>優れた強度と高い硬度を兼ね備えたノンコート微粒超硬合金、PXD専用材種<br>High-strength and tough non-coat fine grain hard metal, for PXD operation | ○ | | | | |

○=Applicable

## PFB、PFR、PXM　インサート材種一覧 List of insert grades for PFB, PFR, PXM

| 分類 Classification | 材種 Grades | コーティング法 Coating Method | 母材硬度 (HRA) Hardness | コーティング層 Surface Treatment | | 特長 Features | 対象製品 Product | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 主成分 Main Component | 膜厚 Coating Thickness | | PFB | PFR | PXM |
| P | XP3225 | PVD | 91.5 | Cr系 | 3μm | 鋼・ステンレス鋼・鋳鉄加工用材種 For steel, stainless steel, and cast iron<br>強じんな超硬母材と広い汎用性に優れたコーティング被膜<br>High-strength material, excellent coating for general purpose | ○ | ○ | ○ |
| | XP3310 | PVD | 92.5 | SiC 含有耐熱 強化被膜 SiC based heat-resistant coating | 3μm | 鋼・鋳鉄加工用材種 For steel and cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜の鋳鉄、高硬度鋼専用材種<br>High-strength and tough material, wear-resistant coating | ○ | ○ | |
| | XP3320 | PVD | 91.5 | SiC 含有耐熱 強化被膜 SiC based heat-resistant coating | 3μm | 鋼・ステンレス鋼・鋳鉄加工用材種 For steel, stainless steel, and cast iron<br>強じんな超硬母材と耐熱性及び耐摩耗性に優れたコーティング被膜<br>High-strength material, heat-resistant and wear-resistant coating | ○ | | ○ |
| M | XP2225 | PVD | 91.5 | Cr系 | 3μm | ステンレス鋼加工用材種 For stainless steel<br>耐熱性に優れた超硬母材とコーティング被膜のステンレス鋼加工用材種<br>Heat-resistant material, coating for stainless steel | ○ | | |
| N | XC4505 | CVD | 93.0 | DIA | 12μm | 非鉄金属加工用材種 For non-ferrous material<br>微細なダイヤ結晶による、高い被膜強度に優れるコーティング被膜<br>High-strength coating of fine diamond | ○ | ○ | |
| | XP4625 | PVD | 91.5 | DLC($SP^3$リッチ) $SP^3$ Rich | 0.8μm | 非鉄金属に適した材種 For non-ferrous materials<br>コーティング表面の平滑性により耐摩耗性・耐溶着性に優れた材種<br>Excellent wear resistance and welding resistance due to the smoothness of the coating surface | | | ○ |
| H | XP6305 | PVD | 93.0 | SiC 含有耐熱 強化被膜 SiC based heat-resistant coating | 3μm | 高硬度鋼加工用材種 For high hardness steel<br>高い高温硬度と熱伝導率に優れた高硬度材加工用材種<br>High temperature strength and excellent thermal conductivity | | | ○ |
| | XP6703 | PVD | 93.5 | SiC 含超耐熱複合多層 SiC based super heat-resistant composite multilayer | 3μm | 高硬度鋼加工用材種 For high hardness steel<br>高い耐熱性と耐摩耗性を有しつつ、優れたじん性を発揮する高硬度材加工用材種<br>Demonstrates excellent toughness with high heat resistance and wear resistance in high-hardness materials | ○ | | ○ |

○=Applicable

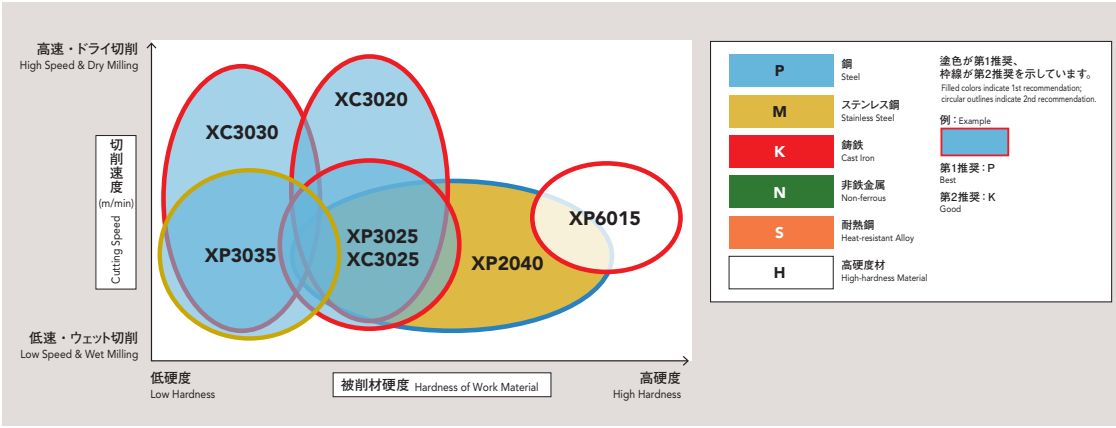
# インサート材種一覧 Type of Inserts

## ミーリング　インサート材種一覧 List of insert grades for Milling

| 分類 Classification | 材種 Grades | コーティング法 Coating Method | 母材硬度 (HRA) Hardness | コーティング層 Surface Treatment | | 特長 Features |
|---|---|---|---|---|---|---|
| | | | | 主成分 Main Component | 膜厚 Coating Thickness | |
| P | XP3015 | PVD | 91.0 | TiN+TiAlTaN | 5μm | 鋼・鋳鉄加工用材種 For steel and cast iron<br>高強度高じん性の超硬母材と耐摩耗性及び耐酸化性に優れたコーティング被膜<br>High strength and tough material, excellent wear-resistant and oxidation-resistant coating |
| | XC3020 | CVD | 90.5 | TiCN+$Al_2O_3$ | 10μm | 鋼・鋳鉄加工用材種 For steel and cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜<br>High-strength and tough material, wear-resistant coating |
| | XP3025 | PVD | 90.5 | TiAlN系 | 5μm | 鋼・鋳鉄加工用材種 For steel and cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜<br>High-strength and tough material, wear-resistant coating |
| | XC3025 | CVD | 90.8 | TiCN+TiN+$Al_2O_3$ | 4μm | 鋼・ステンレス鋼・鋳鉄加工用材種 For steel, stainless steel, and cast iron<br>強じんな超硬母材と耐摩耗性に優れたコーティング被膜<br>High-strength material, excellent wear-resistant coating |
| | XC3030 | CVD | 89.5 | TiCN+$Al_2O_3$ | 10μm | 鋼・鋳鉄加工用材種 For steel and cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜<br>High-strength and tough material, wear-resistant coating |
| | XP3035 | PVD | 89.5 | TiAlN系 | 5μm | 鋼・ステンレス鋼・鋳鉄加工用材種 For steel, stainless steel, and cast iron<br>高強度高じん性の超硬母材と耐チッピング性及び耐摩耗性に優れたコーティング被膜の汎用フライス用材種<br>High-strength and tough material, chipping-resistant and wear-resistant coating, for general purpose milling operation |
| | XP3930 | PVD | 90.8 | TiAlN | 3μm | 鋼・鋳鉄・ステンレス鋼加工用材種 For steel, cast iron, and stainless steel<br>バランスに優れ、多くの被削材に対応可能な汎用材種<br>For a wide variety of work material |
| | XP8030 | PVD | 91.9 | TiAlN | 3μm | 鋼・ステンレス鋼加工用材種 For steel and stainless steel<br>幅広い用途、領域に対応可能、耐摩耗性と耐欠損性がバランスした材種<br>Wide range of applications and areas, well-balanced wear resistance and defect resistance |
| | XC8035 | CVD | 89.6 | TiCN+$Al_2O_3$ | 7μm | 鋼・鋳鉄加工用材種 For steel and cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜の鋼・鋳鉄加工用材種<br>High-strength and tough material, wear-resistant coating, for steel and cast iron |
| M | XP2025 | PVD | 91.0 | TiAlN系 | 5μm | ステンレス鋼・鋼加工用材種 For stainless steel and steel<br>耐摩耗性に優れた超硬母材とコーティング被膜<br>Composed of a tough carbide material with a wear resistant coating |
| | XP2040 | PVD | 89.6 | TiAlN系 | 5μm | ステンレス鋼・鋼加工用材種 For stainless steel and steel<br>強じんな超硬母材と耐チッピング性及び耐摩耗性に優れたコーティング被膜の汎用フライス用材種<br>High-strength material, chipping-resistant and wear-resistant coating, for general purpose milling operation |
| K | XC1015 | CVD | 91.5 | TiCN+$Al_2O_3$ | 10μm | 鋳鉄加工用材種 For cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜の鋳鉄フライス専用材種<br>High-strength and tough material, wear-resistant coating, for milling operation |
| | XP1020 | PVD | 91.5 | TiAlN系 | 5μm | 鋳鉄加工用材種 For cast iron<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜の鋳鉄フライス専用材種<br>High-strength and tough material, wear-resistant coating, for milling operation |
| N | CK010 | — | 92.0 | – | – | 非鉄金属加工用材種 For non-ferrous material<br>耐チッピング性及び耐摩耗性共に優れる超硬ノンコート材種<br>Chipping-resistant, wear-resistant material and no coating |
| | XP4610 | PVD | 92.0 | DLC | 0.2μm | 非鉄金属・樹脂加工用材種 For non-ferrous material and resin<br>表面の平滑さにより耐溶着性や潤滑性に優れたコーティング被膜<br>Coating with excellent welding resistance and lubricity due to the smoothness of the coating surface |
| | DP010 | — | | – | – | 非鉄金属加工用材種 For steel and cast iron<br>多結晶ダイヤモンド材種<br>Polycrystalline diamond grade |
| | DM001 | — | | – | – | 非鉄金属加工用材種 For steel and cast iron<br>単結晶ダイヤモンド材種<br>Single crystal diamond grade |
| S | XC5035 | CVD | 89.3 | TiN+Ti(CN)+$Al_2O_3$+Ti(BN) | 6μm | 耐熱鋼・ステンレス鋼加工用材種 For heat-resistant alloy and stainless steel<br>強じんな超硬母材と耐酸化性及び高潤滑被膜による耐熱鋼加工用材種<br>High-strength material, oxidation-resistant and high-lubricity coating |
| | XC5040 | CVD | 89.3 | TiN+$TiB_2$ | 4μm | 耐熱鋼・ステンレス鋼加工用材種 For heat-resistant alloy and stainless steel<br>強じんな超硬母材と耐酸化性及び高潤滑被膜で湿式加工可能な耐熱鋼加工用材種<br>High-strength material, oxidation-resistant and high-lubricity coating, for wet machining |
| H | XP6015 | PVD | 92.2 | TiAlN | 4μm | 高硬度鋼用材種 For high-hardness steel<br>高強度高じん性の超硬母材と耐摩耗性に優れたコーティング被膜の高硬度鋼フライス専用材種<br>A grade designed for milling high-hardness steel, made of tough, high-strength carbide material with a wear-resistant coating |

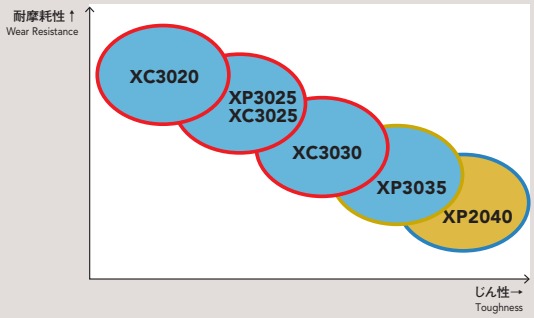
# インサート材種、被削材別材種 適用マップ Inserts Application Chart, Application Chart Of Insert Material

## ミーリング インサート材種適用マップ Inserts Application Chart

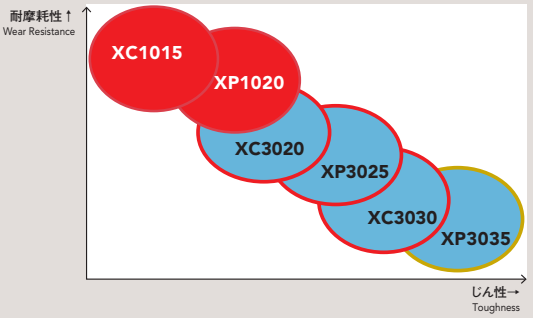



## ミーリング 被削材別適用材種 Application Chart of Insert Material

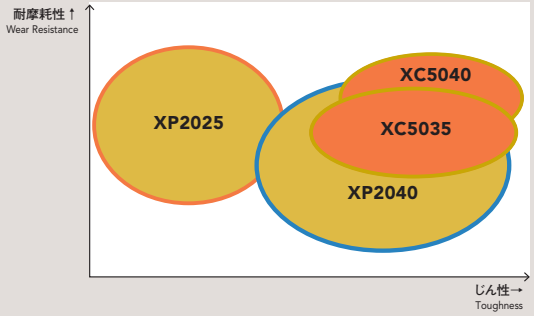
### 鋼系（軟鋼・一般鋼・調質鋼）
Steel-based Work Material (Mild Steel, Steel, Hardened Steel)



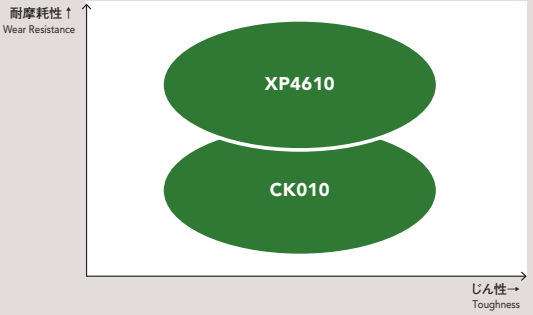

### 鋳鉄・ダクタイル鋳鉄
Cast Iron, Ductile Iron




### ステンレス鋼
Stainless Steel




### 非鉄金属
Non-ferrous



# インサート・ボディ検索表 Insert・Cutter Body Selection Guide

## ■インサート／ブレード呼びからボディを検索
Search by Alphabetical Order of Insert Designation

| インサート　呼び<br>Insert Designation | ボディ<br>Body | 掲載ページ<br>Page |
|---|---|---|
| ADMT… | PDR SS, MT, CN, BORE | P. 978 |
| FR1204, FR1206, FR1204-W | PFAL | P. 984 |
| OZKU… | PAO | P. 943 |
| PFB… | PFB SS, SF | P. 986 |
| PFR… | PFR SS, SF | P. 993 |
| RPHT…, RPHW…, RPMT… | PRC SS, BORE, SF | P. 980 |
| SCMT… | PHP | P. 1058 |
| SDKT…, SDHT… | PSF SS, BORE | P. 963 |
| | PSFL SS, BORE | P. 965 |
| SDHT…, SDHW… | PFDC | P. 967 |
| SDMT…, SPMT…, SXMT… | PHC SS, BORE, SF | P. 972 |
| SNKU… | PAS | P. 942 |
| SOMT… | PMEN SS, BORE, SF | P. 1062 |
| TNHU…, TNKU… | PSTW SS, BORE | P. 969 |
| TPKT… | PLDS SS, SF | P. 1060 |
| XAHT… | PAO | P. 943 |
| XCMT… | PD | P. 1045 |
| ZDHT… | PSE SS, BORE, SF | P. 946 |
| | PSEL SS, BORE | P. 957 |
| ZDKT… | PSE SS, BORE, SF | P. 946 |
| | PSEL SS, BORE | P. 957 |
| | PMD SS, SF | P. 1031 |
| ZPNT… | PDZ | P. 1055 |
| | PZAG SS, BORE | P. 1034 |
| | PMD SS, SF | P. 1031 |

## ■ボディからインサートを検索
Search by Listed Order

| 加工方法<br>Method | ボディ<br>Body | インサート　呼び<br>Insert Designation | 掲載ページ<br>Page |
|---|---|---|---|
| 穴加工<br>Drilling | PD | XCMT… | P. 1045 |
| | PHP | SCMT… | P. 1058 |
| | PDZ | ZPNT… | P. 1055 |
| | PZAG SS, BORE | ZPNT… | P. 1034 |
| | PLDS SS, SF | TPKT… | P. 1060 |
| | PMEN SS, BORE, SF | SOMT… | P. 1062 |
| フライス加工<br>Milling | PAS | SNKU… | P. 942 |
| | PAO | OZKU…, XAHT… | P. 943 |
| | PSF SS, BORE | SDKT…, SDHT… | P. 963 |
| | PSFL SS, BORE | | P. 965 |
| | PFDC | SDHT…, SDHW… | P. 967 |
| | PSE SS, BORE, SF | ZDHT…, ZDKT… | P. 946 |
| | PSEL SS, BORE | | P. 957 |
| | PSTW SS, BORE | TNHU…, TNKU… | P. 969 |
| | PMD SS, SF | ZDKT…, ZPNT… | P. 1031 |
| | PHC SS, BORE, SF | SDMT…, SPMT…, SXMT… | P. 972 |
| | PRC SS, BORE, SF | RPHT…, RPHW…, RPMT… | P. 980 |
| | PDR SS, MT, CN, BORE | ADMT… | P. 978 |
| | PFAL | FR1204, FR1206, FR1204-W | P. 984 |
| | PFB SS, SF | PFB… | P. 986 |
| | PFR SS, SF | PFR… | P. 993 |

# ボディの表示方法 Designation (Body)




### ①製品記号 Abbreviation

例: Example
PHC=
高送りラジアスカッタ
High Feed Cutter

### ②インサートサイズ Insert Size

例: Example
12=12mm

### ③勝手 Cutting Direction

R=右勝手 Right hand
L=左勝手 Left hand

### ④カッタ径 Cutter Diameter

例: Example
050=50mm

### ⑤取り付けのタイプ Mounting Type

| | |
|---|---|
| A | ボアタイプ(インチ) Bore Type (Inch) |
| M | ボアタイプ(ミリ) Bore Type (Metric) |
| SA | ストレートシャンク(インチ) Straight Shank (Inch) |
| SS | ストレートシャンク(ミリ) Straight Shank (Metric) |
| MT | モールス テーパ シャンク Morse Taper Shank |
| SF | ねじ込みタイプ Screw Fit Type |
| FS | 切欠き付きタイプ Flat Shank |

### ⑥取り付けの径 Mounting Diameter

例: Example
42=42mm

### ⑦刃数 No. of Flute

例: Example
4=4枚刃 Flute

### ⑧シャンクタイプ Shank Type

| | |
|---|---|
| S | ショート Short |
| L | ロング Long |
| LL | エキストラロング Extra Long |

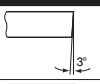
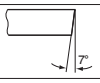
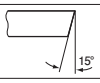
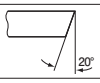
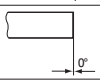
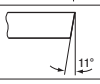
# インサートの表示方法 Designation (Insert)

| Z | D | K | T |
|---|---|---|---|
| ① | ② | ③ | ④ |

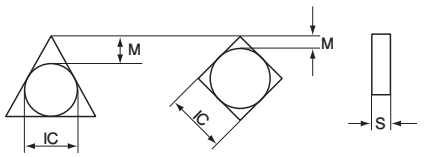
## ① 形状 Shape of Insert

| | | |
|---|---|---|
| C | 菱形頂角80°<br>Diamond apex 80° |  |
| D | 菱形頂角55°<br>Diamond apex 55° |  |
| O | 正八角形<br>Octagon |  |
| R | 円形<br>Round |  |
| S | 正方形<br>Square |  |
| T | 正三角形<br>Triangle |  |
| V | 菱形頂点35°<br>Diamond apex 35° |  |
| W | 不等角六角形<br>Axonometric hexagon |  |
| Z | その他の形状<br>Other shapes | – |

## ② 逃げ角 Clearance Angle

| | | |
|---|---|---|
| A | 3° |  |
| C | 7° |  |
| D | 15° |  |
| E | 20° |  |
| N | 0° |  |
| P | 11° |  |
| X | 特殊形状<br>Special Dimension | |

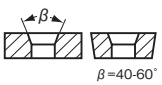
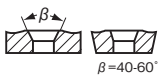
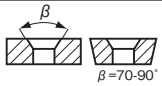
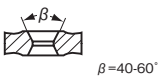
## ③ 公差 Tolerance




| 記号<br>Symbol | 内接円<br>許容差IC (mm)<br>Inscribed circle tolerance | コーナ高さ<br>許容差M (mm)<br>Corner height tolerance | 厚さ<br>許容差S (mm)<br>Thickness tolerance |
|---|---|---|---|
| A | ±0.025 | ±0.005 | ±0.025 |
| C | ±0.025 | ±0.013 | ±0.025 |
| E | ±0.025 | ±0.025 | ±0.025 |
| H | ±0.013 | ±0.013 | ±0.025 |
| K※ | ±0.05～±0.15 | ±0.013 | ±0.025 |
| M※ | ±0.05～±0.15 | ±0.08～±0.18 | ±0.13 |
| N※ | ±0.05～±0.15 | ±0.08～±0.18 | ±0.025 |

※印：側面は焼結肌のインサート Sintered insert shown on the side
注：製品によっては異なる場合もあります。Note: Above values may vary depend on product

## ④ インサートブレーカ Feature of Insert

| 記号<br>Symbol | 穴の形状<br>Shape of Hole | ブレーカの有無<br>With or without Breaker | インサート断面<br>Insert cross section |
|---|---|---|---|
| W | 一部円筒穴片面取<br>(40° ～ 60° )<br>Partial cylindrical hole | なし<br>No breaker |  β=40-60° |
| T | | 片面<br>One side |  β=40-60° |
| B | 一部円筒穴片面取<br>(70° ～ 90° )<br>Partial cylindrical hole | なし<br>No breaker |  β=70-90° |
| U | 一部円筒穴両面取<br>(40° ～ 60° )<br>Partial cylindrical hole, both sides | 両面<br>Both side |  β=40-60° |
| N | – | なし<br>No breaker |  |
| R | – | 片面<br>One side |  |

# インサートの表示方法 Designation (Insert)

| 15 | 05 | 08 | S | R | - | GM |
|---|---|---|---|---|---|---|
| ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | - | ⑩ |

## ⑤ 切れ刃の長さ L Length of Cutting Edge

| | |
|---|---|
| O |  |
| R |  |
| S |  |
| T |  |
| Z |  |

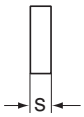
## ⑦コーナ記号 Corner Radius

| 記号 Symbol | コーナ半径 RE |
|---|---|
| 02 | R0.2 |
| 04 | R0.4 |
| 08 | R0.8 |
| 12 | R1.2 |
| 16 | R1.6 |
| 24 | R2.4 |

## ⑨勝手 Cutting Direction

| 記号 Symbol | 勝手 Cutting Direction |
|---|---|
| R | 右勝手 Right hand |
| L | 左勝手 Left hand |
| N | 左右共用 Both ways |

## ⑥厚さ S Thickness of Insert



| 記号 Symbol | 厚さS(mm) Thickness |
|---|---|
| 02 | 2.38 |
| 03 | 3.18 |
| T3 | 3.97 |
| 04 | 4.76 |
| 05 | 5.56 |
| 06 | 6.35 |

## ⑧主切れ刃記号 Type of Cutting Edge

| 記号 Symbol | 形状 Appearance |
|---|---|
| F |  シャープエッジ Sharp edge |
| E |  丸ホーニング Round honing |
| T |  チャンファホーニング Chamfer honing |
| S |  コンビネーションホーニング Combination honing |

## ⑩ブレーカ記号 Type of Insert Breaker

| 記号 Symbol | 名称 Name |
|---|---|
| DN | DNブレーカ breaker |
| DM | DMブレーカ breaker |
| DR | DRブレーカ breaker |
| SH | SHブレーカ breaker |
| NM | NMブレーカ breaker |
| GL | GLブレーカ breaker |
| GM | GMブレーカ breaker |
| GR | GRブレーカ breaker |
| HR | HRブレーカ breaker |
| SM | SMブレーカ breaker |

# インデキサブルツール 目次 INDEX OF INDEXABLE TOOL


| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 在庫サイズ Stocked Sizes | ページ Page |
|---|---|---|---|---|---|
| **正面フライス** Face Milling Cutters | | | | | |
| 942 |  | PAS | OSG PHOENIX 正面フライススクエアタイプ<br>OSG PHOENIX Indexable 45° Face Milling Cutter Square Insert Type | 50 ~ 125 | 942 |
| 943 |  | PAO | OSG PHOENIX 正面フライスオクタゴンタイプ<br>OSG PHOENIX Indexable 45° Face Milling Cutter Octagon Insert Type | 50 ~ 125 | 943 |
| **肩削りカッタ** Shoulder Cutters | | | | | |
| 946 |  <br>ストレートシャンクタイプ(SS) Straight Shank Type | PSE | OSG PHOENIX 肩削り用カッタ<br>OSG PHOENIX Indexable Shoulder Cutter | 10 ~ 63 | 946 |
| 949 |  <br>ボアタイプ(BORE) Bore Type | PSE | OSG PHOENIX 肩削り用カッタ<br>OSG PHOENIX Indexable Shoulder Cutter | 40 ~ 125 | 949 |
| 950 |  <br>ねじ込みタイプ(SF) Screw Fit Type | PSE | OSG PHOENIX 肩削り用カッタ<br>OSG PHOENIX Indexable Shoulder Cutter | 10 ~ 40 | 950 |
| 957 |  <br>ストレートシャンクタイプ(SS) Straight Shank Type | PSEL | OSG PHOENIX ラフィングエンドミル<br>OSG PHOENIX Indexable Roughing End Mill | 25 ~ 50 | 957 |
| 958 |  <br>ボアタイプ(BORE) Bore Type | PSEL | OSG PHOENIX ラフィングエンドミル<br>OSG PHOENIX Indexable Roughing End Mill | 50 ~ 80 | 958 |
| 963 |  <br>ストレートシャンクタイプ(SS) Straight Shank Type | PSF | OSG PHOENIX 4コーナ肩削り用カッタ<br>OSG PHOENIX Indexable 4-Corner Shoulder Cutter | 25 ~ 40 | 963 |
| 964 |  <br>ボアタイプ(BORE) Bore Type | PSF | OSG PHOENIX 4コーナ肩削り用カッタ<br>OSG PHOENIX Indexable 4-Corner Shoulder Cutter | 50 ~ 80 | 964 |
| 965 |  <br>ストレートシャンクタイプ(SS) Straight Shank Type | PSFL | OSG PHOENIX 4コーナラフィングエンドミル<br>OSG PHOENIX Indexable 4-Corner Roughing End Mill | 32 ~ 40 | 965 |
| 966 |  <br>ボアタイプ(BORE) Bore Type | PSFL | OSG PHOENIX 4コーナラフィングエンドミル<br>OSG PHOENIX Indexable 4-Corner Roughing End Mill | 50 ~ 100 | 966 |
| 967 |  | PFDC | OSG PHOENIX ディスクカッタ<br>OSG PHOENIX Indexable Disc Cutter | 80 ~ 125 | 967 |
| 969 |  <br>ストレートシャンクタイプ(SS) Straight Shank Type | PSTW | OSG PHOENIX 6コーナ肩削り用カッタ<br>OSG PHOENIX Indexable 6-corner Shoulder Cutter Triangle W-sided Insert Type | 25 ~ 40 | 969 |
| 970 |  <br>ボアタイプ(BORE) Bore Type | PSTW | OSG PHOENIX 6コーナ肩削り用カッタ<br>OSG PHOENIX Indexable 6-corner Shoulder Cutter Triangle W-sided Insert Type | 40 ~ 125 | 970 |

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 在庫サイズ Stocked Sizes | ページ Page |
|---|---|---|---|---|---|
| **高送りラジアス** High Feed Cutters | | | | | |
| 972 |  ストレートシャンクタイプ(SS) Straight Shank Type | PHC | OSG PHOENIX 高送りラジアスカッタ<br>OSG PHOENIX Indexable High Feed Radius Cutter | 16 ~ 63 | 972 |
| 975 |  ボアタイプ(BORE) Bore Type | PHC | OSG PHOENIX 高送りラジアスカッタ<br>OSG PHOENIX Indexable High Feed Radius Cutter | 40 ~ 100 | 975 |
| 976 |  ねじ込みタイプ(SF) Screw Fit Type | PHC | OSG PHOENIX 高送りラジアスカッタ<br>OSG PHOENIX Indexable High Feed Radius Cutter | 16 ~ 40 | 976 |
| 978 |  ストレートシャンク/モールステーパシャンク/コンビネーションシャンク Straight Shank / Morse Taper Shank /Combination Shank | PDR | OSG PHOENIX 高送りラジアスカッタ<br>OSG PHOENIX Indexable Deep Feed Radius Cutter | 40 ~ 50 | 978 |
| 979 |  ボアタイプ(BORE) Bore Type | PDR | OSG PHOENIX 高送りラジアスカッタ<br>OSG PHOENIX Indexable Deep Feed Radius Cutter | 63 ~ 125 | 979 |
| **丸駒カッタ** Radius Cutters | | | | | |
| 980 |  ストレートシャンクタイプ(SS) Straight Shank Type | PRC | OSG PHOENIX 丸駒カッタ<br>OSG PHOENIX Indexable Radius Cutter | 20 ~ 63 | 980 |
| 981 |  ボアタイプ(BORE) Bore Type | PRC | OSG PHOENIX 丸駒カッタ<br>OSG PHOENIX Indexable Radius Cutter | 50 ~ 100 | 981 |
| 982 |  ねじ込みタイプ(SF) Screw Fit Type | PRC | OSG PHOENIX 丸駒カッタ<br>OSG PHOENIX Indexable Radius Cutter | 20 ~ 40 | 982 |
| **PCDカッタ** PCD Cutters | | | | | |
| 984 |  | PFAL | OSG PHOENIX アルミ合金用仕上げカッタ<br>OSG PHOENIX Indexable Finishing Cutter for Aluminum Alloys | 50 ~ 160 | 984 |
| **仕上げ用** For Finishing Cutters | | | | | |
| 986 |  ストレートシャンクタイプ(SS) Straight Shank Type | PFB | OSG PHOENIX 仕上げ用ボールエンドミル<br>OSG PHOENIX Indexable Finishing Ball End Mill | 6 ~ 32 | 986 |
| 988 |  ねじ込みタイプ(SF) Screw Fit Type | PFB | OSG PHOENIX 仕上げ用ボールエンドミル<br>OSG PHOENIX Indexable Finishing Ball End Mill | 10 ~ 30 | 988 |
| 993 |  ストレートシャンクタイプ(SS) Straight Shank Type | PFR | OSG PHOENIX 仕上げ用ラジアスエンドミル<br>OSG PHOENIX Indexable Finishing End Mill with Corner Radius | 6 ~ 32 | 993 |
| 995 |  ねじ込みタイプ(SF) Screw Fit Type | PFR | OSG PHOENIX 仕上げ用ラジアスエンドミル<br>OSG PHOENIX Indexable Finishing End Mill with Corner Radius | 10 ~ 32 | 995 |

# インデキサブルツール 目次 INDEX OF INDEXABLE TOOL

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 在庫サイズ Stocked Sizes | ページ Page |
|---|---|---|---|---|---|
| **ヘッド交換式エンドミル** Exchangeable Head End Mills | | | | | |
| 1001 |  | PXM PXSE | OSG PHOENIX ヘッド交換式エンドミル4枚刃 不等分割スクエア・コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill 4-flute Unequal Spacing Square and Corner Radius Type | 10 ~ 25 | 1001 |
| 1003 |  | PXM PXVC | OSG PHOENIX ヘッド交換式エンドミル4枚刃 ハイヘリックス不等リードスクエア・コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill 4-flute High Helix Variable Lead Square and Corner Radius Type | 10 ~ 32 | 1003 |
| 1005 |  | PXM PXSM | OSG PHOENIX ヘッド交換式エンドミル多刃 不等分割スクエア・コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute Unequal Spacing Square and Corner Radius Type | 10 ~ 25 | 1005 |
| 1007 |  | PXM PXAL | OSG PHOENIX ヘッド交換式エンドミル3枚刃 スクエア･コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill 4-flute Square and Corner Radius Type | 10 ~ 25 | 1007 |
| 1008 |  | PXM PXNH | OSG PHOENIX ヘッド交換式エンドミル4枚刃 ラフィング形状不等リード強ねじれタイプ<br>OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead High Helix Type | 10 ~ 25 | 1008 |
| 1009 |  | PXM PXNL | OSG PHOENIX ヘッド交換式エンドミル4枚刃 ラフィング形状不等リード弱ねじれタイプ<br>OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead Low Helix Type | 10 ~ 25 | 1009 |
| 1010 |  | PXM PXRE | OSG PHOENIX ヘッド交換式エンドミル直刃 コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill Straight Flute with Corner Radius | 10 ~ 20 | 1010 |
| 1011 |  | PXM PXDR | OSG PHOENIX ヘッド交換式エンドミル コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill with Corner Radius | 10 ~ 20 | 1011 |
| 1012 |  | PXM PXSH | OSG PHOENIX ヘッド交換式エンドミル 高硬度鋼用多刃スクエア<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute Square Type for High-hardness Steels | 12 ~ 25 | 1012 |
| 1013 |  | PXM PXHF-AM | OSG PHOENIX ヘッド交換式エンドミル多刃 高送りラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute High Feed Radius Type | 12 ~ 20 | 1013 |
| 1014 |  | PXM PXBE | OSG PHOENIX ヘッド交換式エンドミル3枚刃 ボールタイプ<br>OSG PHOENIX Exchangeable Head End Mill 3-flute Ball Type | 10 ~ 20 | 1014 |
| 1016 |  | PXM PXBM | OSG PHOENIX ヘッド交換式エンドミル多刃 ボールタイプ<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute Ball Type | 10 ~ 20 | 1016 |
| 1017 |  | PXMZ | OSG PHOENIX ヘッド交換式エンドミルPXM用 ストレートシャンクホルダ<br>OSG PHOENIX Straight Shank Holder for Exchangeable Head End Mills | 10 ~ 32 | 1017 |
| 1021 |  | PXMJ | OSG PHOENIX ヘッド交換式エンドミルPXM用 ジョイント<br>OSG PHOENIX Exchangeable Head End Mill PXM Joint | 12 ~ 25 | 1021 |
| 1022 |  | PXMC | OSG PHOENIX ヘッド交換式エンドミルPXM用 コレット<br>OSG PHOENIX Collet for Exchangeable Head End Mills | 11.7 ~ 24 | 1022 |

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 在庫サイズ Stocked Sizes | ページ Page |
|---|---|---|---|---|---|
| **ねじ込みタイプ** Screw-Fit Types | | | | | |
| 1023 |  | PSE | OSG PHOENIX 肩削り用カッタ<br>OSG PHOENIX Indexable Shoulder Cutter | 10 〜 40 | 1023 |
| 1024 |  | PHC | OSG PHOENIX 高送りラジアスカッタ<br>OSG PHOENIX Indexable High Feed Radius Cutter | 16 〜 40 | 1024 |
| 1025 |  | PRC | OSG PHOENIX 丸駒カッタ<br>OSG PHOENIX Indexable Radius Cutter | 20 〜 40 | 1025 |
| 1025 |  | PFB | OSG PHOENIX 仕上げ用ボールエンドミル<br>OSG PHOENIX Indexable Finishing Ball End Mill | 10 〜 30 | 1025 |
| 1026 |  | PFR | OSG PHOENIX 仕上げ用ラジアスエンドミル<br>OSG PHOENIX Indexable Finishing End Mill with Corner Radius | 10 〜 32 | 1026 |
| 1026 |  | PLDS | OSG PHOENIX インデキサブルリーディングドリル<br>OSG PHOENIX Indexable Centering and Chamfering Cutter | 14.7 〜 17.3 | 1026 |
| 1027 |  | PMEN | OSG PHOENIX 面取り用カッタ<br>OSG PHOENIX Chamfering Cutter | 18.8 〜 43.5 | 1027 |
| 1027 |  | PMD | OSG PHOENIX 多機能カッタ<br>OSG PHOENIX Indexable Multi-function Cutter | 16 〜 32 | 1027 |
| 1028 |  | OP-SFA | OSG PHOENIX ねじ込みタイプ専用ホルダ<br>OSG PHOENIX Indexable Arbor for Screw Fit Type | 10 〜 32 | 1028 |
| 1029 |  | OP-SFA | OSG PHOENIX ねじ込みタイプ専用ホルダ<br>OSG PHOENIX Indexable Arbor for Screw Fit Type | BT30 〜 BT50 A63 〜 A100 | 1029 |

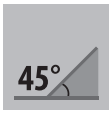
# インデキサブルツール 目次 INDEX OF INDEXABLE TOOL

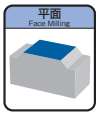

| ページ Page | 形状 Appearance | 製品記号 Abbreviation | 仕様 Specification | 在庫サイズ Stocked Sizes | ページ Page |
|---|---|---|---|---|---|
| **多機能カッタ・座ぐり** Multi-function Cutters・Counterboring | | | | | |
| 1031 |  ストレートシャンクタイプ(SS) Straight Shank Type | PMD | OSG PHOENIX 多機能カッタ<br>OSG PHOENIX Indexable Multi-function Cutter | 16 ~ 32 | 1031 |
| 1032 |  ねじ込みタイプ(SF) Screw Fit Type | PMD | OSG PHOENIX 多機能カッタ<br>OSG PHOENIX Indexable Multi-function Cutter | 16 ~ 32 | 1032 |
| 1034 |  ストレートシャンクタイプ(SS) Straight Shank Type | PZAG | OSG PHOENIX 座ぐり用カッタ<br>OSG PHOENIX Counterboring Cutter | 14 ~ 48 | 1034 |
| 1035 |  ボアタイプ(BORE) Bore Type | PZAG | OSG PHOENIX 座ぐり用カッタ<br>OSG PHOENIX Counterboring Cutter | 54 ~ 82 | 1035 |
| **ドリル** Drills | | | | | |
| 1037 |  3D 5D | PXDZ | OSG PHOENIX ヘッド交換式ドリル<br>OSG PHOENIX Exchangeable Head Drill | 14 ~ 25 | 1037 |
| 1045 |  | P2D | OSG PHOENIX インデキサブルドリル2Dタイプ<br>OSG PHOENIX Indexable Drill (2D Type) | 12 ~ 63 | 1045 |
| 1047 |  | P3D | OSG PHOENIX インデキサブルドリル3Dタイプ<br>OSG PHOENIX Indexable Drill (3D Type) | 12 ~ 63 | 1047 |
| 1049 |  | P4D | OSG PHOENIX インデキサブルドリル4Dタイプ<br>OSG PHOENIX Indexable Drill (4D Type) | 12 ~ 63 | 1049 |
| 1051 |  | P5D | OSG PHOENIX インデキサブルドリル5Dタイプ<br>OSG PHOENIX Indexable Drill (5D Type) | 12 ~ 63 | 1051 |
| 1055 |  | PDZ | OSG PHOENIX インデキサブルフラットドリル<br>OSG PHOENIX Indexable Flat Drill | 16 ~ 43 | 1055 |
| 1058 |  | PHP | OSG PHOENIX インデキサブルドリル3Dタイプ<br>OSG PHOENIX Indexable Drill (3D Type) | 14 ~ 40 | 1058 |
| 1060 |  ストレートシャンクタイプ(SS) Straight Shank Type | PLDS | OSG PHOENIX インデキサブルリーディングドリル<br>OSG PHOENIX Indexable Centering and Chamfering Cutter | 14.7 ~ 17.3 | 1060 |
| 1061 |  ねじ込みタイプ(SF) Screw Fit Type | PLDS | OSG PHOENIX インデキサブルリーディングドリル<br>OSG PHOENIX Indexable Centering and Chamfering Cutter | 14.7 ~ 17.3 | 1061 |
| 1062 |  ストレートシャンクタイプ(SS) Straight Shank Type | PMEN | OSG PHOENIX 面取り用カッタ<br>OSG PHOENIX Chamfering Cutter | 5.4 ~ 35.6 | 1062 |
| 1063 |  ボアタイプ(BORE) Bore Type | PMEN | OSG PHOENIX 面取り用カッタ<br>OSG PHOENIX Chamfering Cutter | 37.4 ~ 63.6 | 1063 |
| 1064 |  ねじ込みタイプ(SF) Screw Fit Type | PMEN | OSG PHOENIX 面取り用カッタ<br>OSG PHOENIX Chamfering Cutter | 5.4 ~ 35.6 | 1064 |

# OSG PHOENIX 正面フライススクエアタイプ
**OSG PHOENIX Indexable 45° Face Milling Cutter Square Insert Type**

## PAS　切削条件 Cutting Conditions | P1071

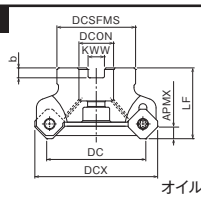




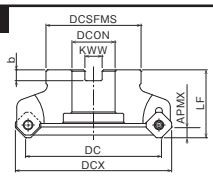

CAD

**Type 1**




オイルホール付き
with Coolant Hole

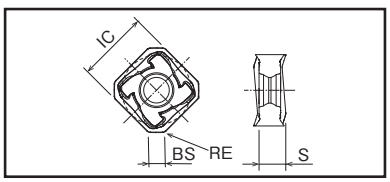
**Type 2**

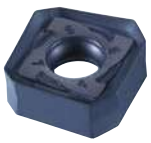



オイルホールなし
without Coolant Hole

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | カッタ外径 DCX | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | APMX | 重量 (kg) | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7802000 | **PAS15R050M22-4** | 50 | 65 | 4 | 45 | 45 | 22 | 10.4 | 6.3 | 6.5 | 0.41 | 1 | 90,700 |
| 7802001 | **PAS15R063M22-5** | 63 | 78 | 5 | 45 | 50 | 22 | 10.4 | 6.3 | 6.5 | 0.59 | 1 | 107,000 |
| 7802002 | **PAS15R080M25.4-6** | 80 | 95 | 6 | 50 | 60 | 25.4 | 9.5 | 6 | 6.5 | 1.06 | 1 | 130,000 |
| 7802003 | **PAS15R100M31.7-7** | 100 | 115 | 7 | 50 | 70 | 31.75 | 12.7 | 8 | 6.5 | 1.52 | 2 | 154,000 |
| 7802004 | **PAS15R125M38.1-8** | 125 | 140 | 8 | 63 | 90 | 38.1 | 15.9 | 10 | 6.5 | 3.25 | 2 | 188,000 |



### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size IC | 厚さ S | RE | さらい刃(副切れ刃) BS | コーティング材種 Grade of Coated Materials XC3025 | XP3035 | XP2040 | XC1015 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| SNKU1505AZER-GM | 8 | 15.88 | 7.18 | 1 | 3.65 | 7819061 | 7814061 | 7813061 | | 2,680 |
| SNKU1505AZER-GR | 8 | 15.88 | 7.18 | 1 | 3.65 | | | | 7812060 | 2,680 |

・被削材別推奨材質はp.1071をご参照下さい。
・Please refer to p.1071 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body |
|---|---|---|---|
| クランプねじ Clamping Screw | 7808131 | FS45513P (Torx 20IP) | PAS BORE φ50~125 |

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|
| T型レンチ T-Handle Wrench | 7808000 | 20IP-T (Torx 20IP) | PAS BORE φ50~125 | 2,780 |

レンチは別途ご購入下さい。　The wrenches are sold separately from the cutters.

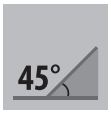
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

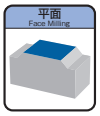
# OSG PHOENIX 正面フライスオクタゴンタイプ
**OSG PHOENIX Indexable 45° Face Milling Cutter Octagon Insert Type**

## PAO

切削条件 Cutting Conditions | P1072

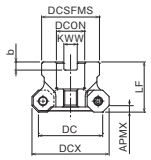




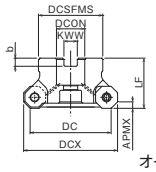

CAD

**Type 1** パワースクリュー仕様 Power Screw Type



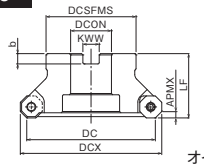

オイルホール付き with Coolant Hole

**Type 2**




オイルホール付き with Coolant Hole

**Type 3**




オイルホールなし without Coolant Hole

**ねじ止めタイプ** Screw type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | カッタ外径 DCX | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | APMX | 重量 (kg) | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7802020 | **PAO06R050M22-5** | 50 | 60.2 | 5 | 40 | 45 | 22 | 10.4 | 6.3 | 3.5 | 0.35 | 1 | 94,200 |
| 7802021 | **PAO06R063M22-7** | 63 | 73.2 | 7 | 40 | 50 | 22 | 10.4 | 6.3 | 3.5 | 0.51 | 2 | 115,000 |
| 7802022 | **PAO06R080M25.4-8** | 80 | 90.2 | 8 | 50 | 60 | 25.4 | 9.5 | 6 | 3.5 | 1.05 | 2 | 133,000 |
| 7802023 | **PAO06R100M31.7-10** | 100 | 110.2 | 10 | 50 | 70 | 31.75 | 12.7 | 8 | 3.5 | 1.51 | 3 | 157,000 |
| 7802024 | **PAO06R125M38.1-12** | 125 | 135.2 | 12 | 63 | 90 | 38.1 | 15.9 | 10 | 3.5 | 2.98 | 3 | 182,000 |

適用インサートはp.945をご覧下さい。
See page 945 for applicable inserts.

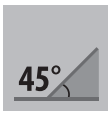


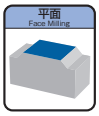
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 正面フライスオクタゴンタイプ
**OSG PHOENIX Indexable 45° Face Milling Cutter Octagon Insert Type**

## PAO

切削条件 Cutting Conditions | P1072

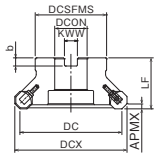



CAD

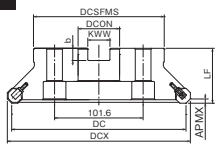


Type 4




オイルホールなし
without Coolant Hole

Type 5




オイルホールなし
without Coolant Hole

**ウェッジ止めタイプ** Wedge type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | カッタ外径 DCX | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | APMX | 重量 (kg) | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7802089 | **PAO06R100M31.7W-14** | 100 | 110.2 | 14 | 50 | 70 | 31.75 | 12.7 | 8 | 3.5 | 1.37 | 4 | 254,000 |
| 7802091 | **PAO06R125M38.1W-17** | 125 | 135.2 | 17 | 63 | 90 | 38.1 | 15.9 | 10 | 3.5 | 2.81 | 4 | 294,000 |
| 7802093 | **PAO06R160M50.8W-20** | 160 | 170.2 | 20 | 63 | 100 | 50.8 | 19 | 11 | 3.5 | 4.5 | 4 | 348,000 |
| 7802095 | **PAO06R200M47.6W-25** | 200 | 210.2 | 25 | 63 | 150 | 47.625 | 25.4 | 14 | 3.5 | 7.75 | 5 | 434,000 |

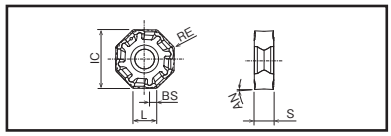
適用インサートはp.945をご覧下さい。
See page 945 for applicable inserts.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 正面フライスオクタゴンタイプ
**OSG PHOENIX Indexable 45° Face Milling Cutter Octagon Insert Type**

## PAO　切削条件 Cutting Conditions | P1072

CAD





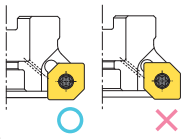

### ■適用インサート Inserts

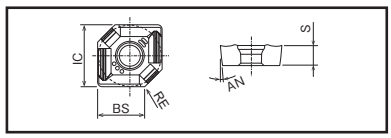
（単位:mm）(Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size | | | | | | コーティング材種 Grade of Coated Materials | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 内接円径 IC | 厚さ S | L | 逃げ角 AN | RE | さらい刃(副切れ刃) BS | XC3020 | XP3025 | XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XP1020 | XC5040 | |
| OZKU060508SR-GL | 16 | 17.1 | 5.66 | 6 | 3° | 0.8 | 2 | 7827063 | 7828063 | 7825063 | 7814063 | 7826063 | 7813063 | | | | 2,620 |
| OZKU060508SR-GM | 16 | 17.1 | 5.66 | 6 | 3° | 0.8 | 2 | 7827062 | 7828062 | 7825062 | 7814062 | 7826062 | 7813062 | 7812062 | 7821062 | | 2,620 |
| OZKU060508SR-GR | 16 | 17.1 | 5.66 | 6 | 3° | 0.8 | 2 | | | | | | | 7812086 | 7821086 | | 2,620 |
| OZKU060508ER-SM | 16 | 17.1 | 5.66 | 6 | 3° | 0.8 | 2 | | | | | | | | | 7816085 | 5,090 |

・被削材別推奨材質はp.1072をご参照下さい。
・Please refer to p.1072 for recommended materials by insert type.

ワイパーインサート取付け例
How to install wiper inserts








### ■ワイパーインサート Wiper Insert

（単位:mm）(Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size | | | | | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | | 内接円径 IC | 厚さ S | さらい刃(副切れ刃) BS | 逃げ角 AN | RE | XP3035 | XC1015 | |
| XAHT060525SR-GM | 2 | 17.1 | 5.56 | 10 | 3° | 2.5 | 7814064 | 7812064 | 3,210 |

・被削材別推奨材質はp.1072をご参照下さい。
・Please refer to p.1072 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body |
|---|---|---|---|
|  クランプねじ Clamping Screw | 7808130 | FS50614 (Torx 20) | PAO BORE φ50~125 |
|  パワースクリュー Power Screw | 7808151 | PS1031 (M10×31) | PAO BORE φ50 |
|  ウェッジ Wedge | 7808141 | W12F-06N (M6) | PAO BORE (W) φ100~200 |
|  ウェッジ用クランプねじ Clamping Screw for Wedge | 7808140 | WS0621T (M6×21) | PAO BORE (W) φ100~200 |

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|
|  レンチ Wrench | 7808208 | T15-D (Torx 15) | PAO BORE (W) φ100~200 | 1,390 |
| | 7808209 | T20-D (Torx 20) | PAO BORE φ50~125 | 1,390 |

レンチは別途ご購入下さい。　The wrenches are sold separately from the cutters.

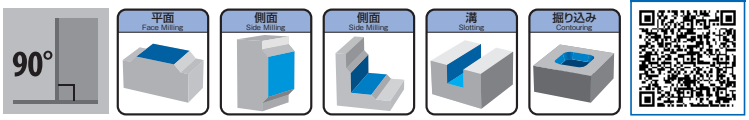


在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 肩削り用カッタ
OSG PHOENIX Indexable Shoulder Cutter

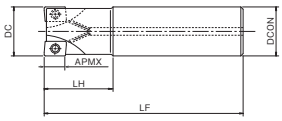
## PSE
切削条件 Cutting Conditions | P1073

### ストレートシャンクタイプ（SS） Straight Shank Type



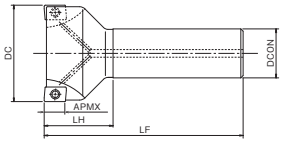



Type 1




オイルホール付き
with Coolant Hole

Type 2




オイルホール付き
with Coolant Hole

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803809 | PSE07R010SS06-2S | ★10 | 2 | 6 | 50 | 15 | 6 | 0.01 | | 2 | 26,800 |
| 7803810 | PSE07R010SS10-2S | 10 | 2 | 10 | 50 | 12 | 6 | 0.025 | | 1 | 26,800 |
| 7803811 | PSE07R012SS12-3S | 12 | 3 | 12 | 50 | 12 | 6 | 0.035 | | 1 | 31,600 |
| 7803812 | PSE07R016SS10-3S | ★16 | 3 | 10 | 50 | 10 | 6 | 0.031 | | 2 | 40,600 |
| 7803813 | PSE07R016SS16-3S | 16 | 3 | 16 | 90 | 25 | 6 | 0.123 | | 1 | 40,700 |
| 7803814 | PSE07R016SS16-4S | 16 | 4 | 16 | 90 | 25 | 6 | 0.122 | | 1 | 43,900 |
| 7803815 | PSE07R017SS16-3L | ★17 | 3 | 16 | 150 | 25 | 6 | 0.212 | ① | 2 | 42,300 |
| 7803816 | PSE07R020SS10-4S | ★20 | 4 | 10 | 50 | 12 | 6 | 0.036 | | 2 | 45,200 |
| 7803817 | PSE07R020SS20-4S | 20 | 4 | 20 | 100 | 30 | 6 | 0.213 | | 1 | 45,700 |
| 7803818 | PSE07R021SS20-4L | ★21 | 4 | 20 | 160 | 30 | 6 | 0.354 | | 2 | 47,900 |
| 7803819 | PSE07R025SS10-4S | ★25 | 4 | 10 | 50 | 12 | 6 | 0.049 | | 2 | 45,500 |
| 7803820 | PSE07R025SS25-5S | 25 | 5 | 25 | 120 | 35 | 6 | 0.416 | | 1 | 54,300 |
| 7803821 | PSE07R026SS25-5L | ★26 | 5 | 25 | 170 | 35 | 6 | 0.604 | | 2 | 59,100 |

適用インサートはp.951をご覧下さい。
See page 951 for applicable inserts.

次ページへ
外径 DC 16～35 NEXT

青字＝自動旋盤対応サイズ Blue = size compatible with sliding head lathes

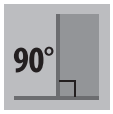
★ 刃太タイプ
Reduced Shank Type

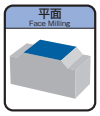
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 肩削り用カッタ
OSG PHOENIX Indexable Shoulder Cutter

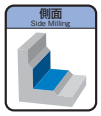
## PSE
切削条件 Cutting Conditions | P1073

### ストレートシャンクタイプ(SS) Straight Shank Type

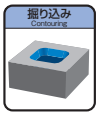








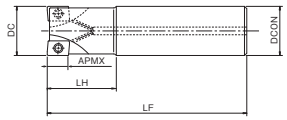





CAD

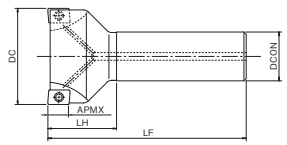


**Type 1**




オイルホール付き
with Coolant Hole

**Type 2**




オイルホール付き
with Coolant Hole

前ページより
FROM 外径 DC 10～26

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7801100 | PSE11R016SS16-2S | 16 | 2 | 16 | 90 | 25 | 10 | 0.12 | | 1 | 42,500 |
| 7801121 | PSE11R016SS16-2L | 16 | 2 | 16 | 150 | 50 | 10 | 0.21 | | 1 | 51,300 |
| 7801139 | PSE11R017SS16-2L | ★17 | 2 | 16 | 150 | 25 | 10 | 0.22 | | 2 | 51,300 |
| 7801116 | PSE11R018SS16-2S | ★18 | 2 | 16 | 90 | 25 | 10 | 0.13 | | 2 | 49,200 |
| 7801122 | PSE11R018SS16-2L | ★18 | 2 | 16 | 150 | 25 | 10 | 0.21 | | 2 | 49,800 |
| 7801101 | PSE11R020SS20-2S | 20 | 2 | 20 | 100 | 30 | 10 | 0.21 | | 1 | 50,300 |
| 7801115 | PSE11R020SS20-3S | 20 | 3 | 20 | 100 | 30 | 10 | 0.21 | | 1 | 50,300 |
| 7801123 | PSE11R020SS20-3L | 20 | 3 | 20 | 160 | 60 | 10 | 0.34 | | 1 | 57,500 |
| 7801140 | PSE11R021SS20-3L | ★21 | 3 | 20 | 160 | 30 | 10 | 0.35 | | 2 | 57,500 |
| 7801117 | PSE11R022SS20-3S | ★22 | 3 | 20 | 110 | 30 | 10 | 0.24 | | 2 | 58,600 |
| 7801124 | PSE11R022SS20-3L | ★22 | 3 | 20 | 160 | 30 | 10 | 0.35 | | 2 | 57,500 |
| 7801102 | PSE11R025SS25-3S | 25 | 3 | 25 | 120 | 35 | 10 | 0.4 | | 1 | 51,600 |
| 7801125 | PSE11R025SS25-3L | 25 | 3 | 25 | 170 | 70 | 10 | 0.57 | ② | 1 | 62,000 |
| 7801104 | PSE11R025SS25-4S | 25 | 4 | 25 | 120 | 35 | 10 | 0.4 | | 1 | 59,100 |
| 7801141 | PSE11R026SS25-3L | ★26 | 3 | 25 | 170 | 35 | 10 | 0.59 | | 2 | 62,000 |
| 7801126 | PSE11R028SS25-3L | ★28 | 3 | 25 | 170 | 35 | 10 | 0.59 | | 2 | 62,000 |
| 7801118 | PSE11R028SS25-4S | ★28 | 4 | 25 | 120 | 35 | 10 | 0.42 | | 2 | 68,200 |
| 7801127 | PSE11R030SS32-3L | 30 | 3 | 32 | 190 | 90 | 10 | 1.01 | | 1 | 65,500 |
| 7801119 | PSE11R030SS32-4S | 30 | 4 | 32 | 130 | 45 | 10 | 0.69 | | 1 | 68,500 |
| 7801103 | PSE11R032SS32-3S | 32 | 3 | 32 | 130 | 45 | 10 | 0.73 | | 1 | 60,000 |
| 7801128 | PSE11R032SS32-3L | 32 | 3 | 32 | 190 | 90 | 10 | 1.08 | | 1 | 65,500 |
| 7801105 | PSE11R032SS32-5S | 32 | 5 | 32 | 125 | 40 | 10 | 0.7 | | 1 | 66,400 |
| 7801142 | PSE11R033SS32-3L | ★33 | 3 | 32 | 190 | 35 | 10 | 1.09 | | 2 | 69,300 |
| 7801129 | PSE11R035SS32-3L | ★35 | 3 | 32 | 190 | 35 | 10 | 1.11 | | 2 | 69,300 |
| 7801120 | PSE11R035SS32-5S | ★35 | 5 | 32 | 130 | 35 | 10 | 0.75 | | 2 | 77,300 |

適用インサートはp.951をご覧下さい。
See page 951 for applicable inserts.

★ 刃太タイプ
Reduced Shank Type

次ページへ
外径 DC 25～63 NEXT



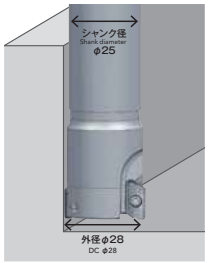
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

## ★PSE 刃太タイプ
**Reduced Shank Type**

・刃太タイプは、シャンク径よりも工具外径の方が大きいため、金型部品などの深い立ち壁加工やポケット加工に最適です

・The outer diameter of the reduced shank type is larger than the shank diameter, making it highly effective in the processing of die and mold applications that require vertical wall milling or pocketing.

例 Example




前ページより
FROM 外径 DC 16～35

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7801106 | **PSE15R025SS25-2S** | 25 | 2 | 25 | 120 | 35 | 14 | 0.38 | ③ | 1 | 43,900 |
| 7801133 | **PSE15R025SS25-2L** | 25 | 2 | 25 | 170 | 70 | 14 | 0.55 | | 1 | 59,100 |
| 7801143 | **PSE15R026SS25-2L** | ★26 | 2 | 25 | 170 | 35 | 14 | 0.57 | | 2 | 59,100 |
| 7801130 | **PSE15R028SS25-2S** | ★28 | 2 | 25 | 120 | 35 | 14 | 0.4 | | 2 | 50,900 |
| 7801134 | **PSE15R028SS25-2L** | ★28 | 2 | 25 | 170 | 35 | 14 | 0.58 | | 2 | 59,100 |
| 7801131 | **PSE15R030SS32-3S** | 30 | 3 | 32 | 130 | 45 | 14 | 0.67 | | 1 | 63,100 |
| 7801135 | **PSE15R030SS32-3L** | 30 | 3 | 32 | 190 | 90 | 14 | 0.98 | | 1 | 62,000 |
| 7801107 | **PSE15R032SS32-2S** | 32 | 2 | 32 | 130 | 45 | 14 | 0.7 | | 1 | 49,200 |
| 7801111 | **PSE15R032SS32-3S** | 32 | 3 | 32 | 130 | 45 | 14 | 0.69 | | 1 | 54,600 |
| 7801136 | **PSE15R032SS32-3L** | 32 | 3 | 32 | 190 | 90 | 14 | 1.04 | | 1 | 62,000 |
| 7801144 | **PSE15R033SS32-3L** | ★33 | 3 | 32 | 190 | 45 | 14 | 1.07 | | 2 | 65,500 |
| 7801132 | **PSE15R035SS32-3S** | ★35 | 3 | 32 | 130 | 35 | 14 | 0.72 | | 2 | 65,500 |
| 7801137 | **PSE15R035SS32-3L** | ★35 | 3 | 32 | 190 | 45 | 14 | 1.08 | | 2 | 65,500 |
| 7801108 | **PSE15R040SS32-3S** | 40 | 3 | 32 | 140 | 50 | 14 | 0.82 | | 2 | 57,300 |
| 7801138 | **PSE15R040SS32-3L** | 40 | 3 | 32 | 190 | 45 | 14 | 1.11 | | 2 | 70,600 |
| 7801112 | **PSE15R040SS32-4S** | 40 | 4 | 32 | 140 | 50 | 14 | 0.83 | | 2 | 68,200 |
| 7801109 | **PSE15R050SS32-3S** | 50 | 3 | 32 | 130 | 45 | 14 | 0.88 | | 2 | 68,200 |
| 7801113 | **PSE15R050SS32-5S** | 50 | 5 | 32 | 130 | 45 | 14 | 0.87 | | 2 | 96,300 |
| 7801110 | **PSE15R063SS32-4S** | 63 | 4 | 32 | 130 | 45 | 14 | 1.04 | | 2 | 88,500 |
| 7801114 | **PSE15R063SS32-6S** | 63 | 6 | 32 | 130 | 45 | 14 | 1.04 | | 2 | 112,000 |

適用インサートはp.951をご覧下さい。
See page 951 for applicable inserts.

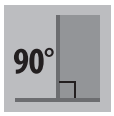
★ 刃太タイプ
Reduced Shank Type

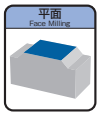
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

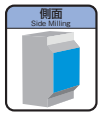
# OSG PHOENIX 肩削り用カッタ
**OSG PHOENIX Indexable Shoulder Cutter**

## PSE
切削条件 Cutting Conditions | P1073

### ボアタイプ（BORE） Bore Type



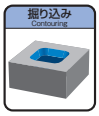







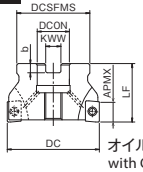



CAD

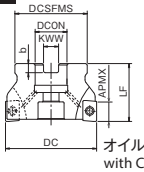


**Type 1** パワースクリュー仕様 Power Screw Type



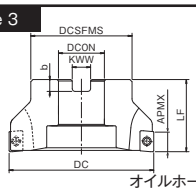

オイルホール付き
with Coolant Hole

**Type 2**




オイルホール付き
with Coolant Hole

**Type 3**




オイルホールなし
without Coolant Hole

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7801000 | PSE11R040M16-4 | 40 | 4 | 40 | 38 | 16 | 8.4 | 5.6 | 10 | 0.21 | ② | 1 | 60,200 |
| 7801004 | PSE11R040M16-6 | 40 | 6 | 40 | 38 | 16 | 8.4 | 5.6 | 10 | 0.22 | | 1 | 72,800 |
| 7801001 | PSE11R050M22-5 | 50 | 5 | 40 | 45 | 22 | 10.4 | 6.3 | 10 | 0.3 | | 1 | 73,000 |
| 7801005 | PSE11R050M22-7 | 50 | 7 | 40 | 45 | 22 | 10.4 | 6.3 | 10 | 0.33 | | 1 | 84,600 |
| 7801002 | PSE11R063M22-6 | 63 | 6 | 40 | 50 | 22 | 10.4 | 6.3 | 10 | 0.5 | | 2 | 83,700 |
| 7801006 | PSE11R063M22-8 | 63 | 8 | 40 | 50 | 22 | 10.4 | 6.3 | 10 | 1.07 | | 2 | 92,800 |
| 7801020 | PSE11R080M25.4-7 | 80 | 7 | 50 | 60 | 25.4 | 9.5 | 6 | 10 | 1.05 | | 2 | 95,000 |
| 7801003 | PSE11R080M27-7 | 80 | 7 | 50 | 60 | 27 | 12.4 | 7 | 10 | 1.04 | | 2 | 95,000 |
| 7801021 | PSE11R080M25.4-10 | 80 | 10 | 50 | 60 | 25.4 | 9.5 | 6 | 10 | 1.04 | | 2 | 111,000 |
| 7801007 | PSE11R080M27-10 | 80 | 10 | 50 | 60 | 27 | 12.4 | 7 | 10 | 1.03 | | 2 | 111,000 |
| 7801008 | PSE15R040M16-3 | 40 | 3 | 40 | 38 | 16 | 8.4 | 5.6 | 14 | 0.19 | ③ | 1 | 55,200 |
| 7801014 | PSE15R040M16-4 | 40 | 4 | 40 | 38 | 16 | 8.4 | 5.6 | 14 | 0.19 | | 1 | 62,000 |
| 7801009 | PSE15R050M22-3 | 50 | 3 | 40 | 45 | 22 | 10.4 | 6.3 | 14 | 0.3 | | 1 | 63,900 |
| 7801015 | PSE15R050M22-5 | 50 | 5 | 40 | 45 | 22 | 10.4 | 6.3 | 14 | 0.28 | | 1 | 75,200 |
| 7801010 | PSE15R063M22-4 | 63 | 4 | 40 | 50 | 22 | 10.4 | 6.3 | 14 | 0.47 | | 2 | 69,100 |
| 7801016 | PSE15R063M22-6 | 63 | 6 | 40 | 50 | 22 | 10.4 | 6.3 | 14 | 0.46 | | 2 | 86,100 |
| 7801022 | PSE15R080M25.4-5 | 80 | 5 | 50 | 60 | 25.4 | 9.5 | 6 | 14 | 1 | | 2 | 82,400 |
| 7801011 | PSE15R080M27-5 | 80 | 5 | 50 | 60 | 27 | 12.4 | 7 | 14 | 0.99 | | 2 | 82,400 |
| 7801025 | PSE15R080M25.4-8 | 80 | 8 | 50 | 60 | 25.4 | 9.5 | 6 | 14 | 1.01 | | 2 | 104,000 |
| 7801017 | PSE15R080M27-8 | 80 | 8 | 50 | 60 | 27 | 12.4 | 7 | 14 | 1 | | 2 | 104,000 |
| 7801023 | PSE15R100M31.7-7 | 100 | 7 | 50 | 70 | 31.75 | 12.7 | 8 | 14 | 1.45 | | 3 | 107,000 |
| 7801012 | PSE15R100M32-7 | 100 | 7 | 50 | 70 | 32 | 14.4 | 8 | 14 | 1.58 | | 2 | 107,000 |
| 7801026 | PSE15R100M31.7-10 | 100 | 10 | 50 | 70 | 31.75 | 12.7 | 8 | 14 | 1.5 | | 3 | 119,000 |
| 7801018 | PSE15R100M32-10 | 100 | 10 | 50 | 70 | 32 | 14.4 | 8 | 14 | 1.63 | | 2 | 119,000 |
| 7801024 | PSE15R125M38.1-8 | 125 | 8 | 63 | 90 | 38.1 | 15.9 | 10 | 14 | 3.13 | | 3 | 127,000 |
| 7801027 | PSE15R125M38.1-11 | 125 | 11 | 63 | 90 | 38.1 | 15.9 | 10 | 14 | 3.15 | | 3 | 139,000 |

適用インサートはp.951をご覧下さい。
See page 951 for applicable inserts.

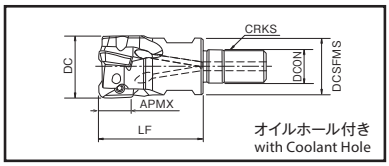
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 肩削り用カッタ
**OSG PHOENIX Indexable Shoulder Cutter**

## PSE　切削条件 Cutting Conditions | P1073

### ねじ込みタイプ（SF） Screw Fit Type






CAD

### PSE ねじ込みタイプ Screw Fit Type

（単位：mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 端面径 DCSFMS | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803822 | **PSE07R010SF6-2** | 10 | 2 | 6.5 | M 6 | 7 | 26 | 9 | 6 | 0.011 | ① | ❶ | 32,100 |
| 7803823 | **PSE07R012SF6-3** | 12 | 3 | 6.5 | M 6 | 7 | 26 | 11 | 6 | 0.01 | | ❷ | 40,100 |
| 7803824 | **PSE07R016SF8-4** | 16 | 4 | 8.5 | M 8 | 10 | 27 | 15 | 6 | 0.032 | | ❸ | 43,900 |
| 7803825 | **PSE07R020SF10-4** | 20 | 4 | 10.5 | M10 | 14 | 33 | 18 | 6 | 0.063 | | ❹ | 49,300 |
| 7803826 | **PSE07R025SF12-5** | 25 | 5 | 12.5 | M12 | 17 | 35 | 23 | 6 | 0.111 | | ❺ | 57,700 |
| 7803827 | **PSE07R032SF16-6** | 32 | 6 | 17 | M16 | 22 | 35 | 28 | 6 | 0.176 | | ❻ | 63,400 |
| 7801600 | **PSE11R016SF8-2** | 16 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 10 | 0.03 | ② | ❸ | 51,300 |
| 7801612 | **PSE11R017SF8-2** | ★ 17 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 10 | 0.03 | | | 51,300 |
| 7801613 | **PSE11R018SF8-2** | ★ 18 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 10 | 0.03 | | | 51,300 |
| 7801601 | **PSE11R020SF10-3** | 20 | 3 | 10.5 | M10 | 14 | 33 | 18 | 10 | 0.06 | | ❹ | 69,300 |
| 7801614 | **PSE11R021SF10-3** | ★ 21 | 3 | 10.5 | M10 | 14 | 33 | 18 | 10 | 0.06 | | | 69,300 |
| 7801615 | **PSE11R022SF10-3** | ★ 22 | 3 | 10.5 | M10 | 14 | 33 | 18 | 10 | 0.06 | | | 69,300 |
| 7801602 | **PSE11R025SF12-4** | 25 | 4 | 12.5 | M12 | 17 | 35 | 23 | 10 | 0.1 | | ❺ | 84,600 |
| 7801616 | **PSE11R026SF12-3** | ★ 26 | 3 | 12.5 | M12 | 17 | 35 | 23 | 10 | 0.1 | | | 84,600 |
| 7801603 | **PSE11R028SF12-4** | ★ 28 | 4 | 12.5 | M12 | 17 | 35 | 23 | 10 | 0.11 | | | 84,600 |
| 7801604 | **PSE11R032SF16-5** | 32 | 5 | 17 | M16 | 22 | 40 | 28 | 10 | 0.19 | | ❻ | 104,000 |
| 7801617 | **PSE11R033SF16-3** | ★ 33 | 3 | 17 | M16 | 22 | 40 | 28 | 10 | 0.2 | | | 104,000 |
| 7801605 | **PSE11R035SF16-5** | ★ 35 | 5 | 17 | M16 | 22 | 40 | 28 | 10 | 0.2 | | | 104,000 |
| 7801606 | **PSE11R040SF16-6** | 40 | 6 | 17 | M16 | 22 | 40 | 28 | 10 | 0.22 | | | 113,000 |
| 7801607 | **PSE15R025SF12-2** | 25 | 2 | 12.5 | M12 | 17 | 35 | 23 | 14 | 0.09 | ③ | ❺ | 61,600 |
| 7801618 | **PSE15R026SF12-2** | ★ 26 | 2 | 12.5 | M12 | 17 | 35 | 23 | 14 | 0.1 | | | 61,600 |
| 7801608 | **PSE15R028SF12-2** | ★ 28 | 2 | 12.5 | M12 | 17 | 35 | 23 | 14 | 0.1 | | | 61,600 |
| 7801609 | **PSE15R032SF16-3** | 32 | 3 | 17 | M16 | 22 | 40 | 28 | 14 | 0.17 | | ❻ | 84,600 |
| 7801619 | **PSE15R033SF16-3** | ★ 33 | 3 | 17 | M16 | 22 | 40 | 28 | 14 | 0.18 | | | 84,600 |
| 7801610 | **PSE15R035SF16-3** | ★ 35 | 3 | 17 | M16 | 22 | 40 | 28 | 14 | 0.18 | | | 84,600 |
| 7801611 | **PSE15R040SF16-4** | 40 | 4 | 17 | M16 | 22 | 40 | 28 | 14 | 0.2 | | | 96,900 |

シャンクホルダ・ホルダについてはp.1028をご覧下さい。
See page 1028 for shank holders.

★ 刃太タイプ
Reduced Shank Type

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | 適用ボディ Applicable Body |
|---|---|---|---|---|
| クランプねじ Clamping Screw | 7808098 | FS18634P (Torx 6IP) | ① ZDKT07… | PSE SS/SF $\phi$10~12 |
| | 7808099 | FS18637P (Torx 6IP) | | PSE SS $\phi$16~26<br>PSE SF $\phi$16~32 |
| | 7808107 | FS25656P (Torx 8IP) | ② ZD*T11… | PSE SS/SF $\phi$16~40 |
| | 7808109 | FS25673P (Torx 8IP) | | PSE BORE $\phi$40~80 |
| | 7808115 | FS35686P (Torx 15IP) | ③ ZDKT15… | PSE SS/SF $\phi$25~63<br>PSE BORE $\phi$40~125 |
| パワースクリュー Power Screw | 7808150 | PS0830 (M8×30) | ② ZD*T11…<br>③ ZDKT15… | PSE BORE $\phi$40 |
| | 7808151 | PS1031 (M10×31) | ② ZD*T11…<br>③ ZDKT15… | PSE BORE $\phi$50 |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|
| レンチ Wrench | 7808223 | 6IP-D (Torx 6IP) | ① ZDKT07… | PSE SS $\phi$10~26<br>PSE SF $\phi$10~32 | 1,760 |
| | 7808225 | 8IP-D (Torx 8IP) | ② ZD*T11… | PSE SS/SF $\phi$16~40<br>PSE BORE $\phi$40~80 | 1,710 |
| | 7808228 | 15IP-D (Torx 15IP) | ③ ZDKT15… | PSE SS/SF $\phi$25~63<br>PSE BORE $\phi$40~125 | 2,010 |

レンチは別途ご購入下さい。　The wrenches are sold separately from the cutters.

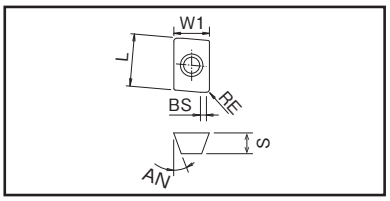
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 肩削り用カッタ
**OSG PHOENIX Indexable Shoulder Cutter**

## PSE

切削条件 Cutting Conditions | P1073






CAD

### ■適用インサート Inserts

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size | | | | | 超硬 Uncoated | |
|---|---|---|---|---|---|---|---|---|---|
| | | | L×W1 | 厚さ S | 逃げ角 AN | RE | さらい刃（副切れ刃） BS | CK010 | |
| ① | ZDKT070302FR-NM | 2 | 8.2×4 | 2.54 | 15° | 0.2 | 1.1 | 7811112 | |
| ① | ZDKT070304FR-NM | 2 | 8.2×4 | 2.54 | 15° | 0.4 | 0.9 | 7811113 | |
| ① | ZDKT070304SR-GL | 2 | 8.2×4 | 2.54 | 15° | 0.4 | 0.9 | | |
| ① | ZDKT070308SR-GL | 2 | 8.2×4 | 2.54 | 15° | 0.8 | 0.5 | | |
| ① | ZDKT070302SR-GM | 2 | 8.2×4 | 2.54 | 15° | 0.2 | 1.1 | | |
| ① | ZDKT070304SR-GM | 2 | 8.2×4 | 2.54 | 15° | 0.4 | 0.9 | | |
| ① | ZDKT070308SR-GM | 2 | 8.2×4 | 2.54 | 15° | 0.8 | 0.5 | | |

・被削材別推奨材質はp.1073をご参照下さい。
・Please refer to p.1073 for recommended materials by insert type.



在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | XC3020 | XP3025 | XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XC5035 | XC5040 | XP6015 | |
| | | | | | | | | | | | 1,330 |
| | | | | | | | | | | | 1,330 |
| | | | 7825127 | 7814123 | 7826121 | 7813117 | | | | | 1,330 |
| | | | 7825129 | 7814125 | 7826122 | 7813119 | | | | | 1,330 |
| | | | | | | 7813116 | | | | | 1,330 |
| | | | 7825128 | 7814124 | | 7813118 | 7812114 | | | | 1,330 |
| | | | 7825130 | 7814126 | | 7813120 | 7812115 | | | | 1,330 |

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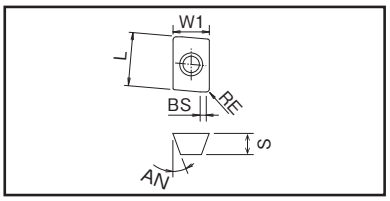
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 肩削り用カッタ
**OSG PHOENIX Indexable Shoulder Cutter**

## PSE

切削条件 Cutting Conditions | P1073






CAD

### ■適用インサート Inserts

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | さらい刃（副切れ刃） BS | 超硬 Uncoated CK010 | |
|---|---|---|---|---|---|---|---|---|---|
| | ZDKT11T302FR-NM | 2 | 11×6.8 | 3.8 | 15° | 0.2 | 2 | 7811048 | |
| | ZDKT11T304FR-NM | 2 | 11×6.8 | 3.8 | 15° | 0.4 | 1.8 | 7811049 | |
| | ZDKT11T308FR-NM | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | 7811023 | |
| | ZDHT11T302FR-NM | 2 | 11×6.8 | 3.5 | 15° | 0.2 | 2 | 7811010 | |
| | ZDHT11T304FR-NM | 2 | 11×6.8 | 3.5 | 15° | 0.4 | 1.8 | 7811024 | |
| | ZDHT11T308FR-NM | 2 | 11×6.8 | 3.5 | 15° | 0.8 | 1.4 | 7811014 | |
| | ZDHT11T312FR-NM | 2 | 11×6.8 | 3.5 | 15° | 1.2 | 1.4 | 7811015 | |
| | ZDHT11T316FR-NM | 2 | 11×6.8 | 3.5 | 15° | 1.6 | 1.4 | 7811017 | |
| | ZDHT11T320FR-NM | 2 | 11×6.8 | 3.5 | 15° | 2 | 1.4 | 7811018 | |
| | ZDHT11T325FR-NM | 2 | 11×6.8 | 3.5 | 15° | 2.5 | 1.4 | 7811019 | |
| | ZDHT11T332FR-NM | 2 | 11×6.8 | 3.5 | 15° | 3.2 | 0.8 | 7811020 | |
| | ZDHT11T340FR-NM | 2 | 11×6.8 | 3.5 | 15° | 4 | 0.1 | 7811021 | |
| | ZDHT11T350FR-NM | 2 | 11×6.8 | 3.5 | 15° | 5 | - | 7811022 | |
| | ZDKT11T304SR-GL | 2 | 11×6.8 | 3.8 | 15° | 0.4 | 1.8 | | |
| | ZDKT11T308SR-GL | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T312SR-GL | 2 | 11×6.8 | 3.8 | 15° | 1.2 | 1 | | |
| | ZDKT11T320SR-GL | 2 | 11×6.8 | 3.8 | 15° | 2 | 2.1 | | |
| ② | ZDKT11T332SR-GL | 2 | 11×6.8 | 3.8 | 15° | 3.2 | 1.5 | | |
| | ZDKT11T304SR-GM | 2 | 11×6.8 | 3.8 | 15° | 0.4 | 1.8 | | |
| | ZDKT11T308SR-GM | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T312SR-GM | 2 | 11×6.8 | 3.8 | 15° | 1.2 | 1 | | |
| | ZDKT11T320SR-GM | 2 | 11×6.8 | 3.8 | 15° | 2 | 2.1 | | |
| | ZDKT11T325SR-GM | 2 | 11×6.8 | 3.8 | 15° | 2.5 | 1.6 | | |
| | ZDKT11T330SR-GM | 2 | 11×6.8 | 3.8 | 15° | 3 | 1 | | |
| | ZDKT11T340SR-GM | 2 | 11×6.8 | 3.8 | 15° | 4 | 0.7 | | |
| | ZDKT11T308SR-GR | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T308SR-HR | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T304ER-SM | 2 | 11×6.8 | 3.8 | 15° | 0.4 | 1.7 | | |
| | ZDKT11T308ER-SM | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T312ER-SM | 2 | 11×6.8 | 3.8 | 15° | 1.2 | 1.1 | | |
| | ZDKT11T316ER-SM | 2 | 11×6.8 | 3.8 | 15° | 1.6 | 0.8 | | |
| | ZDKT11T320ER-SM | 2 | 11×6.8 | 3.8 | 15° | 2 | 2.1 | | |
| | ZDKT11T325ER-SM | 2 | 11×6.8 | 3.8 | 15° | 2.5 | 1.6 | | |
| | ZDKT11T332ER-SM | 2 | 11×6.8 | 3.8 | 15° | 3.2 | 1.5 | | |
| | ZDKT11T340ER-SM | 2 | 11×6.8 | 3.8 | 15° | 4 | 0.4 | | |

・被削材別推奨材質はp.1073をご参照下さい。
・Please refer to p.1073 for recommended materials by insert type.



在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

・コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
修正が必要な場合は受注品対応となりますのでご相談下さい。

・When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be modified.
Please contact us for modification service if necessary.




（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | XC3020 | XP3025 | XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XC5035 | XC5040 | XP6015 | |
| | | | | | | | | | | | 2,220 |
| | | | | | | | | | | | 2,220 |
| | | | | | | | | | | | 2,220 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
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| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | 7825024 | 7814024 | | | | | | | 1,750 |
| | 7827026 | 7828026 | 7825026 | 7814026 | 7826026 | 7813026 | | | | | 1,750 |
| | | | | | | 7813034 | | | | | 1,750 |
| | | | 7825035 | 7814035 | | 7813035 | | | | | 1,750 |
| | | | | | | 7813036 | | | | | 1,750 |
| | 7827025 | 7828025 | 7825025 | 7814025 | 7826025 | 7813025 | 7812025 | | | | 1,750 |
| | 7827032 | 7828032 | 7825032 | 7814032 | 7826032 | 7813032 | | | | | 1,750 |
| | | | | 7814053 | | 7813053 | | | | | 1,750 |
| | | | | 7814038 | | 7813038 | | | | | 1,750 |
| | | | 7825039 | 7814039 | | | | | | | 1,750 |
| | | | | 7814054 | | 7813054 | | | | | 1,750 |
| | | | | 7814055 | | 7813055 | | | | | 1,750 |
| | 7827033 | 7828033 | 7825033 | 7814033 | | 7813033 | 7812033 | | | | 1,750 |
| | | | | | | | | | | 7824035 | 2,220 |
| | | | | | | | | | 7816034 | | 3,500 |
| | | | | | | | | 7815031 | 7816031 | | 3,500 |
| | | | | | | | | | 7816040 | | 3,500 |
| | | | | | | | | 7815027 | 7816027 | | 3,500 |
| | | | | | | | | | 7816041 | | 3,500 |
| | | | | | | | | | 7816042 | | 3,500 |
| | | | | | | | | | 7816043 | | 3,500 |
| | | | | | | | | | 7816044 | | 3,500 |

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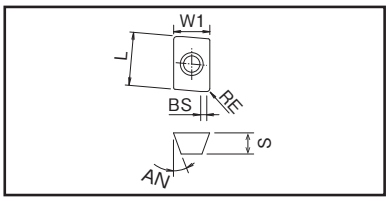
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 肩削り用カッタ
**OSG PHOENIX Indexable Shoulder Cutter**

## PSE

切削条件 Cutting Conditions | P1073






CAD

前ページより FROM

**■適用インサート** Inserts

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | さらい刃（副切れ刃） BS | 超硬 Uncoated CK010 | |
|---|---|---|---|---|---|---|---|---|---|
| ③ | ZDKT150508FR-NM | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | 7811046 | |
| | ZDKT150508SR-GL | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |
| | ZDKT150508SR-GM | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |
| | ZDKT150512SR-GM | 2 | 15×9.3 | 5.56 | 15° | 1.2 | 1.1 | | |
| | ZDKT150516SR-GM | 2 | 15×9.3 | 5.56 | 15° | 1.6 | 0.8 | | |
| | ZDKT150520SR-GM | 2 | 15×9.3 | 5.56 | 15° | 2 | 2.7 | | |
| | ZDKT150530SR-GM | 2 | 15×9.3 | 5.56 | 15° | 3 | 1.8 | | |
| | ZDKT150540SR-GM | 2 | 15×9.3 | 5.56 | 15° | 4 | 1 | | |
| | ZDKT150550SR-GM | 2 | 15×9.3 | 5.56 | 15° | 5 | 0.6 | | |
| | ZDKT150508SR-GR | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |
| | ZDKT150508SR-HR | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |
| | ZDKT150508ER-SM | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |

・被削材別推奨材質はp.1073をご参照下さい。
・Please refer to p.1073 for recommended materials by insert type.



在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

・コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
修正が必要な場合は受注品対応となりますのでご相談下さい。

・When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be modified.
Please contact us for modification service if necessary.




（単位:mm）(Unit:mm)

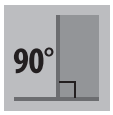
| | コーティング材種 Grade of Coated Materials | | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | XC3020 | XP3025 | XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XC5035 | XC5040 | XP6015 | |
| | | | | | | | | | | | 2,620 |
| | 7827057 | 7828057 | 7825057 | 7814057 | 7826057 | 7813057 | | | | | 2,380 |
| | 7827028 | 7828028 | 7825029 | 7814029 | 7826029 | 7813028 | 7812029 | | | | 2,380 |
| | | | | 7814077 | | 7813077 | | | | | 2,380 |
| | | | | 7814078 | | 7813078 | | | | | 2,380 |
| | | | | 7814079 | | 7813079 | | | | | 2,380 |
| | | | | 7814080 | | 7813080 | | | | | 2,380 |
| | | | | 7814081 | | 7813081 | | | | | 2,380 |
| | | | | 7814082 | | 7813082 | | | | | 2,380 |
| | 7827058 | 7828058 | 7825058 | 7814058 | | 7813058 | 7812058 | | | | 2,380 |
| | | | | | | | | | | 7824036 | 2,380 |
| | | | | | | | | 7815056 | 7816056 | | 4,570 |

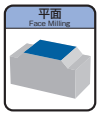
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ラフィングエンドミル
**OSG PHOENIX Indexable Roughing End Mill**

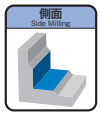
## PSEL　切削条件 Cutting Conditions | P1076

### ストレートシャンクタイプ（SS） Straight Shank Type







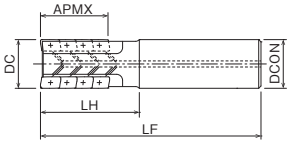





CAD

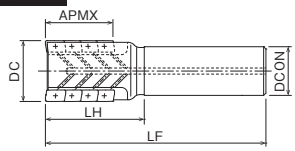


Type 1




オイルホール付き
with Coolant Hole

Type 2




オイルホール付き
with Coolant Hole

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 刃段数 No. of Insert per Flute | 総インサート数 Total No. of Inserts | 刃長 APMX | シャンク径 DCON | 全長 LF | 首下長 LH | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7802900 | **PSEL11R025SS25-2-27** | 25 | 2 | 3 | 6 | 27 | 25 | 125 | 50 | 0.39 | | 1 | 132,000 |
| 7802901 | **PSEL11R032SS32-2-37** | 32 | 2 | 4 | 8 | 37 | 32 | 140 | 60 | 0.71 | | 1 | 149,000 |
| 7802902 | **PSEL11R032SS32-3-45** | 32 | 3 | 5 | 15 | 45.5 | 32 | 140 | 60 | 0.7 | ② | 1 | 174,000 |
| 7802903 | **PSEL11R040SS42-3-37** | 40 | 3 | 4 | 12 | 37 | 42 | 140 | 60 | 1.2 | | 1 | 165,000 |
| 7802904 | **PSEL11R040SS42-4-45** | 40 | 4 | 5 | 20 | 45.5 | 42 | 140 | 60 | 1.18 | | 1 | 198,000 |
| 7802905 | **PSEL15R040SS42-2-38** | 40 | 2 | 3 | 6 | 38 | 42 | 140 | 60 | 1.13 | ③ | 1 | 160,000 |
| 7802906 | **PSEL15R050SS42-3-50** | 50 | 3 | 4 | 12 | 50.5 | 42 | 144 | 64 | 1.31 | | 2 | 187,000 |

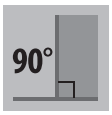
適用インサートはp.959をご覧下さい。
See page 959 for applicable inserts.

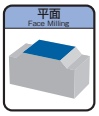
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

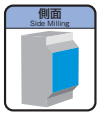
# OSG PHOENIX ラフィングエンドミル
**OSG PHOENIX Indexable Roughing End Mill**

## PSEL　切削条件 Cutting Conditions | P1076

### ボアタイプ(BORE) Bore Type



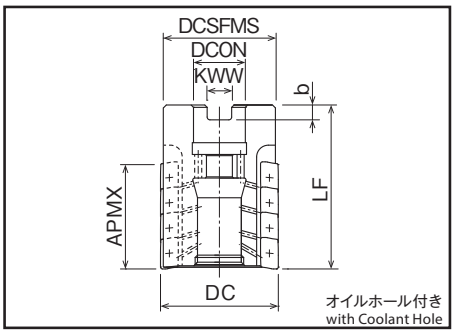









CAD






(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 刃段数 No. of Insert per Flute | 総インサート数 Total No. of Inserts | 刃長 APMX | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 深さ b | 重量 (kg) | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7802850 | **PSEL15R050M22-3-50** | 50 | 3 | 4 | 12 | 50.5 | 74 | 45 | 22 | 10.4 | 6.3 | 0.47 | ③ | 198,000 |
| 7802851 | **PSEL15R063M27-3-50** | 63 | 3 | 4 | 12 | 50.5 | 74 | 60 | 27 | 12.4 | 7 | 0.83 | | 204,000 |
| 7802852 | **PSEL15R080M32-4-63** | 80 | 4 | 5 | 20 | 63 | 88 | 76 | 32 | 14.4 | 8 | 1.82 | | 222,000 |

適用インサートはp.959をご覧下さい。
See page 959 for applicable inserts.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body |
|---|---|---|---|---|---|
|  クランプねじ Clamping Screw | 7808107 | FS25656P (Torx 8IP) | ② | ZD*T11··· | PSEL SS φ25 |
| | 7808109 | FS25673P (Torx 8IP) | | | PSEL SS φ32～40 |
| | 7808115 | FS35686P (Torx 15IP) | ③ | ZDKT15··· | PSEL SS φ40～50<br>PSEL BORE φ50～80 |
|  クーラントキャップボルト Coolant cap bolt | 7808132 | OCB-M20-08 | — | — | PSEL BORE φ50 |
| | 7808133 | OCB-M24-08 | — | — | PSEL BORE φ63 |
| | 7808134 | OCB-M30-14 | — | — | PSEL BORE φ80 |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
|  レンチ Wrench | 7808225 | 8IP-D (Torx 8IP) | ② | ZD*T11··· | PSEL SS φ25～40 | 1,710 |
| | 7808228 | 15IP-D (Torx 15IP) | ③ | ZDKT15··· | PSEL SS φ40～50<br>PSEL BORE φ50～80 | 2,010 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

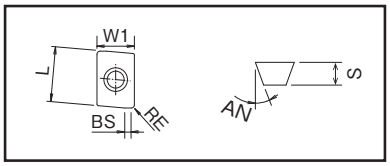
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ラフィングエンドミル
**OSG PHOENIX Indexable Roughing End Mill**

## PSEL

切削条件 Cutting Conditions | P1076






CAD

■適用インサート Inserts

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | さらい刃（副切れ刃） BS | 超硬 Uncoated CK010 | |
|---|---|---|---|---|---|---|---|---|---|
| | ZDKT11T302FR-NM | 2 | 11×6.8 | 3.8 | 15° | 0.2 | 2 | 7811048 | |
| | ZDKT11T304FR-NM | 2 | 11×6.8 | 3.8 | 15° | 0.4 | 1.8 | 7811049 | |
| | ZDKT11T308FR-NM | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | 7811023 | |
| | ZDHT11T302FR-NM | 2 | 11×6.8 | 3.5 | 15° | 0.2 | 2 | 7811010 | |
| | ZDHT11T304FR-NM | 2 | 11×6.8 | 3.5 | 15° | 0.4 | 1.8 | 7811024 | |
| | ZDHT11T308FR-NM | 2 | 11×6.8 | 3.5 | 15° | 0.8 | 1.4 | 7811014 | |
| | ZDHT11T312FR-NM | 2 | 11×6.8 | 3.5 | 15° | 1.2 | 1.4 | 7811015 | |
| | ZDHT11T316FR-NM | 2 | 11×6.8 | 3.5 | 15° | 1.6 | 1.4 | 7811017 | |
| | ZDHT11T320FR-NM | 2 | 11×6.8 | 3.5 | 15° | 2 | 1.4 | 7811018 | |
| | ZDHT11T325FR-NM | 2 | 11×6.8 | 3.5 | 15° | 2.5 | 1.4 | 7811019 | |
| | ZDHT11T332FR-NM | 2 | 11×6.8 | 3.5 | 15° | 3.2 | 0.8 | 7811020 | |
| | ZDHT11T340FR-NM | 2 | 11×6.8 | 3.5 | 15° | 4 | 0.1 | 7811021 | |
| | ZDHT11T350FR-NM | 2 | 11×6.8 | 3.5 | 15° | 5 | - | 7811022 | |
| | ZDKT11T304SR-GL | 2 | 11×6.8 | 3.8 | 15° | 0.4 | 1.8 | | |
| | ZDKT11T308SR-GL | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T312SR-GL | 2 | 11×6.8 | 3.8 | 15° | 1.2 | 1 | | |
| | ZDKT11T320SR-GL | 2 | 11×6.8 | 3.8 | 15° | 2 | 2.1 | | |
| ② | ZDKT11T332SR-GL | 2 | 11×6.8 | 3.8 | 15° | 3.2 | 1.5 | | |
| | ZDKT11T304SR-GM | 2 | 11×6.8 | 3.8 | 15° | 0.4 | 1.8 | | |
| | ZDKT11T308SR-GM | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T312SR-GM | 2 | 11×6.8 | 3.8 | 15° | 1.2 | 1 | | |
| | ZDKT11T320SR-GM | 2 | 11×6.8 | 3.8 | 15° | 2 | 2.1 | | |
| | ZDKT11T325SR-GM | 2 | 11×6.8 | 3.8 | 15° | 2.5 | 1.6 | | |
| | ZDKT11T330SR-GM | 2 | 11×6.8 | 3.8 | 15° | 3 | 1 | | |
| | ZDKT11T340SR-GM | 2 | 11×6.8 | 3.8 | 15° | 4 | 0.7 | | |
| | ZDKT11T308SR-GR | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T308SR-HR | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T304ER-SM | 2 | 11×6.8 | 3.8 | 15° | 0.4 | 1.7 | | |
| | ZDKT11T308ER-SM | 2 | 11×6.8 | 3.8 | 15° | 0.8 | 1.4 | | |
| | ZDKT11T312ER-SM | 2 | 11×6.8 | 3.8 | 15° | 1.2 | 1.1 | | |
| | ZDKT11T316ER-SM | 2 | 11×6.8 | 3.8 | 15° | 1.6 | 0.8 | | |
| | ZDKT11T320ER-SM | 2 | 11×6.8 | 3.8 | 15° | 2 | 2.1 | | |
| | ZDKT11T325ER-SM | 2 | 11×6.8 | 3.8 | 15° | 2.5 | 1.6 | | |
| | ZDKT11T332ER-SM | 2 | 11×6.8 | 3.8 | 15° | 3.2 | 1.5 | | |
| | ZDKT11T340ER-SM | 2 | 11×6.8 | 3.8 | 15° | 4 | 0.4 | | |

・被削材別推奨材質はp.1076をご参照下さい。
・Please refer to p.1076 for recommended materials by insert type.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

・2段目以降は、R0.8以下のインサートをご使用下さい。
・ コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
修正が必要な場合は受注品対応となりますのでご相談下さい。

・For the 2nd and subsequent steps, use the inserts with R0.8 or smaller.
・When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be modified.
Please contact us for modification service if necessary.




（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | XC3020 | XP3025 | XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XC5035 | XC5040 | XP6015 | |
| | | | | | | | | | | | 2,220 |
| | | | | | | | | | | | 2,220 |
| | | | | | | | | | | | 2,220 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | | | | | | | | | 4,820 |
| | | | 7825024 | 7814024 | | | | | | | 1,750 |
| | 7827026 | 7828026 | 7825026 | 7814026 | 7826026 | 7813026 | | | | | 1,750 |
| | | | | | | 7813034 | | | | | 1,750 |
| | | | 7825035 | 7814035 | | 7813035 | | | | | 1,750 |
| | | | | | | 7813036 | | | | | 1,750 |
| | 7827025 | 7828025 | 7825025 | 7814025 | 7826025 | 7813025 | 7812025 | | | | 1,750 |
| | 7827032 | 7828032 | 7825032 | 7814032 | 7826032 | 7813032 | | | | | 1,750 |
| | | | | 7814053 | | 7813053 | | | | | 1,750 |
| | | | | 7814038 | | 7813038 | | | | | 1,750 |
| | | | 7825039 | 7814039 | | | | | | | 1,750 |
| | | | | 7814054 | | 7813054 | | | | | 1,750 |
| | | | | 7814055 | | 7813055 | | | | | 1,750 |
| | 7827033 | 7828033 | 7825033 | 7814033 | | 7813033 | 7812033 | | | | 1,750 |
| | | | | | | | | | | 7824035 | 2,220 |
| | | | | | | | | | 7816034 | | 3,500 |
| | | | | | | | | 7815031 | 7816031 | | 3,500 |
| | | | | | | | | | 7816040 | | 3,500 |
| | | | | | | | | 7815027 | 7816027 | | 3,500 |
| | | | | | | | | | 7816041 | | 3,500 |
| | | | | | | | | | 7816042 | | 3,500 |
| | | | | | | | | | 7816043 | | 3,500 |
| | | | | | | | | | 7816044 | | 3,500 |

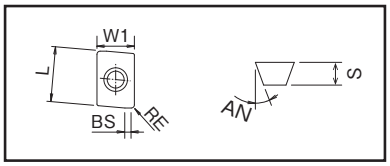
次ページへ NEXT

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ラフィングエンドミル
**OSG PHOENIX Indexable Roughing End Mill**

## PSEL　切削条件 Cutting Conditions | P1076






CAD

前ページより FROM

### ■適用インサート Inserts

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | さらい刃（副切れ刃） BS | 超硬 Uncoated CK010 | |
|---|---|---|---|---|---|---|---|---|---|
| ③ | ZDKT150508FR-NM | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | 7811046 | |
| | ZDKT150508SR-GL | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |
| | ZDKT150508SR-GM | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |
| | ZDKT150512SR-GM | 2 | 15×9.3 | 5.56 | 15° | 1.2 | 1.1 | | |
| | ZDKT150516SR-GM | 2 | 15×9.3 | 5.56 | 15° | 1.6 | 0.8 | | |
| | ZDKT150520SR-GM | 2 | 15×9.3 | 5.56 | 15° | 2 | 2.7 | | |
| | ZDKT150530SR-GM | 2 | 15×9.3 | 5.56 | 15° | 3 | 1.8 | | |
| | ZDKT150540SR-GM | 2 | 15×9.3 | 5.56 | 15° | 4 | 1 | | |
| | ZDKT150550SR-GM | 2 | 15×9.3 | 5.56 | 15° | 5 | 0.6 | | |
| | ZDKT150508SR-GR | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |
| | ZDKT150508SR-HR | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |
| | ZDKT150508ER-SM | 2 | 15×9.3 | 5.56 | 15° | 0.8 | 1.5 | | |

・被削材別推奨材質はp.1076をご参照下さい。
・Please refer to p.1076 for recommended materials by insert type.



在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

・2段目以降は、R0.8以下のインサートをご使用下さい。
・コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
修正が必要な場合は受注品対応となりますのでご相談下さい。

・For the 2nd and subsequent steps, use the inserts with R0.8 or smaller.
・When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be modified.
Please contact us for modification service if necessary.




（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | XC3020 | XP3025 | XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XC5035 | XC5040 | XP6015 | |
| | | | | | | | | | | | 2,620 |
| | 7827057 | 7828057 | 7825057 | 7814057 | 7826057 | 7813057 | | | | | 2,380 |
| | 7827028 | 7828028 | 7825029 | 7814029 | 7826029 | 7813028 | 7812029 | | | | 2,380 |
| | | | | 7814077 | | 7813077 | | | | | 2,380 |
| | | | | 7814078 | | 7813078 | | | | | 2,380 |
| | | | | 7814079 | | 7813079 | | | | | 2,380 |
| | | | | 7814080 | | 7813080 | | | | | 2,380 |
| | | | | 7814081 | | 7813081 | | | | | 2,380 |
| | | | | 7814082 | | 7813082 | | | | | 2,380 |
| | 7827058 | 7828058 | 7825058 | 7814058 | | 7813058 | 7812058 | | | | 2,380 |
| | | | | | | | | | | 7824036 | 2,380 |
| | | | | | | | | 7815056 | 7816056 | | 4,570 |

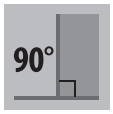
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

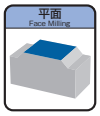
NEW SIZES

# OSG PHOENIX 4コーナ肩削り用カッタ
**OSG PHOENIX Indexable 4-Corner Shoulder Cutter**

## PSF　切削条件 Cutting Conditions | P1077

### ストレートシャンクタイプ(SS) Straight Shank Type







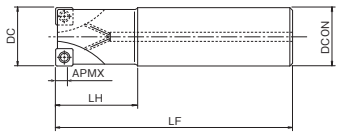





CAD

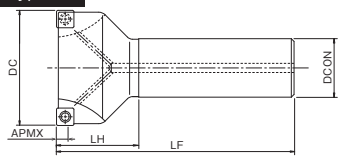


Type 1




オイルホール付き
with Coolant Hole

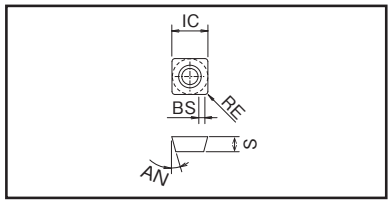
Type 2

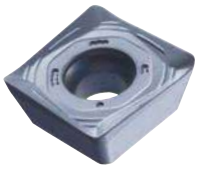


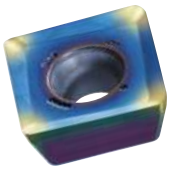

オイルホール付き
with Coolant Hole

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | APMX | 重量 (kg) | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7803001 | **PSF09R025SS25-3S** | 25 | 3 | 25 | 120 | 35 | 5 | 0.4 | 1 | 47,900 |
| 7803002 | **PSF09R032SS32-4S** | 32 | 4 | 32 | 130 | 45 | 5 | 0.72 | 1 | 61,600 |
| 7803003 | **PSF09R040SS32-5S** | 40 | 5 | 32 | 140 | 50 | 5 | 0.88 | 2 | 78,400 |





XP4610
(DLCコーティング)
DLC coating

コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
Inserts may have some discoloration, but it does not cause any performance problems.

### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size IC | 厚さ S | 逃げ角 AN | RE | さらい刃(副切れ刃) BS | 超硬 Uncoated CK010 | コーティング材種 Grade of Coated Materials XP4610 | XC3030 | XP3035 | XP2040 | XC1015 | XC5040 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDHT09T308FR-NM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | 7811076 | | | | | | | 2,140 |
| | | | | | | | | ※7818076 | | | | | | 2,520 |
| SDKT09T308SR-GL | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | | 7825073 | 7814073 | 7813073 | | | 1,440 |
| | | | | | | | | | | | | | 7816073 | 2,620 |
| SDKT09T308SR-GM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | | 7825074 | 7814074 | 7813074 | | | 1,440 |
| SDKT09T308SR-GR | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | | | | | 7812075 | | 1,440 |

※=NEW SIZES

・被削材別推奨材質はp.1077をご参照下さい。
・Please refer to p.1077 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body |
|---|---|---|---|
|  クランプねじ Clamping Screw | 7808110 | FS30573 (Torx 8) | PSF SS ϕ25~40<br>PSF BORE ϕ50~80 |

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|
|  レンチ Wrench | 7808205 | T8-D (Torx 8) | PSF SS ϕ25~40<br>PSF BORE ϕ50~80 | 1,310 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.



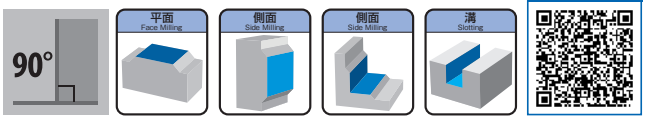
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

NEW SIZES

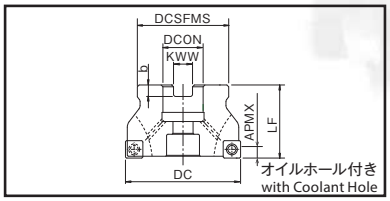
# OSG PHOENIX 4コーナ肩削り用カッタ
OSG PHOENIX Indexable 4-Corner Shoulder Cutter

## PSF　切削条件 Cutting Conditions | P1077

### ボアタイプ(BORE) Bore Type

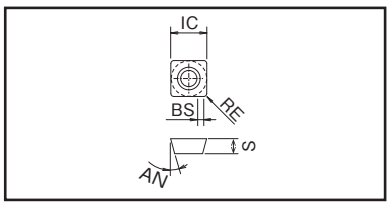


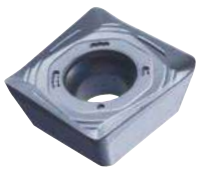


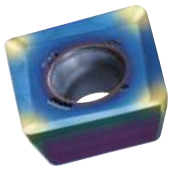




(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | APMX | 重量 (kg) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803011 | **PSF09R050M22-6** | 50 | 6 | 40 | 45 | 22 | 10.4 | 6.3 | 5 | 0.3 | 80,700 |
| 7803012 | **PSF09R063M22-7** | 63 | 7 | 40 | 50 | 22 | 10.4 | 6.3 | 5 | 0.5 | 93,000 |
| 7803013 | **PSF09R080M25.4-9** | 80 | 9 | 50 | 60 | 25.4 | 9.5 | 6 | 5 | 1.02 | 110,000 |





XP4610
(DLCコーティング)
DLC coating

コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
Inserts may have some discoloration, but it does not cause any performance problems.

### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size IC | 厚さ S | 逃げ角 AN | RE | さらい刃(副切れ刃) BS | 超硬 Uncoated CK010 | コーティング材種 Grade of Coated Materials XP4610 | XC3030 | XP3035 | XP2040 | XC1015 | XC5040 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDHT09T308FR-NM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | 7811076 | | | | | | | 2,140 |
| | | | | | | | | ※7818076 | | | | | | 2,520 |
| SDKT09T308SR-GL | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | | 7825073 | 7814073 | 7813073 | | | 1,440 |
| | | | | | | | | | | | | | 7816073 | 2,620 |
| SDKT09T308SR-GM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | | 7825074 | 7814074 | 7813074 | | | 1,440 |
| SDKT09T308SR-GR | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | | | | | 7812075 | | 1,440 |

※= NEW SIZES

・被削材別推奨材質はp.1077をご参照下さい。
・Please refer to p.1077 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body |
|---|---|---|---|
|  クランプねじ Clamping Screw | 7808110 | FS30573 (Torx 8) | PSF SS φ25~40 PSF BORE φ50~80 |

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|
|  レンチ Wrench | 7808205 | T8-D (Torx 8) | PSF SS φ25~40 PSF BORE φ50~80 | 1,310 |

レンチは別途ご購入下さい。　The wrenches are sold separately from the cutters.

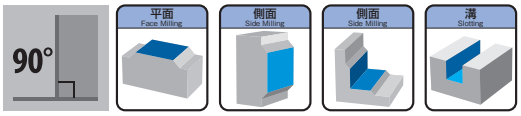
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

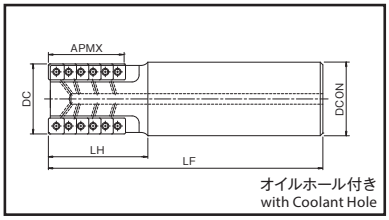
# OSG PHOENIX 4コーナラフィングエンドミル
**OSG PHOENIX Indexable 4-Corner Roughing End Mill**

## PSFL　切削条件 Cutting Conditions | P1078

### ストレートシャンクタイプ(SS) Straight Shank Type

CAD

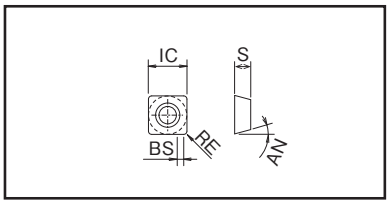


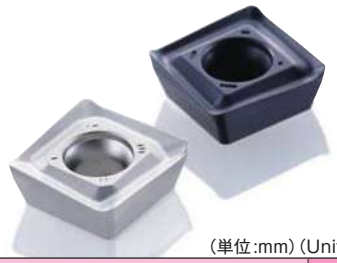






(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 刃段数 No. of Insert per Flute | 総インサート数 Total No. of Inserts | 刃長 APMX | シャンク径 DCON | 全長 LF | 首下長 LH | 重量 (kg) | 適用インサート Applicable Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803700 | **PSFL09R032SS32-2-36** | 32 | 2 | 5 | 10 | 36 | 32 | 140 | 60 | 0.71 | ① | C | 95,300 |
| 7803701 | **PSFL09R040SS42-3-43** | 40 | 3 | 6 | 18 | 43 | 42 | 140 | 60 | 1.17 | | C | 120,000 |



### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size IC | 厚さ S | 逃げ角 AN | RE | さらい刃(副切れ刃) BS | 超硬 Uncoated CK010 | コーティング材種 Grade of Coated Materials XC3030 | XP3035 | XP2040 | XC1015 | XC5040 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SDHT09T308FR-NM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | 7811076 | | | | | | 2,140 |
| | SDKT09T308SR-GL | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | 7825073 | 7814073 | 7813073 | | | 1,440 |
| | | | | | | | | | | | | | 7816073 | 2,620 |
| | SDKT09T308SR-GM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | 7825074 | 7814074 | 7813074 | | | 1,440 |
| | SDKT09T308SR-GR | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | | | | 7812075 | | 1,440 |
| ② | SDHT120508FR-NM | 4 | 12.38 | 5 | 15° | 0.8 | 1.2 | 7811625 | | | | | | 3,260 |
| | SDKT120508SR-GL | 4 | 12.38 | 5 | 15° | 0.8 | 1.2 | | | | 7813623 | | | 2,400 |
| | | | | | | | | | | | | | 7816620 | 3,110 |
| | SDKT120508SR-GM | 4 | 12.38 | 5 | 15° | 0.8 | 1.2 | | 7825622 | 7814621 | | | | 2,400 |
| | SDKT120508SR-GR | 4 | 12.38 | 5 | 15° | 0.8 | 1.2 | | | | | 7812624 | | 2,400 |

・被削材別推奨材質はp.1078をご参照下さい。
・Please refer to p.1078 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body |
|---|---|---|---|---|---|
| クランプねじ Clamping Screw | 7808110 | FS30573 (Torx 8) | ① | SD*T09… | PSFL SS φ32,φ40 PSFL BORE φ50 |
| | 7808129 | FS40511 (Torx 15) | ② | SD*T12… | PSFL BORE φ63~100 |
| クーラントキャップボルト Coolant cap bolt | 7808132 | OCB-M20-08 | — | — | PSFL BORE φ50 |
| | 7808133 | OCB-M24-10 | — | — | PSFL BORE φ63 |
| | 7808134 | OCB-M30-14 | — | — | PSFL BORE φ80, φ100 |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| レンチ Wrench | 7808205 | T8-D (Torx 8) | ① | SD*T09… | PSFL SS φ32,φ40 PSFL BORE φ50 | 1,310 |
| | 7808208 | T15-D (Torx 15) | ② | SD*T12… | PSFL BORE φ63~100 | 1,390 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

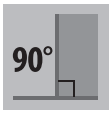
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

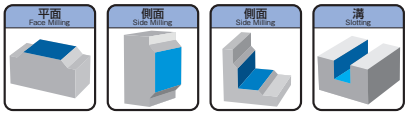
# OSG PHOENIX 4コーナラフィングエンドミル
**OSG PHOENIX Indexable 4-Corner Roughing End Mill**

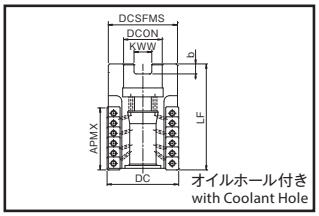
## PSFL　切削条件 Cutting Conditions | P1078

### ボアタイプ(BORE) Bore Type

CAD



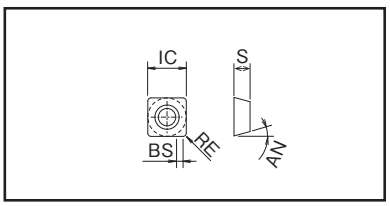



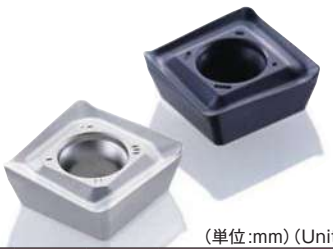



(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 刃段数 No. of Insert per Flute | 総インサート数 Total No. of Inserts | 刃長 APMX | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 深さ b | 重量 (kg) | 適用インサート Applicable Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803702 | **PSFL09R050M22-4-50** | 50 | 4 | 7 | 28 | 50 | 75 | 48.5 | 22 | 10.4 | 6.3 | 0.53 | ① | C | 187,000 |
| 7803703 | **PSFL09R050M22-4-78** | 50 | 4 | 11 | 44 | 78 | 100 | 48.5 | 22 | 10.4 | 6.3 | 0.71 | | C | 294,000 |
| 7803704 | **PSFL09R050M27-4-50** | 50 | 4 | 7 | 28 | 50 | 75 | 48.5 | 27 | 12.4 | 7 | 0.53 | | C | 187,000 |
| 7803705 | **PSFL09R050M27-4-78** | 50 | 4 | 11 | 44 | 78 | 100 | 48.5 | 27 | 12.4 | 7 | 0.71 | | C | 294,000 |
| 7803706 | **PSFL12R063M27-4-60** | 63 | 4 | 6 | 24 | 60 | 85 | 60.5 | 27 | 12.4 | 7 | 0.88 | ② | C | 160,000 |
| 7803707 | **PSFL12R063M27-4-100** | 63 | 4 | 10 | 40 | 100 | 125 | 60.5 | 27 | 12.4 | 7 | 1.26 | | C | 267,000 |
| 7803708 | **PSFL12R080M32-5-70** | 80 | 5 | 7 | 35 | 70 | 95 | 77.3 | 32 | 14.4 | 8 | 1.88 | | C | 233,000 |
| 7803709 | **PSFL12R080M32-5-110** | 80 | 5 | 11 | 55 | 110 | 143 | 77.3 | 32 | 14.4 | 8 | 2.96 | | C | 366,000 |
| 7803710 | **PSFL12R100M32-6-120** | 100 | 6 | 12 | 72 | 120 | 153 | 97 | 32 | 14.4 | 8 | 4.95 | | ※ | 477,000 |

C＝標準在庫品　C=Standard stock item　※＝受注対応品　※=Special order item



### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size IC | 厚さ S | 逃げ角 AN | RE | さらい刃(副切れ刃) BS | 超硬 Uncoated CK010 | コーティング材種 Grade of Coated Materials XC3030 | XP3035 | XP2040 | XC1015 | XC5040 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SDHT09T308FR-NM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | 7811076 | | | | | | 2,140 |
| | SDKT09T308SR-GL | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | 7825073 | 7814073 | 7813073 | | | 1,440 |
| | | | | | | | | | | | | | 7816073 | 2,620 |
| | SDKT09T308SR-GM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | 7825074 | 7814074 | 7813074 | | | 1,440 |
| | SDKT09T308SR-GR | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | | | | | 7812075 | | 1,440 |
| ② | SDHT120508FR-NM | 4 | 12.38 | 5 | 15° | 0.8 | 1.2 | 7811625 | | | | | | 3,260 |
| | SDKT120508SR-GL | 4 | 12.38 | 5 | 15° | 0.8 | 1.2 | | | | 7813623 | | | 2,400 |
| | | | | | | | | | | | | | 7816620 | 3,110 |
| | SDKT120508SR-GM | 4 | 12.38 | 5 | 15° | 0.8 | 1.2 | | 7825622 | 7814621 | | | | 2,400 |
| | SDKT120508SR-GR | 4 | 12.38 | 5 | 15° | 0.8 | 1.2 | | | | | 7812624 | | 2,400 |

・被削材別推奨材質はp.1078をご参照下さい。
・Please refer to p.1078 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body |
|---|---|---|---|---|---|
| クランプねじ Clamping Screw | 7808110 | FS30573 (Torx 8) | ① | SD*T09… | PSFL SS φ32,φ40 PSFL BORE φ50 |
| | 7808129 | FS40511 (Torx 15) | ② | SD*T12… | PSFL BORE φ63~100 |
| クーラント キャップボルト Coolant cap bolt | 7808132 | OCB-M20-08 | — | — | PSFL BORE φ50 |
| | 7808133 | OCB-M24-10 | — | — | PSFL BORE φ63 |
| | 7808134 | OCB-M30-14 | — | — | PSFL BORE φ80, φ100 |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| レンチ Wrench | 7808205 | T8-D (Torx 8) | ① | SD*T09… | PSFL SS φ32,φ40 PSFL BORE φ50 | 1,310 |
| | 7808208 | T15-D (Torx 15) | ② | SD*T12… | PSFL BORE φ63~100 | 1,390 |

レンチは別途ご購入下さい。　The wrenches are sold separately from the cutters.

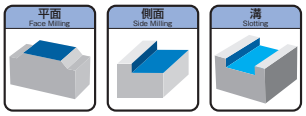
在庫区分はC(標準在庫品)となります。 Stock are categorized as C (Standard stock item). ※＝受注対応品 ※=Special order item

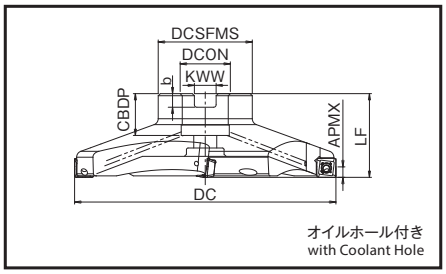
NEW

# OSG PHOENIX ディスクカッタ
**OSG PHOENIX Indexable Disc Cutter**

## PFDC

切削条件 Cutting Conditions | P1079



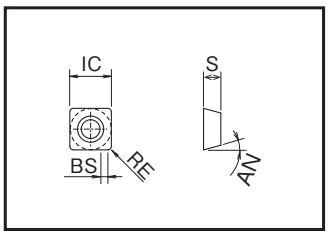

オイルホール付き
with Coolant Hole

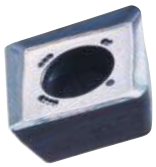


バランス取りの為にカッタ溝部に穴が開いている場合があります。
For balancing purposes, a hole may be present on the flute of the cutter.

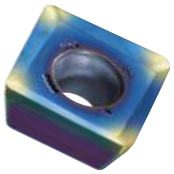
(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | カッタ高さ LF | 取付け穴高さ CBDP | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | APMX | 最高回転数 RPMX(min⁻¹) | 重量 (kg) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7835101 | **PFDC09R080M22-4** | 80 | 4 | 40 | 20 | 45 | 22 | 10.4 | 6.5 | 5 | 10,000 | 0.5 | 86,900 |
| 7835102 | **PFDC09R080M25.4-4** | 80 | 4 | 45 | 23 | 50 | 25.4 | 9.5 | 6 | 5 | 10,000 | 0.6 | 86,900 |
| 7835103 | **PFDC09R100M22-4** | 100 | 4 | 40 | 20 | 45 | 22 | 10.4 | 6.5 | 5 | 10,000 | 0.7 | 93,000 |
| 7835104 | **PFDC09R100M25.4-4** | 100 | 4 | 45 | 23 | 50 | 25.4 | 9.5 | 6 | 5 | 10,000 | 0.83 | 93,000 |
| 7835105 | **PFDC09R125M22-5** | 125 | 5 | 40 | 20 | 45 | 22 | 10.4 | 6.5 | 5 | 10,000 | 1 | 111,000 |
| 7835106 | **PFDC09R125M25.4-5** | 125 | 5 | 45 | 23 | 50 | 25.4 | 9.5 | 6 | 5 | 10,000 | 1.07 | 111,000 |



CK010



XP4610
(DLCコーティング)
DLC coating

コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
Inserts may have some discoloration, but it does not cause any performance problems.

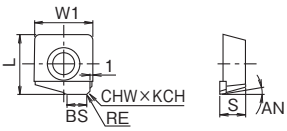
### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size IC | 厚さ S | 逃げ角 AN | RE | さらい刃(副切れ刃) BS | 超硬 Uncoated CK010 | コーティング材種 Grade of Coated Materials XP4610 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| SDHT09T308FR-NM | 4 | 9.07 | 3.97 | 15° | 0.8 | 2.5 | 7811076 | | 2,140 |
| | | | | | | | | 7818076 | 2,520 |

・被削材別推奨材質はp.1079をご参照下さい。
・Please refer to p.1079 for recommended materials by insert type.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).




※インサート取付け時の外径はDCに対して2mm小さくなります
*The outer diameter is 2 mm smaller than the DC when inserts are installed.



単結晶ダイヤモンドは外観の違いが発生する場合がありますが、性能上は全く問題ありません。
The appearance of single crystal diamond may vary, but it does not affect performance.

## ■適用インサート Inserts

（単位:mm）(Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size | | | | | 単結晶ダイヤモンド Single crystal diamond | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | | L×W1 | 厚さ S | 逃げ角 AN | CHW×KCH | さらい刃（副切れ刃） BS | DM001 | |
| SDHW09T3AZFR | 1 | 9.2×9.07 | 3.97 | 10° | 0.5×45° | 3 | 7841626 | 163,000 |

・被削材別推奨材質はp.1079をご参照下さい。
・Please refer to p.1079 for recommended materials by insert type.

**SDHW09T3AZFRは、1溝のみに取り付けてご使用下さい。**
**その他の全てのインサート取付部にはバランス取りのためSDHT09T308FR-NMのインサートを必ず装着しご使用下さい。**
Install SDHW09T3AZFR in only one flute. For all other insert slots, be sure to install SDHT09T308FR-NM inserts for balancing.

## ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body |
|---|---|---|---|
|  クランプねじ Clamping Screw | 7808110 | FS30573 (Torx 8) | PFDC φ80~φ125 |

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|
|  レンチ Wrench | 7808205 | T8-D (Torx 8) | PFDC φ80~φ125 | 1,310 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item). ※＝受注対応品 ※=Special order item

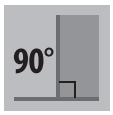
# OSG PHOENIX 6コーナ肩削り用カッタ

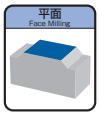
**OSG PHOENIX Indexable 6-corner Shoulder Cutter Triangle W-sided Insert Type**

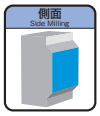
## PSTW

切削条件 Cutting Conditions | P1080

### ストレートシャンクタイプ(SS) Straight Shank Type





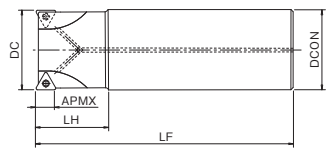





CAD

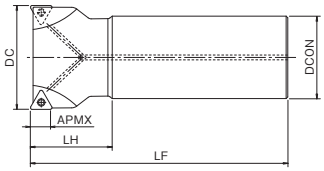


Type 1




オイルホール付き
with Coolant Hole

Type 2




オイルホール付き
with Coolant Hole

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803014 | **PSTW09R025SS25-2S** | 25 | 2 | 25 | 120 | 35 | 7.5 | 0.41 | | 1 | 36,400 |
| 7803015 | **PSTW09R025SS25-2L** | 25 | 2 | 25 | 170 | 70 | 7.5 | 0.58 | | 1 | 39,600 |
| 7803016 | **PSTW09R025SS25-3S** | 25 | 3 | 25 | 120 | 35 | 7.5 | 0.4 | | 1 | 48,700 |
| 7803017 | **PSTW09R026SS25-2L** | ★26 | 2 | 25 | 170 | 35 | 7.5 | 0.59 | | 2 | 40,100 |
| 7803018 | **PSTW09R028SS25-2L** | ★28 | 2 | 25 | 170 | 35 | 7.5 | 0.6 | | 2 | 40,700 |
| 7803019 | **PSTW09R028SS25-3S** | ★28 | 3 | 25 | 120 | 35 | 7.5 | 0.41 | | 2 | 49,700 |
| 7803020 | **PSTW09R030SS32-2L** | 30 | 2 | 32 | 190 | 90 | 7.5 | 1.02 | | 1 | 42,700 |
| 7803021 | **PSTW09R030SS32-3S** | 30 | 3 | 32 | 130 | 45 | 7.5 | 0.7 | | 1 | 51,100 |
| 7803022 | **PSTW09R032SS32-3S** | 32 | 3 | 32 | 130 | 45 | 7.5 | 0.74 | ① | 1 | 51,400 |
| 7803023 | **PSTW09R032SS32-3L** | 32 | 3 | 32 | 190 | 45 | 7.5 | 1.1 | | 1 | 55,600 |
| 7803024 | **PSTW09R032SS32-4S** | 32 | 4 | 32 | 125 | 40 | 7.5 | 0.7 | | 1 | 63,400 |
| 7803025 | **PSTW09R033SS32-3L** | ★33 | 3 | 32 | 190 | 35 | 7.5 | 1.1 | | 2 | 56,100 |
| 7803026 | **PSTW09R035SS32-3L** | ★35 | 3 | 32 | 190 | 35 | 7.5 | 1.12 | | 2 | 56,800 |
| 7803027 | **PSTW09R035SS32-4S** | ★35 | 4 | 32 | 130 | 35 | 7.5 | 0.75 | | 2 | 64,500 |
| 7803028 | **PSTW09R040SS32-4S** | 40 | 4 | 32 | 140 | 50 | 7.5 | 0.85 | | 2 | 66,900 |
| 7803029 | **PSTW09R040SS32-4L** | 40 | 4 | 32 | 190 | 45 | 7.5 | 1.15 | | 2 | 71,700 |
| 7803030 | **PSTW09R040SS32-5S** | 40 | 5 | 32 | 140 | 50 | 7.5 | 0.84 | | 2 | 79,200 |

適用インサートと部品はp.971をご覧下さい。
See p.971 for available inserts and parts.

★ 刃太タイプ
Reduced Shank Type



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

NEW SIZES

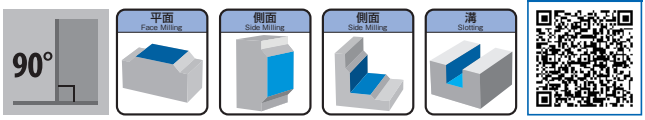
# OSG PHOENIX 6コーナ肩削り用カッタ

**OSG PHOENIX Indexable 6-corner Shoulder Cutter Triangle W-sided Insert Type**

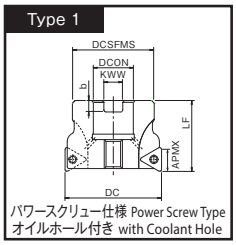
## PSTW

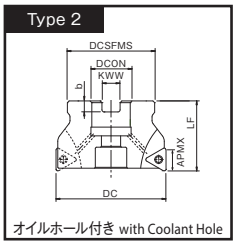
切削条件 Cutting Conditions | P1080

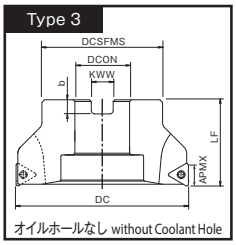
### ボアタイプ(BORE) Bore Type

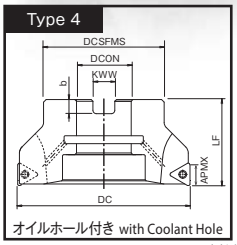





(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803031 | PSTW09R040M16-4 | 40 | 4 | 40 | 38 | 16 | 8.4 | 5.6 | 7.5 | 0.23 | ① | 2 | 63,400 |
| 7803032 | PSTW09R040M16-5 | 40 | 5 | 40 | 38 | 16 | 8.4 | 5.6 | 7.5 | 0.23 | | 2 | 75,900 |
| 7803033 | PSTW09R050M22-4 | 50 | 4 | 40 | 45 | 22 | 10.4 | 6.3 | 7.5 | 0.33 | | 2 | 76,800 |
| 7803034 | PSTW09R050M22-6 | 50 | 6 | 40 | 45 | 22 | 10.4 | 6.3 | 7.5 | 0.32 | | 2 | 88,800 |
| 7803035 | PSTW09R063M22-5 | 63 | 5 | 40 | 50 | 22 | 10.4 | 6.3 | 7.5 | 0.52 | | 2 | 78,600 |
| 7803036 | PSTW09R063M22-7 | 63 | 7 | 40 | 50 | 22 | 10.4 | 6.3 | 7.5 | 0.52 | | 2 | 104,000 |
| ※ 7802907 | PSTW09R080M25.4-7 | 80 | 7 | 50 | 60 | 25.4 | 9.5 | 6 | 7.5 | 1.07 | | 2 | 128,000 |
| ※ 7802908 | PSTW09R080M27-7 | 80 | 7 | 50 | 60 | 27 | 12.4 | 7 | 7.5 | 1.05 | | 2 | 128,000 |
| ※ 7802909 | PSTW09R100M31.7-10 | 100 | 10 | 63 | 70 | 31.75 | 12.7 | 8 | 7.5 | 2.05 | | 2 | 164,000 |
| ※ 7802910 | PSTW09R100M32-10 | 100 | 10 | 50 | 70 | 32 | 14.4 | 8 | 7.5 | 1.59 | | 2 | 164,000 |
| ※ 7802911 | PSTW09R125M38.1-12 | 125 | 12 | 63 | 90 | 38.1 | 15.9 | 10 | 7.5 | 3.01 | | 4 | 187,000 |
| ※ 7802912 | PSTW09R125M40-12 | 125 | 12 | 63 | 90 | 40 | 16.4 | 9 | 7.5 | 2.96 | | 2 | 187,000 |
| ※ 7802913 | PSTW12R050M22.2-3 | 50 | 3 | 40 | 47 | 22.225 | 8.4 | 5 | 12 | 0.32 | ② | 1 | 68,700 |
| 7803100 | PSTW12R050M22-3 | 50 | 3 | 40 | 45 | 22 | 10.4 | 6.3 | 12 | 0.3 | | 1 | 65,300 |
| 7803101 | PSTW12R050M22-4 | 50 | 4 | 40 | 45 | 22 | 10.4 | 6.3 | 12 | 0.3 | | 1 | 78,600 |
| ※ 7802914 | PSTW12R063M22.2-3 | 63 | 3 | 50 | 60 | 22.225 | 8.4 | 5 | 12 | 0.77 | | 2 | 73,900 |
| 7803102 | PSTW12R063M22-3 | 63 | 3 | 40 | 50 | 22 | 10.4 | 6.3 | 12 | 0.48 | | 2 | 70,300 |
| ※ 7802915 | PSTW12R063M25.4-5 | 63 | 5 | 50 | 60 | 25.4 | 9.5 | 6 | 12 | 0.7 | | 2 | 78,600 |
| 7803103 | PSTW12R063M22-5 | 63 | 5 | 40 | 50 | 22 | 10.4 | 6.3 | 12 | 0.46 | | 2 | 90,400 |
| 7803104 | PSTW12R080M25.4-5 | 80 | 5 | 50 | 60 | 25.4 | 9.5 | 6 | 12 | 1.08 | | 2 | 93,400 |
| ※ 7802916 | PSTW12R080M31.7-5 | 80 | 5 | 63 | 76 | 31.75 | 12.7 | 8 | 12 | 1.56 | | 2 | 109,000 |
| 7803110 | PSTW12R080M27-5 | 80 | 5 | 50 | 60 | 27 | 12.4 | 7 | 12 | 1.07 | | 2 | 93,400 |
| 7803105 | PSTW12R080M25.4-6 | 80 | 6 | 50 | 60 | 25.4 | 9.5 | 6 | 12 | 1.06 | | 2 | 121,000 |
| ※ 7802917 | PSTW12R080M31.7-6 | 80 | 6 | 63 | 76 | 31.75 | 12.7 | 8 | 12 | 1.53 | | 2 | 121,000 |
| 7803111 | PSTW12R080M27-6 | 80 | 6 | 50 | 60 | 27 | 12.4 | 7 | 12 | 1.04 | | 2 | 121,000 |
| 7803106 | PSTW12R100M31.7-5 | 100 | 5 | 50 | 70 | 31.75 | 12.7 | 8 | 12 | 1.5 | | 3 | 111,000 |
| 7803112 | PSTW12R100M32-5 | 100 | 5 | 50 | 70 | 32 | 14.4 | 8 | 12 | 1.57 | | 2 | 111,000 |
| 7803107 | PSTW12R100M31.7-7 | 100 | 7 | 50 | 70 | 31.75 | 12.7 | 8 | 12 | 1.5 | | 3 | 127,000 |
| 7803113 | PSTW12R100M32-7 | 100 | 7 | 50 | 70 | 32 | 14.4 | 8 | 12 | 1.56 | | 2 | 127,000 |
| 7803108 | PSTW12R125M38.1-7 | 125 | 7 | 63 | 90 | 38.1 | 15.9 | 10 | 12 | 3.03 | | 3 | 145,000 |
| 7803114 | PSTW12R125M40-7 | 125 | 7 | 63 | 90 | 40 | 16.4 | 9 | 12 | 2.96 | | 2 | 145,000 |
| 7803109 | PSTW12R125M38.1-9 | 125 | 9 | 63 | 90 | 38.1 | 15.9 | 10 | 12 | 3.01 | | 3 | 156,000 |
| 7803115 | PSTW12R125M40-9 | 125 | 9 | 63 | 90 | 40 | 16.4 | 9 | 12 | 2.93 | | 2 | 156,000 |

※=NEW SIZES

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

NEW SIZES

# OSG PHOENIX 6コーナ肩削り用カッタ

**OSG PHOENIX Indexable 6-corner Shoulder Cutter Triangle W-sided Insert Type**

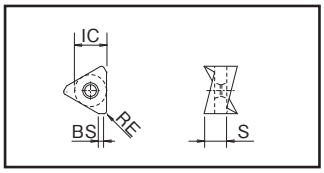
## PSTW

切削条件 Cutting Conditions | P1080



XP4610
(DLCコーティング)
DLC coating

コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。
Inserts may have some discoloration, but it does not cause any performance problems.




CAD

### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | RE | さらい刃(副切れ刃) BS | 超硬 Uncoated CK010 | コーティング材種 Grade of Coated Materials XP4610 | XC3020 | XP3025 | XC3030 | XP3035 | XP2040 | XC1015 | XP1020 | XC5040 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | TNHU090404FR-NM | 6 | 7.46 | 4.64 | 0.4 | 1.15 | 7813104 | | | | | | | | | | 2,860 |
| | | | | | | | | ※7818104 | | | | | | | | | 3,480 |
| | TNKU090404ER-GL | 6 | 7.46 | 4.64 | 0.4 | 1.2 | | | | | 7821095 | 7813101 | 7813100 | | | | 2,380 |
| | TNKU090404ER-GM | 6 | 7.46 | 4.64 | 0.4 | 1.2 | | | 7821091 | 7821092 | 7821093 | 7813097 | 7813098 | 7813099 | 7821094 | | 2,380 |
| | TNKU090408ER-GM | 6 | 7.46 | 4.64 | 0.8 | 0.9 | | | | | | 7813105 | 7813106 | | | | 2,380 |
| | TNKU090412ER-GM | 6 | 7.46 | 4.64 | 1.2 | 0.6 | | | | | | 7813107 | 7813108 | | | | 2,380 |
| | TNKU090404ER-GR | 6 | 7.46 | 4.64 | 0.4 | 1.2 | | | | | | | | 7813102 | 7821096 | | 2,380 |
| | TNKU090404ER-SM | 6 | 7.46 | 4.64 | 0.4 | 1.2 | | | | | | | | | | 7813103 | 2,940 |
| ② | TNHU120608ER-NM | 6 | 10.8 | 6.55 | 0.8 | 1.25 | 7811087 | | | | | | | | | | 3,750 |
| | | | | | | | | ※7818087 | | | | | | | | | 4,600 |
| | TNKU120608ER-GL | 6 | 10.8 | 6.55 | 0.8 | 1.5 | | | | | 7825089 | 7814089 | 7813089 | | | | 3,320 |
| | TNKU120608ER-GM | 6 | 10.8 | 6.55 | 0.8 | 1.5 | | | 7827088 | 7828088 | 7825088 | 7814088 | 7813088 | 7812088 | 7821088 | | 3,320 |
| | TNKU120612ER-GM | 6 | 10.8 | 6.55 | 1.2 | 1 | | | | | | 7814094 | 7813094 | | | | 3,320 |
| | TNKU120616ER-GM | 6 | 10.8 | 6.55 | 1.6 | 0.75 | | | | | | 7814095 | 7813095 | | | | 3,320 |
| | TNKU120620ER-GM | 6 | 10.8 | 6.55 | 2 | 0.6 | | | | | | 7814096 | 7813096 | | | | 3,320 |
| | TNKU120608ER-GR | 6 | 10.8 | 6.55 | 0.8 | 1.5 | | | | | | | | 7812090 | 7821090 | | 3,320 |
| | TNKU120608ER-SM | 6 | 10.8 | 6.55 | 0.8 | 1.5 | | | | | | | | | | 7816091 | 4,040 |

※=NEW SIZES

・被削材別推奨材質はp.1080をご参照下さい。
・Please refer to p.1080 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body |
|---|---|---|---|---|---|
|  クランプねじ Clamping Screw | 7808097 | FS30668 (Torx 8) | ① | TN*U09… | PSTW SS φ25~40<br>PSTW BORE φ40~125 |
| | 7808129 | FS40511 (Torx 15) | ② | TN*U12… | PSTW BORE φ50~125 |
|  パワースクリュー Power Screw | 7808151 | PS1031 (M10×31) | ② | TN*U12… | PSTW BORE φ50 |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
|  レンチ Wrench | 7808205 | T8-D (Torx 8) | ① | TN*U09… | PSTW SS φ25~40<br>PSTW BORE φ40~125 | 1,310 |
| | 7808208 | T15-D (Torx 15) | ② | TN*U12… | PSTW BORE φ50~125 | 1,390 |

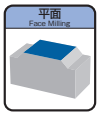
レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

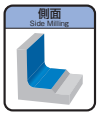
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 高送りラジアスカッタ
**OSG PHOENIX Indexable High Feed Radius Cutter**

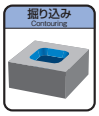
## PHC　切削条件 Cutting Conditions | P1081

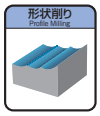
### ストレートシャンクタイプ（SS） Straight Shank Type







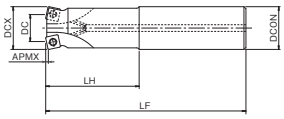





CAD

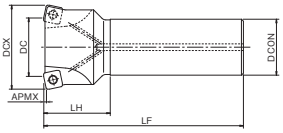


**Type 1**




オイルホール付き
with Coolant Hole

**Type 2**




オイルホール付き
with Coolant Hole

### PHC07タイプ PHC07 Type

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800750 | **PHC07R016SS16-2S** | 16 | 7.4 | 2 | 16 | 100 | 30 | 0.8 | 0.13 | ① | 1 | 31,000 |
| 7800755 | **PHC07R016SS16-2L** | 16 | 7.4 | 2 | 16 | 150 | 50 | 0.8 | 0.2 | | 1 | 33,100 |
| 7800756 | **PHC07R017SS16-2L** | ★17 | 8.4 | 2 | 16 | 150 | 25 | 0.8 | 0.21 | | 2 | 39,300 |
| 7800757 | **PHC07R018SS16-2L** | ★18 | 9.4 | 2 | 16 | 150 | 25 | 0.8 | 0.21 | | 2 | 39,300 |
| 7800751 | **PHC07R020SS20-3S** | 20 | 11.4 | 3 | 20 | 130 | 50 | 0.8 | 0.27 | | 1 | 43,300 |
| 7800758 | **PHC07R020SS20-3L** | 20 | 11.4 | 3 | 20 | 160 | 80 | 0.8 | 0.33 | | 1 | 45,200 |
| 7800759 | **PHC07R021SS20-3L** | ★21 | 12.4 | 3 | 20 | 160 | 30 | 0.8 | 0.35 | | 2 | 53,800 |
| 7800760 | **PHC07R022SS20-3L** | ★22 | 13.4 | 3 | 20 | 160 | 30 | 0.8 | 0.35 | | 2 | 53,800 |
| 7800752 | **PHC07R025SS25-4S** | 25 | 16.4 | 4 | 25 | 140 | 60 | 0.8 | 0.47 | | 1 | 55,200 |
| 7800761 | **PHC07R025SS25-4L** | 25 | 16.4 | 4 | 25 | 200 | 100 | 0.8 | 0.67 | | 1 | 57,700 |
| 7800762 | **PHC07R026SS25-4L** | ★26 | 17.4 | 4 | 25 | 200 | 40 | 0.8 | 0.67 | | 2 | 68,500 |
| 7800763 | **PHC07R028SS25-4L** | ★28 | 19.4 | 4 | 25 | 200 | 40 | 0.8 | 0.67 | | 2 | 68,500 |
| 7800753 | **PHC07R030SS32-4S** | 30 | 21.4 | 4 | 32 | 150 | 70 | 0.8 | 0.79 | | 1 | 62,600 |
| 7800764 | **PHC07R030SS32-4L** | 30 | 21.4 | 4 | 32 | 200 | 120 | 0.8 | 1.05 | | 1 | 70,700 |
| 7800754 | **PHC07R032SS32-5S** | 32 | 23.4 | 5 | 32 | 150 | 70 | 0.8 | 0.83 | | 1 | 69,000 |
| 7800765 | **PHC07R032SS32-5L** | 32 | 23.4 | 5 | 32 | 200 | 120 | 0.8 | 1.11 | | 1 | 70,700 |
| 7800766 | **PHC07R033SS32-5L** | ★33 | 24.4 | 5 | 32 | 200 | 50 | 0.8 | 1.15 | | 2 | 83,700 |
| 7800767 | **PHC07R035SS32-5L** | ★35 | 26.4 | 5 | 32 | 200 | 50 | 0.8 | 1.17 | | 2 | 83,700 |

適用インサートと部品はp.977をご覧下さい。See p.977 for available inserts and accessories.

次ページへ NEXT

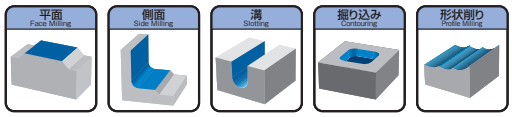
★ 刃太タイプ
Reduced Shank Type

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

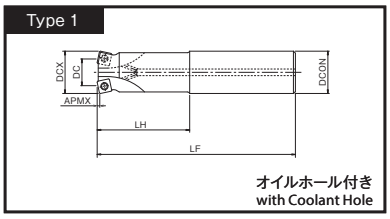
# OSG PHOENIX 高送りラジアスカッタ
OSG PHOENIX Indexable High Feed Radius Cutter

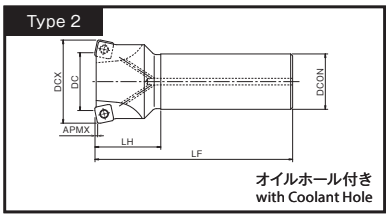
## PHC
切削条件 Cutting Conditions | P1081

### ストレートシャンクタイプ(SS) Straight Shank Type




CAD






前ページより FROM

### PHC09タイプ PHC09 Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800700 | PHC09R025SS25-2S | 25 | 13.2 | 2 | 25 | 140 | 60 | 1 | 0.43 | | 1 | 38,600 |
| 7800704 | PHC09R025SS25-2L | 25 | 13.2 | 2 | 25 | 200 | 120 | 1 | 0.61 | | 1 | 48,200 |
| 7800724 | PHC09R025SS25-2LL | 25 | 13.2 | 2 | 25 | 300 | 180 | 1 | 0.97 | | 1 | 78,400 |
| 7800701 | PHC09R025SS25-3S | 25 | 13.2 | 3 | 25 | 140 | 60 | 1 | 0.43 | | 1 | 47,700 |
| 7800705 | PHC09R025SS25-3L | 25 | 13.2 | 3 | 25 | 200 | 120 | 1 | 0.61 | | 1 | 59,100 |
| 7800742 | PHC09R026SS25-2LL | ★26 | 14.2 | 2 | 25 | 300 | 40 | 1 | 1.03 | | 2 | 78,400 |
| 7800740 | PHC09R026SS25-3L | ★26 | 14.2 | 3 | 25 | 200 | 40 | 1 | 0.65 | | 2 | 73,300 |
| 7800725 | PHC09R028SS25-2LL | ★28 | 16.2 | 2 | 25 | 300 | 40 | 1 | 1.01 | | 2 | 78,400 |
| 7800716 | PHC09R028SS25-3S | ★28 | 16.2 | 3 | 25 | 140 | 40 | 1 | 0.45 | | 2 | 58,900 |
| 7800720 | PHC09R028SS25-3L | ★28 | 16.2 | 3 | 25 | 200 | 40 | 1 | 0.66 | | 2 | 73,300 |
| 7800726 | PHC09R030SS32-2LL | 30 | 18.2 | 2 | 32 | 300 | 180 | 1 | 1.54 | | 1 | 82,400 |
| 7800717 | PHC09R030SS32-3S | 30 | 18.2 | 3 | 32 | 150 | 70 | 1 | 0.76 | | 1 | 61,600 |
| 7800721 | PHC09R030SS32-3L | 30 | 18.2 | 3 | 32 | 200 | 120 | 1 | 1 | ② | 1 | 78,400 |
| 7800727 | PHC09R032SS32-2LL | 32 | 20.2 | 2 | 32 | 300 | 180 | 1 | 1.66 | | 1 | 82,400 |
| 7800702 | PHC09R032SS32-3S | 32 | 20.2 | 3 | 32 | 150 | 70 | 1 | 0.79 | | 1 | 50,300 |
| 7800706 | PHC09R032SS32-3L | 32 | 20.2 | 3 | 32 | 200 | 120 | 1 | 1.05 | | 1 | 62,600 |
| 7800743 | PHC09R033SS32-2LL | ★33 | 21.2 | 2 | 32 | 300 | 50 | 1 | 1.71 | | 2 | 82,400 |
| 7800741 | PHC09R033SS32-3L | ★33 | 21.2 | 3 | 32 | 200 | 50 | 1 | 1.11 | | 2 | 78,400 |
| 7800728 | PHC09R035SS32-2LL | ★35 | 23.2 | 2 | 32 | 300 | 50 | 1 | 1.73 | | 2 | 82,400 |
| 7800718 | PHC09R035SS32-3S | ★35 | 23.2 | 3 | 32 | 150 | 50 | 1 | 0.83 | | 2 | 63,900 |
| 7800722 | PHC09R035SS32-3L | ★35 | 23.2 | 3 | 32 | 200 | 50 | 1 | 1.12 | | 2 | 78,400 |
| 7800729 | PHC09R040SS42-2LL | 40 | 28.2 | 2 | 42 | 300 | 70 | 1 | 2.91 | | 1 | 82,400 |
| 7800723 | PHC09R040SS42-3L | 40 | 28.2 | 3 | 42 | 250 | 70 | 1 | 2.37 | | 1 | 92,000 |
| 7800703 | PHC09R040SS32-4S | 40 | 28.2 | 4 | 32 | 150 | 50 | 1 | 0.86 | | 2 | 60,200 |
| 7800719 | PHC09R040SS42-4S | 40 | 28.2 | 4 | 42 | 150 | 50 | 1 | 1.38 | | 1 | 73,800 |
| 7800707 | PHC09R040SS32-4L | 40 | 28.2 | 4 | 32 | 250 | 50 | 1 | 1.45 | | 2 | 74,600 |

適用インサートと部品はp.977をご覧下さい。
See p.977 for available inserts and accessories.

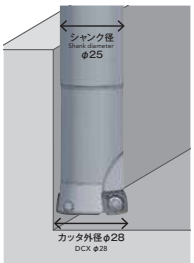
★ 刃太タイプ
Reduced Shank Type

次ページへ NEXT

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

## ★PHC刃太タイプ
**Reduced Shank Type**

例 Example




・刃太タイプは、シャンク径よりも工具外径の方が大きいため、金型部品などの深い立ち壁加工やポケット加工に最適です

・The outer diameter of the reduced shank type is larger than the shank diameter, making it highly effective in the processing of die and mold applications that require vertical wall milling or pocketing.

前ページより FROM

### PHC12タイプ PHC12 Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800730 | PHC12R030SS32-2S | 30 | 13.4 | 2 | 32 | 150 | 70 | 2 | 0.74 | | 1 | 60,000 |
| 7800733 | PHC12R030SS32-2L | 30 | 13.4 | 2 | 32 | 200 | 120 | 2 | 0.97 | | 1 | 94,100 |
| 7800736 | PHC12R030SS32-2LL | 30 | 13.4 | 2 | 32 | 300 | 180 | 2 | 1.52 | | 1 | 105,000 |
| 7800708 | PHC12R032SS32-2S | 32 | 15.4 | 2 | 32 | 150 | 70 | 2 | 0.8 | | 1 | 45,500 |
| 7800712 | PHC12R032SS32-2L | 32 | 15.4 | 2 | 32 | 200 | 120 | 2 | 1.06 | | 1 | 57,000 |
| 7800737 | PHC12R032SS32-2LL | 32 | 15.4 | 2 | 32 | 300 | 180 | 2 | 1.65 | | 1 | 105,000 |
| 7800744 | PHC12R033SS32-2L | ★33 | 16.4 | 2 | 32 | 200 | 50 | 2 | 1.11 | | 2 | 99,500 |
| 7800745 | PHC12R033SS32-2LL | ★33 | 16.4 | 2 | 32 | 300 | 50 | 2 | 1.7 | | 2 | 105,000 |
| 7800738 | PHC12R035SS32-2LL | ★35 | 18.4 | 2 | 32 | 300 | 50 | 2 | 1.71 | | 2 | 105,000 |
| 7800731 | PHC12R035SS32-3S | ★35 | 18.4 | 3 | 32 | 150 | 50 | 2 | 0.81 | ③ | 2 | 64,500 |
| 7800734 | PHC12R035SS32-3L | ★35 | 18.4 | 3 | 32 | 200 | 50 | 2 | 1.11 | | 2 | 99,500 |
| 7800739 | PHC12R040SS42-2LL | 40 | 23.4 | 2 | 42 | 300 | 70 | 2 | 2.88 | | 1 | 107,000 |
| 7800709 | PHC12R040SS32-3S | 40 | 23.4 | 3 | 32 | 150 | 50 | 2 | 0.85 | | 2 | 54,800 |
| 7800732 | PHC12R040SS42-3S | 40 | 23.4 | 3 | 42 | 150 | 50 | 2 | 1.37 | | 1 | 66,600 |
| 7800713 | PHC12R040SS32-3L | 40 | 23.4 | 3 | 32 | 250 | 50 | 2 | 1.44 | | 2 | 81,600 |
| 7800735 | PHC12R040SS42-3L | 40 | 23.4 | 3 | 42 | 250 | 70 | 2 | 2.36 | | 1 | 102,000 |
| 7800710 | PHC12R050SS42-4S | 50 | 33.4 | 4 | 42 | 150 | 50 | 2 | 1.5 | | 2 | 74,600 |
| 7800714 | PHC12R050SS42-4L | 50 | 33.4 | 4 | 42 | 250 | 50 | 2 | 2.55 | | 2 | 106,000 |
| 7800711 | PHC12R063SS42-5S | 63 | 46.4 | 5 | 42 | 150 | 50 | 2 | 1.67 | | 2 | 94,100 |
| 7800715 | PHC12R063SS42-5L | 63 | 46.4 | 5 | 42 | 250 | 50 | 2 | 2.71 | | 2 | 120,000 |

適用インサートと部品はp.977をご覧下さい。
See p.977 for available inserts and accessories.

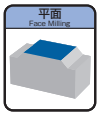
★ 刃太タイプ
Reduced Shank Type

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 高送りラジアスカッタ
**OSG PHOENIX Indexable High Feed Radius Cutter**

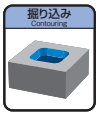
## PHC
切削条件 Cutting Conditions | P1081

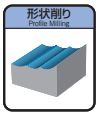
### ボアタイプ(BORE) Bore Type







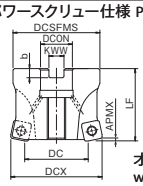





CAD

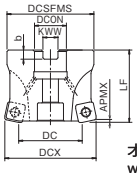


**Type 1** パワースクリュー仕様 Power Screw Type




オイルホール付き
with Coolant Hole

**Type 2**




オイルホール付き
with Coolant Hole

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800600 | **PHC09R040M16-4** | 40 | 28.2 | 4 | 40 | 38 | 16 | 8.4 | 5.6 | 1 | 0.23 | ② | 1 | 69,500 |
| 7800601 | **PHC09R050M22-5** | 50 | 38.2 | 5 | 50 | 47 | 22 | 10.4 | 6.3 | 1 | 0.43 | | 2 | 82,400 |
| 7800605 | **PHC09R050M22.2-5** | 50 | 38.2 | 5 | 50 | 47 | 22.225 | 8.4 | 5 | 1 | 0.44 | | 2 | 82,400 |
| 7800603 | **PHC09R063M22-6** | 63 | 51.2 | 6 | 50 | 60 | 22 | 10.4 | 6.3 | 1 | 0.79 | | 2 | 94,700 |
| 7800606 | **PHC09R063M22.2-6** | 63 | 51.2 | 6 | 50 | 60 | 22.225 | 8.4 | 5 | 1 | 0.79 | | 2 | 94,700 |
| 7800607 | **PHC12R040M16-3** | 40 | 23.4 | 3 | 40 | 38 | 16 | 8.4 | 5.6 | 2 | 0.21 | ③ | 1 | 65,300 |
| 7800608 | **PHC12R050M22-4** | 50 | 33.4 | 4 | 50 | 47 | 22 | 10.4 | 6.3 | 2 | 0.41 | | 2 | 78,200 |
| 7800614 | **PHC12R050M22.2-4** | 50 | 33.4 | 4 | 50 | 47 | 22.225 | 8.4 | 5 | 2 | 0.41 | | 2 | 78,200 |
| 7800610 | **PHC12R063M22-5** | 63 | 46.4 | 5 | 50 | 60 | 22 | 10.4 | 6.3 | 2 | 0.75 | | 2 | 90,100 |
| 7800615 | **PHC12R063M22.2-5** | 63 | 46.4 | 5 | 50 | 60 | 22.225 | 8.4 | 5 | 2 | 0.75 | | 2 | 90,100 |
| 7800618 | **PHC12R080M31.7-5** | 80 | 63.4 | 5 | 63 | 76 | 31.75 | 12.7 | 8 | 2 | 1.54 | | 2 | 102,000 |
| 7800612 | **PHC12R080M27-7** | 80 | 63.4 | 7 | 50 | 76 | 27 | 12.4 | 7 | 2 | 1.24 | | 2 | 109,000 |
| 7800616 | **PHC12R080M31.7-7** | 80 | 63.4 | 7 | 63 | 76 | 31.75 | 12.7 | 8 | 2 | 1.5 | | 2 | 109,000 |
| 7800617 | **PHC12R100M31.7-8** | 100 | 83.4 | 8 | 63 | 96 | 31.75 | 12.7 | 8 | 2 | 2.72 | | 2 | 120,000 |
| 7800613 | **PHC12R100M32-8** | 100 | 83.4 | 8 | 63 | 96 | 32 | 14.4 | 8 | 2 | 2.72 | | 2 | 120,000 |

適用インサートと部品はp.977をご覧下さい。
See p.977 for available inserts and accessories.

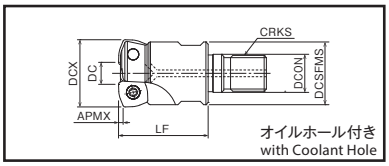
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 高送りラジアスカッタ
**OSG PHOENIX Indexable High Feed Radius Cutter**

## PHC　切削条件 Cutting Conditions | P1081

### ねじ込みタイプ(SF) Screw Fit Type






CAD

**PHC ねじ込みタイプ** Screw Fit Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 端面径 DCSFMS | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7801520 | **PHC07R016SF8-2** | 16 | 7.4 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 0.8 | 0.03 | ① | ❸ | 37,000 |
| 7801521 | **PHC07R017SF8-2** | ★17 | 8.4 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 0.8 | 0.03 | | | 37,000 |
| 7801522 | **PHC07R018SF8-2** | ★18 | 9.4 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 0.8 | 0.03 | | | 37,000 |
| 7801523 | **PHC07R020SF10-3** | 20 | 11.4 | 3 | 10.5 | M10 | 14 | 33 | 18 | 0.8 | 0.06 | | ❹ | 51,400 |
| 7801524 | **PHC07R021SF10-3** | ★21 | 12.4 | 3 | 10.5 | M10 | 14 | 33 | 18 | 0.8 | 0.06 | | | 51,400 |
| 7801525 | **PHC07R022SF10-3** | ★22 | 13.4 | 3 | 10.5 | M10 | 14 | 33 | 18 | 0.8 | 0.06 | | | 51,400 |
| 7801526 | **PHC07R025SF12-4** | 25 | 16.4 | 4 | 12.5 | M12 | 17 | 35 | 23 | 0.8 | 0.1 | | ❺ | 65,300 |
| 7801527 | **PHC07R026SF12-4** | ★26 | 17.4 | 4 | 12.5 | M12 | 17 | 35 | 23 | 0.8 | 0.1 | | | 65,300 |
| 7801528 | **PHC07R028SF12-4** | ★28 | 19.4 | 4 | 12.5 | M12 | 17 | 35 | 23 | 0.8 | 0.11 | | | 65,300 |
| 7801529 | **PHC07R030SF16-4** | 30 | 21.4 | 4 | 17 | M16 | 22 | 40 | 28 | 0.8 | 0.2 | | ❻ | 74,300 |
| 7801530 | **PHC07R032SF16-5** | 32 | 23.4 | 5 | 17 | M16 | 22 | 40 | 28 | 0.8 | 0.18 | | | 81,800 |
| 7801531 | **PHC07R033SF16-5** | ★33 | 24.4 | 5 | 17 | M16 | 22 | 40 | 28 | 0.8 | 0.18 | | | 81,800 |
| 7801532 | **PHC07R035SF16-5** | ★35 | 26.4 | 5 | 17 | M16 | 22 | 40 | 28 | 0.8 | 0.2 | | | 81,800 |
| 7801500 | **PHC09R025SF12-3** | 25 | 13.2 | 3 | 12.5 | M12 | 17 | 35 | 23 | 1 | 0.1 | ② | ❺ | 82,900 |
| 7801510 | **PHC09R026SF12-3** | ★26 | 14.2 | 3 | 12.5 | M12 | 17 | 35 | 23 | 1 | 0.11 | | | 82,900 |
| 7801501 | **PHC09R028SF12-3** | ★28 | 16.2 | 3 | 12.5 | M12 | 17 | 35 | 23 | 1 | 0.11 | | | 82,900 |
| 7801502 | **PHC09R030SF16-3** | 30 | 18.2 | 3 | 17 | M16 | 22 | 40 | 28 | 1 | 0.17 | | ❻ | 90,900 |
| 7801503 | **PHC09R032SF16-3** | 32 | 20.2 | 3 | 17 | M16 | 22 | 40 | 28 | 1 | 0.18 | | | 90,900 |
| 7801511 | **PHC09R033SF16-3** | ★33 | 21.2 | 3 | 17 | M16 | 22 | 40 | 28 | 1 | 0.19 | | | 90,900 |
| 7801504 | **PHC09R035SF16-3** | ★35 | 23.2 | 3 | 17 | M16 | 22 | 40 | 28 | 1 | 0.19 | | | 90,900 |
| 7801505 | **PHC09R040SF16-4** | 40 | 28.2 | 4 | 17 | M16 | 22 | 40 | 28 | 1 | 0.22 | | | 113,000 |
| 7801506 | **PHC12R030SF16-2** | 30 | 13.4 | 2 | 17 | M16 | 22 | 40 | 28 | 2 | 0.17 | ③ | ❻ | 82,900 |
| 7801507 | **PHC12R032SF16-2** | 32 | 15.4 | 2 | 17 | M16 | 22 | 40 | 28 | 2 | 0.18 | | | 82,900 |
| 7801512 | **PHC12R033SF16-2** | ★33 | 16.4 | 2 | 17 | M16 | 22 | 40 | 28 | 2 | 0.19 | | | 101,000 |
| 7801508 | **PHC12R035SF16-3** | ★35 | 18.4 | 3 | 17 | M16 | 22 | 40 | 28 | 2 | 0.18 | | | 101,000 |
| 7801509 | **PHC12R040SF16-3** | 40 | 23.4 | 3 | 17 | M16 | 22 | 40 | 28 | 2 | 0.22 | | | 103,000 |

シャンクホルダ・ホルダについてはp.1028をご覧下さい。
See page 1028 for shank holders.

★ 刃太タイプ
Reduced Shank Type

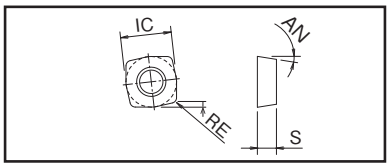
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 高送りラジアスカッタ
**OSG PHOENIX Indexable High Feed Radius Cutter**

## PHC

切削条件 Cutting Conditions | P1081






CAD

### ■適用インサート Inserts

（単位:mm）(Unit:mm)

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials XC3020 | XP3025 | XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XC5035 | XC5040 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SPMT070305SR-GM | 4 | 7 | 2.75 | 11° | 0.5 | 7827092 | 7828092 | 7825092 | 7814092 | 7826092 | 7813092 | 7812092 | | | 1,410 |
| | SPMT070305ER-SM | 4 | 7 | 2.75 | 11° | 0.5 | | | | | | | | | 7816093 | 2,590 |
| ② | SDMT09T308SR-GM | 4 | 9.52 | 3.97 | 15° | 0.8 | 7827020 | 7828020 | 7825020 | 7814020 | 7826020 | 7813020 | 7812020 | | | 1,570 |
| | SDMT09T308ER-SM | 4 | 9.52 | 3.97 | 15° | 0.8 | | | | | | | | 7815021 | 7816021 | 2,860 |
| ③ | SXMT120410SR-GM | 4 | 12.7 | 4.76 | 9° | 1 | 7827022 | 7828022 | 7825022 | 7814022 | 7826022 | 7813022 | 7812022 | | | 1,820 |
| | SXMT120410ER-SM | 4 | 12.7 | 4.76 | 9° | 1 | | | | | | | | 7815023 | 7816023 | 3,320 |

・被削材別推奨材質はp.1081をご参照下さい。
・Please refer to p.1081 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body |
|---|---|---|---|---|---|
| クランプねじ Clamping Screw | 7808105 | FS25550 (Torx 8) | ① | SPMT07··· | PHC SS/SF φ16~35 |
| | 7808111 | FS35572 (Torx 15) | ② | SDMT09··· | PHC SS/SF φ25~35 |
| | 7808112 | FS35586 (Torx 15) | | | PHC SS/SF φ40<br>PHC BORE φ40~63 |
| | 7808113 | FS45510 (Torx 20) | ③ | SXMT12··· | PHC SS/SF φ30~63<br>PHC BORE φ40~100 |
| パワースクリュー Power Screw | 7808150 | PS0830 (M8×30) | ② | SDMT09··· | PHC BORE φ40 |
| | | | ③ | SXMT12··· | |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| レンチ Wrench | 7808205 | T8-D (Torx 8) | ① | SPMT07··· | PHCSS/SF φ16~35 | 1,310 |
| | 7808208 | T15-D (Torx 15) | ② | SDMT09··· | PHC SS/SF φ25~40<br>PHC BORE φ40~63 | 1,390 |
| | 7808209 | T20-D (Torx 20) | ③ | SXMT12··· | PHC SS/SF φ30~63<br>PHC BORE φ40~100 | 1,390 |

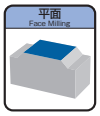
レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

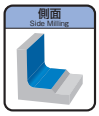


在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

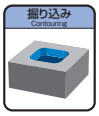
# OSG PHOENIX 高送りラジアスカッタ
**OSG PHOENIX Indexable Deep Feed Radius Cutter**

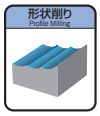
## PDR　切削条件 Cutting Conditions | P1083







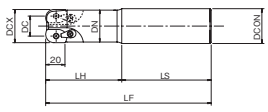





CAD

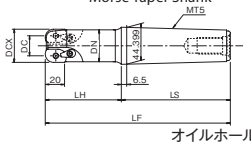


**Type 1　ストレートシャンク**
Straitht Shank



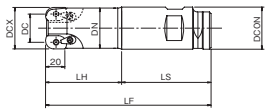

オイルホールなし
without Coolant Hole

**Type 2　モールステーパシャンク**
Morse Taper Shank




オイルホールなし
without Coolant Hole

**Type 3　コンビネーションシャンク**
Combination Shank




オイルホールなし
without Coolant Hole

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | 首径 DN | シャンク長 LS | 重量 (kg) | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800000 | **PDR20R040SS42-2S** | 40 | 20 | 2 | 42 | 150 | 50 | 38.9 | 100 | 1.46 | 1 | 57,000 |
| 7800001 | **PDR20R040MT5M16-2S** | 40 | 20 | 2 | MT5-M16 | 256 | 120 | 38.9 | 136 | 2.48 | 2 | 86,100 |
| 7800003 | **PDR20R040MT5M24-2S** | 40 | 20 | 2 | MT5-M24 | 256 | 120 | 38.9 | 136 | 2.3 | 2 | 86,100 |
| 7800009 | **PDR20R040SS42-2L** | 40 | 20 | 2 | 42 | 250 | 150 | 38.9 | 100 | 2.44 | 1 | 77,800 |
| 7800010 | **PDR20R040MT5M16-2L** | 40 | 20 | 2 | MT5-M16 | 306 | 170 | 38.9 | 136 | 2.97 | 2 | 104,000 |
| 7800012 | **PDR20R040MT5M24-2L** | 40 | 20 | 2 | MT5-M24 | 306 | 170 | 38.9 | 136 | 2.82 | 2 | 104,000 |
| 7800004 | **PDR20R050SS42-3S** | 50 | 30 | 3 | 42 | 150 | 50 | 48.5 | 100 | 1.55 | 1 | 77,600 |
| 7800008 | **PDR20R050CN50.8-3S** | 50 | 30 | 3 | CN50.8 | 150 | 65 | 48.5 | 85 | 2.05 | 3 | 90,100 |
| 7800005 | **PDR20R050MT5M16-3S** | 50 | 30 | 3 | MT5-M16 | 256 | 120 | 48.5 | 136 | 2.92 | 2 | 107,000 |
| 7800007 | **PDR20R050MT5M24-3S** | 50 | 30 | 3 | MT5-M24 | 256 | 120 | 48.5 | 136 | 2.71 | 2 | 107,000 |
| 7800013 | **PDR20R050SS42-3L** | 50 | 30 | 3 | 42 | 250 | 150 | 48.5 | 100 | 3.03 | 1 | 94,600 |
| 7800017 | **PDR20R050CN50.8-3L** | 50 | 30 | 3 | CN50.8 | 250 | 165 | 48.5 | 85 | 3.5 | 3 | 110,000 |
| 7800014 | **PDR20R050MT5M16-3L** | 50 | 30 | 3 | MT5-M16 | 306 | 170 | 48.5 | 136 | 3.63 | 2 | 121,000 |
| 7800016 | **PDR20R050MT5M24-3L** | 50 | 30 | 3 | MT5-M24 | 306 | 170 | 48.5 | 136 | 3.49 | 2 | 121,000 |

適用インサートと部品はp.979をご覧下さい。
See p.979 for available inserts and accessories.

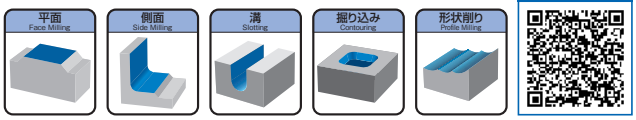
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 高送りラジアスカッタ
**OSG PHOENIX Indexable Deep Feed Radius Cutter**

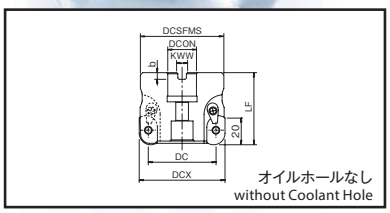
## PDR
切削条件 Cutting Conditions | P1083

### ボアタイプ(BORE) Bore Type





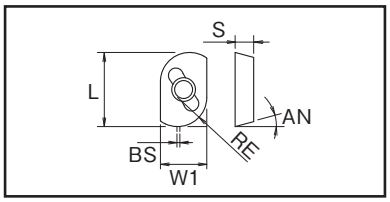

CAD



オイルホールなし
without Coolant Hole

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | 重量 (kg) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800057 | **PDR20R063M22-3** | 63 | 43 | 3 | 63 | 60 | 22 | 10.4 | 6.3 | 0.97 | 71,400 |
| 7800050 | **PDR20R063M22.2-3** | 63 | 43 | 3 | 63 | 60 | 22.225 | 8.4 | 5 | 0.97 | 71,400 |
| 7800058 | **PDR20R063M22-4** | 63 | 43 | 4 | 63 | 60 | 22 | 10.4 | 6.3 | 0.88 | 86,400 |
| 7800051 | **PDR20R063M22.2-4** | 63 | 43 | 4 | 63 | 60 | 22.225 | 8.4 | 5 | 0.88 | 86,400 |
| 7800059 | **PDR20R080M27-4** | 80 | 60 | 4 | 63 | 76 | 27 | 12.4 | 7 | 1.6 | 117,000 |
| 7800052 | **PDR20R080M31.7-4** | 80 | 60 | 4 | 63 | 76 | 31.75 | 12.7 | 8 | 1.49 | 117,000 |
| 7800060 | **PDR20R080M27-5** | 80 | 60 | 5 | 63 | 76 | 27 | 12.4 | 7 | 1.51 | 132,000 |
| 7800053 | **PDR20R080M31.7-5** | 80 | 60 | 5 | 63 | 76 | 31.75 | 12.7 | 8 | 1.39 | 132,000 |
| 7800054 | **PDR20R100M31.7-5** | 100 | 80 | 5 | 63 | 96 | 31.75 | 12.7 | 8 | 2.55 | 150,000 |
| 7800061 | **PDR20R100M32-5** | 100 | 80 | 5 | 63 | 96 | 32 | 14.4 | 8 | 2.56 | 150,000 |
| 7800055 | **PDR20R100M31.7-6** | 100 | 80 | 6 | 63 | 96 | 31.75 | 12.7 | 8 | 2.46 | 176,000 |
| 7800062 | **PDR20R100M32-6** | 100 | 80 | 6 | 63 | 96 | 32 | 14.4 | 8 | 2.46 | 176,000 |
| 7800056 | **PDR20R125M31.7-6** | 125 | 105 | 6 | 63 | 100 | 31.75 | 12.7 | 8 | 3.78 | 195,000 |
| 7800063 | **PDR20R125M40-6** | 125 | 105 | 6 | 63 | 100 | 40 | 16.4 | 9 | 3.58 | 195,000 |




### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | さらい刃(副切れ刃) BS | コーティング材種 Grade of Coated Materials XP3930 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ADMT2006100PDR-GM | 2 | 24.18×16 | 6.35 | 15° | 10 | 1 | 7810000 | 3,020 |

・被削材別推奨材質はp.1083をご参照下さい。
・Please refer to p.1083 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | 7808001 | CSPB-5 (Torx 20IP) |
| 押え金セット (押え金、ワッシャー、クランプねじ) Clamping set (clamp, washer, and clamping screw) | 7808002 | CSY-20 |

| | ツールNo. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
| T型レンチ T-Wrench | 7808000 | 20IP-T (Torx 20IP) | 2,780 |

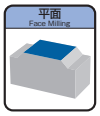
レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

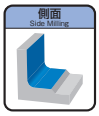
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 丸駒カッタ
**OSG PHOENIX Indexable Radius Cutter**

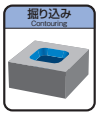
## PRC
切削条件 Cutting Conditions | P1084

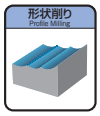
### ストレートシャンクタイプ（SS） Straight Shank Type







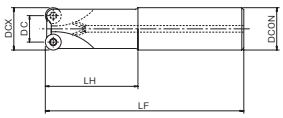





CAD

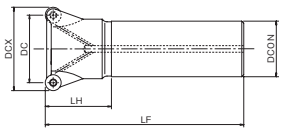


**Type 1**




オイルホール付き
with Coolant Hole

**Type 2**




オイルホール付き
with Coolant Hole

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800300 | **PRC10R020SS20-2S** | 20 | 10 | 2 | 20 | 130 | 50 | 0.27 | | 1 | 40,700 |
| 7800303 | **PRC10R020SS20-2L** | 20 | 10 | 2 | 20 | 180 | 80 | 0.38 | | 1 | 42,700 |
| 7800301 | **PRC10R025SS25-3S** | 25 | 15 | 3 | 25 | 140 | 60 | 0.44 | ① | 1 | 51,600 |
| 7800304 | **PRC10R025SS25-3L** | 25 | 15 | 3 | 25 | 200 | 120 | 0.62 | | 1 | 54,500 |
| 7800302 | **PRC10R032SS32-4S** | 32 | 22 | 4 | 32 | 150 | 70 | 0.8 | | 1 | 60,000 |
| 7800305 | **PRC10R032SS32-4L** | 32 | 22 | 4 | 32 | 200 | 120 | 1.05 | | 1 | 63,400 |
| 7800322 | **PRC12R024SS25-2S** | 24 | 12 | 2 | 25 | 140 | 60 | 0.44 | | 1 | 56,800 |
| 7800323 | **PRC12R024SS25-2L** | 24 | 12 | 2 | 25 | 180 | 100 | 0.56 | | 1 | 62,300 |
| 7800318 | **PRC12R030SS32-2S** | 30 | 18 | 2 | 32 | 150 | 70 | 0.75 | | 1 | 88,300 |
| 7800319 | **PRC12R030SS32-2L** | 30 | 18 | 2 | 32 | 200 | 120 | 0.96 | | 1 | 95,300 |
| 7800306 | **PRC12R032SS32-2S** | 32 | 20 | 2 | 32 | 150 | 70 | 0.79 | | 1 | 59,600 |
| 7800309 | **PRC12R032SS32-2L** | 32 | 20 | 2 | 32 | 200 | 120 | 1.04 | | 1 | 64,700 |
| 7800320 | **PRC12R032SS32-3S** | 32 | 20 | 3 | 32 | 150 | 70 | 0.78 | ② | 1 | 92,000 |
| 7800321 | **PRC12R032SS32-3L** | 32 | 20 | 3 | 32 | 200 | 120 | 1.02 | | 1 | 98,000 |
| 7800307 | **PRC12R040SS32-3S** | 40 | 28 | 3 | 32 | 150 | 50 | 0.88 | | 2 | 74,300 |
| 7800310 | **PRC12R040SS32-3L** | 40 | 28 | 3 | 32 | 250 | 50 | 1.49 | | 2 | 79,200 |
| 7800308 | **PRC12R050SS42-4S** | 50 | 38 | 4 | 42 | 150 | 50 | 1.52 | | 2 | 85,900 |
| 7800311 | **PRC12R050SS42-4L** | 50 | 38 | 4 | 42 | 250 | 50 | 2.58 | | 2 | 91,000 |
| 7800324 | **PRC16R032SS32-2S** | 32 | 16 | 2 | 32 | 150 | 70 | 0.78 | | 1 | 58,600 |
| 7800325 | **PRC16R032SS32-2L** | 32 | 16 | 2 | 32 | 200 | 120 | 1.05 | | 1 | 63,900 |
| 7800312 | **PRC16R040SS32-2S** | 40 | 24 | 2 | 32 | 150 | 50 | 0.85 | | 2 | 65,500 |
| 7800315 | **PRC16R040SS32-2L** | 40 | 24 | 2 | 32 | 250 | 50 | 1.46 | ③ | 2 | 78,100 |
| 7800313 | **PRC16R050SS42-3S** | 50 | 34 | 3 | 42 | 150 | 50 | 0.49 | | 2 | 72,700 |
| 7800316 | **PRC16R050SS42-3L** | 50 | 34 | 3 | 42 | 250 | 50 | 2.55 | | 2 | 94,100 |
| 7800314 | **PRC16R063SS42-4S** | 63 | 47 | 4 | 42 | 150 | 50 | 1.63 | | 2 | 82,100 |
| 7800317 | **PRC16R063SS42-4L** | 63 | 47 | 4 | 42 | 250 | 50 | 2.69 | | 2 | 102,000 |

適用インサートと部品はp.983をご覧下さい。
See p.983 for available inserts and accessories.

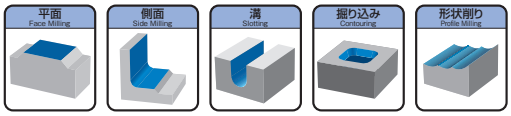
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 丸駒カッタ
**OSG PHOENIX Indexable Radius Cutter**

## PRC
切削条件 Cutting Conditions | P1084

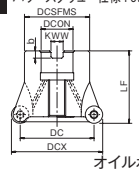
### ボアタイプ（BORE） Bore Type





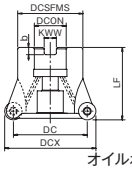

CAD

**Type 1** パワースクリュー仕様 Power Screw Type



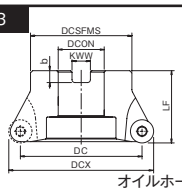

オイルホール付き
with Coolant Hole

**Type 2**




オイルホール付き
with Coolant Hole

**Type 3**




オイルホールなし
without Coolant Hole

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 深さ b | 重量 (kg) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7800200 | **PRC12R050M22-4** | 50 | 38 | 4 | 40 | 45 | 22 | 10.4 | 6.3 | 0.27 | ② | 2 | 63,400 |
| 7800204 | **PRC12R050M22-5** | 50 | 38 | 5 | 40 | 45 | 22 | 10.4 | 6.3 | 0.29 | | 2 | 74,100 |
| 7800201 | **PRC12R063M22-4** | 63 | 51 | 4 | 40 | 50 | 22 | 10.4 | 6.3 | 0.43 | | 2 | 69,800 |
| 7800206 | **PRC12R063M22-6** | 63 | 51 | 6 | 40 | 50 | 22 | 10.4 | 6.3 | 0.44 | | 2 | 92,300 |
| 7800209 | **PRC12R080M25.4-5** | 80 | 68 | 5 | 50 | 60 | 25.4 | 9.5 | 6 | 0.85 | | 2 | 84,000 |
| 7800202 | **PRC12R080M27-5** | 80 | 68 | 5 | 50 | 60 | 27 | 12.4 | 7 | 0.83 | | 2 | 84,000 |
| 7800211 | **PRC12R080M25.4-8** | 80 | 68 | 8 | 50 | 60 | 25.4 | 9.5 | 6 | 0.93 | | 2 | 113,000 |
| 7800207 | **PRC12R080M27-8** | 80 | 68 | 8 | 50 | 60 | 27 | 12.4 | 7 | 0.92 | | 2 | 113,000 |
| 7800210 | **PRC12R100M31.7-6** | 100 | 88 | 6 | 50 | 70 | 31.75 | 12.7 | 8 | 1.22 | | 3 | 93,000 |
| 7800203 | **PRC12R100M32-6** | 100 | 88 | 6 | 50 | 70 | 32 | 14.4 | 8 | 1.36 | | 2 | 93,000 |
| 7800212 | **PRC12R100M31.7-10** | 100 | 88 | 10 | 50 | 70 | 31.75 | 12.7 | 8 | 1.29 | | 3 | 137,000 |
| 7800208 | **PRC12R100M32-10** | 100 | 88 | 10 | 50 | 70 | 32 | 14.4 | 8 | 1.43 | | 2 | 137,000 |
| 7800213 | **PRC16R050M22-3** | 50 | 34 | 3 | 40 | 45 | 22 | 10.4 | 6.3 | 0.28 | ③ | 1 | 65,000 |
| 7800214 | **PRC16R063M22-5** | 63 | 47 | 5 | 40 | 50 | 22 | 10.4 | 6.3 | 0.37 | | 2 | 94,100 |
| 7800218 | **PRC16R080M25.4-6** | 80 | 64 | 6 | 50 | 60 | 25.4 | 9.5 | 6 | 0.84 | | 2 | 115,000 |
| 7800216 | **PRC16R080M27-6** | 80 | 64 | 6 | 50 | 60 | 27 | 12.4 | 7 | 0.83 | | 2 | 115,000 |
| 7800219 | **PRC16R100M31.7-7** | 100 | 84 | 7 | 50 | 70 | 31.75 | 12.7 | 8 | 1.2 | | 3 | 134,000 |
| 7800217 | **PRC16R100M32-7** | 100 | 84 | 7 | 50 | 70 | 32 | 14.4 | 8 | 1.32 | | 2 | 134,000 |

適用インサートと部品はp.983をご覧下さい。
See p.983 for available inserts and accessories.

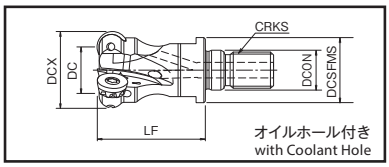
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 丸駒カッタ
**OSG PHOENIX Indexable Radius Cutter**

## PRC
切削条件 Cutting Conditions | P1084

### ねじ込みタイプ(SF) Screw Fit Type






CAD

**PRC ねじ込みタイプ** Screw Fit Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 端面径 DCSFMS | 重量 (kg) | 適用インサート Applicable Inserts | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7801700 | **PRC10R020SF10-2** | 20 | 10 | 2 | 10.5 | M10 | 14 | 33 | 18 | 0.06 | | ❹ | 63,100 |
| 7801701 | **PRC10R025SF12-3** | 25 | 15 | 3 | 12.5 | M12 | 17 | 35 | 23 | 0.09 | | ❺ | 78,200 |
| 7801702 | **PRC10R030SF16-3** | 30 | 20 | 3 | 17 | M16 | 22 | 40 | 28 | 0.16 | ① | | 86,700 |
| 7801703 | **PRC10R032SF16-4** | 32 | 22 | 4 | 17 | M16 | 22 | 40 | 28 | 0.17 | | ❻ | 96,600 |
| 7801704 | **PRC10R040SF16-4** | 40 | 30 | 4 | 17 | M16 | 22 | 40 | 28 | 0.21 | | | 107,000 |
| 7801705 | **PRC12R030SF16-2** | 30 | 18 | 2 | 17 | M16 | 22 | 40 | 28 | 0.16 | | | 92,500 |
| 7801706 | **PRC12R032SF16-3** | 32 | 20 | 3 | 17 | M16 | 22 | 40 | 28 | 0.16 | ② | ❻ | 95,800 |
| 7801707 | **PRC12R040SF16-3** | 40 | 28 | 3 | 17 | M16 | 22 | 40 | 28 | 0.22 | | | 95,800 |

シャンクホルダ・ホルダについてはp.1028をご覧下さい。
See page 1028 for shank holders.



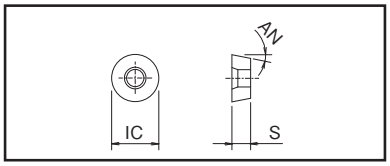
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 丸駒カッタ
**OSG PHOENIX Indexable Radius Cutter**

## PRC

切削条件 Cutting Conditions | P1084






CAD

### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| | 呼び Designation | コーナ(切れ刃)数 No. of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | 超硬 Uncoated CK010 | コーティング材種 Grade of Coated Materials XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XC5035 | XC5040 | XP6015 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RPHT10T3MOFN-NM | 8 | 10 | 3.97 | 11° | 7811009 | | | | | | | | | 1,790 |
| | RPHW10T3MOSN | 8 | 10 | 3.97 | 11° | | 7825017 | | | | | | | | 1,820 |
| | | | | | | | | 7814030 | | | | | | | 1,570 |
| | RPHW10T3MOEN | 8 | 10 | 3.97 | 11° | | | | | | 7812017 | | | | 1,820 |
| ① | RPHT10T3MOEN-GL | 8 | 10 | 3.97 | 11° | | 7825008 | 7814008 | 7826008 | 7813008 | | | | | 1,820 |
| | RPHT10T3MOEN-GM | 8 | 10 | 3.97 | 11° | | 7825009 | 7814009 | | | | | | | 1,820 |
| | RPHT10T3MOEN-SM | 4 | 10 | 3.97 | 11° | | | | | | | 7815010＊ | | | 3,080 |
| | RPHT10T3M8EN-SM | 8 | 10 | 3.97 | 11° | | | | | | | 7815050 | 7816050 | | 3,080 |
| | RPMT10T3M8EN-HR | 8 | 10 | 3.97 | 11° | | | | | | | | | 7824083 | 1,820 |
| | RPHT1204MOFN-NM | 8 | 12 | 4.76 | 11° | 7811013 | | | | | | | | | 1,820 |
| | RPHW1204MOSN | 8 | 12 | 4.76 | 11° | | 7825018 | | | | 7812018 | | | | 1,870 |
| | | | | | | | | 7814018 | | | | | | | 1,640 |
| ② | RPHT1204MOEN-GL | 8 | 12 | 4.76 | 11° | | | | 7826011 | 7813011 | | | | | 1,870 |
| | RPHT1204MOEN-GM | 8 | 12 | 4.76 | 11° | | 7825011 | 7814011 | | | | | | | 1,870 |
| | RPHT1204M8EN-SM | 8 | 12 | 4.76 | 11° | | | | | | | 7815051 | 7816051 | | 3,290 |
| | RPMT1204M8EN-HR | 8 | 12 | 4.76 | 11° | | | | | | | | | 7824084 | 1,870 |
| | RPHT1605MOFN-NM | 8 | 16 | 5.56 | 11° | 7811016 | | | | | | | | | 2,220 |
| | RPHW1605MOSN | 8 | 16 | 5.56 | 11° | | 7825019 | | | | 7812019 | | | | 2,330 |
| | | | | | | | | 7814019 | | | | | | | 2,010 |
| ③ | RPHT1605MOEN-GL | 8 | 16 | 5.56 | 11° | | | | 7826014 | 7813014 | | | | | 2,330 |
| | RPHT1605MOEN-SM | 4 | 16 | 5.56 | 11° | | | | | | | 7815015＊ | | | 4,760 |
| | RPHT1605M8EN-SM | 8 | 16 | 5.56 | 11° | | | | | | | 7815052 | 7816052 | | 4,730 |

・被削材別推奨材質はp.1084をご参照下さい。
・Please refer to p.1084 for recommended materials by insert type.

＊印は在庫無くなり次第、廃番となります。
＊Marked insert will be discontinued when it is out of stock.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | | 適用インサート Applicable Inserts | 適用ボディ Applicable Body |
|---|---|---|---|---|---|
| クランプねじ Clamping Screw | 7808116 | FS30573A (Torx 10) | ① | RPH*10… | PRC SS/SF φ20～40 |
| | 7808112 | FS35586 (Torx 15) | ② | RPH*12… | PRC SS/SF φ32～50 PRC BORE φ50～100 |
| | 7808113 | FS45510 (Torx 20) | ③ | RPH*16… | PRC SS/SF φ32～63 PRC BORE φ50～100 |
| パワースクリュー Power Screw | 7808151 | PS1031 (M10×31) | ③ | RPH*16… | PRC BORE φ50 |

| | ツールNo. EDP No. | 呼び Designation | | 適用インサート Applicable Inserts | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| レンチ Wrench | 7808207 | T10-D (Torx 10) | ① | RPH*10… | PRC SS/SF φ20～40 | 1,310 |
| | 7808208 | T15-D (Torx 15) | ② | RPH*12… | PRC SS/SF φ32～50 PRC BORE φ50～100 | 1,390 |
| | 7808209 | T20-D (Torx 20) | ③ | RPH*16… | PRC SS/SF φ32～63 PRC BORE φ50～100 | 1,390 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX アルミ合金用仕上げカッタ
**OSG PHOENIX Indexable Finishing Cutter for Aluminum Alloys**

## PFAL

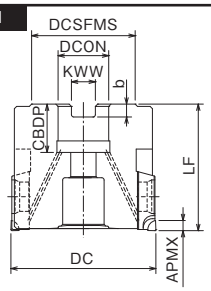
切削条件 Cutting Conditions | P1085



平面 Face Milling

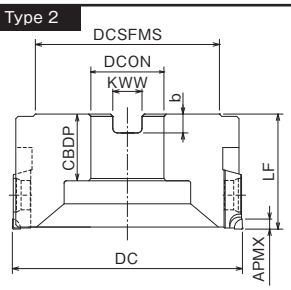
CAD

Type 1




オイルホール付き with Coolant Hole

Type 2




オイルホールなし without Coolant Hole

Type2: 内部クーラントを使用する際は市販のクーラント穴付きクランプボルトをご使用下さい。
For the use of internal coolant, please use a clamping bolt with coolant holes sold in the market.

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | カッタ高さ LF | 取付け穴高さ CBDP | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | 最高回転数 RPMX (min-1) | 重量 (kg) | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803600 | **PFAL04R050M16-5** | 50 | 5 | 55 | 20 | 40 | 16 | 8.4 | 5.6 | 32,000 | 0.27 | 1 | 106,000 |
| 7803601 | **PFAL04R063M22-6** | 63 | 6 | 55 | 21 | 45 | 22 | 10.4 | 6.3 | 25,000 | 0.4 | 1 | 134,000 |
| 7803602 | **PFAL04R063M22-8** | 63 | 8 | 55 | 21 | 45 | 22 | 10.4 | 6.3 | 25,000 | 0.43 | 1 | 145,000 |
| 7803603 | **PFAL04R080M25.4-8** | 80 | 8 | 50 | 28 | 70 | 25.4 | 9.5 | 6 | 19,800 | 0.53 | 2 | 168,000 |
| 7803604 | **PFAL04R080M27-8** | 80 | 8 | 50 | 28 | 70 | 27 | 12.4 | 7 | 19,800 | 0.52 | 2 | 168,000 |
| 7803605 | **PFAL04R080M25.4-10** | 80 | 10 | 50 | 28 | 70 | 25.4 | 9.5 | 6 | 19,800 | 0.55 | 2 | 176,000 |
| 7803606 | **PFAL04R080M27-10** | 80 | 10 | 50 | 28 | 70 | 27 | 12.4 | 7 | 19,800 | 0.54 | 2 | 176,000 |
| 7803607 | **PFAL04R100M25.4-8** | 100 | 8 | 50 | 28 | 80 | 25.4 | 9.5 | 6 | 15,800 | 0.86 | 2 | 211,000 |
| 7803608 | **PFAL04R100M27-8** | 100 | 8 | 50 | 28 | 80 | 27 | 12.4 | 7 | 15,800 | 0.83 | 2 | 211,000 |
| 7803609 | **PFAL04R100M31.7-8** | 100 | 8 | 50 | 32 | 80 | 31.75 | 12.7 | 8 | 15,800 | 0.86 | 2 | 211,000 |
| 7803610 | **PFAL04R100M32-8** | 100 | 8 | 50 | 28 | 80 | 32 | 14.4 | 8.2 | 15,800 | 0.78 | 2 | 211,000 |
| 7803611 | **PFAL04R100M25.4-12** | 100 | 12 | 50 | 28 | 80 | 25.4 | 9.5 | 6 | 15,800 | 0.9 | 2 | 240,000 |
| 7803612 | **PFAL04R100M27-12** | 100 | 12 | 50 | 28 | 80 | 27 | 12.4 | 7 | 15,800 | 0.87 | 2 | 240,000 |
| 7803613 | **PFAL04R100M31.7-12** | 100 | 12 | 50 | 32 | 80 | 31.75 | 12.7 | 8 | 15,800 | 0.9 | 2 | 240,000 |
| 7803614 | **PFAL04R100M32-12** | 100 | 12 | 50 | 28 | 80 | 32 | 14.4 | 8.2 | 15,800 | 0.82 | 2 | 240,000 |
| 7803615 | **PFAL04R125M25.4-10** | 125 | 10 | 50 | 28 | 80 | 25.4 | 9.5 | 6 | 12,600 | 1.35 | 2 | 278,000 |
| 7803616 | **PFAL04R125M27-10** | 125 | 10 | 50 | 28 | 80 | 27 | 12.4 | 7 | 12,600 | 1.33 | 2 | 278,000 |
| 7803617 | **PFAL04R125M38.1-10** | 125 | 10 | 63 | 36 | 80 | 38.1 | 15.9 | 10 | 12,600 | 1.3 | 2 | 278,000 |
| 7803618 | **PFAL04R125M40-10** | 125 | 10 | 63 | 30 | 85 | 40 | 16.4 | 9.2 | 12,600 | 1.26 | 2 | 278,000 |
| 7803619 | **PFAL04R125M25.4-16** | 125 | 16 | 50 | 27 | 80 | 25.4 | 9.5 | 6 | 12,600 | 1.42 | 2 | 315,000 |
| 7803620 | **PFAL04R125M27-16** | 125 | 16 | 50 | 28 | 80 | 27 | 12.4 | 7 | 12,600 | 1.41 | 2 | 315,000 |
| 7803621 | **PFAL04R125M38.1-16** | 125 | 16 | 63 | 36 | 80 | 38.1 | 15.9 | 10 | 12,600 | 1.38 | 2 | 315,000 |
| 7803622 | **PFAL04R125M40-16** | 125 | 16 | 63 | 30 | 85 | 40 | 16.4 | 9.2 | 12,600 | 1.33 | 2 | 315,000 |
| 7803623 | **PFAL04R160M25.4-12** | 160 | 12 | 50 | 28 | 80 | 25.4 | 9.5 | 6 | 10,000 | 1.98 | 2 | 353,000 |
| 7803624 | **PFAL04R160M27-12** | 160 | 12 | 50 | 28 | 80 | 27 | 12.4 | 7 | 10,000 | 1.98 | 2 | 353,000 |
| 7803625 | **PFAL04R160M40-12** | 160 | 12 | 63 | 30 | 85 | 40 | 16.4 | 9.2 | 10,000 | 2.1 | 2 | 353,000 |
| 7803626 | **PFAL04R160M50.8-12** | 160 | 12 | 63 | 38 | 100 | 50.8 | 19.1 | 11 | 10,000 | 2.15 | 2 | 353,000 |
| 7803629 | **PFAL04R160M25.4-20** | 160 | 20 | 50 | 28 | 80 | 25.4 | 9.5 | 6 | 10,000 | 1.98 | 2 | 390,000 |
| 7803630 | **PFAL04R160M27-20** | 160 | 20 | 50 | 28 | 80 | 27 | 12.4 | 7 | 10,000 | 1.98 | 2 | 390,000 |
| 7803627 | **PFAL04R160M40-20** | 160 | 20 | 63 | 30 | 85 | 40 | 16.4 | 9.2 | 10,000 | 2.2 | 2 | 390,000 |
| 7803628 | **PFAL04R160M50.8-20** | 160 | 20 | 63 | 38 | 100 | 50.8 | 19.1 | 11 | 10,000 | 2.24 | 2 | 390,000 |

・測定器による刃先高さの調整を行って下さい。
・APMXについてはブレードのLE欄をご確認下さい。(p.985)
・上記価格はブレードを含まないカッタ単体の価格です。
・重量はブレード装置時の総重量です。

Adjust cutting edge height with a tool presetter.
For APMX, please refer to the LE column of the blade table.(p.985)
Prices listed above are for the single unit cutter body without blades.
The weight show on above is the total weight of cutter body with all blades mounted.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX アルミ合金用仕上げカッタ
**OSG PHOENIX Indexable Finishing Cutter for Aluminum Alloys**

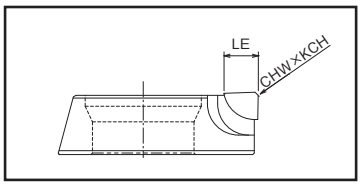
## PFAL

切削条件 Cutting Conditions | P1085

CAD

・ワイパーブレードは1ボディにつき1枚、装着マーク部分に取り付けて下さい。
One wiper blade is required per cutter body and should be mounted in the designated position.
・ブレード(ノーマル/ワイパー) 発注単位は1個となります。
Order unit for blade (normal/wiper) = 1 piece

### ■ノーマルブレード Normal Blade





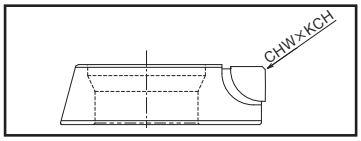





アルミの油口部分の加工に最適な
切れ刃長(ap) 6mmタイプもラインナップ。(FR1206)
Blade with 6mm cutting edge width (FR1206) suitable for milling of aluminum pouring gates is also available.

| 呼び Designation | ブレード寸法 Blade Size | | | PCD材種 PCD Grade | 標準価格 (Yen) |
|---|---|---|---|---|---|
| | 切れ刃数 No. of Cutting Edges | コーナ形状 CHW×KCH | LE (mm) | DP010 | |
| FR1204 | 1 | 0.4×45° | 4 | 7820500 | 12,500 |
| FR1206 | 1 | 0.4×45° | 6 | 7820502 | 15,700 |

### ■ワイパーブレード Wiper Blade







ワイパーブレード(FR1204-W)は
FR1204・FR1206問わず共通で使用可能です。
The FR1204-W wiper blade can be used with both the FR1204 and FR1206 normal blades.

| 呼び Designation | ブレード寸法 Blade Size | | PCD材種 PCD Grade | 標準価格 (Yen) |
|---|---|---|---|---|
| | 切れ刃数 No. of Cutting Edges | コーナ形状 CHW×KCH | DP010 | |
| FR1204-W | 1 | 0.4×45° | 7820501 | 17,100 |

### ■部品 Accessories

| | | ツールNo. EDP No. | 呼び Designation |
|---|---|---|---|
|  | ブレード用クランプねじ Clamping Screw for Blade | 7808125 | FS60620 (Torx25) |
|  | ウェッジ Wedge | 7808143 | W12-06 |
|  | ウェッジ用クランプねじ Clamping Screw for Wedge | 7808142 | WS0617 |

| | | ツールNo. EDP No. | 呼び Designation |
|---|---|---|---|
|  | T型レンチ (ブレード用クランプねじ用) T-Wrench (for blade clamp screw) | 7808211 | T25-T |
|  | L型レンチ (ウェッジ用クランプねじ用) L-Wrench (for wedge screw) | 7808231 | 3MM-L |

部品は全て(レンチ含む)本体付属となります。
All accessories (including wrenches) come with the cutter body.



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

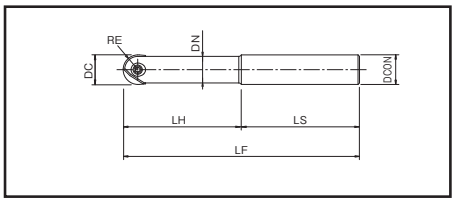
# OSG PHOENIX 仕上げ用ボールエンドミル
**OSG PHOENIX Indexable Finishing Ball End Mill**

## PFB
切削条件 Cutting Conditions | P1086

### ストレートシャンクタイプ（SS） Straight Shank Type




CAD






**鋼シャンク** Steel Shank

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | | 呼び Designation | 外径 DC | ボール半径 RE | 全長 LF | 有効長 首下長 LH | 有効長 L/D | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 首径 DN | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ② | 7801400 | **PFB-R080SS08-S120** | 8 | 4 | 120 | 36 | 4.5 | 2 | 8 | 84 | 7 | 28,100 |
| ③ | 7801401 | **PFB-R100SS10-S130** | 10 | 5 | 130 | 45 | 4.5 | 2 | 10 | 85 | 9 | 28,300 |
| ④ | 7801402 | **PFB-R120SS12-S130** | 12 | 6 | 130 | 54 | 4.5 | 2 | 12 | 76 | 11 | 30,500 |
| ⑤ | 7801403 | **PFB-R160SS16-S140** | 16 | 8 | 140 | 64 | 4 | 2 | 16 | 76 | 14 | 31,000 |
| ⑥ | 7801404 | **PFB-R200SS20-S160** | 20 | 10 | 160 | 80 | 4 | 2 | 20 | 80 | 18 | 31,100 |
| ⑦ | 7801405 | **PFB-R250SS25-S160** | 25 | 12.5 | 160 | 75 | 3 | 2 | 25 | 85 | 22 | 35,900 |
| ⑧ | 7801406 | **PFB-R300SS32-S170** | 30 | 15 | 170 | 90 | 3 | 2 | 32 | 80 | 27 | 63,200 |
| ⑨ | 7801407 | **PFB-R320SS32-S180** | 32 | 16 | 180 | 96 | 3 | 2 | 32 | 84 | 29 | 69,300 |

適用インサートと部品はp.988、989をご覧下さい。
See p.988,989 for available inserts and accessories.

**超硬シャンク ショートタイプ** Carbide Shank, Short Type

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | | 呼び Designation | 外径 DC | ボール半径 RE | 全長 LF | 有効長 首下長 LH | 有効長 L/D | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 首径 DN | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | 7801429 | **PFB-R060SS06-S80CS** | 6 | 3 | 80 | 15 | 2.5 | 2 | 6 | 65 | 5.4 | 41,200 |
| ② | 7801430 | **PFB-R080SS08-S100CS** | 8 | 4 | 100 | 20 | 2.5 | 2 | 8 | 80 | 7 | 43,300 |
| ③ | 7801431 | **PFB-R100SS10-S100CS** | 10 | 5 | 100 | 25 | 2.5 | 2 | 10 | 75 | 9 | 43,900 |
| ④ | 7801432 | **PFB-R120SS12-S110CS** | 12 | 6 | 110 | 30 | 2.5 | 2 | 12 | 80 | 11 | 51,600 |
| ⑤ | 7801433 | **PFB-R160SS16-S140CS** | 16 | 8 | 140 | 40 | 2.5 | 2 | 16 | 100 | 14 | 61,600 |
| ⑥ | 7801434 | **PFB-R200SS20-S160CS** | 20 | 10 | 160 | 50 | 2.5 | 2 | 20 | 110 | 18 | 87,800 |
| ⑦ | 7801435 | **PFB-R250SS25-S160CS** | 25 | 12.5 | 160 | 62.5 | 2.5 | 2 | 25 | 97.5 | 22 | 115,000 |
| ⑧ | 7801436 | **PFB-R300SS32-S170CS** | 30 | 15 | 170 | 75 | 2.5 | 2 | 32 | 95 | 27 | 145,000 |
| ⑨ | 7801437 | **PFB-R320SS32-S180CS** | 32 | 16 | 180 | 80 | 2.5 | 2 | 32 | 100 | 29 | 152,000 |

適用インサートと部品はp.988、989をご覧下さい。
See p.988,989 for available inserts and accessories.

次ページへ NEXT

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

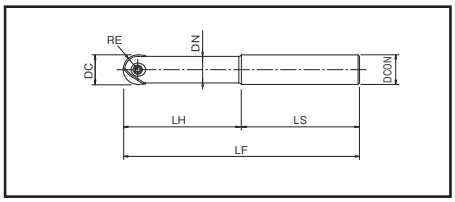
# OSG PHOENIX 仕上げ用ボールエンドミル
**OSG PHOENIX Indexable Finishing Ball End Mill**

## PFB　切削条件 Cutting Conditions | P1086

## ストレートシャンクタイプ(SS) Straight Shank Type




CAD






前ページより FROM

### 超硬シャンク ロングタイプ Carbide Shank, Long Type

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 全長 LF | 有効長 首下長 LH | 有効長 L/D | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 首径 DN | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | 7801439 | **PFB-R060SS06-L100CS** | 6 | 3 | 100 | 30 | 5 | 2 | 6 | 70 | 5.4 | 45,000 |
| ② | 7801440 | **PFB-R080SS08-L120CS** | 8 | 4 | 120 | 40 | 5 | 2 | 8 | 80 | 7 | 47,000 |
| ③ | 7801441 | **PFB-R100SS10-L130CS** | 10 | 5 | 130 | 50 | 5 | 2 | 10 | 80 | 9 | 47,600 |
| ④ | 7801442 | **PFB-R120SS12-L140CS** | 12 | 6 | 140 | 60 | 5 | 2 | 12 | 80 | 11 | 55,600 |
| ⑤ | 7801443 | **PFB-R160SS16-L160CS** | 16 | 8 | 160 | 72 | 4.5 | 2 | 16 | 88 | 14 | 66,300 |
| ⑥ | 7801444 | **PFB-R200SS20-L180CS** | 20 | 10 | 180 | 90 | 4.5 | 2 | 20 | 90 | 18 | 97,600 |
| ⑦ | 7801445 | **PFB-R250SS25-L200CS** | 25 | 12.5 | 200 | 100 | 4 | 2 | 25 | 100 | 22 | 128,000 |
| ⑧ | 7801446 | **PFB-R300SS32-L220CS** | 30 | 15 | 220 | 120 | 4 | 2 | 32 | 100 | 27 | 172,000 |
| ⑨ | 7801447 | **PFB-R320SS32-L230CS** | 32 | 16 | 230 | 128 | 4 | 2 | 32 | 102 | 29 | 181,000 |

適用インサートと部品はp.988、989をご覧下さい。
See p.988,989 for available inserts and accessories.

### 超硬シャンク エキストラロングタイプ Carbide Shank, Extra Long Type

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 全長 LF | 有効長 首下長 LH | 有効長 L/D | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 首径 DN | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | 7801419 | **PFB-R060SS06-LL120CS** | 6 | 3 | 120 | 42 | 7 | 2 | 6 | 78 | 5.4 | 47,300 |
| ② | 7801420 | **PFB-R080SS08-LL140CS** | 8 | 4 | 140 | 56 | 7 | 2 | 8 | 84 | 7 | 49,500 |
| ③ | 7801421 | **PFB-R100SS10-LL150CS** | 10 | 5 | 150 | 70 | 7 | 2 | 10 | 80 | 9 | 50,200 |
| ④ | 7801422 | **PFB-R120SS12-LL160CS** | 12 | 6 | 160 | 84 | 7 | 2 | 12 | 76 | 11 | 63,100 |
| ⑤ | 7801423 | **PFB-R160SS16-LL200CS** | 16 | 8 | 200 | 96 | 6 | 2 | 16 | 104 | 14 | 69,500 |
| ⑥ | 7801424 | **PFB-R200SS20-LL240CS** | 20 | 10 | 240 | 120 | 6 | 2 | 20 | 120 | 18 | 106,000 |
| ⑦ | 7801425 | **PFB-R250SS25-LL260CS** | 25 | 12.5 | 260 | 137.5 | 5.5 | 2 | 25 | 122.5 | 22 | 149,000 |
| ⑧ | 7801426 | **PFB-R300SS32-LL290CS** | 30 | 15 | 290 | 165 | 5.5 | 2 | 32 | 125 | 27 | 213,000 |
| ⑨ | 7801427 | **PFB-R320SS32-LL300CS** | 32 | 16 | 300 | 176 | 5.5 | 2 | 32 | 124 | 29 | 224,000 |

適用インサートと部品はp.988、989をご覧下さい。
See p.988,989 for available inserts and accessories.





在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 仕上げ用ボールエンドミル
**OSG PHOENIX Indexable Finishing Ball End Mill**

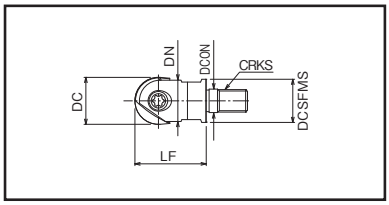
## PFB　切削条件 Cutting Conditions | P1086

### ねじ込みタイプ（SF） Screw Fit Type






CAD



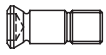

**ねじ込みタイプ** Screw Fit Type

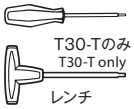
（単位：mm）（Unit:mm）

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 首径 DN | 端面径 DCSFMS | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ③ | 7801490 | **PFB-R100SF6** | 10 | 2 | 6.5 | M 6 | 7 | 26 | 9 | 9 | ❶ | 20,800 |
| ④ | 7801491 | **PFB-R120SF6** | 12 | 2 | 6.5 | M 6 | 7 | 26 | 11 | 11 | ❷ | 21,300 |
| ⑤ | 7801492 | **PFB-R160SF8** | 16 | 2 | 8.5 | M 8 | 10 | 32 | 14 | 14.5 | ❸ | 24,700 |
| ⑥ | 7801493 | **PFB-R200SF10** | 20 | 2 | 10.5 | M10 | 14 | 38 | 18 | 18 | ❹ | 27,800 |
| ⑦ | 7801494 | **PFB-R250SF12** | 25 | 2 | 12.5 | M12 | 17 | 38 | 22 | 23 | ❺ | 32,900 |
| ⑧ | 7801495 | **PFB-R300SF16** | 30 | 2 | 17 | M16 | 22 | 43 | 27 | 28 | ❻ | 42,800 |

シャンクホルダ・ホルダについてはP.1028をご覧下さい。
See page 1028 for shank holders.

**■部品** Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用ボディタイプ Applicable Body | 推奨締め付けトルク Recommended Tightening Torque |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 7808124 | FS20652RB | ① | 0.4N·m |
| | 7808123 | FS25669RB | ② | 1N·m |
| | 7808117 | FS30686RB | ③ | 1.2N·m |
| | 7808118 | FS35610RB | ④ | 2N·m |
| | 7808119 | FS40613RB | ⑤ | 3N·m |
| | 7808120 | FS50615RB | ⑥ | 5N·m |
| | 7808121 | FS60620RB | ⑦ | 5N·m |
| | 7808122 | FS80624RB | ⑧, ⑨ | 6N·m |

| | ツールNo. EDP No. | 呼び Designation | 適用ボディタイプ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|
|  T30-Tのみ T30-T only レンチ Wrench | 7808203 | T6-D(Torx6) | ① | 1,160 |
| | 7808204 | T7-D(Torx7) | ② | 1,160 |
| | 7808205 | T8-D(Torx8) | ③ | 1,310 |
| | 7808207 | T10-D(Torx10) | ④ | 1,310 |
| | 7808208 | T15-D(Torx15) | ⑤ | 1,390 |
| | 7808209 | T20-D(Torx20) | ⑥, ⑦ | 1,390 |
| | 7808212 | T30-T(Torx30) | ⑧, ⑨ | 2,780 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 仕上げ用ボールエンドミル
**OSG PHOENIX Indexable Finishing Ball End Mill**

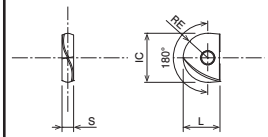
## PFB

切削条件 Cutting Conditions | P1086

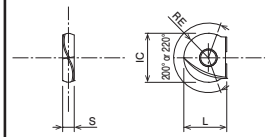
CAD



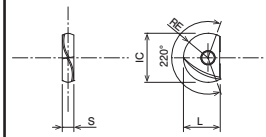
Type 1




Type 2




Type 3




## ■適用インサート Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | 有効R角度 Range Deg° | インサート寸法 Insert Size 内接円径 IC | ボール半径 RE | 厚さ S | L | 形状タイプ Type | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XP3225 | XP3310 | XP3320 | XP2225 | XP6703 | XC4505 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  スパイラルタイプ Spiral Type | PFB080-SP | 2 | 180 | 8 | 4 | 2.4 | 7 | 1 | ② | 7820030 | | 7820010 | | | | 5,910 |
| | PFB100-SP | | | 10 | 5 | 2.6 | 8.5 | | ③ | 7820031 | | 7820011 | | | | 6,210 |
| | PFB120-SP | | | 12 | 6 | 3 | 10 | | ④ | 7820032 | | 7820012 | | | | 6,630 |
| | PFB160-SP | | | 16 | 8 | 4 | 12 | | ⑤ | 7820033 | | 7820013 | | | | 6,870 |
| | PFB200-SP | | | 20 | 10 | 5 | 15 | | ⑥ | 7820034 | | 7820014 | | | | 7,140 |
| | PFB250-SP | | | 25 | 12.5 | 6 | 18.5 | | ⑦ | 7820035 | | 7820015 | | | | 8,130 |
| | PFB300-SP | | | 30 | 15 | 7 | 22.5 | | ⑧ | 7820036 | | 7820016 | | | | 10,400 |
|  スパイラルタイプ (球形状) Spiral Type (Full Radius Type) | PFB060-Q | 2 | 220 | 6 | 3 | 2 | 5 | 2 | ① | 7820048 | | | | | | 5,300 |
| | PFB070-Q | | | 7 | 3.5 | 2 | 5.5 | | ① | 7820049 | | | | | | 5,460 |
| | PFB080-Q | | | 8 | 4 | 2.4 | 7 | | ② | 7820050 | | | | | | 5,910 |
| | PFB100-Q | | | 10 | 5 | 2.6 | 8.5 | | ③ | 7820051 | | | | | | 6,210 |
| | PFB120-Q | | | 12 | 6 | 3 | 10 | | ④ | 7820052 | | | | | | 6,630 |
| | PFB160-Q | | | 16 | 8 | 4 | 12 | 3 | ⑤ | 7820053 | | | | | | 6,870 |
| | PFB200-Q | | | 20 | 10 | 5 | 15 | | ⑥ | 7820054 | | | | | | 7,140 |
| | PFB250-Q | | | 25 | 12.5 | 6 | 18.5 | | ⑦ | 7820055 | | | | | | 8,130 |
| | PFB300-Q | | | 30 | 15 | 7 | 22.5 | | ⑧ | 7820056 | | | | | | 10,400 |
|  ストレートタイプ (球形状) Straight Type (Full Radius Type) | PFB080-Q-ST | 2 | 200 | 8 | 4 | 2.4 | 7 | 2 | ② | | | | 7820060 | | | 5,910 |
| | PFB100-Q-ST | | | 10 | 5 | 2.6 | 8.5 | | ③ | | | | 7820061 | | | 6,200 |
| | PFB120-Q-ST | | | 12 | 6 | 3 | 10 | | ④ | | | | 7820062 | | | 6,630 |
| | PFB160-Q-ST | | 220 | 16 | 8 | 4 | 12 | 3 | ⑤ | | | | 7820063 | | | 6,870 |
| | PFB200-Q-ST | | | 20 | 10 | 5 | 15 | | ⑥ | | | | 7820064 | | | 7,120 |
| | PFB250-Q-ST | | | 25 | 12.5 | 6 | 18.5 | | ⑦ | | | | 7820065 | | | 8,130 |
| | PFB300-Q-ST | | | 30 | 15 | 7 | 22.5 | | ⑧ | | | | 7820066 | | | 10,400 |

・被削材別推奨材質はp.1087をご参照下さい。
・Please refer to p.1087 for recommended materials by insert type.

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在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 仕上げ用ボールエンドミル
**OSG PHOENIX Indexable Finishing Ball End Mill**

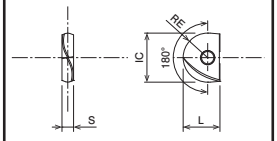
## PFB

切削条件 Cutting Conditions | P1086

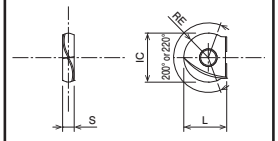
CAD



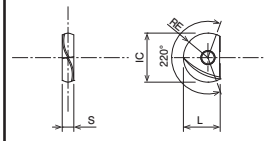
Type 1




Type 2



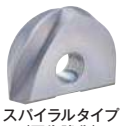

Type 3




前ページより FROM

### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | 有効R角度 Range Deg° | インサート寸法 Insert Size 内接円径 IC | ボール半径 RE | 厚さ S | L | 形状タイプ Type | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XP3225 | XP3310 | XP3320 | XP2225 | XP6703 | XC4505 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  スパイラルタイプ（刃先強化） Spiral Type (Reinforced Edge Type) | PFB060-SH | 2 | 220 | 6 | 3 | 2 | 5 | 2 | ① | | 7820039 | | | | | 5,300 |
| | PFB080-SH | | 180 | 8 | 4 | 2.4 | 7 | 1 | ② | | 7820040 | | | | | 5,910 |
| | PFB100-SH | | | 10 | 5 | 2.6 | 8.5 | | ③ | | 7820041 | | | | | 6,210 |
| | PFB120-SH | | | 12 | 6 | 3 | 10 | | ④ | | 7820042 | | | | | 6,630 |
| | PFB160-SH | | | 16 | 8 | 4 | 12 | | ⑤ | | 7820043 | | | | | 6,870 |
| | PFB200-SH | | | 20 | 10 | 5 | 15 | | ⑥ | | 7820044 | | | | | 7,140 |
| | PFB250-SH | | | 25 | 12.5 | 6 | 18.5 | | ⑦ | | 7820045 | | | | | 8,130 |
| | PFB300-SH | | | 30 | 15 | 7 | 22.5 | | ⑧ | | 7820046 | | | | | 10,400 |
| | PFB320-SH | | | 32 | 16 | 7 | 23.5 | | ⑨ | | 7820047 | | | | | 11,700 |
|  スパイラルタイプ（刃先強化） Spiral Type (Reinforced Edge Type) | PFB100-HH | 2 | 180 | 10 | 5 | 2.6 | 8.5 | 1 | ③ | | | | | 7820107 | | 6,210 |
| | PFB120-HH | | | 12 | 6 | 3 | 10 | | ④ | | | | | 7820108 | | 6,630 |
| | PFB160-HH | | | 16 | 8 | 4 | 12 | | ⑤ | | | | | 7820109 | | 6,870 |
| | PFB200-HH | | | 20 | 10 | 5 | 15 | | ⑥ | | | | | 7820110 | | 7,140 |
| | PFB250-HH | | | 25 | 12.5 | 6 | 18.5 | | ⑦ | | | | | 7820111 | | 8,130 |
| | PFB300-HH | | | 30 | 15 | 7 | 22.5 | | ⑧ | | | | | 7820112 | | 10,400 |
| | PFB320-HH | | | 32 | 16 | 7 | 23.5 | | ⑨ | | | | | 7820113 | | 11,700 |
|  スパイラルタイプ（ダイヤモンドコーティング） Spiral Type (Diamond Coated) | PFB060-D | 2 | 220 | 6 | 3 | 2 | 5 | 2 | ① | | | | | | 7820018 | 15,900 |
| | PFB070-D | | | 7 | 3.5 | 2 | 5.5 | | ① | | | | | | 7820019 | 16,400 |
| | PFB080-D | | 180 | 8 | 4 | 2.4 | 7 | 1 | ② | | | | | | 7820020 | 17,800 |
| | PFB100-D | | | 10 | 5 | 2.6 | 8.5 | | ③ | | | | | | 7820021 | 18,700 |
| | PFB120-D | | | 12 | 6 | 3 | 10 | | ④ | | | | | | 7820022 | 19,800 |
| | PFB160-D | | | 16 | 8 | 4 | 12 | | ⑤ | | | | | | 7820023 | 20,800 |
| | PFB200-D | | | 20 | 10 | 5 | 15 | | ⑥ | | | | | | 7820024 | 21,400 |
| | PFB250-D | | | 25 | 12.5 | 6 | 18.5 | | ⑦ | | | | | | 7820025 | 24,300 |
| | PFB300-D | | | 30 | 15 | 7 | 22.5 | | ⑧ | | | | | | 7820026 | 31,100 |

・被削材別推奨材質はp.1087をご参照下さい。
・Please refer to p.1087 for recommended materials by insert type.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 仕上げ用ボールエンドミル
**OSG PHOENIX Indexable Finishing Ball End Mill**

## PFB
切削条件 Cutting Conditions | P1088

### バレル型(PFB-BR) Barrel Type Tool

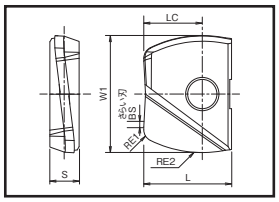








CAD




■適用インサート Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size 最外径 W1 | 外周R RE2 | コーナR RE1 | 最外径位置 LC | 厚さ S | L | さらい刃(副切れ刃) BS | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XP3225 | XP3310 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  汎用タイプ Multi-purpose Type | PFB100R150-BR-ST | 2 | 10 | 15 | 1 | 5 | 2.6 | 8.5 | 0.3 | ③ | 7820071 | | 9,070 |
| | PFB120R180-BR-ST | | 12 | 18 | 1 | 6 | 3 | 10 | 0.3 | ④ | 7820072 | | 9,580 |
| | PFB160R240-BR-ST | | 16 | 24 | 2 | 8 | 4 | 12 | 0.5 | ⑤ | 7820073 | | 9,920 |
| | PFB200R300-BR-ST | | 20 | 30 | 2 | 10 | 5 | 15 | 0.5 | ⑥ | 7820074 | | 10,600 |
| | PFB250R375-BR-ST | | 25 | 37.5 | 2.5 | 12.5 | 6 | 18.5 | 0.5 | ⑦ | 7820075 | | 11,500 |
| | PFB320R480-BR-ST | | 32 | 48 | 3 | 16 | 7 | 23.5 | 0.5 | ⑨ | 7820076 | | 14,500 |
|  刃先強化タイプ Reinforced Edge Type | PFB100R150-BR-SH | 2 | 10 | 15 | 1 | 5 | 2.6 | 8.5 | 0.3 | ③ | | 7820081 | 9,070 |
| | PFB120R180-BR-SH | | 12 | 18 | 1 | 6 | 3 | 10 | 0.3 | ④ | | 7820082 | 9,580 |
| | PFB160R240-BR-SH | | 16 | 24 | 2 | 8 | 4 | 12 | 0.5 | ⑤ | | 7820083 | 9,920 |
| | PFB200R300-BR-SH | | 20 | 30 | 2 | 10 | 5 | 15 | 0.5 | ⑥ | | 7820084 | 10,600 |
| | PFB250R375-BR-SH | | 25 | 37.5 | 2.5 | 12.5 | 6 | 18.5 | 0.5 | ⑦ | | 7820085 | 11,500 |
| | PFB320R480-BR-SH | | 32 | 48 | 3 | 16 | 7 | 23.5 | 0.5 | ⑨ | | 7820086 | 14,500 |

・被削材別推奨材質はp.1088をご参照下さい。
・Please refer to p.1088 for recommended materials by insert type.



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 仕上げ用ボールエンドミル
**OSG PHOENIX Indexable Finishing Ball End Mill**

## PFB　切削条件 Cutting Conditions | P1089

### レンズ型（PFB-LZ） Lens Type Tool

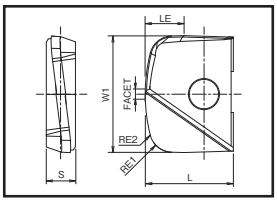








CAD




**■適用インサート** Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size 最外径 W1 | 底刃R RE2 | コーナR RE1 | 外周刃長 LE | 厚さ S | L | 中心フラット幅 FACET | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XP3225 | XP3310 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  汎用タイプ Multi-purpose Type | PFB100R150-LZ-ST | 2 | 10 | 15 | 1 | 3.3 | 2.6 | 8.5 | 0.75 | ③ | 7820091 | | 9,070 |
| | PFB120R180-LZ-ST | | 12 | 18 | 1 | 4 | 3 | 10 | 0.75 | ④ | 7820092 | | 9,580 |
| | PFB160R240-LZ-ST | | 16 | 24 | 2 | 5.3 | 4 | 12 | 1 | ⑤ | 7820093 | | 9,920 |
| | PFB200R300-LZ-ST | | 20 | 30 | 2 | 6.7 | 5 | 15 | 1.75 | ⑥ | 7820094 | | 10,600 |
| | PFB250R375-LZ-ST | | 25 | 37.5 | 2.5 | 8.3 | 6 | 18.5 | 1.75 | ⑦ | 7820095 | | 11,500 |
| | PFB320R480-LZ-ST | | 32 | 48 | 3 | 10.7 | 7 | 23.5 | 2 | ⑨ | 7820096 | | 14,500 |
|  刃先強化タイプ Reinforced Edge Type | PFB100R150-LZ-SH | 2 | 10 | 15 | 1 | 3.3 | 2.6 | 8.5 | 0.75 | ③ | | 7820101 | 9,070 |
| | PFB120R180-LZ-SH | | 12 | 18 | 1 | 4 | 3 | 10 | 0.75 | ④ | | 7820102 | 9,580 |
| | PFB160R240-LZ-SH | | 16 | 24 | 2 | 5.3 | 4 | 12 | 1 | ⑤ | | 7820103 | 9,920 |
| | PFB200R300-LZ-SH | | 20 | 30 | 2 | 6.7 | 5 | 15 | 1.75 | ⑥ | | 7820104 | 10,600 |
| | PFB250R375-LZ-SH | | 25 | 37.5 | 2.5 | 8.3 | 6 | 18.5 | 1.75 | ⑦ | | 7820105 | 11,500 |
| | PFB320R480-LZ-SH | | 32 | 48 | 3 | 10.7 | 7 | 23.5 | 2 | ⑨ | | 7820106 | 14,500 |

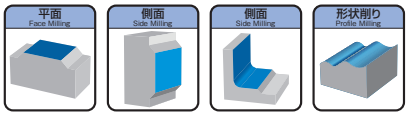
・被削材別推奨材質はp.1089をご参照下さい。
・Please refer to p.1089 for recommended materials by insert type.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 仕上げ用ラジアスエンドミル
**OSG PHOENIX Indexable Finishing End Mill with Corner Radius**

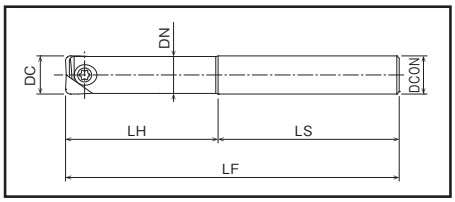
## PFR
切削条件 Cutting Conditions | P1090

### ストレートシャンクタイプ(SS) Straight Shank Type




CAD






**鋼シャンク** Steel Shank

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 有効長 首下長 LH | 有効長 L/D | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 首径 DN | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ② | 7832000 | **PFR-R080SS08-S120** | 8 | 120 | 36 | 4.5 | 2 | 8 | 84 | 7.5 | 28,100 |
| ③ | 7832001 | **PFR-R100SS10-S130** | 10 | 130 | 45 | 4.5 | 2 | 10 | 85 | 9.5 | 28,300 |
| ④ | 7832002 | **PFR-R120SS12-S130** | 12 | 130 | 54 | 4.5 | 2 | 12 | 76 | 11.5 | 30,500 |
| ⑤ | 7832003 | **PFR-R160SS16-S140** | 16 | 140 | 64 | 4 | 2 | 16 | 76 | 15.5 | 31,000 |
| ⑥ | 7832004 | **PFR-R200SS20-S160** | 20 | 160 | 80 | 4 | 2 | 20 | 80 | 19.5 | 31,100 |
| ⑦ | 7832005 | **PFR-R250SS25-S160** | 25 | 160 | 75 | 3 | 2 | 25 | 85 | 24.5 | 35,900 |
| ⑧ | 7832006 | **PFR-R300SS32-S170** | 30 | 170 | 90 | 3 | 2 | 32 | 80 | 29.5 | 63,200 |
| ⑨ | 7832007 | **PFR-R320SS32-S180** | 32 | 180 | 96 | 3 | 2 | 32 | 84 | 31.5 | 69,300 |

適用インサートと部品はp.995、996をご覧下さい。
See p.995, 996 for available inserts and accessories.



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

### 超硬シャンク ショートタイプ Carbide Shank, Short Type

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 有効長 首下長 LH | 有効長 L/D | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 首径 DN | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | 7832029 | **PFR-R060SS06-S80CS** | 6 | 80 | 15 | 2.5 | 2 | 6 | 65 | 5.4 | 40,900 |
| ② | 7832030 | **PFR-R080SS08-S100CS** | 8 | 100 | 20 | 2.5 | 2 | 8 | 80 | 7.5 | 43,300 |
| ③ | 7832031 | **PFR-R100SS10-S100CS** | 10 | 100 | 25 | 2.5 | 2 | 10 | 75 | 9.5 | 43,900 |
| ④ | 7832032 | **PFR-R120SS12-S110CS** | 12 | 110 | 30 | 2.5 | 2 | 12 | 80 | 11.5 | 51,600 |
| ⑤ | 7832033 | **PFR-R160SS16-S140CS** | 16 | 140 | 40 | 2.5 | 2 | 16 | 100 | 15.5 | 61,600 |
| ⑥ | 7832034 | **PFR-R200SS20-S160CS** | 20 | 160 | 50 | 2.5 | 2 | 20 | 110 | 19.5 | 87,800 |
| ⑦ | 7832035 | **PFR-R250SS25-S160CS** | 25 | 160 | 62.5 | 2.5 | 2 | 25 | 97.5 | 24.5 | 115,000 |
| ⑧ | 7832036 | **PFR-R300SS32-S170CS** | 30 | 170 | 75 | 2.5 | 2 | 32 | 95 | 29.5 | 145,000 |
| ⑨ | 7832037 | **PFR-R320SS32-S180CS** | 32 | 180 | 80 | 2.5 | 2 | 32 | 100 | 31.5 | 152,000 |

適用インサートと部品はp.995、996をご覧下さい。
See p.995, 996 for available inserts and accessories.

### 超硬シャンク ロングタイプ Carbide Shank, Long Type

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 有効長 首下長 LH | 有効長 L/D | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 首径 DN | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | 7832039 | **PFR-R060SS06-L100CS** | 6 | 100 | 30 | 5 | 2 | 6 | 70 | 5.4 | 44,700 |
| ② | 7832040 | **PFR-R080SS08-L120CS** | 8 | 120 | 40 | 5 | 2 | 8 | 80 | 7.5 | 47,000 |
| ③ | 7832041 | **PFR-R100SS10-L130CS** | 10 | 130 | 50 | 5 | 2 | 10 | 80 | 9.5 | 47,600 |
| ④ | 7832042 | **PFR-R120SS12-L140CS** | 12 | 140 | 60 | 5 | 2 | 12 | 80 | 11.5 | 55,600 |
| ⑤ | 7832043 | **PFR-R160SS16-L160CS** | 16 | 160 | 72 | 4.5 | 2 | 16 | 88 | 15.5 | 66,300 |
| ⑥ | 7832044 | **PFR-R200SS20-L180CS** | 20 | 180 | 90 | 4.5 | 2 | 20 | 90 | 19.5 | 97,600 |
| ⑦ | 7832045 | **PFR-R250SS25-L200CS** | 25 | 200 | 100 | 4 | 2 | 25 | 100 | 24.5 | 128,000 |
| ⑧ | 7832046 | **PFR-R300SS32-L220CS** | 30 | 220 | 120 | 4 | 2 | 32 | 100 | 29.5 | 172,000 |
| ⑨ | 7832047 | **PFR-R320SS32-L230CS** | 32 | 230 | 128 | 4 | 2 | 32 | 102 | 31.5 | 181,000 |

適用インサートと部品はp.995、996をご覧下さい。
See p.995, 996 for available inserts and accessories.

### 超硬シャンク エキストラロングタイプ Carbide Shank, Extra Long Type

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 有効長 首下長 LH | 有効長 L/D | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 首径 DN | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | 7832019 | **PFR-R060SS06-LL120CS** | 6 | 120 | 42 | 7 | 2 | 6 | 78 | 5.4 | 47,000 |
| ② | 7832020 | **PFR-R080SS08-LL140CS** | 8 | 140 | 56 | 7 | 2 | 8 | 84 | 7.5 | 49,500 |
| ③ | 7832021 | **PFR-R100SS10-LL150CS** | 10 | 150 | 70 | 7 | 2 | 10 | 80 | 9.5 | 50,200 |
| ④ | 7832022 | **PFR-R120SS12-LL160CS** | 12 | 160 | 84 | 7 | 2 | 12 | 76 | 11.5 | 63,100 |
| ⑤ | 7832023 | **PFR-R160SS16-LL200CS** | 16 | 200 | 96 | 6 | 2 | 16 | 104 | 15.5 | 69,500 |
| ⑥ | 7832024 | **PFR-R200SS20-LL240CS** | 20 | 240 | 120 | 6 | 2 | 20 | 120 | 19.5 | 106,000 |
| ⑦ | 7832025 | **PFR-R250SS25-LL260CS** | 25 | 260 | 137.5 | 5.5 | 2 | 25 | 122.5 | 24.5 | 149,000 |
| ⑧ | 7832026 | **PFR-R300SS32-LL290CS** | 30 | 290 | 165 | 5.5 | 2 | 32 | 125 | 29.5 | 213,000 |
| ⑨ | 7832027 | **PFR-R320SS32-LL300CS** | 32 | 300 | 175 | 5.5 | 2 | 32 | 125 | 31.5 | 224,000 |

適用インサートと部品はp.995、996をご覧下さい。
See p.995, 996 for available inserts and accessories.

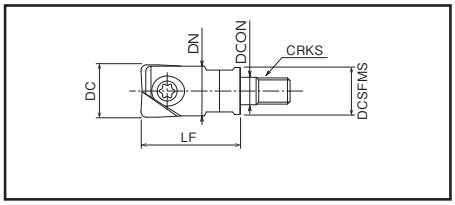
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 仕上げ用ラジアスエンドミル
**OSG PHOENIX Indexable Finishing End Mill with Corner Radius**

## PFR　切削条件 Cutting Conditions | P1090

### ねじ込みタイプ（SF） Screw Fit Type






CAD

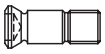
**ねじ込みタイプ** Screw Fit Type

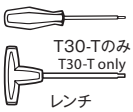
（単位:mm）(Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 首径 DN | 端面径 DCSFMS | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ③ | 7832090 | **PFR-R100SF6** | 10 | 2 | 6.5 | M 6 | 7 | 26 | 9 | 9 | ❶ | 20,800 |
| ④ | 7832091 | **PFR-R120SF6** | 12 | 2 | 6.5 | M 6 | 7 | 26 | 11 | 11 | ❷ | 21,300 |
| ⑤ | 7832092 | **PFR-R160SF8** | 16 | 2 | 8.5 | M 8 | 10 | 32 | 15 | 14.5 | ❸ | 24,700 |
| ⑥ | 7832093 | **PFR-R200SF10** | 20 | 2 | 10.5 | M10 | 14 | 38 | 19 | 18 | ❹ | 27,800 |
| ⑦ | 7832094 | **PFR-R250SF12** | 25 | 2 | 12.5 | M12 | 17 | 38 | 24 | 23 | ❺ | 32,900 |
| ⑧ | 7832095 | **PFR-R300SF16** | 30 | 2 | 17 | M16 | 22 | 43 | 29 | 28 | ❻ | 42,800 |
| ⑨ | 7832096 | **PFR-R320SF16** | 32 | 2 | 17 | M16 | 22 | 43 | 31 | 28 | ❻ | 47,600 |

シャンクホルダ・ホルダについてはp.1028をご覧下さい。
See page 1028 for shank holders.

**■部品** Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body | 推奨締め付けトルク Recommended Tightening Torque |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 7808124 | FS20652RB | ① | 0.4N·m |
| | 7808123 | FS25669RB | ② | 1N·m |
| | 7808117 | FS30686RB | ③ | 1.2N·m |
| | 7808118 | FS35610RB | ④ | 2N·m |
| | 7808119 | FS40613RB | ⑤ | 3N·m |
| | 7808120 | FS50615RB | ⑥ | 5N·m |
| | 7808121 | FS60620RB | ⑦ | 5N·m |
| | 7808122 | FS80624RB | ⑧, ⑨ | 6N·m |

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|
|  T30-Tのみ T30-T only レンチ Wrench | 7808203 | T6-D(Torx6) | ① | 1,160 |
| | 7808204 | T7-D(Torx7) | ② | 1,160 |
| | 7808205 | T8-D(Torx8) | ③ | 1,310 |
| | 7808207 | T10-D(Torx10) | ④ | 1,310 |
| | 7808208 | T15-D(Torx15) | ⑤ | 1,390 |
| | 7808209 | T20-D(Torx20) | ⑥, ⑦ | 1,390 |
| | 7808212 | T30-T(Torx30) | ⑧, ⑨ | 2,780 |

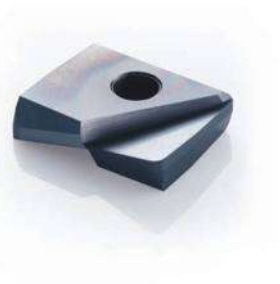
レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.

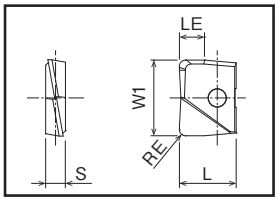


在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 仕上げ用ラジアスエンドミル
**OSG PHOENIX Indexable Finishing End Mill with Corner Radius**

## PFR　切削条件 Cutting Conditions | P1090

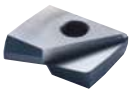





CAD

### ■適用インサート(PFR-ST) Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size W1 | コーナ RE | 外周刃長 LE | 厚さ S | L | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XP3225 | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  汎用タイプ Multi-purpose Type | PFR060R03-ST | 2 | 6 | 0.3 | 2 | 2 | 5 | ① | 7820350 | C | 6,410 |
| | PFR060R05-ST | | 6 | 0.5 | | | | | 7820351 | C | 6,410 |
| | PFR060R10-ST | | 6 | 1 | | | | | 7820352 | C | 6,410 |
| | PFR070R03-ST | | 7 | 0.3 | | | 5.5 | | 7820353 | C | 6,550 |
| | PFR070R05-ST | | 7 | 0.5 | | | | | 7820354 | C | 6,550 |
| | PFR070R10-ST | | 7 | 1 | | | | | 7820355 | C | 6,550 |
| | PFR080R03-ST | | 8 | 0.3 | 2.7 | 2.4 | 7 | ② | 7820200 | C | 7,170 |
| | PFR080R05-ST | | 8 | 0.5 | | | | | 7820201 | C | 7,170 |
| | PFR080R10-ST | | 8 | 1 | | | | | 7820202 | C | 7,170 |
| | PFR080R20-ST | | 8 | 2 | | | | | 7820203 | C | 7,170 |
| | PFR100R03-ST | | 10 | 0.3 | 3.3 | 2.6 | 8.5 | ③ | 7820204 | C | 7,590 |
| | PFR100R05-ST | | 10 | 0.5 | | | | | 7820205 | C | 7,590 |
| | PFR100R10-ST | | 10 | 1 | | | | | 7820206 | C | 7,590 |
| | PFR100R20-ST | | 10 | 2 | | | | | 7820207 | C | 7,590 |
| | PFR110R03-ST | | 11 | 0.3 | | | | | 7820356 | C | 7,980 |
| | PFR110R05-ST | | 11 | 0.5 | | | | | 7820357 | C | 7,980 |
| | PFR110R10-ST | | 11 | 1 | | | | | 7820358 | C | 7,980 |
| | PFR110R20-ST | | 11 | 2 | | | | | 7820359 | C | 7,980 |
| | PFR120R03-ST | | 12 | 0.3 | 4 | 3 | 10 | ④ | 7820208 | C | 8,000 |
| | PFR120R05-ST | | 12 | 0.5 | | | | | 7820209 | C | 8,000 |
| | PFR120R10-ST | | 12 | 1 | | | | | 7820210 | C | 8,000 |
| | PFR120R20-ST | | 12 | 2 | | | | | 7820211 | C | 8,000 |
| | PFR120R30-ST | | 12 | 3 | | | | | 7820212 | C | 8,000 |
| | PFR130R03-ST | | 13 | 0.3 | | | | | 7820360 | C | 8,230 |
| | PFR130R05-ST | | 13 | 0.5 | | | | | 7820361 | C | 8,230 |
| | PFR130R10-ST | | 13 | 1 | | | | | 7820362 | C | 8,230 |
| | PFR130R20-ST | | 13 | 2 | | | | | 7820363 | C | 8,230 |

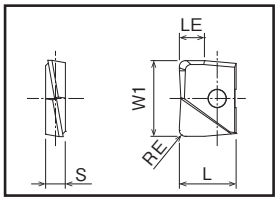
・被削材別推奨材質はp.1090をご参照下さい。
・Please refer to p.1090 for recommended materials by insert type.

次ページへ NEXT

C= 標準在庫品　C=Standard stock item.

# OSG PHOENIX 仕上げ用ラジアスエンドミル
**OSG PHOENIX Indexable Finishing End Mill with Corner Radius**

## PFR　切削条件 Cutting Conditions | P1090

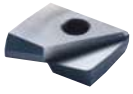



CAD

前ページより FROM

### ■適用インサート（PFR-ST） Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size W1 | コーナ RE | 外周刃長 LE | 厚さ S | L | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XP3225 | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  汎用タイプ Multi-purpose Type | PFR160R03-ST | 2 | 16 | 0.3 | 5.3 | 4 | 12 | ⑤ | 7820213 | C | 8,270 |
| | PFR160R05-ST | | 16 | 0.5 | | | | | 7820214 | C | 8,270 |
| | PFR160R10-ST | | 16 | 1 | | | | | 7820215 | C | 8,270 |
| | PFR160R20-ST | | 16 | 2 | | | | | 7820216 | C | 8,270 |
| | PFR160R30-ST | | 16 | 3 | | | | | 7820217 | C | 8,270 |
| | PFR170R03-ST | | 17 | 0.3 | | | | | 7820364 | C | 8,670 |
| | PFR170R05-ST | | 17 | 0.5 | | | | | 7820365 | C | 8,670 |
| | PFR170R10-ST | | 17 | 1 | | | | | 7820366 | C | 8,670 |
| | PFR170R20-ST | | 17 | 2 | | | | | 7820367 | C | 8,670 |
| | PFR200R03-ST | | 20 | 0.3 | 6.7 | 5 | 15 | ⑥ | 7820218 | C | 8,670 |
| | PFR200R05-ST | | 20 | 0.5 | | | | | 7820219 | C | 8,670 |
| | PFR200R10-ST | | 20 | 1 | | | | | 7820220 | C | 8,670 |
| | PFR200R20-ST | | 20 | 2 | | | | | 7820221 | C | 8,670 |
| | PFR200R30-ST | | 20 | 3 | | | | | 7820222 | C | 8,670 |
| | PFR210R03-ST | | 21 | 0.3 | | | | | 7820368 | C | 9,440 |
| | PFR210R05-ST | | 21 | 0.5 | | | | | 7820369 | C | 9,440 |
| | PFR210R10-ST | | 21 | 1 | | | | | 7820370 | C | 9,440 |
| | PFR210R20-ST | | 21 | 2 | | | | | 7820371 | C | 9,440 |
| | PFR250R03-ST | | 25 | 0.3 | 8.3 | 6 | 18.5 | ⑦ | 7820223 | C | 10,200 |
| | PFR250R05-ST | | 25 | 0.5 | | | | | 7820224 | C | 10,200 |
| | PFR250R10-ST | | 25 | 1 | | | | | 7820225 | C | 10,200 |
| | PFR250R20-ST | | 25 | 2 | | | | | 7820226 | C | 10,200 |
| | PFR250R30-ST | | 25 | 3 | | | | | 7820227 | C | 10,200 |
| | PFR260R03-ST | | 26 | 0.3 | | | | | 7820372 | C | 11,200 |
| | PFR260R05-ST | | 26 | 0.5 | | | | | 7820373 | C | 11,200 |
| | PFR260R10-ST | | 26 | 1 | | | | | 7820374 | C | 11,200 |
| | PFR260R20-ST | | 26 | 2 | | | | | 7820375 | C | 11,200 |
| | PFR300R03-ST | | 30 | 0.3 | 10 | 7 | 22.5 | ⑧ | 7820228 | C | 12,100 |
| | PFR300R05-ST | | 30 | 0.5 | | | | | 7820229 | C | 12,100 |
| | PFR300R10-ST | | 30 | 1 | | | | | 7820230 | C | 12,100 |
| | PFR300R20-ST | | 30 | 2 | | | | | 7820231 | C | 12,100 |
| | PFR300R30-ST | | 30 | 3 | | | | | 7820232 | C | 12,100 |
| | PFR320R03-ST | | 32 | 0.3 | 10.3 | | 23.5 | ⑨ | 7820233 | C | 13,000 |
| | PFR320R05-ST | | 32 | 0.5 | | | | | 7820234 | C | 13,000 |
| | PFR320R10-ST | | 32 | 1 | | | | | 7820235 | C | 13,000 |
| | PFR320R20-ST | | 32 | 2 | | | | | 7820236 | C | 13,000 |
| | PFR320R30-ST | | 32 | 3 | | | | | 7820237 | C | 13,000 |

・被削材別推奨材質はp.1090をご参照下さい。
・Please refer to p.1090 for recommended materials by insert type.

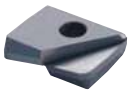
次ページへ NEXT

C= 標準在庫品　C=Standard stock item.

前ページより FROM

## ■適用インサート(PFR-SH) Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size W1 | コーナ RE | 外周刃長 LE | 厚さ S | L | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XP3310 | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  刃先強化タイプ Reinforced Edge Type | PFR060R03-SH | 2 | 6 | 0.3 | 2 | 2 | 5 | ① | 7820400 | C | 6,410 |
| | PFR060R05-SH | | 6 | 0.5 | | | | | 7820401 | C | 6,410 |
| | PFR060R10-SH | | 6 | 1 | | | | | 7820402 | C | 6,410 |
| | PFR070R03-SH | | 7 | 0.3 | | | 5.5 | | 7820403 | C | 6,550 |
| | PFR070R05-SH | | 7 | 0.5 | | | | | 7820404 | C | 6,550 |
| | PFR070R10-SH | | 7 | 1 | | | | | 7820405 | C | 6,550 |
| | PFR080R03-SH | | 8 | 0.3 | 2.7 | 2.4 | 7 | ② | 7820250 | C | 7,170 |
| | PFR080R05-SH | | 8 | 0.5 | | | | | 7820251 | C | 7,170 |
| | PFR080R10-SH | | 8 | 1 | | | | | 7820252 | C | 7,170 |
| | PFR080R20-SH | | 8 | 2 | | | | | 7820253 | C | 7,170 |
| | PFR100R03-SH | | 10 | 0.3 | 3.3 | 2.6 | 8.5 | ③ | 7820254 | C | 7,590 |
| | PFR100R05-SH | | 10 | 0.5 | | | | | 7820255 | C | 7,590 |
| | PFR100R10-SH | | 10 | 1 | | | | | 7820256 | C | 7,590 |
| | PFR100R20-SH | | 10 | 2 | | | | | 7820257 | C | 7,590 |
| | PFR110R03-SH | | 11 | 0.3 | | | | | 7820406 | C | 7,980 |
| | PFR110R05-SH | | 11 | 0.5 | | | | | 7820407 | C | 7,980 |
| | PFR110R10-SH | | 11 | 1 | | | | | 7820408 | C | 7,980 |
| | PFR110R20-SH | | 11 | 2 | | | | | 7820409 | C | 7,980 |
| | PFR120R03-SH | | 12 | 0.3 | 4 | 3 | 10 | ④ | 7820258 | C | 8,000 |
| | PFR120R05-SH | | 12 | 0.5 | | | | | 7820259 | C | 8,000 |
| | PFR120R10-SH | | 12 | 1 | | | | | 7820260 | C | 8,000 |
| | PFR120R20-SH | | 12 | 2 | | | | | 7820261 | C | 8,000 |
| | PFR120R30-SH | | 12 | 3 | | | | | 7820262 | C | 8,000 |
| | PFR130R03-SH | | 13 | 0.3 | | | | | 7820410 | C | 8,230 |
| | PFR130R05-SH | | 13 | 0.5 | | | | | 7820411 | C | 8,230 |
| | PFR130R10-SH | | 13 | 1 | | | | | 7820412 | C | 8,230 |
| | PFR130R20-SH | | 13 | 2 | | | | | 7820413 | C | 8,230 |

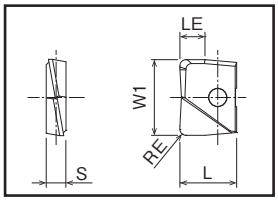
・被削材別推奨材質はp.1090をご参照下さい。
・Please refer to p.1090 for recommended materials by insert type.

次ページへ NEXT

C= 標準在庫品 C=Standard stock item.

# OSG PHOENIX 仕上げ用ラジアスエンドミル
**OSG PHOENIX Indexable Finishing End Mill with Corner Radius**

## PFR　切削条件 Cutting Conditions | P1090

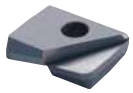



CAD

前ページより FROM

### ■適用インサート(PFR-SH) Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size W1 | コーナ RE | 外周刃長 LE | 厚さ S | L | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XP3310 | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  刃先強化タイプ Reinforced Edge Type | PFR160R03-SH | 2 | 16 | 0.3 | 5.3 | 4 | 12 | ⑤ | 7820263 | C | 8,270 |
| | PFR160R05-SH | | 16 | 0.5 | | | | | 7820264 | C | 8,270 |
| | PFR160R10-SH | | 16 | 1 | | | | | 7820265 | C | 8,270 |
| | PFR160R20-SH | | 16 | 2 | | | | | 7820266 | C | 8,270 |
| | PFR160R30-SH | | 16 | 3 | | | | | 7820267 | C | 8,270 |
| | PFR170R03-SH | | 17 | 0.3 | | | | | 7820414 | C | 8,670 |
| | PFR170R05-SH | | 17 | 0.5 | | | | | 7820415 | C | 8,670 |
| | PFR170R10-SH | | 17 | 1 | | | | | 7820416 | C | 8,670 |
| | PFR170R20-SH | | 17 | 2 | | | | | 7820417 | C | 8,670 |
| | PFR200R03-SH | | 20 | 0.3 | 6.7 | 5 | 15 | ⑥ | 7820268 | C | 8,670 |
| | PFR200R05-SH | | 20 | 0.5 | | | | | 7820269 | C | 8,670 |
| | PFR200R10-SH | | 20 | 1 | | | | | 7820270 | C | 8,670 |
| | PFR200R20-SH | | 20 | 2 | | | | | 7820271 | C | 8,670 |
| | PFR200R30-SH | | 20 | 3 | | | | | 7820272 | C | 8,670 |
| | PFR210R03-SH | | 21 | 0.3 | | | | | 7820418 | C | 9,440 |
| | PFR210R05-SH | | 21 | 0.5 | | | | | 7820419 | C | 9,440 |
| | PFR210R10-SH | | 21 | 1 | | | | | 7820420 | C | 9,440 |
| | PFR210R20-SH | | 21 | 2 | | | | | 7820421 | C | 9,440 |
| | PFR250R03-SH | | 25 | 0.3 | 8.3 | 6 | 18.5 | ⑦ | 7820273 | C | 10,200 |
| | PFR250R05-SH | | 25 | 0.5 | | | | | 7820274 | C | 10,200 |
| | PFR250R10-SH | | 25 | 1 | | | | | 7820275 | C | 10,200 |
| | PFR250R20-SH | | 25 | 2 | | | | | 7820276 | C | 10,200 |
| | PFR250R30-SH | | 25 | 3 | | | | | 7820277 | C | 10,200 |
| | PFR260R03-SH | | 26 | 0.3 | | | | | 7820422 | C | 11,200 |
| | PFR260R05-SH | | 26 | 0.5 | | | | | 7820423 | C | 11,200 |
| | PFR260R10-SH | | 26 | 1 | | | | | 7820424 | C | 11,200 |
| | PFR260R20-SH | | 26 | 2 | | | | | 7820425 | C | 11,200 |
| | PFR300R03-SH | | 30 | 0.3 | 10 | 7 | 22.5 | ⑧ | 7820278 | C | 12,100 |
| | PFR300R05-SH | | 30 | 0.5 | | | | | 7820279 | C | 12,100 |
| | PFR300R10-SH | | 30 | 1 | | | | | 7820280 | C | 12,100 |
| | PFR300R20-SH | | 30 | 2 | | | | | 7820281 | C | 12,100 |
| | PFR300R30-SH | | 30 | 3 | | | | | 7820282 | C | 12,100 |
| | PFR320R03-SH | | 32 | 0.3 | 10.3 | 7 | 23.5 | ⑨ | 7820283 | C | 13,000 |
| | PFR320R05-SH | | 32 | 0.5 | | | | | 7820284 | C | 13,000 |
| | PFR320R10-SH | | 32 | 1 | | | | | 7820285 | C | 13,000 |
| | PFR320R20-SH | | 32 | 2 | | | | | 7820286 | C | 13,000 |
| | PFR320R30-SH | | 32 | 3 | | | | | 7820287 | C | 13,000 |

・被削材別推奨材質はp.1090をご参照下さい。
・Please refer to p.1090 for recommended materials by insert type.

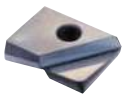
次ページへ NEXT

C= 標準在庫品　C=Standard stock item.

前ページより
FROM

## ■適用インサート(PFR-D) Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size W1 | コーナ RE | 外周刃長 LE | 厚さ S | L | 適用ボディタイプ Applicable Body | コーティング材種 Grade of Coated Materials XC4505 | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  ダイヤモンドコーティング Diamond Coated | PFR060R03-D | 2 | 6 | 0.3 | 2 | 2 | 5 | ① | 7820450 | C | 17,900 |
| | PFR060R05-D | | 6 | 0.5 | | | | | 7820451 | C | 17,900 |
| | PFR060R10-D | | 6 | 1 | | | | | 7820452 | C | 17,900 |
| | PFR080R03-D | | 8 | 0.3 | 2.7 | 2.4 | 7 | ② | 7820300 | C | 18,700 |
| | PFR080R05-D | | 8 | 0.5 | | | | | 7820301 | C | 18,700 |
| | PFR080R10-D | | 8 | 1 | | | | | 7820302 | C | 18,700 |
| | PFR080R20-D | | 8 | 2 | | | | | | ※ | |
| | PFR100R03-D | | 10 | 0.3 | 3.3 | 2.6 | 8.5 | ③ | 7820303 | C | 20,400 |
| | PFR100R05-D | | 10 | 0.5 | | | | | 7820304 | C | 20,400 |
| | PFR100R10-D | | 10 | 1 | | | | | 7820305 | C | 20,400 |
| | PFR100R20-D | | 10 | 2 | | | | | | ※ | |
| | PFR120R03-D | | 12 | 0.3 | 4 | 3 | 10 | ④ | 7820306 | C | 22,200 |
| | PFR120R05-D | | 12 | 0.5 | | | | | 7820307 | C | 22,200 |
| | PFR120R10-D | | 12 | 1 | | | | | 7820308 | C | 22,200 |
| | PFR120R20-D | | 12 | 2 | | | | | | ※ | |
| | PFR120R30-D | | 12 | 3 | | | | | | ※ | |
| | PFR160R03-D | | 16 | 0.3 | 5.3 | 4 | 12 | ⑤ | 7820309 | C | 24,300 |
| | PFR160R05-D | | 16 | 0.5 | | | | | 7820310 | C | 24,300 |
| | PFR160R10-D | | 16 | 1 | | | | | 7820311 | C | 24,300 |
| | PFR160R20-D | | 16 | 2 | | | | | | ※ | |
| | PFR160R30-D | | 16 | 3 | | | | | | ※ | |
| | PFR200R03-D | | 20 | 0.3 | 6.7 | 5 | 15 | ⑥ | 7820312 | C | 25,900 |
| | PFR200R05-D | | 20 | 0.5 | | | | | 7820313 | C | 25,900 |
| | PFR200R10-D | | 20 | 1 | | | | | 7820314 | C | 25,900 |
| | PFR200R20-D | | 20 | 2 | | | | | | ※ | |
| | PFR200R30-D | | 20 | 3 | | | | | | ※ | |
| | PFR250R10-D | | 25 | 1 | 8.3 | 6 | 18.5 | ⑦ | | ※ | |
| | PFR300R10-D | | 30 | 1 | 10 | 7 | 22.5 | ⑧ | | ※ | |
| | PFR320R10-D | | 32 | 1 | 10.3 | 7 | 23.5 | ⑨ | | ※ | |

・被削材別推奨材質はp.1090をご参照下さい。
・Please refer to p.1090 for recommended materials by insert type.

C= 標準在庫品 C=Standard stock item ※ = 納期及び価格は当社営業まで問合せ下さい。 ※ =Please contact our sales department for price and lead time.

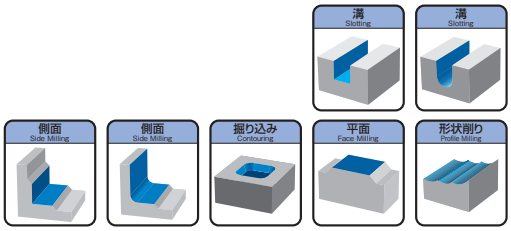
# OSG PHOENIX ヘッド交換式エンドミル4枚刃 不等分割スクエア・コーナラジアスタイプ

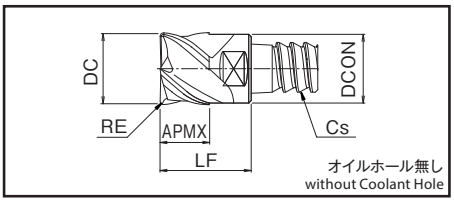
**OSG PHOENIX Exchangeable Head End Mill 4-flute Unequal Spacing Square and Corner Radius Type**

## PXM PXSE

切削条件 Cutting Conditions | P1093






## オイルホール無し without Coolant Hole

PXSE　不等分割　4枚刃　スクエア・コーナラジアス形状 Unequal Spacing, Four Flutes, Square · Corner Radius Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7829994 | **PXSE100C10-04R000** | 10 | 0 | 4 | 7 | 13 | 9.7 | 38° | C10 | XP3225 | 11,600 |
| 7829995 | **PXSE100C10-04R005** | | 0.5 | | | | | | | | 11,600 |
| 7829996 | **PXSE100C10-04R010** | | 1 | | | | | | | | 11,600 |
| 7829997 | **PXSE100C10-04R020** | | 2 | | | | | | | | 11,600 |
| 7829998 | **PXSE100C10-04R030** | | 3 | | | | | | | | 11,600 |
| 7830004 | **PXSE120C12-04R000** | 12 | 0 | 4 | 8.4 | 14.4 | 11.7 | 38° | C12 | XP3225 | 12,400 |
| 7830005 | **PXSE120C12-04R005** | | 0.5 | | | | | | | | 12,400 |
| 7830006 | **PXSE120C12-04R010** | | 1 | | | | | | | | 12,400 |
| 7830007 | **PXSE120C12-04R020** | | 2 | | | | | | | | 12,400 |
| 7830008 | **PXSE120C12-04R030** | | 3 | | | | | | | | 12,400 |
| 7830009 | **PXSE160C16-04R000** | 16 | 0 | 4 | 11.2 | 18.7 | 15.7 | 38° | C16 | XP3225 | 19,000 |
| 7830010 | **PXSE160C16-04R005** | | 0.5 | | | | | | | | 19,000 |
| 7830011 | **PXSE160C16-04R010** | | 1 | | | | | | | | 19,000 |
| 7830012 | **PXSE160C16-04R015** | | 1.5 | | | | | | | | 19,000 |
| 7830013 | **PXSE160C16-04R020** | | 2 | | | | | | | | 19,000 |
| 7830014 | **PXSE160C16-04R030** | | 3 | | | | | | | | 19,000 |
| 7830015 | **PXSE200C20-04R000** | 20 | 0 | 4 | 14 | 21.5 | 19.6 | 38° | C20 | XP3225 | 22,000 |
| 7830016 | **PXSE200C20-04R005** | | 0.5 | | | | | | | | 22,000 |
| 7830017 | **PXSE200C20-04R010** | | 1 | | | | | | | | 22,000 |
| 7830018 | **PXSE200C20-04R020** | | 2 | | | | | | | | 22,000 |
| 7830019 | **PXSE200C20-04R030** | | 3 | | | | | | | | 22,000 |
| 7830020 | **PXSE250C25-04R000** | 25 | 0 | 4 | 17.5 | 27.5 | 24 | 38° | C25 | XP3225 | 28,900 |
| 7830021 | **PXSE250C25-04R010** | | 1 | | | | | | | | 28,900 |
| 7830022 | **PXSE250C25-04R020** | | 2 | | | | | | | | 28,900 |
| 7830023 | **PXSE250C25-04R030** | | 3 | | | | | | | | 28,900 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

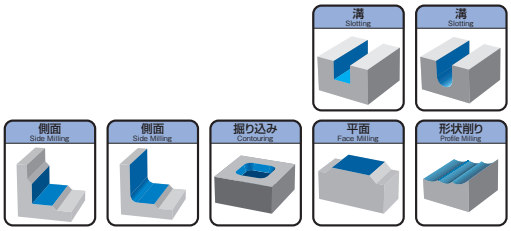
# OSG PHOENIX ヘッド交換式エンドミル4枚刃 不等分割スクエア・コーナラジアスタイプ

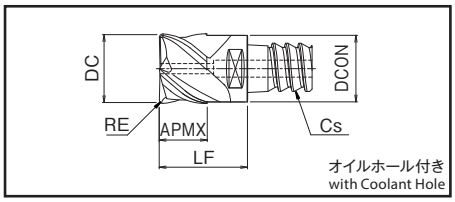
**OSG PHOENIX Exchangeable Head End Mill 4-flute Unequal Spacing Square and Corner Radius Type**

## PXM PXSE

切削条件 Cutting Conditions | P1093






## オイルホール付き with Coolant Hole

**PXSE 不等分割 4枚刃 スクエア・コーナラジアス形状** Unequal Spacing, Four Flutes, Square · Corner Radius Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830054 | **PXSE120C12-04R000-O** | 12 | 0 | 4 | 8.4 | 14.4 | 11.7 | 38° | C12 | XP3225 | 14,800 |
| 7830056 | **PXSE120C12-04R010-O** | | 1 | | | | | | | | 14,800 |
| 7830058 | **PXSE120C12-04R030-O** | | 3 | | | | | | | | 14,800 |
| 7830059 | **PXSE160C16-04R000-O** | 16 | 0 | 4 | 11.2 | 18.7 | 15.7 | 38° | C16 | XP3225 | 22,900 |
| 7830061 | **PXSE160C16-04R010-O** | | 1 | | | | | | | | 22,900 |
| 7830064 | **PXSE160C16-04R030-O** | | 3 | | | | | | | | 22,900 |
| 7830065 | **PXSE200C20-04R000-O** | 20 | 0 | 4 | 14 | 21.5 | 19.6 | 38° | C20 | XP3225 | 26,700 |
| 7830067 | **PXSE200C20-04R010-O** | | 1 | | | | | | | | 26,700 |
| 7830069 | **PXSE200C20-04R030-O** | | 3 | | | | | | | | 26,700 |
| 7830070 | **PXSE250C25-04R000-O** | 25 | 0 | 4 | 17.5 | 27.5 | 24 | 38° | C25 | XP3225 | 34,800 |
| 7830071 | **PXSE250C25-04R010-O** | | 1 | | | | | | | | 34,800 |
| 7830074 | **PXSE250C25-04R030-O** | | 3 | | | | | | | | 34,800 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。シャンクホルダについてはp.1018・p.1020をご覧下さい。
1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole. Refer to pages 1018 and 1020 for details on shank holders.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

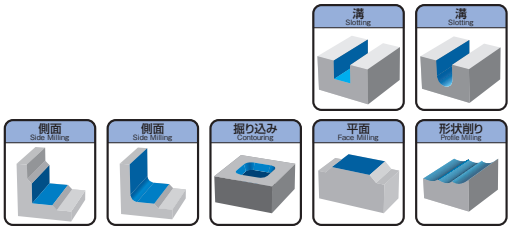
# OSG PHOENIX ヘッド交換式エンドミル4枚刃ハイヘリックス不等リードスクエア・コーナラジアスタイプ

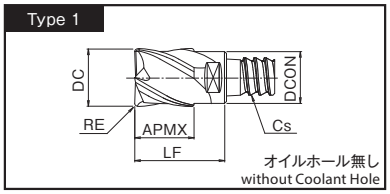
**OSG PHOENIX Exchangeable Head End Mill 4-flute High Helix Variable Lead Square and Corner Radius Type**

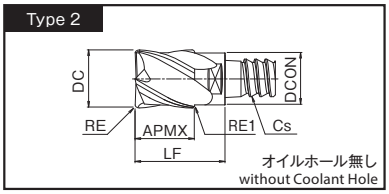
## PXM PXVC

切削条件 Cutting Conditions | P1094






## オイルホール無し without Coolant Hole

PXVC　不等リード　4枚刃　強ねじれ　スクエア・コーナラジアス形状 Variable Lead, Four Flutes, High helix, Square · Corner Radius Type（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7834994 | PXVC100C10-04R000 | 10 | 0 | 4 | 10 | 16 | 9.8 | 45/48° | C10 | XP3225 | 1 | 14,000 |
| 7834995 | PXVC100C10-04R005 | | 0.5 | | | | | | | | | 14,000 |
| 7834996 | PXVC100C10-04R010 | | 1 | | | | | | | | | 14,000 |
| 7834997 | PXVC100C10-04R020 | | 2 | | | | | | | | | 14,000 |
| 7834998 | PXVC100C10-04R030 | | 3 | | | | | | | | | 14,000 |
| 7834999 | PXVC120C10-04R000 | ★12 | 0 | 4 | 12 | 18 | 9.8 | 45/48° | | XP3225 | 2 | 14,800 |
| 7835000 | PXVC120C10-04R005 | | 0.5 | | | | | | | | | 14,800 |
| 7835001 | PXVC120C10-04R010 | | 1 | | | | | | | | | 14,800 |
| 7835002 | PXVC120C10-04R020 | | 2 | | | | | | | | | 14,800 |
| 7835003 | PXVC120C10-04R030 | | 3 | | | | | | | | | 14,800 |
| 7835004 | PXVC120C12-04R000 | 12 | 0 | 4 | 12 | 18 | 11.7 | 45/48° | C12 | XP3225 | 1 | 14,800 |
| 7835005 | PXVC120C12-04R005 | | 0.5 | | | | | | | | | 14,800 |
| 7835006 | PXVC120C12-04R010 | | 1 | | | | | | | | | 14,800 |
| 7835007 | PXVC120C12-04R020 | | 2 | | | | | | | | | 14,800 |
| 7835008 | PXVC120C12-04R030 | | 3 | | | | | | | | | 14,800 |
| 7835009 | PXVC140C12-04R000 | ★14 | 0 | 4 | 14 | 20 | 11.7 | 45/48° | | XP3225 | 2 | 20,300 |
| 7835010 | PXVC140C12-04R005 | | 0.5 | | | | | | | | | 20,300 |
| 7835011 | PXVC140C12-04R010 | | 1 | | | | | | | | | 20,300 |
| 7835012 | PXVC140C12-04R020 | | 2 | | | | | | | | | 20,300 |
| 7835013 | PXVC140C12-04R030 | | 3 | | | | | | | | | 20,300 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.

★ 刃太タイプ
Reduced Shank Type

次ページへ NEXT



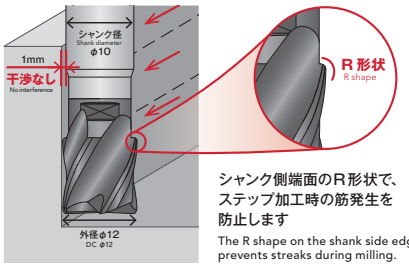
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

## ★PXVC刃太タイプ
**Reduced Shank Type**

・刃太タイプは、シャンク径よりも工具外径の方が大きいため、金型部品などの深い立ち壁加工やポケット加工に最適です

・The outer diameter of the reduced shank type is larger than the shank diameter, making it highly effective in the processing of die and mold applications that require vertical wall milling or pocketing.

例 Example




シャンク側端面のR形状で、ステップ加工時の筋発生を防止します

The R shape on the shank side edge prevents streaks during milling.

前ページより FROM

**PXVC　不等リード　4枚刃　強ねじれ　スクエア・コーナラジアス形状** Variable Lead, Four Flutes, High helix, Square · Corner Radius Type　（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7835014 | **PXVC160C16-04R000** | 16 | 0 | 4 | 16 | 23.5 | 15.7 | 45/48° | C16 | XP3225 | 1 | 22,900 |
| 7835015 | **PXVC160C16-04R005** | | 0.5 | | | | | | | | | 22,900 |
| 7835016 | **PXVC160C16-04R010** | | 1 | | | | | | | | | 22,900 |
| 7835017 | **PXVC160C16-04R015** | | 1.5 | | | | | | | | | 22,900 |
| 7835018 | **PXVC160C16-04R020** | | 2 | | | | | | | | | 22,900 |
| 7835019 | **PXVC160C16-04R030** | | 3 | | | | | | | | | 22,900 |
| 7835020 | **PXVC180C16-04R000** | ★18 | 0 | 4 | 18 | 25.5 | 15.7 | 45/48° | | XP3225 | 2 | 25,400 |
| 7835021 | **PXVC180C16-04R005** | | 0.5 | | | | | | | | | 25,400 |
| 7835022 | **PXVC180C16-04R010** | | 1 | | | | | | | | | 25,400 |
| 7835023 | **PXVC180C16-04R020** | | 2 | | | | | | | | | 25,400 |
| 7835024 | **PXVC180C16-04R030** | | 3 | | | | | | | | | 25,400 |
| 7835025 | **PXVC200C20-04R000** | 20 | 0 | 4 | 20 | 27.5 | 19.6 | 45/48° | C20 | XP3225 | 1 | 26,700 |
| 7835026 | **PXVC200C20-04R005** | | 0.5 | | | | | | | | | 26,700 |
| 7835027 | **PXVC200C20-04R010** | | 1 | | | | | | | | | 26,700 |
| 7835028 | **PXVC200C20-04R020** | | 2 | | | | | | | | | 26,700 |
| 7835029 | **PXVC200C20-04R030** | | 3 | | | | | | | | | 26,700 |
| 7835030 | **PXVC220C20-04R000** | ★22 | 0 | 4 | 22 | 29.5 | 19.6 | 45/48° | | XP3225 | 2 | 32,100 |
| 7835038 | **PXVC220C20-04R005** | | 0.5 | | | | | | | | | 32,100 |
| 7835031 | **PXVC220C20-04R010** | | 1 | | | | | | | | | 32,100 |
| 7835032 | **PXVC220C20-04R020** | | 2 | | | | | | | | | 32,100 |
| 7835033 | **PXVC220C20-04R030** | | 3 | | | | | | | | | 32,100 |
| 7835034 | **PXVC250C25-04R000** | 25 | 0 | 4 | 25 | 35 | 24 | 45/48° | C25 | XP3225 | 1 | 34,800 |
| 7835035 | **PXVC250C25-04R010** | | 1 | | | | | | | | | 34,800 |
| 7835036 | **PXVC250C25-04R020** | | 2 | | | | | | | | | 34,800 |
| 7835037 | **PXVC250C25-04R030** | | 3 | | | | | | | | | 34,800 |
| 7835039 | **PXVC320C32-05R010** | 32 | 1 | 5 | 32 | 44.7 | 28 | 45° | C32 | XP3225 | 1 | 109,000 |
| 7835040 | **PXVC320C32-08R010** | | | 8 | | | | 38° | | | | 121,000 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

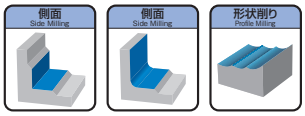
# OSG PHOENIX ヘッド交換式エンドミル多刃 不等分割スクエア・コーナラジアスタイプ

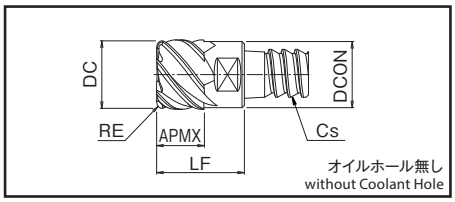
**OSG PHOENIX Exchangeable Head End Mill Multiple-flute Unequal Spacing Square and Corner Radius Type**

## PXM PXSM

切削条件 Cutting Conditions | P1098






## オイルホール無し without Coolant Hole

**PXSM　不等分割　多刃　スクエア・コーナラジアス形状** Unequal Spacing, Multiple Flutes, Square · Corner Radius Type　（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830094 | **PXSM100C10-06R000** | 10 | 0 | 6 | 7 | 13 | 9.7 | 38° | C10 | XP3225 | 14,200 |
| 7830095 | **PXSM100C10-06R005** | | 0.5 | | | | | | | | 14,200 |
| 7830096 | **PXSM100C10-06R010** | | 1 | | | | | | | | 14,200 |
| 7830097 | **PXSM100C10-06R020** | | 2 | | | | | | | | 14,200 |
| 7830104 | **PXSM120C12-06R000** | 12 | 0 | 6 | 8.4 | 14.4 | 11.7 | 38° | C12 | XP3225 | 14,500 |
| 7830105 | **PXSM120C12-06R005** | | 0.5 | | | | | | | | 14,500 |
| 7830106 | **PXSM120C12-06R010** | | 1 | | | | | | | | 14,500 |
| 7830107 | **PXSM120C12-06R020** | | 2 | | | | | | | | 14,500 |
| 7830108 | **PXSM120C12-06R030** | | 3 | | | | | | | | 14,500 |
| 7830109 | **PXSM160C16-06R000** | 16 | 0 | 6 | 11.2 | 18.7 | 15.7 | 38° | C16 | XP3225 | 20,900 |
| 7830110 | **PXSM160C16-06R005** | | 0.5 | | | | | | | | 20,900 |
| 7830111 | **PXSM160C16-06R010** | | 1 | | | | | | | | 20,900 |
| 7830112 | **PXSM160C16-06R015** | | 1.5 | | | | | | | | 20,900 |
| 7830113 | **PXSM160C16-06R020** | | 2 | | | | | | | | 20,900 |
| 7830114 | **PXSM160C16-06R030** | | 3 | | | | | | | | 20,900 |
| 7830115 | **PXSM160C16-08R000** | | 0 | 8 | | | | 42° | | | 23,800 |
| 7830116 | **PXSM160C16-08R005** | | 0.5 | | | | | | | | 23,800 |
| 7830117 | **PXSM160C16-08R010** | | 1 | | | | | | | | 23,800 |
| 7830118 | **PXSM160C16-08R015** | | 1.5 | | | | | | | | 23,800 |
| 7830119 | **PXSM160C16-08R020** | | 2 | | | | | | | | 23,800 |
| 7830120 | **PXSM160C16-08R030** | | 3 | | | | | | | | 23,800 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.



在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

**PXSM　不等分割　多刃　スクエア・コーナラジアス形状** Unequal Spacing, Multiple Flutes, Square · Corner Radius Type　(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830121 | **PXSM200C20-10R000** | 20 | 0 | 10 | 14 | 21.5 | 19.6 | 42° | C20 | XP3225 | 33,100 |
| 7830122 | **PXSM200C20-10R005** | | 0.5 | | | | | | | | 33,100 |
| 7830123 | **PXSM200C20-10R010** | | 1 | | | | | | | | 33,100 |
| 7830124 | **PXSM200C20-10R020** | | 2 | | | | | | | | 33,100 |
| 7830125 | **PXSM200C20-10R030** | | 3 | | | | | | | | 33,100 |
| 7830126 | **PXSM250C25-10R000** | 25 | 0 | 10 | 17.5 | 27.5 | 24 | 42° | C25 | XP3225 | 37,400 |
| 7830127 | **PXSM250C25-10R010** | | 1 | | | | | | | | 37,400 |
| 7830128 | **PXSM250C25-10R020** | | 2 | | | | | | | | 37,400 |
| 7830129 | **PXSM250C25-10R030** | | 3 | | | | | | | | 37,400 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.

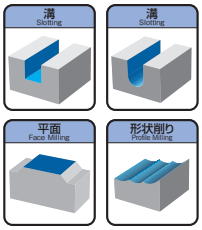
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ヘッド交換式エンドミル3枚刃 スクエア・コーナラジアスタイプ

**OSG PHOENIX Exchangeable Head End Mill 4-flute Square and Corner Radius Type**

## PXM PXAL

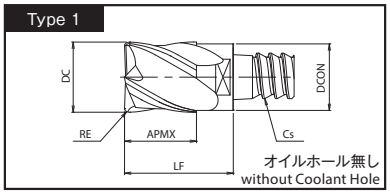
切削条件 Cutting Conditions | P1099

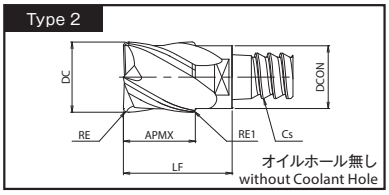





コーティングに色むらが発生する場合がありますが、性能上は全く問題ありません。

End mills may have some discoloration, but it does not cause any performance problems.




## オイルホール無し without Coolant Hole

**PXAL 3枚刃 スクエア・コーナラジアス形状** Three Flutes,Square·Corner Radius Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7834930 | PXAL100C10-03R000 | 10 | 0 | 3 | 10 | 16 | 9.8 | 45° | C10 | XP4625 | 1 | 14,000 |
| 7834931 | PXAL100C10-03R100 | | 1 | | | | | | | | 1 | 14,000 |
| 7834932 | PXAL100C10-03R250 | | 2.5 | | | | | | | | 1 | 14,000 |
| 7834933 | PXAL120C10-03R000 | ★12 | 0 | 3 | 12 | 18 | 9.8 | 45° | | XP4625 | 2 | 14,800 |
| 7834934 | PXAL120C12-03R000 | 12 | 0 | 3 | 12 | 18 | 11.7 | 45° | C12 | XP4625 | 1 | 14,800 |
| 7834935 | PXAL120C12-03R100 | | 1 | | | | | | | | 1 | 14,800 |
| 7834936 | PXAL120C12-03R300 | | 3 | | | | | | | | 1 | 14,800 |
| 7834937 | PXAL140C12-03R000 | ★14 | 0 | 3 | 14 | 20 | 11.7 | 45° | | XP4625 | 2 | 20,300 |
| 7834938 | PXAL160C16-03R000 | 16 | 0 | 3 | 16 | 23.5 | 15.7 | 45° | C16 | XP4625 | 1 | 22,900 |
| 7834939 | PXAL160C16-03R100 | | 1 | | | | | | | | 1 | 22,900 |
| 7834940 | PXAL160C16-03R200 | | 2 | | | | | | | | 1 | 22,900 |
| 7834941 | PXAL160C16-03R300 | | 3 | | | | | | | | 1 | 22,900 |
| 7834942 | PXAL160C16-03R400 | | 4 | | | | | | | | 1 | 22,900 |
| 7834943 | PXAL180C16-03R000 | ★18 | 0 | 3 | 18 | 25.5 | 15.7 | 45° | | XP4625 | 2 | 25,400 |
| 7834944 | PXAL200C20-03R000 | 20 | 0 | 3 | 20 | 27.5 | 19.6 | 45° | C20 | XP4625 | 1 | 26,700 |
| 7834945 | PXAL200C20-03R100 | | 1 | | | | | | | | 1 | 26,700 |
| 7834946 | PXAL200C20-03R200 | | 2 | | | | | | | | 1 | 26,700 |
| 7834947 | PXAL200C20-03R300 | | 3 | | | | | | | | 1 | 26,700 |
| 7834948 | PXAL200C20-03R400 | | 4 | | | | | | | | 1 | 26,700 |
| 7834949 | PXAL220C20-03R000 | ★22 | 0 | 3 | 22 | 29.5 | 19.6 | 45° | | XP4625 | 2 | 32,100 |
| 7834950 | PXAL250C25-03R000 | 25 | 0 | 3 | 25 | 35 | 24 | 45° | C25 | XP4625 | 1 | 34,800 |
| 7834951 | PXAL250C25-03R100 | | 1 | | | | | | | | 1 | 34,800 |
| 7834952 | PXAL250C25-03R300 | | 3 | | | | | | | | 1 | 34,800 |
| 7834953 | PXAL250C25-03R500 | | 5 | | | | | | | | 1 | 34,800 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.

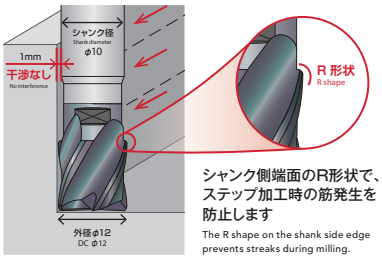
★ 刃太タイプ
Reduced Shank Type

## ★ PXAL 刃太タイプ
**Reduced Shank Type**

・刃太タイプは、シャンク径よりも工具外径の方が大きいため、金型部品などの深い立ち壁加工やポケット加工に最適です

・The outer diameter of the reduced shank type is larger than the shank diameter, making it highly effective in the processing of die and mold applications that require vertical wall milling or pocketing.

例 Example




シャンク側端面のR形状で、ステップ加工時の筋発生を防止します

The R shape on the shank side edge prevents streaks during milling.

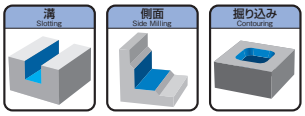
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

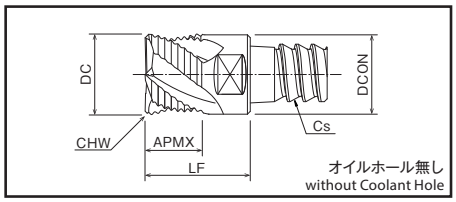
# OSG PHOENIX ヘッド交換式エンドミル4枚刃 ラフィング形状不等リード強ねじれタイプ

**OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead High Helix Type**

## PXM PXNH　切削条件 Cutting Conditions | P1101





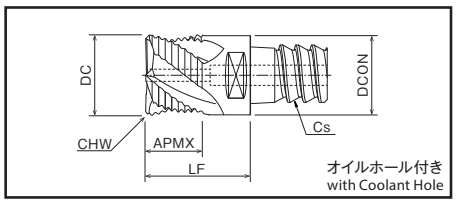




### オイルホール無し without Coolant Hole

**PXNH　不等リード　4枚刃　強ねじれ　ラフィング形状** Variable Lead, Four Flutes, High Helix, Roughing Type　(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ面取幅 CHW | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830450 | **PXNH100C10-04C005** | 10 | 0.5 | 4 | 7 | 13 | 9.7 | 40/42° | C10 | XP3225 | 13,000 |
| 7830451 | **PXNH120C12-04C005** | 12 | 0.5 | 4 | 8.4 | 14.4 | 11.7 | 40/42° | C12 | XP3225 | 13,300 |
| 7830452 | **PXNH160C16-04C006** | 16 | 0.6 | 4 | 11.2 | 18.7 | 15.7 | 40/42° | C16 | XP3225 | 21,700 |
| 7830453 | **PXNH200C20-04C006** | 20 | 0.6 | 4 | 14 | 21.5 | 19.6 | 40/42° | C20 | XP3225 | 26,700 |
| 7830454 | **PXNH250C25-04C006** | 25 | 0.6 | 4 | 17.5 | 27.5 | 24 | 40/42° | C25 | XP3225 | 36,600 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.






### オイルホール付き with Coolant Hole

**PXNH　不等リード　4枚刃　強ねじれ　ラフィング形状** Variable Lead, Four Flutes, High Helix, Roughing Type　(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ面取幅 CHW | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830461 | **PXNH120C12-04C005-O** | 12 | 0.5 | 4 | 8.4 | 14.4 | 11.7 | 40/42° | C12 | XP3225 | 16,000 |
| 7830462 | **PXNH160C16-04C006-O** | 16 | 0.6 | 4 | 11.2 | 18.7 | 15.7 | 40/42° | C16 | XP3225 | 26,200 |
| 7830463 | **PXNH200C20-04C006-O** | 20 | 0.6 | 4 | 14 | 21.5 | 19.6 | 40/42° | C20 | XP3225 | 31,800 |
| 7830464 | **PXNH250C25-04C006-O** | 25 | 0.6 | 4 | 17.5 | 27.5 | 24 | 40/42° | C25 | XP3225 | 43,900 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。シャンクホルダについてはp.1018・p.1020をご覧下さい。
1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole. Refer to pages 1018 and 1020 for details on shank holders.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

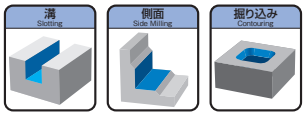
# OSG PHOENIX ヘッド交換式エンドミル4枚刃 ラフィング形状不等リード弱ねじれタイプ

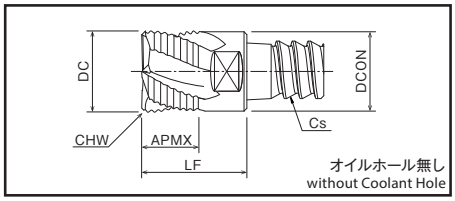
**OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead Low Helix Type**

## PXM PXNL

切削条件 Cutting Conditions | P1101





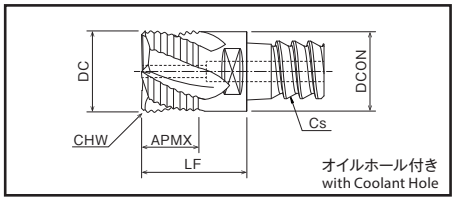

## オイルホール無し without Coolant Hole

**PXNL　不等リード　4枚刃　弱ねじれ　ラフィング形状** Variable Lead, Four Flutes, Low Helix, Roughing Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ面取幅 CHW | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830400 | **PXNL100C10-04C005** | 10 | 0.5 | 4 | 7 | 13 | 9.7 | 19/21° | C10 | XP3225 | 13,000 |
| 7830401 | **PXNL120C12-04C005** | 12 | 0.5 | 4 | 8.4 | 14.4 | 11.7 | 19/21° | C12 | XP3225 | 13,300 |
| 7830402 | **PXNL160C16-04C006** | 16 | 0.6 | 4 | 11.2 | 18.7 | 15.7 | 19/21° | C16 | XP3225 | 21,700 |
| 7830403 | **PXNL200C20-04C006** | 20 | 0.6 | 4 | 14 | 21.5 | 19.6 | 19/21° | C20 | XP3225 | 26,700 |
| 7830404 | **PXNL250C25-04C006** | 25 | 0.6 | 4 | 17.5 | 27.5 | 24 | 19/21° | C25 | XP3225 | 36,600 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.






## オイルホール付き with Coolant Hole

**PXNL　不等リード　4枚刃　弱ねじれ　ラフィング形状** Variable Lead, Four Flutes, Low Helix, Roughing Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ面取幅 CHW | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830411 | **PXNL120C12-04C005-O** | 12 | 0.5 | 4 | 8.4 | 14.4 | 11.7 | 19/21° | C12 | XP3225 | 16,000 |
| 7830412 | **PXNL160C16-04C006-O** | 16 | 0.6 | 4 | 11.2 | 18.7 | 15.7 | 19/21° | C16 | XP3225 | 26,200 |
| 7830413 | **PXNL200C20-04C006-O** | 20 | 0.6 | 4 | 14 | 21.5 | 19.6 | 19/21° | C20 | XP3225 | 31,800 |
| 7830414 | **PXNL250C25-04C006-O** | 25 | 0.6 | 4 | 17.5 | 27.5 | 24 | 19/21° | C25 | XP3225 | 43,900 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。シャンクホルダについてはp.1018・1020をご覧下さい。
1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole. Refer to pages 1018 and 1020 for details on shank holders.



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

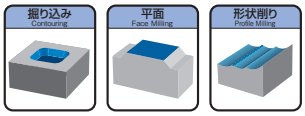
# OSG PHOENIX ヘッド交換式エンドミル直刃 コーナラジアスタイプ

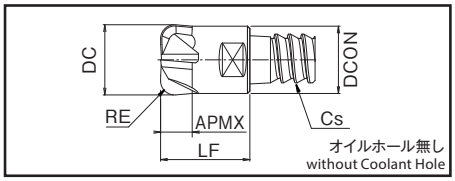
**OSG PHOENIX Exchangeable Head End Mill Straight Flute with Corner Radius**

## PXM PXRE

切削条件 Cutting Conditions | **P1102**






### オイルホール無し without Coolant Hole

**PXRE 直刃 コーナラジアス形状** Straight Flutes, Corner Radius Type

(単位:mm) (Unit:mm)

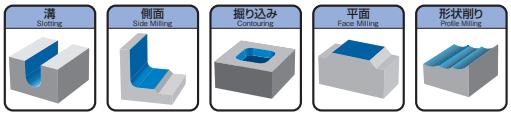
| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830200 | **PXRE100C10-04R020** | 10 | 2 | 4 | 4.5 | 13 | 9.7 | – | C10 | XP6305 | 14,500 |
| 7830201 | **PXRE120C12-04R020** | 12 | 2 | 4 | 5 | 14.4 | 11.7 | – | C12 | XP6305 | 15,000 |
| 7830202 | **PXRE160C16-06R030** | 16 | 3 | 6 | 7 | 18.7 | 15.7 | – | C16 | XP6305 | 26,700 |
| 7830203 | **PXRE200C20-06R030** | 20 | 3 | 6 | 10 | 21.5 | 19.6 | – | C20 | XP6305 | 29,400 |

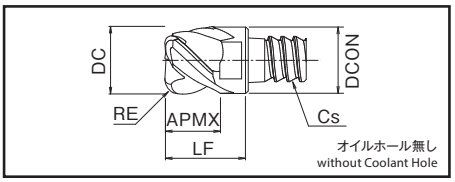
適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.

# OSG PHOENIX ヘッド交換式エンドミル コーナラジアスタイプ
**OSG PHOENIX Exchangeable Head End Mill with Corner Radius**

## PXM PXDR　切削条件 Cutting Conditions | P1102






## オイルホール無し without Coolant Hole

### PXDR-P　3枚刃　能力型　コーナラジアス形状 Three Flutes, Multi-purpose, Corner Radius Type

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830349 | **PXDR100C10-03R015-P** | 10 | 1.5 | 3 | 7 | 13 | 9.7 | 45° | C10 | XP3225 | 11,600 |
| 7830350 | **PXDR100C10-03R020-P** | | 2 | | | | | | | | 11,600 |
| 7830351 | **PXDR120C12-03R015-P** | 12 | 1.5 | 3 | 8.4 | 14.4 | 11.7 | 45° | C12 | XP3225 | 12,400 |
| 7830352 | **PXDR120C12-03R020-P** | | 2 | | | | | | | | 12,400 |
| 7830353 | **PXDR160C16-03R020-P** | 16 | 2 | 3 | 11.2 | 18.7 | 15.7 | 45° | C16 | XP3225 | 19,000 |
| 7830354 | **PXDR160C16-03R030-P** | | 3 | | | | | | | | 19,000 |
| 7830355 | **PXDR200C20-03R020-P** | 20 | 2 | 3 | 14 | 21.5 | 19.6 | 45° | C20 | XP3225 | 22,000 |
| 7830356 | **PXDR200C20-03R030-P** | | 3 | | | | | | | | 22,000 |

### PXDR-N　3枚刃　耐久型　コーナラジアス形状 Three Flutes, Heavy-duty, Corner Radius Type

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | コーナ半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830369 | **PXDR100C10-03R015-N** | 10 | 1.5 | 3 | 7 | 13 | 9.7 | 45° | C10 | XP6305 | 11,600 |
| 7830370 | **PXDR100C10-03R020-N** | | 2 | | | | | | | | 11,600 |
| 7830371 | **PXDR120C12-03R015-N** | 12 | 1.5 | 3 | 8.4 | 14.4 | 11.7 | 45° | C12 | XP6305 | 12,400 |
| 7830372 | **PXDR120C12-03R020-N** | | 2 | | | | | | | | 12,400 |
| 7830373 | **PXDR160C16-03R020-N** | 16 | 2 | 3 | 11.2 | 18.7 | 15.7 | 45° | C16 | XP6305 | 19,000 |
| 7830374 | **PXDR160C16-03R030-N** | | 3 | | | | | | | | 19,000 |
| 7830375 | **PXDR200C20-03R020-N** | 20 | 2 | 3 | 14 | 21.5 | 19.6 | 45° | C20 | XP6305 | 22,000 |
| 7830376 | **PXDR200C20-03R030-N** | | 3 | | | | | | | | 22,000 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.



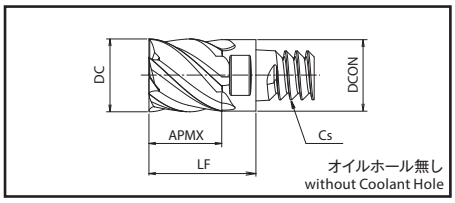
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ヘッド交換式エンドミル
# 高硬度鋼用多刃スクエア
**OSG PHOENIX Exchangeable Head End Mill Multiple-flute Square Type for High-hardness Steels**

## PXM PXSH　切削条件 Cutting Conditions | P1103






### オイルホール無し without Coolant Hole

**PXSH　不等分割　多刃　スクエア形状** Unequal Spacing, Multiple Flutes,Square Type　　(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7830380 | **PXSH120C12-06R000** | 12 | 6 | 12 | 18 | 11.7 | 43° | C12 | XP6703 | 16,700 |
| 7830381 | **PXSH160C16-06R000** | 16 | 6 | 16 | 23.5 | 15.7 | 43° | C16 | XP6703 | 26,700 |
| 7830382 | **PXSH200C20-06R000** | 20 | 6 | 20 | 27.5 | 19.6 | 43° | C20 | XP6703 | 33,100 |
| 7830383 | **PXSH250C25-08R000** | 25 | 8 | 25 | 35 | 24 | 43° | C25 | XP6703 | 49,700 |

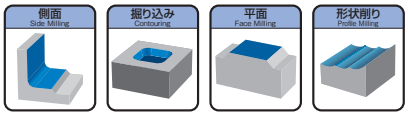
適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.

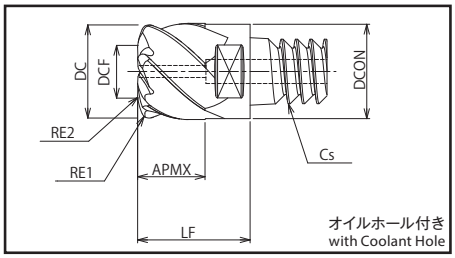
# OSG PHOENIX ヘッド交換式エンドミル 多刃高送りラジアスタイプ

**OSG PHOENIX Exchangeable Head End Mill Multiple-flute High Feed Radius Type**

## PXM PXHF-AM 切削条件 Cutting Conditions | P1105






## オイルホール付き with Coolant Hole

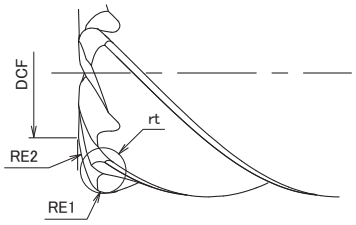
**PXHF-AM 多刃 高送りラジアス形状** Multiple Flutes,High Feed Radius Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 擬似R rt | 有効径 DCF | 刃数 ZEFP | コーナR RE1 | 底刃R RE2 | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830377 | **PXHF-AM120C12-06R150-O** | 12 | 1.5 | 6 | 6 | 1.2 | 7 | 8.4 | 14.4 | 11.7 | 45° | C12 | XP6703 | 17,900 |
| 7830378 | **PXHF-AM160C16-06R200-O** | 16 | 2 | 8 | | 1.6 | 9.5 | 11.2 | 18.7 | 15.7 | 45° | C16 | XP6703 | 25,100 |
| 7830379 | **PXHF-AM200C20-06R250-O** | 20 | 2.5 | 10 | | 2 | 12 | 14 | 21.5 | 19.6 | 45° | C20 | XP6703 | 32,600 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。シャンクホルダについてはp.1018・p.1020をご覧下さい。
1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole. Refer to pages 1018 and 1020 for details on shank holders.

### コーナR部詳細 Details of corner R



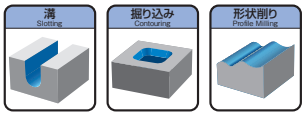


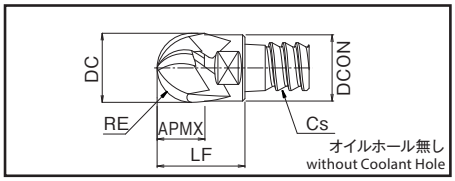

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ヘッド交換式エンドミル3枚刃 ボールタイプ
**OSG PHOENIX Exchangeable Head End Mill 3-flute Ball Type**

## PXM PXBE　切削条件 Cutting Conditions | P1107






### オイルホール無し without Coolant Hole

**PXBE-P　3枚刃　能力型　ボール形状** Three Flutes, Multi-purpose, Ball Type　（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830270 | **PXBE100C10-03R050-P** | 10 | 5 | 3 | 7 | 13 | 9.7 | 45° | C10 | XP3320 | 14,000 |
| 7830271 | **PXBE120C12-03R060-P** | 12 | 6 | 3 | 8.4 | 14.4 | 11.7 | 45° | C12 | XP3320 | 14,600 |
| 7830272 | **PXBE160C16-03R080-P** | 16 | 8 | 3 | 11.2 | 18.7 | 15.7 | 45° | C16 | XP3320 | 22,400 |
| 7830273 | **PXBE200C20-03R100-P** | 20 | 10 | 3 | 14 | 21.5 | 19.6 | 45° | C20 | XP3320 | 26,700 |

**PXBE-N　3枚刃　耐久型　ボール形状** Three Flutes, Heavy-duty, Ball Type　（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830250 | **PXBE100C10-03R050-N** | 10 | 5 | 3 | 7 | 13 | 9.7 | 45° | C10 | XP3320 | 14,000 |
| 7830251 | **PXBE120C12-03R060-N** | 12 | 6 | 3 | 8.4 | 14.4 | 11.7 | 45° | C12 | XP3320 | 14,600 |
| 7830252 | **PXBE160C16-03R080-N** | 16 | 8 | 3 | 11.2 | 18.7 | 15.7 | 45° | C16 | XP3320 | 22,400 |
| 7830253 | **PXBE200C20-03R100-N** | 20 | 10 | 3 | 14 | 21.5 | 19.6 | 45° | C20 | XP3320 | 26,700 |

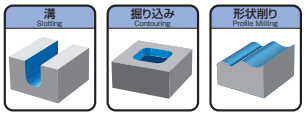
適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.

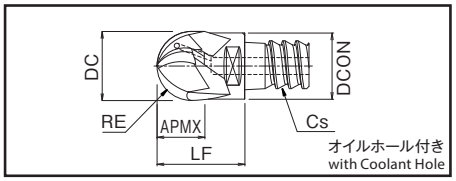
# OSG PHOENIX ヘッド交換式エンドミル 3枚刃ボールタイプ
**OSG PHOENIX Exchangeable Head End Mill 3-flute Ball Type**

## PXM PXBE

切削条件 Cutting Conditions | P1107






## オイルホール付き with Coolant Hole

### PXBE-P 3枚刃 能力型 ボール形状 Three Flutes, Multi-purpose, Ball Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830281 | **PXBE120C12-03R060-P-O** | 12 | 6 | 3 | 8.4 | 14.4 | 11.7 | 45° | C12 | XP3320 | 17,500 |
| 7830282 | **PXBE160C16-03R080-P-O** | 16 | 8 | 3 | 11.2 | 18.7 | 15.7 | 45° | C16 | XP3320 | 27,200 |
| 7830283 | **PXBE200C20-03R100-P-O** | 20 | 10 | 3 | 14 | 21.5 | 19.6 | 45° | C20 | XP3320 | 31,800 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。シャンクホルダについてはp.1018・p.1020をご覧下さい。
1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole. Refer to pages 1018 and 1020 for details on shank holders.

### PXBE-N 3枚刃 耐久型 ボール形状 Three Flutes, Heavy-duty, Ball Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830261 | **PXBE120C12-03R060-N-O** | 12 | 6 | 3 | 8.4 | 14.4 | 11.7 | 45° | C12 | XP3320 | 17,500 |
| 7830262 | **PXBE160C16-03R080-N-O** | 16 | 8 | 3 | 11.2 | 18.7 | 15.7 | 45° | C16 | XP3320 | 27,200 |
| 7830263 | **PXBE200C20-03R100-N-O** | 20 | 10 | 3 | 14 | 21.5 | 19.6 | 45° | C20 | XP3320 | 31,800 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。シャンクホルダについてはp.1018・p.1020をご覧下さい。
1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole. Refer to pages 1018 and 1020 for details on shank holders.



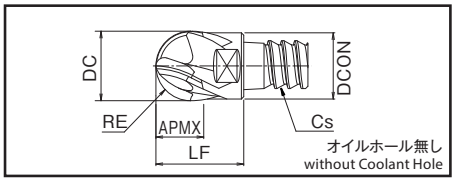
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ヘッド交換式エンドミル 多刃ボールタイプ
**OSG PHOENIX Exchangeable Head End Mill Multiple-flute Ball Type**

## PXM PXBM　切削条件 Cutting Conditions | P1107






### オイルホール無し without Coolant Hole

**PXBM　多刃　ボール形状** Multiple Flutes, Ball Type　　(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 刃数 ZEFP | 刃長 APMX | 全長 LF | 首径 DCON | ねじれ角 FHA | 締結規格 Cs | 材種 Grades | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7830300 | **PXBM100C10-04R050** | 10 | 5 | 4 | 7 | 13 | 9.7 | 45° | C10 | XP3320 | 14,000 |
| 7830301 | **PXBM120C12-04R060** | 12 | 6 | 4 | 8.4 | 14.4 | 11.7 | 45° | C12 | XP3320 | 14,600 |
| 7830302 | **PXBM160C16-06R080** | 16 | 8 | 6 | 11.2 | 18.7 | 15.7 | 45° | C16 | XP3320 | 22,400 |
| 7830303 | **PXBM200C20-06R100** | 20 | 10 | 6 | 14 | 21.5 | 19.6 | 45° | C20 | XP3320 | 26,700 |

適用ホルダはp.1017をご覧下さい。See page 1017 for applicable holders.

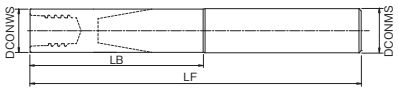
# OSG PHOENIX ヘッド交換式エンドミル PXM用ストレートシャンクホルダ

**OSG PHOENIX Straight Shank Holder for Exchangeable Head End Mills**

# PXMZ

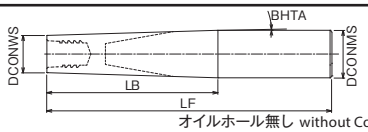


Type 1



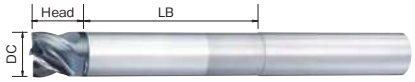

オイルホール無し without Coolant Hole

Type 2




オイルホール無し without Coolant Hole

ヘッド取付時の有効長 Head +LB




## オイルホール無し without Coolant Hole

**超硬シャンク** Carbide Shank

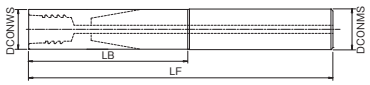
(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 首径 DCONWS | シャンク径 DCONMS | 角度 BHTA | 全長 LF | 首下長 LB | ヘッド取付時の有効長 Head +LB | | | 締結規格 Cs | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | PXVC、PXAL、PXSH以外 Except PXVC, PXAL, PXSH | PXVC、PXAL、PXSH外径 DC φ10、12、16、20、25、32 | PXVC、PXAL、PXSH外径 DC φ12、14、18、22 (刃太タイプ) Reduced Shank Type | | | |
| 7801830 | **PXMZ-C10SS10-S075CS** | 9.8 | 10 | 0° | 75 | 17.3 | 30.3 | 33.3 | 35.3 | C10 | 1 | 34,200 |
| 7801810 | **PXMZ-C10SS10-L100CS** | | 10 | 0° | 100 | 37.3 | 50.3 | 53.3 | 55.3 | | 1 | 37,400 |
| 7801840 | **PXMZ-C10TP12-LL130CS** | | 12 | 0.9° | 130 | 67 | 80 | 83 | 85 | | 2 | 54,500 |
| 7801831 | **PXMZ-C12SS12-S075CS** | 11.7 | 12 | 0° | 75 | 24 | 38.4 | 42 | 44 | C12 | 1 | 42,700 |
| 7801811 | **PXMZ-C12SS12-L100CS** | | 12 | 0° | 100 | 45.9 | 60.3 | 63.9 | 65.9 | | 1 | 47,600 |
| 7801832 | **PXMZ-C12SS12-L115CS** | | 12 | 0° | 115 | 64.2 | 78.6 | 82.2 | 84.2 | | 1 | 54,500 |
| 7801841 | **PXMZ-C12TP16-LL135CS** | | 16 | 1.3° | 135 | 83.8 | 98.2 | 101.8 | 103.8 | | 2 | 82,700 |
| 7801833 | **PXMZ-C16SS16-S090CS** | 15.7 | 16 | 0° | 90 | 39.2 | 57.9 | 62.7 | 64.7 | C16 | 1 | 58,800 |
| 7801812 | **PXMZ-C16SS16-L130CS** | | 16 | 0° | 130 | 61.2 | 79.9 | 84.7 | 86.7 | | 1 | 73,200 |
| 7801834 | **PXMZ-C16SS16-L135CS** | | 16 | 0° | 135 | 84.2 | 102.9 | 107.7 | 109.7 | | 1 | 74,600 |
| 7801842 | **PXMZ-C16TP20-LL165CS** | | 20 | 1.1° | 165 | 115 | 136.5 | 138.5 | 140.5 | | 2 | 113,000 |
| 7801835 | **PXMZ-C20SS20-S090CS** | 19.6 | 20 | 0° | 90 | 39.1 | 60.6 | 66.6 | 68.6 | C20 | 1 | 71,700 |
| 7801813 | **PXMZ-C20SS20-L150CS** | | 20 | 0° | 150 | 78.4 | 99.9 | 105.9 | 107.9 | | 1 | 107,000 |
| 7801836 | **PXMZ-C20SS20-L180CS** | | 20 | 0° | 180 | 109.1 | 130.6 | 136.6 | 138.6 | | 1 | 110,000 |
| 7801843 | **PXMZ-C20TP25-LL200CS** | | 25 | 1.1° | 200 | 140 | 161.5 | 167.5 | 169.5 | | 2 | 139,000 |
| 7801814 | **PXMZ-C25SS25-L200CS** | 24 | 25 | 0° | 200 | 96.6 | 124.1 | 131.6 | – | C25 | 1 | 141,000 |
| 7801815 | **PXMZ-C32SS32-L250CS** | 28 | 32 | 0° | 250 | 115.2 | – | 159.9 | – | C32 | 1 | 263,000 |

1. 切りくずのかみ込みが起こらないようクーラントノズル位置を調整下さい。
1. Adjust the position of the coolant nozzles accordingly so that the chips do not get tangled.

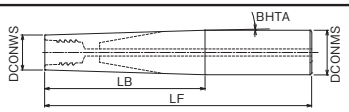
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

Type 3




オイルホール付き with Coolant Hole

Type 4




オイルホール付き with Coolant Hole

ヘッド取付時の有効長 Head +LB




## オイルホール付き with Coolant Hole

**超硬シャンク** Carbide Shank

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 首径 DCONWS | シャンク径 DCONMS | 角度 BHTA | 全長 LF | 首下長 LB | ヘッド取付時の有効長 Head +LB | | | 締結規格 Cs | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | PXVC、PXAL、PXSH以外 Except PXVC, PXAL, PXSH | PXVC、PXAL、PXSH外径 DC | | | | |
| | | | | | | | | φ12、16、20、25 | φ14、18、22 | | | |
| 7803511 | **PXMZ-C12SS12-S075CS-O** | 11.7 | 12 | 0° | 75 | 25 | 39.4 | 43 | 45 | C12 | 3 | 42,700 |
| 7803512 | **PXMZ-C12SS12-L100CS-O** | | 12 | 0° | 100 | 46.3 | 60.7 | 64.3 | 66.3 | | 3 | 47,600 |
| 7803513 | **PXMZ-C12SS12-L115CS-O** | | 12 | 0° | 115 | 65 | 79.4 | 83 | 85 | | 3 | 54,500 |
| 7803514 | **PXMZ-C12TP16-LL135CS-O** | | 16 | 1.3° | 135 | 85 | 99.4 | 103 | 105 | | 4 | 82,700 |
| 7803515 | **PXMZ-C12TP16-LL150CS-O** | | 16 | 1° | 150 | 85.6 | 100 | 103.6 | 105.6 | | 4 | 84,000 |
| 7803521 | **PXMZ-C16SS16-S090CS-O** | 15.7 | 16 | 0° | 90 | 40 | 58.7 | 63.5 | 65.5 | C16 | 3 | 58,800 |
| 7803522 | **PXMZ-C16SS16-L130CS-O** | | 16 | 0° | 130 | 62 | 80.7 | 85.5 | 87.5 | | 3 | 73,200 |
| 7803523 | **PXMZ-C16SS16-L135CS-O** | | 16 | 0° | 135 | 85 | 103.7 | 108.5 | 110.5 | | 3 | 74,600 |
| 7803524 | **PXMZ-C16TP20-LL165CS-O** | | 20 | 1° | 165 | 115 | 133.7 | 138.5 | 140.5 | | 4 | 113,000 |
| 7803525 | **PXMZ-C16TP20-LL180CS-O** | | 20 | 1° | 180 | 116.6 | 135.3 | 140.1 | 142.1 | | 4 | 115,000 |
| 7803531 | **PXMZ-C20SS20-S090CS-O** | 19.6 | 20 | 0° | 90 | 40 | 61.5 | 67.5 | 69.5 | C20 | 3 | 71,700 |
| 7803532 | **PXMZ-C20SS20-L150CS-O** | | 20 | 0° | 150 | 79.3 | 100.8 | 106.8 | 108.8 | | 3 | 107,000 |
| 7803533 | **PXMZ-C20SS20-L180CS-O** | | 20 | 0° | 180 | 110 | 131.5 | 137.5 | 139.5 | | 3 | 110,000 |
| 7803534 | **PXMZ-C20TP25-LL200CS-O** | | 25 | 1° | 200 | 140 | 161.5 | 167.5 | 169.5 | | 4 | 139,000 |
| 7803535 | **PXMZ-C20TP25-LL210CS-O** | | 25 | 1° | 210 | 145 | 166.5 | 172.5 | 174.5 | | 4 | 141,000 |
| 7803541 | **PXMZ-C25SS25-L200CS-O** | 24 | 25 | 0° | 200 | 98 | 125.5 | 133 | — | C25 | 3 | 141,000 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。
但し、PXVCをはじめオイルホール非対応のヘッドでも、オイルホール付きシャンクホルダに取り付けて加工可能です。
2. 切りくずのかみ込みが起こらないようクーラントノズル位置を調整下さい。
1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole.
Shank holders with oil hole can also be used with heads without oil hole such as PXVC in case of dry machining or external coolant.
2. Adjust the position of the coolant nozzles accordingly so that the chips do not get tangled.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

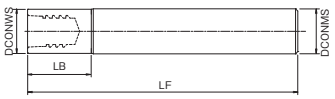
# OSG PHOENIX ヘッド交換式エンドミル PXM用ストレートシャンクホルダ

**OSG PHOENIX Straight Shank Holder for Exchangeable Head End Mills**

# PXMZ

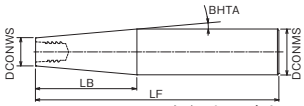


Type 1




オイルホール無し without Coolant Hole

Type2




オイルホール無し without Coolant Hole

ヘッド取付時の有効長 Head +LB




## オイルホール無し without Coolant Hole

**鋼シャンク** Steel Shank

(単位:mm) (Unit:mm)

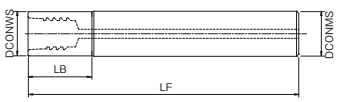
| ツールNo. EDP No. | 呼び Designation | 首径 DCONWS | シャンク径 DCONMS | 角度 BHTA | 全長 LF | 首下長 LB | ヘッド取付時の有効長 Head +LB | | | 締結規格 Cs | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | PXVC、PXAL、PXSH以外 Except PXVC, PXAL, PXSH | PXVC、PXAL、PXSH外径 DC | | | | |
| | | | | | | | | φ10、12、16、20、25、32 | φ12、14、18、22 (刃太タイプ) Reduced Shank Type | | | |
| 7801800 | **PXMZ-C10SS10-S075** | 9.8 | 10 | 0° | 75 | 12 | 25 | 28 | 30 | C10 | 1 | 11,300 |
| 7801801 | **PXMZ-C12SS12-S100** | 11.7 | 12 | 0° | 100 | 18 | 32.4 | 36 | 38 | C12 | 1 | 15,500 |
| 7801821 | **PXMZ-C12TP20-S145** | | 20 | 5° | 145 | 47.4 | 61.8 | 65.4 | 67.4 | | 2 | 18,200 |
| 7801802 | **PXMZ-C16SS16-S100** | 15.7 | 16 | 0° | 100 | 23 | 41.7 | 46.5 | 48.5 | C16 | 1 | 15,700 |
| 7801822 | **PXMZ-C16TP25-S155** | | 25 | 5° | 155 | 53.1 | 71.8 | 76.6 | 78.6 | | 2 | 21,900 |
| 7801803 | **PXMZ-C20SS20-S120** | 19.6 | 20 | 0° | 120 | 28 | 49.5 | 55.5 | 57.5 | C20 | 1 | 18,500 |
| 7801823 | **PXMZ-C20TP32-S170** | | 32 | 5° | 170 | 70.8 | 92.3 | 98.3 | 100.3 | | 2 | 25,900 |
| 7801804 | **PXMZ-C25SS25-S140** | 24 | 25 | 0° | 140 | 34.5 | 62 | 69.5 | — | C25 | 1 | 19,300 |
| 7801805 | **PXMZ-C32SS32-S160** | 28 | 32 | 0° | 160 | 33 | — | 77.7 | — | C32 | 1 | 23,500 |

1. 切りくずのかみ込みが起こらないようクーラントノズル位置を調整下さい。
1. Adjust the position of the coolant nozzles accordingly so that the chips do not get tangled.



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

Type3




オイルホール付き with Coolant Hole

ヘッド取付時の有効長 Head +LB




## オイルホール付き with Coolant Hole

**鋼シャンク** Steel Shank

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 首径 DCONWS | シャンク径 DCONMS | 角度 BHTA | 全長 LF | 首下長 LB | ヘッド取付時の有効長 Head +LB | | | 締結規格 Cs | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | PXVC、PXAL、PXSH以外 Except PXVC, PXAL, PXSH | PXVC、PXAL、PXSH外径 DC | | | | |
| | | | | | | | | φ12、16、20、25 | φ14、18、22 | | | |
| 7803501 | **PXMZ-C12SS12-S100-O** | 11.7 | 12 | 0° | 100 | 18 | 32.4 | 36 | 38 | C12 | 3 | 15,500 |
| 7803502 | **PXMZ-C16SS16-S100-O** | 15.7 | 16 | 0° | 100 | 23 | 41.7 | 46.5 | 48.5 | C16 | 3 | 15,700 |
| 7803503 | **PXMZ-C20SS20-S120-O** | 19.6 | 20 | 0° | 120 | 28 | 49.5 | 55.5 | 57.5 | C20 | 3 | 18,500 |
| 7803504 | **PXMZ-C25SS25-S140-O** | 24 | 25 | 0° | 140 | 34.5 | 62 | 69.5 | – | C25 | 3 | 19,300 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。
   但し、PXVCをはじめオイルホール非対応のヘッドでも、オイルホール付きシャンクホルダに取り付けて加工可能です。
2. 切りくずのかみ込みが起こらないようクーラントノズル位置を調整下さい。

1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole.
   Shank holders with oil hole can also be used with heads without oil hole such as PXVC in case of dry machining or external coolant.
2. Adjust the position of the coolant nozzles accordingly so that the chips do not get tangled.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

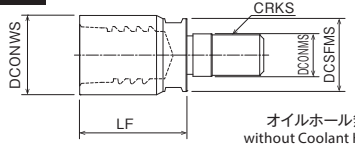
# OSG PHOENIX ヘッド交換式エンドミル PXM用ジョイント

**OSG PHOENIX Exchangeable Head End Mill PXM Joint**

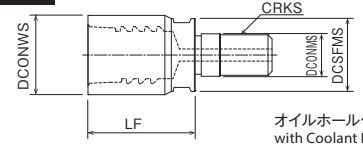
# PXMJ

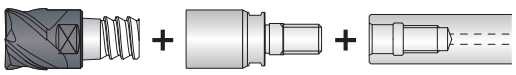


Type 1




Type 2



PXMシリーズ
PXM Series

PXMJ

OP-SFA

お手持ちのシャンクホルダ(OP-SFA)に
PXMJを組み合わせる事により、
PXMシリーズの使用が可能となります。

PXM series can be used with the shank holder (OP-SFA) by connecting the joint holder (PXMJ) .

## オイルホール無し without Coolant Hole

**PXMJ ジョイント** Joint

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 適用ヘッド外径 Applicable Head Dia. | めねじ側端面径 DCONWS | おねじ側取付け径 DCONMS | おねじサイズ CRKS | 適用スパナ Spanner | 全長 LF | おねじ側端面径 DCSFMS | 締結規格 Cs | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7801893 | **PXMJ-C12SF06** | 12 | 11.7 | 6.5 | M 6 | PXMP8-10 | 18 | 11 | C12 | 1 | 11,000 |
| 7801894 | **PXMJ-C16SF08** | 16 | 15.7 | 8.5 | M 8 | PXMP13-16 | 21.8 | 14.5 | C16 | 1 | 14,000 |
| 7801895 | **PXMJ-C20SF10** | 20 | 19.6 | 10.5 | M10 | PXMP13-16 | 26.5 | 18 | C20 | 1 | 15,500 |
| 7801896 | **PXMJ-C25SF12** | 25 | 24 | 12.5 | M12 | PXMP21 | 34 | 23 | C25 | 1 | 17,700 |

## オイルホール付き with Coolant Hole

**PXMJ ジョイント** Joint

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 適用ヘッド外径 Applicable Head Dia. | めねじ側端面径 DCONWS | おねじ側取付け径 DCONMS | おねじサイズ CRKS | 適用スパナ Spanner | 全長 LF | おねじ側端面径 DCSFMS | 締結規格 Cs | 形状 Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803551 | **PXMJ-C12SF06-O** | 12 | 11.7 | 6.5 | M 6 | PXMP8-10 | 18 | 11 | C12 | 2 | 11,000 |
| 7803552 | **PXMJ-C16SF08-O** | 16 | 15.7 | 8.5 | M 8 | PXMP13-16 | 21.8 | 14.5 | C16 | 2 | 14,000 |
| 7803553 | **PXMJ-C20SF10-O** | 20 | 19.6 | 10.5 | M10 | PXMP13-16 | 26.5 | 18 | C20 | 2 | 15,500 |
| 7803554 | **PXMJ-C25SF12-O** | 25 | 24 | 12.5 | M12 | PXMP21 | 34 | 23 | C25 | 2 | 17,700 |

1. 内部給油をご利用の際は、オイルホール付きのヘッドとシャンクホルダをご使用下さい。シャンクホルダについてはp.1018・p.1020をご覧下さい。
1. For the use of internal coolant, please use the appropriate head and shank holders with oil hole. Refer to pages 1018 and 1020 for details on shank holders.

**■部品** Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用ヘッド外径 Applicable Head Dia. | 締結規格 Cs | 推奨締付けトルク Recommended Tightening Torque | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| スパナ Spanner | 7801890 | PXMP8-10 | φ10, φ12(刃太タイプ) | C10 | 10N・m | 1,210 |
| | | | φ12, φ14 | C12 | 12N・m | |
| | 7801891 | PXMP13-16 | φ16, φ18 | C16 | 30N・m | 1,820 |
| | | | φ20, φ22 | C20 | 50N・m | |
| | 7801892 | PXMP21 | φ25 | C25 | 60N・m | 1,900 |
| | 7801897 | PXMP24 | φ32 | C32 | 60N・m | 2,360 |

PXM専用のスパナとなります。スパナは別途ご購入下さい。
There spanner are specifically for PXM, and sold separately from the cutters.

1. 締付けトルクは上表を参照下さい。
2. 締付けトルク管理のための専用トルクレンチについては当社営業までお問い合せ下さい。
1.Please refer to the table above for tightening torque.
2.Contact your nearest OSG sales representative for details of our dedicated adjustable torque wrench for tightening inserts.



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

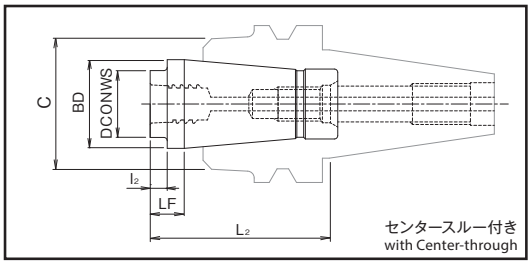
# OSG PHOENIX ヘッド交換式エンドミル PXM用コレット

**OSG PHOENIX Collet for Exchangeable Head End Mills**

## PXMC

切削条件 Cutting Conditions | P1108




(単位:mm) (Unit:mm)

| タイプ Type | ツールNo. EDP No. | 呼び Designation | 首径 DCONWS | BD | LF | 首下長 l2 | ヘッド取付時の有効長 Head + l2 | | | 締結規格 Cs | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | PXVC、PXAL、PXSH以外*1 Except PXVC, PXAL, PXSH | PXVC、PXAL、PXSH外径DC | | | |
| | | | | | | | | φ12、16、20、25 | φ14、18、22(刃太タイプ) Reduced Shank Type | | |
| エキストラショート Extra Short | 7834001 | **PXMC-C1205** | 11.7 | 26 | 10.5 | 5 | 19.4 | 23 | 25 | C12 | 14,900 |
| | 7834002 | **PXMC-C1605** | 15.7 | 26 | 10.5 | 5 | 23.7 | 28.5 | 30.5 | C16 | 14,900 |
| | 7834003 | **PXMC-C2005** | 19.6 | 26 | 10.5 | 5 | 26.5 | 32.5 | 34.5 | C20 | 14,900 |
| | 7834004 | **PXMC-C2505** | 24 | 26 | 10.5 | 5 | 32.5 | 40 | — | C25 | 14,900 |
| ショート Short | 7834011 | **PXMC-C1230** | 11.7 | 26 | 35.5 | 30 | 44.4 | 48 | 50 | C12 | 16,000 |
| | 7834012 | **PXMC-C1630** | 15.7 | 26 | 35.5 | 30 | 48.7 | 53.5 | 55.5 | C16 | 16,000 |
| | 7834013 | **PXMC-C2030** | 19.6 | 26 | 35.5 | 30 | 51.5 | 57.5 | 59.5 | C20 | 16,000 |
| | 7834014 | **PXMC-C2530** | 24 | 26 | 35.5 | 30 | 57.5 | 65 | — | C25 | 16,000 |

1. PXMCは「OSG PHOENIX PXMシリーズ」のヘッド専用コレットです。
2. *1：取り付け可能ヘッド：PXNH、PXNL、PXSE、PXSM、PXDR、PXRE、PXHF-AM、PXBE、PXBM
1. The PXMC exchangeable head is designed specifically for the "OSG PHOENIX PXM" series.
2. Applicable exchangeable heads: PXNH, PXNL, PXSE, PXSM, PXDR, PXRE, PXHF-AM, PXBE, PXBM.

### ■PXMC対応ハイプロシュリンクシステム　製品一覧 Product Listing of PXMC corresponding to the HYPRO Shrink System

(単位:mm) (Unit:mm)

| タイプ Type | ツールNo. EDP No. | 呼び Designation | C | L2 | |
|---|---|---|---|---|---|
| | | | | エキストラショート Extra Short | ショート Short |
| ホルダB型 Holder Type B | 8910000 | **BT30-SLK12-35 P30T-1(MAS1)*2** | 38 | 45.5 | 70.5 |
| | 8910001 | **BT30-SLK12-35 P30T-2(MAS2)*2** | 38 | 45.5 | 70.5 |
| | 8910002 | **BT40-SLK12-45** | 38 | 55.5 | 80.5 |
| | 8910003 | **BT40-SLK12-75** | 38 | 85.5 | 110.5 |
| | 8910005 | **A63-SLK12-75** | 38 | 85.5 | 110.5 |
| | 8910006 | **A63-SLK12-135** | 38 | 145.5 | 170.5 |

1. 価格は当社営業まで問合せ下さい。
2. PXMC コレットはハイプロシュリンクコレットシステムと互換性があります。
3. *2：BT30用ホルダのみプルスタッドボルトが付属します。
1. Contact your local OSG sales representative for information regarding pricing.
2. The PXMC collet is compatible with the HYPRO Shrink Collet System.
3. *2：Only BT30 holders come with a pull stud bolt.

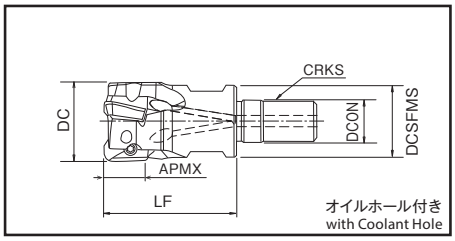
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 肩削り用カッタ
**OSG PHOENIX Indexable Shoulder Cutter**

## PSE
切削条件 Cutting Conditions | P1073

### ねじ込みタイプ(SF) Screw Fit Type






CAD

### PSE ねじ込みタイプ Screw Fit Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 端面径 DCSFMS | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803822 | **PSE07R010SF6-2** | 10 | 2 | 6.5 | M 6 | 7 | 26 | 9 | 6 | 0.011 | ① | ❶ | 32,100 |
| 7803823 | **PSE07R012SF6-3** | 12 | 3 | 6.5 | M 6 | 7 | 26 | 11 | 6 | 0.01 | | ❷ | 40,100 |
| 7803824 | **PSE07R016SF8-4** | 16 | 4 | 8.5 | M 8 | 10 | 27 | 15 | 6 | 0.032 | | ❸ | 43,900 |
| 7803825 | **PSE07R020SF10-4** | 20 | 4 | 10.5 | M10 | 14 | 33 | 18 | 6 | 0.063 | | ❹ | 49,300 |
| 7803826 | **PSE07R025SF12-5** | 25 | 5 | 12.5 | M12 | 17 | 35 | 23 | 6 | 0.111 | | ❺ | 57,700 |
| 7803827 | **PSE07R032SF16-6** | 32 | 6 | 17 | M16 | 22 | 35 | 28 | 6 | 0.176 | | ❻ | 63,400 |
| 7801600 | **PSE11R016SF8-2** | 16 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 10 | 0.03 | ② | | 51,300 |
| 7801612 | **PSE11R017SF8-2** | ★17 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 10 | 0.03 | | ❸ | 51,300 |
| 7801613 | **PSE11R018SF8-2** | ★18 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 10 | 0.03 | | | 51,300 |
| 7801601 | **PSE11R020SF10-3** | 20 | 3 | 10.5 | M10 | 14 | 33 | 18 | 10 | 0.06 | | | 69,300 |
| 7801614 | **PSE11R021SF10-3** | ★21 | 3 | 10.5 | M10 | 14 | 33 | 18 | 10 | 0.06 | | ❹ | 69,300 |
| 7801615 | **PSE11R022SF10-3** | ★22 | 3 | 10.5 | M10 | 14 | 33 | 18 | 10 | 0.06 | | | 69,300 |
| 7801602 | **PSE11R025SF12-4** | 25 | 4 | 12.5 | M12 | 17 | 35 | 23 | 10 | 0.1 | | | 84,600 |
| 7801616 | **PSE11R026SF12-3** | ★26 | 3 | 12.5 | M12 | 17 | 35 | 23 | 10 | 0.1 | | ❺ | 84,600 |
| 7801603 | **PSE11R028SF12-4** | ★28 | 4 | 12.5 | M12 | 17 | 35 | 23 | 10 | 0.11 | | | 84,600 |
| 7801604 | **PSE11R032SF16-5** | 32 | 5 | 17 | M16 | 22 | 40 | 28 | 10 | 0.19 | | | 104,000 |
| 7801617 | **PSE11R033SF16-3** | ★33 | 3 | 17 | M16 | 22 | 40 | 28 | 10 | 0.2 | | | 104,000 |
| 7801605 | **PSE11R035SF16-5** | ★35 | 5 | 17 | M16 | 22 | 40 | 28 | 10 | 0.2 | | ❻ | 104,000 |
| 7801606 | **PSE11R040SF16-6** | 40 | 6 | 17 | M16 | 22 | 40 | 28 | 10 | 0.22 | | | 113,000 |
| 7801607 | **PSE15R025SF12-2** | 25 | 2 | 12.5 | M12 | 17 | 35 | 23 | 14 | 0.09 | ③ | | 61,600 |
| 7801618 | **PSE15R026SF12-2** | ★26 | 2 | 12.5 | M12 | 17 | 35 | 23 | 14 | 0.1 | | ❺ | 61,600 |
| 7801608 | **PSE15R028SF12-2** | ★28 | 2 | 12.5 | M12 | 17 | 35 | 23 | 14 | 0.1 | | | 61,600 |
| 7801609 | **PSE15R032SF16-3** | 32 | 3 | 17 | M16 | 22 | 40 | 28 | 14 | 0.17 | | | 84,600 |
| 7801619 | **PSE15R033SF16-3** | ★33 | 3 | 17 | M16 | 22 | 40 | 28 | 14 | 0.18 | | ❻ | 84,600 |
| 7801610 | **PSE15R035SF16-3** | ★35 | 3 | 17 | M16 | 22 | 40 | 28 | 14 | 0.18 | | | 84,600 |
| 7801611 | **PSE15R040SF16-4** | 40 | 4 | 17 | M16 | 22 | 40 | 28 | 14 | 0.2 | | | 96,900 |

インサート及び部品はp.950をご覧下さい。 See page 950 for inserts and accessories.
適用ホルダはp.1028をご覧下さい。 See page 1028 for applicable holders.

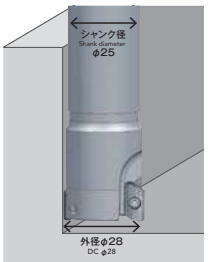
★ 刃太タイプ
Reduced Shank Type

## ★PSE 刃太タイプ
**Reduced Shank Type**

・刃太タイプは、シャンク径よりも工具外径の方が大きいため、金型部品などの深い立ち壁加工やポケット加工に最適です

・The outer diameter of the reduced shank type is larger than the shank diameter, making it highly effective in the processing of die and mold applications that require vertical wall milling or pocketing.

例 Example





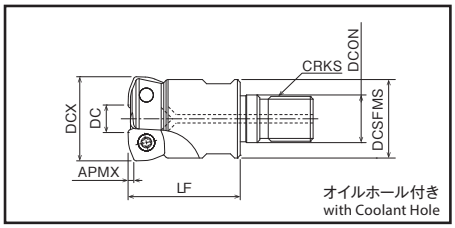

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 高送りラジアスカッタ
**OSG PHOENIX Indexable High Feed Radius Cutter**

## PHC　切削条件 Cutting Conditions | P1081

### ねじ込みタイプ（SF） Screw Fit Type






CAD

**PHC ねじ込みタイプ** Screw Fit Type

（単位:mm）(Unit:mm)

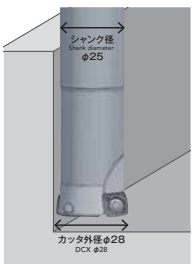
| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 端面径 DCSFMS | APMX | 重量 (kg) | 適用インサート Applicable Inserts | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7801520 | **PHC07R016SF8-2** | 16 | 7.4 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 0.8 | 0.03 | | | 37,000 |
| 7801521 | **PHC07R017SF8-2** | ★17 | 8.4 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 0.8 | 0.03 | | ❸ | 37,000 |
| 7801522 | **PHC07R018SF8-2** | ★18 | 9.4 | 2 | 8.5 | M 8 | 10 | 27 | 14.5 | 0.8 | 0.03 | | | 37,000 |
| 7801523 | **PHC07R020SF10-3** | 20 | 11.4 | 3 | 10.5 | M10 | 14 | 33 | 18 | 0.8 | 0.06 | | | 51,400 |
| 7801524 | **PHC07R021SF10-3** | ★21 | 12.4 | 3 | 10.5 | M10 | 14 | 33 | 18 | 0.8 | 0.06 | | ❹ | 51,400 |
| 7801525 | **PHC07R022SF10-3** | ★22 | 13.4 | 3 | 10.5 | M10 | 14 | 33 | 18 | 0.8 | 0.06 | | | 51,400 |
| 7801526 | **PHC07R025SF12-4** | 25 | 16.4 | 4 | 12.5 | M12 | 17 | 35 | 23 | 0.8 | 0.1 | ① | | 65,300 |
| 7801527 | **PHC07R026SF12-4** | ★26 | 17.4 | 4 | 12.5 | M12 | 17 | 35 | 23 | 0.8 | 0.1 | | ❺ | 65,300 |
| 7801528 | **PHC07R028SF12-4** | ★28 | 19.4 | 4 | 12.5 | M12 | 17 | 35 | 23 | 0.8 | 0.11 | | | 65,300 |
| 7801529 | **PHC07R030SF16-4** | 30 | 21.4 | 4 | 17 | M16 | 22 | 40 | 28 | 0.8 | 0.2 | | | 74,300 |
| 7801530 | **PHC07R032SF16-5** | 32 | 23.4 | 5 | 17 | M16 | 22 | 40 | 28 | 0.8 | 0.18 | | ❻ | 81,800 |
| 7801531 | **PHC07R033SF16-5** | ★33 | 24.4 | 5 | 17 | M16 | 22 | 40 | 28 | 0.8 | 0.18 | | | 81,800 |
| 7801532 | **PHC07R035SF16-5** | ★35 | 26.4 | 5 | 17 | M16 | 22 | 40 | 28 | 0.8 | 0.2 | | | 81,800 |
| 7801500 | **PHC09R025SF12-3** | 25 | 13.2 | 3 | 12.5 | M12 | 17 | 35 | 23 | 1 | 0.1 | | | 82,900 |
| 7801510 | **PHC09R026SF12-3** | ★26 | 14.2 | 3 | 12.5 | M12 | 17 | 35 | 23 | 1 | 0.11 | | ❺ | 82,900 |
| 7801501 | **PHC09R028SF12-3** | ★28 | 16.2 | 3 | 12.5 | M12 | 17 | 35 | 23 | 1 | 0.11 | | | 82,900 |
| 7801502 | **PHC09R030SF16-3** | 30 | 18.2 | 3 | 17 | M16 | 22 | 40 | 28 | 1 | 0.17 | | | 90,900 |
| 7801503 | **PHC09R032SF16-3** | 32 | 20.2 | 3 | 17 | M16 | 22 | 40 | 28 | 1 | 0.18 | ② | | 90,900 |
| 7801511 | **PHC09R033SF16-3** | ★33 | 21.2 | 3 | 17 | M16 | 22 | 40 | 28 | 1 | 0.19 | | ❻ | 90,900 |
| 7801504 | **PHC09R035SF16-3** | ★35 | 23.2 | 3 | 17 | M16 | 22 | 40 | 28 | 1 | 0.19 | | | 90,900 |
| 7801505 | **PHC09R040SF16-4** | 40 | 28.2 | 4 | 17 | M16 | 22 | 40 | 28 | 1 | 0.22 | | | 113,000 |
| 7801506 | **PHC12R030SF16-2** | 30 | 13.4 | 2 | 17 | M16 | 22 | 40 | 28 | 2 | 0.17 | | | 82,900 |
| 7801507 | **PHC12R032SF16-2** | 32 | 15.4 | 2 | 17 | M16 | 22 | 40 | 28 | 2 | 0.18 | | | 82,900 |
| 7801512 | **PHC12R033SF16-2** | ★33 | 16.4 | 2 | 17 | M16 | 22 | 40 | 28 | 2 | 0.19 | ③ | ❻ | 101,000 |
| 7801508 | **PHC12R035SF16-3** | ★35 | 18.4 | 3 | 17 | M16 | 22 | 40 | 28 | 2 | 0.18 | | | 101,000 |
| 7801509 | **PHC12R040SF16-3** | 40 | 23.4 | 3 | 17 | M16 | 22 | 40 | 28 | 2 | 0.22 | | | 103,000 |

★ 刃太タイプ
Reduced Shank Type

インサート及び部品はp.977をご覧下さい。
適用ホルダはp.1028をご覧下さい。
See page 977 for inserts and accessories.
See page 1028 for applicable holders.

## ★ PHC刃太タイプ
**Reduced Shank Type**

例 Example




・刃太タイプは、シャンク径よりも工具外径の方が大きいため、金型部品などの深い立ち壁加工やポケット加工に最適です

・The outer diameter of the reduced shank type is larger than the shank diameter, making it highly effective in the processing of die and mold applications that require vertical wall milling or pocketing.

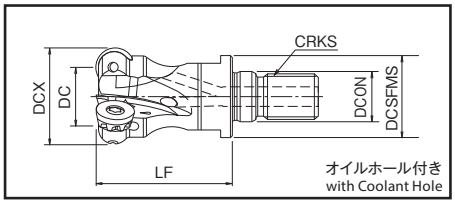
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 丸駒カッタ
**OSG PHOENIX Indexable Radius Cutter**

## PRC
切削条件 Cutting Conditions | P1084

### ねじ込みタイプ(SF) Screw Fit Type






CAD

**PRC ねじ込みタイプ** Screw Fit Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 端面径 DCSFMS | 重量 (kg) | 適用インサート Applicable Inserts | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7801700 | **PRC10R020SF10-2** | 20 | 10 | 2 | 10.5 | M10 | 14 | 33 | 18 | 0.06 | ① | ❹ | 63,100 |
| 7801701 | **PRC10R025SF12-3** | 25 | 15 | 3 | 12.5 | M12 | 17 | 35 | 23 | 0.09 | | ❺ | 78,200 |
| 7801702 | **PRC10R030SF16-3** | 30 | 20 | 3 | 17 | M16 | 22 | 40 | 28 | 0.16 | | ❻ | 86,700 |
| 7801703 | **PRC10R032SF16-4** | 32 | 22 | 4 | 17 | M16 | 22 | 40 | 28 | 0.17 | | | 96,600 |
| 7801704 | **PRC10R040SF16-4** | 40 | 30 | 4 | 17 | M16 | 22 | 40 | 28 | 0.21 | | | 107,000 |
| 7801705 | **PRC12R030SF16-2** | 30 | 18 | 2 | 17 | M16 | 22 | 40 | 28 | 0.16 | ② | ❻ | 92,500 |
| 7801706 | **PRC12R032SF16-3** | 32 | 20 | 3 | 17 | M16 | 22 | 40 | 28 | 0.16 | | | 95,800 |
| 7801707 | **PRC12R040SF16-3** | 40 | 28 | 3 | 17 | M16 | 22 | 40 | 28 | 0.22 | | | 95,800 |

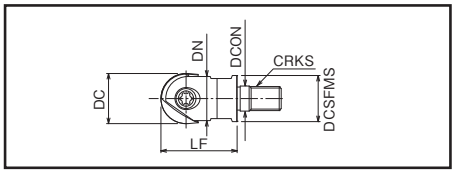
インサート及び部品はp.983をご覧下さい。 See page 983 for inserts and accessories.
適用ホルダはp.1028をご覧下さい。 See page 1028 for applicable holders.

# OSG PHOENIX 仕上げ用ボールエンドミル
**OSG PHOENIX Indexable Finishing Ball End Mill**

## PFB
切削条件 Cutting Conditions | P1086

### ねじ込みタイプ(SF) Screw Fit Type






CAD

**PFB ねじ込みタイプ** Screw Fit Type

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 首径 DN | 端面径 DCSFMS | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ③ | 7801490 | **PFB-R100SF6** | 10 | 2 | 6.5 | M 6 | 7 | 26 | 9 | 9 | ❶ | 20,800 |
| ④ | 7801491 | **PFB-R120SF6** | 12 | 2 | 6.5 | M 6 | 7 | 26 | 11 | 11 | ❷ | 21,300 |
| ⑤ | 7801492 | **PFB-R160SF8** | 16 | 2 | 8.5 | M 8 | 10 | 32 | 14 | 14.5 | ❸ | 24,700 |
| ⑥ | 7801493 | **PFB-R200SF10** | 20 | 2 | 10.5 | M10 | 14 | 38 | 18 | 18 | ❹ | 27,800 |
| ⑦ | 7801494 | **PFB-R250SF12** | 25 | 2 | 12.5 | M12 | 17 | 38 | 22 | 23 | ❺ | 32,900 |
| ⑧ | 7801495 | **PFB-R300SF16** | 30 | 2 | 17 | M16 | 22 | 43 | 27 | 28 | ❻ | 42,800 |

インサート及び部品はp.988をご覧下さい。 See page 988 for inserts and accessories.
適用ホルダはp.1028をご覧下さい。 See page 1028 for applicable holders.



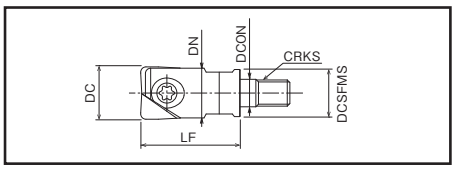
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

## OSG PHOENIX 仕上げ用ラジアスエンドミル
**OSG PHOENIX Indexable Finishing End Mill with Corner Radius**

## PFR　切削条件 Cutting Conditions | P1090

### ねじ込みタイプ（SF） Screw Fit Type






CAD

**PFR ねじ込みタイプ** Screw Fit Type　（単位:mm）(Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 首径 DN | 端面径 DCSFMS | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ③ | 7832090 | **PFR-R100SF6** | 10 | 2 | 6.5 | M 6 | 7 | 26 | 9 | 9 | ❶ | 20,800 |
| ④ | 7832091 | **PFR-R120SF6** | 12 | 2 | 6.5 | M 6 | 7 | 26 | 11 | 11 | ❷ | 21,300 |
| ⑤ | 7832092 | **PFR-R160SF8** | 16 | 2 | 8.5 | M 8 | 10 | 32 | 15 | 14.5 | ❸ | 24,700 |
| ⑥ | 7832093 | **PFR-R200SF10** | 20 | 2 | 10.5 | M10 | 14 | 38 | 19 | 18 | ❹ | 27,800 |
| ⑦ | 7832094 | **PFR-R250SF12** | 25 | 2 | 12.5 | M12 | 17 | 38 | 24 | 23 | ❺ | 32,900 |
| ⑧ | 7832095 | **PFR-R300SF16** | 30 | 2 | 17 | M16 | 22 | 43 | 29 | 28 | ❻ | 42,800 |
| ⑨ | 7832096 | **PFR-R320SF16** | 32 | 2 | 17 | M16 | 22 | 43 | 31 | 28 | ❻ | 47,600 |

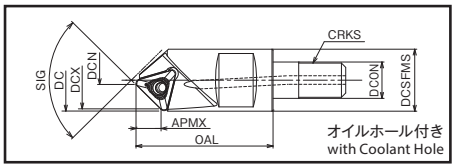
インサート及び部品はp.995をご覧下さい。 See page 995 for inserts and accessories.
適用ホルダはp.1028をご覧下さい。 See page 1028 for applicable holders.

## OSG PHOENIX インデキサブルリーディングドリル
**OSG PHOENIX Indexable Centering and Chamfering Cutter**

## PLDS　切削条件 Cutting Conditions | P1127

### ねじ込みタイプ（SF） Screw Fit Type






CAD

**PLDS ねじ込みタイプ** Screw Fit Type　（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 先端角 SIG | 加工径 最小 DCN | 加工径 最大 DCX | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 OAL | 端面径 DCSFMS | APMX | 重量 (kg) | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803405 | **PLDS11R002SF8-90** | 90° | 2.5 | 13.5 | 14.4 | 1 | 8.5 | M8 | 10 | 32 | 14.5 | 5.8 | 0.05 | ❸ | 14,000 |
| 7803406 | **PLDS11R002SF8-120** | 120° | 2.4 | 16 | 17.3 | | | | | | | 4 | 0.05 | | 14,000 |

インサート及び部品はp.1061をご覧下さい。 See page 1061 for inserts and accessories.
適用ホルダはp.1028をご覧下さい。 See page 1028 for applicable holders.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

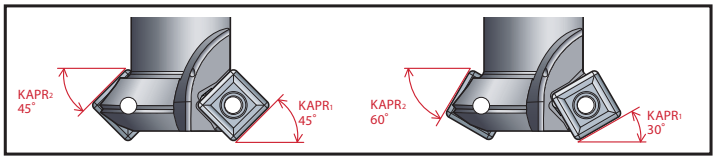
NEW 2025年2月発売予定 Available from February 2025

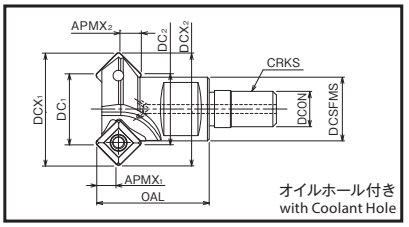
# OSG PHOENIX 面取り用カッタ
OSG PHOENIX Chamfering Cutter

## PMEN 切削条件 Cutting Conditions | P1128

### ねじ込みタイプ(SF) Screw Fit Type





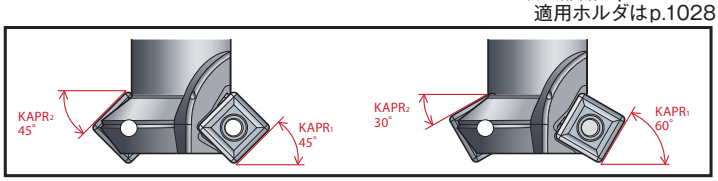




**面取り角度(KAPR1) 45°、30°対応ボディ** Body compatible with chamfer angles (KAPR1) 45° and 30°

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 面取り角度 KAPR | | 加工径 | | | | 最大切込み量 APMX | | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 OAL | 端面径 DCSFMS | 重量 (kg) | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KAPR1 | KAPR2 | DC1 | DCX1 | DC2 | DCX2 | APMX1 | APMX2 | | | | | | | | | |
| 7803755 | PMEN09R008SF8-30-45 | 45° | 45° | 8.5 | 19.5 | 16 | 19.5 | 5.7 | 1.7 | 1 | 8.5 | M 8 | 10 | 32 | 14.5 | 0.02 | ❸ | 27,500 |
| | | 30° | 60° | 5.4 | 18.8 | 16 | 19.4 | 4 | 3 | | | | | | | | | |
| 7803756 | PMEN09R016SF8-30-45 | 45° | 45° | 16.5 | 27.5 | 16.5 | 27.5 | 5.7 | 5.5 | 2 | 8.5 | M 8 | 10 | 32 | 14.5 | 0.04 | ❸ | 29,700 |
| | | 30° | 60° | 13.4 | 26.8 | 19.8 | 27.4 | 4 | 6.8 | | | | | | | | | |
| 7803757 | PMEN09R020SF10-30-45 | 45° | 45° | 20.5 | 31.5 | 20.5 | 31.5 | 5.7 | 5.5 | 2 | 10.5 | M10 | 14 | 32 | 18 | 0.06 | ❹ | 32,000 |
| | | 30° | 60° | 17.4 | 30.8 | 23.8 | 31.4 | 4 | 6.8 | | | | | | | | | |
| 7803758 | PMEN09R025SF12-30-45 | 45° | 45° | 25.5 | 36.5 | 25.5 | 36.5 | 5.7 | 5.5 | 2 | 12.5 | M12 | 17 | 35 | 23 | 0.12 | ❺ | 34,200 |
| | | 30° | 60° | 22.4 | 35.8 | 28.8 | 36.4 | 4 | 6.8 | | | | | | | | | |
| 7803759 | PMEN09R032SF16-30-45 | 45° | 45° | 32.5 | 43.5 | 32.5 | 43.5 | 5.7 | 5.5 | 3 | 17 | M16 | 22 | 40 | 28 | 0.18 | ❻ | 41,700 |
| | | 30° | 60° | 29.4 | 42.8 | 35.8 | 43.4 | 4 | 6.8 | | | | | | | | | |

インサート及び部品はp.1065をご覧下さい。 See page 1065 for inserts and accessories.
適用ホルダはp.1028をご覧下さい。 See page 1028 for applicable holders.




**面取り角度(KAPR1) 45°、60°対応ボディ** Body compatible with chamfer angles (KAPR1) 45° and 60°

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 面取り角度 KAPR | | 加工径 | | | | 最大切込み量 APMX | | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 OAL | 端面径 DCSFMS | 重量 (kg) | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KAPR1 | KAPR2 | DC1 | DCX1 | DC2 | DCX2 | APMX1 | APMX2 | | | | | | | | | |
| 7803768 | PMEN09R008SF8-45-60 | 45° | 45° | 8.5 | 19.5 | 16 | 19.5 | 5.7 | 1.7 | 1 | 8.5 | M 8 | 10 | 32 | 14.5 | 0.02 | ❸ | 27,500 |
| | | 60° | 30° | 11.5 | 19.4 | 16 | 18.8 | 7 | 1 | | | | | | | | | |
| 7803769 | PMEN09R016SF8-45-60 | 45° | 45° | 16.5 | 27.5 | 16.5 | 27.5 | 5.7 | 5.5 | 2 | 8.5 | M 8 | 10 | 32 | 14.5 | 0.04 | ❸ | 29,700 |
| | | 60° | 30° | 19.6 | 27.4 | 16.6 | 26.9 | 7 | 3 | | | | | | | | | |
| 7803770 | PMEN09R020SF10-45-60 | 45° | 45° | 20.5 | 31.5 | 20.5 | 31.5 | 5.7 | 5.5 | 2 | 10.5 | M10 | 14 | 32 | 18 | 0.06 | ❹ | 32,000 |
| | | 60° | 30° | 23.6 | 31.4 | 20.6 | 30.9 | 7 | 3 | | | | | | | | | |
| 7803771 | PMEN09R025SF12-45-60 | 45° | 45° | 25.5 | 36.5 | 25.5 | 36.5 | 5.7 | 5.5 | 2 | 12.5 | M12 | 17 | 35 | 23 | 0.12 | ❺ | 34,200 |
| | | 60° | 30° | 28.6 | 36.4 | 25.6 | 35.9 | 7 | 3 | | | | | | | | | |
| 7803772 | PMEN09R032SF16-45-60 | 45° | 45° | 32.5 | 43.5 | 32.5 | 43.5 | 5.7 | 5.5 | 3 | 17 | M16 | 22 | 40 | 28 | 0.18 | ❻ | 41,700 |
| | | 60° | 30° | 35.6 | 43.4 | 32.6 | 42.9 | 7 | 3 | | | | | | | | | |

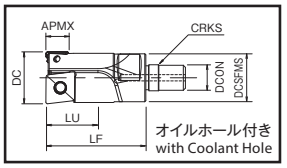
インサート及び部品はp.1065をご覧下さい。 See page 1065 for inserts and accessories.
適用ホルダはp.1028をご覧下さい。 See page 1028 for applicable holders.

# OSG PHOENIX 多機能カッタ
OSG PHOENIX Indexable Multi-function Cutter

## PMD 切削条件 Cutting Conditions | P1118

### ねじ込みタイプ(SF) Screw Fit Type






**PMD ねじ込みタイプ** Screw Fit Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 溝数 NOF | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 首径 DN | 有効溝長 LU | 刃長 APMX | 端面径 DCSFMS | 重量 (kg) | 適用インサート Applicable Inserts 底刃 Center Insert | | 外周刃 Peripheral Insert | | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803423 | PMD07R016SF8-1 | 16 | 2 | 1 | 8.5 | M 8 | 10 | 40 | 15.4 | 16 | 6 | 14.5 | 0.07 | ① | ZPNT080304EN | ① | ZDKT070304… | ❸ | 27,500 |
| 7803424 | PMD07R018SF8-1 | ★ 18 | | | 8.5 | M 8 | 10 | 40 | 17 | 18 | | 14.5 | 0.08 | ② | ZPNT090404EN | | | | 28,600 |
| 7803416 | PMD11R020SF10-1 | 20 | | | 10.5 | M 10 | 14 | 48 | 19 | 20 | 10 | 18 | 0.1 | ③ | ZPNT100408EN | ② | ZDKT11T308… | ❹ | 30,200 |
| 7803417 | PMD11R025SF12-1 | 25 | | | 12.5 | M 12 | 17 | 48 | 23 | 25 | | 23 | 0.15 | ④ | ZPNT130508EN | | | ❺ | 33,200 |
| 7803418 | PMD11R032SF16-1 | 32 | | | 17 | M 16 | 22 | 58 | 30 | 28 | | 28 | 0.3 | ⑤ | ZPNT170608EN | | | ❻ | 36,100 |

★ 刃太タイプ
Reduced Shank Type

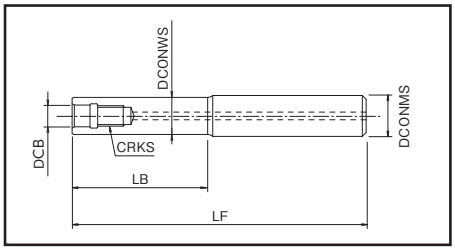
インサート及び部品はp.1032をご覧下さい。 See page 1032 for inserts and accessories.
適用ホルダはp.1028をご覧下さい。 See page 1028 for applicable holders.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ねじ込みタイプ専用ホルダ
**OSG PHOENIX Indexable Arbor for Screw-Fit Type**

# OP-SFA






CAD

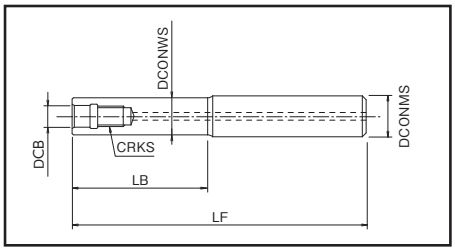
## ねじ込みタイプ専用ストレートシャンクホルダ Straight Shank Holder for Screw Fit Type

**鋼シャンク** Steel Shank

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | シャンク径 DCONMS | 首径 DCONWS | ねじサイズ CRKS | 取付け径 DCB | 全長 LF | 首下長 LB | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ❶ | 7801904 | **SF-M06SS10-4** | 10 | 9 | M 6 | 6.5 | 104 | 2.3 | 22,200 |
| ❷ | 7801905 | **SF-M06SS12-10** | 12 | 11 | M 6 | 6.5 | 104 | 8.3 | 25,900 |
| ❸ | 7801900 | **SF-M08SS16-15** | 16 | 14.5 | M 8 | 8.5 | 95 | 13 | 28,900 |
| ❹ | 7801901 | **SF-M10SS20-20** | 20 | 18 | M10 | 10.5 | 120 | 17.7 | 30,800 |
| ❺ | 7801902 | **SF-M12SS25-35** | 25 | 23 | M12 | 12.5 | 135 | 32.7 | 32,700 |
| ❻ | 7801903 | **SF-M16SS32-35** | 32 | 28 | M16 | 17 | 155 | 32.1 | 35,800 |






## オール超硬シャンク All Carbide Shank

(単位:mm) (Unit:mm)

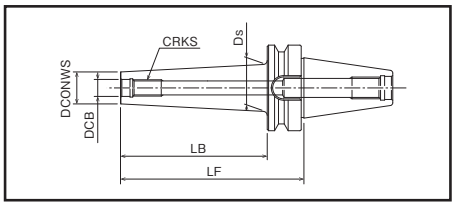
| | ツールNo. EDP No. | 呼び Designation | シャンク径 DCONMS | 首径 DCONWS | ねじサイズ CRKS | 取付け径 DCB | 全長 LF | 首下長 LB | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ❶ | 7801918 | **SF-M06SS10-24CS** | 10 | 9 | M 6 | 6.5 | 124 | 22.3 | 36,400 |
| ❷ | 7801919 | **SF-M06SS12-34CS** | 12 | 11 | M 6 | 6.5 | 134 | 32.3 | 42,300 |
| ❸ | 7801910 | **SF-M08SS16-55CS** | 16 | 14.5 | M 8 | 8.5 | 115 | 53 | 48,200 |
| | 7801911 | **SF-M08SS16-85CS** | | | | | 145 | 83 | 57,500 |
| ❹ | 7801912 | **SF-M10SS20-70CS** | 20 | 18 | M10 | 10.5 | 140 | 67.7 | 69,000 |
| | 7801913 | **SF-M10SS20-110CS** | | | | | 180 | 107.7 | 82,900 |
| ❺ | 7801914 | **SF-M12SS25-90CS** | 25 | 23 | M12 | 12.5 | 170 | 87.7 | 103,000 |
| | 7801915 | **SF-M12SS25-140CS** | | | | | 220 | 137.7 | 128,000 |
| ❻ | 7801916 | **SF-M16SS32-120CS** | 32 | 28 | M16 | 17 | 220 | 117.1 | 163,000 |
| | 7801917 | **SF-M16SS32-190CS** | | | | | 290 | 187.1 | 213,000 |

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ねじ込みタイプ専用ホルダ
**OSG PHOENIX Indexable Arbor for Screw-Fit Type**

# OP-SFA






CAD

## BT シャンクホルダ BT Shank Holder

(単位:mm) (Unit:mm)

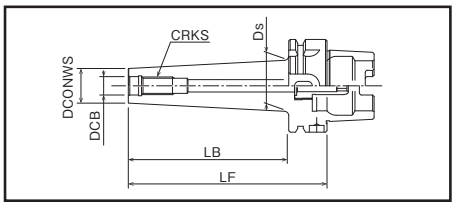
| | ツールNo. EDP No. | 呼び Designation | 首径 DCONWS | ねじサイズ CRKS | 取付け径 DCB | 機能長さ LF | 首下長 LB | 首元径 Ds | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ❸ | 7802500 | **BT30-SFA 8-45** | 14.5 | M 8 | 8.5 | 45 | 23 | 16 | ※ | 30,200 |
| | 7802501 | **BT30-SFA 8-85** | | | | 85 | 63 | 21.1 | ※ | 33,100 |
| ❹ | 7802502 | **BT30-SFA10-45** | 18.5 | M10 | 10.5 | 45 | 23 | 20 | ※ | 30,200 |
| | 7802503 | **BT30-SFA10-85** | | | | 85 | 63 | 25.1 | ※ | 33,100 |
| ❺ | 7802504 | **BT30-SFA12-45** | 23.5 | M12 | 12.5 | 45 | 23 | 25 | ※ | 30,200 |
| | 7802505 | **BT30-SFA12-85** | | | | 85 | 63 | 30.1 | ※ | 33,100 |
| ❻ | 7802506 | **BT30-SFA16-45** | 29 | M16 | 17 | 45 | 23 | 32 | ※ | 30,200 |
| | 7802507 | **BT30-SFA16-85** | | | | 85 | 63 | 32 | ※ | 33,100 |
| ❸ | 7802508 | **BT40-SFA 8-45** | 14.5 | M 8 | 8.5 | 45 | 18 | 16 | ※ | 33,100 |
| | 7802509 | **BT40-SFA 8-85** | | | | 85 | 58 | 20.5 | ※ | 36,100 |
| ❹ | 7802510 | **BT40-SFA10-45** | 18.5 | M10 | 10.5 | 45 | 18 | 20 | ※ | 33,100 |
| | 7802511 | **BT40-SFA10-85** | | | | 85 | 58 | 24.5 | ※ | 36,100 |
| ❺ | 7802512 | **BT40-SFA12-45** | 23.5 | M12 | 12.5 | 45 | 18 | 25 | ※ | 33,100 |
| | 7802513 | **BT40-SFA12-85** | | | | 85 | 58 | 29.5 | ※ | 36,100 |
| | 7802514 | **BT40-SFA12-135** | | | | 135 | 108 | 34.8 | ※ | 40,700 |
| ❻ | 7802515 | **BT40-SFA16-45** | 29 | M16 | 17 | 45 | 18 | 32 | ※ | 33,100 |
| | 7802516 | **BT40-SFA16-85** | | | | 85 | 58 | 35 | ※ | 36,100 |
| | 7802517 | **BT40-SFA16-135** | | | | 135 | 108 | 40.3 | ※ | 40,700 |
| ❸ | 7802518 | **BT50-SFA 8-85** | 14.5 | M 8 | 8.5 | 85 | 47 | 19.4 | ※ | 39,300 |
| | 7802519 | **BT50-SFA 8-135** | | | | 135 | 97 | 24.6 | ※ | 42,300 |
| ❹ | 7802520 | **BT50-SFA10-85** | 18.5 | M10 | 10.5 | 85 | 47 | 20 | ※ | 39,300 |
| | 7802521 | **BT50-SFA10-135** | | | | 135 | 97 | 28.6 | ※ | 42,300 |
| ❺ | 7802522 | **BT50-SFA12-85** | 23.5 | M12 | 12.5 | 85 | 47 | 25 | ※ | 39,300 |
| | 7802523 | **BT50-SFA12-135** | | | | 135 | 97 | 33.6 | ※ | 42,300 |
| | 7802524 | **BT50-SFA12-185** | | | | 185 | 147 | 38.9 | ※ | 49,700 |
| | 7802525 | **BT50-SFA12-250** | | | | 250 | 212 | 45.7 | ※ | 57,000 |
| | 7802526 | **BT50-SFA12-300** | | | | 300 | 262 | 50.9 | ※ | 67,900 |
| ❻ | 7802527 | **BT50-SFA16-85** | 29 | M16 | 17 | 85 | 47 | 32 | ※ | 39,300 |
| | 7802528 | **BT50-SFA16-135** | | | | 135 | 97 | 39.1 | ※ | 42,300 |
| | 7802529 | **BT50-SFA16-185** | | | | 185 | 147 | 44.4 | ※ | 49,700 |
| | 7802530 | **BT50-SFA16-250** | | | | 250 | 212 | 51.2 | ※ | 57,000 |
| | 7802531 | **BT50-SFA16-300** | | | | 300 | 262 | 56.4 | ※ | 67,900 |

※ = 納期は当社営業まで問合せ下さい。 ※ =Please contact our sales department for lead time.

# OSG PHOENIX ねじ込みタイプ専用ホルダ
**OSG PHOENIX Indexable Arbor for Screw-Fit Type**

## OP-SFA






CAD

### HSK シャンクホルダ HSK Shank Holder

(単位:mm) (Unit:mm)

| | ツールNo. EDP No. | 呼び Designation | 首径 DCONWS | ねじサイズ CRKS | 取付け径 DCB | 機能長さ LF | 首下長 LB | 首元径 Ds | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ❸ | 7802550 | **A 63-SFA8-45** | 14.5 | M 8 | 8.5 | 45 | 19 | 16 | ※ | 45,200 |
| | 7802551 | **A 63-SFA8-85** | | | | 85 | 59 | 20.6 | ※ | 48,200 |
| ❹ | 7802552 | **A 63-SFA10-60** | 18.5 | M10 | 10.5 | 60 | 34 | 20 | ※ | 45,200 |
| | 7802553 | **A 63-SFA10-85** | | | | 85 | 59 | 24.6 | ※ | 48,200 |
| ❺ | 7802554 | **A 63-SFA12-60** | 23.5 | M12 | 12.5 | 60 | 34 | 25 | ※ | 45,200 |
| | 7802555 | **A 63-SFA12-85** | | | | 85 | 59 | 29.6 | ※ | 48,200 |
| | 7802556 | **A 63-SFA12-135** | | | | 135 | 109 | 34.9 | ※ | 57,000 |
| ❻ | 7802557 | **A 63-SFA16-60** | 29 | M16 | 17 | 60 | 34 | 32 | ※ | 45,200 |
| | 7802558 | **A 63-SFA16-85** | | | | 85 | 59 | 32 | ※ | 48,200 |
| | 7802559 | **A 63-SFA16-135** | | | | 135 | 109 | 40.4 | ※ | 57,000 |
| ❸ | 7802560 | **A100-SFA8-85** | 14.5 | M 8 | 8.5 | 85 | 50 | 19.7 | ※ | 57,000 |
| | 7802561 | **A100-SFA8-135** | | | | 135 | 100 | 24.9 | ※ | 63,200 |
| ❹ | 7802562 | **A100-SFA10-85** | 18.5 | M10 | 10.5 | 85 | 50 | 23.7 | ※ | 57,000 |
| | 7802563 | **A100-SFA10-135** | | | | 135 | 100 | 28.9 | ※ | 63,200 |
| ❺ | 7802564 | **A100-SFA12-85** | 23.5 | M12 | 12.5 | 85 | 50 | 28.7 | ※ | 57,000 |
| | 7802565 | **A100-SFA12-135** | | | | 135 | 100 | 33.9 | ※ | 63,200 |
| | 7802566 | **A100-SFA12-185** | | | | 185 | 150 | 39.2 | ※ | 72,200 |
| | 7802567 | **A100-SFA12-250** | | | | 250 | 221 | 46.6 | ※ | 78,200 |
| | 7802568 | **A100-SFA12-300** | | | | 300 | 271 | 51.9 | ※ | 90,100 |
| ❻ | 7802569 | **A100-SFA16-85** | 29 | M16 | 17 | 85 | 50 | 34.2 | ※ | 57,000 |
| | 7802570 | **A100-SFA16-135** | | | | 135 | 106 | 40.1 | ※ | 63,200 |
| | 7802571 | **A100-SFA16-185** | | | | 185 | 156 | 45.3 | ※ | 72,200 |
| | 7802572 | **A100-SFA16-250** | | | | 250 | 221 | 52.1 | ※ | 78,200 |
| | 7802573 | **A100-SFA16-300** | | | | 300 | 271 | 57.4 | ※ | 90,100 |

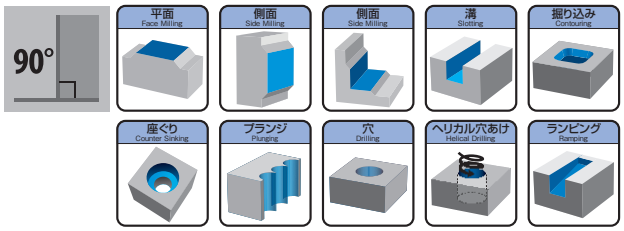
※ = 納期は当社営業まで問合せ下さい。 ※ =Please contact our sales department for lead time.

# OSG PHOENIX 多機能カッタ
**OSG PHOENIX Indexable Multi-function Cutter**

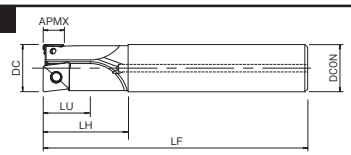
## PMD　切削条件 Cutting Conditions | P1118

### ストレートシャンクタイプ（SS） Straight Shank Type



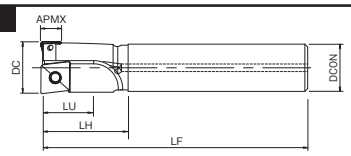



**Type 1**




オイルホール付き
with Coolant Hole

**Type 2**




オイルホール付き
with Coolant Hole

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 溝数 NOF | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | 有効溝長 LU | 刃長 APMX | 重量 (kg) | 適用インサート Applicable Inserts 底刃 Center Insert | | 外周刃 Peripheral Insert | | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803419 | PMD07R016SS16-1S | 16 | 2 | 1 | 16 | 100 | 30 | 16 | 6 | 0.12 | ① | ZPNT080304EN | ① | ZDKT070304… | 1 | 27,500 |
| 7803420 | PMD07R016SS16-1L | 16 | | | 16 | 150 | 50 | 16 | | 0.18 | | | | | | 29,700 |
| 7803421 | PMD07R018SS16-1S | ★ 18 | | | 16 | 100 | 30 | 18 | | 0.13 | ② | ZPNT090404EN | | | 2 | 28,600 |
| 7803422 | PMD07R018SS16-1L | ★ 18 | | | 16 | 150 | 30 | 18 | | 0.19 | | | | | | 31,000 |
| 7803410 | PMD11R020SS20-1S | 20 | | | 20 | 130 | 35 | 20 | 10 | 0.3 | ③ | ZPNT100408EN | ② | ZDKT11T308… | 1 | 30,200 |
| 7803413 | PMD11R020SS20-1L | 20 | | | 20 | 185 | 60 | 20 | | 0.4 | | | | | | 33,200 |
| 7803411 | PMD11R025SS25-1S | 25 | | | 25 | 140 | 45 | 25 | | 0.45 | ④ | ZPNT130508EN | | | | 33,200 |
| 7803414 | PMD11R025SS25-1L | 25 | | | 25 | 220 | 75 | 25 | | 0.75 | | | | | | 36,600 |
| 7803412 | PMD11R032SS32-1S | 32 | | | 32 | 150 | 50 | 28 | | 0.8 | ⑤ | ZPNT170608EN | | | | 36,100 |
| 7803415 | PMD11R032SS32-1L | 32 | | | 32 | 230 | 90 | 28 | | 1.3 | | | | | | 39,600 |

★ 刃太タイプ
Reduced Shank Type

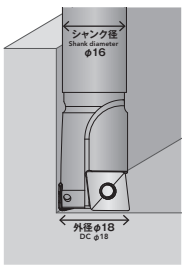
適用インサートはp.1033をご覧下さい。 See page 1033 for applicable inserts.

## ★ PMD刃太タイプ
**Reduced Shank Type**

・刃太タイプは、シャンク径よりも工具外径の方が大きいため、金型部品などの深い立ち壁加工やポケット加工に最適です

・The outer diameter of the reduced shank type is larger than the shank diameter, making it highly effective in the processing of die and mold applications that require vertical wall milling or pocketing.

例 Example





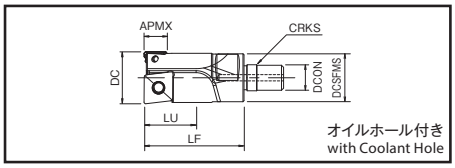

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 多機能カッタ
**OSG PHOENIX Indexable Multi-function Cutter**

## PMD　切削条件 Cutting Conditions | P1118

### ねじ込みタイプ(SF) Screw Fit Type






### PMD ねじ込みタイプ Screw Fit Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 溝数 NOF | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 LF | 首径 DN | 有効溝長 LU | 刃長 APMX | 端面径 DCSFMS | 重量 (kg) | 適用インサート Applicable Inserts 底刃 Center Insert | 外周刃 Peripheral Insert | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803423 | **PMD07R016SF8-1** | 16 | 2 | 1 | 8.5 | M 8 | 10 | 40 | 15.4 | 16 | 6 | 14.5 | 0.07 | ① ZPNT080304EN | ① ZDKT070304… | ❸ | 27,500 |
| 7803424 | **PMD07R018SF8-1** | ★18 | | | 8.5 | M 8 | 10 | 40 | 17 | 18 | | 14.5 | 0.08 | ② ZPNT090404EN | | | 28,600 |
| 7803416 | **PMD11R020SF10-1** | 20 | | | 10.5 | M10 | 14 | 48 | 19 | 20 | 10 | 18 | 0.1 | ③ ZPNT100408EN | ② ZDKT11T308… | ❹ | 30,200 |
| 7803417 | **PMD11R025SF12-1** | 25 | | | 12.5 | M12 | 17 | 48 | 23 | 25 | | 23 | 0.15 | ④ ZPNT130508EN | | ❺ | 33,200 |
| 7803418 | **PMD11R032SF16-1** | 32 | | | 17 | M16 | 22 | 58 | 30 | 28 | | 28 | 0.3 | ⑤ ZPNT170608EN | | ❻ | 36,100 |

★ 刃太タイプ
Reduced Shank Type

シャンクホルダ・ホルダについてはp.1028をご覧下さい。 See page 1028 for shank holders.

### ■部品 Accessories

| | | ツールNo. EDP NO. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 推奨締め付けトルク Recommended Tightening Torque |
|---|---|---|---|---|---|---|---|
| クランプねじ Clamping Screw | 底刃用 for Drilling and Plunging Edge | 7808135 | FS30570P (Torx 9IP) | ① | ZPNT08… | PMD07R016… | 2.2 N·m |
| | | | | ② | ZPNT09… | PMD07R018… | |
| | | 7808137 | FS35586P (Torx 15IP) | ③ | ZPNT10… | PMD11R020… | 3.2 N·m |
| | | 7808114 | FS45510P (Torx 20IP) | ④ | ZPNT13… | PMD11R025… | 5.0 N·m |
| | | | | ⑤ | ZPNT17… | PMD11R032… | |
| | 外周刃用 for Peripheral Cutting Edge | 7808099 | FS18637P (Torx 6IP) | ① | ZDKT07… | PMD07R016…<br>PMD07R018… | 0.5 N·m |
| | | 7808107 | FS25656P (Torx 8IP) | ② | ZDKT11… | PMD11R020…<br>PMD11R025…<br>PMD11R032… | 1.6 N·m |

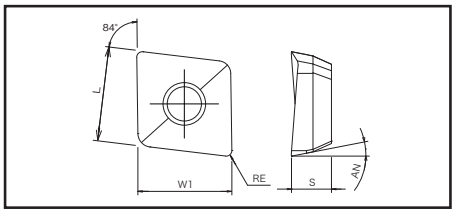
| | | ツールNo. EDP NO. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| レンチ Wrench | 底刃用 for Drilling and Plunging Edge | 7808226 | 9IP-D (Torx 9IP) | ① | ZPNT08… | PMD07R016… | 1,760 |
| | | | | ② | ZPNT09… | PMD07R018… | |
| | | 7808228 | 15IP-D (Torx 15IP) | ③ | ZPNT10… | PMD11R020… | 2,010 |
| | | 7808229 | 20IP-D (Torx 20IP) | ④ | ZPNT13… | PMD11R025… | 2,130 |
| | | | | ⑤ | ZPNT17… | PMD11R032… | |
| | 外周刃用 for Peripheral Cutting Edge | 7808223 | 6IP-D (Torx 6IP) | ① | ZDKT07… | PMD07R016…<br>PMD07R018… | 1,760 |
| | | 7808225 | 8IP-D (Torx 8IP) | ② | ZDKT11… | PMD11R020…<br>PMD11R025…<br>PMD11R032… | 1,710 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 多機能カッタ
**OSG PHOENIX Indexable Multi-function Cutter**

## PMD
切削条件 Cutting Conditions | P1118





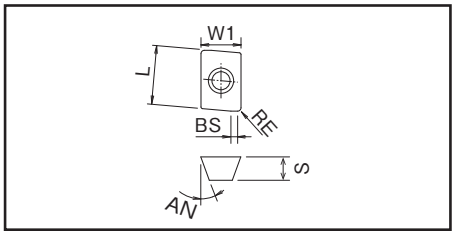

## ■底刃用インサート Inserts for Drilling and Plunging Edge

(単位:mm) (Unit:mm)

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | 適用ボディ Applicable Body | コーティング材種 Carbide Coated Materials XP8030 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ① | ZPNT080304EN | 2 | 8.85× 8.85 | 3.92 | 11° | 0.4 | φ16 | 7814105 | 2,110 |
| ② | ZPNT090404EN | 2 | 9.94× 9.94 | 4.65 | 11° | 0.4 | φ18 | 7814106 | 2,130 |
| ③ | ZPNT100408EN | 2 | 10.95×10.95 | 4.65 | 11° | 0.8 | φ20 | 7814108 | 2,220 |
| ④ | ZPNT130508EN | 2 | 13.92×13.92 | 5.46 | 11° | 0.8 | φ25 | 7814110 | 2,570 |
| ⑤ | ZPNT170608EN | 2 | 17.85×17.85 | 6.31 | 11° | 0.8 | φ32 | 7814111 | 2,720 |

※PMDの適応インサートは上記掲載インサートのみです。
※Only the inserts listed above are applicable for PMD.

・被削材別推奨材質はp.1118をご参照下さい。
・Please refer to p.1118 for recommended materials by insert type.






## ■外周刃用インサート Inserts for Peripheral Cutting Edge

(単位:mm) (Unit:mm)

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | さらい刃(副切れ刃) BS | 超硬 Uncoated CK010 | コーティング材種 Grade of Coated Materials XC3020 | XP3025 | XC3030 | XP3035 | XP2025 | XP2040 | XC1015 | XC5035 | XC5040 | XP6015 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | ZDKT070304FR-NM | 2 | 8.2× 4 | 2.54 | 15° | 0.4 | 0.9 | 7811113 | | | | | | | | | | | 1,330 |
| | ZDKT070304SR-GL | 2 | 8.2× 4 | 2.54 | 15° | 0.4 | 0.9 | | | | 7825127 | 7814123 | 7826121 | 7813117 | | | | | 1,330 |
| | ZDKT070304SR-GM | 2 | 8.2× 4 | 2.54 | 15° | 0.4 | 0.9 | | | | 7825128 | 7814124 | | 7813118 | 7812114 | | | | 1,330 |
| ② | ZDKT11T308FR-NM | 2 | 11 × 6.8 | 3.8 | 15° | 0.8 | 1.4 | 7811023 | | | | | | | | | | | 2,220 |
| | ZDKT11T308SR-GL | 2 | 11 × 6.8 | 3.8 | 15° | 0.8 | 1.4 | | 7827026 | 7828026 | 7825026 | 7814026 | 7826026 | 7813026 | | | | | 1,750 |
| | ZDKT11T308SR-GM | 2 | 11 × 6.8 | 3.8 | 15° | 0.8 | 1.4 | | 7827032 | 7828032 | 7825032 | 7814032 | 7826032 | 7813032 | | | | | 1,750 |
| | ZDKT11T308SR-GR | 2 | 11 × 6.8 | 3.8 | 15° | 0.8 | 1.4 | | 7827033 | 7828033 | 7825033 | 7814033 | | 7813033 | 7812033 | | | | 1,750 |
| | ZDKT11T308SR-HR | 2 | 11 × 6.8 | 3.8 | 15° | 0.8 | 1.4 | | | | | | | | | | | 7824035 | 2,220 |
| | ZDKT11T308ER-SM | 2 | 11 × 6.8 | 3.8 | 15° | 0.8 | 1.4 | | | | | | | | | 7815031 | 7816031 | | 3,500 |

※PMDの適応インサートは上記掲載インサートのみです。
※Only the inserts listed above are applicable for PMD.

・被削材別推奨材質はp.1118をご参照下さい。
・Please refer to p.1118 for recommended materials by insert type.



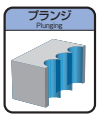
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 座ぐり用カッタ
OSG PHOENIX Counterboring Cutter

## PZAG　切削条件 Cutting Conditions | P1120

### ストレートシャンクタイプ（SS） Straight Shank Type

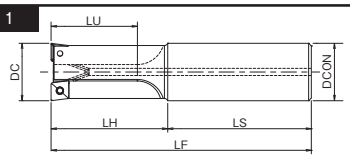



CAD

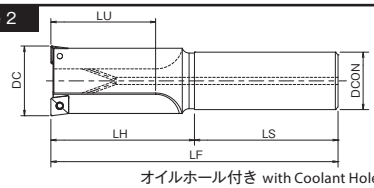


Type 1




オイルホール付き with Coolant Hole

Type 2



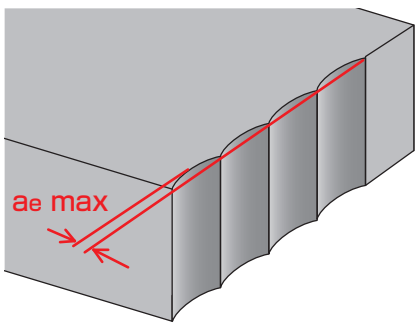

オイルホール付き with Coolant Hole

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | 全長 LF | 首下長 LH | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最小下穴径 Min. Pre-Drilled Dia. 注1) | ae 注2) (max) | 適用インサート Applicable Inserts | 形状タイプ Type | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7832100 | **PZAG04R014SS20-2** | 14 | 2 | 100 | 30 | 21 | 20 | 70 | 6 | 4 | ① | 1 | 31,500 |
| 7832101 | **PZAG06R0175SS20-2** | 17.5 | 2 | 105 | 35 | 26 | 20 | 70 | 5.5 | 6 | ② | 1 | 31,500 |
| 7832102 | **PZAG06R020SS20-2** | 20 | 2 | 110 | 40 | 30 | 20 | 70 | 8 | 6 | | 1 | 33,800 |
| 7832103 | **PZAG06R023SS25-2** | 23 | 2 | 125 | 50 | 34.5 | 25 | 75 | 11 | 6 | | 1 | 33,800 |
| 7832104 | **PZAG09R026SS25-2** | 26 | 2 | 130 | 55 | 39 | 25 | 75 | 8 | 9 | ③ | 1 | 35,800 |
| 7832105 | **PZAG09R029SS32-2** | 29 | 2 | 140 | 60 | 43.5 | 32 | 80 | 11 | 9 | | 1 | 35,800 |
| 7832106 | **PZAG09R032SS32-2** | 32 | 2 | 145 | 65 | 48 | 32 | 80 | 14 | 9 | | 1 | 37,500 |
| 7832107 | **PZAG09R035SS32-2** | 35 | 2 | 150 | 70 | 52.5 | 32 | 80 | 17 | 9 | | 2 | 39,000 |
| 7832108 | **PZAG09R039SS32-2** | 39 | 2 | 160 | 80 | 58.5 | 32 | 80 | 21 | 9 | | 2 | 40,100 |
| 7832109 | **PZAG09R043SS32-2** | 43 | 2 | 170 | 90 | 64.5 | 32 | 80 | 25 | 9 | | 2 | 43,900 |
| 7832110 | **PZAG09R048SS32-2** | 48 | 2 | 180 | 100 | 72 | 32 | 80 | 30 | 9 | | 2 | 48,200 |

注1）座ぐり加工を行う場合の下穴の最小値を示します。 These minimum pre-drilled hole sizes are required before counterboring operations.
※横引き不可です ※Specialized for plunging.

注2）：プランジ加工時の最大切込み（ae）
Maximum depth of cut in plunge milling




**加工穴径に合わせた特殊品も承っております。詳細は当社営業へお問い合わせ下さい（φ14以上に対応）。**
Special orders made according to the machined hole diameter are also accepted. Please contact OSG's sales division for details (for items over dia. 14).

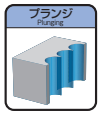
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 座ぐり用カッタ
OSG PHOENIX Counterboring Cutter

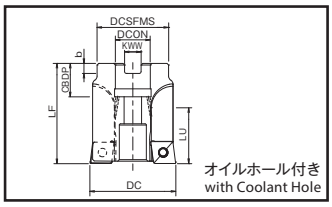
## PZAG　切削条件 Cutting Conditions | P1120

### ボアタイプ（BORE） Bore Type






CAD



オイルホール付き
with Coolant Hole

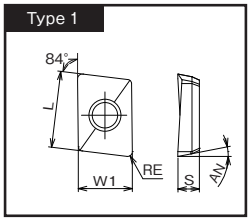


（単位：mm）(Unit:mm)

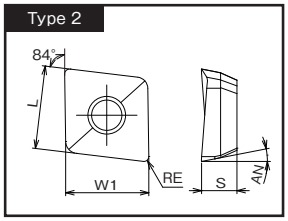
| ツールNo. EDP No. | 呼び Designation | 外径 DC | 刃数 ZEFP | カッタ高さ LF | 有効加工深さ LU | ボス径 DCSFMS | 穴径 DCON | 穴径深さ CBDP | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | 最小下穴径 Min. Pre-Drilled Dia. 注1) | ae 注2) (max) | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7832111 | **PZAG13R054M22-4** | 54 | 4 | 63 | 35 | 45 | 22 | 21 | 10.4 | 6.3 | 29 | 12.5 | ④ | 62,600 |
| 7832112 | **PZAG13R058M22-4** | 58 | 4 | 63 | 38 | 45 | 22 | 21 | 10.4 | 6.3 | 33 | 12.5 | | 62,600 |
| 7832113 | **PZAG13R062M22-4** | 62 | 4 | 63 | 41 | 45 | 22 | 21 | 10.4 | 6.3 | 37 | 12.5 | | 65,000 |
| 7832114 | **PZAG13R067M22-4** | 67 | 4 | 63 | 44 | 45 | 22 | 21 | 10.4 | 6.3 | 42 | 12.5 | | 65,000 |
| 7832115 | **PZAG13R072M22-4** | 72 | 4 | 63 | 47 | 45 | 22 | 21 | 10.4 | 6.3 | 47 | 12.5 | | 70,300 |
| 7832116 | **PZAG17R076M22-4** | 76 | 4 | 63 | 50 | 45 | 22 | 21 | 10.4 | 6.3 | 44 | 16 | ⑤ | 70,300 |
| 7832117 | **PZAG17R082M22-4** | 82 | 4 | 63 | 54 | 45 | 22 | 21 | 10.4 | 6.3 | 50 | 16 | | 75,200 |

注1）座ぐり加工を行う場合の下穴の最小値を示します。These minimum pre-drilled hole sizes are required before counterboring operations.
※横引き不可です　※Specialized for plunging.

Type 1




Type 2




### ■適用インサート Applicable Inserts

（単位：mm）(Unit:mm)

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | 形状 Type | 適用ボディ Applicable Body | コーティング材種 Carbide Coated Materials XP8030 | XC8035 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | **ZPNT040104ER** | 2 | 6.35× 4.45 | 1.76 | 11° | 0.4 | 1 | φ14 | 7814101 | 7815101 | 2,030 |
| ② | **ZPNT060204EN** | 2 | 6.95× 6.95 | 2.93 | 11° | 0.4 | 2 | φ17.5～23 | 7814103 | 7815103 | 2,090 |
| ③ | **ZPNT090404EN** | 2 | 9.94× 9.94 | 4.65 | 11° | 0.4 | 2 | φ26～48 | 7814106 | 7815106 | 2,130 |
| ④ | **ZPNT130504EN** | 2 | 13.92×13.92 | 5.46 | 11° | 0.4 | 2 | φ54～72 | 7814109 | 7815109 | 2,570 |
| | **ZPNT130508EN** | | | | | 0.8 | | | 7814110 | 7815110 | 2,570 |
| ⑤ | **ZPNT170608EN** | 2 | 17.85×17.85 | 6.31 | 11° | 0.8 | 2 | φ76,82 | 7814111 | 7815111 | 2,720 |

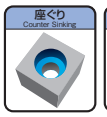
・被削材別推奨材質はp.1120をご参照下さい。
・Please refer to p.1120 for recommended materials by insert type.

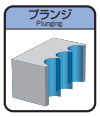


在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX 座ぐり用カッタ
**OSG PHOENIX Counterboring Cutter**

## PZAG　切削条件 Cutting Conditions | P1120





CAD

■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 推奨締め付けトルク Recommended Tightening Torque |
|---|---|---|---|---|---|---|
|  クランプねじ Clamping Screw | 7808096 | FS18536P (Torx 6IP) | ① | ZPNT04… | PZAG SSφ14 | 0.7N·m |
| | 7808138 | FS22550P (Torx 7IP) | ② | ZPNT06… | PZAG SS φ17.5~23 | 1.0N·m |
| | 7808135 | FS30570P (Torx 9IP) | ③ | ZPNT09… | PZAG SS φ26~48 | 2.2N·m |
| | 7808114 | FS45510P (Torx 20IP) | ④ | ZPNT13… | PZAG BOREφ54~82 | 5.0N·m |
| | | | ⑤ | ZPNT17… | | |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
|  レンチ Wrench | 7808223 | 6IP-D (Torx 6IP) | ① | ZPNT04… | PZAG SSφ14 | 1,760 |
| | 7808224 | 7IP-D (Torx 7IP) | ② | ZPNT06… | PZAG SS φ17.5~23 | 1,510 |
| | 7808226 | 9IP-D (Torx 9IP) | ③ | ZPNT09… | PZAG SS φ26~48 | 1,760 |
| | 7808229 | 20IP-D (Torx 20IP) | ④ | ZPNT13… | PZAG BOREφ54~82 | 2,130 |
| | | | ⑤ | ZPNT17… | | |

レンチは別途ご購入下さい。　The wrenches are sold separately from the cutters.

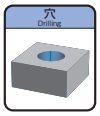


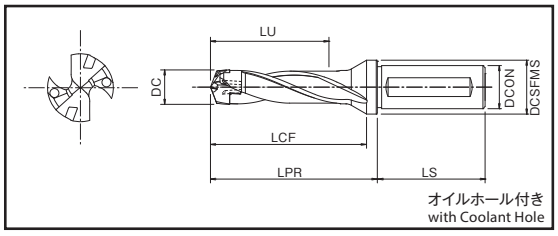
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ヘッド交換式ドリル
**OSG PHOENIX Exchangeable Head Drill**

## PXDZ

切削条件 Cutting Conditions | **P1123**







### 3Dタイプ 3D Type

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 加工径 DC 最小 DCN | 加工径 DC 最大 DCX | 有効加工深さ LU | 溝長 LCF | LPR | LS | シャンク径 DCON | DCSFMS | 適用脱着ドライバ Driver | 適用ヘッド Applicable Head | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7831015 | **PXDZ140-3D-113.5-16** | 14 | 14.49 | 43 | 63.4 | 69.9 | 48 | 16 | 20 | ❶ | ① | 41,100 |
| 7831016 | **PXDZ145-3D-115.5-16** | 14.5 | 14.99 | 44.5 | 65.5 | 72 | 48 | 16 | 20 | | ② | 41,100 |
| 7831017 | **PXDZ150-3D-119.5-20** | 15 | 15.99 | 46.5 | 67.1 | 73.6 | 50 | 20 | 25 | | ③ | 43,300 |
| 7831018 | **PXDZ160-3D-123.5-20** | 16 | 16.99 | 49.5 | 71.7 | 78.2 | 50 | 20 | 25 | | ④ | 43,300 |
| 7831019 | **PXDZ170-3D-128.5-20** | 17 | 17.99 | 52.5 | 76.8 | 83.3 | 50 | 20 | 25 | | ⑤ | 45,700 |
| 7831020 | **PXDZ180-3D-138.5-25** | 18 | 18.99 | 55.5 | 81.4 | 87.9 | 56 | 25 | 32 | | ⑥ | 50,300 |
| 7831021 | **PXDZ190-3D-142.5-25** | 19 | 19.99 | 58.5 | 85.4 | 91.9 | 56 | 25 | 32 | ❷ | ⑦ | 50,300 |
| 7831022 | **PXDZ200-3D-146.5-25** | 20 | 20.99 | 61.5 | 90.1 | 96.6 | 56 | 25 | 32 | | ⑧ | 60,400 |
| 7831023 | **PXDZ210-3D-154.5-32** | 21 | 21.99 | 64.5 | 94.7 | 101.2 | 60 | 32 | 42 | | ⑨ | 60,400 |
| 7831024 | **PXDZ220-3D-158.5-32** | 22 | 22.99 | 67.5 | 98.8 | 105.3 | 60 | 32 | 42 | | ⑩ | 60,400 |
| 7831025 | **PXDZ230-3D-162.5-32** | 23 | 23.99 | 70.5 | 103.4 | 109.9 | 60 | 32 | 42 | ❸ | ⑪ | 66,400 |
| 7831026 | **PXDZ240-3D-167.5-32** | 24 | 24.99 | 73.5 | 108.4 | 114.9 | 60 | 32 | 42 | | ⑫ | 66,400 |
| 7831027 | **PXDZ250-3D-170.5-32** | 25 | 25.99 | 76.5 | 112 | 118.5 | 60 | 32 | 42 | | ⑬ | 74,300 |

PXDZの呼びにボディ全長(ヘッド未装着時の長さ)を記載しております。
例) ツールNo : 7831015
呼び : PXDZ140-3D-113.5-16
↑ボディ全長

PXDZ designation includes the total length of body (without head).
ex) EDP No. : 7831015
Designation : PXDZ140-3D-113.5-16
↑total length of body

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

## 5Dタイプ 5D Type

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 加工径 DC 最小 DCN | 加工径 DC 最大 DCX | 有効加工深さ LU | 溝長 LCF | LPR | LS | シャンク径 DCON | DCSFMS | 適用脱着ドライバ Driver | 適用ヘッド Applicable Head | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7831065 | **PXDZ140-5D-141.5-16** | 14 | 14.49 | 71.2 | 92.9 | 97.9 | 48 | 16 | 20 | ❶ | ① | 49,300 |
| 7831066 | **PXDZ145-5D-144.5-16** | 14.5 | 14.99 | 73.7 | 96 | 101 | 48 | 16 | 20 | | ② | 49,300 |
| 7831067 | **PXDZ150-5D-149.5-20** | 15 | 15.99 | 77.5 | 97.1 | 103.6 | 50 | 20 | 25 | | ③ | 51,800 |
| 7831068 | **PXDZ160-5D-155.5-20** | 16 | 16.99 | 82.5 | 103.7 | 110.2 | 50 | 20 | 25 | | ④ | 51,800 |
| 7831069 | **PXDZ170-5D-162.5-20** | 17 | 17.99 | 87.5 | 110.8 | 117.3 | 50 | 20 | 25 | | ⑤ | 54,800 |
| 7831070 | **PXDZ180-5D-174.5-25** | 18 | 18.99 | 92.5 | 117.4 | 123.9 | 56 | 25 | 32 | | ⑥ | 60,400 |
| 7831071 | **PXDZ190-5D-180.5-25** | 19 | 19.99 | 97.5 | 123.4 | 129.9 | 56 | 25 | 32 | ❷ | ⑦ | 60,400 |
| 7831072 | **PXDZ200-5D-186.5-25** | 20 | 20.99 | 102.5 | 130.1 | 136.6 | 56 | 25 | 32 | | ⑧ | 72,700 |
| 7831073 | **PXDZ210-5D-196.5-32** | 21 | 21.99 | 107.5 | 136.7 | 143.2 | 60 | 32 | 42 | | ⑨ | 72,700 |
| 7831074 | **PXDZ220-5D-202.5-32** | 22 | 22.99 | 112.5 | 142.8 | 149.3 | 60 | 32 | 42 | | ⑩ | 72,700 |
| 7831075 | **PXDZ230-5D-208.5-32** | 23 | 23.99 | 117.5 | 149.4 | 155.9 | 60 | 32 | 42 | ❸ | ⑪ | 79,800 |
| 7831076 | **PXDZ240-5D-215.5-32** | 24 | 24.99 | 122.5 | 156.4 | 162.9 | 60 | 32 | 42 | | ⑫ | 79,800 |
| 7831077 | **PXDZ250-5D-220.5-32** | 25 | 25.99 | 127.5 | 162 | 168.5 | 60 | 32 | 42 | | ⑬ | 89,100 |

PXDZの呼びにボディ全長（ヘッド未装着時の長さ）を記載しております。
例）ツールNo：7831015
呼び：PXDZ140-3D-113.5-16
ボディ全長

PXDZ designation includes the total length of body (without head).
ex) EDP No. : 7831015
Designation : PXDZ140-3D-113.5-16
total length of body



## ■部品 Accessories

（単位:mm）(Unit:mm)

| | | ツールNo. EDP No. | 呼び Designation | 板厚 Sheet Thickness | 適用ヘッド Applicable Head | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
|  脱着ドライバ Driver | ❶ | 7808282 | PXDP1400-1899 | 1.5 | ①～⑥ | 2,590 |
| | ❷ | 7808283 | PXDP1900-2299 | 1.8 | ⑦～⑩ | 2,590 |
| | ❸ | 7808284 | PXDP2300-2699 | 2 | ⑪～⑬ | 2,670 |

脱着ドライバは別途ご購入下さい。 The drivers are sold separately from the cutters.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX ヘッド交換式ドリル用ヘッド(PC)

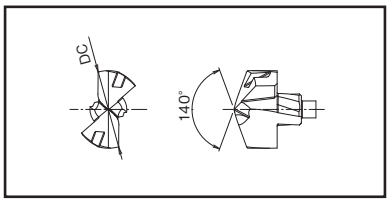
**OSG PHOENIX Exchangeable Head Drill for Steel**

## PXD

切削条件 Cutting Conditions | P1123



■適用ヘッド Heads




鋼用(PC) For steel (PC)　販売単価：1個 Sales price: per piece

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| 7831140 | | PXDH1400-PC | 14 | XP3425 | C | 9,500 |
| | | PXDH1410-PC | 14.1 | XP3425 | ※ | – |
| | ① | PXDH1420-PC | 14.2 | XP3425 | ※ | – |
| | | PXDH1430-PC | 14.3 | XP3425 | ※ | – |
| | | PXDH1440-PC | 14.4 | XP3425 | ※ | – |
| 7831145 | | PXDH1450-PC | 14.5 | XP3425 | C | 9,500 |
| | | PXDH1460-PC | 14.6 | XP3425 | ※ | – |
| | | PXDH1470-PC | 14.7 | XP3425 | ※ | – |
| | ② | PXDH1480-PC | 14.8 | XP3425 | ※ | – |
| | | PXDH1490-PC | 14.9 | XP3425 | ※ | – |
| 7831351 | | PXDH1495-PC | 14.95 | XP3425 | C | 9,500 |
| 7831150 | | PXDH1500-PC | 15 | XP3425 | C | 10,600 |
| | | PXDH1510-PC | 15.1 | XP3425 | ※ | – |
| | | PXDH1520-PC | 15.2 | XP3425 | ※ | – |
| 7831352 | | PXDH1525-PC | 15.25 | XP3425 | C | 10,600 |
| | | PXDH1530-PC | 15.3 | XP3425 | ※ | – |
| | ③ | PXDH1540-PC | 15.4 | XP3425 | ※ | – |
| 7831155 | | PXDH1550-PC | 15.5 | XP3425 | C | 10,600 |
| | | PXDH1560-PC | 15.6 | XP3425 | ※ | – |
| | | PXDH1570-PC | 15.7 | XP3425 | ※ | – |
| | | PXDH1580-PC | 15.8 | XP3425 | ※ | – |
| | | PXDH1590-PC | 15.9 | XP3425 | ※ | – |
| 7831160 | | PXDH1600-PC | 16 | XP3425 | C | 10,600 |
| | | PXDH1610-PC | 16.1 | XP3425 | ※ | – |
| | | PXDH1620-PC | 16.2 | XP3425 | ※ | – |
| | ④ | PXDH1630-PC | 16.3 | XP3425 | ※ | – |
| | | PXDH1640-PC | 16.4 | XP3425 | ※ | – |
| 7831165 | | PXDH1650-PC | 16.5 | XP3425 | C | 11,700 |
| | | PXDH1660-PC | 16.6 | XP3425 | ※ | – |
| 7831167 | | PXDH1670-PC | 16.7 | XP3425 | C | 11,700 |

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | | PXDH1680-PC | 16.8 | XP3425 | ※ | – |
| | ④ | PXDH1690-PC | 16.9 | XP3425 | ※ | – |
| 7831170 | | PXDH1700-PC | 17 | XP3425 | C | 11,700 |
| | | PXDH1710-PC | 17.1 | XP3425 | ※ | – |
| | | PXDH1720-PC | 17.2 | XP3425 | ※ | – |
| 7831353 | | PXDH1725-PC | 17.25 | XP3425 | C | 11,700 |
| | | PXDH1730-PC | 17.3 | XP3425 | ※ | – |
| | ⑤ | PXDH1740-PC | 17.4 | XP3425 | ※ | – |
| 7831175 | | PXDH1750-PC | 17.5 | XP3425 | C | 12,600 |
| | | PXDH1760-PC | 17.6 | XP3425 | ※ | – |
| | | PXDH1770-PC | 17.7 | XP3425 | ※ | – |
| | | PXDH1780-PC | 17.8 | XP3425 | ※ | – |
| | | PXDH1790-PC | 17.9 | XP3425 | ※ | – |
| 7831180 | | PXDH1800-PC | 18 | XP3425 | C | 12,600 |
| | | PXDH1810-PC | 18.1 | XP3425 | ※ | – |
| | | PXDH1820-PC | 18.2 | XP3425 | ※ | – |
| | | PXDH1830-PC | 18.3 | XP3425 | ※ | – |
| | | PXDH1840-PC | 18.4 | XP3425 | ※ | – |
| 7831185 | ⑥ | PXDH1850-PC | 18.5 | XP3425 | C | 12,600 |
| | | PXDH1860-PC | 18.6 | XP3425 | ※ | – |
| 7831187 | | PXDH1870-PC | 18.7 | XP3425 | C | 12,600 |
| | | PXDH1880-PC | 18.8 | XP3425 | ※ | – |
| | | PXDH1890-PC | 18.9 | XP3425 | ※ | – |
| 7831190 | | PXDH1900-PC | 19 | XP3425 | C | 13,900 |
| | | PXDH1910-PC | 19.1 | XP3425 | ※ | – |
| | | PXDH1920-PC | 19.2 | XP3425 | ※ | – |
| 7831354 | ⑦ | PXDH1925-PC | 19.25 | XP3425 | C | 13,900 |
| | | PXDH1930-PC | 19.3 | XP3425 | ※ | – |
| | | PXDH1940-PC | 19.4 | XP3425 | ※ | – |
| 7831195 | | PXDH1950-PC | 19.5 | XP3425 | C | 13,900 |

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直径 DC 19.6～25.4 NEXT



C= 標準在庫品 C=Standard stock item.　※ = 受注対応品 ※ =Special order item

前ページより
FROM 直径 DC 14～19.5

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | ⑦ | PXDH1960-PC | 19.6 | XP3425 | ※ | – |
| | | PXDH1970-PC | 19.7 | XP3425 | ※ | – |
| | | PXDH1980-PC | 19.8 | XP3425 | ※ | – |
| | | PXDH1990-PC | 19.9 | XP3425 | ※ | – |
| 7831200 | ⑧ | PXDH2000-PC | 20 | XP3425 | C | 15,100 |
| | | PXDH2010-PC | 20.1 | XP3425 | ※ | – |
| | | PXDH2020-PC | 20.2 | XP3425 | ※ | – |
| | | PXDH2030-PC | 20.3 | XP3425 | ※ | – |
| | | PXDH2040-PC | 20.4 | XP3425 | ※ | – |
| 7831205 | | PXDH2050-PC | 20.5 | XP3425 | C | 15,100 |
| | | PXDH2060-PC | 20.6 | XP3425 | ※ | – |
| 7831207 | | PXDH2070-PC | 20.7 | XP3425 | C | 15,100 |
| | | PXDH2080-PC | 20.8 | XP3425 | ※ | – |
| | | PXDH2090-PC | 20.9 | XP3425 | ※ | – |
| 7831210 | ⑨ | PXDH2100-PC | 21 | XP3425 | C | 15,100 |
| | | PXDH2110-PC | 21.1 | XP3425 | ※ | – |
| | | PXDH2120-PC | 21.2 | XP3425 | ※ | – |
| 7831355 | | PXDH2125-PC | 21.25 | XP3425 | C | 15,100 |
| | | PXDH2130-PC | 21.3 | XP3425 | ※ | – |
| | | PXDH2140-PC | 21.4 | XP3425 | ※ | – |
| 7831215 | | PXDH2150-PC | 21.5 | XP3425 | C | 16,300 |
| | | PXDH2160-PC | 21.6 | XP3425 | ※ | – |
| | | PXDH2170-PC | 21.7 | XP3425 | ※ | – |
| | | PXDH2180-PC | 21.8 | XP3425 | ※ | – |
| | | PXDH2190-PC | 21.9 | XP3425 | ※ | – |
| 7831220 | ⑩ | PXDH2200-PC | 22 | XP3425 | C | 16,300 |
| | | PXDH2210-PC | 22.1 | XP3425 | ※ | – |
| | | PXDH2220-PC | 22.2 | XP3425 | ※ | – |
| | | PXDH2230-PC | 22.3 | XP3425 | ※ | – |
| 7831224 | | PXDH2240-PC | 22.4 | XP3425 | C | 16,300 |
| 7831225 | | PXDH2250-PC | 22.5 | XP3425 | C | 16,300 |

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | ⑩ | PXDH2260-PC | 22.6 | XP3425 | ※ | – |
| | | PXDH2270-PC | 22.7 | XP3425 | ※ | – |
| | | PXDH2280-PC | 22.8 | XP3425 | ※ | – |
| | | PXDH2290-PC | 22.9 | XP3425 | ※ | – |
| 7831230 | ⑪ | PXDH2300-PC | 23 | XP3425 | C | 17,800 |
| | | PXDH2310-PC | 23.1 | XP3425 | ※ | – |
| | | PXDH2320-PC | 23.2 | XP3425 | ※ | – |
| 7831356 | | PXDH2325-PC | 23.25 | XP3425 | C | 17,800 |
| | | PXDH2330-PC | 23.3 | XP3425 | ※ | – |
| | | PXDH2340-PC | 23.4 | XP3425 | ※ | – |
| 7831235 | | PXDH2350-PC | 23.5 | XP3425 | C | 17,800 |
| | | PXDH2360-PC | 23.6 | XP3425 | ※ | – |
| | | PXDH2370-PC | 23.7 | XP3425 | ※ | – |
| | | PXDH2380-PC | 23.8 | XP3425 | ※ | – |
| | | PXDH2390-PC | 23.9 | XP3425 | ※ | – |
| 7831240 | ⑫ | PXDH2400-PC | 24 | XP3425 | C | 17,800 |
| | | PXDH2410-PC | 24.1 | XP3425 | ※ | – |
| | | PXDH2420-PC | 24.2 | XP3425 | ※ | – |
| | | PXDH2430-PC | 24.3 | XP3425 | ※ | – |
| | | PXDH2440-PC | 24.4 | XP3425 | ※ | – |
| 7831245 | | PXDH2450-PC | 24.5 | XP3425 | C | 17,800 |
| | | PXDH2460-PC | 24.6 | XP3425 | ※ | – |
| | | PXDH2470-PC | 24.7 | XP3425 | ※ | – |
| | | PXDH2480-PC | 24.8 | XP3425 | ※ | – |
| | | PXDH2490-PC | 24.9 | XP3425 | ※ | – |
| 7831250 | ⑬ | PXDH2500-PC | 25 | XP3425 | C | 18,800 |
| | | PXDH2510-PC | 25.1 | XP3425 | ※ | – |
| | | PXDH2520-PC | 25.2 | XP3425 | ※ | – |
| | | PXDH2530-PC | 25.3 | XP3425 | ※ | – |
| 7831254 | | PXDH2540-PC | 25.4 | XP3425 | C | 19,800 |

青字＝切削タップ下穴　Blue=pre-drilled hole for cutting taps
赤字＝転造タップ下穴　Red=pre-drilled hole for forming taps
転造下穴として使用の場合は3Dタイプをご使用下さい。　For pre-drilled hole of forming tap, 3D type should be used. (5D is not recommended)

C＝標準在庫品　C=Standard stock item.　※＝受注対応品　※ =Special order item

# OSG PHOENIX ヘッド交換式ドリル用ヘッド(KC)

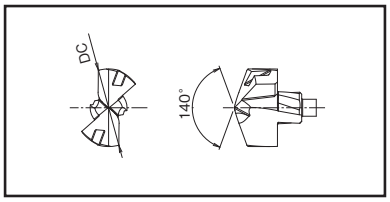
**OSG PHOENIX Exchangeable Head Drill for Cast Iron**

## PXD

切削条件 Cutting Conditions | P1123



■適用ヘッド Heads




鋳鉄用(KC) For cast iron (KC)　販売単価：1個 Sales price: per piece

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| 7831440 | | PXDH1400-KC | 14 | XP1425 | C | 9,500 |
| | | PXDH1410-KC | 14.1 | XP1425 | ※ | – |
| | ① | PXDH1420-KC | 14.2 | XP1425 | ※ | – |
| | | PXDH1430-KC | 14.3 | XP1425 | ※ | – |
| | | PXDH1440-KC | 14.4 | XP1425 | ※ | – |
| 7831445 | | PXDH1450-KC | 14.5 | XP1425 | C | 9,500 |
| | | PXDH1460-KC | 14.6 | XP1425 | ※ | – |
| | ② | PXDH1470-KC | 14.7 | XP1425 | ※ | – |
| | | PXDH1480-KC | 14.8 | XP1425 | ※ | – |
| | | PXDH1490-KC | 14.9 | XP1425 | ※ | – |
| 7831450 | | PXDH1500-KC | 15 | XP1425 | C | 10,600 |
| | | PXDH1510-KC | 15.1 | XP1425 | ※ | – |
| | | PXDH1520-KC | 15.2 | XP1425 | ※ | – |
| | | PXDH1530-KC | 15.3 | XP1425 | ※ | – |
| | ③ | PXDH1540-KC | 15.4 | XP1425 | ※ | – |
| 7831455 | | PXDH1550-KC | 15.5 | XP1425 | C | 10,600 |
| | | PXDH1560-KC | 15.6 | XP1425 | ※ | – |
| | | PXDH1570-KC | 15.7 | XP1425 | ※ | – |
| | | PXDH1580-KC | 15.8 | XP1425 | ※ | – |
| | | PXDH1590-KC | 15.9 | XP1425 | ※ | – |
| 7831460 | | PXDH1600-KC | 16 | XP1425 | C | 10,600 |
| | | PXDH1610-KC | 16.1 | XP1425 | ※ | – |
| | | PXDH1620-KC | 16.2 | XP1425 | ※ | – |
| | | PXDH1630-KC | 16.3 | XP1425 | ※ | – |
| | ④ | PXDH1640-KC | 16.4 | XP1425 | ※ | – |
| 7831465 | | PXDH1650-KC | 16.5 | XP1425 | C | 11,700 |
| | | PXDH1660-KC | 16.6 | XP1425 | ※ | – |
| 7831467 | | PXDH1670-KC | 16.7 | XP1425 | C | 11,700 |
| | | PXDH1680-KC | 16.8 | XP1425 | ※ | – |
| | | PXDH1690-KC | 16.9 | XP1425 | ※ | – |

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| 7831470 | | PXDH1700-KC | 17 | XP1425 | C | 11,700 |
| | | PXDH1710-KC | 17.1 | XP1425 | ※ | – |
| | | PXDH1720-KC | 17.2 | XP1425 | ※ | – |
| | | PXDH1730-KC | 17.3 | XP1425 | ※ | – |
| | ⑤ | PXDH1740-KC | 17.4 | XP1425 | ※ | – |
| 7831475 | | PXDH1750-KC | 17.5 | XP1425 | C | 12,600 |
| | | PXDH1760-KC | 17.6 | XP1425 | ※ | – |
| | | PXDH1770-KC | 17.7 | XP1425 | ※ | – |
| | | PXDH1780-KC | 17.8 | XP1425 | ※ | – |
| | | PXDH1790-KC | 17.9 | XP1425 | ※ | – |
| 7831480 | | PXDH1800-KC | 18 | XP1425 | C | 12,600 |
| | | PXDH1810-KC | 18.1 | XP1425 | ※ | – |
| | | PXDH1820-KC | 18.2 | XP1425 | ※ | – |
| | | PXDH1830-KC | 18.3 | XP1425 | ※ | – |
| | ⑥ | PXDH1840-KC | 18.4 | XP1425 | ※ | – |
| 7831485 | | PXDH1850-KC | 18.5 | XP1425 | C | 12,600 |
| | | PXDH1860-KC | 18.6 | XP1425 | ※ | – |
| 7831487 | | PXDH1870-KC | 18.7 | XP1425 | C | 12,600 |
| | | PXDH1880-KC | 18.8 | XP1425 | ※ | – |
| | | PXDH1890-KC | 18.9 | XP1425 | ※ | – |
| 7831490 | | PXDH1900-KC | 19 | XP1425 | C | 13,900 |
| | | PXDH1910-KC | 19.1 | XP1425 | ※ | – |
| | | PXDH1920-KC | 19.2 | XP1425 | ※ | – |
| | | PXDH1930-KC | 19.3 | XP1425 | ※ | – |
| | ⑦ | PXDH1940-KC | 19.4 | XP1425 | ※ | – |
| 7831495 | | PXDH1950-KC | 19.5 | XP1425 | C | 13,900 |
| | | PXDH1960-KC | 19.6 | XP1425 | ※ | – |
| | | PXDH1970-KC | 19.7 | XP1425 | ※ | – |
| | | PXDH1980-KC | 19.8 | XP1425 | ※ | – |
| | | PXDH1990-KC | 19.9 | XP1425 | ※ | – |

次ページへ
直径 DC 20～25.4 NEXT

C= 標準在庫品 C=Standard stock item.　※ = 受注対応品 ※ =Special order item

前ページより

**FROM 直径 DC 14～19.9**

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| 7831500 | ⑧ | PXDH2000-KC | 20 | XP1425 | C | 15,100 |
| | | PXDH2010-KC | 20.1 | XP1425 | ※ | – |
| | | PXDH2020-KC | 20.2 | XP1425 | ※ | – |
| | | PXDH2030-KC | 20.3 | XP1425 | ※ | – |
| | | PXDH2040-KC | 20.4 | XP1425 | ※ | – |
| 7831505 | | PXDH2050-KC | 20.5 | XP1425 | C | 15,100 |
| | | PXDH2060-KC | 20.6 | XP1425 | ※ | – |
| 7831507 | | PXDH2070-KC | 20.7 | XP1425 | C | 15,100 |
| | | PXDH2080-KC | 20.8 | XP1425 | ※ | – |
| | | PXDH2090-KC | 20.9 | XP1425 | ※ | – |
| 7831510 | ⑨ | PXDH2100-KC | 21 | XP1425 | C | 15,100 |
| | | PXDH2110-KC | 21.1 | XP1425 | ※ | – |
| | | PXDH2120-KC | 21.2 | XP1425 | ※ | – |
| | | PXDH2130-KC | 21.3 | XP1425 | ※ | – |
| | | PXDH2140-KC | 21.4 | XP1425 | ※ | – |
| 7831515 | | PXDH2150-KC | 21.5 | XP1425 | C | 16,300 |
| | | PXDH2160-KC | 21.6 | XP1425 | ※ | – |
| | | PXDH2170-KC | 21.7 | XP1425 | ※ | – |
| | | PXDH2180-KC | 21.8 | XP1425 | ※ | – |
| | | PXDH2190-KC | 21.9 | XP1425 | ※ | – |
| 7831520 | ⑩ | PXDH2200-KC | 22 | XP1425 | C | 16,300 |
| | | PXDH2210-KC | 22.1 | XP1425 | ※ | – |
| | | PXDH2220-KC | 22.2 | XP1425 | ※ | – |
| | | PXDH2230-KC | 22.3 | XP1425 | ※ | – |
| 7831524 | | PXDH2240-KC | 22.4 | XP1425 | C | 16,300 |
| 7831525 | | PXDH2250-KC | 22.5 | XP1425 | C | 16,300 |
| | | PXDH2260-KC | 22.6 | XP1425 | ※ | – |
| | | PXDH2270-KC | 22.7 | XP1425 | ※ | – |

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | ⑩ | PXDH2280-KC | 22.8 | XP1425 | ※ | – |
| | | PXDH2290-KC | 22.9 | XP1425 | ※ | – |
| 7831530 | ⑪ | PXDH2300-KC | 23 | XP1425 | C | 17,800 |
| | | PXDH2310-KC | 23.1 | XP1425 | ※ | – |
| | | PXDH2320-KC | 23.2 | XP1425 | ※ | – |
| | | PXDH2330-KC | 23.3 | XP1425 | ※ | – |
| | | PXDH2340-KC | 23.4 | XP1425 | ※ | – |
| 7831535 | | PXDH2350-KC | 23.5 | XP1425 | C | 17,800 |
| | | PXDH2360-KC | 23.6 | XP1425 | ※ | – |
| | | PXDH2370-KC | 23.7 | XP1425 | ※ | – |
| | | PXDH2380-KC | 23.8 | XP1425 | ※ | – |
| | | PXDH2390-KC | 23.9 | XP1425 | ※ | – |
| 7831540 | ⑫ | PXDH2400-KC | 24 | XP1425 | C | 17,800 |
| | | PXDH2410-KC | 24.1 | XP1425 | ※ | – |
| | | PXDH2420-KC | 24.2 | XP1425 | ※ | – |
| | | PXDH2430-KC | 24.3 | XP1425 | ※ | – |
| | | PXDH2440-KC | 24.4 | XP1425 | ※ | – |
| 7831545 | | PXDH2450-KC | 24.5 | XP1425 | C | 17,800 |
| | | PXDH2460-KC | 24.6 | XP1425 | ※ | – |
| | | PXDH2470-KC | 24.7 | XP1425 | ※ | – |
| | | PXDH2480-KC | 24.8 | XP1425 | ※ | – |
| | | PXDH2490-KC | 24.9 | XP1425 | ※ | – |
| 7831550 | ⑬ | PXDH2500-KC | 25 | XP1425 | C | 18,800 |
| | | PXDH2510-KC | 25.1 | XP1425 | ※ | – |
| | | PXDH2520-KC | 25.2 | XP1425 | ※ | – |
| | | PXDH2530-KC | 25.3 | XP1425 | ※ | – |
| 7831554 | | PXDH2540-KC | 25.4 | XP1425 | C | 19,800 |

青字＝切削タップ下穴　Blue=pre-drilled hole for cutting taps

C= 標準在庫品　C=Standard stock item.　※＝受注対応品　※ =Special order item

# OSG PHOENIX ヘッド交換式ドリル用ヘッド(NC)

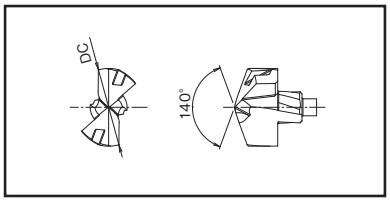
**OSG PHOENIX Exchangeable Head Drill for Non-ferrous Materials**

## PXD

切削条件 Cutting Conditions | P1123



■適用ヘッド Heads




**非鉄用(NC)** For non-ferrous metal (NC)　**販売単価：1個** Sales price: per piece

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| 7831740 | | PXDH1400-NC | 14 | CF225 | C | 9,040 |
| | | PXDH1410-NC | 14.1 | CF225 | ※ | – |
| | ① | PXDH1420-NC | 14.2 | CF225 | ※ | – |
| | | PXDH1430-NC | 14.3 | CF225 | ※ | – |
| | | PXDH1440-NC | 14.4 | CF225 | ※ | – |
| 7831745 | | PXDH1450-NC | 14.5 | CF225 | C | 9,040 |
| | | PXDH1460-NC | 14.6 | CF225 | ※ | – |
| | ② | PXDH1470-NC | 14.7 | CF225 | ※ | – |
| | | PXDH1480-NC | 14.8 | CF225 | ※ | – |
| | | PXDH1490-NC | 14.9 | CF225 | ※ | – |
| 7831750 | | PXDH1500-NC | 15 | CF225 | C | 9,980 |
| | | PXDH1510-NC | 15.1 | CF225 | ※ | – |
| | | PXDH1520-NC | 15.2 | CF225 | ※ | – |
| | | PXDH1530-NC | 15.3 | CF225 | ※ | – |
| | ③ | PXDH1540-NC | 15.4 | CF225 | ※ | – |
| 7831755 | | PXDH1550-NC | 15.5 | CF225 | C | 9,980 |
| | | PXDH1560-NC | 15.6 | CF225 | ※ | – |
| | | PXDH1570-NC | 15.7 | CF225 | ※ | – |
| | | PXDH1580-NC | 15.8 | CF225 | ※ | – |
| | | PXDH1590-NC | 15.9 | CF225 | ※ | – |
| 7831760 | | PXDH1600-NC | 16 | CF225 | C | 9,980 |
| | | PXDH1610-NC | 16.1 | CF225 | ※ | – |
| | | PXDH1620-NC | 16.2 | CF225 | ※ | – |
| | | PXDH1630-NC | 16.3 | CF225 | ※ | – |
| | ④ | PXDH1640-NC | 16.4 | CF225 | ※ | – |
| 7831765 | | PXDH1650-NC | 16.5 | CF225 | C | 11,200 |
| | | PXDH1660-NC | 16.6 | CF225 | ※ | – |
| 7831767 | | PXDH1670-NC | 16.7 | CF225 | C | 11,200 |
| | | PXDH1680-NC | 16.8 | CF225 | ※ | – |
| | | PXDH1690-NC | 16.9 | CF225 | ※ | – |

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| 7831770 | | PXDH1700-NC | 17 | CF225 | C | 11,200 |
| | | PXDH1710-NC | 17.1 | CF225 | ※ | – |
| | | PXDH1720-NC | 17.2 | CF225 | ※ | – |
| | | PXDH1730-NC | 17.3 | CF225 | ※ | – |
| | ⑤ | PXDH1740-NC | 17.4 | CF225 | ※ | – |
| 7831775 | | PXDH1750-NC | 17.5 | CF225 | C | 11,900 |
| | | PXDH1760-NC | 17.6 | CF225 | ※ | – |
| | | PXDH1770-NC | 17.7 | CF225 | ※ | – |
| | | PXDH1780-NC | 17.8 | CF225 | ※ | – |
| | | PXDH1790-NC | 17.9 | CF225 | ※ | – |
| 7831780 | | PXDH1800-NC | 18 | CF225 | C | 11,900 |
| | | PXDH1810-NC | 18.1 | CF225 | ※ | – |
| | | PXDH1820-NC | 18.2 | CF225 | ※ | – |
| | | PXDH1830-NC | 18.3 | CF225 | ※ | – |
| | ⑥ | PXDH1840-NC | 18.4 | CF225 | ※ | – |
| 7831785 | | PXDH1850-NC | 18.5 | CF225 | C | 11,900 |
| | | PXDH1860-NC | 18.6 | CF225 | ※ | – |
| 7831787 | | PXDH1870-NC | 18.7 | CF225 | C | 11,900 |
| | | PXDH1880-NC | 18.8 | CF225 | ※ | – |
| | | PXDH1890-NC | 18.9 | CF225 | ※ | – |
| 7831790 | | PXDH1900-NC | 19 | CF225 | C | 13,200 |
| | | PXDH1910-NC | 19.1 | CF225 | ※ | – |
| | | PXDH1920-NC | 19.2 | CF225 | ※ | – |
| | | PXDH1930-NC | 19.3 | CF225 | ※ | – |
| | ⑦ | PXDH1940-NC | 19.4 | CF225 | ※ | – |
| 7831795 | | PXDH1950-NC | 19.5 | CF225 | C | 13,200 |
| | | PXDH1960-NC | 19.6 | CF225 | ※ | – |
| | | PXDH1970-NC | 19.7 | CF225 | ※ | – |
| | | PXDH1980-NC | 19.8 | CF225 | ※ | – |
| | | PXDH1990-NC | 19.9 | CF225 | ※ | – |

次ページへ
直径 DC 20~25.4 NEXT

C= 標準在庫品 C=Standard stock item.　※ = 受注対応品 ※ =Special order item

前ページより

**FROM 直径 DC 14～19.9**

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| 7831800 | ⑧ | PXDH2000-NC | 20 | CF225 | C | 14,400 |
| | | PXDH2010-NC | 20.1 | CF225 | ※ | – |
| | | PXDH2020-NC | 20.2 | CF225 | ※ | – |
| | | PXDH2030-NC | 20.3 | CF225 | ※ | – |
| | | PXDH2040-NC | 20.4 | CF225 | ※ | – |
| 7831805 | | PXDH2050-NC | 20.5 | CF225 | C | 14,400 |
| | | PXDH2060-NC | 20.6 | CF225 | ※ | – |
| 7831807 | | PXDH2070-NC | 20.7 | CF225 | C | 14,400 |
| | | PXDH2080-NC | 20.8 | CF225 | ※ | – |
| | | PXDH2090-NC | 20.9 | CF225 | ※ | – |
| 7831810 | ⑨ | PXDH2100-NC | 21 | CF225 | C | 14,400 |
| | | PXDH2110-NC | 21.1 | CF225 | ※ | – |
| | | PXDH2120-NC | 21.2 | CF225 | ※ | – |
| | | PXDH2130-NC | 21.3 | CF225 | ※ | – |
| | | PXDH2140-NC | 21.4 | CF225 | ※ | – |
| 7831815 | | PXDH2150-NC | 21.5 | CF225 | C | 15,600 |
| | | PXDH2160-NC | 21.6 | CF225 | ※ | – |
| | | PXDH2170-NC | 21.7 | CF225 | ※ | – |
| | | PXDH2180-NC | 21.8 | CF225 | ※ | – |
| | | PXDH2190-NC | 21.9 | CF225 | ※ | – |
| 7831820 | ⑩ | PXDH2200-NC | 22 | CF225 | C | 15,600 |
| | | PXDH2210-NC | 22.1 | CF225 | ※ | – |
| | | PXDH2220-NC | 22.2 | CF225 | ※ | – |
| | | PXDH2230-NC | 22.3 | CF225 | ※ | – |
| 7831824 | | PXDH2240-NC | 22.4 | CF225 | C | 15,600 |
| 7831825 | | PXDH2250-NC | 22.5 | CF225 | C | 15,600 |
| | | PXDH2260-NC | 22.6 | CF225 | ※ | – |
| | | PXDH2270-NC | 22.7 | CF225 | ※ | – |

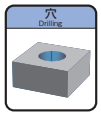
| ツールNo. EDP No. | | 呼び Designation | 直径 DC | 材種 Grades | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | ⑩ | PXDH2280-NC | 22.8 | CF225 | ※ | – |
| | | PXDH2290-NC | 22.9 | CF225 | ※ | – |
| 7831830 | ⑪ | PXDH2300-NC | 23 | CF225 | C | 17,000 |
| | | PXDH2310-NC | 23.1 | CF225 | ※ | – |
| | | PXDH2320-NC | 23.2 | CF225 | ※ | – |
| | | PXDH2330-NC | 23.3 | CF225 | ※ | – |
| | | PXDH2340-NC | 23.4 | CF225 | ※ | – |
| 7831835 | | PXDH2350-NC | 23.5 | CF225 | C | 17,000 |
| | | PXDH2360-NC | 23.6 | CF225 | ※ | – |
| | | PXDH2370-NC | 23.7 | CF225 | ※ | – |
| | | PXDH2380-NC | 23.8 | CF225 | ※ | – |
| | | PXDH2390-NC | 23.9 | CF225 | ※ | – |
| 7831840 | ⑫ | PXDH2400-NC | 24 | CF225 | C | 17,000 |
| | | PXDH2410-NC | 24.1 | CF225 | ※ | – |
| | | PXDH2420-NC | 24.2 | CF225 | ※ | – |
| | | PXDH2430-NC | 24.3 | CF225 | ※ | – |
| | | PXDH2440-NC | 24.4 | CF225 | ※ | – |
| 7831845 | | PXDH2450-NC | 24.5 | CF225 | C | 17,000 |
| | | PXDH2460-NC | 24.6 | CF225 | ※ | – |
| | | PXDH2470-NC | 24.7 | CF225 | ※ | – |
| | | PXDH2480-NC | 24.8 | CF225 | ※ | – |
| | | PXDH2490-NC | 24.9 | CF225 | ※ | – |
| 7831850 | ⑬ | PXDH2500-NC | 25 | CF225 | C | 17,900 |
| | | PXDH2510-NC | 25.1 | CF225 | ※ | – |
| | | PXDH2520-NC | 25.2 | CF225 | ※ | – |
| | | PXDH2530-NC | 25.3 | CF225 | ※ | – |
| 7831854 | | PXDH2540-NC | 25.4 | CF225 | C | 18,800 |

青字＝切削タップ下穴　Blue=pre-drilled hole for cutting taps

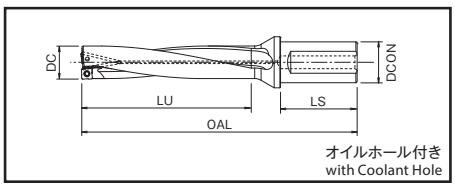
C= 標準在庫品　C=Standard stock item.　※＝受注対応品　※ =Special order item

# OSG PHOENIX インデキサブルドリル2Dタイプ
**OSG PHOENIX Indexable Drill (2D Type)**

## P2D　切削条件 Cutting Conditions | P1121

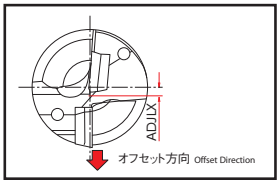



CAD



オイルホール付き
with Coolant Hole

■加工径最大調整量 Max Offset Amount of Effective Dia.








（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最大オフセット量 ADJLX | 最大加工径 DCX | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7803180 | P2D1200FS20M03 | 12 | 87 | 24 | 20 | 50 | 0.4 | 12.8 | ① | 45,700 |
| 7803181 | P2D1250FS20M03 | 12.5 | 88 | 25 | 20 | 50 | 0.4 | 13.3 | | 45,700 |
| 7803182 | P2D1300FS20M03 | 13 | 89 | 26 | 20 | 50 | 0.3 | 13.6 | | 45,700 |
| 7803183 | P2D1350FS20M03 | 13.5 | 90 | 27 | 20 | 50 | 0.2 | 13.9 | | 45,700 |
| 7803184 | P2D1400FS20M03 | 14 | 91 | 28 | 20 | 50 | 0.2 | 14.4 | | 45,700 |
| 7803185 | P2D1450FS20M03 | 14.5 | 92 | 29 | 20 | 50 | 0.1 | 14.7 | | 45,700 |
| 7803117 | P2D1500FS20M04 | 15 | 95 | 30 | 20 | 50 | 0.4 | 15.8 | ② | 45,700 |
| 7803118 | P2D1550FS20M04 | 15.5 | 96 | 31 | 20 | 50 | 0.3 | 16.1 | | 45,700 |
| 7803119 | P2D1600FS20M04 | 16 | 97 | 32 | 20 | 50 | 0.3 | 16.6 | | 45,700 |
| 7803120 | P2D1650FS20M04 | 16.5 | 98 | 33 | 20 | 50 | 0.3 | 17.1 | | 45,700 |
| 7803121 | P2D1700FS20M05 | 17 | 102 | 34 | 20 | 50 | 0.6 | 18.2 | ③ | 45,700 |
| 7803122 | P2D1750FS20M05 | 17.5 | 103 | 35 | 20 | 50 | 0.5 | 18.5 | | 45,700 |
| 7803190 | P2D1750FS25M05 | | 109 | | 25 | 56 | | | | 45,700 |
| 7803123 | P2D1800FS25M05 | 18 | 110 | 36 | 25 | 56 | 0.5 | 19.0 | | 45,700 |
| 7803124 | P2D1850FS25M05 | 18.5 | 111 | 37 | 25 | 56 | 0.4 | 19.3 | | 45,700 |
| 7803125 | P2D1900FS25M06 | 19 | 112 | 38 | 25 | 56 | 0.6 | 20.2 | ④ | 45,700 |
| 7803126 | P2D1950FS25M06 | 19.5 | 113 | 39 | 25 | 56 | 0.5 | 20.5 | | 45,700 |
| 7803127 | P2D2000FS25M06 | 20 | 114 | 40 | 25 | 56 | 0.4 | 20.8 | | 45,700 |
| 7803128 | P2D2050FS25M06 | 20.5 | 115 | 41 | 25 | 56 | 0.4 | 21.3 | | 45,700 |
| 7803129 | P2D2100FS25M07 | 21 | 121 | 42 | 25 | 56 | 0.6 | 22.2 | ⑤ | 45,700 |
| 7803130 | P2D2150FS25M07 | 21.5 | 122 | 43 | 25 | 56 | 0.6 | 22.7 | | 45,700 |
| 7803131 | P2D2200FS25M07 | 22 | 123 | 44 | 25 | 56 | 0.5 | 23.0 | | 45,700 |
| 7803132 | P2D2250FS25M07 | 22.5 | 124 | 45 | 25 | 56 | 0.5 | 23.5 | | 45,700 |
| 7803133 | P2D2300FS25M07 | 23 | 125 | 46 | 25 | 56 | 0.4 | 23.8 | | 45,700 |
| 7803191 | P2D2350FS25M07 | 23.5 | 126 | 47 | 25 | 56 | 0.3 | 24.1 | | 45,700 |
| 7803134 | P2D2350FS32M07 | | 130 | | 32 | 60 | | | | 45,700 |
| 7803192 | P2D2400FS25M07 | 24 | 127 | 48 | 25 | 56 | 0.3 | 24.6 | | 45,700 |
| 7803135 | P2D2400FS32M07 | | 131 | | 32 | 60 | | | | 45,700 |
| 7803193 | P2D2450FS25M07 | 24.5 | 128 | 49 | 25 | 56 | 0.2 | 24.9 | | 45,700 |
| 7803136 | P2D2450FS32M07 | | 132 | | 32 | 60 | | | | 45,700 |

次ページへ
外径 DC 25～63 NEXT



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

前ページより
FROM 外径 DC 12～24.5

(単位:mm) (Unit:mm)

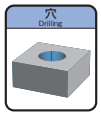
| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最大オフセット量 ADJLX | 最大加工径 DCX | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7803194 | P2D2500FS25M08 | 25 | 129 | 50 | 25 | 56 | 0.7 | 26.4 | ⑥ | 50,900 |
| 7803137 | P2D2500FS32M08 | | 133 | | 32 | 60 | | | | 50,900 |
| 7803195 | P2D2550FS25M08 | 25.5 | 130 | 51 | 25 | 56 | 0.6 | 26.7 | | 50,900 |
| 7803138 | P2D2550FS32M08 | | 134 | | 32 | 60 | | | | 50,900 |
| 7803139 | P2D2600FS32M08 | 26 | 135 | 52 | 32 | 60 | 0.5 | 27.0 | | 50,900 |
| 7803140 | P2D2650FS32M08 | 26.5 | 136 | 53 | 32 | 60 | 0.5 | 27.5 | | 50,900 |
| 7803141 | P2D2700FS32M08 | 27 | 137 | 54 | 32 | 60 | 0.4 | 27.8 | | 50,900 |
| 7803142 | P2D2800FS32M08 | 28 | 139 | 56 | 32 | 60 | 0.3 | 28.6 | | 50,900 |
| 7803143 | P2D2850FS32M08 | 28.5 | 140 | 57 | 32 | 60 | 0.2 | 28.9 | | 50,900 |
| 7803144 | P2D2900FS32M09 | 29 | 141 | 58 | 32 | 60 | 0.8 | 30.6 | ⑦ | 59,600 |
| 7803145 | P2D3000FS32M09 | 30 | 143 | 60 | 32 | 60 | 0.7 | 31.4 | | 59,600 |
| 7803146 | P2D3100FS32M09 | 31 | 145 | 62 | 32 | 60 | 0.6 | 32.2 | | 59,600 |
| 7803196 | P2D3100FS40M09 | | 155 | | 40 | 70 | | | | 59,600 |
| 7803147 | P2D3200FS32M09 | 32 | 147 | 64 | 32 | 60 | 0.5 | 33.0 | | 59,600 |
| 7803197 | P2D3200FS40M09 | | 157 | | 40 | 70 | | | | 59,600 |
| 7803148 | P2D3300FS40M09 | 33 | 159 | 66 | 40 | 70 | 0.4 | 33.8 | | 59,600 |
| 7803149 | P2D3350FS40M09 | 33.5 | 160 | 67 | 40 | 70 | 0.2 | 33.9 | | 59,600 |
| 7803150 | P2D3400FS40M10 | 34 | 161 | 68 | 40 | 70 | 1.1 | 36.2 | ⑧ | 66,100 |
| 7803151 | P2D3500FS40M10 | 35 | 163 | 70 | 40 | 70 | 0.8 | 36.6 | | 66,100 |
| 7803152 | P2D3600FS40M10 | 36 | 165 | 72 | 40 | 70 | 0.8 | 37.6 | | 66,100 |
| 7803153 | P2D3700FS40M10 | 37 | 167 | 74 | 40 | 70 | 0.6 | 38.2 | | 66,100 |
| 7803154 | P2D3800FS40M10 | 38 | 169 | 76 | 40 | 70 | 0.3 | 38.6 | | 66,100 |
| 7803155 | P2D3900FS40M12 | 39 | 178 | 78 | 40 | 70 | 1.0 | 41.0 | ⑨ | 74,900 |
| 7803156 | P2D4000FS40M12 | 40 | 180 | 80 | 40 | 70 | 0.9 | 41.8 | | 74,900 |
| 7803157 | P2D4100FS40M12 | 41 | 182 | 82 | 40 | 70 | 0.8 | 42.6 | | 74,900 |
| 7803158 | P2D4200FS40M12 | 42 | 184 | 84 | 40 | 70 | 0.6 | 43.2 | | 74,900 |
| 7803159 | P2D4300FS40M12 | 43 | 186 | 86 | 40 | 70 | 0.5 | 44.0 | | 74,900 |
| 7803160 | P2D4400FS40M12 | 44 | 188 | 88 | 40 | 70 | 0.3 | 44.6 | | 74,900 |
| 7803161 | P2D4500FS40M13 | 45 | 190 | 90 | 40 | 70 | 0.9 | 46.8 | ⑩ | 89,900 |
| 7803162 | P2D4600FS40M13 | 46 | 192 | 92 | 40 | 70 | 0.8 | 47.6 | | 89,900 |
| 7803163 | P2D4700FS40M13 | 47 | 194 | 94 | 40 | 70 | 0.7 | 48.4 | | 89,900 |
| 7803164 | P2D4800FS40M13 | 48 | 196 | 96 | 40 | 70 | 0.5 | 49.0 | | 89,900 |
| 7803165 | P2D4900FS40M13 | 49 | 198 | 98 | 40 | 70 | 0.3 | 49.6 | | 89,900 |
| 7803166 | P2D5000FS40M14 | 50 | 200 | 100 | 40 | 70 | 1.1 | 52.2 | ⑪ | 99,600 |
| 7803167 | P2D5100FS40M14 | 51 | 202 | 102 | 40 | 70 | 1.0 | 53.0 | | 99,600 |
| 7803168 | P2D5200FS40M14 | 52 | 204 | 104 | 40 | 70 | 0.8 | 53.6 | | 99,600 |
| 7803169 | P2D5300FS40M14 | 53 | 206 | 106 | 40 | 70 | 0.7 | 54.4 | | 99,600 |
| 7803170 | P2D5400FS40M14 | 54 | 208 | 108 | 40 | 70 | 0.6 | 55.2 | | 99,600 |
| 7803171 | P2D5500FS40M14 | 55 | 210 | 110 | 40 | 70 | 0.4 | 55.8 | | 99,600 |
| 7803172 | P2D5600FS40M14 | 56 | 212 | 112 | 40 | 70 | 0.1 | 56.2 | | 99,600 |
| 7803173 | P2D5700FS40M16 | 57 | 214 | 114 | 40 | 70 | 1.1 | 59.2 | ⑫ | 130,000 |
| 7803174 | P2D5800FS40M16 | 58 | 216 | 116 | 40 | 70 | 1.0 | 60.0 | | 130,000 |
| 7803175 | P2D5900FS40M16 | 59 | 218 | 118 | 40 | 70 | 0.9 | 60.8 | | 130,000 |
| 7803176 | P2D6000FS40M16 | 60 | 220 | 120 | 40 | 70 | 0.8 | 61.6 | | 130,000 |
| 7803177 | P2D6100FS40M16 | 61 | 222 | 122 | 40 | 70 | 0.6 | 62.2 | | 130,000 |
| 7803178 | P2D6200FS40M16 | 62 | 224 | 124 | 40 | 70 | 0.4 | 62.8 | | 130,000 |
| 7803179 | P2D6300FS40M16 | 63 | 226 | 126 | 40 | 70 | 0.2 | 63.4 | | 130,000 |

・適用インサートと部品はp.1053をご覧下さい。・See p.1053 for available inserts and accessories. ・レンチは別途ご購入下さい。
・The wrenches are sold separately from the cutters. 青字＝切削タップ下穴 Blue = pre-drilled hole for cutting taps

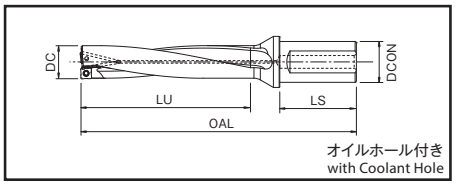
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX インデキサブルドリル3Dタイプ
**OSG PHOENIX Indexable Drill (3D Type)**

## P3D　切削条件 Cutting Conditions | P1121

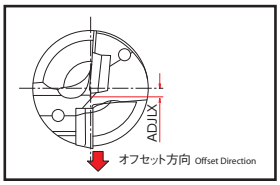



CAD



オイルホール付き
with Coolant Hole

■加工径最大調整量 Max Offset Amount of Effective Dia.






(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最大オフセット量 ADJLX | 最大加工径 DCX | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7803210 | P3D1200FS20M03 | 12 | 99 | 36 | 20 | 50 | 0.4 | 12.8 | ① | 51,800 |
| 7803211 | P3D1250FS20M03 | 12.5 | 100.5 | 37.5 | 20 | 50 | 0.4 | 13.3 | | 51,800 |
| 7803212 | P3D1270FS20M03 | 12.7 | 101.1 | 38.1 | 20 | 50 | 0.3 | 13.3 | | 51,800 |
| 7803213 | P3D1300FS20M03 | 13 | 102 | 39 | 20 | 50 | 0.3 | 13.6 | | 51,800 |
| 7803214 | P3D1350FS20M03 | 13.5 | 103.5 | 40.5 | 20 | 50 | 0.2 | 13.9 | | 51,800 |
| 7803215 | P3D1400FS20M03 | 14 | 105 | 42 | 20 | 50 | 0.2 | 14.4 | | 51,800 |
| 7803216 | P3D1450FS20M03 | 14.5 | 106.5 | 43.5 | 20 | 50 | 0.1 | 14.7 | | 51,800 |
| 7803217 | P3D1500FS20M04 | 15 | 110 | 45 | 20 | 50 | 0.4 | 15.8 | ② | 51,800 |
| 7803218 | P3D1550FS20M04 | 15.5 | 112 | 47 | 20 | 50 | 0.3 | 16.1 | | 51,800 |
| 7803219 | P3D1600FS20M04 | 16 | 113 | 48 | 20 | 50 | 0.3 | 16.6 | | 51,800 |
| 7803220 | P3D1650FS20M04 | 16.5 | 115 | 50 | 20 | 50 | 0.3 | 17.1 | | 51,800 |
| 7803221 | P3D1700FS20M05 | 17 | 119 | 51 | 20 | 50 | 0.6 | 18.2 | ③ | 51,800 |
| 7803222 | P3D1750FS20M05 | 17.5 | 121 | 53 | 20 | 50 | 0.5 | 18.5 | | 51,800 |
| 7803290 | P3D1750FS25M05 | | 127 | | 25 | 56 | | | | 51,800 |
| 7803223 | P3D1800FS25M05 | 18 | 128 | 54 | 25 | 56 | 0.5 | 19.0 | | 51,800 |
| 7803224 | P3D1850FS25M05 | 18.5 | 130 | 56 | 25 | 56 | 0.4 | 19.3 | | 51,800 |
| 7803225 | P3D1900FS25M06 | 19 | 131 | 57 | 25 | 56 | 0.6 | 20.2 | ④ | 51,800 |
| 7803226 | P3D1950FS25M06 | 19.5 | 133 | 59 | 25 | 56 | 0.5 | 20.5 | | 51,800 |
| 7803227 | P3D2000FS25M06 | 20 | 134 | 60 | 25 | 56 | 0.4 | 20.8 | | 51,800 |
| 7803228 | P3D2050FS25M06 | 20.5 | 136 | 62 | 25 | 56 | 0.4 | 21.3 | | 51,800 |
| 7803229 | P3D2100FS25M07 | 21 | 142 | 63 | 25 | 56 | 0.6 | 22.2 | ⑤ | 51,800 |
| 7803230 | P3D2150FS25M07 | 21.5 | 144 | 65 | 25 | 56 | 0.6 | 22.7 | | 51,800 |
| 7803231 | P3D2200FS25M07 | 22 | 145 | 66 | 25 | 56 | 0.5 | 23.0 | | 51,800 |
| 7803232 | P3D2250FS25M07 | 22.5 | 147 | 68 | 25 | 56 | 0.5 | 23.5 | | 51,800 |
| 7803233 | P3D2300FS25M07 | 23 | 148 | 69 | 25 | 56 | 0.4 | 23.8 | | 51,800 |
| 7803291 | P3D2350FS25M07 | 23.5 | 150 | 71 | 25 | 56 | 0.3 | 24.1 | | 51,800 |
| 7803234 | P3D2350FS32M07 | | 154 | | 32 | 60 | | | | 51,800 |
| 7803292 | P3D2400FS25M07 | 24 | 151 | 72 | 25 | 56 | 0.3 | 24.6 | | 51,800 |
| 7803235 | P3D2400FS32M07 | | 155 | | 32 | 60 | | | | 51,800 |
| 7803293 | P3D2450FS25M07 | 24.5 | 153 | 74 | 25 | 56 | 0.2 | 24.9 | | 51,800 |
| 7803236 | P3D2450FS32M07 | | 157 | | 32 | 60 | | | | 51,800 |

次ページへ
外径 DC 25～63 NEXT



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

前ページより
FROM 外径 DC 12～24.5

（単位:mm）(Unit:mm)

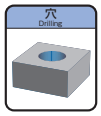
| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最大オフセット量 ADJLX | 最大加工径 DCX | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7803294 | P3D2500FS25M08 | 25 | 154 | 75 | 25 | 56 | 0.7 | 26.4 | ⑥ | 57,300 |
| 7803237 | P3D2500FS32M08 | | 158 | | 32 | 60 | | | | 57,300 |
| 7803295 | P3D2550FS25M08 | 25.5 | 156 | 77 | 25 | 56 | 0.6 | 26.7 | | 57,300 |
| 7803238 | P3D2550FS32M08 | | 160 | | 32 | 60 | | | | 57,300 |
| 7803239 | P3D2600FS32M08 | 26 | 161 | 78 | 32 | 60 | 0.5 | 27.0 | | 57,300 |
| 7803240 | P3D2650FS32M08 | 26.5 | 163 | 80 | 32 | 60 | 0.5 | 27.5 | | 57,300 |
| 7803241 | P3D2700FS32M08 | 27 | 164 | 81 | 32 | 60 | 0.4 | 27.8 | | 57,300 |
| 7803300 | P3D2750FS32M08 | 27.5 | 166 | 83 | 32 | 60 | 0.4 | 28.3 | | 57,300 |
| 7803242 | P3D2800FS32M08 | 28 | 167 | 84 | 32 | 60 | 0.3 | 28.6 | | 57,300 |
| 7803243 | P3D2850FS32M08 | 28.5 | 169 | 86 | 32 | 60 | 0.2 | 28.9 | | 57,300 |
| 7803244 | P3D2900FS32M09 | 29 | 170 | 87 | 32 | 60 | 0.8 | 30.6 | ⑦ | 66,400 |
| 7803301 | P3D2950FS32M09 | 29.5 | 172 | 89 | 32 | 60 | 0.8 | 31.1 | | 66,400 |
| 7803245 | P3D3000FS32M09 | 30 | 173 | 90 | 32 | 60 | 0.7 | 31.4 | | 66,400 |
| 7803302 | P3D3050FS32M09 | 30.5 | 175 | 92 | 32 | 60 | 0.7 | 31.9 | | 66,400 |
| 7803246 | P3D3100FS32M09 | 31 | 176 | 93 | 32 | 60 | 0.6 | 32.2 | | 66,400 |
| 7803296 | P3D3100FS40M09 | | 186 | | 40 | 70 | | | | 66,400 |
| 7803303 | P3D3150FS32M09 | 31.5 | 178 | 95 | 32 | 60 | 0.5 | 32.5 | | 66,400 |
| 7803247 | P3D3200FS32M09 | 32 | 179 | 96 | 32 | 60 | 0.5 | 33.0 | | 66,400 |
| 7803297 | P3D3200FS40M09 | | 189 | | 40 | 70 | | | | 66,400 |
| 7803304 | P3D3250FS40M09 | 32.5 | 191 | 98 | 40 | 70 | 0.4 | 33.3 | | 66,400 |
| 7803248 | P3D3300FS40M09 | 33 | 192 | 99 | 40 | 70 | 0.4 | 33.8 | | 66,400 |
| 7803249 | P3D3350FS40M09 | 33.5 | 194 | 101 | 40 | 70 | 0.2 | 33.9 | | 66,400 |
| 7803250 | P3D3400FS40M10 | 34 | 195 | 102 | 40 | 70 | 1.1 | 36.2 | ⑧ | 70,300 |
| 7803305 | P3D3450FS40M10 | 34.5 | 197 | 104 | 40 | 70 | 0.9 | 36.3 | | 70,300 |
| 7803251 | P3D3500FS40M10 | 35 | 198 | 105 | 40 | 70 | 0.8 | 36.6 | | 70,300 |
| 7803306 | P3D3550FS40M10 | 35.5 | 200 | 107 | 40 | 70 | 0.7 | 36.9 | | 70,300 |
| 7803252 | P3D3600FS40M10 | 36 | 201 | 108 | 40 | 70 | 0.8 | 37.6 | | 70,300 |
| 7803253 | P3D3700FS40M10 | 37 | 204 | 111 | 40 | 70 | 0.6 | 38.2 | | 70,300 |
| 7803307 | P3D3750FS40M10 | 37.5 | 206 | 113 | 40 | 70 | 0.4 | 38.3 | | 70,300 |
| 7803254 | P3D3800FS40M10 | 38 | 207 | 114 | 40 | 70 | 0.3 | 38.6 | | 70,300 |
| 7803255 | P3D3900FS40M12 | 39 | 217 | 117 | 40 | 70 | 1.0 | 41.0 | ⑨ | 79,800 |
| 7803256 | P3D4000FS40M12 | 40 | 220 | 120 | 40 | 70 | 0.9 | 41.8 | | 79,800 |
| 7803308 | P3D4050FS40M12 | 40.5 | 222 | 122 | 40 | 70 | 0.8 | 42.1 | | 79,800 |
| 7803257 | P3D4100FS40M12 | 41 | 223 | 123 | 40 | 70 | 0.8 | 42.6 | | 79,800 |
| 7803258 | P3D4200FS40M12 | 42 | 226 | 126 | 40 | 70 | 0.6 | 43.2 | | 79,800 |
| 7803259 | P3D4300FS40M12 | 43 | 229 | 129 | 40 | 70 | 0.5 | 44.0 | | 79,800 |
| 7803260 | P3D4400FS40M12 | 44 | 232 | 132 | 40 | 70 | 0.3 | 44.6 | | 79,800 |
| 7803261 | P3D4500FS40M13 | 45 | 235 | 135 | 40 | 70 | 0.9 | 46.8 | ⑩ | 95,700 |
| 7803262 | P3D4600FS40M13 | 46 | 238 | 138 | 40 | 70 | 0.8 | 47.6 | | 95,700 |
| 7803263 | P3D4700FS40M13 | 47 | 241 | 141 | 40 | 70 | 0.7 | 48.4 | | 95,700 |
| 7803264 | P3D4800FS40M13 | 48 | 244 | 144 | 40 | 70 | 0.5 | 49.0 | | 95,700 |
| 7803265 | P3D4900FS40M13 | 49 | 247 | 147 | 40 | 70 | 0.3 | 49.6 | | 95,700 |
| 7803266 | P3D5000FS40M14 | 50 | 250 | 150 | 40 | 70 | 1.1 | 52.2 | ⑪ | 106,000 |
| 7803309 | P3D5050FS40M14 | 50.5 | 252 | 152 | 40 | 70 | 1.0 | 52.5 | | 106,000 |
| 7803267 | P3D5100FS40M14 | 51 | 253 | 153 | 40 | 70 | 1.0 | 53.0 | | 106,000 |
| 7803268 | P3D5200FS40M14 | 52 | 256 | 156 | 40 | 70 | 0.8 | 53.6 | | 106,000 |
| 7803269 | P3D5300FS40M14 | 53 | 259 | 159 | 40 | 70 | 0.7 | 54.4 | | 106,000 |
| 7803270 | P3D5400FS40M14 | 54 | 262 | 162 | 40 | 70 | 0.6 | 55.2 | | 106,000 |
| 7803271 | P3D5500FS40M14 | 55 | 265 | 165 | 40 | 70 | 0.4 | 55.8 | | 106,000 |
| 7803272 | P3D5600FS40M14 | 56 | 268 | 168 | 40 | 70 | 0.1 | 56.2 | | 106,000 |
| 7803273 | P3D5700FS40M16 | 57 | 271 | 171 | 40 | 70 | 1.1 | 59.2 | ⑫ | 136,000 |
| 7803274 | P3D5800FS40M16 | 58 | 274 | 174 | 40 | 70 | 1.0 | 60.0 | | 136,000 |
| 7803275 | P3D5900FS40M16 | 59 | 277 | 177 | 40 | 70 | 0.9 | 60.8 | | 136,000 |
| 7803276 | P3D6000FS40M16 | 60 | 280 | 180 | 40 | 70 | 0.8 | 61.6 | | 136,000 |
| 7803277 | P3D6100FS40M16 | 61 | 283 | 183 | 40 | 70 | 0.6 | 62.2 | | 136,000 |
| 7803278 | P3D6200FS40M16 | 62 | 286 | 186 | 40 | 70 | 0.4 | 62.8 | | 136,000 |
| 7803279 | P3D6300FS40M16 | 63 | 289 | 189 | 40 | 70 | 0.2 | 63.4 | | 136,000 |

・適用インサートと部品はp.1053をご覧下さい。・See p.1053 for available inserts and accessories. ・レンチは別途ご購入下さい。
・The wrenches are sold separately from the cutters. 青字＝切削タップ下穴 Blue = pre-drilled hole for cutting taps

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

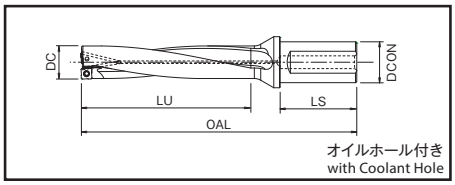
# OSG PHOENIX インデキサブルドリル4Dタイプ
**OSG PHOENIX Indexable Drill (4D Type)**

## P4D　切削条件 Cutting Conditions | P1121



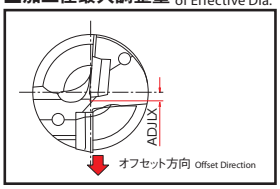

CAD





オイルホール付き
with Coolant Hole

■加工径最大調整量 Max Offset Amount of Effective Dia.




(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最大オフセット量 ADJLX | 最大加工径 DCX | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7803311 | P4D1200FS20M03 | 12 | 111 | 48 | 20 | 50 | 0.4 | 12.8 | ① | 61,600 |
| 7803312 | P4D1250FS20M03 | 12.5 | 113 | 50 | 20 | 50 | 0.4 | 13.3 | | 61,600 |
| 7803313 | P4D1300FS20M03 | 13 | 115 | 52 | 20 | 50 | 0.3 | 13.6 | | 61,600 |
| 7803314 | P4D1350FS20M03 | 13.5 | 117 | 54 | 20 | 50 | 0.2 | 13.9 | | 61,600 |
| 7803315 | P4D1400FS20M03 | 14 | 119 | 56 | 20 | 50 | 0.2 | 14.4 | | 61,600 |
| 7803316 | P4D1450FS20M03 | 14.5 | 121 | 58 | 20 | 50 | 0.1 | 14.7 | | 61,600 |
| 7803317 | P4D1500FS20M04 | 15 | 125 | 60 | 20 | 50 | 0.4 | 15.8 | ② | 81,000 |
| 7803318 | P4D1550FS20M04 | 15.5 | 127 | 62 | 20 | 50 | 0.3 | 16.1 | | 81,000 |
| 7803319 | P4D1600FS20M04 | 16 | 129 | 64 | 20 | 50 | 0.3 | 16.6 | | 81,000 |
| 7803320 | P4D1650FS20M04 | 16.5 | 131 | 66 | 20 | 50 | 0.3 | 17.1 | | 81,000 |
| 7803321 | P4D1700FS20M05 | 17 | 136 | 68 | 20 | 50 | 0.6 | 18.2 | ③ | 81,000 |
| 7803322 | P4D1750FS20M05 | 17.5 | 138 | 70 | 20 | 50 | 0.5 | 18.5 | | 81,000 |
| 7803390 | P4D1750FS25M05 | | 144 | | 25 | 56 | | | | 81,000 |
| 7803323 | P4D1800FS25M05 | 18 | 146 | 72 | 25 | 56 | 0.5 | 19.0 | | 81,000 |
| 7803324 | P4D1850FS25M05 | 18.5 | 148 | 74 | 25 | 56 | 0.4 | 19.3 | | 81,000 |
| 7803325 | P4D1900FS25M06 | 19 | 150 | 76 | 25 | 56 | 0.6 | 20.2 | ④ | 81,000 |
| 7803326 | P4D1950FS25M06 | 19.5 | 152 | 78 | 25 | 56 | 0.5 | 20.5 | | 81,000 |
| 7803327 | P4D2000FS25M06 | 20 | 154 | 80 | 25 | 56 | 0.4 | 20.8 | | 81,000 |
| 7803328 | P4D2050FS25M06 | 20.5 | 156 | 82 | 25 | 56 | 0.4 | 21.3 | | 81,000 |
| 7803329 | P4D2100FS25M07 | 21 | 163 | 84 | 25 | 56 | 0.6 | 22.2 | ⑤ | 81,000 |
| 7803330 | P4D2150FS25M07 | 21.5 | 165 | 86 | 25 | 56 | 0.6 | 22.7 | | 81,000 |
| 7803331 | P4D2200FS25M07 | 22 | 167 | 88 | 25 | 56 | 0.5 | 23.0 | | 81,000 |
| 7803332 | P4D2250FS25M07 | 22.5 | 169 | 90 | 25 | 56 | 0.5 | 23.5 | | 81,000 |
| 7803333 | P4D2300FS25M07 | 23 | 171 | 92 | 25 | 56 | 0.4 | 23.8 | | 81,000 |
| 7803391 | P4D2350FS25M07 | 23.5 | 173 | 94 | 25 | 56 | 0.3 | 24.1 | | 81,000 |
| 7803334 | P4D2350FS32M07 | | 177 | | 32 | 60 | | | | 81,000 |
| 7803392 | P4D2400FS25M07 | 24 | 175 | 96 | 25 | 56 | 0.3 | 24.6 | | 81,000 |
| 7803335 | P4D2400FS32M07 | | 179 | | 32 | 60 | | | | 81,000 |
| 7803393 | P4D2450FS25M07 | 24.5 | 177 | 98 | 25 | 56 | 0.2 | 24.9 | | 81,000 |
| 7803336 | P4D2450FS32M07 | | 181 | | 32 | 60 | | | | 81,000 |

次ページへ
外径 DC 25～63 NEXT

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

前ページより
FROM 外径 DC 12～24.5

（単位:mm）(Unit:mm)

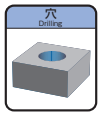
| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最大オフセット量 ADJLX | 最大加工径 DCX | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7803394 | **P4D2500FS25M08** | 25 | 179 | 100 | 25 | 56 | 0.7 | 26.4 | | 86,400 |
| 7803337 | **P4D2500FS32M08** | | 183 | | 32 | 60 | | | | 86,400 |
| 7803395 | **P4D2550FS25M08** | 25.5 | 181 | 102 | 25 | 56 | 0.6 | 26.7 | | 86,400 |
| 7803338 | **P4D2550FS32M08** | | 185 | | 32 | 60 | | | | 86,400 |
| 7803339 | **P4D2600FS32M08** | 26 | 187 | 104 | 32 | 60 | 0.5 | 27.0 | ⑥ | 86,400 |
| 7803340 | **P4D2650FS32M08** | 26.5 | 189 | 106 | 32 | 60 | 0.5 | 27.5 | | 86,400 |
| 7803341 | **P4D2700FS32M08** | 27 | 191 | 108 | 32 | 60 | 0.4 | 27.8 | | 86,400 |
| 7803342 | **P4D2800FS32M08** | 28 | 195 | 112 | 32 | 60 | 0.3 | 28.6 | | 86,400 |
| 7803343 | **P4D2850FS32M08** | 28.5 | 197 | 114 | 32 | 60 | 0.2 | 28.9 | | 86,400 |
| 7803344 | **P4D2900FS32M09** | 29 | 199 | 116 | 32 | 60 | 0.8 | 30.6 | | 91,500 |
| 7803345 | **P4D3000FS32M09** | 30 | 203 | 120 | 32 | 60 | 0.7 | 31.4 | | 91,500 |
| 7803346 | **P4D3100FS32M09** | 31 | 207 | 124 | 32 | 60 | 0.6 | 32.2 | | 91,500 |
| 7803396 | **P4D3100FS40M09** | | 217 | | 40 | 70 | | | ⑦ | 91,500 |
| 7803347 | **P4D3200FS32M09** | 32 | 211 | 128 | 32 | 60 | 0.5 | 33.0 | | 91,500 |
| 7803397 | **P4D3200FS40M09** | | 221 | | 40 | 70 | | | | 91,500 |
| 7803348 | **P4D3300FS40M09** | 33 | 225 | 132 | 40 | 70 | 0.4 | 33.8 | | 91,500 |
| 7803349 | **P4D3350FS40M09** | 33.5 | 227 | 134 | 40 | 70 | 0.2 | 33.9 | | 91,500 |
| 7803350 | **P4D3400FS40M10** | 34 | 229 | 136 | 40 | 70 | 1.1 | 36.2 | | 96,600 |
| 7803351 | **P4D3500FS40M10** | 35 | 233 | 140 | 40 | 70 | 0.8 | 36.6 | | 96,600 |
| 7803352 | **P4D3600FS40M10** | 36 | 237 | 144 | 40 | 70 | 0.8 | 37.6 | ⑧ | 96,600 |
| 7803353 | **P4D3700FS40M10** | 37 | 241 | 148 | 40 | 70 | 0.6 | 38.2 | | 96,600 |
| 7803354 | **P4D3800FS40M10** | 38 | 245 | 152 | 40 | 70 | 0.3 | 38.6 | | 96,600 |
| 7803355 | **P4D3900FS40M12** | 39 | 256 | 156 | 40 | 70 | 1.0 | 41.0 | | 104,000 |
| 7803356 | **P4D4000FS40M12** | 40 | 260 | 160 | 40 | 70 | 0.9 | 41.8 | | 104,000 |
| 7803357 | **P4D4100FS40M12** | 41 | 264 | 164 | 40 | 70 | 0.8 | 42.6 | | 104,000 |
| 7803358 | **P4D4200FS40M12** | 42 | 268 | 168 | 40 | 70 | 0.6 | 43.2 | ⑨ | 104,000 |
| 7803359 | **P4D4300FS40M12** | 43 | 272 | 172 | 40 | 70 | 0.5 | 44.0 | | 104,000 |
| 7803360 | **P4D4400FS40M12** | 44 | 276 | 176 | 40 | 70 | 0.3 | 44.6 | | 104,000 |
| 7803361 | **P4D4500FS40M13** | 45 | 280 | 180 | 40 | 70 | 0.9 | 46.8 | | 124,000 |
| 7803362 | **P4D4600FS40M13** | 46 | 284 | 184 | 40 | 70 | 0.8 | 47.6 | | 124,000 |
| 7803363 | **P4D4700FS40M13** | 47 | 288 | 188 | 40 | 70 | 0.7 | 48.4 | | 124,000 |
| 7803364 | **P4D4800FS40M13** | 48 | 292 | 192 | 40 | 70 | 0.5 | 49.0 | ⑩ | 124,000 |
| 7803365 | **P4D4900FS40M13** | 49 | 296 | 196 | 40 | 70 | 0.3 | 49.6 | | 124,000 |
| 7803366 | **P4D5000FS40M14** | 50 | 300 | 200 | 40 | 70 | 1.1 | 52.2 | | 134,000 |
| 7803367 | **P4D5100FS40M14** | 51 | 304 | 204 | 40 | 70 | 1.0 | 53.0 | | 134,000 |
| 7803368 | **P4D5200FS40M14** | 52 | 308 | 208 | 40 | 70 | 0.8 | 53.6 | | 134,000 |
| 7803369 | **P4D5300FS40M14** | 53 | 312 | 212 | 40 | 70 | 0.7 | 54.4 | ⑪ | 134,000 |
| 7803370 | **P4D5400FS40M14** | 54 | 316 | 216 | 40 | 70 | 0.6 | 55.2 | | 134,000 |
| 7803371 | **P4D5500FS40M14** | 55 | 320 | 220 | 40 | 70 | 0.4 | 55.8 | | 134,000 |
| 7803372 | **P4D5600FS40M14** | 56 | 324 | 224 | 40 | 70 | 0.1 | 56.2 | | 134,000 |
| 7803373 | **P4D5700FS40M16** | 57 | 328 | 228 | 40 | 70 | 1.1 | 59.2 | | 156,000 |
| 7803374 | **P4D5800FS40M16** | 58 | 332 | 232 | 40 | 70 | 1.0 | 60.0 | | 156,000 |
| 7803375 | **P4D5900FS40M16** | 59 | 336 | 236 | 40 | 70 | 0.9 | 60.8 | | 156,000 |
| 7803376 | **P4D6000FS40M16** | 60 | 340 | 240 | 40 | 70 | 0.8 | 61.6 | ⑫ | 156,000 |
| 7803377 | **P4D6100FS40M16** | 61 | 344 | 244 | 40 | 70 | 0.6 | 62.2 | | 156,000 |
| 7803378 | **P4D6200FS40M16** | 62 | 348 | 248 | 40 | 70 | 0.4 | 62.8 | | 156,000 |
| 7803379 | **P4D6300FS40M16** | 63 | 352 | 252 | 40 | 70 | 0.2 | 63.4 | | 156,000 |

・適用インサートと部品はp.1053をご覧下さい。・See p.1053 for available inserts and accessories. ・レンチは別途ご購入下さい。
・The wrenches are sold separately from the cutters.

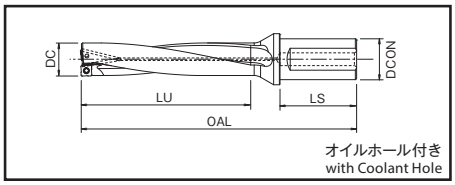
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX インデキサブルドリル5Dタイプ
**OSG PHOENIX Indexable Drill (5D Type)**

## P5D　切削条件 Cutting Conditions | P1121

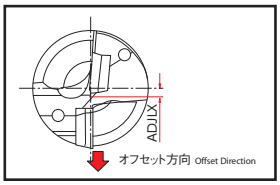



CAD



オイルホール付き
with Coolant Hole

■加工径最大調整量 Max Offset Amount of Effective Dia.






（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最大オフセット量 ADJLX | 最大加工径 DCX | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7802780 | P5D1200FS20M03 | 12 | 123 | 60 | 20 | 50 | 0.4 | 12.8 | ① | 68,400 |
| 7802781 | P5D1250FS20M03 | 12.5 | 125.5 | 62.5 | 20 | 50 | 0.4 | 13.3 | | 68,400 |
| 7802782 | P5D1300FS20M03 | 13 | 128 | 65 | 20 | 50 | 0.3 | 13.6 | | 68,400 |
| 7802783 | P5D1350FS20M03 | 13.5 | 130.5 | 67.5 | 20 | 50 | 0.2 | 13.9 | | 68,400 |
| 7802784 | P5D1400FS20M03 | 14 | 133 | 70 | 20 | 50 | 0.2 | 14.4 | | 68,400 |
| 7802785 | P5D1450FS20M03 | 14.5 | 135.5 | 72.5 | 20 | 50 | 0.1 | 14.7 | | 68,400 |
| 7802717 | P5D1500FS20M04 | 15 | 140 | 75 | 20 | 50 | 0.4 | 15.8 | ② | 85,000 |
| 7802718 | P5D1550FS20M04 | 15.5 | 143 | 78 | 20 | 50 | 0.3 | 16.1 | | 85,000 |
| 7802719 | P5D1600FS20M04 | 16 | 145 | 80 | 20 | 50 | 0.3 | 16.6 | | 85,000 |
| 7802720 | P5D1650FS20M04 | 16.5 | 148 | 83 | 20 | 50 | 0.3 | 17.1 | | 85,000 |
| 7802721 | P5D1700FS20M05 | 17 | 153 | 85 | 20 | 50 | 0.6 | 18.2 | ③ | 85,000 |
| 7802722 | P5D1750FS20M05 | 17.5 | 156 | 88 | 20 | 50 | 0.5 | 18.5 | | 85,000 |
| 7802790 | P5D1750FS25M05 | | 162 | | 25 | 56 | | | | 85,000 |
| 7802723 | P5D1800FS25M05 | 18 | 164 | 90 | 25 | 56 | 0.5 | 19.0 | | 85,000 |
| 7802724 | P5D1850FS25M05 | 18.5 | 167 | 93 | 25 | 56 | 0.4 | 19.3 | | 85,000 |
| 7802725 | P5D1900FS25M06 | 19 | 169 | 95 | 25 | 56 | 0.6 | 20.2 | ④ | 85,000 |
| 7802726 | P5D1950FS25M06 | 19.5 | 172 | 98 | 25 | 56 | 0.5 | 20.5 | | 85,000 |
| 7802727 | P5D2000FS25M06 | 20 | 174 | 100 | 25 | 56 | 0.4 | 20.8 | | 85,000 |
| 7802728 | P5D2050FS25M06 | 20.5 | 177 | 103 | 25 | 56 | 0.4 | 21.3 | | 85,000 |
| 7802729 | P5D2100FS25M07 | 21 | 184 | 105 | 25 | 56 | 0.6 | 22.2 | ⑤ | 85,000 |
| 7802730 | P5D2150FS25M07 | 21.5 | 187 | 108 | 25 | 56 | 0.6 | 22.7 | | 85,000 |
| 7802731 | P5D2200FS25M07 | 22 | 189 | 110 | 25 | 56 | 0.5 | 23.0 | | 85,000 |
| 7802732 | P5D2250FS25M07 | 22.5 | 192 | 113 | 25 | 56 | 0.5 | 23.5 | | 85,000 |
| 7802733 | P5D2300FS25M07 | 23 | 194 | 115 | 25 | 56 | 0.4 | 23.8 | | 85,000 |
| 7802791 | P5D2350FS25M07 | 23.5 | 197 | 118 | 25 | 56 | 0.3 | 24.1 | | 85,000 |
| 7802734 | P5D2350FS32M07 | | 201 | | 32 | 60 | | | | 85,000 |
| 7802792 | P5D2400FS25M07 | 24 | 199 | 120 | 25 | 56 | 0.3 | 24.6 | | 85,000 |
| 7802735 | P5D2400FS32M07 | | 203 | | 32 | 60 | | | | 85,000 |
| 7802793 | P5D2450FS25M07 | 24.5 | 202 | 123 | 25 | 56 | 0.2 | 24.9 | | 85,000 |
| 7802736 | P5D2450FS32M07 | | 206 | | 32 | 60 | | | | 85,000 |

次ページへ
外径 DC 25～63 NEXT



在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

前ページより
FROM 外径 DC 12～24.5

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 最大オフセット量 ADJLX | 最大加工径 DCX | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 7802794 | **P5D2500FS25M08** | 25 | 204 | 125 | 25 | 56 | 0.7 | 26.4 | | 90,700 |
| 7802737 | **P5D2500FS32M08** | | 208 | | 32 | 60 | | | | 90,700 |
| 7802795 | **P5D2550FS25M08** | 25.5 | 207 | 128 | 25 | 56 | 0.6 | 26.7 | | 90,700 |
| 7802738 | **P5D2550FS32M08** | | 211 | | 32 | 60 | | | | 90,700 |
| 7802739 | **P5D2600FS32M08** | 26 | 213 | 130 | 32 | 60 | 0.5 | 27.0 | ⑥ | 90,700 |
| 7802740 | **P5D2650FS32M08** | 26.5 | 216 | 133 | 32 | 60 | 0.5 | 27.5 | | 90,700 |
| 7802741 | **P5D2700FS32M08** | 27 | 218 | 135 | 32 | 60 | 0.4 | 27.8 | | 90,700 |
| 7802742 | **P5D2800FS32M08** | 28 | 223 | 140 | 32 | 60 | 0.3 | 28.6 | | 90,700 |
| 7802743 | **P5D2850FS32M08** | 28.5 | 226 | 143 | 32 | 60 | 0.2 | 28.9 | | 90,700 |
| 7802744 | **P5D2900FS32M09** | 29 | 228 | 145 | 32 | 60 | 0.8 | 30.6 | | 96,300 |
| 7802745 | **P5D3000FS32M09** | 30 | 233 | 150 | 32 | 60 | 0.7 | 31.4 | | 96,300 |
| 7802746 | **P5D3100FS32M09** | 31 | 238 | 155 | 32 | 60 | 0.6 | 32.2 | | 96,300 |
| 7802796 | **P5D3100FS40M09** | | 248 | | 40 | 70 | | | | 96,300 |
| 7802747 | **P5D3200FS32M09** | 32 | 243 | 160 | 32 | 60 | 0.5 | 33.0 | ⑦ | 96,300 |
| 7802797 | **P5D3200FS40M09** | | 253 | | 40 | 70 | | | | 96,300 |
| 7802748 | **P5D3300FS40M09** | 33 | 258 | 165 | 40 | 70 | 0.4 | 33.8 | | 96,300 |
| 7802749 | **P5D3350FS40M09** | 33.5 | 261 | 168 | 40 | 70 | 0.2 | 33.9 | | 96,300 |
| 7802750 | **P5D3400FS40M10** | 34 | 263 | 170 | 40 | 70 | 1.1 | 36.2 | | 102,000 |
| 7802751 | **P5D3500FS40M10** | 35 | 268 | 175 | 40 | 70 | 0.8 | 36.6 | | 102,000 |
| 7802752 | **P5D3600FS40M10** | 36 | 273 | 180 | 40 | 70 | 0.8 | 37.6 | ⑧ | 102,000 |
| 7802753 | **P5D3700FS40M10** | 37 | 278 | 185 | 40 | 70 | 0.6 | 38.2 | | 102,000 |
| 7802754 | **P5D3800FS40M10** | 38 | 283 | 190 | 40 | 70 | 0.3 | 38.6 | | 102,000 |
| 7802755 | **P5D3900FS40M12** | 39 | 295 | 195 | 40 | 70 | 1.0 | 41.0 | | 110,000 |
| 7802756 | **P5D4000FS40M12** | 40 | 300 | 200 | 40 | 70 | 0.9 | 41.8 | | 110,000 |
| 7802757 | **P5D4100FS40M12** | 41 | 305 | 205 | 40 | 70 | 0.8 | 42.6 | | 110,000 |
| 7802758 | **P5D4200FS40M12** | 42 | 310 | 210 | 40 | 70 | 0.6 | 43.2 | ⑨ | 110,000 |
| 7802759 | **P5D4300FS40M12** | 43 | 315 | 215 | 40 | 70 | 0.5 | 44.0 | | 110,000 |
| 7802760 | **P5D4400FS40M12** | 44 | 320 | 220 | 40 | 70 | 0.3 | 44.6 | | 110,000 |
| 7802761 | **P5D4500FS40M13** | 45 | 325 | 225 | 40 | 70 | 0.9 | 46.8 | | 129,000 |
| 7802762 | **P5D4600FS40M13** | 46 | 330 | 230 | 40 | 70 | 0.8 | 47.6 | | 129,000 |
| 7802763 | **P5D4700FS40M13** | 47 | 335 | 235 | 40 | 70 | 0.7 | 48.4 | ⑩ | 129,000 |
| 7802764 | **P5D4800FS40M13** | 48 | 340 | 240 | 40 | 70 | 0.5 | 49.0 | | 129,000 |
| 7802765 | **P5D4900FS40M13** | 49 | 345 | 245 | 40 | 70 | 0.3 | 49.6 | | 129,000 |
| 7802766 | **P5D5000FS40M14** | 50 | 350 | 250 | 40 | 70 | 1.1 | 52.2 | | 143,000 |
| 7802767 | **P5D5100FS40M14** | 51 | 355 | 255 | 40 | 70 | 1.0 | 53.0 | | 143,000 |
| 7802768 | **P5D5200FS40M14** | 52 | 360 | 260 | 40 | 70 | 0.8 | 53.6 | | 143,000 |
| 7802769 | **P5D5300FS40M14** | 53 | 365 | 265 | 40 | 70 | 0.7 | 54.4 | ⑪ | 143,000 |
| 7802770 | **P5D5400FS40M14** | 54 | 370 | 270 | 40 | 70 | 0.6 | 55.2 | | 143,000 |
| 7802771 | **P5D5500FS40M14** | 55 | 375 | 275 | 40 | 70 | 0.4 | 55.8 | | 143,000 |
| 7802772 | **P5D5600FS40M14** | 56 | 380 | 280 | 40 | 70 | 0.1 | 56.2 | | 143,000 |
| 7802773 | **P5D5700FS40M16** | 57 | 385 | 285 | 40 | 70 | 1.1 | 59.2 | | 170,000 |
| 7802774 | **P5D5800FS40M16** | 58 | 390 | 290 | 40 | 70 | 1.0 | 60.0 | | 170,000 |
| 7802775 | **P5D5900FS40M16** | 59 | 395 | 295 | 40 | 70 | 0.9 | 60.8 | | 170,000 |
| 7802776 | **P5D6000FS40M16** | 60 | 400 | 300 | 40 | 70 | 0.8 | 61.6 | ⑫ | 170,000 |
| 7802777 | **P5D6100FS40M16** | 61 | 405 | 305 | 40 | 70 | 0.6 | 62.2 | | 170,000 |
| 7802778 | **P5D6200FS40M16** | 62 | 410 | 310 | 40 | 70 | 0.4 | 62.8 | | 170,000 |
| 7802779 | **P5D6300FS40M16** | 63 | 415 | 315 | 40 | 70 | 0.2 | 63.4 | | 170,000 |

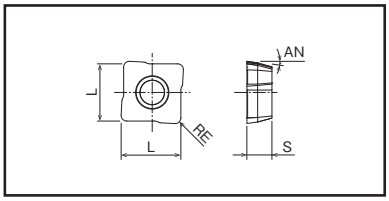
・適用インサートと部品はp.1053をご覧下さい。・See p.1053 for available inserts and accessories. ・レンチは別途ご購入下さい。
・The wrenches are sold separately from the cutters.

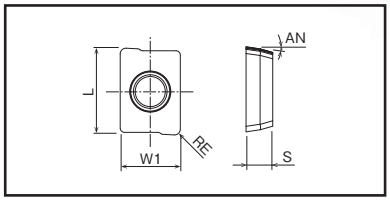
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX インデキサブルドリル
**OSG PHOENIX Indexable Drill**

## PD　切削条件 Cutting Conditions | P1121

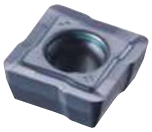
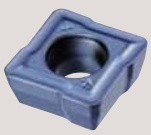
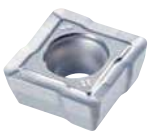





### ■適用インサート Inserts

（単位:mm）(Unit:mm)

| | 仕様 Specification | | 呼び Designation | 切れ刃数 No. of Cutting Edges | 適用ボディ Applicable Body | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | 超硬 Uncoated CK110 | コーティング材種 Grade of Coated Materials XP9020 | XP1010 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 鋼 ステンレス鋼 for Steel & Stainless Steel | ① | XCMT031904ER-DM | 2 | φ12~14.5 | 6.1 × 4.5 | 1.9 | 8° | 0.4 | | 7823098 | | 1,150 |
| | | ② | XCMT042204ER-DM | 4 | φ15~16.5 | 5 × 5 | 2.2 | 8° | 0.4 | | 7823064 | | 1,430 |
| | | ③ | XCMT052404ER-DM | 4 | φ17~18.5 | 5.83 × 5.83 | 2.4 | 8° | 0.4 | | 7823065 | | 1,490 |
| | | ④ | XCMT062706ER-DM | 4 | φ19~20.5 | 6.46 × 6.46 | 2.7 | 8° | 0.6 | | 7823066 | | 1,520 |
| | | ⑤ | XCMT073106ER-DM | 4 | φ21~24.5 | 7.11 × 7.11 | 3.1 | 8° | 0.6 | | 7823067 | | 1,550 |
| | | ⑥ | XCMT083508ER-DM | 4 | φ25~28.5 | 8.36 × 8.36 | 3.5 | 8° | 0.8 | | 7823068 | | 1,640 |
| | | ⑦ | XCMT094008ER-DM | 4 | φ29~33.5 | 9.62 × 9.62 | 4 | 8° | 0.8 | | 7823069 | | 1,780 |
| | | ⑧ | XCMT104608ER-DM | 4 | φ34~38 | 10.89 × 10.89 | 4.6 | 8° | 0.8 | | 7823097 | | 1,950 |
| | | ⑨ | XCMT125010ER-DM | 4 | φ39~44 | 12.57 × 12.57 | 5 | 8° | 1 | | 7823071 | | 2,560 |
| | | ⑩ | XCMT135212ER-DM | 4 | φ45~49 | 14.05 × 14.05 | 5.2 | 8° | 1.2 | | 7823072 | | 2,680 |
| | | ⑪ | XCMT145612ER-DM | 4 | φ50~56 | 15.58 × 15.58 | 5.6 | 8° | 1.2 | | 7823073 | | 2,810 |
| | | ⑫ | XCMT165912ER-DM | 4 | φ57~63 | 17.28 × 17.28 | 5.9 | 8° | 1.2 | | 7823075 | | 3,310 |
|  | 鋳鉄 for Cast Iron | ① | XCMT031904ER-DR | 2 | φ12~14.5 | 6.1 × 4.5 | 1.9 | 8° | 0.4 | | | 7823163 | 1,150 |
| | | ② | XCMT042204ER-DR | 4 | φ15~16.5 | 5 × 5 | 2.2 | 8° | 0.4 | | | 7823164 | 1,430 |
| | | ③ | XCMT052404ER-DR | 4 | φ17~18.5 | 5.83 × 5.83 | 2.4 | 8° | 0.4 | | | 7823165 | 1,490 |
| | | ④ | XCMT062706ER-DR | 4 | φ19~20.5 | 6.46 × 6.46 | 2.7 | 8° | 0.6 | | | 7823166 | 1,520 |
| | | ⑤ | XCMT073106ER-DR | 4 | φ21~24.5 | 7.11 × 7.11 | 3.1 | 8° | 0.6 | | | 7823167 | 1,550 |
| | | ⑥ | XCMT083508ER-DR | 4 | φ25~28.5 | 8.36 × 8.36 | 3.5 | 8° | 0.8 | | | 7823168 | 1,640 |
| | | ⑦ | XCMT094008ER-DR | 4 | φ29~33.5 | 9.62 × 9.62 | 4 | 8° | 0.8 | | | 7823169 | 1,780 |
| | | ⑧ | XCMT104608ER-DR | 4 | φ34~38 | 10.89 × 10.89 | 4.6 | 8° | 0.8 | | | 7823197 | 1,950 |
| | | ⑨ | XCMT125010ER-DR | 4 | φ39~44 | 12.57 × 12.57 | 5 | 8° | 1 | | | 7823171 | 2,560 |
| | | ⑩ | XCMT135212ER-DR | 4 | φ45~49 | 14.05 × 14.05 | 5.2 | 8° | 1.2 | | | 7823172 | 2,680 |
| | | ⑪ | XCMT145612ER-DR | 4 | φ50~56 | 15.58 × 15.58 | 5.6 | 8° | 1.2 | | | 7823173 | 2,810 |
| | | ⑫ | XCMT165912ER-DR | 4 | φ57~63 | 17.28 × 17.28 | 5.9 | 8° | 1.2 | | | 7823175 | 3,310 |
|  | アルミニウム 非鉄 for Aluminum(alloy) and Non-ferrous Metal | ① | XCMT031904ER-DN | 2 | φ12~14.5 | 6.1 × 4.5 | 1.9 | 8° | 0.4 | 7823263 | | | 1,030 |
| | | ② | XCMT042204ER-DN | 4 | φ15~16.5 | 5 × 5 | 2.2 | 8° | 0.4 | 7823264 | | | 1,220 |
| | | ③ | XCMT052404ER-DN | 4 | φ17~18.5 | 5.83 × 5.83 | 2.4 | 8° | 0.4 | 7823265 | | | 1,290 |
| | | ④ | XCMT062706ER-DN | 4 | φ19~20.5 | 6.46 × 6.46 | 2.7 | 8° | 0.6 | 7823266 | | | 1,360 |
| | | ⑤ | XCMT073106ER-DN | 4 | φ21~24.5 | 7.11 × 7.11 | 3.1 | 8° | 0.6 | 7823267 | | | 1,460 |
| | | ⑥ | XCMT083508ER-DN | 4 | φ25~28.5 | 8.36 × 8.36 | 3.5 | 8° | 0.8 | 7823268 | | | 1,550 |
| | | ⑦ | XCMT094008ER-DN | 4 | φ29~33.5 | 9.62 × 9.62 | 4 | 8° | 0.8 | 7823269 | | | 1,700 |
| | | ⑧ | XCMT104608ER-DN | 4 | φ34~38 | 10.89 × 10.89 | 4.6 | 8° | 0.8 | 7823297 | | | 1,820 |
| | | ⑨ | XCMT125010ER-DN | 4 | φ39~44 | 12.57 × 12.57 | 5 | 8° | 1 | 7823271 | | | 2,310 |
| | | ⑩ | XCMT135212ER-DN | 4 | φ45~49 | 14.05 × 14.05 | 5.2 | 8° | 1.2 | 7823272 | | | 2,470 |
| | | ⑪ | XCMT145612ER-DN | 4 | φ50~56 | 15.58 × 15.58 | 5.6 | 8° | 1.2 | 7823273 | | | 2,620 |
| | | ⑫ | XCMT165912ER-DN | 4 | φ57~63 | 17.28 × 17.28 | 5.9 | 8° | 1.2 | 7823275 | | | 3,150 |

・被削材別推奨材質はp.1121をご参照下さい。
・Please refer to p.1121 for recommended materials by insert type.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

ケースに専用ラベルが付いています
Indicating label




## ■P2D/P3D/P4D/P5D 外周刃専用インサート Inserts for Peripheral Cutting Edge

(単位:mm) (Unit:mm)

| 仕様 Specification | | 呼び Designation | 切れ刃数 No. of Cutting Edges | 適用ボディ Applicable Body | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials XC9015 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 鋼 鋳鉄 for Steel & Cast Iron | ① | XCMT031904ER-DM | 2 | φ12~14.5 | 6.1 × 4.5 | 1.9 | 8° | 0.4 | 7829098 | 1,150 |
| | ② | XCMT042204ER-DM | 4 | φ15~16.5 | 5 × 5 | 2.2 | 8° | 0.4 | 7829064 | 1,430 |
| | ③ | XCMT052404ER-DM | 4 | φ17~18.5 | 5.83 × 5.83 | 2.4 | 8° | 0.4 | 7829065 | 1,490 |
| | ④ | XCMT062706ER-DM | 4 | φ19~20.5 | 6.46 × 6.46 | 2.7 | 8° | 0.6 | 7829066 | 1,520 |
| | ⑤ | XCMT073106ER-DM | 4 | φ21~24.5 | 7.11 × 7.11 | 3.1 | 8° | 0.6 | 7829067 | 1,550 |
| | ⑥ | XCMT083508ER-DM | 4 | φ25~28.5 | 8.36 × 8.36 | 3.5 | 8° | 0.8 | 7829068 | 1,640 |
| | ⑦ | XCMT094008ER-DM | 4 | φ29~33.5 | 9.62 × 9.62 | 4 | 8° | 0.8 | 7829069 | 1,780 |
| | ⑧ | XCMT104608ER-DM | 4 | φ34~38 | 10.89 × 10.89 | 4.6 | 8° | 0.8 | 7829097 | 1,950 |
| | ⑨ | XCMT125010ER-DM | 4 | φ39~44 | 12.57 × 12.57 | 5 | 8° | 1 | 7829071 | 2,560 |
| | ⑩ | XCMT135212ER-DM | 4 | φ45~49 | 14.05 × 14.05 | 5.2 | 8° | 1.2 | 7829072 | 2,680 |
| | ⑪ | XCMT145612ER-DM | 4 | φ50~56 | 15.58 × 15.58 | 5.6 | 8° | 1.2 | 7829073 | 2,810 |
| | ⑫ | XCMT165912ER-DM | 4 | φ57~63 | 17.28 × 17.28 | 5.9 | 8° | 1.2 | 7829075 | 3,310 |

・被削材別推奨材質はp.1121をご参照下さい。
・Please refer to p.1121 for recommended materials by insert type.

## ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | | | | |
|---|---|---|---|---|---|---|---|---|
|  クランプねじ Clamping Screw | 7808096 | FS18536P(Torx 6IP) | ① | XCMT0319… | – | – | – | – |
| | 7808139 | FS20543P(Torx 6IP) | ② | XCMT0422… | ③ | XCMT0524… | – | – |
| | 7808138 | FS22550P(Torx 7IP) | ④ | XCMT0627… | – | – | – | – |
| | 7808136 | FS25560P(Torx 8IP) | ⑤ | XCMT0731… | – | – | – | – |
| | 7808135 | FS30570P(Torx 9IP) | ⑥ | XCMT0835… | ⑦ | XCMT0940… | – | – |
| | 7808137 | FS35586P(Torx 15IP) | ⑧ | XCMT1046… | ⑨ | XCMT1250… | – | – |
| | 7808114 | FS45510P(Torx 20IP) | ⑩ | XCMT1352… | ⑪ | XCMT1456… | ⑫ | XCMT1659… |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
|  レンチ Wrench | 7808223 | 6IP-D (Torx 6IP) | ① | XCMT0319… | ② | XCMT0422… | ③ | XCMT0524… | 1,760 |
| | 7808224 | 7IP-D (Torx 7IP) | ④ | XCMT0627… | – | – | – | – | 1,510 |
| | 7808225 | 8IP-D (Torx 8IP) | ⑤ | XCMT0731… | – | – | – | – | 1,710 |
| | 7808226 | 9IP-D (Torx 9IP) | ⑥ | XCMT0835… | ⑦ | XCMT0940… | – | – | 1,760 |
| | 7808228 | 15IP-D (Torx 15IP) | ⑧ | XCMT1046… | ⑨ | XCMT1250… | – | – | 2,010 |
| | 7808229 | 20IP-D (Torx 20IP) | ⑩ | XCMT1352… | ⑪ | XCMT1456… | ⑫ | XCMT1659… | 2,130 |

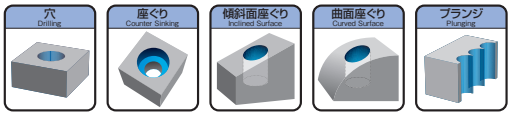
レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX インデキサブルフラットドリル
**OSG PHOENIX Indexable Flat Drill**

## PDZ

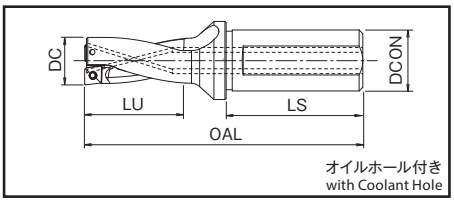
切削条件 Cutting Conditions | P1124




CAD



2Dタイプ 2D Type　　3Dタイプ 3D Type




オイルホール付き
with Coolant Hole

### 2Dタイプ 2D Type

（単位：mm）(Unit:mm)

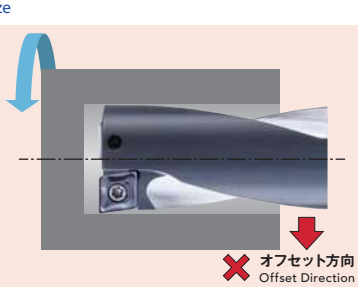
| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 7803776 | PDZ1600FS20M05-2D | 16 | 97 | 32 | 20 | 50 | ① | 45,700 |
| 7803777 | PDZ1650FS20M05-2D | 16.5 | 98 | 33 | 20 | 50 | | 45,700 |
| 7803778 | PDZ1700FS20M05-2D | 17 | 102 | 34 | 20 | 50 | | 45,700 |
| 7803779 | PDZ1750FS25M05-2D | 17.5 | 109 | 35 | 25 | 56 | | 45,700 |
| 7803780 | PDZ1800FS25M05-2D | 18 | 110 | 36 | 25 | 56 | | 45,700 |
| 7803781 | PDZ1850FS25M05-2D | 18.5 | 111 | 37 | 25 | 56 | | 45,700 |
| 7803782 | PDZ1900FS25M06-2D | 19 | 112 | 38 | 25 | 56 | ② | 45,700 |
| 7803783 | PDZ1950FS25M06-2D | 19.5 | 113 | 39 | 25 | 56 | | 45,700 |
| 7803784 | PDZ2000FS25M06-2D | 20 | 114 | 40 | 25 | 56 | | 45,700 |
| 7803785 | PDZ2100FS25M06-2D | 21 | 121 | 42 | 25 | 56 | | 45,700 |
| 7803786 | PDZ2200FS25M06-2D | 22 | 123 | 44 | 25 | 56 | | 45,700 |
| 7803787 | PDZ2300FS25M07-2D | 23 | 125 | 46 | 25 | 56 | ③ | 45,700 |
| 7803788 | PDZ2400FS25M07-2D | 24 | 127 | 48 | 25 | 56 | | 45,700 |
| 7803789 | PDZ2500FS25M07-2D | 25 | 129 | 50 | 25 | 56 | | 50,900 |
| 7803790 | PDZ2500FS32M07-2D | 25 | 133 | 50 | 32 | 60 | | 50,900 |
| 7803791 | PDZ2600FS32M07-2D | 26 | 135 | 52 | 32 | 60 | | 50,900 |
| 7803792 | PDZ2700FS32M08-2D | 27 | 137 | 54 | 32 | 60 | ④ | 50,900 |
| 7803793 | PDZ2800FS32M08-2D | 28 | 139 | 56 | 32 | 60 | | 50,900 |
| 7803794 | PDZ2900FS32M08-2D | 29 | 141 | 58 | 32 | 60 | | 59,600 |
| 7803795 | PDZ3000FS32M08-2D | 30 | 143 | 60 | 32 | 60 | | 59,600 |
| 7803796 | PDZ3100FS32M08-2D | 31 | 145 | 62 | 32 | 60 | | 59,600 |
| 7803797 | PDZ3200FS32M09-2D | 32 | 147 | 64 | 32 | 60 | ⑤ | 59,600 |
| 7803798 | PDZ3300FS40M09-2D | 33 | 159 | 66 | 40 | 70 | | 59,600 |
| 7803799 | PDZ3400FS40M09-2D | 34 | 161 | 68 | 40 | 70 | | 66,100 |
| 7803800 | PDZ3500FS40M10-2D | 35 | 163 | 70 | 40 | 70 | ⑥ | 66,100 |
| 7803801 | PDZ3600FS40M10-2D | 36 | 165 | 72 | 40 | 70 | | 66,100 |
| 7803802 | PDZ3700FS40M10-2D | 37 | 167 | 74 | 40 | 70 | | 66,100 |
| 7803803 | PDZ3800FS40M10-2D | 38 | 169 | 76 | 40 | 70 | | 66,100 |
| 7803804 | PDZ3900FS40M13-2D | 39 | 178 | 78 | 40 | 70 | ⑦ | 74,900 |
| 7803805 | PDZ4000FS40M13-2D | 40 | 180 | 80 | 40 | 70 | | 74,900 |
| 7803806 | PDZ4100FS40M13-2D | 41 | 182 | 82 | 40 | 70 | | 74,900 |
| 7803807 | PDZ4200FS40M13-2D | 42 | 184 | 84 | 40 | 70 | | 74,900 |
| 7803808 | PDZ4300FS40M13-2D | 43 | 186 | 86 | 40 | 70 | | 74,900 |

青字＝キャップボルト座ぐり対応サイズ　Items in blue = cap bolt counterbore compatible size

### ⚠ むくからの穴あけ時の注意　Precautions when drilling from solid

**オフセット加工は推奨しません。**
**PDZはインサート配列の都合上、オフセット加工を行うと中心刃インサートに欠けが発生します。**
Offset machining is not recommended.
Due to the insert arrangement of the PDZ, chipping will occur in the center insert when offset machining is performed.

**調整が必要な穴加工には、PDドリル*を選定下さい（p.993参照）。**
Select the PD drill* for drilling that requires adjustment (refer to p.993).
＊PDドリルは穴底がフラットになりません。
*PD drill does not make the bottom of the hole flat.




在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

## 3Dタイプ 3D Type

（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 有効加工深さ LU | シャンク径 DCON | シャンク長 LS | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 7803828 | **PDZ1600FS20M05-3D** | 16 | 113 | 48 | 20 | 50 | ① | 51,800 |
| 7803829 | **PDZ1650FS20M05-3D** | 16.5 | 115 | 49.5 | 20 | 50 | | 51,800 |
| 7803830 | **PDZ1700FS20M05-3D** | 17 | 119 | 51 | 20 | 50 | | 51,800 |
| 7803831 | **PDZ1750FS25M05-3D** | 17.5 | 127 | 52.5 | 25 | 56 | | 51,800 |
| 7803832 | **PDZ1800FS25M05-3D** | 18 | 128 | 54 | 25 | 56 | | 51,800 |
| 7803833 | **PDZ1850FS25M05-3D** | 18.5 | 130 | 55.5 | 25 | 56 | | 51,800 |
| 7803834 | **PDZ1900FS25M06-3D** | 19 | 131 | 57 | 25 | 56 | ② | 51,800 |
| 7803835 | **PDZ1950FS25M06-3D** | 19.5 | 133 | 58.5 | 25 | 56 | | 51,800 |
| 7803836 | **PDZ2000FS25M06-3D** | 20 | 134 | 60 | 25 | 56 | | 51,800 |
| 7803837 | **PDZ2100FS25M06-3D** | 21 | 142 | 63 | 25 | 56 | | 51,800 |
| 7803838 | **PDZ2200FS25M06-3D** | 22 | 145 | 66 | 25 | 56 | | 51,800 |
| 7803839 | **PDZ2300FS25M07-3D** | 23 | 148 | 69 | 25 | 56 | ③ | 51,800 |
| 7803840 | **PDZ2400FS25M07-3D** | 24 | 151 | 72 | 25 | 56 | | 51,800 |
| 7803841 | **PDZ2500FS25M07-3D** | 25 | 154 | 75 | 25 | 56 | | 57,300 |
| 7803842 | **PDZ2500FS32M07-3D** | 25 | 158 | 75 | 32 | 60 | | 57,300 |
| 7803843 | **PDZ2600FS32M07-3D** | 26 | 161 | 78 | 32 | 60 | | 57,300 |
| 7803844 | **PDZ2700FS32M08-3D** | 27 | 164 | 81 | 32 | 60 | ④ | 57,300 |
| 7803845 | **PDZ2800FS32M08-3D** | 28 | 167 | 84 | 32 | 60 | | 57,300 |
| 7803846 | **PDZ2900FS32M08-3D** | 29 | 170 | 87 | 32 | 60 | | 66,400 |
| 7803847 | **PDZ3000FS32M08-3D** | 30 | 173 | 90 | 32 | 60 | | 66,400 |
| 7803848 | **PDZ3100FS32M08-3D** | 31 | 176 | 93 | 32 | 60 | | 66,400 |
| 7803849 | **PDZ3200FS32M09-3D** | 32 | 179 | 96 | 32 | 60 | ⑤ | 66,400 |
| 7803850 | **PDZ3300FS40M09-3D** | 33 | 192 | 99 | 40 | 70 | | 66,400 |
| 7803851 | **PDZ3400FS40M09-3D** | 34 | 195 | 102 | 40 | 70 | | 70,300 |
| 7803852 | **PDZ3500FS40M10-3D** | 35 | 198 | 105 | 40 | 70 | ⑥ | 70,300 |
| 7803853 | **PDZ3600FS40M10-3D** | 36 | 201 | 108 | 40 | 70 | | 70,300 |
| 7803854 | **PDZ3700FS40M10-3D** | 37 | 204 | 111 | 40 | 70 | | 70,300 |
| 7803855 | **PDZ3800FS40M10-3D** | 38 | 207 | 114 | 40 | 70 | | 70,300 |
| 7803856 | **PDZ3900FS40M13-3D** | 39 | 217 | 117 | 40 | 70 | ⑦ | 79,800 |
| 7803857 | **PDZ4000FS40M13-3D** | 40 | 220 | 120 | 40 | 70 | | 79,800 |
| 7803858 | **PDZ4100FS40M13-3D** | 41 | 223 | 123 | 40 | 70 | | 79,800 |
| 7803859 | **PDZ4200FS40M13-3D** | 42 | 226 | 126 | 40 | 70 | | 79,800 |
| 7803860 | **PDZ4300FS40M13-3D** | 43 | 229 | 129 | 40 | 70 | | 79,800 |

青字＝キャップボルト座ぐり対応サイズ Items in blue = cap bolt counterbore compatible size

## ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 推奨締め付けトルク Recommended Tightening Torque |
|---|---|---|---|---|---|---|
|  クランプねじ Clamping Screw | 7808139 | FS20543P (Torx 6IP) | ① | ZPNT05… | PDZ φ16～18.5 | 0.7 N·m |
| | 7808138 | FS22550P (Torx 7IP) | ② | ZPNT06… | PDZ φ19～22 | 1.0 N·m |
| | 7808136 | FS25560P (Torx 8IP) | ③ | ZPNT07… | PDZ φ23～26 | 1.6 N·m |
| | 7808135 | FS30570P (Torx 9IP) | ④ | ZPNT08… | PDZ φ27～34 | 2.2 N·m |
| | | | ⑤ | ZPNT09… | | |
| | 7808137 | FS35586P (Torx 15IP) | ⑥ | ZPNT10… | PDZ φ35～38 | 3.2 N·m |
| | 7808114 | FS45510P (Torx 20IP) | ⑦ | ZPNT13… | PDZ φ39～43 | 5.0 N·m |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 適用ボディ Applicable Body | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
|  レンチ Wrench | 7808223 | 6IP-D (Torx 6IP) | ① | ZPNT05… | PDZ φ16～18.5 | 1,760 |
| | 7808224 | 7IP-D (Torx 7IP) | ② | ZPNT06… | PDZ φ19～22 | 1,510 |
| | 7808225 | 8IP-D (Torx 8IP) | ③ | ZPNT07… | PDZ φ23～26 | 1,710 |
| | 7808226 | 9IP-D (Torx 9IP) | ④ | ZPNT08… | PDZ φ27～34 | 1,760 |
| | | | ⑤ | ZPNT09… | | |
| | 7808228 | 15IP-D (Torx 15IP) | ⑥ | ZPNT10… | PDZ φ35～38 | 2,010 |
| | 7808229 | 20IP-D (Torx 20IP) | ⑦ | ZPNT13… | PDZ φ39～43 | 2,130 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

NEW SIZES

# OSG PHOENIX インデキサブルフラットドリル
**OSG PHOENIX Indexable Flat Drill**

## PDZ　切削条件 Cutting Conditions | P1124

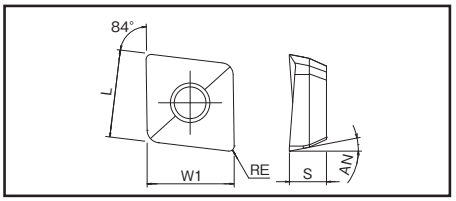


汎用タイプ
Multi-purpose Type



刃先強化タイプ
Reinforced Edge Type

CAD




### ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | | 呼び Designation | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | 適用ボディ Applicable Body | コーティング材種 Carbide Coated Materials XP8030 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| 汎用タイプ Multi-purpose Type | ① | ZPNT050204EN | 5.9 × 5.9 | 2.25 | 11° | 0.4 | φ16～18.5 | 7814102 | 2,030 |
| | ② | ZPNT060204EN | 6.95 × 6.95 | 2.93 | 11° | 0.4 | φ19～22 | 7814103 | 2,090 |
| | ③ | ZPNT070304EN | 7.84 × 7.84 | 3.87 | 11° | 0.4 | φ23～26 | 7814104 | 2,090 |
| | ④ | ZPNT080304EN | 8.85 × 8.85 | 3.92 | 11° | 0.4 | φ27～31 | 7814105 | 2,110 |
| | ⑤ | ZPNT090404EN | 9.94 × 9.94 | 4.65 | 11° | 0.4 | φ32～34 | 7814106 | 2,130 |
| | ⑥ | ZPNT100408EN | 10.95 × 10.95 | 4.65 | 11° | 0.8 | φ35～38 | 7814108 | 2,220 |
| | ⑦ | ZPNT130508EN | 13.92 × 13.92 | 5.46 | 11° | 0.8 | φ39～43 | 7814110 | 2,570 |
| 刃先強化タイプ Reinforced Edge Type | ① | ※ZPNT050204EN-SH | 5.9 × 5.9 | 2.25 | 11° | 0.4 | φ16～18.5 | 7814001 | 2,570 |
| | ② | ※ZPNT060204EN-SH | 6.95 × 6.95 | 2.93 | 11° | 0.4 | φ19～22 | 7814002 | 2,630 |
| | ③ | ※ZPNT070304EN-SH | 7.84 × 7.84 | 3.87 | 11° | 0.4 | φ23～26 | 7814003 | 2,630 |
| | ④ | ※ZPNT080304EN-SH | 8.85 × 8.85 | 3.92 | 11° | 0.4 | φ27～31 | 7814004 | 2,670 |
| | ⑤ | ※ZPNT090404EN-SH | 9.94 × 9.94 | 4.65 | 11° | 0.4 | φ32～34 | 7814005 | 2,700 |
| | ⑥ | ※ZPNT100408EN-SH | 10.95 × 10.95 | 4.65 | 11° | 0.8 | φ35～38 | 7814006 | 2,830 |
| | ⑦ | ※ZPNT130508EN-SH | 13.92 × 13.92 | 5.46 | 11° | 0.8 | φ39～43 | 7814007 | 3,270 |

※=NEW SIZES

・被削材別推奨材質はp.1124をご参照下さい。
・Please refer to p.1124 for recommended materials by insert type.

**さらなる耐久性を求める加工には外周刃に専用インサートを選定下さい。**
For machining that requires greater durability, select a designated insert for the peripheral cutting edge.

### ■PDZ外周刃専用インサート Inserts for Peripheral Cutting Edge

**※PDZ外周刃専用インサートは中心刃に取り付けないで下さい。**
* Do not attach inserts dedicated for the PDZ peripheral cutting edge to the center cutting edge.

（単位:mm）(Unit:mm)

| 呼び Designation | | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | 適用ボディ Applicable Body | コーティング材種 Carbide Coated Materials XC8035 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ① | ZPNT050204EN | 5.9 × 5.9 | 2.25 | 11° | 0.4 | φ16～18.5 | 7815102 | 2,030 |
| ② | ZPNT060204EN | 6.95 × 6.95 | 2.93 | 11° | 0.4 | φ19～22 | 7815103 | 2,090 |
| ③ | ZPNT070304EN | 7.84 × 7.84 | 3.87 | 11° | 0.4 | φ23～26 | 7815104 | 2,090 |
| ④ | ZPNT080304EN | 8.85 × 8.85 | 3.92 | 11° | 0.4 | φ27～31 | 7815105 | 2,110 |
| ⑤ | ZPNT090404EN | 9.94 × 9.94 | 4.65 | 11° | 0.4 | φ32～34 | 7815106 | 2,130 |
| ⑥ | ZPNT100408EN | 10.95 × 10.95 | 4.65 | 11° | 0.8 | φ35～38 | 7815108 | 2,220 |
| ⑦ | ZPNT130508EN | 13.92 × 13.92 | 5.46 | 11° | 0.8 | φ39～43 | 7815110 | 2,570 |

・被削材別推奨材質はp.1124をご参照下さい。
・Please refer to p.1124 for recommended materials by insert type.

### ⚠インサート装着時の注意 Precautions when installing the insert

**・インサート（XP8030）は外周刃として2コーナ、中心刃として2コーナの計4コーナ使用できます。**
The insert (XP8030) has a total of 4 working corners – 2 corners for the peripheral cutting edge and 2 corners for the center cutting edge.

**・外周刃には外周刃用コーナを、中心刃には中心刃用コーナを使用して下さい。**
Use the peripheral cutting edge corner for the peripheral cutting edge and the center cutting edge corner for the center cutting edge.



外周刃装着時
Attached with peripheral cutting edge



中心刃装着時
Attached with center cutting edge






在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX インデキサブルドリル3Dタイプ
**OSG PHOENIX Indexable Drill (3D Type)**

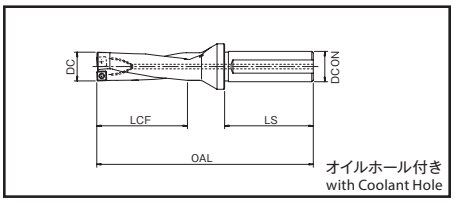
## PHP

切削条件 Cutting Conditions | P1126



穴 Drilling

CAD




オイルホール付き
with Coolant Hole

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 外径 DC | 全長 OAL | 溝長 LCF | シャンク径 DCON | シャンク長 LS | 適用インサート Applicable Inserts | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| 7800100 | PHP140FS20M04-3D | 14 | 116 | 42 | 20 | 50 | | 86,200 |
| 7800101 | PHP145FS20M04-3D | 14.5 | 119 | 45 | 20 | 50 | | 86,200 |
| 7800102 | PHP150FS20M04-3D | 15 | 119 | 45 | 20 | 50 | ① | 86,200 |
| 7800103 | PHP155FS20M04-3D | 15.5 | 122 | 48 | 20 | 50 | | 86,200 |
| 7800104 | PHP160FS20M04-3D | 16 | 122 | 48 | 20 | 50 | | 86,200 |
| 7800105 | PHP165FS20M05-3D | 16.5 | 125 | 51 | 20 | 50 | | 86,200 |
| 7800106 | PHP170FS20M05-3D | 17 | 125 | 51 | 20 | 50 | ② | 86,200 |
| 7800107 | PHP175FS25M05-3D | 17.5 | 134 | 54 | 25 | 56 | | 86,200 |
| 7800108 | PHP180FS25M05-3D | 18 | 134 | 54 | 25 | 56 | | 87,100 |
| 7800109 | PHP185FS25M06-3D | 18.5 | 137 | 57 | 25 | 56 | | 87,100 |
| 7800110 | PHP190FS25M06-3D | 19 | 137 | 57 | 25 | 56 | | 87,100 |
| 7800111 | PHP195FS25M06-3D | 19.5 | 140 | 60 | 25 | 56 | ③ | 87,100 |
| 7800112 | PHP200FS25M06-3D | 20 | 140 | 60 | 25 | 56 | | 87,100 |
| 7800113 | PHP205FS25M06-3D | 20.5 | 143 | 63 | 25 | 56 | | 87,100 |
| 7800114 | PHP210FS25M07-3D | 21 | 143 | 63 | 25 | 56 | | 87,100 |
| 7800115 | PHP215FS25M07-3D | 21.5 | 146 | 66 | 25 | 56 | | 87,100 |
| 7800116 | PHP220FS25M07-3D | 22 | 146 | 66 | 25 | 56 | | 90,900 |
| 7800117 | PHP225FS25M07-3D | 22.5 | 149 | 69 | 25 | 56 | ④ | 90,900 |
| 7800118 | PHP230FS25M07-3D | 23 | 149 | 69 | 25 | 56 | | 90,900 |
| 7800119 | PHP235FS32M07-3D | 23.5 | 156 | 72 | 32 | 60 | | 90,900 |
| 7800120 | PHP240FS32M07-3D | 24 | 156 | 72 | 32 | 60 | | 90,900 |
| 7800121 | PHP245FS32M08-3D | 24.5 | 159 | 75 | 32 | 60 | | 90,900 |
| 7800122 | PHP250FS32M08-3D | 25 | 159 | 75 | 32 | 60 | | 90,900 |
| 7800123 | PHP255FS32M08-3D | 25.5 | 162 | 78 | 32 | 60 | | 90,900 |
| 7800124 | PHP260FS32M08-3D | 26 | 162 | 78 | 32 | 60 | ⑤ | 90,900 |
| 7800125 | PHP265FS32M08-3D | 26.5 | 165 | 81 | 32 | 60 | | 90,900 |
| 7800126 | PHP270FS32M08-3D | 27 | 165 | 81 | 32 | 60 | | 90,900 |
| 7800127 | PHP280FS32M08-3D | 28 | 168 | 84 | 32 | 60 | | 102,000 |
| 7800128 | PHP290FS32M10-3D | 29 | 171 | 87 | 32 | 60 | | 102,000 |
| 7800130 | PHP300FS32M10-3D | 30 | 179 | 90 | 32 | 60 | | 102,000 |
| 7800131 | PHP310FS32M10-3D | 31 | 182 | 93 | 32 | 60 | ⑥ | 102,000 |
| 7800132 | PHP320FS32M10-3D | 32 | 185 | 96 | 32 | 60 | | 102,000 |
| 7800133 | PHP330FS40M10-3D | 33 | 196 | 99 | 40 | 68 | | 102,000 |
| 7800134 | PHP340FS40M10-3D | 34 | 199 | 102 | 40 | 68 | | 132,000 |
| 7800135 | PHP350FS40M12-3D | 35 | 202 | 105 | 40 | 68 | | 132,000 |
| 7800136 | PHP360FS40M12-3D | 36 | 205 | 108 | 40 | 68 | | 132,000 |
| 7800137 | PHP370FS40M12-3D | 37 | 218 | 111 | 40 | 68 | ⑦ | 132,000 |
| 7800138 | PHP380FS40M12-3D | 38 | 221 | 114 | 40 | 68 | | 132,000 |
| 7800139 | PHP390FS40M12-3D | 39 | 224 | 117 | 40 | 68 | | 132,000 |
| 7800140 | PHP400FS40M12-3D | 40 | 227 | 120 | 40 | 68 | | 132,000 |

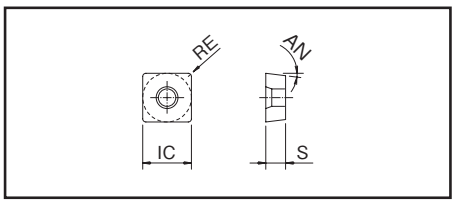
青字＝切削タップ下穴 Blue = tap drill hole for cutting taps

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX インデキサブルドリル3Dタイプ
**OSG PHOENIX Indexable Drill (3D Type)**

## PHP　切削条件 Cutting Conditions | P1126






CAD

### ■適用インサート Inserts

（単位:mm）(Unit:mm)

| | 呼び Designation | 切れ刃数 No. of Cutting Edges | 適用ボディ Applicable Body | インサート寸法 Insert Size | | | | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | IC | 厚さ S | 逃げ角 AN | RE | XP9040 | XC9025 | |
| ① | SCMT042204-DM | 4 | φ14~16 | 4.8 | 2.2 | 7° | 0.4 | 7818001 | 7817001 | 1,770 |
| ② | SCMT052404-DM | 4 | φ16.5~18 | 5.4 | 2.4 | 7° | 0.4 | 7818002 | 7817002 | 1,770 |
| ③ | SCMT062806-DM | 4 | φ18.5~20.5 | 6.2 | 2.8 | 7° | 0.6 | 7818003 | 7817003 | 1,820 |
| ④ | SCMT073206-DM | 4 | φ21~24 | 7.2 | 3.2 | 7° | 0.6 | 7818004 | 7817004 | 1,880 |
| ⑤ | SCMT083608-DM | 4 | φ24.5~28 | 8.6 | 3.6 | 7° | 0.8 | 7818005 | 7817005 | 1,930 |
| ⑥ | SCMT104208-DM | 4 | φ29~34 | 10 | 4.2 | 7° | 0.8 | 7818006 | 7817006 | 1,980 |
| ⑦ | SCMT125008-DM | 4 | φ35~40 | 12.3 | 5 | 7° | 0.8 | 7818007 | 7817007 | 2,040 |

＊被削材別推奨材質はp.1126をご参照下さい。
*Please refer to p.1126 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 7808100 | FS18538 (Torx 6) | ① | SCMT042204-DM |
| | 7808102 | FS20540 (Torx 6) | ② | SCMT052404-DM |
| | 7808104 | FS22550 (Torx 7) | ③ | SCMT062806-DM |
| | 7808108 | FS25560 (Torx 8) | ④ | SCMT073206-DM |
| | 7808110 | FS30573 (Torx 8) | ⑤ | SCMT083608-DM |
| | 7808111 | FS35572 (Torx 15) | ⑥ | SCMT104208-DM |
| | 7808113 | FS45510 (Torx 20) | ⑦ | SCMT125008-DM |

| | ツールNo. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
|  レンチ Wrench | 7808203 | T6-D (Torx 6) | ① | SCMT042204-DM | ② | SCMT052404-DM | 1,160 |
| | 7808204 | T7-D (Torx 7) | ③ | SCMT062806-DM | – | – | 1,160 |
| | 7808205 | T8-D (Torx 8) | ④ | SCMT073206-DM | ⑤ | SCMT083608-DM | 1,310 |
| | 7808208 | T15-D (Torx 15) | ⑥ | SCMT104208-DM | – | – | 1,390 |
| | 7808209 | T20-D (Torx 20) | ⑦ | SCMT125008-DM | – | – | 1,390 |

レンチは別途ご購入下さい。　The wrenches are sold separately from the cutters.

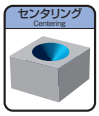


在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX
# インデキサブルリーディングドリル
**OSG PHOENIX Indexable Centering and Chamfering Cutter**

## PLDS　切削条件 Cutting Conditions | P1127

### ストレートシャンクタイプ（SS） Straight Shank Type

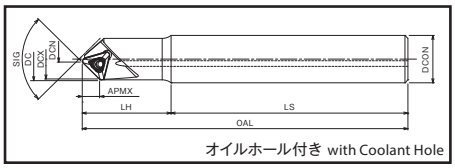









CAD

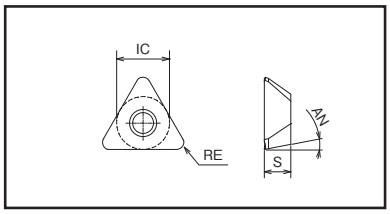


オイルホール付き with Coolant Hole



（単位:mm）(Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 先端角 SIG | 加工径 最小 DCN | 加工径 最大 DCX | 外径 DC | 刃数 ZEFP | シャンク径 DCON | シャンク長 LS | 全長 OAL | 首下長 LH | APMX | 重量 (kg) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803401 | **PLDS11R002SS16-90** | 90° | 2.5 | 13.5 | 14.4 | 1 | 16 | 80 | 110 | 30 | 5.8 | 0.15 | 13,400 |
| 7803402 | **PLDS11R002SS16-L90** | | | | | | | 170 | 200 | | 5.8 | 0.28 | 17,000 |
| 7803403 | **PLDS11R002SS16-120** | 120° | 2.4 | 16 | 17.3 | | | 80 | 110 | | 4 | 0.15 | 13,400 |
| 7803404 | **PLDS11R002SS16-L120** | | | | | | | 170 | 200 | | 4 | 0.28 | 17,000 |






### ■適用インサート Inserts

（単位:mm）(Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials XP9020 | XP2040 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| TPKT110308ER-DM | 3 | 6.35 | 3.18 | 11° | 0.8 | 7814205 | 7813205 | 1,580 |

・被削材別推奨材質はp.1127をご参照下さい。
・Please refer to p.1127 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP NO. | 呼び Designation | 推奨締め付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 7808138 | FS22550P (Torx 7IP) | 1.0 N·m |

| | ツールNo. EDP NO. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  レンチ Wrench | 7808224 | 7IP-D (Torx 7IP) | 1,510 |

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.

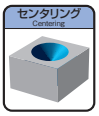
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

# OSG PHOENIX
# インデキサブルリーディングドリル
**OSG PHOENIX Indexable Centering and Chamfering Cutter**

## PLDS
切削条件 Cutting Conditions | P1127

### ねじ込みタイプ(SF) Screw Fit Type



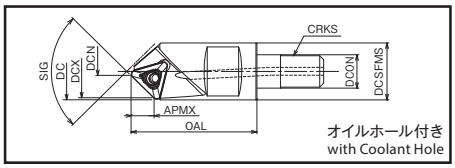








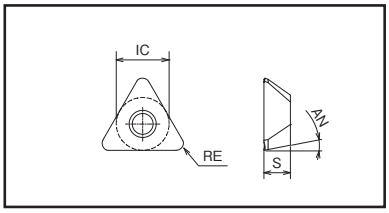

CAD




(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 先端角 SIG | 加工径 最小 DCN | 加工径 最大 DCX | 外径 DC | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 OAL | 端面径 DCSFMS | APMX | 重量 (kg) | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7803405 | **PLDS11R002SF8-90** | 90° | 2.5 | 13.5 | 14.4 | 1 | 8.5 | M8 | 10 | 32 | 14.5 | 5.8 | 0.05 | ❸ | 14,000 |
| 7803406 | **PLDS11R002SF8-120** | 120° | 2.4 | 16 | 17.3 | | | | | | | 4 | 0.05 | | 14,000 |

シャンクホルダ・ホルダについてはp.1028をご覧下さい。
See page 1028 for shank holders.






### ■適用インサート Inserts

(単位:mm) (Unit:mm)

| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials XP9020 | XP2040 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| TPKT110308ER-DM | 3 | 6.35 | 3.18 | 11° | 0.8 | 7814205 | 7813205 | 1,580 |

・被削材別推奨材質はp.1127をご参照下さい。
・Please refer to p.1127 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP NO. | 呼び Designation | 推奨締め付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 7808138 | FS22550P (Torx 7IP) | 1.0 N·m |

| | ツールNo. EDP NO. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  レンチ Wrench | 7808224 | 7IP-D (Torx 7IP) | 1,510 |

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.



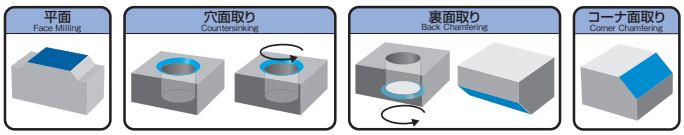
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

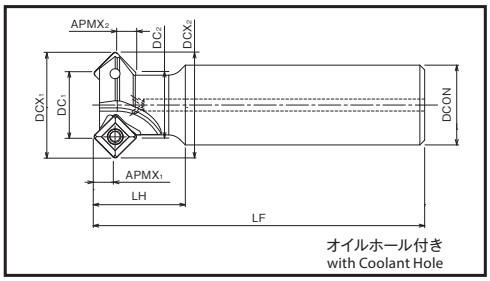
NEW 2025年2月発売予定 Available from February 2025

# OSG PHOENIX 面取り用カッタ
OSG PHOENIX Chamfering Cutter

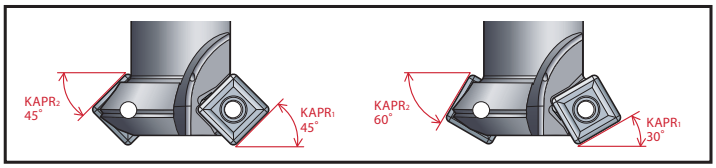
## PMEN 切削条件 Cutting Conditions P1128

### ストレートシャンクタイプ(SS) Straight Shank Type



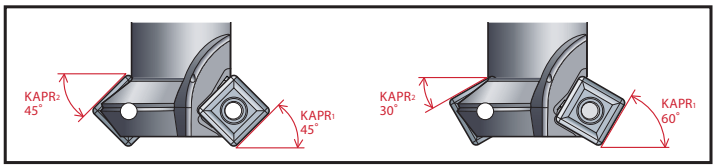



**面取り角度(KAPR1) 45°、30°対応ボディ** Body compatible with chamfer angles (KAPR1) 45° and 30°

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 面取り角度 KAPR | | 加工径 | | | | 最大切込み量 APMX | | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | 重量 (kg) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $KAPR_1$ | $KAPR_2$ | $DC_1$ | $DCX_1$ | $DC_2$ | $DCX_2$ | $APMX_1$ | $APMX_2$ | | | | | | |
| 7803750 | PMEN09R008SS20-30-45 | 45° | 45° | 8.5 | 19.5 | 16 | 19.5 | 5.7 | 1.7 | 1 | 20 | 90 | 30 | 0.17 | 27,500 |
| | | 30° | 60° | 5.4 | 18.8 | 16 | 19.4 | 4 | 3 | | | | | | |
| 7803751 | PMEN09R016SS20-30-45 | 45° | 45° | 16.5 | 27.5 | 16.5 | 27.5 | 5.7 | 5.5 | 2 | 20 | 90 | 30 | 0.2 | 29,700 |
| | | 30° | 60° | 13.4 | 26.8 | 19.8 | 27.4 | 4 | 6.8 | | | | | | |
| 7803752 | PMEN09R020SS20-30-45 | 45° | 45° | 20.5 | 31.5 | 20.5 | 31.5 | 5.7 | 5.5 | 2 | 20 | 120 | 40 | 0.35 | 32,000 |
| | | 30° | 60° | 17.4 | 30.8 | 23.8 | 31.4 | 4 | 6.8 | | | | | | |
| 7803753 | PMEN09R025SS25-30-45 | 45° | 45° | 25.5 | 36.5 | 25.5 | 36.5 | 5.7 | 5.5 | 2 | 25 | 120 | 40 | 0.4 | 34,200 |
| | | 30° | 60° | 22.4 | 35.8 | 28.8 | 36.4 | 4 | 6.8 | | | | | | |
| 7803754 | PMEN09R032SS32-30-45 | 45° | 45° | 32.5 | 43.5 | 32.5 | 43.5 | 5.7 | 5.5 | 3 | 32 | 120 | 40 | 0.65 | 41,700 |
| | | 30° | 60° | 29.4 | 42.8 | 35.8 | 43.4 | 4 | 6.8 | | | | | | |




**面取り角度(KAPR1) 45°、60°対応ボディ** Body compatible with chamfer angles (KAPR1) 45° and 60°

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 面取り角度 KAPR | | 加工径 | | | | 最大切込み量 APMX | | 刃数 ZEFP | シャンク径 DCON | 全長 LF | 首下長 LH | 重量 (kg) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $KAPR_1$ | $KAPR_2$ | $DC_1$ | $DCX_1$ | $DC_2$ | $DCX_2$ | $APMX_1$ | $APMX_2$ | | | | | | |
| 7803763 | PMEN09R008SS20-45-60 | 45° | 45° | 8.5 | 19.5 | 16 | 19.5 | 5.7 | 1.7 | 1 | 20 | 90 | 30 | 0.17 | 27,500 |
| | | 60° | 30° | 11.5 | 19.4 | 16 | 18.8 | 7 | 1 | | | | | | |
| 7803764 | PMEN09R016SS20-45-60 | 45° | 45° | 16.5 | 27.5 | 16.5 | 27.5 | 5.7 | 5.5 | 2 | 20 | 90 | 30 | 0.2 | 29,700 |
| | | 60° | 30° | 19.6 | 27.4 | 16.6 | 26.9 | 7 | 3 | | | | | | |
| 7803765 | PMEN09R020SS20-45-60 | 45° | 45° | 20.5 | 31.5 | 20.5 | 31.5 | 5.7 | 5.5 | 2 | 20 | 120 | 40 | 0.35 | 32,000 |
| | | 60° | 30° | 23.6 | 31.4 | 20.6 | 30.9 | 7 | 3 | | | | | | |
| 7803766 | PMEN09R025SS25-45-60 | 45° | 45° | 25.5 | 36.5 | 25.5 | 36.5 | 5.7 | 5.5 | 2 | 25 | 120 | 40 | 0.4 | 34,200 |
| | | 60° | 30° | 28.6 | 36.4 | 25.6 | 35.9 | 7 | 3 | | | | | | |
| 7803767 | PMEN09R032SS32-45-60 | 45° | 45° | 32.5 | 43.5 | 32.5 | 43.5 | 5.7 | 5.5 | 3 | 32 | 120 | 40 | 0.65 | 41,700 |
| | | 60° | 30° | 35.6 | 43.4 | 32.6 | 42.9 | 7 | 3 | | | | | | |

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

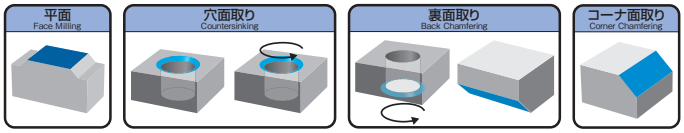
NEW 2025年2月発売予定 Available from February 2025

# OSG PHOENIX 面取り用カッタ
OSG PHOENIX Chamfering Cutter

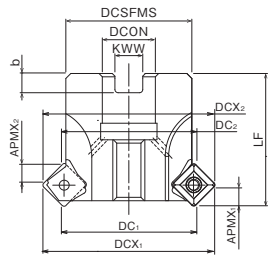
## PMEN
切削条件 Cutting Conditions | P1128

### ボアタイプ(BORE) Bore Type



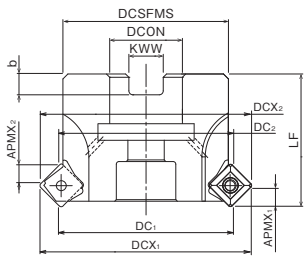



Type 1 パワースクリュー仕様 Power Screw Type

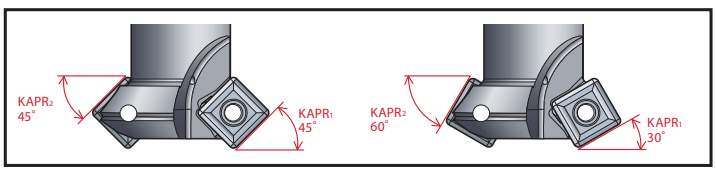



オイルホール付き with Coolant Hole

Type 2



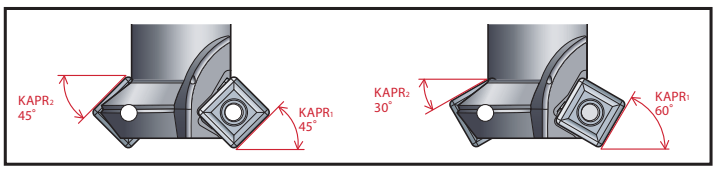

オイルホール付き with Coolant Hole




### 面取り角度(KAPR1) 45°、30°対応ボディ Body compatible with chamfer angles (KAPR1) 45° and 30°

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 面取り角度 KAPR | | 加工径 | | | | 最大切込み量 APMX | | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot | | 形状タイプ Type | 重量 (kg) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KAPR1 | KAPR2 | DC1 | DCX1 | DC2 | DCX2 | APMX1 | APMX2 | | | | | 幅 KWW | 深さ b | | | |
| 7803760 | PMEN09R040M16-30-45 | 45° | 45° | 40.5 | 51.5 | 40.5 | 51.5 | 5.7 | 5.5 | 4 | 40 | 38 | 16 | 8.4 | 5.6 | 1 | 0.23 | 57,500 |
| | | 30° | 60° | 37.4 | 50.8 | 43.8 | 51.4 | 4 | 6.8 | | | | | | | | | |
| 7803761 | PMEN09R050M22-30-45 | 45° | 45° | 50.5 | 61.5 | 50.5 | 61.5 | 5.7 | 5.5 | 4 | 40 | 45 | 22 | 10.4 | 6.3 | 2 | 0.3 | 63,900 |
| | | 30° | 60° | 47.4 | 60.8 | 53.8 | 61.4 | 4 | 6.8 | | | | | | | | | |
| 7803762 | PMEN09R060M22-30-45 | 45° | 45° | 60.5 | 71.5 | 60.5 | 71.5 | 5.7 | 5.5 | 5 | 40 | 50 | 22 | 10.4 | 6.3 | 2 | 0.45 | 70,900 |
| | | 30° | 60° | 57.4 | 70.8 | 63.8 | 71.4 | 4 | 6.8 | | | | | | | | | |




### 面取り角度(KAPR1) 45°、60°対応ボディ Body compatible with chamfer angles (KAPR1) 45° and 60°

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 面取り角度 KAPR | | 加工径 | | | | 最大切込み量 APMX | | 刃数 ZEFP | カッタ高さ LF | ボス径 DCSFMS | 穴径 DCON | 端面キー溝 Key Slot | | 形状タイプ Type | 重量 (kg) | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KAPR1 | KAPR2 | DC1 | DCX1 | DC2 | DCX2 | APMX1 | APMX2 | | | | | 幅 KWW | 深さ b | | | |
| 7803773 | PMEN09R040M16-45-60 | 45° | 45° | 40.5 | 51.5 | 40.5 | 51.5 | 5.7 | 5.5 | 4 | 40 | 38 | 16 | 8.4 | 5.6 | 1 | 0.23 | 57,500 |
| | | 60° | 30° | 43.6 | 51.4 | 40.6 | 50.9 | 7 | 3 | | | | | | | | | |
| 7803774 | PMEN09R050M22-45-60 | 45° | 45° | 50.5 | 61.5 | 50.5 | 61.5 | 5.7 | 5.5 | 4 | 40 | 45 | 22 | 10.4 | 6.3 | 2 | 0.3 | 63,900 |
| | | 60° | 30° | 53.6 | 61.4 | 50.6 | 60.9 | 7 | 3 | | | | | | | | | |
| 7803775 | PMEN09R060M22-45-60 | 45° | 45° | 60.5 | 71.5 | 60.5 | 71.5 | 5.7 | 5.5 | 5 | 40 | 50 | 22 | 10.4 | 6.3 | 2 | 0.45 | 70,900 |
| | | 60° | 30° | 63.6 | 71.4 | 60.6 | 70.9 | 7 | 3 | | | | | | | | | |

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

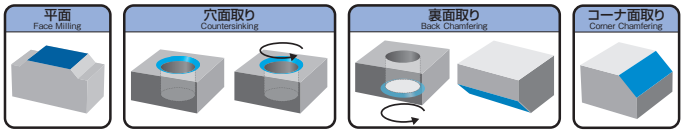
NEW 2025年2月発売予定 Available from February 2025

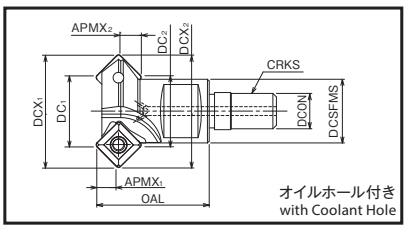
# OSG PHOENIX 面取り用カッタ
OSG PHOENIX Chamfering Cutter

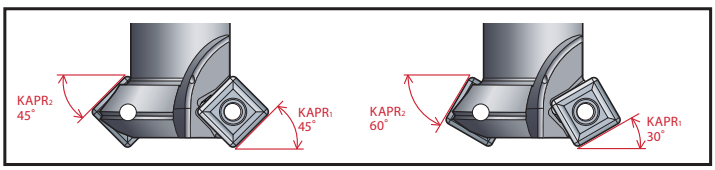
## PMEN 切削条件 Cutting Conditions P1128

### ねじ込みタイプ(SF) Screw Fit Type





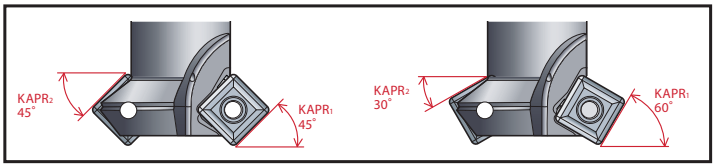




**面取り角度(KAPR1) 45°、30°対応ボディ** Body compatible with chamfer angles (KAPR1) 45° and 30°

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 面取り角度 KAPR | | 加工径 | | | | 最大切込み量 APMX | | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 OAL | 端面径 DCSFMS | 重量 (kg) | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KAPR1 | KAPR2 | DC1 | DCX1 | DC2 | DCX2 | APMX1 | APMX2 | | | | | | | | | |
| 7803755 | **PMEN09R008SF8-30-45** | 45° | 45° | 8.5 | 19.5 | 16 | 19.5 | 5.7 | 1.7 | 1 | 8.5 | M 8 | 10 | 32 | 14.5 | 0.02 | ❸ | 27,500 |
| | | 30° | 60° | 5.4 | 18.8 | 16 | 19.4 | 4 | 3 | | | | | | | | | |
| 7803756 | **PMEN09R016SF8-30-45** | 45° | 45° | 16.5 | 27.5 | 16.5 | 27.5 | 5.7 | 5.5 | 2 | 8.5 | M 8 | 10 | 32 | 14.5 | 0.04 | ❸ | 29,700 |
| | | 30° | 60° | 13.4 | 26.8 | 19.8 | 27.4 | 4 | 6.8 | | | | | | | | | |
| 7803757 | **PMEN09R020SF10-30-45** | 45° | 45° | 20.5 | 31.5 | 20.5 | 31.5 | 5.7 | 5.5 | 2 | 10.5 | M10 | 14 | 32 | 18 | 0.06 | ❹ | 32,000 |
| | | 30° | 60° | 17.4 | 30.8 | 23.8 | 31.4 | 4 | 6.8 | | | | | | | | | |
| 7803758 | **PMEN09R025SF12-30-45** | 45° | 45° | 25.5 | 36.5 | 25.5 | 36.5 | 5.7 | 5.5 | 2 | 12.5 | M12 | 17 | 35 | 23 | 0.12 | ❺ | 34,200 |
| | | 30° | 60° | 22.4 | 35.8 | 28.8 | 36.4 | 4 | 6.8 | | | | | | | | | |
| 7803759 | **PMEN09R032SF16-30-45** | 45° | 45° | 32.5 | 43.5 | 32.5 | 43.5 | 5.7 | 5.5 | 3 | 17 | M16 | 22 | 40 | 28 | 0.18 | ❻ | 41,700 |
| | | 30° | 60° | 29.4 | 42.8 | 35.8 | 43.4 | 4 | 6.8 | | | | | | | | | |

シャンクホルダ・ホルダについてはp.1028をご覧下さい。
See page 1028 for shank holders.




**面取り角度(KAPR1) 45°、60°対応ボディ** Body compatible with chamfer angles (KAPR1) 45° and 60°

(単位:mm) (Unit:mm)

| ツールNo. EDP No. | 呼び Designation | 面取り角度 KAPR | | 加工径 | | | | 最大切込み量 APMX | | 刃数 ZEFP | 取付け径 DCON | ねじサイズ CRKS | スパナサイズ Spanner Size | 全長 OAL | 端面径 DCSFMS | 重量 (kg) | 適用シャンクホルダタイプ Applicable Shank | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | KAPR1 | KAPR2 | DC1 | DCX1 | DC2 | DCX2 | APMX1 | APMX2 | | | | | | | | | |
| 7803768 | **PMEN09R008SF8-45-60** | 45° | 45° | 8.5 | 19.5 | 16 | 19.5 | 5.7 | 1.7 | 1 | 8.5 | M 8 | 10 | 32 | 14.5 | 0.02 | ❸ | 27,500 |
| | | 60° | 30° | 11.5 | 19.4 | 16 | 18.8 | 7 | 1 | | | | | | | | | |
| 7803769 | **PMEN09R016SF8-45-60** | 45° | 45° | 16.5 | 27.5 | 16.5 | 27.5 | 5.7 | 5.5 | 2 | 8.5 | M 8 | 10 | 32 | 14.5 | 0.04 | ❸ | 29,700 |
| | | 60° | 30° | 19.6 | 27.4 | 16.6 | 26.9 | 7 | 3 | | | | | | | | | |
| 7803770 | **PMEN09R020SF10-45-60** | 45° | 45° | 20.5 | 31.5 | 20.5 | 31.5 | 5.7 | 5.5 | 2 | 10.5 | M10 | 14 | 32 | 18 | 0.06 | ❹ | 32,000 |
| | | 60° | 30° | 23.6 | 31.4 | 20.6 | 30.9 | 7 | 3 | | | | | | | | | |
| 7803771 | **PMEN09R025SF12-45-60** | 45° | 45° | 25.5 | 36.5 | 25.5 | 36.5 | 5.7 | 5.5 | 2 | 12.5 | M12 | 17 | 35 | 23 | 0.12 | ❺ | 34,200 |
| | | 60° | 30° | 28.6 | 36.4 | 25.6 | 35.9 | 7 | 3 | | | | | | | | | |
| 7803772 | **PMEN09R032SF16-45-60** | 45° | 45° | 32.5 | 43.5 | 32.5 | 43.5 | 5.7 | 5.5 | 3 | 17 | M16 | 22 | 40 | 28 | 0.18 | ❻ | 41,700 |
| | | 60° | 30° | 35.6 | 43.4 | 32.6 | 42.9 | 7 | 3 | | | | | | | | | |

シャンクホルダ・ホルダについてはp.1028をご覧下さい。
See page 1028 for shank holders.

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

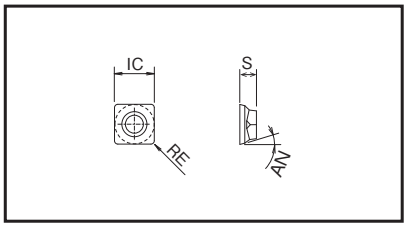
NEW 2025年2月発売予定 Available from February 2025

# OSG PHOENIX 面取り用カッタ
**OSG PHOENIX Chamfering Cutter**

## PMEN

切削条件 Cutting Conditions | P1128






### ■適用インサート Inserts

（単位:mm）(Unit:mm)

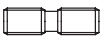
| 呼び Designation | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size | | | | 超硬 Uncoated | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | | 内接円径 IC | 厚さ S | 逃げ角 AN | RE | CK010 | XP3015 | XP2040 | |
| SOMT090308EN-NM | 4 | 9.52 | 3.18 | 14° | 0.8 | 7811072 | | | 1,040 |
| SOMT090308EN-GM | 4 | 9.52 | 3.18 | 14° | 0.8 | | 7817072 | 7813072 | 1,170 |

・被削材別推奨材質はp.1128をご参照下さい。
・Please refer to p.1128 for recommended materials by insert type.

### ■部品 Accessories

| | ツールNo. EDP No. | 呼び Designation | 推奨締め付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 7808135 | FS30570P (Torx 9IP) | 2.2 N·m |

| | ツールNo. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  レンチ Wrench | 7808226 | 9IP-D (Torx 9IP) | 1,760 |

| | ツールNo. EDP No. | 呼び Designation | 適用ボディ Applicable Body |
|---|---|---|---|
|  パワースクリュー Power Screw | 7808150 | PS0830 (M8×30) | PMEN09R040M16… |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.



在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C (Standard stock item).

## クランプねじ、推奨締付けトルク Clamping Screw·Tightening Torque

| ツールNo. EDP No. | ねじ呼び Designation | ねじサイズ Thread Size | トルクスサイズ Torx size | 推奨締付けトルク Recommended Tightening Torque | 適用カッタ(適用インサート) Applicable Cutters(Applicable Inserts) |
|---|---|---|---|---|---|
| 7808098 | FS18634P | M 1.8 × 3.4 | 06IP | 0.5 N·m | PSE07··· SS/SF φ10-12 (ZDKT07···) |
| 7808096 | FS18536P | M 1.8 × 3.6 | 06IP | 0.7 N·m | PZAG04··· SS φ14(ZPNT04···) |
| | | | | | PD φ12-14.5 (XCMT03···) |
| 7808099 | FS18637P | M 1.8 × 3.7 | 06IP | 0.5 N·m | PMD07··· φ16-18 (ZDKT07···) |
| | | | | | PSE07··· SS φ16-26/SFφ16-32 (ZDKT07···) |
| 7808100 | FS18538 | M 1.8 × 3.8 | T06 | 0.7 N·m | PHP φ14-16 (SCMT04···) |
| 7808102 | FS20540 | M 2 × 4 | T06 | 0.7 N·m | PHP φ16.5-18 (SCMT05···) |
| 7808139 | FS20543P | M 2 × 4.3 | 06IP | 0.7 N·m | PDZ φ16-18.5 (ZPNT05···) |
| | | | | | PD φ15-18.5 (XCMT04···, XCMT05···) |
| 7808104 | FS22550 | M 2.2 × 5 | T07 | 1.0 N·m | PHP φ18.5-20.5 (SCMT06···) |
| 7808138 | FS22550P | M 2.2 × 5 | 07IP | 1.0 N·m | PLDS··· |
| | | | | | PZAG06··· SS φ17.5-23 (ZPNT06···) |
| | | | | | PDZ··· φ19-22 (ZPNT06···) |
| | | | | | PD φ19-20.5 (XCMT06···) |
| 7808105 | FS25550 | M 2.5 × 5 | T08 | 1.6 N·m | PHC07··· SS/SF φ16-35 (SPMT07···) |
| 7808107 | FS25656P | M 2.5 × 5.6 | 08IP | 1.6 N·m | PMD11··· φ20-32 (ZDKT11···) |
| | | | | | PSE11··· SS/SF φ16-40 (ZD*T11···) |
| | | | | | PSEL11··· SS φ25 (ZD*T11···) |
| 7808108 | FS25560 | M 2.5 × 6 | T08 | 1.6 N·m | PHP φ21-24 (SCMT07···) |
| 7808136 | FS25560P | M 2.5 × 6 | 08IP | 1.6 N·m | PDZ φ23-26 (ZPNT07···) |
| | | | | | PD φ21-24.5 (XCMT07···) |
| 7808109 | FS25673P | M 2.5 × 7.3 | 08IP | 1.6 N·m | PSE11··· BORE φ40-80 (ZD*T11···) |
| | | | | | PSEL11··· SS φ32-40 (ZD*T11···) |
| 7808097 | FS30668 | M 3 × 6.8 | T08 | 1.5 N·m | PSTW09··· SS/BORE φ40-63 (TN*U09···) |
| 7808135 | FS30570P | M 3 × 7 | 09IP | 2.2 N·m | PZAG09··· SS φ26-48(ZPNT09···) |
| | | | | | PDZ··· φ27-34 (ZPNT08···, ZPNT09···) |
| | | | | | PMD07··· φ16-18 (ZPNT08···, ZPNT09···) |
| | | | | | PD φ25-33.5 (XCMT08···, XCMT09···) |
| | | | | | PMEN··· |
| 7808110 | FS30573 | M 3 × 7.3 | T08 | 1.6 N·m | PHP φ24.5-28 (SCMT08···) |
| | | | | | PSF··· |
| | | | | | PSFL09··· SS/BORE φ32-50(SD*T09···) |
| | | | | | PFDC··· |
| 7808116 | FS30573A | M 3 × 7.3 | T10 | 2.0 N·m | PRC10··· SS/SF φ20-40 (RPH*10···) |
| 7808111 | FS35572 | M 3.5 × 7.2 | T15 | 3.2 N·m | PHP φ29-34 (SCMT10···) |
| | | | | | PHC09··· SS/SF φ25-35 (SDMT09···) |
| 7808112 | FS35586 | M 3.5 × 8.6 | T15 | 3.2 N·m | PHC09··· SS/SF φ40 /BORE φ40-63 (SDMT09···) |
| | | | | | PRC12··· PRC SS/SF φ32-50 / BORE φ50-100 (RPH*12···) |
| 7808137 | FS35586P | M 3.5 × 8.6 | 15IP | 3.2 N·m | PDZ··· φ35-38 (ZPNT10···) |
| | | | | | PMD11R020··· φ20 (ZPNT10···) |
| | | | | | PD φ34-44 (XCMT10···, XCMT12···) |
| 7808115 | FS35686P | M 3.5 × 8.6 | 15IP | 3.2 N·m | PMD11··· SS/SF φ20 (ZPNT10···) |
| | | | | | PSE15··· SS/SF φ25-63 /BORE φ40-125 (ZD*T15···) |
| | | | | | PSEL15··· SS φ40-50/ BORE φ50-80 (ZDKT15···) |
| 7808129 | FS40511 | M 4.0 ×11 | T15 | 5.0 N·m | PSTW BORE φ50-125 (TN*U12···) |
| | | | | | PSFL12··· BORE φ63-100(SD*T12···) |
| 7808113 | FS45510 | M 4.5 ×10.5 | T20 | 5.0 N·m | PHP φ35-40 (SCMT12···) |
| | | | | | PHC12··· SS/SF φ30-63/ BORE φ40-100 (SXMT12···) |
| | | | | | PRC16··· PRC SS/SF φ32-63 / BORE φ50-100 (RPH*16···) |
| 7808114 | FS45510P | M 4.5 ×10 | 20IP | 5.0 N·m | PMD11··· φ25-32(ZPNT13···,ZPNT17···) |
| | | | | | PZAG13··· BORE φ54-82(ZPNT13···,ZPNT17···) |
| | | | | | PDZ··· φ39-43(ZPNT13···) |
| | | | | | PD φ45-63 (XCMT13···, XCMT14···, XCMT16···) |
| 7808131 | FS45513P | M 4.5 ×13 | 20IP | 5.0 N·m | PAS··· |
| 7808130 | FS50614 | M 5 ×14 | T20 | 5.0 N·m | PAO··· |
| 7808125 | FS60620 | M 6 ×17 | T25 | 10.0 N·m | PFAL··· |

IP:トルクスプラス IP:Torx-Plus

# 取付部寸法表 DIMENSIONS

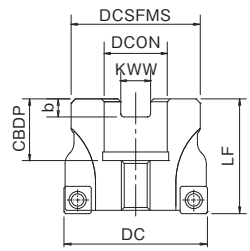
## ボアタイプカッタ Bore Type Cutter

| 外径 DC | 穴径 DCON | ボス径 DCSFMS | DAH | DCCB | 取り付け穴高さ CBDP | 端面キー溝 Key Slot 幅 KWW | 端面キー溝 Key Slot 深さ b | カッタ高さ LF | 形状 Type | キャップスクリュー・クランプボルト Clamping Screw | 適用カッタ Applicable Cutters | 推奨アーバ規格 Recommended Arbor Specification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 16 | 38 | PS | PS | 20 | 8.4 | 5.6 | 40 | ① | Power Screw | PSE11···, PSE15···<br>PHC09···, PHC12···, PMEN | FMC16 |
| | | | 9 | 14 | 19 | | | | | M8 × 30 | PSTW09··· | |
| 50 | 16 | 40 | 9 | 15 | 20 | 8.4 | 5.6 | 55 | ② | M8 × 30 | PFAL | FMC16 |
| | 22 | 45 | PS | PS | 21 | 10.4 | 6.3 | 40 | ① | Power Screw | PSE11···, PSE15···<br>PAO···, PRC16···, PSTW12··· | FMC22 |
| | | | 11 | 17 | | | | 45 | ② | M10 × 30 | PSF, PRC12···, PRC16···,<br>PSTW09···, PMEN | |
| | | 50 | | | | | | 50 | | | PAS<br>PHC09···, PHC12··· | |
| | 22.225 | 47 | PS | PS | | 8.4 | 5 | 40 | ① | Power Screw | PHC09···, PHC12··· | FMA22.225 |
| | | | | | | | | | | | PSTW12··· | FMA22.225<br>FMH22.225 |
| 54 | 22 | 45 | 11 | 17 | 21 | 10.4 | 6.3 | 63 | ② | M10 × 30 | PZAG13··· | FMC22 |
| 58 | 22 | 45 | 11 | 17 | 21 | 10.4 | 6.3 | 63 | ② | M10 × 30 | PZAG13··· | FMC22 |
| 60 | 22 | 50 | 11 | 21 | 21 | 10.4 | 6.3 | 40 | ② | M10 × 30 | PMEN | FMC22 |
| 62 | 22 | 45 | 11 | 17 | 21 | 10.4 | 6.3 | 63 | ② | M10 × 30 | PZAG13··· | FMC22 |
| 63 | 22 | 45 | 11 | 18 | 21 | 10.4 | 6.3 | 55 | ② | M10 × 30 | PFAL | FMC22 |
| | | 50 | | | | | | 40 | | | PAS, PAO, PSF<br>PSTW09···, PSTW12···<br>PSE11···, PSE15···<br>PRC12···, PRC16··· | |
| | | | | | | | | | | | PHC09···, PHC12··· | |
| | 22.225 | 60 | | | | 8.4 | 5 | 50 | | | PHC09···, PHC12···, PSTW12··· | FMA22.225<br>FMH22.225 |
| | 25.4 | | 13.3 | 20.5 | 23 | 9.5 | 6 | | | M12 × 40 | PSTW12··· | FMC25.4<br>FMH25.4 |
| 67 | 22 | 45 | 11 | 17 | 21 | 10.4 | 6.3 | 63 | ② | M10 × 30 | PZAG13··· | FMC22 |
| 72 | 22 | 45 | 11 | 17 | 21 | 10.4 | 6.3 | 63 | ② | M10 × 30 | PZAG13··· | FMC22 |
| 76 | 22 | 45 | 11 | 17 | 21 | 10.4 | 6.3 | 63 | ② | M10 × 30 | PZAG17··· | FMC22 |
| 80 | 22 | 45 | 11 | 18 | 20 | 10.4 | 6.5 | 40 | ② | M10 × 30 | PFDC09R080M22-4 | FMC22, FMH22 |
| | 25.4 | 50 | 13.5 | 20 | 23 | 9.5 | 6 | 45 | | M12 × 40 | PFDC09R080M25.4-4 | FMC25.4<br>FMH25.4 |
| | | 60 | 13.3 | 20.5 | | | | 50 | | | PAS, PAO, PSF, PSTW09···<br>PSTW12···, PSE11···, PSE15···<br>PRC12···, PRC16··· | FMC25.4<br>FMH25.4 |
| | | 70 | - | 40 | 28 | | | | ③ | MBA-M12 | PFAL | FMC25.4 |
| | 27 | 60 | 13 | 20 | 22 | 12.4 | 7 | | ② | M12 × 40 | PSE11···, PSE15···, PSTW09···<br>PSTW12···, PRC12···, PRC16··· | FMC27 |
| | | 70 | - | 40 | 28 | | | | ③ | MBA-M12 | PFAL | |
| | | 76 | 13 | 20 | 22 | | | | ② | M12 × 40 | PHC12··· | |
| | 31.75 | | 16.5 | 26 | 32 | 12.7 | 8 | 63 | | M16 × 40 | PHC12···, PSTW12··· | FMA31.75<br>FMH31.75 |
| 82 | 22 | 45 | 11 | 17 | 21 | 10.4 | 6.3 | 63 | ② | M10 × 30 | PZAG17··· | FMC22 |
| 100 | 22 | 45 | 11 | 18 | 20 | 10.4 | 6.5 | 40 | ② | M10 × 30 | PFDC09R100M22-4 | FMC22, FMH22 |
| | 25.4 | 50 | 13.5 | 20 | 23 | 9.5 | 6 | 45 | | M12 × 40 | PFDC09R100M25.4-4 | FMC25.4<br>FMH25.4 |
| | | 80 | - | 40 | 28 | | | 50 | ③ | MBA-M12 | PFAL | FMC25.4 |
| | 27 | | | | | 12.4 | 7 | | | | PFAL | FMC27 |
| | 31.75 | 70 | | 44.45 | 32 | 12.7 | 8 | | | MBA-M16 | PAS, PAO, PSE15···, PSTW12···<br>PRC12···, PRC16··· | FMA31.75 |
| | | | 16.5 | 26 | | | | 63 | ② | M16 × 40 | PSTW09··· | FMA31.75<br>FMH31.75 |
| | | 80 | - | 55 | | | | 50 | ③ | MBA-M16 | PFAL | FMA31.75 |
| | | 96 | 16.5 | 26 | | | | 63 | ② | M16 × 40 | PHC12··· | |
| | 32 | 70 | | | 25 | 14.4 | | 50 | | | PAS, PAO, PSE15··· PRC12···,<br>PRC16··· | FMC32 |
| | | | 18 | 27 | 26 | | | | | | PSTW09···, PSTW12··· | |
| | | 96 | 17 | | | | | 63 | | | PHC12··· | |
| | | 80 | - | 55 | 32 | | 8.2 | 50 | ③ | MBA-M16 | PFAL | |
| 125 | 22 | 45 | 11 | 18 | 20 | 10.4 | 6.5 | 40 | ② | M10 × 30 | PFDC09R125M22-5 | FMC22, FMH22 |
| | 25.4 | 50 | 13.5 | 20 | 23 | 9.5 | 6 | 45 | | M12 × 40 | PFDC09R125M25.4-5 | FMC25.4<br>FMH25.4 |
| | | 80 | - | 40 | 28 | 12.4 | 7 | 50 | ③ | MBA-M12 | PFAL | FMC25.4 |
| | 27 | | | | | | | | | | PFAL | FMC27 |
| | 38.1 | | | 60 | 36 | 15.9 | 10 | 63 | | MBA-M20 | PFAL | FMA38.1 |
| | | 90 | | 53.85 | 38 | | | | ④ | | PAS, PAO, PSE15···, PSTW12···<br>PSTW09··· | |
| | 40 | 80 | | 60 | 30 | 16.4 | 9.2 | | ③ | | PFAL | FMB40 |
| | | 90 | 22 | 56 | 28 | | 9 | | ② | | PSTW09···, PSTW12··· | |
| 160 | 25.4 | 80 | - | 40 | 28 | 9.5 | 6 | 50 | ③ | MBA-M12 | PFAL | FMC25.4 |
| | 27 | | | | | 12.4 | 7 | | | | PFAL | FMC27 |
| | 40 | 85 | | 60 | 30 | 16.4 | 9.2 | 63 | | MBA-M20 | PFAL | FMB40 |
| | 50.8 | 100 | | 70 | 38 | 19.1 | 11 | | | MBA-M24 | PFAL | FMA50.8 |
| | | | | 74.42 | | 19 | | | | | PAO | |
| 200 | 47.625 | 150 | - | - | 38 | 25.4 | 14 | 63 | ⑤ | M16 × 40(4本) | PAO | FMA47.625 |

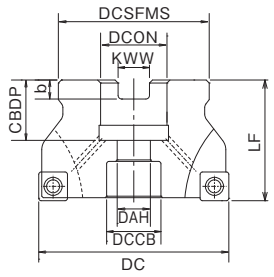
## ラフィングエンドミルボアタイプ Roughing End Mill Bore Type

| 外径 DC | 穴径 DCON | ボス径 DCSFMS | DAH | DCCB | 取り付け穴高さ CBDP | 端面キー溝幅 KWW | 端面キー溝深さ b | カッタ高さ LF | 形状 Type | キャップスクリュー・クランプボルト Clamping Screw | 適用カッタ Applicable Cutters | 推奨アーバ規格 Recommended Arbor Specification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 22 | 45 | 11 | 18.4 | 21 | 10.4 | 6.3 | 74 | ⑥ | M10 × 25 | PSEL15… | FMC22 |
| | | 48.5 | | 17 | | | | 75 | | | PSFL09… | |
| | | | | | | | | 100 | | | | |
| | 27 | | 13 | 18.5 | 23 | 12.4 | 7.0 | 75 | | M12 × 30 | | FMC27 |
| | | | | | | | | 100 | | | | |
| 63 | 27 | 60 | 13 | 21.8 | 23 | 12.4 | 7.0 | 74 | ⑥ | M12 × 30 | PSEL15… | FMC27 |
| | | 60.5 | | | | | | 85 | | | PSFL12… | |
| | | | | | | | | 125 | | | | |
| 80 | 32 | 76 | 18 | 28 | 28 | 14.4 | 8.0 | 88 | ⑥ | M16 × 70 | PSEL15… | FMC32 |
| | | 77.3 | | | | | | 95 | | | PSFL12… | |
| | | | | 25 | | | | 143 | | | | |
| 100 | 32 | 97 | 18 | 25 | 28 | 16.4 | 9.0 | 153 | ⑥ | M16 × 70 | PSFL12… | FMC32 |

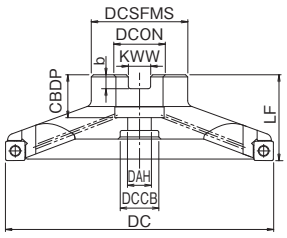
Type 1



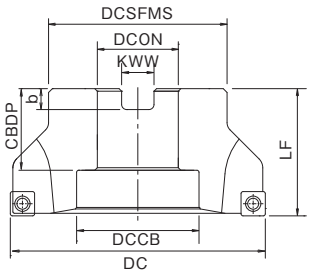

Type 2



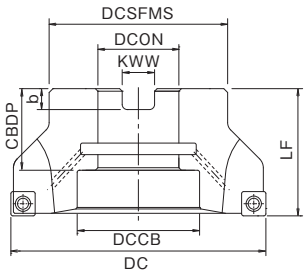

＊ディスクカッタPFDCに適用
*Applicable to PFDC disc cutter



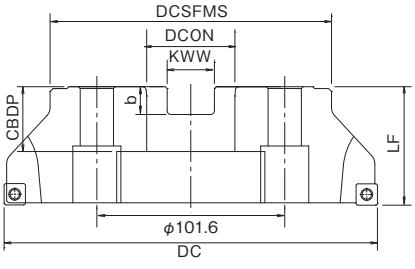

Type 3



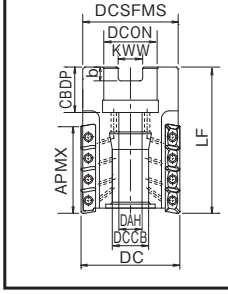

Type 4




Type 5




Type 6



# インデキサブルツール切削条件 目次 INDEX OF CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS


| 製品記号 Abbreviation | 仕様 Specification | ページ Page |
|---|---|---|
| **PAS** | OSG PHOENIX 正面フライススクエアタイプ<br>OSG PHOENIX Indexable 45° Face Milling Cutter Square Insert Type | **1071** |
| **PAO** | OSG PHOENIX 正面フライスオクタゴンタイプ<br>OSG PHOENIX Indexable 45° Face Milling Cutter Octagon Insert Type | **1072** |
| **PSE** | OSG PHOENIX 肩削り用カッタ<br>OSG PHOENIX Indexable Shoulder Cutter | **1073** |
| **PSEL** | OSG PHOENIX ラフィングエンドミル<br>OSG PHOENIX Indexable Roughing End Mill | **1076** |
| **PSF** | OSG PHOENIX 4コーナ肩削り用カッタ<br>OSG PHOENIX Indexable 4-Corner Shoulder Cutter | **1077** |
| **PSFL** | OSG PHOENIX 4コーナラフィングエンドミル<br>OSG PHOENIX Indexable 4-Corner Roughing End Mill | **1078** |
| **PFDC** | OSG PHOENIX ディスクカッタ<br>OSG PHOENIX Indexable Disc Cutter | **1079** |
| **PSTW** | OSG PHOENIX 6コーナ肩削り用カッタ<br>OSG PHOENIX Indexable 6-corner Shoulder Cutter Triangle W-sided Insert Type | **1080** |
| **PHC** | OSG PHOENIX 高送りラジアスカッタ<br>OSG PHOENIX Indexable High Feed Radius Cutter | **1081** |
| **PDR** | OSG PHOENIX 高送りラジアスカッタ<br>OSG PHOENIX Indexable Deep Feed Radius Cutter | **1083** |
| **PRC** | OSG PHOENIX 丸駒カッタ<br>OSG PHOENIX Indexable Radius Cutter | **1084** |
| **PFAL** | OSG PHOENIX アルミ合金用仕上げカッタ<br>OSG PHOENIX Indexable Finishing Cutter for Aluminum Alloys | **1085** |
| **PFB** | OSG PHOENIX 仕上げ用ボールエンドミル<br>OSG PHOENIX Indexable Finishing Ball End Mill | **1086** |
| **PFR** | OSG PHOENIX 仕上げ用ラジアスエンドミル<br>OSG PHOENIX Indexable Finishing End Mill with Corner Radius | **1090** |
| **PXM PXSE** | OSG PHOENIX ヘッド交換式エンドミル4枚刃不等分割スクエア・コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill 4-flute Unequal Spacing Square and Corner Radius Type | **1093** |
| **PXM PXVC** | OSG PHOENIX ヘッド交換式エンドミル4枚刃ハイヘリックス不等リードスクエア・コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill 4-flute High Helix Variable Lead Square and Corner Radius Type | **1094** |
| **PXM PXSM** | OSG PHOENIX ヘッド交換式エンドミル多刃不等分割スクエア・コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute Unequal Spacing Square and Corner Radius Type | **1098** |
| **PXM PXAL** | OSG PHOENIX ヘッド交換式エンドミル3枚刃スクエア・コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill 4-flute Square and Corner Radius Type | **1099** |
| **PXM PXNH** | OSG PHOENIX ヘッド交換式エンドミル4枚刃ラフィング形状不等リード強ねじれタイプ<br>OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead High Helix Type | **1101** |
| **PXM PXNL** | OSG PHOENIX ヘッド交換式エンドミル4枚刃ラフィング形状不等リード弱ねじれタイプ<br>OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead Low Helix Type | **1101** |
| **PXM PXRE** | OSG PHOENIX ヘッド交換式エンドミル直刃コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill Straight Flute with Corner Radius | **1102** |
| **PXM PXDR** | OSG PHOENIX ヘッド交換式エンドミル コーナラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill with Corner Radius | **1102** |
| **PXM PXSH** | OSG PHOENIX ヘッド交換式エンドミル高硬度鋼用多刃スクエア<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute Square Type for High-hardness Steels | **1103** |
| **PXM PXHF-AM** | OSG PHOENIX ヘッド交換式エンドミル多刃高送りラジアスタイプ<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute High Feed Radius Type | **1105** |
| **PXM PXBE** | OSG PHOENIX ヘッド交換式エンドミル3枚刃ボールタイプ<br>OSG PHOENIX Exchangeable Head End Mill 3-flute Ball Type | **1107** |
| **PXM PXBM** | OSG PHOENIX ヘッド交換式エンドミル多刃ボールタイプ<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute Ball Type | **1107** |
| **PXVC + PXMC** | OSG PHOENIX ヘッド交換式エンドミル4枚刃ハイヘリックス不等リードスクエア・コーナラジアスタイプ　PXVC + PXMC<br>OSG PHOENIX Exchangeable Head End Mill 4-flute High Helix Variable Lead Square and Corner Radius Type | **1108** |
| **PXAL + PXMC** | OSG PHOENIX ヘッド交換式エンドミル3枚刃スクエア・コーナラジアスタイプ　PXAL + PXMC<br>OSG PHOENIX Exchangeable Head End Mill 4-flute Square and Corner Radius Type | **1110** |
| **PXSH + PXMC** | OSG PHOENIX ヘッド交換式エンドミル高硬度鋼用多刃スクエア　PXSH + PXMC<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute Square Type for High-hardness Steels | **1112** |
| **PXHF-AM + PXMC** | OSG PHOENIX ヘッド交換式エンドミル多刃高送りラジアスタイプ　PXHF-AM + PXMC<br>OSG PHOENIX Exchangeable Head End Mill Multiple-flute High Feed Radius Type | **1114** |
| **PXNH + PXMC** | OSG PHOENIX ヘッド交換式エンドミル4枚刃ラフィング形状不等リード強ねじれタイプ　PXNH + PXMC<br>OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead High Helix Type | **1116** |
| **PMD** | OSG PHOENIX 多機能カッタ<br>OSG PHOENIX Indexable Multi-function Cutter | **1118** |

INDEX OF CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件 目次


| 製品記号<br>Abbreviation | 仕様<br>Specification | ページ<br>Page |
|---|---|---|
| **PZAG** | OSG PHOENIX 座ぐり用カッタ<br>OSG PHOENIX Counterboring Cutter | **1120** |
| **P2D** | OSG PHOENIX インデキサブルドリル2Dタイプ<br>OSG PHOENIX Indexable Drill (2D Type) | **1121** |
| **P3D** | OSG PHOENIX インデキサブルドリル3Dタイプ<br>OSG PHOENIX Indexable Drill (3D Type) | **1121** |
| **P4D** | OSG PHOENIX インデキサブルドリル4Dタイプ<br>OSG PHOENIX Indexable Drill (4D Type) | **1121** |
| **P5D** | OSG PHOENIX インデキサブルドリル5Dタイプ<br>OSG PHOENIX Indexable Drill (5D Type) | **1121** |
| **PXDZ** | OSG PHOENIX ヘッド交換式ドリル<br>OSG PHOENIX Exchangeable Head Drill | **1123** |
| **PDZ** | OSG PHOENIX インデキサブルフラットドリル<br>OSG PHOENIX Indexable Flat Drill | **1124** |
| **PHP** | OSG PHOENIX インデキサブルドリル3Dタイプ<br>OSG PHOENIX Indexable Drill (3D Type) | **1126** |
| **PLDS** | OSG PHOENIX インデキサブルリーディングドリル<br>OSG PHOENIX Indexable Centering and Chamfering Cutter | **1127** |
| **PMEN** | OSG PHOENIX 面取り用カッタ<br>OSG PHOENIX Chamfering Cutter | **1128** |

形状寸法表
SPECIFICATION CHARTS
PAS▶P942

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PAS

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut |
|---|---|---|---|---|---|
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 180 (100 ~ 250) | 0.18 (0.15 ~ 0.35) | 3 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180 (100 ~ 250) | 0.18 (0.15 ~ 0.35) | 3 |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 150 ( 80 ~ 200) | 0.15 (0.1 ~ 0.3) | 3 |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 120 ( 80 ~ 180) | 0.12 (0.08 ~ 0.25) | 3 |
| K | 鋳鉄 Cast Iron (FC250) | ~300N/mm$^2$ | 180 (100 ~ 350) | 0.2 (0.15 ~ 0.35) | 4 |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~600N/mm$^2$ | 180 (100 ~ 270) | 0.2 (0.1 ~ 0.3) | 3 |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100 ( 60 ~ 150) | 0.12 (0.08 ~ 0.2) | 1.5 |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 80 ( 40 ~ 120) | 0.1 (0.05 ~ 0.15) | 0.5 |
| H | 調質鋼 Hardened Steel (SKD11) | 50~60HRC | 60 ( 40 ~ 90) | 0.08 (0.05 ~ 0.15) | 0.5 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XC3025 | GM | 無 Dry | ◎ | | ○ | | | |
| XP3035 | GM | 無 Dry | ◎ | ○ | ○ | | | |
| | | 有 Wet | | | | | | |
| XP2040 | GM | 無 Dry | ○ | ○ | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | ○ | |
| XC1015 | GR | 無 Dry | | | ◎ | | | |

GM:中切削用 GR:重切削用
GM:Middle Cutting GR:Heavy Cutting

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PAO

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut |
|---|---|---|---|---|---|
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 180 (100 ~ 250) | 0.25 (0.2 ~ 0.5) | 2 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180 (100 ~ 250) | 0.25 (0.2 ~ 0.5) | 2 |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 150 ( 80 ~ 200) | 0.25 (0.15 ~ 0.4) | 2 |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 120 ( 80 ~ 180) | 0.2 (0.15 ~ 0.4) | 2 |
| K | 鋳鉄 Cast Iron (FC250) | ~300N/mm² | 200 (100 ~ 350) | 0.3 (0.2 ~ 0.5) | 2 |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~600N/mm² | 180 (100 ~ 270) | 0.28 (0.15 ~ 0.4) | 2 |
| S | 耐熱合金 Heat Resistant Alloy (Inconel718) | – | 35 ( 25 ~ 60) | 0.12 (0.05 ~ 0.2) | 1 |
| S | チタン合金 Titanium Alloy (Ti-6A-4V) | – | 40 ( 30 ~ 120) | 0.15 (0.1 ~ 0.25) | 1.5 |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100 ( 60 ~ 150) | 0.15 (0.1 ~ 0.25) | 1.5 |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 80 ( 40 ~ 120) | 0.12 (0.05 ~ 0.2) | 0.5 |
| H | 調質鋼 Hardened Steel (SKD11) | 50~60HRC | 60 ( 40 ~ 90) | 0.1 (0.05 ~ 0.2) | 0.5 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | | N | S | H |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | FC | FCD | | | |
| XC3020 | GL GM | 無 Dry | ◎ | | ○ | | | | |
| XP3025 | GL GM | 有 Wet | ◎ | | ○ | | | | |
| XC3030 | GL GM | 無 Dry | ◎ | | ○ | | | | |
| XP3035 | GL GM | 無 Dry / 有 Wet | ◎ | ○ | ○ | | | | |
| XP2025 | GL GM | 有 Wet | ○ | ◎ | | | | ○ | |
| XP2040 | GL GM | 無 Dry | ○ | ○ | | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | | ○ | |
| XC1015 | GM GR | 無 Dry | | | ◎ | ○ | | | |
| XP1020 | GM GR | 無 Dry | | | ○ | ◎ | | | |
| XC5040 | SM | 有 Wet | | ○ | | | | ◎ | |

GL:軽切削用 GM:中切削用 GR:重切削用 SM:耐熱合金用
GL:Light Cutting GM:Middle Cutting GR:Heavy Cutting SM:Heat Resistant Alloy

形状寸法表
SPECIFICATION CHARTS
PSE▶P946

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PSE

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | インサートサイズ Insert Size | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ZDKT07… | | | | ZD*T11… | | | | ZDKT15… | | | |
| | | | 切削深さap:6mm 切 削 幅 ae:0.15D | | 切削深さap:0.8mm 切 削 幅 ae:1.0D | | 切削深さap:10mm 切 削 幅 ae:0.2D | | 切削深さap:3mm 切 削 幅 ae:1.0D | | 切削深さap:14mm 切 削 幅 ae:0.2D | | 切削深さap:5mm 切 削 幅 ae:1.0D | |
| | | | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 180 (100~250) | 0.1 (0.04~0.12) | 180 (100~250) | 0.08 (0.04~0.1) | 180 (100~250) | 0.25 (0.2~0.5) | 180 (100~250) | 0.12 (0.05~0.2) | 180 (100~250) | 0.3 (0.2~0.6) | 180 (100~250) | 0.15 (0.05~0.25) |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180 (100~250) | 0.07 (0.04~0.1) | 180 (100~250) | 0.08 (0.04~0.1) | 180 (100~250) | 0.2 (0.15~0.4) | 180 (100~250) | 0.11 (0.05~0.2) | 180 (100~250) | 0.25 (0.15~0.5) | 180 (100~250) | 0.12 (0.05~0.2) |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 140 (80~180) | 0.07 (0.04~0.1) | 140 (80~180) | 0.07 (0.04~0.1) | 150 (80~200) | 0.2 (0.15~0.4) | 150 (80~200) | 0.1 (0.05~0.18) | 150 (80~200) | 0.25 (0.15~0.5) | 150 (80~200) | 0.12 (0.05~0.2) |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 140 (80~180) | 0.06 (0.04~0.08) | 140 (80~180) | 0.05 (0.04~0.08) | 150 (80~200) | 0.18 (0.15~0.4) | 150 (80~200) | 0.1 (0.05~0.18) | 150 (80~200) | 0.2 (0.15~0.45) | 150 (80~200) | 0.12 (0.05~0.2) |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 80 (60~100) | 0.06 (0.04~0.08) | 80 (60~100) | 0.05 (0.04~0.08) | 80 (60~120) | 0.18 (0.15~0.4) | 80 (60~120) | 0.1 (0.05~0.18) | 80 (60~120) | 0.2 (0.15~0.45) | 80 (60~120) | 0.12 (0.05~0.2) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 180 (100~300) | 0.1 (0.04~0.12) | 180 (100~300) | 0.1 (0.04~0.12) | 180 (100~300) | 0.25 (0.15~0.5) | 180 (100~300) | 0.12 (0.05~0.2) | 180 (100~300) | 0.3 (0.2~0.6) | 180 (100~300) | 0.15 (0.05~0.25) |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 180 (100~300) | 0.07 (0.04~0.1) | 180 (100~300) | 0.06 (0.04~0.08) | 180 (100~250) | 0.15 (0.1~0.4) | 180 (100~250) | 0.12 (0.05~0.2) | 180 (100~250) | 0.2 (0.15~0.5) | 180 (100~250) | 0.15 (0.05~0.25) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 300 (200~1,500) | 0.15 (0.04~0.3) | 300 (200~1,500) | 0.12 (0.04~0.2) | 300 (200~1,500) | 0.3 (0.2~0.5) | 300 (200~1,500) | 0.15 (0.1~0.25) | 300 (200~1,500) | 0.35 (0.2~0.6) | 300 (200~1,500) | 0.18 (0.1~0.3) |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel718) | – | 35 (25~60) | 0.07 (0.04~0.1) | 35 (25~60) | 0.06 (0.04~0.08) | 35 (25~60) | 0.15 (0.1~0.3) | 35 (25~60) | 0.1 (0.05~0.15) | 35 (25~60) | 0.2 (0.1~0.3) | 35 (25~60) | 0.12 (0.05~0.15) |
| S | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 45 (35~70) | 0.07 (0.04~0.1) | 45 (35~70) | 0.07 (0.04~0.1) | 40 (30~120) | 0.18 (0.1~0.35) | 40 (30~120) | 0.1 (0.08~0.25) | 40 (30~120) | 0.22 (0.1~0.35) | 40 (30~120) | 0.12 (0.08~0.25) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100 (40~150) | 0.08 (0.04~0.12) | 100 (40~150) | 0.06 (0.04~0.08) | 100 (40~150) | 0.18 (0.1~0.3) | 90 (40~150) | 0.1 (0.08~0.2) | 100 (40~150) | 0.22 (0.1~0.35) | 90 (40~150) | 0.12 (0.08~0.25) |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 80 (40~100) | 0.06 (0.03~0.08) | 80 (40~100) | 0.06 (0.03~0.08) | 80 (40~120) | 0.12 (0.08~0.2) | 70 (40~120) | 0.08 (0.06~0.15) | 80 (40~120) | 0.15 (0.08~0.25) | 70 (40~120) | 0.1 (0.06~0.2) |
| H | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 60 (40~70) | 0.06 (0.03~0.08) | 60 (40~70) | 0.06 (0.03~0.08) | 60 (40~90) | 0.1 (0.05~0.2) | 50 (40~90) | 0.06 (0.05~0.1) | 60 (40~90) | 0.12 (0.05~0.2) | 50 (40~90) | 0.08 (0.05~0.12) |

・溝加工はコースピッチを推奨します。　・上記条件表はショートシャンクタイプにおける推奨値となります。
・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
・ Course pitch is recommended for Slotting.　・ Above recommended speed is for Short Shank Type.
・ The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| CK010 | NM | 有 Wet | | | | ◎ | | |
| XC3020 | GL GM GR | 無 Dry | ◎ | | ○ | | | |
| XP3025 | GL GM GR | 有 Wet | ◎ | | ○ | | | |
| XC3030 | GL GM GR | 無 Dry | ◎ | | ○ | | | |
| XP3035 | GL GM GR | 無 Dry | ◎ | ○ | ○ | | | |
| | | 有 Wet | | | | | | |

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XP2025 | GL GM | 有 Wet | ○ | ◎ | | | ○ | |
| XP2040 | GL GM GR | 無 Dry | ○ | ○ | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | ○ | |
| XC1015 | GM GR | 無 Dry | | | ◎ | | | |
| XC5035 | SM | 無 Dry | | ◎ | | | | |
| | | 有 Wet | | ○ | | | ○ | |
| XC5040 | SM | 有 Wet | | ○ | | | ◎ | |
| XP6015 | HR | 無 Dry | ○ | | ○ | | | ◎ |

NM:アルミニウム合金用　GL:軽切削用　GM:中切削用　GR:重切削用　HR:高硬度鋼用　SM:耐熱合金用
NM:Aluminum Alloy　GL:Light Cutting　GM:Middle Cutting　GR:Heavy Cutting　HR:High Hardened Steel　SM:Heat Resistance Alloy

形状寸法表
SPECIFICATION CHARTS
PSE▶P946

# CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS インデキサブルツール切削条件基準表

## 自動旋盤用 For sliding head lathes

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | インサートサイズ Insert Size ZDKT07… 切削深さap:2mm 切削幅ae:0.7D 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz (mm/t) Feed Per Tooth | 切削深さap:0.5mm 切削幅ae:1.0D 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz (mm/t) Feed Per Tooth |
|---|---|---|---|---|---|---|
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 60 ( 40 ~ 80) | 0.07 ( 0.03 ~ 0.1) | 60 ( 40 ~ 80) | 0.04 ( 0.02 ~ 0.06) |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 60 ( 40 ~ 80) | 0.07 ( 0.03 ~ 0.1) | 60 ( 40 ~ 80) | 0.04 ( 0.02 ~ 0.06) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 60 ( 40 ~ 80) | 0.07 ( 0.03 ~ 0.1) | 60 ( 40 ~ 80) | 0.04 ( 0.02 ~ 0.06) |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 50 ( 40 ~ 70) | 0.07 ( 0.03 ~ 0.1) | 50 ( 40 ~ 70) | 0.04 ( 0.02 ~ 0.05) |
| | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 40 ( 20 ~ 60) | 0.05 ( 0.03 ~ 0.06) | 40 ( 20 ~ 60) | 0.04 ( 0.02 ~ 0.05) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 60 ( 40 ~ 80) | 0.07 ( 0.03 ~ 0.1) | 60 ( 40 ~ 80) | 0.05 ( 0.02 ~ 0.08) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 60 ( 40 ~ 80) | 0.07 ( 0.03 ~ 0.1) | 60 ( 40 ~ 80) | 0.05 ( 0.02 ~ 0.08) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 190 ( 80 ~ 300) | 0.08 ( 0.03 ~ 0.12) | 190 ( 80 ~ 300) | 0.07 ( 0.03 ~ 0.1) |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel 718) | – | 35 ( 20 ~ 50) | 0.05 ( 0.03 ~ 0.06) | 35 ( 20 ~ 50) | 0.04 ( 0.02 ~ 0.05) |
| | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 40 ( 20 ~ 60) | 0.05 ( 0.03 ~ 0.06) | 40 ( 20 ~ 60) | 0.04 ( 0.02 ~ 0.05) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 50 ( 40 ~ 70) | 0.07 ( 0.03 ~ 0.1) | 50 ( 40 ~ 70) | 0.04 ( 0.02 ~ 0.05) |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 40 ( 30 ~ 50) | 0.05 ( 0.03 ~ 0.08) | 40 ( 30 ~ 50) | 0.04 ( 0.03 ~ 0.06) |
| | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 40 ( 30 ~ 50) | 0.05 ( 0.03 ~ 0.08) | 40 ( 30 ~ 50) | 0.04 ( 0.03 ~ 0.06) |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
・ The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

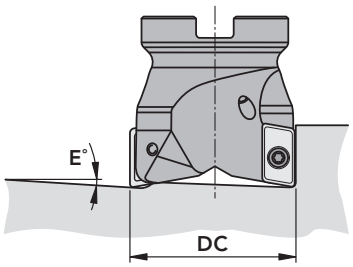
形状寸法表
SPECIFICATION CHARTS
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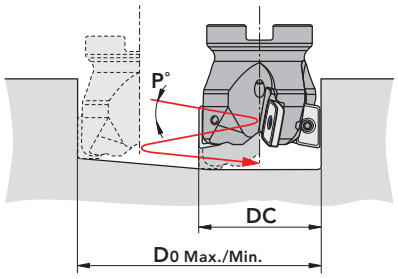
# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PSE

**■ランピング加工時の最大傾斜角(E°)とヘリカル加工時の最大傾斜角(P°)** Maximum Ramping (E) and Helical (P) Angle

| インサートサイズ Insert Size | ZDKT07… | | | | ZD*T11… | | | | ZDKT15… | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径(mm) DC | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) 最小径 Do Min. | ヘリカル穴あけ Helical Milling (mm) 最大径 Do Max. | ヘリカル角度 Helical Angle P° | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) 最小径 Do Min. | ヘリカル穴あけ Helical Milling (mm) 最大径 Do Max. | ヘリカル角度 Helical Angle P° | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) 最小径 Do Min. | ヘリカル穴あけ Helical Milling (mm) 最大径 Do Max. | ヘリカル角度 Helical Angle P° |
| 10 | 6 | 14 | 19 | 4.5 | – | – | – | – | – | – | – | – |
| 12 | 4.5 | 17 | 23 | 2.2 | – | – | – | – | – | – | – | – |
| 16 | 2.8 | 25 | 31 | 1.1 | 10.8 | 18 | 29 | 9.5 | – | – | – | – |
| 17 | 2.6 | 27 | 33 | 1 | 9.8 | 22 | 31 | 7 | – | – | – | – |
| 18 | – | – | – | – | 9.8 | 22 | 33 | 7 | – | – | – | – |
| 20 | 2.1 | 33 | 39 | 0.8 | 9.8 | 30 | 37 | 7 | – | – | – | – |
| 21 | 2 | 35 | 41 | 0.7 | 8.5 | 32 | 39 | 4.5 | – | – | – | – |
| 22 | – | – | – | – | 7.5 | 34 | 41 | 4.5 | – | – | – | – |
| 25 | 1.6 | 43 | 49 | 0.5 | 7.5 | 40 | 47 | 4.5 | 9.5 | 37 | 48 | 7.5 |
| 26 | 1.5 | 45 | 51 | 0.5 | 6.8 | 42 | 49 | 4.2 | 8.3 | 38 | 50 | 6 |
| 28 | – | – | – | – | 6.3 | 46 | 53 | 3.9 | 8.3 | 39 | 54 | 5.6 |
| 30 | – | – | – | – | 5.5 | 50 | 57 | 3.4 | 7.4 | 43 | 58 | 5.3 |
| 32 | 1.1 | 57 | 63 | 0.4 | 4.8 | 53 | 61 | 3.2 | 6.8 | 47 | 62 | 5 |
| 33 | – | – | – | – | 4.5 | 56 | 63 | 3 | 6.3 | 49 | 64 | 4.2 |
| 35 | – | – | – | – | 3.2 | 60 | 67 | 2.5 | 5.9 | 53 | 68 | 3.8 |
| 40 | – | – | – | – | 2.9 | 72 | 77 | 2.2 | 5.1 | 63 | 78 | 3.2 |
| 50 | – | – | – | – | 2.2 | 93 | 98 | 1.7 | 2.5 | 86 | 98 | 2.5 |
| 63 | – | – | – | – | 1.8 | 118 | 123 | 1.5 | 2.5 | 111 | 124 | 1.5 |
| 80 | – | – | – | – | 1.4 | 152 | 157 | 1 | 2 | 147 | 158 | 1.3 |
| 100 | – | – | – | – | – | – | – | – | 1.5 | 190 | 198 | 1.1 |
| 125 | – | – | – | – | – | – | – | – | 0.9 | 240 | 248 | 0.9 |



CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PSEL

| | 被削材 Work Material | 引張強さ・硬さ 成分等 Tensile Strength ・Hardness | インサートサイズ Insert Size ZD*T11… 切削速度 Vc (m/min) Cutting Speed | ZD*T11… 一刃当たりの送り量 fz (mm/t) Feed Per Tooth | ZDKT15… 切削速度 Vc (m/min) Cutting Speed | ZDKT15… 一刃当たりの送り量 fz (mm/t) Feed Per Tooth |
|---|---|---|---|---|---|---|
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 160 (100 ~ 200) | 0.25 (0.2 ~ 0.4) | 160 (100 ~ 200) | 0.3 (0.2 ~ 0.4) |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 150 (100 ~ 200) | 0.2 (0.15 ~ 0.3) | 150 (100 ~ 200) | 0.25 (0.15 ~ 0.3) |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 130 (80 ~ 180) | 0.2 (0.15 ~ 0.3) | 130 (80 ~ 180) | 0.25 (0.15 ~ 0.3) |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 150 (100 ~ 200) | 0.12 (0.1 ~ 0.3) | 150 (100 ~ 200) | 0.15 (0.1 ~ 0.3) |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 80 (60 ~ 120) | 0.12 (0.1 ~ 0.3) | 80 (60 ~ 120) | 0.15 (0.1 ~ 0.3) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 160 (100 ~ 300) | 0.2 (0.2 ~ 0.35) | 160 (100 ~ 300) | 0.25 (0.2 ~ 0.35) |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 160 (100 ~ 250) | 0.15 (0.2 ~ 0.3) | 160 (100 ~ 250) | 0.2 (0.2 ~ 0.3) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 300 (200 ~ 1,000) | 0.25 (0.1 ~ 0.4) | 300 (200 ~ 1,000) | 0.3 (0.1 ~ 0.4) |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel 718) | – | 35 (25 ~ 60) | 0.15 (0.1 ~ 0.3) | 35 (25 ~ 60) | 0.18 (0.1 ~ 0.3) |
| S | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 40 (30 ~ 120) | 0.15 (0.1 ~ 0.3) | 40 (30 ~ 120) | 0.18 (0.1 ~ 0.3) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100 (40 ~ 150) | 0.15 (0.1 ~ 0.3) | 100 (40 ~ 150) | 0.18 (0.1 ~ 0.3) |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 60 (40 ~ 120) | 0.12 (0.05 ~ 0.2) | 60 (40 ~ 120) | 0.15 (0.05 ~ 0.2) |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

### ■切込深さを変えた時の条件変更の目安 Ratio of cutting condition by cutting depth to the above standard condition

| 切込深さ Depth of Cut ap (mm) | 最大切込幅 Maximum width of Cut ae (mm) | 切削速度係数 Ratio to adjust cutting speed VP | 送り係数 Ratio to adjust feed rate fP |
|---|---|---|---|
| ~ 0.2D | 1D | 0.8 | 0.5 |
| 0.25 ~ 0.3D | 0.7D | 0.8 | 0.6 |
| 0.4 ~ 0.5D | 0.5D | 0.9 | 0.7 |
| 0.6 ~ 0.7D | 0.3D | 0.9 | 0.8 |
| 0.8 ~ 1D | 0.2D | 1 | 0.9 |
| 1.1 ~ 1.5D | 0.1D | 1 | 1 |

例 Example
インサートサイズ ZD*T11…、側面切削
φ32、ap＝30mm、S50C 切削時
Insert size ZD*T11…, for cutting ø32, ap=30, side milling, for carbon steel (S50C) machining
・150m/min(Vc)×1.0(VP)＝150m/min
・0.2mm/t(fz)×0.9(fP)＝0.18mm/t
・ae:0.2×φ32＝6.4mm以下 or less

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| CK010 | NM | 有 Wet | | | | ◎ | | |
| XC3020 | GL GM GR | 無 Dry | ◎ | | ○ | | | |
| XP3025 | GL GM GR | 有 Wet | ◎ | | ○ | | | |
| XC3030 | GL GM GR | 無 Dry | ◎ | | ○ | | | |
| XP3035 | GL GM GR | 無 Dry | ◎ | ○ | ○ | | | |
| | | 有 Wet | | | | | | |

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XP2025 | GL GM | 有 Wet | ○ | ◎ | | | ○ | |
| XP2040 | GL GM GR | 無 Dry | ○ | ○ | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | ○ | |
| XC1015 | GM GR | 無 Dry | | | ◎ | | | |
| XC5035 | SM | 無 Dry | | ◎ | | | | |
| | | 有 Wet | | ○ | | | ○ | |
| XC5040 | SM | 有 Wet | | ○ | | | ◎ | |
| XP6015 | HR | 無 Dry | ○ | | ○ | | | ◎ |

NM:アルミニウム合金用 GL:軽切削用 GM:中切削用 GR:重切削用 HR:高硬度鋼用 SM:耐熱合金用
NM:Aluminum Alloy GL:Light Cutting GM:Middle Cutting GR:Heavy Cutting HR:High Hardened Steel SM:Heat Resistance Alloy

切込深さ(ap) 1.1 ~1.5D、
切込幅(ae) 0.1D以下での条件表です。
The chart below is based on the following condition:
·Depth of Cut (ap) : between 1.1D to 1.5D
·Cutting Width (ae) ≦0.1D

形状寸法表
SPECIFICATION CHARTS
PSF▶P963

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PSF

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut |
|---|---|---|---|---|---|
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 180 ( 100 ~ 250) | 0.12 ( 0.05 ~ 0.2) | 3 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180 ( 100 ~ 250) | 0.12 ( 0.05 ~ 0.2) | 3 |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 150 ( 80 ~ 200) | 0.1 ( 0.05 ~ 0.18) | 3 |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 150 ( 80 ~ 200) | 0.1 ( 0.05 ~ 0.18) | 2 |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 80 ( 60 ~ 120) | 0.1 ( 0.05 ~ 0.18) | 2 |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 180 ( 100 ~ 350) | 0.12 ( 0.05 ~ 0.2) | 3 |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 180 ( 100 ~ 270) | 0.12 ( 0.05 ~ 0.2) | 3 |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 300 ( 200 ~ 1,500) | 0.15 ( 0.1 ~ 0.25) | 3 |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel 718) | – | 35 ( 25 ~ 60) | 0.1 ( 0.05 ~ 0.15) | 1.5 |
| S | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 40 ( 30 ~ 120) | 0.1 ( 0.05 ~ 0.18) | 1.5 |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 90 ( 40 ~ 150) | 0.1 ( 0.08 ~ 0.2) | 1.5 |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 70 ( 40 ~ 120) | 0.08 ( 0.06 ~ 0.15) | 0.5 |
| H | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 50 ( 40 ~ 90) | 0.06 ( 0.05 ~ 0.1) | 0.5 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| CK010 | NM | 有 Wet | | | | ◎ | | |
| XP4610 | NM | 無 Dry | | | | ◎ | | |
| | | 有 Wet | | | | ◎ | | |
| XC3030 | GL GM | 無 Dry | ◎ | | ○ | | | |
| XP3035 | GL GM | 無 Dry | ◎ | ○ | ○ | | | |
| | | 有 Wet | | | | | | |
| XP2040 | GL GM | 無 Dry | ○ | ○ | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | ○ | |
| XC1015 | GR | 無 Dry | | | ◎ | | | |
| XC5040 | GL | 有 Wet | | ○ | | | ◎ | |

NM:アルミニウム合金用 GL:軽切削用 GM:中切削用 GR:重切削用
NM:Aluminum Alloy GL:Light Cutting GM:Middle Cutting GR:Heavy Cutting

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PSFL

| 被削材 Work Material | | 引張強さ・硬さ 成分等 Tensile Strength ・Hardness | インサートサイズ Insert Size | | | |
|---|---|---|---|---|---|---|
| | | | SD*T09… | | SD*T12… | |
| | | | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz (mm/t) Feed Per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz (mm/t) Feed Per Tooth |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 160 (100 ~ 200) | 0.25 (0.2 ~ 0.4) | 160 (100 ~ 200) | 0.3 (0.2 ~ 0.4) |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 150 (100 ~ 200) | 0.2 (0.15 ~ 0.3) | 150 (100 ~ 200) | 0.25 (0.15 ~ 0.3) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 130 ( 80 ~ 180) | 0.2 (0.15 ~ 0.3) | 130 ( 80 ~ 180) | 0.25 (0.15 ~ 0.3) |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 150 (100 ~ 200) | 0.12 (0.1 ~ 0.3) | 150 (100 ~ 200) | 0.15 (0.1 ~ 0.3) |
| | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 80 ( 60 ~ 120) | 0.12 (0.1 ~ 0.3) | 80 ( 60 ~ 120) | 0.15 (0.1 ~ 0.3) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 160 (100 ~ 300) | 0.2 (0.15 ~ 0.35) | 160 (100 ~ 300) | 0.25 (0.2 ~ 0.4) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 160 (100 ~ 250) | 0.2 (0.15 ~ 0.3) | 160 (100 ~ 250) | 0.2 (0.15 ~ 0.35) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 300 (200 ~ 1,000) | 0.25 (0.1 ~ 0.4) | 300 (200 ~ 1,000) | 0.3 (0.1 ~ 0.4) |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel 718) | – | 35 ( 25 ~ 60) | 0.15 (0.08 ~ 0.3) | 35 ( 25 ~ 60) | 0.18 (0.1 ~ 0.3) |
| | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 40 ( 30 ~ 120) | 0.15 (0.08 ~ 0.3) | 40 ( 30 ~ 120) | 0.18 (0.1 ~ 0.3) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100 ( 40 ~ 150) | 0.15 (0.08 ~ 0.3) | 100 ( 40 ~ 150) | 0.18 (0.1 ~ 0.3) |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 60 ( 40 ~ 120) | 0.12 (0.05 ~ 0.2) | 60 ( 40 ~ 120) | 0.15 (0.05 ~ 0.2) |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

### ■切込深さを変えた時の条件変更の目安 Ratio of cutting condition by cutting depth to the above standard condition

| 切込深さ Depth of Cut ap (mm) | 最大切込幅 Maximum width of Cut ae (mm) | 切削速度係数 Ratio to adjust cutting speed VP | 送り速度係数 Ratio to adjust feed rate fP |
|---|---|---|---|
| ~ 0.2D | 1D | 0.8 | 0.5 |
| 0.2 ~ 0.3D | 0.7D | 0.8 | 0.6 |
| 0.4 ~ 0.5D | 0.5D | 0.9 | 0.7 |
| 0.6 ~ 0.7D | 0.3D | 0.9 | 0.8 |
| 0.8 ~ 1D | 0.2D | 1 | 0.9 |
| 1.1 ~ 1.5D | 0.1D | 1 | 1 |

例 Example
インサートサイズ SD*T09…、側面切削
φ50、ap＝50mm、S50C 切削時
Insert size SD*T09…, for cutting ø50, ap=50, side milling, for carbon steel (S50C) machining
・150m/min(Vc)×1.0(VP)＝150m/min
・0.2mm/t(fz)×0.9(fP)＝0.18mm/t
・ae:0.2×φ50＝10mm以下 or less

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| CK010 | NM | 有 Wet | | | | ◎ | | |
| XC3030 | GL GM | 無 Dry | ◎ | | ○ | | | |
| XP3035 | GL GM | 無 Dry | ◎ | ○ | ○ | | | |
| | | 有 Wet | | | | | | |
| XP2040 | GL GM | 無 Dry | ○ | ○ | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | ○ | |
| XC1015 | GR | 無 Dry | | | ◎ | | | |
| XC5040 | GL | 有 Wet | | ○ | | | ◎ | |

NM:アルミニウム合金用 GL:軽切削用 GM:中切削用 GR:重切削用
NM:Aluminum Alloy GL:Light Cutting GM:Middle Cutting GR:Heavy Cutting

切込深さ(ap) 1.1 ~1.5D、
切込幅(ae) 0.1D以下での条件表です。
The chart below is based on the following condition:
·Depth of Cut (ap) : between 1.1D to 1.5D
·Cutting Width (ae) ≦0.1D

形状寸法表
SPECIFICATION CHARTS
PFDC▶P967

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PFDC

| | 被削材 Work Material | 成分 Component | 材質記号 Material Symbol | 適用インサート Inserts SDHT09T308FR-NM 切削速度 Vc (m/min) Cutting Speed | SDHT09T308FR-NM 一刃当たりの送り量 fz (mm/t) Feed per Tooth | SDHT09T308FR-NM 切込深さ ap (mm) Depth of Cut | SDHW09T3AZFR 切削速度 Vc (m/min) Cutting Speed | SDHW09T3AZFR 送り量 f (mm/rev) Feed Rate | SDHW09T3AZFR 切込深さ ap (mm) Depth of Cut |
|---|---|---|---|---|---|---|---|---|---|
| N | アルミニウム合金 Aluminum Alloy | ~12% Si | A7075·A5052·A2017 他 etc. ADC12 他 etc. | 200~2,500 | 0.15 (0.05~0.25) | 3 | 3,500 (3,000~4,000) | 0.05 (0.01~0.1) | 0.05 |
| | | 13% Si~ | AC9A·AC98 他 etc. | 100~ 300 | 0.15 (0.05~0.25) | 3 | 3,500 (3,000~4,000) | 0.05 (0.01~0.1) | 0.05 |
| | 銅 Copper | – | C1100 | 400~1,000 | 0.1 (0.05~0.2) | 2 | 3,500 (3,000~4,000) | 0.05 (0.01~0.1) | 0.02 |
| | 熱可塑性樹脂 Thermoplastic Resin | – | MCナイロン・PVC・POM・PTFE(乾式) MC Nylon·PVC·POM·PTFE (dry) | 2,700 (1,500~4,000) | 0.1 (0.05~0.15) | 2 | – | – | – |
| | | – | PP·6ナイロン(乾式) PP·6 Nylon (dry) | 3,800 (3,500~4,000) | 0.1 (0.05~0.15) | 2 | – | – | – |
| | | – | アクリル・透明PVC(乾式) Acrylic·Transparent PVC (dry) | 1,700 (1,000~2,500) | 0.03 (0.02~0.05) | 2 | 3,500 (3,000~4,000) | 0.02 (0.01~0.05) | 0.02 |
| | | – | アクリル・透明PVC(湿式) Acrylic·Transparent PVC (wet) | 2,000 (1,000~3,500) | 0.03 (0.02~0.05) | 2 | 3,500 (2,000~4,000) | 0.02 (0.01~0.05) | 0.02 |
| | 熱硬化性樹脂 Thermosetting Resin | – | ベークライト(乾式) Bakelite(dry) | 1,600 ( 600~2,200) | 0.1 (0.05~0.15) | 2 | – | – | – |

※上記数字は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
*The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
※最高回転数10,000(min⁻¹)を超えない範囲でご使用下さい。
*Please use within a range that does not exceed the maximum spindle speed of 10,000(min⁻¹).
※樹脂加工にはSDHT09T308-NM XP4610を推奨します。非鉄金属の鏡面加工、透明度の高い樹脂加工にはSDHW09T3AZFR DM001をご使用下さい。
*SDHT09T308-NM XP4610 is recommended for resin processing. For mirror finishing of non-ferrous metals and highly transparent resin processing, please use SDHW09T3AZFR DM001.
※SDHW09T3AZFRをご使用の場合は、送り速度を1枚刃として設定して下さい。
*When using SDHW09T3AZFR, please set the feed to 1 flute.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| CK010 | NM | 有 Wet | | | | ◎ | | |
| XP4610 | NM | 無 Dry | | | | ◎ | | |
| | | 有 Wet | | | | ◎ | | |
| DM001 | – | 無 Dry | | | | ◎ | | |
| | | 有 Wet | | | | ◎ | | |

NM:アルミニウム合金用·樹脂用
NM:Aluminum Alloy·Resin

在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C (Standard stock item).

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PSTW

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | インサートサイズ Insert Size | | | |
|---|---|---|---|---|---|---|---|
| | | | | TN*U09… | | TN*U12… | |
| | | | | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切込深さ ap(mm) Depth of Cut | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切込深さ ap(mm) Depth of Cut |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 180 ( 100 ~ 250) | 0.12 ( 0.05 ~ 0.2) | 2 | 0.15 ( 0.05 ~ 0.25) | 3 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180 ( 100 ~ 250) | 0.12 ( 0.05 ~ 0.2) | 2 | 0.15 ( 0.05 ~ 0.25) | 3 |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 150 ( 80 ~ 200) | 0.1 ( 0.05 ~ 0.18) | 2 | 0.12 ( 0.05 ~ 0.2) | 3 |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 150 ( 80 ~ 200) | 0.08 ( 0.05 ~ 0.16) | 1.5 | 0.1 ( 0.05 ~ 0.18) | 2 |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 80 ( 60 ~ 120) | 0.08 ( 0.05 ~ 0.16) | 1.5 | 0.1 ( 0.05 ~ 0.18) | 2 |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 200 ( 100 ~ 350) | 0.15 ( 0.05 ~ 0.25) | 2 | 0.2 ( 0.1 ~ 0.3) | 3 |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 180 ( 100 ~ 270) | 0.12 ( 0.05 ~ 0.2) | 2 | 0.15 ( 0.05 ~ 0.25) | 3 |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 300 ( 200 ~ 1,500) | 0.12 ( 0.08 ~ 0.25) | 2 | 0.15 ( 0.1 ~ 0.3) | 3 |
| S | 耐熱合金(湿式) Heat Resistant Alloy (Wet) (Inconel 718) | – | 35 ( 25 ~ 60) | 0.06 ( 0.04 ~ 0.1) | 0.8 | 0.08 ( 0.05 ~ 0.15) | 1 |
| S | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 40 ( 30 ~ 120) | 0.06 ( 0.04 ~ 0.1) | 1 | 0.08 ( 0.05 ~ 0.15) | 1.5 |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100 ( 50 ~ 150) | 0.08 ( 0.06 ~ 0.15) | 1 | 0.1 ( 0.08 ~ 0.2) | 1.5 |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 80 ( 40 ~ 120) | 0.06 ( 0.05 ~ 0.13) | 0.8 | 0.08 ( 0.06 ~ 0.15) | 1 |
| H | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 60 ( 40 ~ 90) | 0.05 ( 0.04 ~ 0.08) | 0.4 | 0.06 ( 0.05 ~ 0.1) | 0.5 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
・ The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

### ■被削材別推奨材質

Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | | N | S | H |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | FC | FCD | | | |
| CK010 | NM | 有 Wet | | | | | ◎ | | |
| XP4610 | NM | 無 Dry | | | | | ◎ | | |
| | | 有 Wet | | | | | ◎ | | |
| XC3020 | GM | 無 Dry | ◎ | | ○ | | | | |
| XP3025 | GM | 有 Wet | ◎ | | ○ | | | | |
| XC3030 | GL GM | 無 Dry | ◎ | | ○ | | | | |
| XP3035 | GL GM | 無 Dry | ◎ | ○ | ○ | | | | |
| | | 有 Wet | | | | | | | |
| XP2040 | GL GM | 無 Dry | ○ | ○ | | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | | ○ | |
| XC1015 | GM GR | 無 Dry | | | ◎ | ○ | | | |
| XP1020 | GM GR | 無 Dry | | | ○ | ◎ | | | |
| XC5040 | SM | 有 Wet | | ○ | | | | ◎ | |

NM:アルミニウム合金用 GL:軽切削用 GM:中切削用 GR:重切削用 SM:耐熱合金用
NM:Aluminum Alloy GL:Light Cutting GM:Middle Cutting GR:Heavy Cutting SM:Superalloy

形状寸法表
SPECIFICATION CHARTS
PHC▶P972

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PHC

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | インサートサイズ Insert Size | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | SPMT07… | | | | SDMT09… | | | | SXMT12… | | | |
| | | | | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut | | | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut | | | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut | | |
| | | | | | L/D=2 | L/D=3 | L/D=4 | | L/D=2 | L/D=3 | L/D=4 | | L/D=2 | L/D=3 | L/D=4 |
| P | 軟鋼、低炭素鋼 Mild Steel, Low Carbon Steel (SS400, S10C) | ~180HB | 180 (60 ~ 250) | 0.7 (0.3 ~ 1.5) | 0.8 | 0.6 | 0.4 | 0.8 (0.3 ~ 1.8) | 1 | 0.8 | 0.5 | 1.25 (0.5 ~ 3.2) | 1.2 | 1.2 | 1 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180 (60 ~ 250) | 0.7 (0.3 ~ 1.3) | 0.8 | 0.6 | 0.4 | 0.8 (0.3 ~ 1.5) | 1 | 0.8 | 0.5 | 1.25 (0.5 ~ 3) | 1.2 | 1.2 | 1 |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 180 (60 ~ 250) | 0.7 (0.3 ~ 1.3) | 0.6 | 0.5 | 0.3 | 0.8 (0.3 ~ 1.5) | 0.8 | 0.6 | 0.4 | 1.25 (0.5 ~ 3) | 1.2 | 1.2 | 1 |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 160 (80 ~ 200) | 0.4 (0.3 ~ 1.2) | 0.6 | 0.5 | 0.3 | 0.5 (0.3 ~ 1.5) | 0.8 | 0.6 | 0.4 | 1 (0.5 ~ 2.5) | 1.2 | 1 | 1 |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 120 (60 ~ 180) | 0.4 (0.3 ~ 1.2) | 0.6 | 0.5 | 0.3 | 0.5 (0.3 ~ 1.5) | 0.8 | 0.6 | 0.4 | 1 (0.5 ~ 2.5) | 1.2 | 1 | 1 |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 200 (100 ~ 300) | 0.8 (0.4 ~ 1.5) | 0.8 | 0.6 | 0.4 | 1 (0.5 ~ 1.8) | 1 | 0.8 | 0.5 | 1.5 (0.5 ~ 3.5) | 1.5 | 1.5 | 1 |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 180 (100 ~ 250) | 0.7 (0.3 ~ 1.3) | 0.8 | 0.6 | 0.4 | 0.9 (0.5 ~ 1.5) | 1 | 0.8 | 0.5 | 1.35 (0.5 ~ 3) | 1.2 | 1.2 | 0.9 |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel718) | – | 30 (25 ~ 60) | 0.3 (0.2 ~ 0.7) | 0.4 | 0.4 | 0.3 | 0.4 (0.2 ~ 0.8) | 0.5 | 0.5 | 0.4 | 0.5 (0.2 ~ 1) | 1 | 1 | 0.8 |
| S | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 80 (50 ~ 120) | 0.4 (0.3 ~ 0.8) | 0.4 | 0.4 | 0.3 | 0.5 (0.3 ~ 1) | 0.5 | 0.5 | 0.3 | 0.7 (0.3 ~ 1.2) | 0.8 | 0.8 | 0.4 |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 120 (40 ~ 150) | 0.4 (0.2 ~ 0.8) | 0.4 | 0.4 | 0.3 | 0.5 (0.2 ~ 1) | 0.5 | 0.5 | 0.3 | 0.8 (0.3 ~ 1.5) | 1 | 1 | 0.5 |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 90 (40 ~ 120) | 0.3 (0.2 ~ 0.6) | 0.4 | 0.4 | 0.3 | 0.4 (0.2 ~ 0.8) | 0.5 | 0.5 | 0.3 | 0.7 (0.3 ~ 1.2) | 0.7 | 0.7 | 0.5 |
| H | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 60 (40 ~ 90) | 0.2 (0.2 ~ 0.5) | 0.3 | 0.3 | 0.2 | 0.3 (0.2 ~ 0.7) | 0.3 | 0.3 | 0.2 | 0.5 (0.3 ~ 0.8) | 0.5 | 0.5 | 0.4 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

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### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XC3020 | GM | 無 Dry | ◎ | | ○ | | | |
| XP3025 | GM | 有 Wet | ◎ | | ○ | | | |
| XC3030 | GM | 無 Dry | ◎ | | ○ | | | |
| XP3035 | GM | 無 Dry | ◎ | ○ | ○ | | | |
| | | 有 Wet | | | | | | |
| XP2025 | GM | 有 Wet | ○ | ◎ | | | ○ | |
| XP2040 | GM | 無 Dry | ○ | ○ | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | ○ | |
| XC1015 | GM | 無 Dry | | | ◎ | | | |
| XC5035 | SM | 無 Dry | | ◎ | | | | |
| | | 有 Wet | | ○ | | | ○ | |
| XC5040 | SM | 有 Wet | | ○ | | | ◎ | |

GM:中切削用　SM:耐熱合金用
GM:Middle Cutting　SM:Heat Resistance Alloy

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

前ページより
FROM

## PHC

**■ランピング加工時の最大傾斜角(E°)とヘリカル加工時の最大傾斜角(P°)** Maximum Ramping (E) and Helical (P) Angle

| インサートサイズ Insert Size | SPMT07… | | | | SDMT09… | | | | SXMT12… | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| カッタ外径 (mm) DCX | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling(mm) | | ヘリカル角度 Helical Angle P° | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° |
| | | 最小径 Do Min. | 最大径 Do Max. | | | 最小径 Do Min. | 最大径 Do Max. | | | 最小径 Do Min. | 最大径 Do Max. | |
| 16 | 5.9 | 22 | 31 | 4.5 | – | – | – | – | – | – | – | – |
| 17 | 4.9 | 24 | 33 | 3.6 | – | – | – | – | – | – | – | – |
| 18 | 4.2 | 26 | 35 | 3.1 | – | – | – | – | – | – | – | – |
| 20 | 3.2 | 30 | 39 | 2.3 | – | – | – | – | – | – | – | – |
| 21 | 2.8 | 32 | 41 | 2 | – | – | – | – | – | – | – | – |
| 22 | 2.6 | 34 | 43 | 1.8 | – | – | – | – | – | – | – | – |
| 25 | 2 | 40 | 49 | 1.3 | 3.6 | 35 | 48 | 3.1 | – | – | – | – |
| 26 | 1.8 | 42 | 51 | 1.1 | 3.1 | 37 | 50 | 2.6 | – | – | – | – |
| 28 | 1.6 | 46 | 55 | 1 | 2.6 | 41 | 54 | 2.1 | – | – | – | – |
| 30 | 1.4 | 50 | 59 | 0.8 | 2.2 | 45 | 58 | 1.9 | 7.9 | 40 | 58 | 6.5 |
| 32 | 1.3 | 54 | 63 | 0.7 | 2 | 49 | 62 | 1.7 | 7.2 | 44 | 62 | 6.1 |
| 33 | 1.2 | 56 | 65 | 0.6 | 1.8 | 51 | 64 | 1.5 | 6.4 | 46 | 64 | 4.4 |
| 35 | 1.1 | 60 | 69 | 0.5 | 1.6 | 55 | 68 | 1.4 | 4.4 | 50 | 68 | 3.7 |
| 40 | – | – | – | – | 1.2 | 65 | 78 | 1 | 2.9 | 60 | 78 | 2.5 |
| 50 | – | – | – | – | 0.9 | 85 | 98 | 0.8 | 1.5 | 80 | 98 | 1.3 |
| 63 | – | – | – | – | 0.8 | 111 | 124 | 0.7 | 1.1 | 106 | 124 | 0.9 |
| 80 | – | – | – | – | – | – | – | – | 1.3 | 140 | 158 | 1.1 |
| 100 | – | – | – | – | – | – | – | – | 0.7 | 180 | 198 | 0.6 |

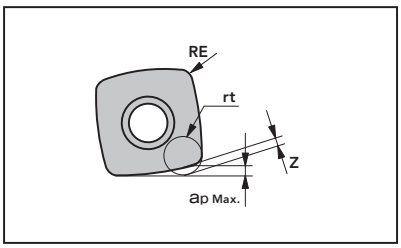
**■プログラム作成上の刃先形状定義**

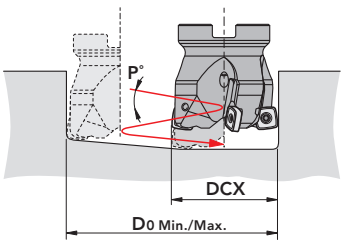
Flute shape definitions for the purpose of creating a program

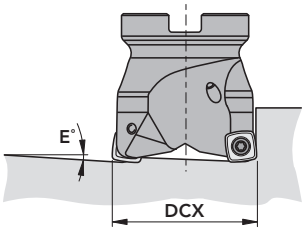
単位:mm Unit:mm

| インサートサイズ Insert Size | RE | 最大切込み ap Max. | 擬似R rt | 取り代残 Z |
|---|---|---|---|---|
| SPMT07… | 0.5 | 0.8 | 1.2 | 0.35 |
| SDMT09… | 0.8 | 1 | 2 | 0.7 |
| SXMT12… | 1 | 2 | 3 | 1.15 |

加工に際しては、それぞれ擬似Rのラジアスカッタとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual cutter diameter.



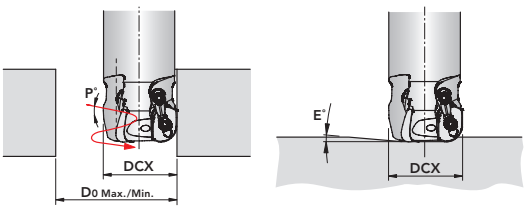
形状寸法表
SPECIFICATION CHARTS
PDR▶P978

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PDR

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | PDR SS/MT/CN | | | PDR BORE | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut | | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut | | |
| | | | | | 120 | 170 | | 100 | 200 | 300 | 400 |
| P | 軟鋼、低炭素鋼 Mild Steel, Low Carbon Steel (SS400, S10C) | ~180HB | 180( 90 ~ 220) | 0.7( 0.3 ~ 1) | 3 | 2 | 0.6( 0.3 ~ 1) | 3 | 3 | 2 | 2 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180( 90 ~ 220) | 0.7( 0.3 ~ 1) | 3 | 2 | 0.6( 0.3 ~ 1) | 3 | 3 | 2 | 2 |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 150( 90 ~ 180) | 0.6( 0.3 ~ 1) | 3 | 2 | 0.5( 0.3 ~ 1) | 3 | 2 | 2 | 2 |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 180( 100 ~ 250) | 0.8( 0.3 ~ 1.5) | 3 | 3 | 0.7( 0.3 ~ 1.5) | 3 | 3 | 2 | 2 |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 150( 100 ~ 250) | 0.7( 0.3 ~ 1.2) | 3 | 3 | 0.6( 0.3 ~ 1.2) | 3 | 3 | 2 | 2 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.




### ■ランピング加工時の最大傾斜角(E°)とヘリカル加工時の最大傾斜角(P°) Maximum Ramping (E) and Helical (P) Angle

| カッタ外径 (mm) DCX | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° | Z軸突込み Plunging (mm) |
|---|---|---|---|---|---|
| | | 最小径 Do Min. | 最大径 Do Max. | | |
| 40 | 5 | 50 | 78 | 1.4 | 3 |
| 50 | 3 | 70 | 98 | 1.1 | 3 |
| 63 | 2 | 96 | 124 | 0.9 | 3 |
| 80 | 1 | 130 | 158 | 0.7 | 3 |
| 100 | 0.5 | 170 | 198 | 0.5 | 3 |
| 125 | 0.5 | 220 | 248 | 0.4 | 3 |

1. 切削始めに長い切りくずが発生するのでご注意下さい。
2. 送りは基準条件表の40 ~70%で設定して下さい。
3. 送り速度を落とさずに進入する場合は角度1°以下で設定して下さい。
4. エアブローでの使用を推奨します。
1. Long chips may occur in the beginning of the milling process.
2. Feed rate should be set within 40-70% of the recommended milling condition.
3. To advance without dropping the feed rate, set an angle of less than 1°.
4. Using air-blow is highly recommended.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XP3930 | GM | 無 Dry | ◎ | | ◎ | | | |

GM:汎用 GM:General use

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PRC

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | インサートサイズ Insert Size | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | RPH*10… | | RPH*12… | | RPH*16… | |
| | | | | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut | 一刃当たりの送り量 fz (mm/t) Feed per Tooth | 切込深さ ap (mm) Depth of Cut |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 200 (100 ~ 300) | 0.25 (0.1 ~ 0.35) | 2 | 0.3 (0.1 ~ 0.4) | 2.4 | 0.35 (0.1 ~ 0.5) | 3.2 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180 (100 ~ 250) | 0.2 (0.1 ~ 0.3) | 2 | 0.25 (0.1 ~ 0.35) | 2.4 | 0.3 (0.1 ~ 0.45) | 3.2 |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 150 (80 ~ 200) | 0.2 (0.1 ~ 0.3) | 2 | 0.25 (0.1 ~ 0.35) | 2.4 | 0.3 (0.1 ~ 0.45) | 3.2 |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 160 (80 ~ 200) | 0.25 (0.1 ~ 0.35) | 2 | 0.3 (0.1 ~ 0.4) | 2.4 | 0.35 (0.1 ~ 0.5) | 3.2 |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 120 (60 ~ 180) | 0.25 (0.1 ~ 0.35) | 2 | 0.3 (0.1 ~ 0.4) | 2.4 | 0.35 (0.1 ~ 0.5) | 3.2 |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 220 (100 ~ 350) | 0.25 (0.05 ~ 0.4) | 2 | 0.3 (0.1 ~ 0.5) | 2.4 | 0.35 (0.1 ~ 0.6) | 3.2 |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 150 (100 ~ 220) | 0.2 (0.1 ~ 0.3) | 2 | 0.25 (0.1 ~ 0.35) | 2.4 | 0.3 (0.1 ~ 0.45) | 3.2 |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 600 (300 ~ 1,500) | 0.4 (0.2 ~ 0.8) | 2 | 0.6 (0.2 ~ 1) | 2.4 | 0.8 (0.3 ~ 1.5) | 3.2 |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel718) | – | 40 (25 ~ 60) | 0.15 (0.05 ~ 0.25) | 2 | 0.2 (0.05 ~ 0.3) | 2.4 | 0.25 (0.05 ~ 0.4) | 3.2 |
| S | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 80 (50 ~ 120) | 0.2 (0.1 ~ 0.3) | 2 | 0.25 (0.1 ~ 0.35) | 2.4 | 0.3 (0.1 ~ 0.45) | 3.2 |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 120 (40 ~ 150) | 0.15 (0.05 ~ 0.25) | 1.5 | 0.2 (0.05 ~ 0.3) | 1.5 | 0.25 (0.05 ~ 0.4) | 1.5 |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 80 (40 ~ 120) | 0.15 (0.05 ~ 0.25) | 1 | 0.2 (0.05 ~ 0.3) | 1 | 0.25 (0.05 ~ 0.4) | 1 |
| H | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 60 (30 ~ 90) | 0.15 (0.05 ~ 0.25) | 0.5 | 0.2 (0.05 ~ 0.3) | 0.5 | 0.25 (0.05 ~ 0.4) | 0.5 |

・上記条件表はショートシャンクタイプにおける推奨値となります。
・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
・ Above recommended speed is for Short Shank Type.
・ The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

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### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| CK010 | NM | 有 Wet | | | | ◎ | | |
| XC3030 | – GL GM | 無 Dry | ◎ | | ○ | | | |
| XP3035 | – GL GM | 無 Dry | ◎ | ○ | ○ | | | |
| | | 有 Wet | | | | | | |
| XP2025 | GL | 有 Wet | ○ | ◎ | | | ○ | |
| XP2040 | GL | 無 Dry | ○ | ○ | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | ○ | |
| XC1015 | – | 無 Dry | | | ◎ | | | |
| XC5035 | SM | 無 Dry | | ◎ | | | | |
| | | 有 Wet | | ○ | | | ○ | |
| XC5040 | SM | 有 Wet | | ○ | | | ◎ | |
| XP6015 | HR | 無 Dry | ○ | | ○ | | | ◎ |

NM:アルミニウム合金用 GL:軽・中切削用 GM:中切削用 HR:高硬度鋼用 SM:耐熱合金用
NM:Aluminum Alloy GL:Light・Middle Cutting GM:Middle Cutting HR:High Hardened Steel SM:Heat Resistance Alloy

形状寸法表 SPECIFICATION CHARTS PRC▶P980
形状寸法表 SPECIFICATION CHARTS PFAL▶P984

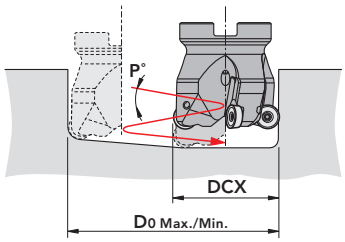
# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

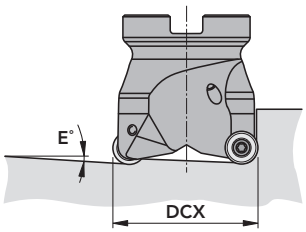
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## PRC

■ランピング加工時の最大傾斜角(E°)とヘリカル加工時の最大傾斜角(P°) Maximum Ramping (E) and Helical (P) Angle

| インサートサイズ Insert Size | RPH*10… | | | | RPH*12… | | | | RPH*16… | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| カッタ外径(mm) DCX | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling(mm) | | ヘリカル角度 Helical Angle P° | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° |
| | | 最小径 Do Min. | 最大径 Do Max. | | | 最小径 Do Min. | 最大径 Do Max. | | | 最小径 Do Min. | 最大径 Do Max. | |
| 20 | 1.3 | 26 | 30 | 1.3 | – | – | – | – | – | – | – | – |
| 24 | – | – | – | – | 6 | 30 | 36 | 2.2 | – | – | – | – |
| 25 | 2 | 37 | 40 | 1.8 | – | – | – | – | – | – | – | – |
| 30 | 2.5 | 46 | 50 | 1.6 | 5.3 | 42 | 48 | 1.9 | – | – | – | – |
| 32 | 3 | 50 | 54 | 1.5 | 4 | 46 | 52 | 1.7 | 7 | 39 | 48 | 2.1 |
| 40 | – | – | – | – | 2.8 | 62 | 68 | 1.4 | 4.8 | 55 | 64 | 1.8 |
| 50 | – | – | – | – | 2.6 | 81 | 88 | 1.1 | 4 | 75 | 84 | 1.5 |
| 63 | – | – | – | – | 1.9 | 107 | 114 | 0.9 | 2.8 | 101 | 110 | 1.1 |
| 80 | – | – | – | – | 1.3 | 142 | 148 | 0.7 | 2 | 135 | 144 | 0.9 |
| 100 | – | – | – | – | 1 | 181 | 188 | 0.5 | 1.5 | 175 | 184 | 0.7 |




## PFAL

| 被削材 Work Material | | 成分 Component | 材質記号 Material Symbol | 用途 Application | 切削速度 Vc(m/min) Cutting Speed BT30 | 切削速度 Vc(m/min) Cutting Speed BT40, BT50 HSK-63 | 1刃当りの送り量 fz(mm/t) Feed per Tooth | 切込深さ ap(mm) Depth of Cut |
|---|---|---|---|---|---|---|---|---|
| N | アルミニウム合金 Aluminum Alloy | ～12% Si | A7075・A5052・A2017他 ADC12他 etc. | 中仕上 Semi-finishing | 1,000 (800~2,000) | 2,000 (1,000~5,000) | 0.08 (0.05 ~ 0.10) | 1.5 (1.0 ~ 2.0) |
| | | | | 仕上 Finishing | | | 0.06 (0.05 ~ 0.08) | 0.5 (0.3 ~ 1.0) |
| | | 13% Si ～ | AC9A・AC9B他 etc. | 中仕上 Semi-finishing | 600 (400~800) | | 0.08 (0.05 ~ 0.10) | 1.5 (1.0 ~ 2.0) |
| | | | | 仕上 Finishing | | | 0.06 (0.05 ~ 0.08) | 0.5 (0.3 ~ 1.0) |

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

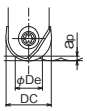
## PFB

### ■切込深さと実加工径(φDe)早見表 Chart of cutting depth and actual cutting diameter

単位:mm Unit:mm

| ap(切込深さ) Depth of cut | | 実加工径(φDe) Actual cutting diameter | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | ボール半径 RE | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.8 | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 | 4.5 | 5 |
| 6 | 3 | 1.5 | 2.2 | 2.6 | 3 | 3.3 | 4.1 | | | | | | | | | |
| 7 | 3.5 | 1.6 | 2.3 | 2.8 | 3.3 | 3.6 | 4.5 | | | | | | | | | |
| 8 | 4 | 1.8 | 2.5 | 3 | 3.5 | 3.9 | 4.8 | | | | | | | | | |
| 10 | 5 | 2 | 2.8 | 3.4 | 3.9 | 4.4 | 5.4 | 6 | 7.1 | | | | | | | |
| 12 | 6 | 2.2 | 3.1 | 3.7 | 4.3 | 4.8 | 6 | 6.6 | 7.9 | 8.9 | | | | | | |
| 16 | 8 | 2.5 | 3.6 | 4.3 | 5 | 5.6 | 7 | 7.7 | 9.3 | 10.6 | 11.6 | | | | | |
| 20 | 10 | 2.8 | 4 | 4.9 | 5.6 | 6.2 | 7.8 | 8.7 | 10.5 | 12 | 13.2 | 14.3 | 15.2 | | | |
| 25 | 12.5 | 3.2 | 4.5 | 5.4 | 6.3 | 7 | 8.8 | 9.8 | 11.9 | 13.6 | 15 | 16.2 | 17.3 | 18.3 | | |
| 30 | 15 | 3.5 | 4.9 | 6 | 6.9 | 7.7 | 9.7 | 10.8 | 13.1 | 15 | 16.6 | 18 | 19.3 | 20.4 | 21.4 | 22.4 |
| 32 | 16 | 3.6 | 5 | 6.2 | 7.1 | 7.9 | 10 | 11.1 | 13.5 | 15.5 | 17.2 | 18.7 | 20 | 21.2 | 22.2 | 23.2 |

●実加工径(φDe)の求め方 How to determine actual cutting diameter



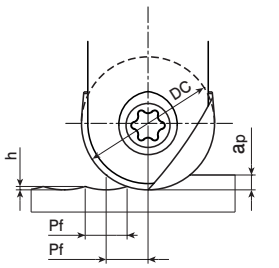

$$De=2\sqrt{ap\times(DC-ap)}$$

### ■推奨ピックフィードと加工面粗さ Recommended pick feed and milling surface roughness

単位:mm Unit:mm

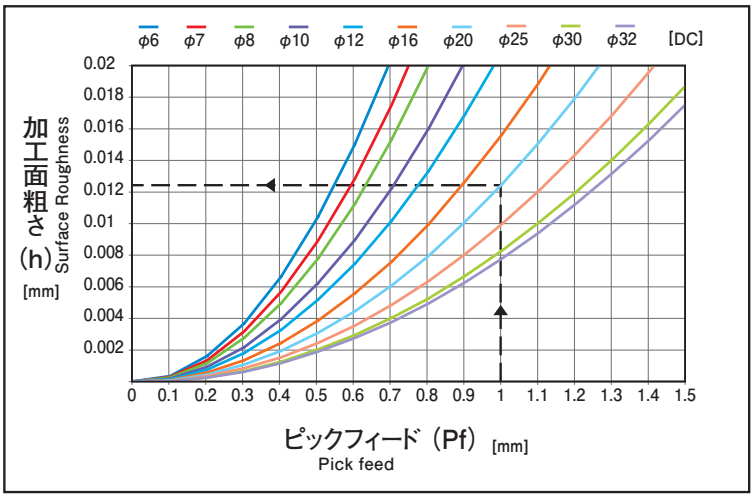
| 外径 DC | 6 | 7 | 8 | 10 | 12 | 16 | 20 | 25 | 30 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|
| ピックフィード Pf | 0.4 | 0.45 | 0.5 | 0.6 | 0.7 | 0.8 | 1 | 1.2 | 1.3 | 1.4 |
| 加工面粗さ h | 0.007 | 0.007 | 0.008 | 0.009 | 0.01 | 0.01 | 0.012 | 0.014 | 0.014 | 0.015 |

### ■理論上の加工面粗さ Theoretical milling surface roughness




$$h=0.5\times(DC-\sqrt{DC^2-Pf^2})$$

例) DC=20mm
Pf= 1mm
→h=0.0125mm




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形状寸法表
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# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PFB

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### PFB-SP・PFB-Q・PFB-SH・PFB-Q-ST・PFB-HH

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 切込深さの目安 ap (mm) Depth of Cut | 1刃当たりの送り fz (mm/t) カッタ径 DC | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | φ6,8 | φ10,12 | φ16,20 | φ25~32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 300 (200～400) | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 300 (200～400) | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| | ダイス鋼 Die Steel | (SKD61, SKD11) | ～280HB | 250 (150～350) | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 250 (150～350) | 0.02DC | 0.07 | 0.12 | 0.14 | 0.17 |
| K | 鋳鉄 Cast Iron | (FC250) | ～300N/mm² | 400 (300～500) | 0.02DC | 0.12 | 0.14 | 0.18 | 0.22 |
| | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～600N/mm² | 300 (200～400) | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| N | アルミニウム合金 Aluminum Alloy | | ～13%Si | 500 (400～600) | 0.03DC | 0.12 | 0.14 | 0.18 | 0.22 |
| | 銅合金 Copper Alloy | (C1100) | — | 300 (200～400) | 0.03DC | 0.11 | 0.13 | 0.17 | 0.2 |
| S | 超耐熱合金(湿式) Superalloy (Wet) | (Inconel718) | — | 50 ( 25～ 80) | 0.015DC | 0.04 | 0.05 | 0.06 | 0.06 |
| | チタン合金(湿式) Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 90 ( 40～120) | 0.02DC | 0.06 | 0.08 | 0.11 | 0.13 |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80, STAVAX) | 40～43HRC | 200 (100～300) | 0.015DC | 0.06 | 0.07 | 0.08 | 0.1 |
| | ダイカスト鋼 Die Cast Steel | (DAC-MAGIC, DH31) | 43～48HRC | 180 ( 90～200) | 0.015DC | 0.05 | 0.06 | 0.07 | 0.07 |
| | 調質鋼 Hardened Steel | (SKD11) | 50～60HRC | 150 (100～250) | 0.01DC | 0.05 | 0.06 | 0.07 | 0.07 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

### PFB-D

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 切込深さの目安 ap (mm) Depth of Cut | 1刃当たりの送り fz (mm/t) カッタ径 DC | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | φ6,8 | φ10,12 | φ16,20 | φ25~32 |
| N | グラファイト Graphite | | — | 500 (400～600) | 0.03DC | 0.14 | 0.17 | 0.21 | 0.25 |
| | 複合材 Carbon Fiber Reinforced Plastic | (CFRP) | — | 400 (300～500) | 0.03DC | 0.11 | 0.13 | 0.17 | 0.2 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | 形状 Appearance | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|
| XP3320 | PFB-SP | ○ | ○ | ○ | | ○ | ○ |
| XP3225 | PFB-Q | ◎ | ○ | | ◎*1 | ○ | |
| XP3310 | PFB-SH | | | ◎ | | | ◎ |
| XP2225 | PFB-Q-ST | ○ | ◎ | | | ◎ | ○ |
| XP6703 | PFB-HH | ○ | | ○ | | | ◎ |
| XC4505 | PFB-D | | | | ◎*2 | | |

*1 アルミニウム合金、銅合金の第一推奨 Best recommended for aluminum and copper alloy applications
*2 グラファイト、CFRPの第一推奨 Best recommended for graphite and CFRP applications

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PFB

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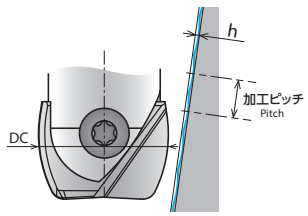
### PFB-BR（バレル型） Barrel Type Tool

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 切込深さの目安 Depth of Cut | | 1刃当たりの送り fz (mm/t) カッタ径 DC | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 加工ピッチ Pitch(mm) | 切込深さ Depth of Cut (mm) | φ10,12 | φ16,20 | φ25,32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 300 （200～800） | カスプハイト量による（下図参照） Based on cusp height (See chart below) | ～0.2 | 0.12 | 0.14 | 0.18 |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 300 （200～800） | | ～0.2 | 0.1 | 0.12 | 0.14 |
| | ダイス鋼 Die Steel | (SKD61, SKD11) | ～280HB | 250 （150～600） | | ～0.2 | 0.1 | 0.12 | 0.14 |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 250 （150～650） | | ～0.2 | 0.12 | 0.14 | 0.17 |
| K | 鋳鉄 Cast Iron | (FC250) | ～300N/mm² | 400 （300～800） | | ～0.2 | 0.14 | 0.18 | 0.22 |
| | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～600N/mm² | 300 （200～800） | | ～0.2 | 0.12 | 0.14 | 0.18 |
| S | 超耐熱合金（湿式） Superalloy (Wet) | (Inconel 718) | — | 50 （ 25～ 80） | | ～0.15 | 0.05 | 0.06 | 0.06 |
| | チタン合金（湿式） Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 90 （ 40～120） | | ～0.2 | 0.08 | 0.11 | 0.13 |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80, STAVAX) | 40～43HRC | 200 （100～350） | | ～0.15 | 0.07 | 0.08 | 0.1 |
| | ダイカスト鋼 Die Cast Steel | (DAC-MAGIC, DH31) | 43～48HRC | 180 （ 90～350） | | ～0.15 | 0.06 | 0.07 | 0.07 |
| | 調質鋼 Hardened Steel | (SKD11) | 50～60HRC | 150 （100～300） | | ～0.1 | 0.06 | 0.07 | 0.07 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

### ■理論上のカスプハイト Theoretical Cusp Height

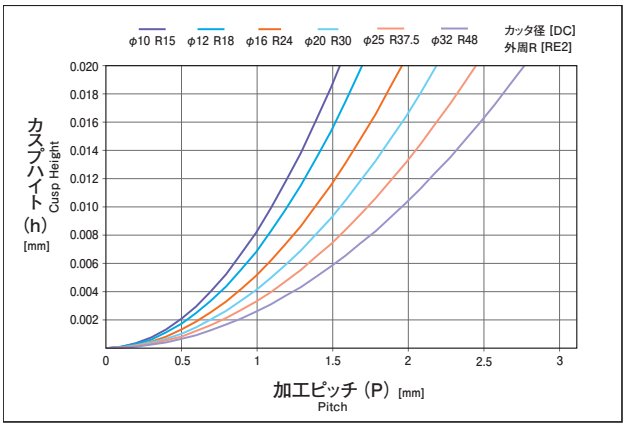
**バレル型（PFB-BR） Barrel Type Tool**




$$h = 0.5 \times \left(2 \times RE2 - \sqrt{(2 \times RE2)^2 - P^2}\right)$$

h：カスプハイト Cusp height　P：加工ピッチ Pitch　RE2：外周R peripheral edge R

### カスプハイトと加工ピッチ Cusp Height and Pitch




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### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | 形状 Appearance | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|
| XP3225 | PFB-ST | ◎ | ○ | | | ○ | |
| XP3310 | PFB-SH | | | ◎ | | | ◎ |

形状寸法表
SPECIFICATION CHARTS
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# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PFB

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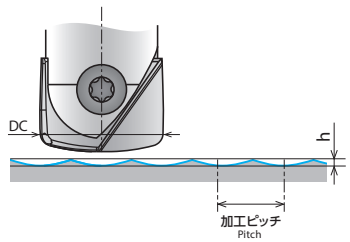
### PFB-LZ（レンズ型） Lens Type Tool

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 切込深さの目安 Depth of Cut | | 1刃当たりの送り fz (mm/t) カッタ径 DC | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 加工ピッチ Pitch(mm) | 切込深さ Depth of Cut (mm) | φ10,12 | φ16,20 | φ25,32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 300 （200～800） | カスプハイト量による（下図参照） Based on cusp height (See chart below) | ～0.2 | 0.12 | 0.14 | 0.18 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 300 （200～800） | | ～0.2 | 0.1 | 0.12 | 0.14 |
| P | ダイス鋼 Die Steel | (SKD61, SKD11) | ～280HB | 250 （150～600） | | ～0.2 | 0.1 | 0.12 | 0.14 |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 250 （150～650） | | ～0.2 | 0.12 | 0.14 | 0.17 |
| K | 鋳鉄 Cast Iron | (FC250) | ～300N/mm² | 400 （300～800） | | ～0.2 | 0.14 | 0.18 | 0.22 |
| K | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～600N/mm² | 300 （200～800） | | ～0.2 | 0.12 | 0.14 | 0.18 |
| S | 超耐熱合金（湿式） Superalloy (Wet) | (Inconel 718) | — | 50 （ 25～ 80） | | ～0.15 | 0.05 | 0.06 | 0.06 |
| S | チタン合金（湿式） Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 90 （ 40～120） | | ～0.2 | 0.08 | 0.11 | 0.13 |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80, STAVAX) | 40～43HRC | 200 （100～350） | | ～0.15 | 0.07 | 0.08 | 0.1 |
| H | ダイカスト鋼 Die Cast Steel | (DAC-MAGIC, DH31) | 43～48HRC | 180 （ 90～350） | | ～0.15 | 0.06 | 0.07 | 0.07 |
| H | 調質鋼 Hardened Steel | (SKD11) | 50～60HRC | 150 （100～300） | | ～0.1 | 0.06 | 0.07 | 0.07 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

### ■理論上のカスプハイト Theoretical Cusp Height

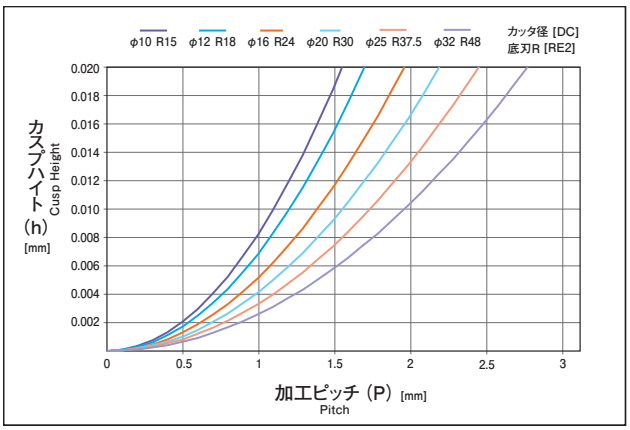
**レンズ型（PFB-LZ） Lens Type Tool**




$$h = 0.5 \times \left(2 \times RE2 - \sqrt{(2 \times RE2)^2 - P^2}\right)$$

h：カスプハイト Cusp height　P：加工ピッチ Pitch　RE2：底刃R Bottom edge R

### カスプハイトと加工ピッチ Cusp Height and Pitch




### ■被削材別推奨材質

Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | 形状 Appearance | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|
| XP3225 | PFB-ST | ◎ | ○ | | | ○ | |
| XP3310 | PFB-SH | | | ◎ | | | ◎ |

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PFR

### 標準条件 Standard Condition

### PFR-ST, PFR-SH

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | | | 切込深さの目安 ap (mm) Depth of Cut | 1刃当たりの送り fz (mm/t) インサート W1 Insert | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 突出し量 ℓ/D | | | | | | | |
| | | | | 基準2.5D | 5D | 8D | | φ6,7 | φ8～11 | φ12～17 | φ20～32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 200 （150～250） | 80% | 60% | 0.05DC | 0.12 | 0.2 | 0.22 | 0.25 |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 180 （150～250） | | | 0.05DC | 0.15 | 0.18 | 0.22 | 0.25 |
| P | ダイス鋼 Die Steel | (SKD61, SKD11) | ～280HB | 150 （120～200） | | | 0.05DC | 0.1 | 0.15 | 0.18 | 0.2 |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 150 （100～200） | | | 0.03DC | 0.08 | 0.12 | 0.15 | 0.18 |
| K | 鋳鉄 Cast Iron | (FC250) | ～300N/mm² | 200 （150～250） | | | 0.05DC | 0.15 | 0.2 | 0.25 | 0.3 |
| K | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～600N/mm² | 150 （100～200） | | | 0.05DC | 0.12 | 0.15 | 0.2 | 0.25 |
| N | アルミニウム合金 Aluminum Alloy | | ～13%Si | 300 （200～400） | | | 0.05DC | 0.2 | 0.25 | 0.3 | 0.35 |
| S | 超耐熱合金（湿式） Superalloy (Wet) | (Inconel718) | — | 30 （ 20～ 40） | | | 0.02DC | 0.04 | 0.05 | 0.08 | 0.12 |
| S | チタン合金（湿式） Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 50 （ 40～ 60） | | | 0.02DC | 0.05 | 0.08 | 0.1 | 0.15 |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80, STAVAX) | 40～43HRC | 120 （100～150） | | | 0.03DC | 0.08 | 0.1 | 0.12 | 0.18 |
| H | ダイカスト鋼 Die Cast Steel | (DAC-MAGIC, DH31) | 43～48HRC | 80 （ 50～100） | | | 0.025DC | 0.05 | 0.08 | 0.1 | 0.15 |
| H | 調質鋼 Hardened Steel | (SKD11) | 50～60HRC | 60 （ 40～ 80） | | | 0.02DC | 0.04 | 0.05 | 0.08 | 0.1 |

### PFR-D

| | 被削材 Work Material | | 切削速度 Vc (m/min) Cutting Speed | | | 切込深さの目安 ap (mm) Depth of Cut | 1刃当たりの送り fz (mm/t) インサート W1 Insert | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 突出し量 ℓ/D | | | | | | | |
| | | | 基準2.5D | 5D | 8D | | φ6,7 | φ8～11 | φ12～17 | φ20～32 |
| N | グラファイト Graphite | | 250 （150～350） | 80% | 60% | 0.1DC | 0.25 | 0.4 | 0.5 | 0.5 |
| N | 複合材 Carbon Fiber Reinforced Plastic | (CFRP) | 200 （150～250） | | | 0.5DC | 0.05 | 0.1 | 0.15 | 0.2 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | 形状 Appearance | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|
| XP3225 | PFR-ST | ◎ | ◎ | ○ | ◎*1 | ◎ | ○ |
| XP3310 | PFR-SH | ○ | ○ | ◎ | | | ◎ |
| XC4505 | PFR-D | | | | ◎*2 | | |

＊L/D≧5以上にはXP3225を第一推奨します XP3225 is recommended when L/D ≧ 5
＊断続切削にはXP3310を第一推奨します XP3310 is recommended for intermittent milling
*1 アルミニウム合金の第一推奨 Best recommended for aluminum alloy
*2 グラファイト、CFRPの第一推奨 Best recommended for graphite and CFRP applications

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形状寸法表
SPECIFICATION CHARTS
PFR▶P993

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PFR

前ページより
FROM

### 高速仕上げ条件 High-speed finishing conditions

**鋼シャンク** Steel Shank

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 切込深さ ap (mm) Depth of Cut | 1刃当たりの送り fz (mm/t) インサート W1 Insert | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | φ6～8 | φ10～13 | φ16～21 | φ25～32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 450 | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 450 | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| | ダイス鋼 Die Steel | (SKD61, SKD11) | ～280HB | 375 | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 375 | 0.02DC | 0.07 | 0.12 | 0.14 | 0.17 |
| K | 鋳鉄 Cast Iron | (FC250) | ～300N/mm² | 600 | 0.02DC | 0.12 | 0.14 | 0.18 | 0.22 |
| | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～600N/mm² | 450 | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| N | アルミニウム合金 Aluminum Alloy | | ～13%Si | 750 | 0.03DC | 0.12 | 0.14 | 0.18 | 0.22 |
| S | 超耐熱合金(湿式) Superalloy (Wet) | (Inconel 718) | — | 70 | 0.015DC | 0.04 | 0.05 | 0.06 | 0.06 |
| | チタン合金(湿式) Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 120 | 0.02DC | 0.06 | 0.08 | 0.11 | 0.13 |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80, STAVAX) | 40～43HRC | 300 | 0.015DC | 0.06 | 0.07 | 0.08 | 0.1 |
| | ダイカスト鋼 Die Cast Steel | (DAC-MAGIC, DH31) | 43～48HRC | 270 | 0.015DC | 0.05 | 0.06 | 0.07 | 0.07 |
| | 調質鋼 Hardened Steel | (SKD11) | 50～60HRC | 220 | 0.01DC | 0.05 | 0.06 | 0.07 | 0.07 |

**超硬シャンク ショートタイプ** Carbide Shank Short Type

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 切込深さ ap (mm) Depth of Cut | 1刃当たりの送り fz (mm/t) インサート W1 Insert | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | φ6～8 | φ10～13 | φ16～21 | φ25～32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 540 | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 540 | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| | ダイス鋼 Die Steel | (SKD61, SKD11) | ～280HB | 450 | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 450 | 0.02DC | 0.07 | 0.12 | 0.14 | 0.17 |
| K | 鋳鉄 Cast Iron | (FC250) | ～300N/mm² | 720 | 0.02DC | 0.12 | 0.14 | 0.18 | 0.22 |
| | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～600N/mm² | 540 | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| N | アルミニウム合金 Aluminum Alloy | | ～13%Si | 600 | 0.03DC | 0.12 | 0.14 | 0.18 | 0.22 |
| S | 超耐熱合金(湿式) Superalloy (Wet) | (Inconel 718) | — | 80 | 0.015DC | 0.04 | 0.05 | 0.06 | 0.06 |
| | チタン合金(湿式) Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 150 | 0.02DC | 0.06 | 0.08 | 0.11 | 0.13 |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80, STAVAX) | 40～43HRC | 340 | 0.015DC | 0.06 | 0.07 | 0.08 | 0.1 |
| | ダイカスト鋼 Die Cast Steel | (DAC-MAGIC, DH31) | 43～48HRC | 290 | 0.015DC | 0.05 | 0.06 | 0.07 | 0.07 |
| | 調質鋼 Hardened Steel | (SKD11) | 50～60HRC | 260 | 0.01DC | 0.05 | 0.06 | 0.07 | 0.07 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

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# CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS インデキサブルツール切削条件基準表

## PFR

前ページより
FROM

### 高速仕上げ条件 High-speed finishing conditions

**超硬ロングシャンク** Carbide Shank Long Type

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 切込深さ ap (mm) Depth of Cut | 1刃当たりの送り fz (mm/t) インサート W1 Insert | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | φ6～8 | φ10～13 | φ16～21 | φ25～32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 480 | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 480 | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| | ダイス鋼 Die Steel | (SKD61, SKD11) | ～280HB | 400 | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 400 | 0.02DC | 0.07 | 0.12 | 0.14 | 0.17 |
| K | 鋳鉄 Cast Iron | (FC250) | ～300N/mm² | 640 | 0.02DC | 0.12 | 0.14 | 0.18 | 0.22 |
| | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～600N/mm² | 480 | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| N | アルミニウム合金 Aluminum Alloy | | ～13%Si | 800 | 0.03DC | 0.12 | 0.14 | 0.18 | 0.22 |
| S | 超耐熱合金(湿式) Superalloy (Wet) | (Inconel718) | — | 80 | 0.015DC | 0.04 | 0.05 | 0.06 | 0.06 |
| | チタン合金(湿式) Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 144 | 0.02DC | 0.06 | 0.08 | 0.11 | 0.13 |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80, STAVAX) | 40～43HRC | 320 | 0.015DC | 0.06 | 0.07 | 0.08 | 0.1 |
| | ダイカスト鋼 Die Cast Steel | (DAC-MAGIC, DH31) | 43～48HRC | 288 | 0.015DC | 0.05 | 0.06 | 0.07 | 0.07 |
| | 調質鋼 Hardened Steel | (SKD11) | 50～60HRC | 240 | 0.01DC | 0.05 | 0.06 | 0.07 | 0.07 |

**超硬シャンク エキストラロングタイプ** Carbide Shank Extra Long Type

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 切込深さ ap (mm) Depth of Cut | 1刃当たりの送り fz (mm/t) インサート W1 Insert | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | φ6～8 | φ10～13 | φ16～21 | φ25～32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 360 | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 360 | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| | ダイス鋼 Die Steel | (SKD61, SKD11) | ～280HB | 300 | 0.02DC | 0.07 | 0.1 | 0.12 | 0.14 |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 300 | 0.02DC | 0.07 | 0.12 | 0.14 | 0.17 |
| K | 鋳鉄 Cast Iron | (FC250) | ～300N/mm² | 480 | 0.02DC | 0.12 | 0.14 | 0.18 | 0.22 |
| | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～600N/mm² | 360 | 0.02DC | 0.1 | 0.12 | 0.14 | 0.18 |
| N | アルミニウム合金 Aluminum Alloy | | ～13%Si | 600 | 0.03DC | 0.12 | 0.14 | 0.18 | 0.22 |
| S | 超耐熱合金(湿式) Superalloy (Wet) | (Inconel718) | — | 60 | 0.015DC | 0.04 | 0.05 | 0.06 | 0.06 |
| | チタン合金(湿式) Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 110 | 0.02DC | 0.06 | 0.08 | 0.11 | 0.13 |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80, STAVAX) | 40～43HRC | 240 | 0.015DC | 0.06 | 0.07 | 0.08 | 0.1 |
| | ダイカスト鋼 Die Cast Steel | (DAC-MAGIC, DH31) | 43～48HRC | 220 | 0.015DC | 0.05 | 0.06 | 0.07 | 0.07 |
| | 調質鋼 Hardened Steel | (SKD11) | 50～60HRC | 180 | 0.01DC | 0.05 | 0.06 | 0.07 | 0.07 |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

形状寸法表
SPECIFICATION CHARTS
PXSE▶P1001

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXSE

### PXSE 側面切削 Side Milling L/D≦3.5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | | 超耐熱合金(湿式) インコネル718 Superalloy (Wet) Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 3,810 | 920 | 3,190 | 770 | 2,070 | 500 | 2,070 | 420 | 800 | 130 |
| 12 | 3,190 | 770 | 2,660 | 640 | 1,730 | 420 | 1,730 | 350 | 670 | 110 |
| 16 | 2,390 | 580 | 1,990 | 480 | 1,300 | 320 | 1,300 | 260 | 500 | 80 |
| 20 | 1,910 | 460 | 1,600 | 390 | 1,040 | 250 | 1,040 | 210 | 400 | 70 |
| 25 | 1,530 | 370 | 1,280 | 310 | 830 | 200 | 830 | 170 | 320 | 60 |
| 切込深さ Depth of Cut | ap=0.5DC ae=0.15DC | | | | ap=0.5DC ae=0.1DC | | ap=0.5DC ae=0.05DC | | ap=0.5DC ae=0.05DC | |

### PXSE 溝切削 Slot Milling L/D≦3.5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | | 超耐熱合金(湿式) インコネル718 Superalloy (Wet) Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 3,030 | 610 | 3,030 | 610 | 1,600 | 320 | 1,600 | 260 | 800 | 130 |
| 12 | 2,520 | 510 | 2,520 | 510 | 1,330 | 270 | 1,330 | 220 | 670 | 110 |
| 16 | 1,890 | 380 | 1,890 | 380 | 1,000 | 200 | 1,000 | 160 | 500 | 80 |
| 20 | 1,520 | 310 | 1,520 | 310 | 800 | 160 | 800 | 130 | 400 | 70 |
| 25 | 1,210 | 250 | 1,210 | 250 | 640 | 130 | 640 | 110 | 320 | 60 |
| 切込深さ Depth of Cut | ap≦0.35DC | | | | ap≦0.3DC | | ap≦0.2DC | | ap≦0.1DC | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PXVC

### PXVC　側面切削 Side Milling L/D≦5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 4,780 | 1,150 | 3,820 | 920 | 3,190 | 770 | 2,550 | 620 |
| 12 | 3,980 | 960 | 3,190 | 770 | 2,660 | 640 | 2,130 | 520 |
| 14 | 3,420 | 830 | 2,730 | 660 | 2,280 | 550 | 1,820 | 440 |
| 16 | 2,990 | 720 | 2,390 | 580 | 1,990 | 480 | 1,600 | 390 |
| 18 | 2,660 | 640 | 2,130 | 520 | 1,770 | 430 | 1,420 | 350 |
| 20 | 2,390 | 580 | 1,910 | 460 | 1,600 | 390 | 1,280 | 310 |
| 22 | 2,180 | 530 | 1,740 | 420 | 1,450 | 350 | 1,160 | 280 |
| 25 | 1,910 | 460 | 1,530 | 370 | 1,280 | 310 | 1,020 | 250 |
| 32-5F | 1,500 | 380 | 1,200 | 240 | 1,000 | 250 | 800 | 160 |
| 32-8F | 1,500 | 480 | 1,200 | 390 | 1,000 | 320 | 800 | 260 |
| 切込深さ Depth of Cut | ap=0.5DC ae=0.2DC | | | | ap=0.5DC ae=0.1DC | | ap=0.5DC ae=0.05DC | |

### PXVC　側面切削 Side Milling 5<L/D≦6

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 4,300 | 1,040 | 3,510 | 850 | 2,870 | 690 | 2,230 | 540 |
| 12 | 3,590 | 870 | 2,920 | 710 | 2,390 | 580 | 1,860 | 450 |
| 14 | 3,070 | 740 | 2,510 | 610 | 2,050 | 500 | 1,600 | 390 |
| 16 | 2,690 | 650 | 2,190 | 530 | 1,800 | 440 | 1,400 | 340 |
| 18 | 2,390 | 580 | 1,950 | 470 | 1,600 | 390 | 1,240 | 300 |
| 20 | 2,150 | 520 | 1,760 | 430 | 1,440 | 350 | 1,120 | 270 |
| 22 | 1,960 | 480 | 1,600 | 390 | 1,310 | 320 | 1,020 | 250 |
| 25 | 1,720 | 420 | 1,410 | 340 | 1,150 | 280 | 900 | 220 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | |
| 切込深さ Depth of Cut | ap=0.5DC ae=0.2DC | | | | ap=0.5DC ae=0.1DC | | ap=0.5DC ae=0.05DC | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。
1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

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# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXVC

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### PXVC 側面切削 Side Milling 6<L/D≦7

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 3,820 | 920 | 3,190 | 770 | 2,550 | 620 | 1,910 | 460 |
| 12 | 3,190 | 770 | 2,660 | 640 | 2,130 | 520 | 1,600 | 390 |
| 14 | 2,730 | 660 | 2,280 | 550 | 1,820 | 440 | 1,370 | 330 |
| 16 | 2,390 | 580 | 1,990 | 480 | 1,600 | 390 | 1,200 | 290 |
| 18 | 2,130 | 520 | 1,770 | 430 | 1,420 | 350 | 1,070 | 260 |
| 20 | 1,910 | 460 | 1,600 | 390 | 1,280 | 310 | 960 | 240 |
| 22 | 1,740 | 420 | 1,450 | 350 | 1,160 | 280 | 870 | 210 |
| 25 | 1,530 | 370 | 1,280 | 310 | 1,020 | 250 | 770 | 190 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | |
| 切込深さ Depth of Cut | ap=0.5DC<br>ae=0.2DC | | | | ap=0.5DC<br>ae=0.1DC | | ap=0.5DC<br>ae=0.05DC | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

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# インデキサブルツール切削条件基準表



## PXVC

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### PXVC　溝切削 Slot Milling L/D≦5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 4,780 | 960 | 3,820 | 770 | 3,180 | 640 | 2,390 | 480 |
| 12 | 3,980 | 800 | 3,180 | 640 | 2,650 | 530 | 1,990 | 400 |
| 14 | 3,410 | 680 | 2,730 | 550 | 2,270 | 450 | 1,710 | 340 |
| 16 | 2,980 | 600 | 2,390 | 480 | 1,990 | 400 | 1,490 | 300 |
| 18 | 2,650 | 530 | 2,120 | 420 | 1,770 | 350 | 1,330 | 270 |
| 20 | 2,390 | 480 | 1,910 | 380 | 1,590 | 320 | 1,190 | 240 |
| 22 | 2,170 | 430 | 1,740 | 350 | 1,450 | 290 | 1,090 | 220 |
| 25 | 1,910 | 380 | 1,530 | 310 | 1,270 | 250 | 950 | 190 |
| 32 | 非推奨（刃数が多いため） Not recommended (due to the large number of flutes) | | | | | | | |
| 切込深さ Depth of Cut | ap≦0.5DC | | ap≦0.4DC | | ap≦0.3DC | | | |

### PXVC　溝切削 Slot Milling 5<L/D≦6

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 3,820 | 770 | 3,190 | 640 | 2,550 | 510 | 2,070 | 420 |
| 12 | 3,190 | 640 | 2,660 | 540 | 2,130 | 430 | 1,730 | 350 |
| 14 | 2,730 | 550 | 2,280 | 460 | 1,820 | 370 | 1,480 | 300 |
| 16 | 2,390 | 480 | 1,990 | 400 | 1,600 | 320 | 1,300 | 260 |
| 18 | 2,130 | 430 | 1,770 | 360 | 1,420 | 290 | 1,150 | 230 |
| 20 | 1,910 | 390 | 1,600 | 320 | 1,280 | 260 | 1,040 | 210 |
| 22 | 1,740 | 350 | 1,450 | 290 | 1,160 | 240 | 950 | 190 |
| 25 | 1,530 | 310 | 1,280 | 260 | 1,020 | 210 | 830 | 170 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | |
| 切込深さ Depth of Cut | ap≦0.5DC | | ap≦0.4DC | | ap≦0.3DC | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。
1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

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# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXVC

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### PXVC 溝切削 Slot Milling 6<L/D≦7

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 3,190 | 640 | 2,550 | 510 | 2,230 | 450 | 1,910 | 390 |
| 12 | 2,660 | 540 | 2,130 | 430 | 1,860 | 380 | 1,600 | 320 |
| 14 | 2,280 | 460 | 1,820 | 370 | 1,600 | 320 | 1,370 | 280 |
| 16 | 1,990 | 400 | 1,600 | 320 | 1,400 | 280 | 1,200 | 240 |
| 18 | 1,770 | 360 | 1,420 | 290 | 1,240 | 250 | 1,070 | 220 |
| 20 | 1,600 | 320 | 1,280 | 260 | 1,120 | 230 | 960 | 200 |
| 22 | 1,450 | 290 | 1,160 | 240 | 1,020 | 210 | 870 | 180 |
| 25 | 1,280 | 260 | 1,020 | 210 | 900 | 180 | 770 | 160 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | |
| 切込深さ Depth of Cut | ap≦0.3DC | | | | ap≦0.25DC | | ap≦0.2DC | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PXSM

### PXSM 側面切削 Side Milling L/D≦3.5

| 被削材 Work Material | | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel・Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | | 超耐熱合金(湿式) インコネル718 Superalloy (Wet) Inconel 718 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 刃数 ZEFP | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 6 | 5,730 | 2,070 | 4,780 | 1,440 | 3,820 | 1,150 | 3,190 | 960 | 1,910 | 420 |
| 12 | 6 | 4,780 | 1,730 | 3,980 | 1,200 | 3,190 | 960 | 2,660 | 800 | 1,600 | 350 |
| 16 | 6 | 3,590 | 1,300 | 2,990 | 900 | 2,390 | 720 | 1,990 | 600 | 1,200 | 260 |
| 16 | 8 | 3,590 | 1,730 | 2,990 | 1,200 | 2,390 | 960 | 1,990 | 800 | 1,200 | 350 |
| 20 | 10 | 2,870 | 1,730 | 2,390 | 1,200 | 1,910 | 960 | 1,600 | 800 | 960 | 350 |
| 25 | 10 | 2,300 | 1,380 | 1,910 | 960 | 1,530 | 770 | 1,280 | 640 | 770 | 280 |
| 切込深さ Depth of Cut | | ap≦0.5DC ae≦0.05DC | | | | ap≦0.5DC ae≦0.02DC | | ap≦0.3DC ae≦0.02DC | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

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PXAL▶P1007

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXAL

### PXAL 側面切削 Side Milling

#### L/D≦3

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | |
|---|---|---|
| 切削速度 Cutting Speed (m/min) | 500 | |
| 外径 DC | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 10 | 16,000 | 4,800 |
| 12 | 13,300 | 3,990 |
| 14 | 11,400 | 3,420 |
| 16 | 10,000 | 3,600 |
| 18 | 8,900 | 3,210 |
| 20 | 8,000 | 3,840 |
| 22 | 7,300 | 3,510 |
| 25 | 6,400 | 3,840 |
| 切込深さ Depth of Cut | ap=0.7D<br>ae=0.2D | |

#### 3<L/D≦5

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | |
|---|---|---|
| 切削速度 Cutting Speed (m/min) | 300 | |
| 外径 DC | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 10 | 9,600 | 2,310 |
| 12 | 8,000 | 1,920 |
| 14 | 6,900 | 1,660 |
| 16 | 6,000 | 1,730 |
| 18 | 5,400 | 1,560 |
| 20 | 4,800 | 1,850 |
| 22 | 4,400 | 1,690 |
| 25 | 3,900 | 1,880 |
| 切込深さ Depth of Cut | ap=0.7D<br>ae=0.08D | |

#### 5<L/D≦7

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | |
|---|---|---|
| 切削速度 Cutting Speed (m/min) | 200 | |
| 外径 DC | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 10 | 6,400 | 1,390 |
| 12 | 5,400 | 1,170 |
| 14 | 4,600 | 1,000 |
| 16 | 4,000 | 1,040 |
| 18 | 3,600 | 940 |
| 20 | 3,200 | 1,110 |
| 22 | 2,900 | 1,010 |
| 25 | 2,600 | 1,130 |
| 切込深さ Depth of Cut | ap=0.7D<br>ae=0.04D | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 115 | | 95 | | 115 | | 115 | |
| 外径 DC | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) | 回転速度 Speed (min-1) | 送り速度 Feed (mm/min) |
| 10 | 3,500 | 1,050 | 2,900 | 830 | 3,500 | 470 | 3,500 | 470 |
| 12 | 2,900 | 960 | 2,500 | 790 | 2,900 | 440 | 2,900 | 440 |
| 14 | 2,500 | 830 | 2,300 | 720 | 2,500 | 380 | 2,500 | 380 |
| 16 | 2,400 | 790 | 2,000 | 630 | 2,400 | 380 | 2,400 | 380 |
| 18 | 2,100 | 760 | 1,800 | 620 | 2,100 | 380 | 2,100 | 380 |
| 20 | 1,900 | 740 | 1,600 | 600 | 1,900 | 370 | 1,900 | 370 |
| 22 | 1,700 | 660 | 1,400 | 530 | 1,700 | 360 | 1,700 | 360 |
| 25 | 1,500 | 660 | 1,250 | 530 | 1,500 | 360 | 1,500 | 360 |
| 切込深さ Depth of Cut | ap=1D<br>ae=0.5D | | | | | | | |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ（PXMZ）の突出し長さにヘッド全長（LF）を加えた突出し長さを配慮した選定をして下さい。
5. 銅・銅合金切削時は、上表の回転速度20～40%、送り速度50～80%、切込み深さ（ap）50～80%程度に下げてご使用下さい。
6. マグネシウム合金切削時は、アルミニウム合金展伸材と同条件でご使用下さい。切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
7. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
8. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. When milling copper and copper alloys, lower the rotational speed by 20 to 40%, feed rate by 50 to 80%, and cutting depth by ap 50 to 80% in accordance with the table above.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PXAL

### PXAL 溝切削 Slot Milling

#### L/D≦3

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | |
|---|---|---|
| 切削速度 Cutting Speed (m/min) | 500 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 16,000 | 4,800 |
| 12 | 13,300 | 3,990 |
| 14 | 11,400 | 3,420 |
| 16 | 10,000 | 3,000 |
| 18 | 8,900 | 2,670 |
| 20 | 8,000 | 2,400 |
| 22 | 7,300 | 2,190 |
| 25 | 6,400 | 1,920 |
| 切込深さ Depth of Cut | ap=0.5D | |

#### 3<L/D≦5

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | |
|---|---|---|
| 切削速度 Cutting Speed (m/min) | 300 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 9,600 | 2,160 |
| 12 | 8,000 | 1,800 |
| 14 | 6,900 | 1,560 |
| 16 | 6,000 | 1,350 |
| 18 | 5,400 | 1,220 |
| 20 | 4,800 | 1,080 |
| 22 | 4,400 | 990 |
| 25 | 3,900 | 880 |
| 切込深さ Depth of Cut | ap=0.35D | |

#### 5<L/D≦7

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | |
|---|---|---|
| 切削速度 Cutting Speed (m/min) | 200 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 6,400 | 960 |
| 12 | 5,400 | 810 |
| 14 | 4,600 | 690 |
| 16 | 4,000 | 600 |
| 18 | 3,600 | 540 |
| 20 | 3,200 | 480 |
| 22 | 2,900 | 440 |
| 25 | 2,600 | 390 |
| 切込深さ Depth of Cut | ap=0.2D | |

上表は、水溶性切削油剤を使用する場合のものです。

The table above is for when using water-soluble coolant.

| 被削材 Work Material | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|
| | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 105 | | 85 | | 105 | | 105 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 3,200 | 960 | 2,500 | 710 | 3,200 | 430 | 3,200 | 430 |
| 12 | 2,700 | 890 | 2,400 | 660 | 2,700 | 410 | 2,700 | 410 |
| 14 | 2,300 | 760 | 2,000 | 630 | 2,300 | 350 | 2,300 | 350 |
| 16 | 2,200 | 730 | 1,800 | 570 | 2,200 | 350 | 2,200 | 350 |
| 18 | 1,900 | 680 | 1,600 | 550 | 1,900 | 340 | 1,900 | 340 |
| 20 | 1,750 | 650 | 1,400 | 530 | 1,750 | 340 | 1,750 | 340 |
| 22 | 1,600 | 620 | 1,300 | 490 | 1,600 | 340 | 1,600 | 340 |
| 25 | 1,400 | 620 | 1,100 | 480 | 1,400 | 340 | 1,400 | 340 |

| 切込深さ Depth of Cut | ap |
|---|---|
| DC≦12 | 1D |
| 12<DC | 0.5D |

上表は、エアブローを使用する場合のものです。

The table above is for when using air-blow.

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ（PXMZ）の突出し長さにヘッド全長（LF）を加えた突出し長さを配慮した選定をして下さい。
5. 銅・銅合金切削時は、上表の回転速度20～40%、送り速度50～80%、切込み深さ（ap）50～80%程度に下げてご使用下さい。
6. マグネシウム合金切削時は、アルミニウム合金展伸材と同条件でご使用下さい。切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
7. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
8. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. When milling copper and copper alloys, lower the rotational speed by 20 to 40%, feed rate by 50 to 80%, and cutting depth by ap 50 to 80% in accordance with the table above.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

形状寸法表 SPECIFICATION CHARTS PXNH▶P1008
形状寸法表 SPECIFICATION CHARTS PXNL▶P1009

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXNH/PXNL

### PXNH・PXNL側面切削 Side Milling L/D≦3.5

| 被削材 Work Material | 鋳鉄 Cast Iron FC250 | | 炭素鋼 Carbon Steel | | 合金鋼 Alloy Steel | | 調質鋼・プリハードン鋼(快削) Hardened Steel Pre-hardened Steel (Free-Cutting) (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 2,860 | 720 | 3,820 | 840 | 3,180 | 520 | 2,860 | 350 | 2,550 | 280 |
| 12 | 2,390 | 600 | 3,180 | 700 | 2,650 | 440 | 2,390 | 290 | 2,120 | 230 |
| 16 | 1,790 | 620 | 2,390 | 720 | 1,990 | 450 | 1,790 | 300 | 1,590 | 240 |
| 20 | 1,430 | 660 | 1,910 | 760 | 1,590 | 480 | 1,430 | 310 | 1,270 | 250 |
| 25 | 890 | 450 | 1,270 | 560 | 1,020 | 340 | 890 | 220 | 760 | 170 |
| 切込深さ Depth of Cut | ap=0.5DC<br>ae=0.3DC | | | | ap=0.5DC<br>ae=0.2DC | | | | | |

### PXNH・PXNL 溝切削 Slot Milling L/D≦3.5

| 被削材 Work Material | 鋳鉄 Cast Iron FC250 | | 炭素鋼 Carbon Steel | | 合金鋼 Alloy Steel | | 調質鋼・プリハードン鋼(快削) Hardened Steel Pre-hardened Steel (Free-Cutting) (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 2,230 | 360 | 3,180 | 450 | 2,550 | 270 | 2,230 | 170 | 1,910 | 130 |
| 12 | 1,860 | 300 | 2,650 | 370 | 2,120 | 220 | 1,860 | 140 | 1,590 | 110 |
| 16 | 1,390 | 320 | 1,990 | 400 | 1,590 | 240 | 1,390 | 150 | 1,190 | 120 |
| 20 | 1,110 | 360 | 1,590 | 450 | 1,270 | 270 | 1,110 | 170 | 950 | 130 |
| 25 | 760 | 280 | 1,150 | 370 | 890 | 210 | 760 | 130 | 640 | 100 |
| 切込深さ Depth of Cut | ap=0.5DC | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

# PXRE/PXDR

## PXRE L/D≦3.5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | 調質鋼(38～45HRC) プリハードン鋼 Hardened Steel・Pre-hardened Steel SKD, NAK80, HPM50 | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 6,370 | 12,800 | 4,800 | 7,800 | 3,900 | 6,000 | 3,300 | 4,100 | 2,800 | 2,700 |
| 12 | 5,310 | 10,700 | 4,000 | 6,500 | 3,200 | 4,900 | 2,700 | 3,300 | 2,300 | 2,300 |
| 16 | 3,980 | 12,000 | 3,000 | 7,700 | 2,400 | 5,900 | 2,000 | 3,900 | 1,700 | 2,500 |
| 20 | 3,190 | 9,600 | 2,400 | 6,500 | 1,900 | 4,900 | 1,600 | 3,300 | 1,400 | 2,200 |
| 切込深さ Depth of Cut | ap=0.1×コーナ半径(RE) Corner Radius<br>ae=0.3DC | | | | | | | | ap=0.05×コーナ半径(RE) Corner Radius<br>ae=0.3DC | |

## PXDR-P L/D≦5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel・Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 4,770 | 3,580 | 4,770 | 2,860 | 4,770 | 2,150 | 4,770 | 1,430 |
| 12 | 3,980 | 2,980 | 3,980 | 2,390 | 3,980 | 1,790 | 3,980 | 1,190 |
| 16 | 2,980 | 2,240 | 2,980 | 1,790 | 2,980 | 1,340 | 2,980 | 900 |
| 20 | 2,390 | 1,790 | 2,390 | 1,430 | 2,390 | 1,070 | 2,390 | 720 |
| 切込深さ Depth of Cut | ap=0.05DC<br>ae=0.25DC | | | | | | ap=0.03DC<br>ae=0.25DC | |

## PXDR-N L/D≦5

| 被削材 Work Material | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel・Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼 Hardened Steel (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 4,770 | 3,580 | 3,820 | 2,290 | 3,180 | 1,150 | 3,180 | 950 |
| 12 | 3,980 | 2,980 | 3,180 | 1,910 | 2,650 | 950 | 2,650 | 800 |
| 16 | 2,980 | 2,240 | 2,390 | 1,430 | 1,990 | 720 | 1,990 | 600 |
| 20 | 2,390 | 1,790 | 1,910 | 1,150 | 1,590 | 570 | 1,590 | 480 |
| 切込深さ Depth of Cut | ap=0.03DC<br>ae=0.25DC | | | | | | ap=0.02DC<br>ae=0.2DC | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。

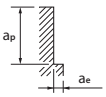
1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

形状寸法表
SPECIFICATION CHARTS
PXSH▶P1012

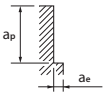
# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXSH

### PXSH 側面切削 Side Milling L/D≦4

| 被削材 Work Material | 調質鋼(～45HRC)・プリハードン鋼 Hardened Steel·Prehardened Steel SCM, SKD61, NAK80 | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed (m/min) | 110～130 | | 80～100 | | 60～80 | | 50～70 | | 40～60 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 3,180 | 2,290 | 2,390 | 1,720 | 1,860 | 940 | 1,590 | 690 | 1,330 | 510 |
| 16 | 2,390 | 2,290 | 1,790 | 1,720 | 1,390 | 930 | 1,190 | 690 | 1,000 | 510 |
| 20 | 1,910 | 2,290 | 1,430 | 1,720 | 1,110 | 930 | 960 | 690 | 800 | 510 |
| 25 | 1,530 | 2,450 | 1,150 | 1,840 | 890 | 1,000 | 760 | 730 | 640 | 510 |
| 切込深さ Depth of Cut |  | ap=1D<br>ae=0.05D<br>ae Max = 1mm | ap=1D<br>ae=0.03D<br>ae Max = 1mm | | ap=1D<br>ae=0.02D<br>ae Max = 0.5mm | | | | | |

### PXSH 側面切削 Side Milling 4<L/D≦5

| 被削材 Work Material | 調質鋼(～45HRC)・プリハードン鋼 Hardened Steel·Prehardened Steel SCM, SKD61, NAK80 | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed (m/min) | 75～95 | | 55～75 | | 40～60 | | 35～55 | | 25～45 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 2,260 | 1,630 | 1,730 | 1,250 | 1,330 | 480 | 1,190 | 340 | 930 | 200 |
| 16 | 1,690 | 1,620 | 1,290 | 1,240 | 1,000 | 480 | 900 | 350 | 700 | 200 |
| 20 | 1,350 | 1,620 | 1,040 | 1,250 | 800 | 480 | 720 | 350 | 560 | 200 |
| 25 | 1,080 | 1,730 | 830 | 1,330 | 640 | 720 | 570 | 550 | 450 | 360 |
| 切込深さ Depth of Cut |  | ap=1D<br>ae=0.03D<br>ae Max = 1mm | ap=1D<br>ae=0.02D<br>ae Max = 1mm | | ap=0.7D<br>ae=0.02D<br>ae Max = 0.5mm | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。
5. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. Use an air-blow or a suitable cutting fluid with high smoke retardant properties.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

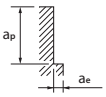
# インデキサブルツール切削条件基準表

## PXSH

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions below are for high speed / high precision machining centers.

### PXSH 高速側面切削 High-Speed Side Milling L/D≦4

| 被削材 Work Material | 調質鋼(～45HRC)・プリハードン鋼 Hardened Steel·Prehardened Steel SCM, SKD61, NAK80 | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed (m/min) | 160～180 | | 140～160 | | 95～115 | | 80～100 | | 60～80 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 4,510 | 2,600 | 3,980 | 2,290 | 2,790 | 1,130 | 2,390 | 860 | 1,860 | 600 |
| 16 | 3,380 | 2,600 | 2,990 | 2,300 | 2,090 | 1,130 | 1,790 | 860 | 1,390 | 600 |
| 20 | 2,710 | 2,600 | 2,390 | 2,290 | 1,670 | 1,130 | 1,430 | 860 | 1,110 | 600 |
| 25 | 2,170 | 2,780 | 1,910 | 2,440 | 1,340 | 1,210 | 1,150 | 920 | 890 | 640 |
| 切込深さ Depth of Cut |   ap=1D ae=0.05D ae Max = 1mm | | ap=1D ae=0.03D ae Max = 1mm | | ap=1D ae=0.015D ae Max = 0.5mm | | ap=1D ae=0.01D ae Max = 0.2mm | | | |

1. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。
5. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Tools can cause sparks. Do not use flammable fluids.
2. Use a rigid and precise machine and holder.
3. When chattering occurs, reduce the speed and feed simultaneously.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. Use an air-blow or a suitable cutting fluid with high smoke retardant properties.

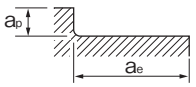
形状寸法表
SPECIFICATION CHARTS
PXHF-AM▶P1013

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

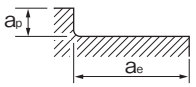
## PXHF-AM

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

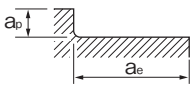
### PXHF-AM 正面切削 Frontal Milling L/D≦4

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | 調質鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Based Alloy (Stellite) | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | | ~62HRC | | ~70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed (m/min) | 110~130 | | 90~110 | | 65~85 | | 125~145 | | 110~130 | | 90~110 | | 30~50 | |
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 12 | 3,180 | 5,270 | 2,650 | 4,390 | 1,990 | 1,580 | 3,580 | 5,930 | 3,180 | 5,270 | 2,650 | 4,390 | 1,060 | 760 |
| 16 | 2,390 | 5,280 | 1,990 | 4,390 | 1,490 | 1,570 | 2,690 | 5,940 | 2,390 | 5,280 | 1,990 | 4,390 | 800 | 770 |
| 20 | 1,910 | 5,270 | 1,590 | 4,390 | 1,190 | 1,570 | 2,150 | 5,930 | 1,910 | 5,270 | 1,590 | 4,390 | 640 | 770 |
| 切込深さ Depth of Cut |  ap=Max : 0.04D ae=Max : 0.5D | | | | | | | | | | | | | |

### PXHF-AM 正面切削 Frontal Milling 4<L/D≦5

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | 調質鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Based Alloy (Stellite) | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | | ~62HRC | | ~70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed (m/min) | 100~120 | | 80~100 | | 60~80 | | 115~135 | | 100~120 | | 80~100 | | 25~45 | |
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 12 | 2,920 | 3,780 | 2,390 | 3,100 | 1,860 | 1,210 | 3,320 | 4,300 | 2,920 | 3,780 | 2,390 | 3,100 | 930 | 540 |
| 16 | 2,190 | 3,780 | 1,790 | 3,090 | 1,390 | 1,200 | 2,490 | 4,300 | 2,190 | 3,780 | 1,790 | 3,090 | 700 | 540 |
| 20 | 1,750 | 3,780 | 1,430 | 3,090 | 1,110 | 1,200 | 1,990 | 4,300 | 1,750 | 3,780 | 1,430 | 3,090 | 560 | 540 |
| 切込深さ Depth of Cut |  ap=Max : 0.03D ae=Max : 0.5D | | | | | | | | | | | | | |

### PXHF-AM 正面切削 Frontal Milling 5<L/D≦6

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | 調質鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Based Alloy (Stellite) | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | | ~62HRC | | ~70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed (m/min) | 90~110 | | 70~90 | | 50~70 | | 100~120 | | 90~110 | | 70~90 | | 20~40 | |
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 12 | 2,650 | 2,670 | 2,120 | 2,140 | 1,590 | 800 | 2,920 | 2,940 | 2,650 | 2,670 | 2,120 | 2,140 | 800 | 350 |
| 16 | 1,990 | 2,670 | 1,590 | 2,140 | 1,190 | 800 | 2,190 | 2,940 | 1,990 | 2,670 | 1,590 | 2,140 | 600 | 350 |
| 20 | 1,590 | 2,670 | 1,270 | 2,130 | 960 | 810 | 1,750 | 2,940 | 1,590 | 2,670 | 1,270 | 2,130 | 480 | 350 |
| 切込深さ Depth of Cut |  ap=Max : 0.02D ae=Max : 0.5D | | | | | | | | | | | | | |

1.本工具はアディティブ・マニュファクチャリング（金属積層）、金型肉盛り部表層の荒取り加工に使用することを推奨します。
2.機械、ホルダは剛性のある精度の高いものをご使用下さい。
3.上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
4.推奨条件よりも切込み量を大きくとる場合は、送り速度を抑えてご使用下さい。
5.突出し長さが長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込み深さを調整下さい。
6.切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
7.乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
8.ステンレス鋼、コバルトクロム合金、チタン合金、Ni 基合金の加工には、水溶性切削油剤の使用を推奨します。
9.工具の振れ精度を最小限に抑えてご使用下さい。
10.コーナ部等切削負荷が変動する場合は、回転速度を抑えてご使用下さい。
11.ピック量が0.5D以上の場合、加工面にカスプが発生することがあります。

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. Please adjust the cutting condition when the overhang length is longer.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air-blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromiumalloy, titanium alloy, and Ni-based alloy.
9. Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.
11. If the pick amount is 0.5 x D or more, cusp may occur on the machined surface.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PXHF-AM

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

### PXHF-AM　側面切削 Side Milling

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | 調質鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Based Alloy (Stellite) | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～45HRC | | ～62HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed (m/min) | 80～100 | | 50～70 | | 50～70 | | 100～120 | | 90～110 | | 70～90 | | 30～50 | |
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 12 | 2,390 | 1,200 | 1,590 | 570 | 1,060 | 230 | 2,650 | 1,340 | 2,390 | 1,200 | 1,590 | 570 | 800 | 230 |
| 16 | 1,790 | 1,200 | 1,190 | 570 | 800 | 230 | 1,990 | 1,340 | 1,790 | 1,200 | 1,190 | 570 | 600 | 230 |
| 20 | 1,430 | 1,200 | 960 | 580 | 640 | 230 | 1,590 | 1,340 | 1,430 | 1,200 | 960 | 580 | 480 | 230 |
| 切込深さ Depth of Cut | ap=Max : 0.5D<br>ae=Max : 0.05D | | ap=Max : 0.5D<br>ae=Max : 0.02D | | | | ap=Max : 0.5D<br>ae=Max : 0.05D | | | | ap=Max : 0.5D<br>ae=Max : 0.02D | | | |

※上表は、工具の突出し量が4D以下の場合の目安です。突出し量が大きい場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込み深さを調整下さい。

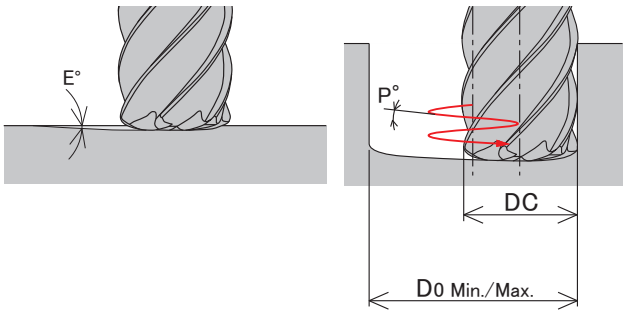
1. 本工具はアディティブ・マニュファクチャリング（金属積層）、金型肉盛り部表層の荒取り加工に使用することを推奨します。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
4. 推奨条件よりも切込み量を大きくとる場合は、送り速度を抑えてご使用下さい。
5. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
6. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
7. ステンレス鋼、コバルトクロム合金、チタン合金、Ni 基合金の加工には、水溶性切削油剤の使用を推奨します。
8. 工具の振れ精度を最小限に抑えてご使用下さい。
9. コーナ部等切削負荷が変動する場合は、回転速度を抑えてご使用下さい。

*The above table is a guide when the amount of protrusion of the tool is 4 x D or less. If the amount of protrusion is large, chattering is likely to occur, so adjust the rotation speed, feed rate and depth of cut.

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. Please use a suitable fluid with high smoke retardant properties.
6. During dry (no fluid) milling, please use air-blow to remove disposable chips from the milling area and to eliminate chip packing.
7. Please use water-soluble coolant when machining stainless steel, cobalt-chromiumalloy, titanium alloy, and Ni-based alloy.
8. Tool runout should be kept to a minimum for maximum accuracy.
9. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.

### ・ランピング加工時の最大傾斜角（E°）とヘリカル加工時の最大傾斜角（P°） Maximum Ramping (E) and Helical (P) Angle

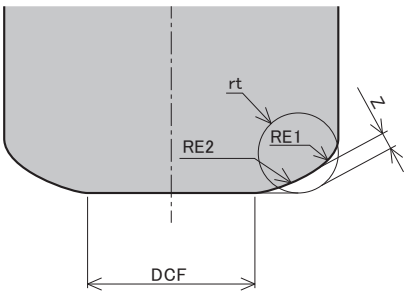
| 呼び Designation | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° |
|---|---|---|---|---|
| | | 最小径 D0 Min. | 最大径 D0 Max. | |
| PXHF-AM120C12-06R150-O | 3° | 18 | 23 | 1.5° |
| PXHF-AM160C16-06R200-O | | 24 | 31 | |
| PXHF-AM200C20-06R250-O | | 30 | 39 | |




### ・プログラム作成上の刃先形状定義 Edge shape definitions for the purpose of creating a program

| 呼び Designation | 擬似R rt | 削り残し量 Remainder Z |
|---|---|---|
| PXHF-AM120C12-06R150-O | R1.5 | 0.36 |
| PXHF-AM160C16-06R200-O | R2 | 0.47 |
| PXHF-AM200C20-06R250-O | R2.5 | 0.59 |

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.



形状寸法表 SPECIFICATION CHARTS PXBE▶P1014
形状寸法表 SPECIFICATION CHARTS PXBM▶P1016

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXBE/PXBM

### PXBE-P L/D≦5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金 Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 4,770 | 2,150 | 3,820 | 1,720 | 3,180 | 1,430 | 3,180 | 950 |
| 12 | 3,980 | 1,790 | 3,180 | 1,430 | 2,650 | 1,190 | 2,650 | 800 |
| 16 | 2,980 | 1,340 | 2,390 | 1,070 | 1,990 | 900 | 1,990 | 600 |
| 20 | 2,390 | 1,070 | 1,910 | 860 | 1,590 | 720 | 1,590 | 480 |
| 切込深さ Depth of Cut | ap=0.07DC Pf=0.15DC | | | | | | ap=0.04DC Pf=0.1DC | |

### PXBE-N L/D≦3.5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel・Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金 Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 7,960 | 3,580 | 7,960 | 3,580 | 6,370 | 2,290 | 4,770 | 1,430 | 3,180 | 480 |
| 12 | 6,630 | 2,980 | 6,630 | 2,980 | 5,310 | 1,910 | 3,980 | 1,190 | 2,650 | 400 |
| 16 | 4,970 | 2,240 | 4,970 | 2,240 | 3,980 | 1,430 | 2,980 | 900 | 1,990 | 300 |
| 20 | 3,980 | 1,790 | 3,980 | 1,790 | 3,180 | 1,150 | 2,390 | 720 | 1,590 | 240 |
| 切込深さ Depth of Cut | ap=0.05DC Pf=0.15DC | | | | | | ap=0.04DC Pf=0.1DC | | ap=0.03DC Pf=0.05DC | |

### PXBM L/D≦3.5

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | | 調質鋼 Hardened Steel (55～60HRC) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 7,960 | 4,770 | 7,960 | 4,770 | 6,360 | 3,050 | 4,770 | 1,910 | 3,180 | 640 |
| 12 | 6,630 | 3,980 | 6,630 | 3,980 | 5,300 | 2,540 | 3,980 | 1,590 | 2,650 | 530 |
| 16 | 4,970 | 4,480 | 4,970 | 4,480 | 3,970 | 2,860 | 2,980 | 1,790 | 1,990 | 600 |
| 20 | 3,980 | 3,580 | 3,980 | 3,580 | 3,180 | 2,290 | 2,390 | 1,430 | 1,590 | 480 |
| 切込深さ Depth of Cut | ap=0.02DC Pf=0.05DC | | | | | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PXVC+PXMC

### 側面切削　PXVC + PXMC　エキストラショートタイプ Side Milling, PXVC+PXMC Extra Short Type

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 6,690 | 2,070 | 5,350 | 1,650 | 4,460 | 1,240 | 3,320 | 870 |
| 12 | 5,580 | 1,720 | 4,460 | 1,380 | 3,720 | 1,030 | 2,760 | 720 |
| 14 | 4,780 | 1,480 | 3,820 | 1,180 | 3,190 | 890 | 2,370 | 620 |
| 16 | 4,180 | 1,290 | 3,350 | 1,040 | 2,790 | 780 | 2,070 | 540 |
| 18 | 3,720 | 1,150 | 2,980 | 920 | 2,480 | 690 | 1,840 | 480 |
| 20 | 3,350 | 1,040 | 2,680 | 830 | 2,230 | 620 | 1,660 | 440 |
| 22 | 3,040 | 940 | 2,440 | 760 | 2,030 | 570 | 1,510 | 400 |
| 25 | 2,680 | 830 | 2,140 | 660 | 1,790 | 500 | 1,330 | 350 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | |
| 切込深さ Depth of Cut | ap=0.5DC ae=0.25DC | | | | ap=0.5DC ae=0.12DC | | ap=0.5DC ae=0.075DC | |

### 側面切削　PXVC + PXMC　ショートタイプ Side Milling, PXVC+PXMC Short Type

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 5,730 | 1,490 | 4,590 | 1,200 | 3,820 | 970 | 2,550 | 750 |
| 12 | 4,780 | 1,250 | 3,820 | 1,000 | 3,190 | 810 | 2,130 | 630 |
| 14 | 4,100 | 1,070 | 3,280 | 860 | 2,730 | 690 | 1,820 | 540 |
| 16 | 3,590 | 940 | 2,870 | 750 | 2,390 | 610 | 1,600 | 470 |
| 18 | 3,190 | 830 | 2,550 | 670 | 2,130 | 540 | 1,420 | 420 |
| 20 | 2,870 | 750 | 2,300 | 600 | 1,910 | 490 | 1,280 | 380 |
| 22 | 2,610 | 680 | 2,090 | 550 | 1,740 | 440 | 1,160 | 340 |
| 25 | 2,300 | 600 | 1,840 | 480 | 1,530 | 390 | 1,020 | 300 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | |
| 切込深さ Depth of Cut | ap=0.5DC ae=0.2DC | | | | ap=0.5DC ae=0.1DC | | ap=0.5DC ae=0.05DC | |

1. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
1. Please adjust speed and feed when the depth of cut is large or machines with low rigidity are used.

形状寸法表 SPECIFICATION CHARTS PXVC▶P1003
形状寸法表 SPECIFICATION CHARTS PXMC▶P1022

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXVC+PXMC

### 溝切削　PXVC＋PXMC　エキストラショートタイプ Slot Milling, PXVC+PXMC Extra Short Type

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 5,730 | 1,450 | 4,620 | 1,170 | 3,820 | 770 | 2,620 | 530 |
| 12 | 4,780 | 1,210 | 3,850 | 980 | 3,190 | 640 | 2,180 | 440 |
| 14 | 4,100 | 1,040 | 3,300 | 840 | 2,730 | 550 | 1,870 | 380 |
| 16 | 3,590 | 910 | 2,890 | 730 | 2,390 | 480 | 1,640 | 330 |
| 18 | 3,190 | 810 | 2,570 | 650 | 2,130 | 430 | 1,460 | 300 |
| 20 | 2,870 | 730 | 2,310 | 590 | 1,910 | 390 | 1,310 | 270 |
| 22 | 2,610 | 660 | 2,100 | 530 | 1,740 | 350 | 1,190 | 240 |
| 25 | 2,300 | 580 | 1,850 | 470 | 1,530 | 310 | 1,050 | 210 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | |
| 切込深さ Depth of Cut | ap≦0.5DC | | ap≦0.4DC | | ap≦0.3DC | | | |

### 溝切削　PXVC＋PXMC　ショートタイプ Slot Milling, PXVC+PXMC Short Type

| 被削材 Work Material | 一般構造用鋼・炭素鋼・鋳鉄 Mild Steel・Carbon Steel Cast Iron SS400, S55C, FC250 (～750N/mm²) | | 合金鋼・工具鋼 Alloy Steel Tool Steel SCM, SKT, SKS, SKD (～30HRC) | | ステンレス鋼・調質鋼 Stainless Steel Hardened Steel SUS304, SKD (～45HRC) | | 調質鋼・チタン合金(湿式) Hardened Steel Titanium Alloy (Wet) Ti-6Al-4V (45～55HRC) | |
|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 10 | 4,780 | 1,250 | 3,820 | 970 | 3,190 | 770 | 2,390 | 480 |
| 12 | 3,980 | 1,040 | 3,190 | 810 | 2,660 | 640 | 1,990 | 400 |
| 14 | 3,420 | 890 | 2,730 | 690 | 2,280 | 550 | 1,710 | 350 |
| 16 | 2,990 | 780 | 2,390 | 610 | 1,990 | 480 | 1,500 | 300 |
| 18 | 2,660 | 700 | 2,130 | 540 | 1,770 | 430 | 1,330 | 270 |
| 20 | 2,390 | 630 | 1,910 | 490 | 1,600 | 390 | 1,200 | 240 |
| 22 | 2,180 | 570 | 1,740 | 440 | 1,450 | 350 | 1,090 | 220 |
| 25 | 1,910 | 500 | 1,530 | 390 | 1,280 | 310 | 960 | 200 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | |
| 切込深さ Depth of Cut | ap≦0.5DC | | ap≦0.4DC | | ap≦0.3DC | | | |

1. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
1. Please adjust speed and feed when the depth of cut is large or machines with low rigidity are used.

# PXAL+PXMC

## PXAL+PXMC エキストラショートタイプ PXAL + PXMC Extra Short Type

### 側面切削 Side Milling

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | | 熱可塑性樹脂 Thermoplastic Resin PP・UPE・PTFE | | 熱可塑性樹脂 Thermoplastic Resin POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | 熱可塑性樹脂 Thermoplastic Resin アクリル Acrylic | | 熱硬化性樹脂 Thermosetting Resin ベークライト Bakelite | |
|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 450 | | 115 | | 95 | | 115 | | 115 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 10,000 | 3,000 | 2,900 | 960 | 2,500 | 790 | 2,900 | 440 | 2,900 | 440 |
| 14 | 10,000 | 3,000 | 2,500 | 830 | 2,300 | 720 | 2,500 | 380 | 2,500 | 380 |
| 16 | 10,000 | 3,000 | 2,400 | 790 | 2,000 | 630 | 2,400 | 380 | 2,400 | 380 |
| 18 | 8,900 | 3,210 | 2,100 | 760 | 1,800 | 620 | 2,100 | 380 | 2,100 | 380 |
| 20 | 8,000 | 2,880 | 1,900 | 740 | 1,600 | 600 | 1,900 | 370 | 1,900 | 370 |
| 22 | 7,300 | 3,510 | 1,700 | 660 | 1,400 | 530 | 1,700 | 360 | 1,700 | 360 |
| 25 | 6,400 | 3,080 | 1,500 | 660 | 1,250 | 530 | 1,500 | 360 | 1,500 | 360 |
| 切込深さ Depth of Cut | ap=0.7D<br>ae=0.2D | | ap=1D<br>ae=0.5D | | | | | | | |

アルミニウム合金の条件は、水溶性切削油剤を使用する場合のものです。
樹脂の条件は、エアブローを使用する場合のものです。

The cutting conditions for aluminum alloys are for when using water-soluble cutting fluids.
The cutting conditions for resin are for when using air-blow.

### 溝切削 Slot Milling

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | | 熱可塑性樹脂 Thermoplastic Resin PP・UPE・PTFE | | 熱可塑性樹脂 Thermoplastic Resin POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | 熱可塑性樹脂 Thermoplastic Resin アクリル Acrylic | | 熱硬化性樹脂 Thermosetting Resin ベークライト Bakelite | |
|---|---|---|---|---|---|---|---|---|---|---|
| 切削速度 Cutting Speed (m/min) | 450 | | 105 | | 85 | | 105 | | 105 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 10,000 | 3,000 | 2,700 | 890 | 2,400 | 660 | 2,700 | 410 | 2,700 | 410 |
| 14 | 10,000 | 3,000 | 2,300 | 760 | 2,000 | 630 | 2,300 | 350 | 2,300 | 350 |
| 16 | 10,000 | 3,000 | 2,200 | 730 | 1,800 | 570 | 2,200 | 350 | 2,200 | 350 |
| 18 | 8,900 | 2,670 | 1,900 | 680 | 1,600 | 550 | 1,900 | 340 | 1,900 | 340 |
| 20 | 8,000 | 2,400 | 1,750 | 650 | 1,400 | 530 | 1,750 | 340 | 1,750 | 340 |
| 22 | 7,300 | 2,190 | 1,600 | 620 | 1,300 | 490 | 1,600 | 340 | 1,600 | 340 |
| 25 | 6,400 | 1,920 | 1,400 | 620 | 1,100 | 480 | 1,400 | 340 | 1,400 | 340 |
| 切込深さ Depth of Cut | ap=0.5D | | | | | | | | | |

| | ap |
|---|---|
| DC≦12 | 1D |
| 12<DC | 0.5D |

アルミニウム合金の条件は、水溶性切削油剤を使用する場合のものです。
樹脂の条件は、エアブローを使用する場合のものです。

The cutting conditions for aluminum alloys are for when using water-soluble cutting fluids.
The cutting conditions for resin are for when using air-blow.

1. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。 樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
2. 銅・銅合金切削時は、上表の回転速度20 ～40%、送り速度50 ～80%、切込み深さ（ap）50 ～80%程度に下げてご使用下さい。
3. マグネシウム合金切削時は、アルミニウム合金展伸材と同条件でご使用下さい。切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
4. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
5. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

1. Please adjust speed and feed when the depth of cut is large or machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
2. When milling copper and copper alloys, lower the rotational speed by 20 to 40%, feed rate by 50 to 80%, and cutting depth by ap 50 to 80% in accordance with the table above.
3. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
4. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
5. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

形状寸法表 SPECIFICATION CHARTS PXAL▶P1007
形状寸法表 SPECIFICATION CHARTS PXMC▶P1022

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXAL+PXMC

### PXAL+PXMC ショートタイプ PXAL + PXMC Short Type

**側面切削** Side Milling

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 450 | | 115 | | 95 | | 115 | | 115 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 10,000 | 2,700 | 2,900 | 960 | 2,500 | 790 | 2,900 | 440 | 2,900 | 440 |
| 14 | 10,000 | 2,700 | 2,500 | 830 | 2,300 | 720 | 2,500 | 380 | 2,500 | 380 |
| 16 | 10,000 | 2,700 | 2,400 | 790 | 2,000 | 630 | 2,400 | 380 | 2,400 | 380 |
| 18 | 8,900 | 2,890 | 2,100 | 760 | 1,800 | 620 | 2,100 | 380 | 2,100 | 380 |
| 20 | 8,000 | 2,600 | 1,900 | 740 | 1,600 | 600 | 1,900 | 370 | 1,900 | 370 |
| 22 | 7,300 | 3,160 | 1,700 | 660 | 1,400 | 530 | 1,700 | 360 | 1,700 | 360 |
| 25 | 6,400 | 2,770 | 1,500 | 660 | 1,250 | 530 | 1,500 | 360 | 1,500 | 360 |
| 切込深さ Depth of Cut | ap=0.7D<br>ae=0.2D | | ap=1D<br>ae=0.5D | | | | | | | |

アルミニウム合金の条件は、水溶性切削油剤を使用する場合のものです。
樹脂の条件は、エアブローを使用する場合のものです。

The cutting conditions for aluminum alloys are for when using water-soluble cutting fluids.
The cutting conditions for resin are for when using air-blow.

**溝切削** Slot Milling

| 被削材 Work Material | アルミニウム合金展伸材 Aluminum Alloy Expanding Material A5052, A7075 | | 熱可塑性樹脂 Thermoplastic Resin | | | | | | 熱硬化性樹脂 Thermosetting Resin | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | PP・UPE・PTFE | | POM・PVC・MCナイロン・ABS樹脂・PEEK MC Nylon ABS Resin | | アクリル Acrylic | | ベークライト Bakelite | |
| 切削速度 Cutting Speed (m/min) | 450 | | 105 | | 85 | | 105 | | 105 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 10,000 | 2,700 | 2,700 | 890 | 2,400 | 660 | 2,700 | 410 | 2,700 | 410 |
| 14 | 10,000 | 2,700 | 2,300 | 760 | 2,000 | 630 | 2,300 | 350 | 2,300 | 350 |
| 16 | 10,000 | 2,700 | 2,200 | 730 | 1,800 | 570 | 2,200 | 350 | 2,200 | 350 |
| 18 | 8,900 | 2,410 | 1,900 | 680 | 1,600 | 550 | 1,900 | 340 | 1,900 | 340 |
| 20 | 8,000 | 2,160 | 1,750 | 650 | 1,400 | 530 | 1,750 | 340 | 1,750 | 340 |
| 22 | 7,300 | 1,980 | 1,600 | 620 | 1,300 | 490 | 1,600 | 340 | 1,600 | 340 |
| 25 | 6,400 | 1,730 | 1,400 | 620 | 1,100 | 480 | 1,400 | 340 | 1,400 | 340 |
| 切込深さ Depth of Cut | ap=0.5D | | | | | | | | | |

| | ap |
|---|---|
| DC≦12 | 1D |
| 12<DC | 0.5D |

アルミニウム合金の条件は、水溶性切削油剤を使用する場合のものです。
樹脂の条件は、エアブローを使用する場合のものです。

The cutting conditions for aluminum alloys are for when using water-soluble cutting fluids.
The cutting conditions for resin are for when using air-blow.

1. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。 樹脂加工では、強固なワーク形状、固定方法の場合は送り速度が上げられます。
2. 銅・銅合金切削時は、上表の回転速度20 ～40%、送り速度50 ～80%、切込み深さ（ap）50 ～80%程度に下げてご使用下さい。
3. マグネシウム合金切削時は、アルミニウム合金展伸材と同条件でご使用下さい。切削油剤を使用する場合は切削油剤メーカの推奨するものを必ずご使用下さい。また、切りくずの処理・管理にご注意下さい。発火の恐れがあります。
4. 樹脂を加工する際、切りくずの噛み込み、巻き付きを防止するため、切りくずを除去して下さい。
5. 樹脂をより高品位に加工する場合は水溶性切削油剤の使用を推奨します（ナイロン系とベークライトを除く）。

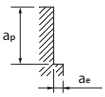
1. Please adjust speed and feed when the depth of cut is large or machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
2. When milling copper and copper alloys, lower the rotational speed by 20 to 40%, feed rate by 50 to 80%, and cutting depth by ap 50 to 80% in accordance with the table above.
3. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
4. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
5. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

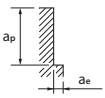
# インデキサブルツール切削条件基準表

## PXSH+PXMC

### PXSH + PXMC 側面切削 Side Milling L/D≦4

| 被削材 Work Material | 調質鋼(～45HRC)・プリハードン鋼 Hardened Steel·Prehardened Steel SCM, SKD61, NAK80 | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed (m/min) | 110～130 | | 80～100 | | 60～80 | | 50～70 | | 40～60 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 3,180 | 2,290 | 2,390 | 1,720 | 1,860 | 940 | 1,590 | 690 | 1,330 | 510 |
| 16 | 2,390 | 2,290 | 1,790 | 1,720 | 1,390 | 930 | 1,190 | 690 | 1,000 | 510 |
| 20 | 1,910 | 2,290 | 1,430 | 1,720 | 1,110 | 930 | 960 | 690 | 800 | 510 |
| 25 | 1,530 | 2,450 | 1,150 | 1,840 | 890 | 1,000 | 760 | 730 | 640 | 510 |
| 切込深さ Depth of Cut |  ap=1D ae=0.05D ae Max = 1mm | | ap=1D ae=0.03D ae Max = 1mm | | ap=1D ae=0.02D ae Max = 0.5mm | | | | | |

### PXSH + PXMC 側面切削 Side Milling 4<L/D≦5

| 被削材 Work Material | 調質鋼(～45HRC)・プリハードン鋼 Hardened Steel·Prehardened Steel SCM, SKD61, NAK80 | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed (m/min) | 75～95 | | 55～75 | | 40～60 | | 35～55 | | 25～45 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 2,260 | 1,630 | 1,730 | 1,250 | 1,330 | 480 | 1,190 | 340 | 930 | 200 |
| 16 | 1,690 | 1,620 | 1,290 | 1,240 | 1,000 | 480 | 900 | 350 | 700 | 200 |
| 20 | 1,350 | 1,620 | 1,040 | 1,250 | 800 | 480 | 720 | 350 | 560 | 200 |
| 25 | 1,080 | 1,730 | 830 | 1,330 | 640 | 720 | 570 | 550 | 450 | 360 |
| 切込深さ Depth of Cut |  ap=1D ae=0.03D ae Max = 1mm | | ap=1D ae=0.02D ae Max = 1mm | | ap=0.7D ae=0.02D ae Max = 0.5mm | | | | | |

1. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
2. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
3. 突出し量が長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込深さを調整下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。
5. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. Use an air-blow or a suitable cutting fluid with high smoke retardant properties.

形状寸法表 SPECIFICATION CHARTS PXSH▶P1012
形状寸法表 SPECIFICATION CHARTS PXMC▶P1022

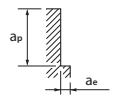
# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXSH+PXMC

⚠ 加工時に発生する火花や破損による発熱で引火・火災の危険性があります。
防火対策を必ず行って下さい。
高速高精度のマシニングセンタを利用した場合の基準条件表です。

Caution:Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions below are for high speed / high precision machining centers.

### PXSH + PXMC 高速側面切削 High-Speed Side Milling L/D≦4

| 被削材 Work Material | 調質鋼(～45HRC)・プリハードン鋼 Hardened Steel·Prehardened Steel SCM, SKD61, NAK80 | | 調質鋼 Hardened Steel | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ～55HRC | | ～62HRC | | ～66HRC | | ～70HRC | |
| 切削速度 Cutting Speed (m/min) | 160～180 | | 140～160 | | 95～115 | | 80～100 | | 60～80 | |
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 12 | 4,510 | 2,600 | 3,980 | 2,290 | 2,790 | 1,130 | 2,390 | 860 | 1,860 | 600 |
| 16 | 3,380 | 2,600 | 2,990 | 2,300 | 2,090 | 1,130 | 1,790 | 860 | 1,390 | 600 |
| 20 | 2,710 | 2,600 | 2,390 | 2,290 | 1,670 | 1,130 | 1,430 | 860 | 1,110 | 600 |
| 25 | 2,170 | 2,780 | 1,910 | 2,440 | 1,340 | 1,210 | 1,150 | 920 | 890 | 640 |
| 切込深さ Depth of Cut |   ap=1D ae=0.05D ae Max = 1mm | | ap=1D ae=0.03D ae Max = 1mm | | ap=1D ae=0.015D ae Max = 0.5mm | | ap=1D ae=0.01D ae Max = 0.2mm | | | |

1. 摩耗が進行すると火花が発生しますので、発火性のある切削油剤は絶対に使用しないで下さい。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. びびりが発生する時は、回転速度、送り速度を同じ割合で下げてご使用下さい。
4. 切削条件は、ホルダ端面からのシャンクホルダ(PXMZ)の突出し長さにヘッド全長(LF)を加えた突出し長さを配慮した選定をして下さい。
5. 切削油剤は被削材に応じてエアブローまたは発煙性の少ない切削油剤をご使用下さい。

1. Tools can cause sparks. Do not use flammable fluids.
2. Use a rigid and precise machine and holder.
3. When chattering occurs, reduce the speed and feed simultaneously.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. Use an air-blow or a suitable cutting fluid with high smoke retardant properties.

形状寸法表 SPECIFICATION CHARTS PXHF-AM▶P1013
形状寸法表 SPECIFICATION CHARTS PXMC▶P1022

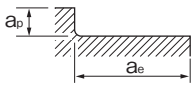
CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

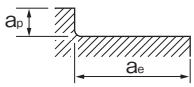
## PXHF-AM+PXMC

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

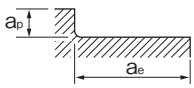
### PXHF-AM + PXMC 正面切削 Frontal Milling L/D≦4

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | 調質鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Based Alloy (Stellite) | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～45HRC | | ～62HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed (m/min) | 110～130 | | 90～110 | | 65～85 | | 125～145 | | 110～130 | | 90～110 | | 30～50 | |
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 12 | 3,180 | 5,270 | 2,650 | 4,390 | 1,990 | 1,580 | 3,580 | 5,930 | 3,180 | 5,270 | 2,650 | 4,390 | 1,060 | 760 |
| 16 | 2,390 | 5,280 | 1,990 | 4,390 | 1,490 | 1,570 | 2,690 | 5,940 | 2,390 | 5,280 | 1,990 | 4,390 | 800 | 770 |
| 20 | 1,910 | 5,270 | 1,590 | 4,390 | 1,190 | 1,570 | 2,150 | 5,930 | 1,910 | 5,270 | 1,590 | 4,390 | 640 | 770 |
| 切込深さ Depth of Cut |  | | | | | | | | ap=Max : 0.04D<br>ae=Max : 0.5D | | | | | |

### PXHF-AM + PXMC 正面切削 Frontal Milling 4<L/D≦5

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | 調質鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Based Alloy (Stellite) | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～45HRC | | ～62HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed (m/min) | 100～120 | | 80～100 | | 60～80 | | 115～135 | | 100～120 | | 80～100 | | 25～45 | |
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 12 | 2,920 | 3,780 | 2,390 | 3,100 | 1,860 | 1,210 | 3,320 | 4,300 | 2,920 | 3,780 | 2,390 | 3,100 | 930 | 540 |
| 16 | 2,190 | 3,780 | 1,790 | 3,090 | 1,390 | 1,200 | 2,490 | 4,300 | 2,190 | 3,780 | 1,790 | 3,090 | 700 | 540 |
| 20 | 1,750 | 3,780 | 1,430 | 3,090 | 1,110 | 1,200 | 1,990 | 4,300 | 1,750 | 3,780 | 1,430 | 3,090 | 560 | 540 |
| 切込深さ Depth of Cut |  | | | | | | | | ap=Max : 0.03D<br>ae=Max : 0.5D | | | | | |

### PXHF-AM + PXMC 正面切削 Frontal Milling 5<L/D≦6

| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | 調質鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Based Alloy (Stellite) | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～45HRC | | ～62HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed (m/min) | 90～110 | | 70～90 | | 50～70 | | 100～120 | | 90～110 | | 70～90 | | 20～40 | |
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 12 | 2,650 | 2,670 | 2,120 | 2,140 | 1,590 | 800 | 2,920 | 2,940 | 2,650 | 2,670 | 2,120 | 2,140 | 800 | 350 |
| 16 | 1,990 | 2,670 | 1,590 | 2,140 | 1,190 | 800 | 2,190 | 2,940 | 1,990 | 2,670 | 1,590 | 2,140 | 600 | 350 |
| 20 | 1,590 | 2,670 | 1,270 | 2,130 | 960 | 810 | 1,750 | 2,940 | 1,590 | 2,670 | 1,270 | 2,130 | 480 | 350 |
| 切込深さ Depth of Cut |  | | | | | | | | ap=Max : 0.02D<br>ae=Max : 0.5D | | | | | |

1. 本工具はアディティブ・マニュファクチャリング（金属積層）、金型肉盛り部表層の荒取り加工に使用することを推奨します。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
4. 推奨条件よりも切込み量を大きくとる場合は、送り速度を抑えてご使用下さい。
5. 突出し長さが長くなる場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込み深さを調整下さい。
6. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
7. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
8. ステンレス鋼、コバルトクロム合金、チタン合金、Ni 基合金の加工には、水溶性切削油剤の使用を推奨します。
9. 工具の振れ精度を最小限に抑えてご使用下さい。
10. コーナ部等切削負荷が変動する場合は、回転速度を抑えてご使用下さい。
11. ビック量が0.5D以上の場合、加工面にカスプが発生することがあります。

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. Please adjust the cutting condition when the overhang length is longer.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air-blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromiumalloy, titanium alloy, and Ni-based alloy.
9. Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.
11. If the pick amount is 0.5 x D or more, cusp may occur on the machined surface.

形状寸法表 SPECIFICATION CHARTS PXHF-AM▶P1013
形状寸法表 SPECIFICATION CHARTS PXMC▶P1022

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXHF-AM+PXMC

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

### PXHF-AM + PXMC　側面切削 Side Milling

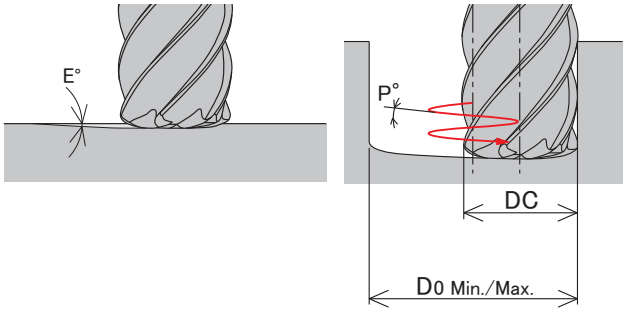
| 被削材 Work Material | 調質鋼・プリハードン鋼 Hardened Steel・Prehardened Steel | | 調質鋼 Hardened Steel | | | | ステンレス鋼 Stainless Steel | | コバルトクロム基 Cobalt-Chromium Based Alloy (Stellite) | | チタン合金 Titanium Alloy | | Ni基合金 Ni-Based Alloy (Inconel 718) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ～45HRC | | ～62HRC | | ～70HRC | | ≦200HB | | | | | | | |
| 切削速度 Cutting Speed (m/min) | 80～100 | | 50～70 | | 50～70 | | 100～120 | | 90～110 | | 70～90 | | 30～50 | |
| 外径 DC | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) | 回転速度 Speed (min⁻¹) | 送り速度 Feed (mm/min) |
| 12 | 2,390 | 1,200 | 1,590 | 570 | 1,060 | 230 | 2,650 | 1,340 | 2,390 | 1,200 | 1,590 | 570 | 800 | 230 |
| 16 | 1,790 | 1,200 | 1,190 | 570 | 800 | 230 | 1,990 | 1,340 | 1,790 | 1,200 | 1,190 | 570 | 600 | 230 |
| 20 | 1,430 | 1,200 | 960 | 580 | 640 | 230 | 1,590 | 1,340 | 1,430 | 1,200 | 960 | 580 | 480 | 230 |
| 切込深さ Depth of Cut | ap=Max : 0.5D<br>ae=Max : 0.05D | | ap=Max : 0.5D<br>ae=Max : 0.02D | | | | ap=Max : 0.5D<br>ae=Max : 0.05D | | | | ap=Max : 0.5D<br>ae=Max : 0.02D | | | |

1. 本工具はアディティブ・マニュファクチャリング（金属積層）、金型肉盛り部表層の荒取り加工に使用することを推奨します。
2. 機械、ホルダは剛性のある精度の高いものをご使用下さい。
3. 上表の値はあくまでも目安です。実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
4. 推奨条件よりも切込み量を大きくとる場合は、送り速度を抑えてご使用下さい。
5. 上表は、工具の突出し量が4D以下の場合の目安です。突出し量が大きい場合は、びびりが発生しやすくなりますので、回転速度、送り速度、切込み深さを調整下さい。
6. 切削油剤は被削材に適したもので、発煙性の少ないものをご使用下さい。
7. 乾式の場合には、切りくず詰まりが無いようエアブローにて切りくずを除去下さい。
8. ステンレス鋼、コバルトクロム合金、チタン合金、Ni 基合金の加工には、水溶性切削油剤の使用を推奨します。
9. 工具の振れ精度を最小限に抑えてご使用下さい。
10. コーナ部等切削負荷が変動する場合は、回転速度を抑えてご使用下さい。

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. The above table is a guide when the amount of protrusion of the tool is 4 x D or less. If the amount of protrusion is large, chattering is likely to occur, so adjust the rotation speed, feed rate and depth of cut.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air-blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromiumalloy, titanium alloy, and Ni-based alloy.
9. Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.

### ・ランピング加工時の最大傾斜角（E°）とヘリカル加工時の最大傾斜角（P°） Maximum Ramping (E) and Helical (P) Angle

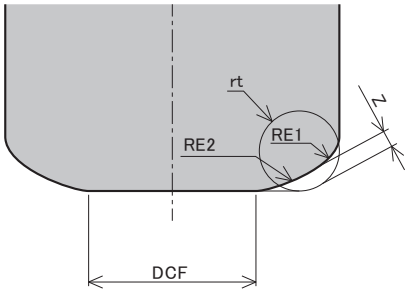
| 呼び Designation | ランピング角度 Ramping Angle E° | ヘリカル穴あけ Helical Milling (mm) | | ヘリカル角度 Helical Angle P° |
|---|---|---|---|---|
| | | 最小径 D0 Min. | 最大径 D0 Max. | |
| PXHF-AM120C12-06R150-O | 3° | 18 | 23 | 1.5° |
| PXHF-AM160C16-06R200-O | | 24 | 31 | |
| PXHF-AM200C20-06R250-O | | 30 | 39 | |




### ・プログラム作成上の刃先形状定義 Edge shape definitions for the purpose of creating a program

| 呼び Designation | 擬似R rt | 削り残し量 Remainder Z |
|---|---|---|
| PXHF-AM120C12-06R150-O | R1.5 | 0.36 |
| PXHF-AM160C16-06R200-O | R2 | 0.47 |
| PXHF-AM200C20-06R250-O | R2.5 | 0.59 |

加工に際しては、それぞれ擬似Rのラジアスエンドミルとして加工プログラムを作成下さい。
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.



# PXNH+PXMC

## 側面切削　PXNH + PXMC　エキストラショートタイプ Side Milling, PXNH+PXMC Extra Short Type

| 被削材 Work Material | 鋳鉄 Cast Iron FC250 | | 炭素鋼 Carbon Steel | | 合金鋼 Alloy Steel | | 調質鋼・プリハードン鋼(快削) Hardened Steel Pre-hardened Steel (Free-Cutting) (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 5,160 | 1,440 | 6,840 | 1,670 | 5,720 | 1,060 | 4,300 | 520 | 3,050 | 320 |
| 12 | 4,300 | 1,200 | 5,700 | 1,400 | 4,770 | 880 | 3,580 | 430 | 2,540 | 270 |
| 16 | 3,220 | 1,240 | 4,280 | 1,430 | 3,580 | 900 | 2,680 | 450 | 1,900 | 280 |
| 20 | 2,570 | 1,320 | 3,420 | 1,520 | 2,860 | 960 | 2,140 | 460 | 1,520 | 300 |
| 25 | 1,600 | 900 | 2,290 | 1,120 | 1,830 | 680 | 1,330 | 330 | 910 | 200 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | | | |
| 切込深さ Depth of Cut | ap=0.5DC<br>ae=0.4DC | | | | | | ap=0.5DC<br>ae=0.3DC | | ap=0.5DC<br>ae=0.2DC | |

## 側面切削　PXNH + PXMC　ショートタイプ Side Milling, PXNH+PXMC Short Type

| 被削材 Work Material | 鋳鉄 Cast Iron FC250 | | 炭素鋼 Carbon Steel | | 合金鋼 Alloy Steel | | 調質鋼・プリハードン鋼(快削) Hardened Steel Pre-hardened Steel (Free-Cutting) (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 4,300 | 1,300 | 5,720 | 1,510 | 4,760 | 950 | 3,720 | 410 | 3,300 | 300 |
| 12 | 3,580 | 1,080 | 4,770 | 1,260 | 3,970 | 790 | 3,100 | 340 | 2,750 | 250 |
| 16 | 2,680 | 1,110 | 3,580 | 1,290 | 2,980 | 810 | 2,320 | 360 | 2,060 | 260 |
| 20 | 2,140 | 1,180 | 2,860 | 1,360 | 2,380 | 860 | 1,850 | 370 | 1,650 | 270 |
| 25 | 1,330 | 810 | 1,900 | 1,000 | 1,530 | 610 | 1,150 | 260 | 980 | 180 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | | | |
| 切込深さ Depth of Cut | ap=0.5DC<br>ae=0.4DC | | | | | | ap=0.5DC<br>ae=0.3DC | | ap=0.5DC<br>ae=0.2DC | |

1. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
1. Please adjust speed and feed when the depth of cut is large or machines with low rigidity are used.

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# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXNH+PXMC

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### 溝切削　PXNH + PXMC　エキストラショートタイプ Slot Milling, PXNH+PXMC Extra Short Type

| 被削材 Work Material | 鋳鉄 Cast Iron FC250 | | 炭素鋼 Carbon Steel | | 合金鋼 Alloy Steel | | 調質鋼・プリハードン鋼(快削) Hardened Steel Pre-hardened Steel (Free-Cutting) (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 4,460 | 1,260 | 6,360 | 1,550 | 5,090 | 920 | 3,560 | 260 | 2,660 | 190 |
| 12 | 3,720 | 1,050 | 5,300 | 1,290 | 4,240 | 770 | 2,970 | 220 | 2,220 | 160 |
| 16 | 2,780 | 1,120 | 3,980 | 1,400 | 3,180 | 840 | 2,220 | 240 | 1,660 | 180 |
| 20 | 2,070 | 1,040 | 2,980 | 1,320 | 2,380 | 800 | 1,590 | 220 | 1,210 | 160 |
| 25 | 1,520 | 980 | 2,300 | 1,290 | 1,780 | 730 | 1,210 | 200 | 890 | 150 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | | | |
| 切込深さ Depth of Cut | ap≦0.5DC | | | | | | | | | |

### 溝切削　PXNH + PXMC　ショートタイプ Slot Milling, PXNH+PXMC Short Type

| 被削材 Work Material | 鋳鉄 Cast Iron FC250 | | 炭素鋼 Carbon Steel | | 合金鋼 Alloy Steel | | 調質鋼・プリハードン鋼(快削) Hardened Steel Pre-hardened Steel (Free-Cutting) (～45HRC) | | ステンレス鋼 Stainless Steel SUS304 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 外径 DC | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) | 回転速度 Speed ($min^{-1}$) | 送り速度 Feed (mm/min) |
| 10 | 3,350 | 1,080 | 4,760 | 1,330 | 3,820 | 790 | 2,890 | 230 | 2,280 | 170 |
| 12 | 2,790 | 900 | 3,970 | 1,110 | 3,180 | 660 | 2,410 | 190 | 1,900 | 140 |
| 16 | 2,080 | 960 | 2,980 | 1,200 | 2,380 | 720 | 1,800 | 210 | 1,420 | 150 |
| 20 | 1,470 | 890 | 2,190 | 1,150 | 1,800 | 760 | 1,310 | 200 | 1,020 | 140 |
| 25 | 1,140 | 840 | 1,720 | 1,110 | 1,330 | 630 | 980 | 180 | 760 | 130 |
| 32 | 標準シャンクとの組合せでは、最長でもL/D=5までとなります Maximum length of L/D=5 in combination with the standard shank | | | | | | | | | |
| 切込深さ Depth of Cut | ap≦0.5DC | | | | | | | | | |

1. 切込深さ、機械剛性等使用状況により、回転速度、送り速度を調整下さい。
1. Please adjust speed and feed when the depth of cut is large or machines with low rigidity are used.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表



## PMD

**側面・溝加工** Side Milling・Slot Milling　　横引き加工時は1枚刃で計算下さい。 **For horizontal milling, calculate by per tooth.**

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 側面加工 Side Milling | | | | 溝加工 Slot Milling | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | φ16,18 | | φ20,25,32 | | φ16,18 | | φ20,25,32 | |
| | | | 切削深さ ap:6mm、切削幅 ae:0.15D | | 切削深さ ap:10mm、切削幅 ae:0.2D | | 切削深さ ap:2mm、切削幅 ae:1.0D | | 切削深さ ap:3mm、切削幅 ae:1.0D | |
| | | | 切削速度 Vc (m/min) Cutting Speed | 1刃当りの送り量 fz (mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 1刃当りの送り量 fz (mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 1刃当りの送り量 fz (mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 1刃当りの送り量 fz (mm/t) Feed per Tooth |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 180 (100~250) | 0.15 (0.1~0.2) | 180 (100~250) | 0.25 (0.2~0.5) | 180 (100~250) | 0.07 (0.05~0.09) | 180 (100~250) | 0.12 (0.05~0.2) |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 180 (100~250) | 0.15 (0.1~0.2) | 180 (100~250) | 0.2 (0.15~0.4) | 180 (100~250) | 0.07 (0.05~0.09) | 180 (100~250) | 0.11 (0.05~0.2) |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 150 (80~200) | 0.15 (0.1~0.2) | 150 (80~200) | 0.2 (0.15~0.4) | 150 (80~200) | 0.06 (0.05~0.08) | 150 (80~200) | 0.1 (0.05~0.18) |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 150 (80~200) | 0.12 (0.1~0.2) | 150 (80~200) | 0.18 (0.15~0.4) | 150 (80~200) | 0.06 (0.05~0.08) | 150 (80~200) | 0.1 (0.05~0.18) |
| M | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 80 (60~120) | 0.12 (0.1~0.2) | 80 (60~120) | 0.18 (0.15~0.4) | 80 (60~120) | 0.06 (0.05~0.08) | 80 (60~120) | 0.1 (0.05~0.18) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 180 (100~300) | 0.18 (0.12~0.25) | 180 (100~300) | 0.25 (0.15~0.5) | 180 (100~300) | 0.1 (0.05~0.12) | 180 (100~300) | 0.12 (0.05~0.2) |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 180 (100~250) | 0.15 (0.1~0.2) | 180 (100~250) | 0.15 (0.1~0.4) | 180 (100~250) | 0.1 (0.05~0.12) | 180 (100~250) | 0.12 (0.05~0.2) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 300 (200~1,500) | 0.2 (0.15~0.25) | 300 (200~1,500) | 0.3 (0.2~0.5) | 300 (200~1,500) | 0.12 (0.1~0.15) | 300 (200~1,500) | 0.15 (0.1~0.25) |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel 718) | – | 35 (25~60) | 0.1 (0.08~0.15) | 35 (25~60) | 0.15 (0.1~0.3) | 35 (25~60) | 0.06 (0.05~0.15) | 35 (25~60) | 0.1 (0.05~0.15) |
| S | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 40 (30~120) | 0.1 (0.08~0.15) | 40 (30~120) | 0.18 (0.1~0.35) | 40 (30~120) | 0.06 (0.04~0.07) | 40 (30~120) | 0.1 (0.08~0.25) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100 (40~150) | 0.1 (0.08~0.15) | 100 (40~150) | 0.18 (0.1~0.3) | 100 (40~150) | 0.07 (0.05~0.08) | 90 (40~150) | 0.1 (0.08~0.2) |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 80 (40~120) | 0.1 (0.08~0.15) | 80 (40~120) | 0.12 (0.08~0.2) | 80 (40~120) | 0.06 (0.04~0.08) | 70 (40~120) | 0.08 (0.06~0.15) |
| H | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 60 (40~90) | 0.08 (0.06~0.1) | 60 (40~90) | 0.1 (0.05~0.2) | 60 (40~90) | 0.05 (0.04~0.06) | 50 (40~90) | 0.06 (0.05~0.1) |

・上記条件表はショートシャンクタイプにおける推奨値となります。
ロングシャンクタイプは、切削速度を上記条件表の80%でご使用下さい。
1. この切削条件基準表は、水溶性切削油剤を使用する場合のものです。
2. この切削条件基準表は、実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
3. インサートの装着に際しては、傷や汚れを取り除いた状態でしっかりと取り付けて下さい。
4. 被削材の保持はしっかりと行い、変形、たわみ、振動が起こらない状態にして下さい。

・Above recommended speed is for short shank type.
For long shank type, use the following cutting condition: cutting speed = 80% of the above settings.
1. The indicated speeds and feeds are for milling with water-soluble coolant.
2. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
3. Inserts should be attached to the holder tightly in a very neat condition.
4. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|---|
| 底刃用インサート Center Insert | XP8030 | — | 有 Wet | ◎ | ◎ | ○ | ○ | ○ | ○ |
| 外周刃用インサート Peripheral Insert | CK010 | NM | 有 Wet | | | | ◎ | | |
| | XC3020 | GL GM GR | 無 Dry | ◎ | | ○ | | | |
| | XP3025 | GL GM GR | 有 Wet | ◎ | | ○ | | | |
| | XC3030 | GL GM GR | 無 Dry | ◎ | | ○ | | | |
| | XP3035 | GL GM | 無 Dry | ◎ | ○ | ○ | | | |
| | | | 有 Wet | ◎ | ○ | ○ | | | |

| インサート材種 Insert Grades | | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|---|
| 外周刃用インサート Peripheral Insert | XP2025 | GL GM | 有 Wet | ○ | ◎ | | | ○ | |
| | XP2040 | GL GM | 無 Dry | ○ | ○ | | | | ○ |
| | | | 有 Wet | ○ | ◎ | | | ○ | |
| | XC1015 | GM GR | 無 Dry | | | ◎ | | | |
| | XC5035 | SM | 無 Dry | | ◎ | | | | |
| | | | 有 Wet | | ○ | | | ○ | |
| | XC5040 | SM | 有 Wet | | ○ | | | ◎ | |
| | XP6015 | HR | 無 Dry | ○ | | ○ | | | ◎ |

NM:アルミニウム合金用　GL:軽切削用　GM:中切削用　GR:重切削用　HR:高硬度鋼用　SM:耐熱合金用
NM:Aluminum Alloy　GL:Light Cutting　GM:Middle Cutting　GR:Heavy Cutting　HR:High Hardened Steel　SM:Heat Resistance Alloy

次ページへ NEXT

形状寸法表
SPECIFICATION CHARTS
PMD▶P1031

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PMD

前ページより FROM

穴加工 Drilling　　座ぐり加工・ブランジ加工共通 For both counterboring and plunge milling

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 送り量 f(mm/rev) Feed Rate | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | φ16 | φ18 | φ20 | φ25 | φ32 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ～180HB | 160 (100～200) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ～280HB | 150 (100～200) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ～280HB | 120 (80～180) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| M | ステンレス鋼 Stainless Steel (SUS304, SUS420) | ～250HB | 130 (80～180) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| K | 鋳鉄 Cast Iron (FC250) | ～350N/mm² | 200 (150～180) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ～800N/mm² | 160 (100～220) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| N | アルミニウム合金 Aluminum Alloy | ～13%Si | 200 (100～800) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| S | 超耐熱合金（湿式） Superalloy (Wet) (Inconel718) | — | 50 (30～60) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| S | チタン合金（湿式） Titanium Alloy (Wet) (Ti-6Al-4V) | — | 60 (30～100) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40～43HRC | 100 (60～120) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| H | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43～48HRC | 80 (40～100) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |
| H | 調質鋼 Hardened Steel (SKD11) | 50～55HRC | 60 (40～80) | 0.06 (0.04～0.07) | 0.06 (0.04～0.07) | 0.07 (0.05～0.08) | 0.08 (0.06～0.1) | 0.1 (0.08～0.12) |

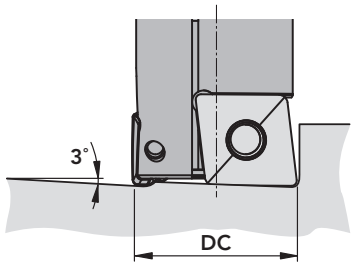
・上記条件表はショートシャンクタイプにおける推奨値となります。
　ロングシャンクタイプは、切削速度を上記条件表の80%でご使用下さい。
1. この切削条件基準表は、水溶性切削油剤を使用する場合のものです。
2. この切削条件基準表は、実切削速度における一般的な値を示したものです。
　加工環境に合わせて適宜調整して下さい。
3. インサートの装着に際しては、傷や汚れを取り除いた状態でしっかりと取り付けて下さい。
4. 被削材の保持はしっかりと行い、変形、たわみ、振動が起こらない状態にして下さい。

・Above recommended speed is for short shank type.
　For long shank type, use the following cutting condition: cutting speed = 80% of the above settings.
1. The indicated speeds and feeds are for milling with water-soluble coolant.
2. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
3. Inserts should be attached to the holder tightly in a very neat condition.
4. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.

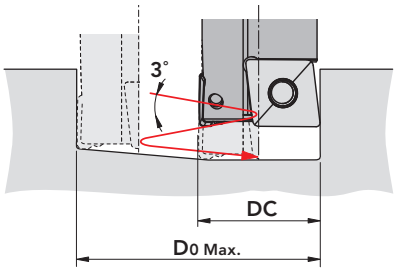
### ■ランピング・ヘリカル穴あけ加工時の最大傾斜角は3°以下に設定下さい。

Set the maximum processing angle during ramping and helical drilling operations to less than 3°.

ランピング Ramping




ヘリカル穴あけ Helical Drilling




単位:mm　Unit:mm

| 外径 (DC) | ヘリカル穴あけ 最大径 (D0 Max.) |
|---|---|
| 16 | 30 |
| 18 | 34 |
| 20 | 37 |
| 25 | 47 |
| 32 | 61 |

形状寸法表
SPECIFICATION CHARTS
PZAG▶P1034

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PZAG

座ぐり加工・プランジ加工共通 **For both counterboring and plunge milling**

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 送り量 f (mm/rev) Feed Rate | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | φ14~ φ17.5 | φ20~ φ23 | φ26~ φ48 | φ54~ φ72 | φ76~ φ82 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 160 (100 ~ 200) | 0.14 (0.08 ~ 0.2) | 0.18 (0.1 ~0.25) | 0.2 (0.12 ~ 0.3) | 0.4 (0.2 ~ 0.6) | 0.4 (0.2 ~ 0.6) |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 150 (100 ~ 200) | 0.14 (0.08 ~ 0.2) | 0.18 (0.1 ~0.25) | 0.2 (0.12 ~ 0.3) | 0.4 (0.2 ~ 0.6) | 0.4 (0.2 ~ 0.6) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 120 ( 80 ~ 180) | 0.12 (0.08 ~ 0.15) | 0.14 (0.1 ~ 0.2) | 0.18 (0.12 ~0.25) | 0.4 (0.2 ~ 0.5) | 0.4 (0.2 ~ 0.5) |
| M | ステンレス鋼 Stainless Steel (SUS304, SUS420) | ~250HB | 130 ( 80 ~ 180) | 0.1 (0.08 ~ 0.15) | 0.12 (0.1 ~ 0.2) | 0.16 (0.12 ~0.25) | 0.35 (0.2 ~ 0.5) | 0.35 (0.2 ~ 0.5) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 200 (150 ~ 280) | 0.16 (0.08 ~0.25) | 0.2 (0.1 ~ 0.3) | 0.3 (0.15 ~ 0.4) | 0.6 (0.3 ~ 0.8) | 0.6 (0.3 ~ 0.8) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 160 (100 ~ 220) | 0.14 (0.08 ~ 0.2) | 0.18 (0.1 ~0.25) | 0.2 (0.15 ~ 0.3) | 0.4 (0.3 ~ 0.6) | 0.4 (0.3 ~ 0.6) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 200 (100 ~ 800) | 0.16 (0.08 ~0.25) | 0.2 (0.1 ~ 0.3) | 0.3 (0.15 ~ 0.4) | 0.6 (0.3 ~ 0.8) | 0.6 (0.3 ~ 0.8) |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel718) | – | 50 ( 30 ~ 60) | 0.08 (0.05 ~ 0.14) | 0.08 (0.06 ~ 0.14) | 0.12 (0.08 ~ 0.2) | 0.25 (0.16 ~ 0.4) | 0.25 (0.16 ~ 0.4) |
| | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 60 ( 30 ~ 100) | 0.08 (0.05 ~ 0.14) | 0.1 (0.06 ~ 0.16) | 0.14 (0.08 ~ 0.2) | 0.3 (0.16 ~ 0.5) | 0.3 (0.16 ~ 0.5) |
| H | プリハードン調 Pre-hardened Steel (NAK80) | 40~43HRC | 100 ( 60 ~ 120) | 0.08 (0.05 ~ 0.14) | 0.1 (0.06 ~ 0.16) | 0.14 (0.08 ~ 0.2) | 0.3 (0.16 ~ 0.5) | 0.3 (0.16 ~ 0.5) |
| | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 60 ( 40 ~ 80) | 0.08 (0.05 ~ 0.14) | 0.08 (0.05 ~ 0.14) | 0.12 (0.08 ~ 0.2) | 0.25 (0.16 ~ 0.4) | 0.25 (0.16 ~ 0.4) |

1. この切削条件基準表は、実切削速度における一般的な値を示したものです。
   加工環境に合わせて適宜調整して下さい。
2. インサートの装着に際しては、傷や汚れを取り除いた状態でしっかりと取り付けて
   下さい。
3. 被削材の保持はしっかりと行い、変形、たわみ、振動が起こらない状態にして下さい。

1. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
2. Inserts should be attached to the holder tightly in a very neat condition.
3. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎ 第一推奨材質 Best
○ 第二推奨材質 Good

| インサート材種 Insert Grades | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|
| XP8030 | 有 Wet | ◎ | ◎ | ○ | ○ | ○ | ○ |
| XC8035 | 無 Dry | ○ | | ◎ | | | |
| | 有 Wet | | ○ | | | | |

形状寸法表 SPECIFICATION CHARTS P2D▶P1045
形状寸法表 SPECIFICATION CHARTS P3D▶P1047

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PD

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 送り量 f (mm/rev) Feed Rate P2D・P3D | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ø12~ø14.5 | ø15~ø16.5 | ø17~ø18.5 | ø19~ø20.5 | ø21~ø24.5 | ø25~ø28.5 | ø29~ø33.5 | ø34~ø63 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 200 (150~250) | 0.06 (0.04~0.08) | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.07 (0.04~0.1) | 0.08 (0.04~0.12) | 0.08 (0.04~0.12) | 0.1 (0.05~0.15) | 0.1 (0.05~0.18) |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 150 (100~220) | 0.08 (0.04~0.12) | 0.08 (0.04~0.14) | 0.09 (0.04~0.16) | 0.1 (0.04~0.18) | 0.14 (0.04~0.2) | 0.18 (0.06~0.25) | 0.2 (0.08~0.3) | 0.2 (0.08~0.35) |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 120 (80~180) | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.07 (0.04~0.1) | 0.08 (0.04~0.12) | 0.12 (0.04~0.15) | 0.14 (0.06~0.2) | 0.18 (0.08~0.25) | 0.18 (0.08~0.25) |
| M | ステンレス鋼 Stainless Steel (SUS304, SUS420) | ~250HB | 130 (80~180) | 0.07 (0.04~0.1) | 0.07 (0.04~0.1) | 0.08 (0.04~0.1) | 0.09 (0.04~0.12) | 0.1 (0.04~0.15) | 0.13 (0.06~0.2) | 0.15 (0.08~0.25) | 0.15 (0.08~0.25) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 200 (150~280) | 0.08 (0.04~0.14) | 0.08 (0.04~0.14) | 0.1 (0.04~0.16) | 0.12 (0.04~0.2) | 0.16 (0.08~0.25) | 0.2 (0.06~0.3) | 0.2 (0.08~0.3) | 0.2 (0.08~0.35) |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 160 (100~220) | 0.08 (0.04~0.1) | 0.08 (0.04~0.12) | 0.09 (0.04~0.14) | 0.1 (0.04~0.18) | 0.14 (0.04~0.2) | 0.18 (0.06~0.25) | 0.18 (0.08~0.25) | 0.18 (0.08~0.25) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 200 (100~800) | 0.08 (0.04~0.12) | 0.08 (0.04~0.12) | 0.1 (0.04~0.16) | 0.12 (0.04~0.2) | 0.16 (0.04~0.25) | 0.2 (0.06~0.3) | 0.2 (0.08~0.3) | 0.2 (0.08~0.3) |
| S | 超耐熱合金 Superalloy (Inconel 718) | — | 50 (15~60) | 0.04 (0.02~0.06) | 0.04 (0.02~0.06) | 0.05 (0.03~0.06) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.08 (0.06~0.1) | 0.1 (0.06~0.12) | 0.1 (0.06~0.12) |
| S | チタン合金 Titanium Alloy (Ti-6Al-4V) | — | 60 (30~100) | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.08 (0.04~0.15) | 0.1 (0.06~0.2) | 0.14 (0.08~0.2) | 0.14 (0.08~0.2) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100 (60~120) | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.06 (0.04~0.12) | 0.07 (0.04~0.12) | 0.08 (0.04~0.12) | 0.1 (0.06~0.15) | 0.1 (0.06~0.15) | 0.1 (0.06~0.15) |
| H | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 60 (40~80) | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) |

1. この切削条件基準表は、水溶性切削油剤を内部給油にて使用する場合のものです。
2. 水溶性切削油剤は、希釈倍率20倍以下の良質のものをご使用下さい。
3. 不水溶性切削油剤は推奨しません。
4. この切削条件基準表は、実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
5. インサート装着に際しては、傷や汚れを取り除いた状態でしっかりと取り付けて下さい。
6. 被削材の保持はしっかりと行い、変形、たわみ、振動が起こらない状態にして下さい。
7. オイルホールの詰まりは折損トラブルの原因になります。給油装置のフィルタは必ず装着して下さい。

1. The indicated speeds and feeds are for using water-soluble oil with internal supply.
2. Suitable cutting fluid is water-soluble in high density (less than 20 times dilution).
3. Using non-water-soluble oil is not recommended.
4. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
5. Inserts should be attached to the holder tightly in a very neat condition.
6. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
7. A clogged oil hole can lead to breakage. Make sure that a filter is attached to the oil feeder.

形状寸法表 SPECIFICATION CHARTS P4D▶P1049
形状寸法表 SPECIFICATION CHARTS P5D▶P1051

# CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS インデキサブルツール切削条件基準表

| | 送り量 f (mm/rev) Feed Rate | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P4D | | | | | | | | P5D | | | | | | | |
| | ø12~ø14.5 | ø15~ø16.5 | ø17~ø18.5 | ø19~ø20.5 | ø21~ø24.5 | ø25~ø28.5 | ø29~ø33.5 | ø34~ø63 | ø12~ø14.5 | ø15~ø16.5 | ø17~ø18.5 | ø19~ø20.5 | ø21~ø24.5 | ø25~ø28.5 | ø29~ø33.5 | ø34~ø63 |
| | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.04~0.12) | 0.08 (0.04~0.12) | 0.1 (0.05~0.15) | 0.1 (0.05~0.18) | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.04~0.12) | 0.08 (0.04~0.12) | 0.1 (0.05~0.15) | 0.1 (0.05~0.18) |
| | 0.07 (0.04~0.1) | 0.08 (0.04~0.14) | 0.08 (0.04~0.16) | 0.09 (0.04~0.18) | 0.12 (0.04~0.15) | 0.18 (0.06~0.25) | 0.2 (0.08~0.25) | 0.2 (0.08~0.3) | 0.06 (0.04~0.09) | 0.06 (0.04~0.09) | 0.08 (0.04~0.12) | 0.08 (0.04~0.14) | 0.12 (0.04~0.15) | 0.15 (0.06~0.2) | 0.18 (0.08~0.2) | 0.18 (0.08~0.25) |
| | 0.06 (0.04~0.08) | 0.06 (0.04~0.1) | 0.07 (0.04~0.1) | 0.08 (0.04~0.12) | 0.1 (0.04~0.13) | 0.14 (0.06~0.2) | 0.18 (0.08~0.25) | 0.18 (0.08~0.25) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.1 (0.04~0.13) | 0.12 (0.06~0.15) | 0.15 (0.08~0.18) | 0.16 (0.08~0.22) |
| | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) | 0.13 (0.06~0.2) | 0.15 (0.08~0.2) | 0.15 (0.08~0.2) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.09) | 0.08 (0.04~0.1) | 0.1 (0.06~0.15) | 0.12 (0.06~0.18) | 0.12 (0.06~0.2) |
| | 0.08 (0.04~0.12) | 0.08 (0.04~0.14) | 0.09 (0.04~0.16) | 0.1 (0.04~0.2) | 0.12 (0.04~0.15) | 0.2 (0.06~0.3) | 0.2 (0.08~0.3) | 0.2 (0.08~0.3) | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.08 (0.04~0.12) | 0.08 (0.04~0.13) | 0.12 (0.04~0.15) | 0.15 (0.06~0.2) | 0.18 (0.08~0.2) | 0.18 (0.08~0.25) |
| | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) | 0.08 (0.04~0.12) | 0.09 (0.04~0.15) | 0.12 (0.04~0.15) | 0.15 (0.06~0.25) | 0.18 (0.08~0.25) | 0.18 (0.08~0.25) | 0.06 (0.04~0.09) | 0.06 (0.04~0.09) | 0.08 (0.04~0.12) | 0.08 (0.04~0.12) | 0.1 (0.04~0.13) | 0.12 (0.06~0.15) | 0.15 (0.08~0.18) | 0.18 (0.08~0.25) |
| | 0.07 (0.04~0.12) | 0.07 (0.04~0.12) | 0.09 (0.04~0.12) | 0.12 (0.04~0.2) | 0.14 (0.04~0.2) | 0.2 (0.06~0.3) | 0.2 (0.08~0.3) | 0.2 (0.08~0.3) | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.09 (0.04~0.12) | 0.1 (0.04~0.15) | 0.12 (0.04~0.15) | 0.15 (0.06~0.25) | 0.2 (0.08~0.3) | 0.2 (0.08~0.3) |
| | 0.04 (0.02~0.06) | 0.04 (0.02~0.06) | 0.04 (0.02~0.06) | 0.04 (0.02~0.06) | 0.05 (0.04~0.08) | 0.07 (0.06~0.1) | 0.08 (0.06~0.12) | 0.08 (0.06~0.12) | 0.04 (0.02~0.06) | 0.04 (0.02~0.06) | 0.04 (0.02~0.06) | 0.04 (0.02~0.06) | 0.04 (0.02~0.06) | 0.07 (0.06~0.08) | 0.07 (0.06~0.08) | 0.07 (0.06~0.08) |
| | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.08 (0.04~0.1) | 0.1 (0.06~0.2) | 0.14 (0.08~0.2) | 0.14 (0.08~0.2) | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.1) | 0.08 (0.06~0.15) | 0.1 (0.08~0.15) | 0.1 (0.08~0.15) |
| | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.08 (0.04~0.12) | 0.08 (0.06~0.12) | 0.1 (0.06~0.13) | 0.1 (0.06~0.13) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.08 (0.04~0.1) | 0.08 (0.06~0.12) | 0.1 (0.06~0.12) | 0.1 (0.06~0.12) |
| | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) | 0.05 (0.04~0.07) | 0.05 (0.04~0.07) | 0.05 (0.04~0.07) | 0.06 (0.04~0.07) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) |

## ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XP9020 | DM | 有 Wet | ◎ | ◎ | ○ | ○ | ○ | ○ |
| XP1010 | DR | 有 Wet | ○ | | ◎ | | | |
| CK110 | DN | 有 Wet | | | | ◎ | | |

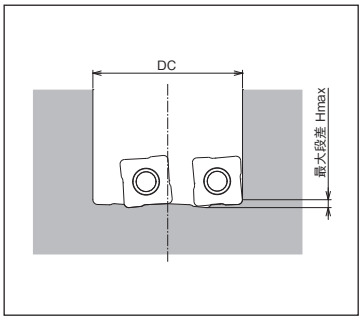
## ■外周刃専用インサート
Inserts for Peripheral Cutting Edge

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XC9015 | DM | 有 Wet | ◎ | | ◎ | | | |

## ■PD穴底段差量の目安値
Reference Value of PD Hmax

| ドリル径 Drill Dia | Hmax (mm) |
|---|---|
| φ12~ φ14.5 | 0.6 |
| φ15~ φ16.5 | 0.8 |
| φ17~ φ18.5 | 0.9 |
| φ19~ φ20.5 | 1.1 |
| φ21~ φ24.5 | 1.2 |
| φ25~ φ28.5 | 1.5 |
| φ29~ φ33.5 | 1.6 |
| φ34~ φ38 | 1.7 |
| φ39~ φ44 | 2 |
| φ45~ φ49 | 2.3 |
| φ50~ φ56 | 2.5 |
| φ57~ φ63 | 2.6 |




## ■加工穴径の目安値
Reference Value of Hole Diameter

単位:mm Unit:mm

| 外径 DC | P2D・P3D | P4D・P5D |
|---|---|---|
| φ12~ φ20.5 | +0.25 0 | +0.3 0 |
| φ21~ φ49 | +0.3 0 | +0.4 0 |
| φ50~ φ63 | +0.35 0 | +0.5 0 |

上記は推奨条件下での一般的な値を示したものです。加工環境によって異なる場合があります。
The above values are general recommendation and may differ based on actual machining condition.

形状寸法表
SPECIFICATION CHARTS
PXD▶P1037

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## PXD

| 被削材 Work Material | PC(鋼用) For Steel | | | | | | KC(鋳鉄用) For Cast Iron | | | | NC(非鉄用) For Non-ferrous Metal | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 軟鋼・低炭素鋼 Mild Steel・Low Carbon Steel SS400, S10C ～150HB (～500N/mm²) | | 炭素鋼 Carbon Steel S35C, S50C ～210HB (～710N/mm²) | | 合金鋼 Alloy Steel SCM, SCr, SNCM 16～30HRC (710～950N/mm²) | | 鋳鉄 Cast Iron FC250 (～350N/mm²) | | ダクタイル鋳鉄 Ductile Cast Iron FCD450, FCD600 (400～600N/mm²) | | アルミニウム合金鋳物 Aluminum Alloy Casting AC4A, ADC | |
| 切削速度 Cutting Speed | 80~120m/min | | 80~120m/min | | 60~120m/min | | 80~120m/min | | 60~100m/min | | 80~180m/min | |
| 直径 Drill Dia. (mm) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) | 回転速度 Speed (min⁻¹) | 送り量 Feed Rate (mm/rev) |
| 14 | 2,300 | 0.21 ~ 0.35 | 2,300 | 0.21 ~ 0.35 | 2,000 | 0.21 ~ 0.35 | 2,300 | 0.21 ~ 0.35 | 1,800 | 0.21 ~ 0.35 | 3,000 | 0.28 ~ 0.42 |
| 15 | 2,100 | 0.23 ~ 0.38 | 2,100 | 0.23 ~ 0.38 | 1,900 | 0.23 ~ 0.38 | 2,100 | 0.23 ~ 0.38 | 1,700 | 0.23 ~ 0.38 | 2,800 | 0.3 ~ 0.45 |
| 16 | 2,000 | 0.24 ~ 0.4 | 2,000 | 0.24 ~ 0.4 | 1,800 | 0.24 ~ 0.4 | 2,000 | 0.24 ~ 0.4 | 1,600 | 0.24 ~ 0.4 | 2,600 | 0.32 ~ 0.48 |
| 17 | 1,900 | 0.26 ~ 0.43 | 1,900 | 0.26 ~ 0.43 | 1,700 | 0.26 ~ 0.43 | 1,900 | 0.26 ~ 0.43 | 1,500 | 0.26 ~ 0.43 | 2,400 | 0.34 ~ 0.51 |
| 18 | 1,800 | 0.27 ~ 0.45 | 1,800 | 0.27 ~ 0.45 | 1,600 | 0.27 ~ 0.45 | 1,800 | 0.27 ~ 0.45 | 1,400 | 0.27 ~ 0.45 | 2,300 | 0.36 ~ 0.54 |
| 19 | 1,700 | 0.29 ~ 0.48 | 1,700 | 0.29 ~ 0.48 | 1,500 | 0.29 ~ 0.48 | 1,700 | 0.29 ~ 0.48 | 1,300 | 0.29 ~ 0.48 | 2,200 | 0.38 ~ 0.57 |
| 20 | 1,600 | 0.3 ~ 0.5 | 1,600 | 0.3 ~ 0.5 | 1,400 | 0.3 ~ 0.5 | 1,600 | 0.3 ~ 0.5 | 1,300 | 0.3 ~ 0.5 | 2,100 | 0.4 ~ 0.6 |
| 21 | 1,500 | 0.32 ~ 0.53 | 1,500 | 0.32 ~ 0.53 | 1,400 | 0.32 ~ 0.53 | 1,500 | 0.32 ~ 0.53 | 1,200 | 0.32 ~ 0.53 | 2,000 | 0.42 ~ 0.63 |
| 22 | 1,400 | 0.33 ~ 0.55 | 1,400 | 0.33 ~ 0.55 | 1,300 | 0.33 ~ 0.55 | 1,400 | 0.33 ~ 0.55 | 1,200 | 0.33 ~ 0.55 | 1,900 | 0.44 ~ 0.66 |
| 23 | 1,400 | 0.35 ~ 0.58 | 1,400 | 0.35 ~ 0.58 | 1,200 | 0.35 ~ 0.58 | 1,400 | 0.35 ~ 0.58 | 1,100 | 0.35 ~ 0.58 | 1,800 | 0.46 ~ 0.69 |
| 24 | 1,300 | 0.36 ~ 0.6 | 1,300 | 0.36 ~ 0.6 | 1,200 | 0.36 ~ 0.6 | 1,300 | 0.36 ~ 0.6 | 1,100 | 0.36 ~ 0.6 | 1,700 | 0.48 ~ 0.72 |
| 25 | 1,300 | 0.38 ~ 0.63 | 1,300 | 0.38 ~ 0.63 | 1,100 | 0.38 ~ 0.63 | 1,300 | 0.38 ~ 0.63 | 1,000 | 0.38 ~ 0.63 | 1,700 | 0.5 ~ 0.75 |

1. この切削条件基準表は、水溶性切削油剤を内部給油にて使用する場合のものです。
2. 水溶性切削油剤は希釈倍率20倍以下の良質のものをご使用下さい。
3. この切削条件基準表は、実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
4. 被削材の保持はしっかりと行い、変形、たわみ、振動が起こらない状態にして下さい。
5. オイルホールの詰まりは折損トラブルの原因になります。給油装置のフィルタは必ず装着して下さい。

1. The indicated speeds and feeds are for using water-soluble oil with internal supply.
2. Suitable cutting fluid is water-soluble in high density (less than 20 times dilution).
3. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
4. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
5. A clogged oil hole can lead to breakage. Make sure that a filter is attached to the oil feeder.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PDZ

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 送り量 f(mm/rev) Feed Rate | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ø16~ø16.5 | ø17~ø18.5 | ø19~ø20 | ø21~ø24 | ø25~ø28 | ø29~ø33 | ø34~ø43 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 200(150~250) | 0.06 (0.04~0.1) | 0.06 (0.04~0.1) | 0.07 (0.04~0.1) | 0.08 (0.04~0.12) | 0.08 (0.04~0.12) | 0.1 (0.05~0.15) | 0.1 (0.05~0.18) |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 150(100~220) | 0.08 (0.04~0.14) | 0.09 (0.04~0.16) | 0.1 (0.04~0.18) | 0.14 (0.04~0.2) | 0.18 (0.06~0.25) | 0.2 (0.08~0.3) | 0.2 (0.08~0.35) |
| P | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 120(80~180) | 0.06 (0.04~0.1) | 0.07 (0.04~0.1) | 0.08 (0.04~0.12) | 0.12 (0.04~0.15) | 0.14 (0.06~0.2) | 0.18 (0.08~0.25) | 0.18 (0.08~0.25) |
| M | ステンレス鋼 Stainless Steel (SUS304, SUS420) | ~250HB | 130(80~180) | 0.07 (0.04~0.1) | 0.08 (0.04~0.1) | 0.09 (0.04~0.12) | 0.1 (0.04~0.15) | 0.13 (0.06~0.2) | 0.15 (0.08~0.25) | 0.15 (0.08~0.25) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 200(150~280) | 0.08 (0.04~0.14) | 0.1 (0.04~0.16) | 0.12 (0.04~0.2) | 0.16 (0.08~0.25) | 0.2 (0.06~0.3) | 0.2 (0.08~0.3) | 0.2 (0.08~0.35) |
| K | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 160(100~220) | 0.08 (0.04~0.12) | 0.09 (0.04~0.14) | 0.1 (0.04~0.18) | 0.14 (0.04~0.2) | 0.18 (0.06~0.25) | 0.18 (0.08~0.25) | 0.18 (0.08~0.25) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 200(100~800) | 0.08 (0.04~0.12) | 0.1 (0.04~0.16) | 0.12 (0.04~0.2) | 0.16 (0.04~0.25) | 0.2 (0.06~0.3) | 0.2 (0.08~0.3) | 0.2 (0.08~0.3) |
| S | 超耐熱合金 Superalloy (Inconel718) | – | 50(15~60) | 0.04 (0.02~0.06) | 0.05 (0.03~0.06) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.08 (0.06~0.1) | 0.1 (0.06~0.12) | 0.1 (0.06~0.12) |
| S | チタン合金 Titanium Alloy (Ti-6Al-4V) | – | 60(30~100) | 0.05 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.08 (0.04~0.15) | 0.1 (0.06~0.2) | 0.14 (0.08~0.2) | 0.14 (0.08~0.2) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 100(60~120) | 0.06 (0.04~0.1) | 0.06 (0.04~0.12) | 0.07 (0.04~0.12) | 0.08 (0.04~0.12) | 0.1 (0.06~0.15) | 0.1 (0.06~0.15) | 0.1 (0.06~0.15) |
| H | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 60(40~80) | 0.05 (0.04~0.08) | 0.05 (0.04~0.08) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) | 0.08 (0.04~0.1) |

1. この切削条件基準表は、水溶性切削油剤を内部給油にて使用する場合のものです。
2. 水溶性切削油剤は、希釈倍率20倍以下の良質のものをご使用下さい。
3. 不水溶性切削油剤は推奨しません。
4. この切削条件基準表は、実切削速度における一般的な値を示したものです。
   加工環境に合わせて適宜調整して下さい。
5. インサート装着に際しては、傷や汚れを取り除いた状態でしっかりと取り付けて下さい。
6. 被削材の保持はしっかりと行い、変形、たわみ、振動が起こらない状態にして下さい。
7. オイルホールの詰まりは折損トラブルの原因になります。給油装置のフィルタは必ず装着して下さい。

1. The indicated speeds and feeds are for using water-soluble oil with internal supply.
2. Suitable cutting fluid is water-soluble in high density (less than 20 times dilution).
3. Using non-water-soluble oil is not recommended.
4. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
5. Inserts should be attached to the holder tightly in a very neat condition.
6. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
7. A clogged oil hole can lead to breakage. Make sure that a filter is attached to the oil feeder.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|
| XP8030 | 有 Wet | ◎ | ◎ | ○ | ○ | ○ | ○ |

### ■外周刃専用インサート
Inserts for Peripheral Cutting Edge

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|
| XC8035 | 無 Dry | ○ | | ◎ | | | |
| | 有 Wet | | ○ | | | | |

### ■加工穴径の目安値
Reference Value of Hole Diameter

単位:mm Unit:mm

| 外径 DC | PDZ |
|---|---|
| ø16~ø20 | +0.2 -0.15 |
| ø21~ø43 | +0.25 -0.15 |

上記は推奨条件下での一般的な値を示したものです。
加工環境によって異なる場合があります。
The above values are general recommendation and may differ based on actual machining condition.

形状寸法表
SPECIFICATION CHARTS
PDZ▶P1055

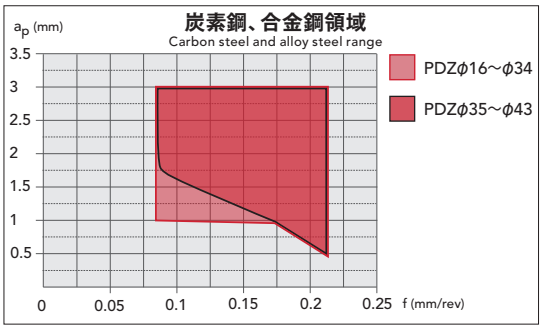
# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

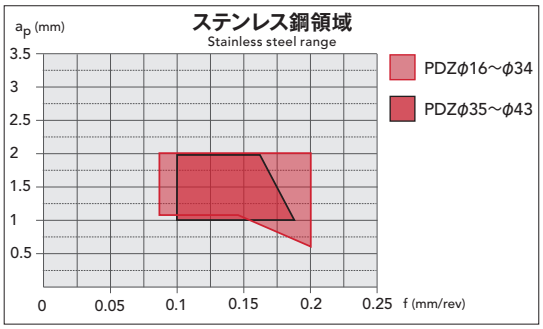
## PDZ

前ページより
FROM

### ■旋削加工 Turning

**内径・外径旋削の切込み/送り条件** Cutting Conditions of Internal / External Turning



CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PHP

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 送り量 f (mm/rev) Feed Rate | | | |
|---|---|---|---|---|---|---|---|
| | | | | ø14~ø20.5 | ø21~ø28 | ø29~ø34 | ø35~ø40 |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 200 ( 60 ~ 250) | 0.09 (0.06 ~ 0.13) | 0.13 (0.1 ~ 0.18) | 0.18 (0.13 ~ 0.21) | 0.25 (0.2 ~ 0.27) |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 160 ( 40 ~ 220) | 0.09 (0.06 ~ 0.13) | 0.13 (0.1 ~ 0.18) | 0.18 (0.13 ~ 0.21) | 0.25 (0.2 ~ 0.27) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 140 ( 40 ~ 180) | 0.08 (0.05 ~ 0.12) | 0.12 (0.06 ~ 0.15) | 0.14 (0.09 ~ 0.18) | 0.15 (0.1 ~ 0.2) |
| M | ステンレス鋼 Stainless Steel (SUS304, SUS420) | ~250HB | 150 ( 60 ~ 180) | 0.08 (0.05 ~ 0.12) | 0.1 (0.06 ~ 0.12) | 0.15 (0.1 ~ 0.17) | 0.18 (0.15 ~ 0.2) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 150 ( 60 ~ 180) | 0.09 (0.06 ~ 0.13) | 0.13 (0.1 ~ 0.18) | 0.18 (0.13 ~ 0.21) | 0.25 (0.2 ~ 0.27) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 130 ( 40 ~ 150) | 0.09 (0.06 ~ 0.13) | 0.12 (0.08 ~ 0.16) | 0.16 (0.1 ~ 0.2) | 0.2 (0.15 ~ 0.25) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 220 (100 ~ 800) | 0.09 (0.06 ~ 0.2) | 0.13 (0.1 ~ 0.25) | 0.18 (0.13 ~ 0.3) | 0.25 (0.2 ~ 0.35) |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel 718) | – | 30 ( 15 ~ 50) | 0.04 (0.02 ~ 0.06) | 0.06 (0.03 ~ 0.1) | 0.08 (0.04 ~ 0.12) | 0.1 (0.06 ~ 0.14) |
| | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 60 ( 30 ~ 100) | 0.06 (0.04 ~ 0.08) | 0.08 (0.06 ~ 0.12) | 0.1 (0.08 ~ 0.15) | 0.12 (0.1 ~ 0.15) |

1. この切削条件基準表は、水溶性切削油剤を使用する場合のものです。
2. 水溶性切削油剤は、希釈倍率20倍以下の良質のものをご使用下さい。
3. 不水溶性切削油剤は推奨しません。
4. この切削条件基準表は、穴深さ3D以下の場合に適用下さい。
5. この切削条件基準表は、実切削速度における一般的な値を示したものです。
   加工環境に合わせて適宜調整して下さい。
6. インサート装着に際しては、傷や汚れを取り除いた状態でしっかりと取り付けて下さい。
7. 被削材の保持はしっかりと行い、変形、たわみ、振動が起こらない状態にして下さい。
8. オイルホールの詰まりは折損トラブルの原因になります。給油装置のフィルタは必ず装着して下さい。

1. The indicated speeds and feeds are for using water-soluble oil.
2. Suitable cutting fluid is water-soluble in high density (less than 20 times dilution).
3. Using non-water-soluble oil is not recommended.
4. These conditions are for drilling depth less than 3 times the drill diameter.
5. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
6. Inserts should be attached to the holder tightly in a very neat condition.
7. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
8. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XP9040 | DM | 有 Wet | ◎ | ◎ | | ◎ | ○ | |
| XC9025 | DM | 有 Wet | ○ | ○ | ◎ | ○ | | |

形状寸法表
SPECIFICATION CHARTS
PLDS▶P1060

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

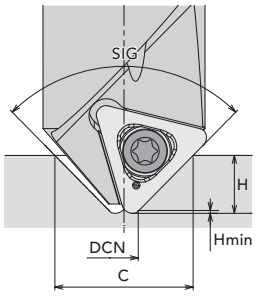
## PLDS

| | 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 回転速度 (min⁻¹) Speed | 送り量 (mm/rev) Feed Rate | |
|---|---|---|---|---|---|---|---|
| | | | | | | センタリング加工 Centering | 面取り加工(横送り) Countersinking (Side Feed) |
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel | (SS400, S10C) | ～180HB | 80 ( 60 ～ 120) | 1,500 ～ 3,000 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| P | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | (S50C, SCM440) | ～280HB | 80 ( 60 ～ 120) | 1,500 ～ 3,000 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| P | ダイス鋼 Die Steel | (SKD11, SKD61) | ～280HB | 80 ( 60 ～ 120) | 1,500 ～ 3,000 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| M | ステンレス鋼 Stainless Steel | (SUS304, SUS420) | ～250HB | 80 ( 60 ～ 100) | 1,500 ～ 2,500 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| K | 鋳鉄 Cast Iron | (FC250) | ～350N/mm² | 100 ( 60 ～ 140) | 1,500 ～ 3,500 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| K | ダクタイル鋳鉄 Ductile Cast Iron | (FCD400) | ～800N/mm² | 100 ( 60 ～ 140) | 1,500 ～ 3,500 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| N | アルミニウム合金 Aluminum Alloy | | ～13%Si | 150 (100 ～ 200) | 2,500 ～ 5,000 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| S | 耐熱合金(湿式) Superalloy (Wet) | (Inconel 718) | — | 35 ( 25 ～ 60) | 600 ～ 1,500 | 0.04 (0.03 ～ 0.06) | 0.08 (0.05 ～ 0.12) |
| S | チタン合金(湿式) Titanium Alloy (Wet) | (Ti-6Al-4V) | — | 40 ( 30 ～ 100) | 700 ～ 2,500 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| H | プリハードン鋼 Pre-hardened Steel | (NAK80) | 40 ～43HRC | 80 ( 60 ～ 100) | 1,500 ～ 3,000 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |
| H | ダイカスト用鋼 Steel for Die Casting | (DAC-MAGIC, DH31) | 43 ～48HRC | 60 ( 50 ～ 80) | 1,200 ～ 2,000 | 0.06 (0.03 ～ 0.08) | 0.08 (0.05 ～ 0.12) |

1. この切削条件基準表は、実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
2. インサートの装着に際しては、傷や汚れを取り除いた状態でしっかりと取り付けて下さい。
3. 被削材の保持はしっかりと行い、変形、たわみ、振動が起こらない状態にして下さい。
4. V溝加工の送り量は、上表の面取り加工(横送り)の80%でご使用下さい。

1. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
2. Inserts should be attached to the holder tightly in a very neat condition.
3. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
4. For the feed of V slotting, use 80% of the countersinking (side feed) shown in the above table.

### ■センタリング加工深さの目安(H) Standard centering depth (H)




**SIG=90°の場合** When SIG=90°
Hmin=0.25
DCN =φ2.5(最小加工径)
(Minimum machined hole diameter)

$$H=\frac{C-DCN}{2}+Hmin$$
$$=\frac{C}{2}-1$$

**SIG=120°の場合** When SIG=120°
Hmin=0.1
DCN =φ2.4(最小加工径)
(Minimum machined hole diameter)

$$H=\frac{C-DCN}{3.46}+Hmin$$
$$=\frac{C}{3.46}-0.594$$

H:センタリング加工深さ C:皿穴径 H: Centering depth C: Countersink diameter

例) SIG=90° C=φ10(皿穴径)の場合 Example: When SIG=90°C=φ10 (Countersink diameter)
Hの値は5mmではなく、4mmになります。 The value of H will be 4 mm instead of 5 mm.

### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| XP9020 | DM | 有 Wet | ◎ | ○ | ◎ | ○ | ○ | ○ |
| XP2040 | DM | 無 Dry | ○ | ○ | | | | |
| | | 有 Wet | ○ | ◎ | | ○ | ◎ | ◎ |

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## PMEN

| | 被削材 Work Material | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Vc (m/min) Cutting Speed | 面取り加工(縦送り) Countersinking (Vertical Feed) 送り量 f (mm/rev) Feed Rate ø8 | ø16~32 | ø40~60 | 面取り加工(横送り) Countersinking (Side Feed) 1刃当りの送り量 fz (mm/t) Feed per Tooth | 正面切削 Frontal Milling 切削深さ ap:3mm 1刃当りの送り量 fz (mm/t) Feed per Tooth |
|---|---|---|---|---|---|---|---|---|
| P | 軟鋼、低炭素鋼 Mild Steel, Carbon Steel (SS400, S10C) | ~180HB | 80( 60 ~ 120) | 0.06 (0.05 ~ 0.08) | 0.1 (0.05 ~ 0.12) | 0.15 (0.12 ~ 0.2) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| | 炭素鋼、合金鋼 Carbon Steel, Alloy Steel (S50C, SCM440) | ~280HB | 80( 60 ~ 120) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ~280HB | 80( 60 ~ 120) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| M | ステンレス鋼(乾式) Stainless Steel (Dry) (SUS304, SUS420) | ~250HB | 80( 60 ~ 100) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| | ステンレス鋼(湿式) Stainless Steel (Wet) (SUS304, SUS420) | ~250HB | 80( 60 ~ 100) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| K | 鋳鉄 Cast Iron (FC250) | ~350N/mm² | 200(150 ~ 280) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ~800N/mm² | 160(100 ~ 220) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| N | アルミニウム合金 Aluminum Alloy | ~13%Si | 350(200 ~ 500) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| S | 超耐熱合金(湿式) Superalloy (Wet) (Inconel 718) | – | 50( 30 ~ 60) | 0.06 (0.04 ~ 0.08) | 0.08 (0.05 ~ 0.1) | 0.1 (0.08 ~ 0.15) | 0.08 (0.05 ~ 0.1) | 0.08 (0.05 ~ 0.1) |
| | チタン合金(湿式) Titanium Alloy (Wet) (Ti-6Al-4V) | – | 60( 30 ~ 80) | 0.06 (0.04 ~ 0.08) | 0.08 (0.05 ~ 0.1) | 0.1 (0.08 ~ 0.15) | 0.08 (0.05 ~ 0.1) | 0.08 (0.05 ~ 0.1) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40~43HRC | 80( 60 ~ 100) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43~48HRC | 60( 50 ~ 80) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |
| | 調質鋼 Hardened Steel (SKD11) | 50~55HRC | 50( 40 ~ 80) | 0.08 (0.05 ~ 0.1) | 0.12 (0.05 ~ 0.14) | 0.2 (0.12 ~ 0.3) | 0.1 (0.05 ~ 0.12) | 0.1 (0.05 ~ 0.12) |

・上記の数値は実切削速度における一般的な値を示したものです。加工環境に合わせて適宜調整して下さい。
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

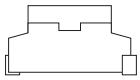
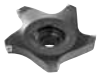
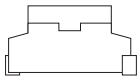
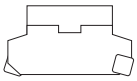
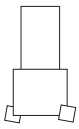
### ■被削材別推奨材質
Recommended Materials by Insert Type

◎第一推奨材質 Best
○第二推奨材質 Good

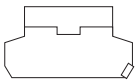
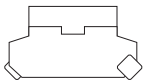
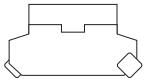
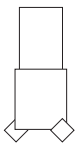
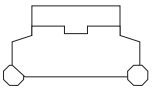
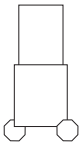
| インサート材種 Insert Grades | ブレーカ Insert Breaker | 切削油剤 Coolant | P | M | K | N | S | H |
|---|---|---|---|---|---|---|---|---|
| CK010 | NM | 有 Wet | | | | ◎ | | |
| XP3015 | GM | 無 Dry | ◎ | | ◎ | | | |
| XP2040 | GM | 無 Dry | ○ | ○ | | | | ○ |
| | | 有 Wet | ○ | ◎ | | | ○ | |

NM:アルミニウム合金用 GM:中切削用
NM:Aluminum Alloy GM:Middle Cutting

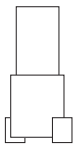
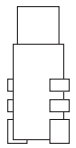
# 形状別 インデキサブルツール 目次 INDEX OF INDEXABLE TOOL

| ページ Page | 形状 Appearance | | 製品記号 Abbreviation | 仕様 Specification | 在庫サイズ Stocked Sizes | ページ Page |
|---|---|---|---|---|---|---|
| **切り込み角90°（ショルダーミル）Shoulder Mill** | | | | | | |
| 1128 -127 WEB |  |  | **DC-S** | WALTER ディスクカッタS<br>WALTER Disc Cutter S (Roughing) | 80 ~ 125 | 1128 -127 WEB |
| 1128 -128 WEB | |  | **DC-P** | WALTER ディスクカッタPRO<br>WALTER Disc Cutter PRO (Finishing) | 80 ~ 125 | 1128 -128 WEB |
| 1128 -47 WEB | |  | **F5041 SL** | WALTER 高剛性ショルダーミル<br>WALTER High Rigidity Shoulder Mill | 40 ~ 63 | 1128 -47 WEB |
| 1128 -51 WEB | |  | **F5141 SL** | WALTER 高剛性ショルダーミル<br>WALTER High Rigidity Shoulder Mill | 40 ~ 125 | 1128 -51 WEB |
| 1128 -72 WEB | |  | **F4042** | WALTER ポジティブエンドミル<br>WALTER Positive End Mill | 50 ~ 125 | 1128 -72 WEB |
| 1128 -93 WEB | |  | **F4010 P3F90R** | WALTER ミーリングカッタ（F4000タイプ）<br>WALTER Milling Cutter (F4000 Type) | 80 ~ 250 | 1128 -93 WEB |
| 1128 -89 WEB | |  | **F4041** | WALTER 高剛性ショルダーミル<br>WALTER High Rigidity Shoulder Mill | 50 ~ 100 | 1128 -89 WEB |
| 1128 -107 WEB | |  | **F3042B SL** | WALTER ポジティブミルネオ<br>WALTER Positive End Mill | 50 ~ 125 | 1128 -107 WEB |
| **切り込み角88°** 88 deg. Edge Angle | | | | | | |
| 1128 -88 WEB |  |  | **F4048 SL** | WALTER 88° 高剛性フェースミル<br>WALTER 88° Highly Rigid Face Milling Cutter | 50 ~ 160 | 1128 -88 WEB |
| 1128 -92 WEB | |  | **F4010 N4S88R** | WALTER ミーリングカッタ（F4000タイプ）<br>WALTER Milling Cutter (F4000 Type) | 80 ~ 250 | 1128 -92 WEB |
| **切り込み角75°** 75 deg. Edge Angle | | | | | | |
| 1128 -87 WEB |  |  | **F4047 SL** | WALTER 75° 高剛性フェースミル<br>WALTER 75° Highly Rigid Face Milling Cutter | 50 ~ 160 | 1128 -87 WEB |
| **切り込み角75°** 75 deg. Edge Angle | | | | | | |
| 1128 -109 WEB |  |  | **F3075** | WALTER エコノミーカッタ<br>WALTER Economy Cutter | 50 ~ 80 | 1128 -109 WEB |

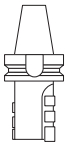
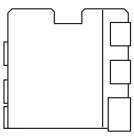
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|---|---|---|---|---|---|---|
| **切り込み角60°** 60 deg. Edge Angle | | | | | | |
| 1128 -131 WEB |  |  | **F2260** | WALTER 鋳鉄・重切削加工用ミーリングカッタ<br>WALTER Heavy Duty Cutter for Cast Iron | 100 ~ 200 | 1128 -131 WEB |
| **切り込み角45°** 45 deg. Edge Angle | | | | | | |
| 1128 -90 WEB |  |  | **F4010 N4S45R** | WALTER ミーリングカッタ(F4000タイプ)<br>WALTER Milling Cutter (F4000 Type) | 80 ~ 250 | 1128 -90 WEB |
| 1128 -135 WEB | |  | **F2010 P4G45R** | WALTER ミーリングカッタ<br>WALTER Milling Cutter | 80 ~ 250 | 1128 -135 WEB |
| 1128 -126 WEB | |  | **F2133 SL** | WALTER サイクロンカッタ<br>WALTER Cyclone Cutter | 80 ~ 125 | 1128 -126 WEB |
| **切り込み角45°** 45 deg. Edge Angle | | | | | | |
| 1128 -85 WEB |  |  | **F4033 SL** | WALTER高剛性フェースミル<br>WALTER Highly Rigid Face Milling Cutter | 50 ~ 160 | 1128 -85 WEB |
| **切り込み角45°** 45 deg. Edge Angle | | | | | | |
| 1128 -65 WEB |  |  | **M4574** | WALTER 面取り用カッタ<br>WALTER Chamfering Cutter | 12 ~ 40 | 1128 -65 WEB |
| 1128 -86 WEB | |  | **F4033 SS** | WALTER高剛性フェースミル<br>WALTER Highly Rigid Face Milling Cutter | 50 ~ 63 | 1128 -86 WEB |
| 1128 -125 WEB | |  | **F2133 SS** | WALTER サイクロンカッタ<br>WALTER Cyclone Cutter | 40 ~ 63 | 1128 -125 WEB |
| **切り込み角43°** 43 deg. Edge Angle | | | | | | |
| 1128 -133 WEB |  |  | **F2010 P5E43R** | WALTER ミーリングカッタ<br>WALTER Milling Cutter | 80 ~ 250 | 1128 -133 WEB |
| 1128 -122 WEB | |  | **F2280MINI SL** | WALTER オクタゴンカッタMINI<br>WALTER Octagon Cutter MINI | 50 ~ 80 | 1128 -122 WEB |
| 1128 -124 WEB | |  | **F2280 SL** | WALTER オクタゴンカッタ<br>WALTER Octagon Cutter | 80 ~ 125 | 1128 -124 WEB |
| **切り込み角43°** 43 deg. Edge Angle | | | | | | |
| 1128 -121 WEB |  |  | **F2280MINI SS** | WALTER オクタゴンカッタMINI<br>WALTER Octagon Cutter MINI | 32 ~ 50 | 1128 -121 WEB |
| 1128 -123 WEB | |  | **F2280 SS** | WALTER オクタゴンカッタ<br>WALTER Octagon Cutter | 50 ~ 63 | 1128 -123 WEB |

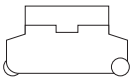
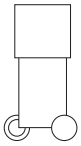
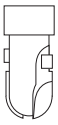
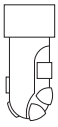
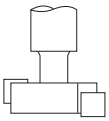
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| **スクエア** Square | | | | | | |
| 1128 -45 WEB |  |  | **F5041 SS** | WALTER 高剛性ショルダーミル<br>WALTER High Rigidity Shoulder Mill | 25 ~ 32 | 1128 -45 WEB |
| 1128 -49 WEB | |  | **F5141 SS** | WALTER 高剛性ショルダーミル<br>WALTER High Rigidity Shoulder Mill | 40 | 1128 -49 WEB |
| 1128 -69 WEB | |  | **F4042** | WALTER ポジティブエンドミル<br>WALTER Positive End Mill | 10 ~ 80 | 1128 -69 WEB |
| 1128 -103 WEB | |  | **F3042A SS** | WALTER ポジティブミルネオ<br>WALTER Positive End Mill | 10 ~ 32 | 1128 -103 WEB |
| 1128 -105 WEB | |  | **F3042B SS** | WALTER ポジティブミルネオ<br>WALTER Positive End Mill | 20 ~ 80 | 1128 -105 WEB |
| 1128 -110 WEB | |  | **F3040** | WALTER アルミ合金用ポジティブミル<br>WALTER Positive End Mill for Aluminum Alloys | 20 ~ 40 | 1128 -110 WEB |
| **ラフィング** Roughing | | | | | | |
| 1128 -53 WEB |  |  | **M4256 SS** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 20 ~ 32 | 1128 -53 WEB |
| 1128 -55 WEB | |  | **M4257 SS** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 32 ~ 40 | 1128 -55 WEB |
| 1128 -77 WEB | |  | **F4138 SS** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 32 ~ 50 | 1128 -77 WEB |
| 1128 -79 WEB | |  | **F4238 SS** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 40 ~ 50 | 1128 -79 WEB |
| 1128 -80 WEB | |  | **F4238 CN** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 50 | 1128 -80 WEB |
| 1128 -95 WEB | |  | **F3038A SS** | WALTER ポーキュパインネオ<br>WALTER Porcupine Cutter | 20 ~ 32 | 1128 -95 WEB |
| 1128 -98 WEB | |  | **F3038B CN** | WALTER ポーキュパインネオ<br>WALTER Porcupine Cutter | 50 | 1128 -98 WEB |
| 1128 -99 WEB | |  | **F3038B SS** | WALTER ポーキュパインネオ<br>WALTER Porcupine Cutter | 32 ~ 50 | 1128 -99 WEB |

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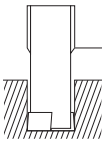
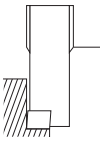
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|---|---|---|---|---|---|---|
| **ラフィング Roughing** | | | | | | |
| 1128 -61 WEB |  |  | **M4258 BT** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 50 ~ 63 | 1128 -61 WEB |
| 1128 -63 WEB | |  | **M4258C BT** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 50 ~ 80 | 1128 -63 WEB |
| 1128 -81 WEB | |  | **F4238 BT** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 50 ~ 80 | 1128 -81 WEB |
| 1128 -84 WEB | |  | **F4238 HSK** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 63 ~ 80 | 1128 -84 WEB |
| 1128 -97 WEB | |  | **F3038B BT** | WALTER ポーキュパインネオ<br>WALTER Porcupine Cutter | 50 ~ 80 | 1128 -97 WEB |
| 1128 -101 WEB | |  | **F3038C BT** | WALTER ポーキュパインネオ<br>WALTER Porcupine Cutter | 50 ~ 80 | 1128 -101 WEB |
| **ラフィング Roughing** | | | | | | |
| 1128 -57 WEB |  |  | **M4257 SL** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 50 ~ 63 | 1128 -57 WEB |
| 1128 -59 WEB | |  | **M4258 SL** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 80 ~ 100 | 1128 -59 WEB |
| 1128 -78 WEB | |  | **F4138 SL** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 50 ~ 63 | 1128 -78 WEB |
| 1128 -83 WEB | |  | **F4238 SL** | WALTER ポーキュパインカッタ<br>WALTER Porcupine Cutter | 50 ~ 100 | 1128 -83 WEB |
| 1128 -100 WEB | |  | **F3038B SL** | WALTER ポーキュパインネオ<br>WALTER Porcupine Cutter | 50 ~ 100 | 1128 -100 WEB |

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| **ラジアス** Radius | | | | | | |
| 1128 -116 WEB |  |  | **F2234 SL** | WALTER ラジアスカッタブルノーズカッタ<br>WALTER Radius Cutter | 50 ~ 100 | 1128 -116 WEB |
| **ラジアス** Radius | | | | | | |
| 1128 -112 WEB |  |  | **F2231** | WALTER ブルノーズカッタ中心刃付き<br>WALTER Radius Cutter with Center Edge | 10<br>16 ~ 40 | 1128 -112 WEB |
| 1128 -115 WEB | |  | **F2234 SS** | WALTER ラジアスカッタブルノーズカッタ<br>WALTER Radius Cutter | 12 ~ 32<br>50 ~ 63 | 1128 -115 WEB |
| **ラフィングボール（2刃）** Roughing Ball End(Double Edge) | | | | | | |
| 1128 -117 WEB |  |  | **F2339** | WALTER ボールエンドミル2刃タイプ<br>WALTER 2-flute Ball End Mill | R10 ~ R25 | 1128 -117 WEB |
| **ラフィングボール（1刃）** Roughing Ball End(Single Edge) | | | | | | |
| 1128 -119 WEB |  |  | **F2039** | WALTER ボールエンドミル1刃タイプ<br>WALTER Single-flute Ball End Mill | R10 ~ R25 | 1128 -119 WEB |
| **T スロット** T-Slot | | | | | | |
| 1128 -66 WEB |  |  | **M4575** | WALTER Tスロットカッタ<br>WALTER T-slot Cutter | 20.5 ~ 49.5 | 1128 -66 WEB |

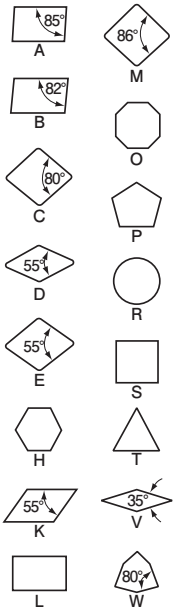
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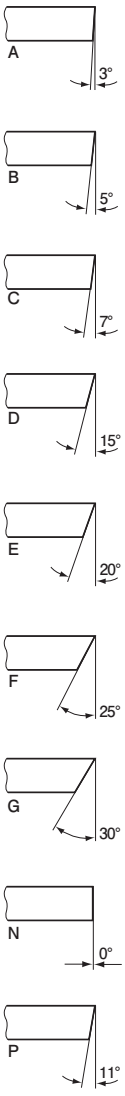
# 形状別 インデキサブルツール 目次

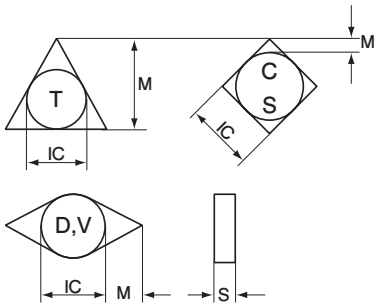
| ページ Page | 形状 Appearance | | 製品記号 Abbreviation | 仕様 Specification | 在庫サイズ Stocked Sizes | ページ Page |
|---|---|---|---|---|---|---|
| **フルスロット** Full Slot | | | | | | |
| **1128 -139 WEB** |  |  | **F2052 P2S90N** | WALTER サイドカッタ<br>WALTER Side and Face Milling Cutter | 100 〜 160 | **1128 -139 WEB** |
| **ハーフスロット** Half Slot | | | | | | |
| **1128 -140 WEB** |  |  | **F2052 P2S90R/L** | WALTER サイドカッタ<br>WALTER Side and Face Milling Cutter | 100 〜 160 | **1128 -140 WEB** |

# インデキサブルツール インサートの呼び方(ISO 表示) Designation according to ISO1832

| C | N | M | G |
|---|---|---|---|
| A | P | H | W |
| 形　状 Shape of insert | 逃げ角 Clearance Angle | 公差(mm) Tolerance | インサートブレーカ・穴形状 Special Cutting and Fastening Features |



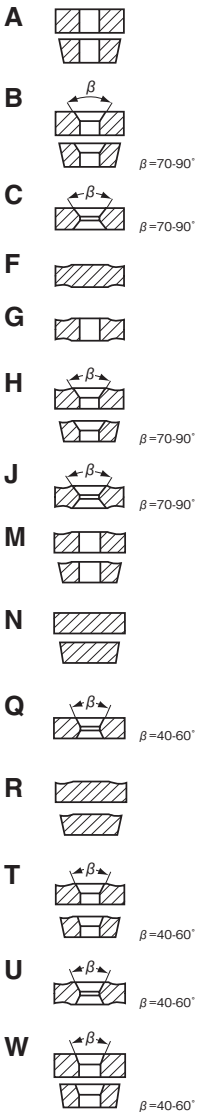




等級記号 Class　　(単位：mm) (Unit：mm)

| 記号(級) Type(Class) | IC の許容差 Tolerance of d | M の許容差 Tolerance of m | S の許容差 Tolerance of s |
|---|---|---|---|
| A 注(a) | ±0.025 | ±0.005 | ±0.025 |
| F 注(a) | ±0.013 | | |
| C 注(a) | ±0.025 | ±0.013 | |
| H | ±0.013 | | |
| E | ±0.025 | ±0.025 | |
| G | | | ±0.13 |
| J 注(a) | ±0.05～±0.15 注(b) | ±0.005 | ±0.025 |
| K 注(a) | | ±0.013 | |
| L 注(a) | | ±0.025 | |
| M | | ±0.08～±0.2 注(b) | ±0.13 |
| N | | | ±0.025 |
| U | ±0.08～±0.25 注(b) | ±0.13～±0.38 注(b) | ±0.13 |

注(a)主としてさらい刃付きインサートに適用する。
注(b)許容差の範囲は基準内接円直径によって異なる。
Notes (a) This designation is applied for an insert with ground secondary cutting edge.
(b) The tolerance is different by insert size.

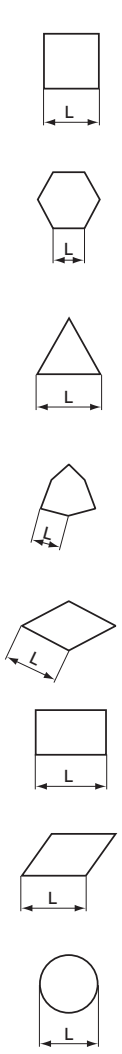


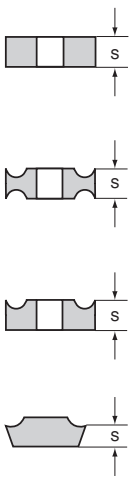

X 特殊形状 Special Dimension

インデキサブルツール インサートの呼び方（ISO 表示）
ISO DESIGNATION ACCORDING TO ISO 1832

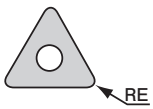
## Designation according to ISO1832 インデキサブルツール インサートの呼び方（ISO表示）

| 12 | 04 | 08 | | | -NM4 |
|---|---|---|---|---|---|
| 20 | 04 | 60 | T | R | -A27 |
| 切れ刃の長さ(mm)<br>Length of the cutting edge | 厚さ(mm)<br>Thickness of insert | コーナ記号<br>Corner Radius | 主切れ刃記号<br>Type of cutting edge | 勝　手<br>Cutting Direction | ブレーカ記号<br>Type of chip breaker |



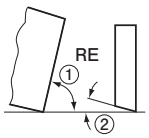

02　S = 2.38
03　S = 3.18
T3　S = 3.97
04　S = 4.76
05　S = 5.56
06　S = 6.35
07　S = 7.94
09　S = 9.52




02　RE = 0.2
04　RE = 0.4
08　RE = 0.8
12　RE = 1.2
16　RE = 1.6
24　RE = 2.4

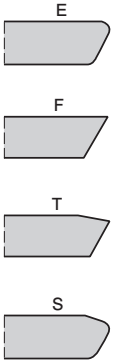


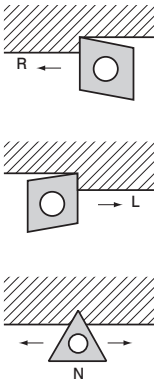

チップ円直径が、インチ系の場合には00（ゼロゼロ）を適用する。
メートル系の場合にはM0（エムゼロ）を適用する。
00 for inch diameter converted into mm.
M0 for metric diameter.



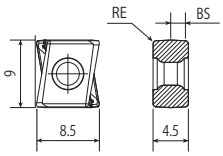

①切込み角
cutting edge angle
A=45°
D=60°
E=75°
F=85°
P=90°
Z=その他の角度
other angles

②さらい刃逃げ角
Clearance angle of secondary cutting edge
A=3°
B=5°
C=7°
D=15°
E=20°
F=25°
G=30°
N=0°
P=11°
Z=その他の角度
other angles



# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR−1
(例:インサートR3の場合ボディにはR2のR)
When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

## ■対応カッタ PROPER CUTTER BODY

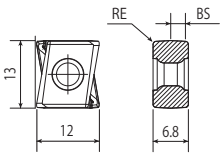
F5041 SS ……P1128-45
F5041 SL ……P1128-47

## ■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 逃げ角 | RE | BS | 超硬材種 Carbide Material WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP25S | WKP35G | WKP35S | WSM35S | WSP45G | WAK15 | WKK25S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | LNHU090404R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 0.4 | 1.5 | | | 8015141* | 8015142* | 8015143* | | 8015145* | | | 3,470<br>4,170<br>3,660 |
| | LNHU090404R-L85T | H級 低抵抗タイプ H class Low Resistance Type | 4 | 0° | 0.4 | 1.5 | | | | | | | | | | |
| | LNHU090408R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 0.8 | 1.1 | | | | | | | | | | |
| | LNHU090412R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 1.2 | 0.8 | | | | | | | | | | |
| | LNHU090416R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 1.6 | - | | | | | | | | | | |
| | LNHU090420R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 2 | - | | | | | | | | | | |
| | LNMU090404R-L55T | M級 標準タイプ M class Standard Type | 4 | 0° | 0.4 | 1.5 | | | | | | | | | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR−1
(例:インサートR3の場合ボディにはR2のR)
When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

## ■対応カッタ PROPER CUTTER BODY

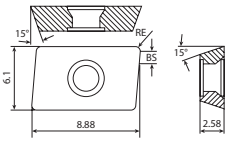
F5141 SS ……P1128-49
F5141 SL ……P1128-51

## ■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 逃げ角 | RE | BS | 超硬材種 Carbide Material WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP25S | WKP35G | WKP35S | WSM35S | WSP45G | WAK15 | WKK25S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | LNHU130608R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 0.8 | 2.2 | | | 8015146* | 8015147* | 8015148* | | 8015150* | | | 3,800<br>4,550<br>4,010 |
| | LNHU130608R-L85T | H級 低抵抗タイプ H class Low Resistance Type | 4 | 0° | 0.8 | 2.2 | | | | | | | | | | |
| | LNHU130612R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 1.2 | 1.9 | | | | | | | | | | |
| | LNHU130616R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 1.6 | 1.5 | | | | | | | | | | |
| | LNHU130620R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 2 | 1.2 | | | | | | | | | | |
| | LNHU130625R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 2.5 | 0.7 | | | | | | | | | | |
| | LNHU130630R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 3 | - | | | | | | | | | | |
| | LNHU130632R-L55T | H級 標準タイプ H class Standard Type | 4 | 0° | 3.2 | - | | | | | | | | | | |
| | LNMU130608R-L55T | M級 標準タイプ M class Standard Type | 4 | 0° | 0.8 | 2.2 | | | | | | | | | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

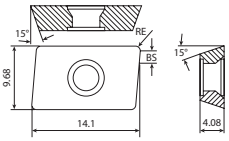
M4256 SS ……P1128-53

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size RE | BS | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | LDMT08T204R-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 0.4 | 0.8 | 8020039* | 8020041* | 8020040* | | | | | 1,810<br>2,140 |
| | LDMT08T204R-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 0.4 | 0.8 | | | | 8020042* | | | | 1,810 |
| | LDMT08T204R-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 2 | 0.4 | 0.8 | | 8020044* | 8020043* | 8020045* | | 8020046* | | 1,810<br>2,140 |
|  | LDMW08T204R-A57 | M級 標準タイプ M class Standard Type | 2 | 0.4 | 0.8 | 8020047* | | | | | | | 1,810 |

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在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

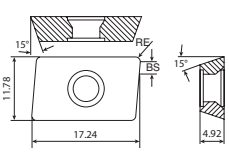
M4257 SS ……P1128-55
M4257 SL ……P1128-57

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size RE | BS | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | LDMT14T308R-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 0.8 | 1.2 | 8020057* | 8020059* | 8020058* | | | | | 2,310<br>2,750 |
| | LDMT14T308R-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 0.8 | 1.2 | | | | 8020060* | | | | 2,310 |
| | LDMT14T308R-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 2 | 0.8 | 1.2 | | 8020062* | | 8020063* | | 8020064* | | 2,310 |
|  | LDMW14T308R-A57 | M級 標準タイプ M class Standard Type | 2 | 0.8 | 1.2 | 8020065* | | | | | | | 2,310 |

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■対応カッタ PROPER CUTTER BODY

M4258 SL ……P1128-59
M4258 BT ……P1128-61
M4258C BT ……P1128-63

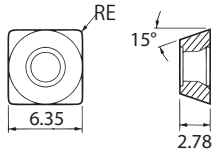
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size RE | BS | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | LDMT170408R-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 0.8 | 1.6 | 8020075* | 8020077* | 8020076* | | | | | 3,200<br>3,850 |
| | LDMT170412R-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 1.2 | 1.6 | | | | | | | | |
| | LDMT170408R-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 0.8 | 1.6 | | | | 8020078* | | | | 3,200 |
| | LDMT170408R-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 2 | 0.8 | 1.6 | | 8020080* | 8020079* | 8020081* | | 8020082* | | 3,200<br>3,850 |
|  | LDMW170408R-A57 | M級 標準タイプ M class Standard Type | 2 | 0.8 | 1.6 | | | | | | | | |

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# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

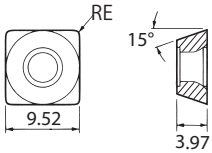
M4256 SS ……P1128-53
M4574 ……P1128-65
M4575 ……P1128-66

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | コーティング材種 Grade of Coated Materials | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RE | WKP25S | WKP35S | WKP35G | WSM35S | WSM45X | WAK15 | WKK25S | WSP45S | WSP45G | |
|  | SDMT06T204-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 0.4 | | | 8020049* | | | | | | | 1,920 |
| | SDMT06T204-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 0.4 | | | | 8020051* | | | | | | 1,600 |
| | SDMT06T204-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 0.4 | | | | | | | | 8020055* | | 1,600 |
| | SDMT06T208-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 0.8 | | | | | | | | | | |
| | SDMT06T212-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 1.2 | | | | | | | | | | |
|  | SDMW06T204-A57 | M級 標準タイプ M class Standard Type | 4 | 0.4 | 8020056* | | | | | | | | | 1,600 |

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コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR－1
（例:インサートR3の場合ボディにはR2のR）
When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

■対応カッタ PROPER CUTTER BODY

M4257 SS ……P1128-55
M4257 SL ……P1128-57
M4574 ……P1128-65
M4575 ……P1128-66

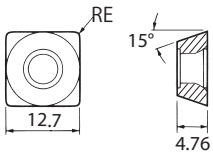
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | コーティング材種 Grade of Coated Materials | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RE | WKP25S | WKP35S | WKP35G | WSM35S | WSM45X | WAK15 | WKK25S | WSP45S | WSP45G | |
|  | SDMT09T308-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 0.8 | 8020066* | 8020068* | | | | | | | | 2,010 |
| | SDMT09T308-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 0.8 | | | | 8020069* | | | | | | 2,010 |
| | SDMT09T304-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 0.4 | | | | | | | | | | |
| | SDMT09T308-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 0.8 | | 8020071* | | 8020072* | | | | | | 2,010 |
| | SDMT09T312-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 1.2 | | | | | | | | | | |
|  | SDMW09T308-A57 | M級 標準タイプ M class Standard Type | 4 | 0.8 | 8020074* | | | | | | | | | 2,010 |
| | SDMW09T320-A57 | M級 標準タイプ M class Standard Type | 4 | 2 | | | | | | | | | | |

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# インサート基準対応カッター一覧




コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR−1
(例:インサートR3の場合ボディにはR2のR)
When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

## ■対応カッタ PROPER CUTTER BODY

M4258 SL ……P1128-59　M4575 ……P1128-66
M4258 BT ……P1128-61
M4258C BT ….P1128-63
M4574 ……P1128-65

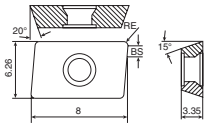
## ■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | コーティング材種 Grade of Coated Materials | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RE | WKP25S | WKP35S | WKP35G | WSM35S | WSM45X | WAK15 | WKK25S | WSP45S | WSP45G | |
|  | SDMT120408-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 0.8 | 8020084* | | 8020085* | | | | | | | 2,470<br>2,950 |
| | SDMT120408-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 0.8 | | | | 8020087* | | | | | | 2,470 |
| | SDMT120408-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 0.8 | | 8020089* | 8020088* | 8020090* | | | | | | 2,470<br>2,950 |
| | SDMT120412-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 1.2 | | | | | | | | | | |
| | SDMT120416-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 1.6 | | | | | | | | | | |
| | SDMT120420-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 2 | | | | | | | | | | |
| | SDMT120425-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 2.5 | | | | | | | | | | |
|  | SDMW120408-A57 | M級 標準タイプ M class Standard Type | 4 | 0.8 | 8020092* | | | | | | | | | 2,470 |
| | SDMW120425-A57 | M級 標準タイプ M class Standard Type | 4 | 2.5 | | | | | | | | | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
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# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

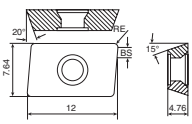
F4042 08SS ·····P1128-69
F4038 SS ·····P1128-75

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size RE | BS | 超硬材種 Carbide Material WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WSP45G | WSM35S | WAK15 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ADMT080304R-D56 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 2 | 0.4 | 1.2 | | | | | | | 8059201* | 2,130 |
| | ADMT080304R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16°chip former Low Resistance Type | 2 | 0.4 | 1.2 | | | 8037202* | | | | | 2,130 |
| | ADMT080304R-G56 | M級 20°ブレーカ 超低抵抗タイプ | M class 20°chip former Low Resistance Type | 2 | 0.4 | 1.2 | | | | | | | | |
| | ADKT0803PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ | Partly Ground 16° chip former Low Resistance Type | 2 | 0.4 | 1.2 | | | | | | | | |
| | ADHT0803PER-G88 | H級 20°ブレーカ 超低抵抗タイプ | H class 20° chip former Low Resistance Type | 2 | 0.4 | 1.2 | | | | | | | | |
| | ADMT080302R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 0.2 | 1.2 | | | | | | | | |
| | ADMT080308R-F56 | | | 2 | 0.8 | 1.2 | | | | 8039375* | | | | 2,130 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
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ボディ側のコーナR=インサートのR－1
(例:インサートR3の場合ボディにはR2のR)
When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

■対応カッタ PROPER CUTTER BODY

F4042 12SL ·····P1128-72
F4042 12SS ·····P1128-71
F4138 SL ·····P1128-78
F4138 SS ·····P1128-77

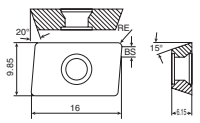
■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size RE | BS | 超硬材種 Carbide Material WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP25S | WKP35 | WKP35S | WSP45G | WSM35S | WAK15 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ADMT120408R-D56 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 2 | 0.8 | 1.2 | | | | | | | | 8059204* | 2,310 |
| | ADMT120408R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16°chip former Low Resistance Type | 2 | 0.8 | 1.2 | | | 8037205* | | 8039205* | | | | 2,310 |
| | ADMT120408R-G56 | M級 20°ブレーカ 超低抵抗タイプ | M class 20°chip former Low Resistance Type | 2 | 0.8 | 1.2 | | | | | 8039206* | | 8097206* | | 2,310 |
| | ADGT1204PER-D56 | 精密級 10°ブレーカ 標準タイプ | Ground 10° chip former Standard Type | 2 | 0.8 | 1.2 | | | | | | | | | |
| | ADKT1204PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ | Partly Ground 16° chip former Low Resistance Type | 2 | 0.8 | 1.2 | | | | | | | | | |
| | ADHT1204PER-G88 | H級 20°ブレーカ 超低抵抗タイプ | H class 20° chip former Low Resistance Type | 2 | 0.8 | 1.2 | 8032482* | 2,540 | | | | | | | |
| | ADMT120404R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 0.4 | 1.2 | | | | | | | | | |
| | ADMT120412R-F56 | | | 2 | 1.2 | 1.2 | | | | | | | | | |
| | ADMT120416R-F56 | | | 2 | 1.6 | 1 | | | | | 8039378* | | | | 2,310 |
| | ADMT120420R-F56 | | | 2 | 2 | 1 | | | | | 8039379* | | | | 2,310 |
| | ADMT120425R-F56 | | | 2 | 2.5 | 0.8 | | | | 8036380* | | | | | 2,310 |
| | ADMT120430R-F56 | | | 2 | 3 | 0.8 | | | | | | | | | |
| | ADMT120440R-F56 | | | 2 | 4 | — | | | | | | | | | |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧




コーナR=R2以上のインサートを使用する場合、
カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR－1
(例:インサートR3の場合ボディにはR2のR)
When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

## ■対応カッタ　PROPER CUTTER BODY


F4010 P3F90R ‥P1128-93
F4042 16SL ……P1128-74
F4042 16SS ……P1128-73
F4238 BT ……P1128-81
F4238 CN ……P1128-80
F4238 HSK ……P1128-84
F4238 SL ……P1128-83
F4238 SS ……P1128-79

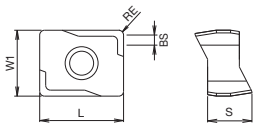

## ■適用インサート　Applicable Inserts

(単位:mm)(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size RE | インサート寸法 Insert Size BS | 超硬材種 Carbide Material WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WSP45S | WSP45G | WSM35S | WAK15 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ADMT160608R-D56 | M級 10°ブレーカ 標準タイプ / M class 10°chip former Standard Type | 2 | 0.8 | 1.6 | | | | | | | | | |
| | ADMT160608R-F56 | M級 16°ブレーカ 低抵抗タイプ / M class 16°chip former Low Resistance Type | 2 | 0.8 | 1.6 | | | ＊8037208 | | | | | | 2,620 |
| | ADMT160608R-G56 | M級 20°ブレーカ 超低抵抗タイプ / M class 20°chip former Low Resistance Type | 2 | 0.8 | 1.6 | | | | ＊8039209 | | | ＊8097209 | | 2,620 |
| | ADGT1606PER-D56 | 精密級 10°ブレーカ 標準タイプ / Ground 10° chip former Standard Type | 2 | 0.8 | 1.6 | | | ＊8037363 | ＊8039363 | | | | | 3,790 |
| | ADKT1606PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ / Partly Ground 16° chip former Low Resistance Type | 2 | 0.8 | 1.6 | | | | | | | | | |
| | ADHT1606PER-G88 | H級 20°ブレーカ 超低抵抗タイプ / H class 20° chip former Low Resistance Type | 2 | 0.8 | 1.6 | | | | | | | | | |
| | ADMT160612R-F56 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 2 | 1.2 | 1.6 | | | | | | | | | |
| | ADMT160616R-F56 | | 2 | 1.6 | 1.4 | | | | | | | | | |
| | ADMT160620R-F56 | | 2 | 2 | 1.4 | | | | | | | | | |
| | ADMT160625R-F56 | | 2 | 2.5 | 1.2 | | | | | | | | | |
| | ADMT160630R-F56 | | 2 | 3 | 1.2 | | | | | | | | | |
| | ADMT160640R-F56 | | 2 | 4 | 1 | | | | ＊8039388 | | | | | 2,620 |
| | ADMT160650R-F56 | | 2 | 5 | — | | | | | | | | | |
| | ADMT160660R-F56 | | 2 | 6 | — | | | | | | | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

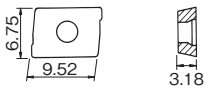
F4041 ……P1128-89

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | | コーティング材種 Grade of Coated Materials | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L×W1 | 厚さ S | 逃げ角 | RE | BS | WKP25S | WKP35S | WAK15 | WSP45G | |
|  | LNGX130708R-L55 | 精密級<br>ブレーカ付き<br>Ground with chip former | 4 | 13.6×11 | 7.5 | 0° | 0.8 | 1.6 | 8037100* | | 8058100* | | 3,000 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
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■対応カッタ PROPER CUTTER BODY

F3038A SS ……P1128-95
F3042A SL
F3042A SS ……P1128-103

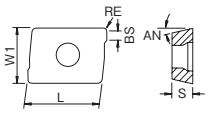
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RE | BS | WK10 | | WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | |
|  | APGT0903PPR-D51 | 精密級<br>10°ブレーカ<br>Ground<br>10°chip former | 2 | 0.4 | 1.5 | | | | | | 8057210* | | | 1,850 |
|  | APMT0903PPR-D55 | M級<br>10°ブレーカ<br>標準タイプ<br>M class<br>10°chip former<br>Standard Type | 2 | 0.4 | 1.2 | | | | | | | | 8076275* | 1,850 |
|  | APMT0903PPR-D56 | M級<br>10°ブレーカ<br>標準タイプ<br>M class<br>10°chip former<br>Standard Type | 2 | 0.4 | 1.2 | | | 8091277* | 8092277* | | | | | 1,850 |
|  | APKT0903PPR-F55 | 準精密級<br>16°ブレーカ<br>低抵抗タイプ<br>Partly Ground<br>16°chip former<br>Low Resistance Type | 2 | 0.4 | 1.2 | | | | | | 8057310* | 8059310* | | 1,850 |
|  | APMT0903PPR-F56 | M級<br>16°ブレーカ<br>低抵抗タイプ<br>M class<br>16°chip former<br>Low Resistance Type | 2 | 0.4 | 1.2 | | | 8091278* | | | | | | 1,850 |
| | APMT090308R-F56 | | 2 | 0.8 | — | | | | | | | | | |
| | APMT090312R-F56 | | 2 | 1.2 | — | | | 8091268* | | | | | | 1,850 |
| | APMT090320R-F56 | | 2 | 2 | — | | | | | | | | | |
| | APMT090330R-F56 | | 2 | 3 | — | | | | | | | | | |
|  | APMT0903PPR-G56 | M級<br>20°ブレーカ<br>超低抵抗タイプ<br>M class<br>20°chip former<br>Low Resistance Type | 2 | 0.4 | 1.2 | | | 8091279* | | | | | | 1,850 |
|  | APHT0903PPR-K88 | 精密級<br>25°ブレーカ<br>非鉄金属用<br>Ground<br>25°chip former<br>For Non-Ferrous Metals | 2 | 0.4 | 1.5 | 8033230* | 1,700 | | | | | | | |
|  | APGW090308R-A57 | 精密級<br>標準タイプ<br>Ground<br>Standard Type | 2 | 0.8 | — | | | | | | | | | |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧




■対応カッタ PROPER CUTTER BODY

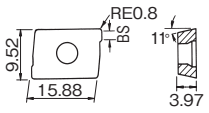
DC-S ……P1128-127

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 | コーナR RE | 副切れ刃幅 BS | 超硬材種 Carbide Material K10T | コーティング材種 Grade of Coated Materials K15CA | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | APHT0903PPR-73 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 9.52×6.75 | 3.18 | 11° | 0.4 | 1.5 | | | |
|  | APKT0903PPR-52 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 9.52×6.75 | 3.18 | 11° | 0.4 | 1.5 | | 8059301* | 1,850 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

F3010 P3F90R
F3038B BT ……P1128-97
F3038B CN ……P1128-98
F3038B SL ……P1128-100
F3038B SS ……P1128-99
F3038C BT ……P1128-101
F3042B SL ……P1128-107
F3042B SS ……P1128-105
F3052 P3F90N
F3052 P3F90R
F3075 ……P1128-109

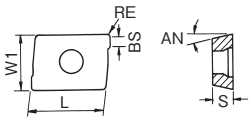
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | APGT15T3PDR-D51 | 精密級 10°ブレーカ Ground 10°chip former | 2 | 1.8 | | | | | | | 8057330* | | | 8063330* | 2,190 |
|  | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | | | | | | | |
|  | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | 8092295* | | | | | | 2,190 |
|  | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.8 | 8031350* | | 1,820 | | | | 8057350* | | | | 2,190 |
|  | APMT15T3PDR-F56 | M級 16°ブレーカ 低抵抗タイプ M class 16°chip former Low Resistance Type | 2 | 1.8 | | | | | 8092296* | | | | | | 2,190 |
| | APMT15T312R-F56 | | 2 | — | | | | 8091280* | | | | | | | 2,190 |
| | APMT15T316R-F56 | | 2 | — | | | | | | | | | | | |
| | APMT15T320R-F56 | | 2 | — | | | | 8091284* | | | | | | | 2,190 |
| | APMT15T325R-F56 | | 2 | — | | | | | | | | | | | |
| | APMT15T330R-F56 | | 2 | — | | | | | | | | | | | |
| | APMT15T340R-F56 | | 2 | — | | | | | | | | | | | |
| | APMT15T360R-F56 | | 2 | — | | | | 8091294* | | | | | | | 2,190 |
|  | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ M class 20°chip former Low Resistance Type | 2 | 1.8 | | | | 8091297* | 8092297* | | | | | | 2,190 |
|  | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 1.7 | | 8033250* | 2,010 | | | | | | | | |
|  | APGW15T308R-A57 | 精密級 標準タイプ Ground Standard Type | 2 | — | | | | | | | 8057401* | | | | 2,190 |
| | APGW15T312R-A57 | | 2 | — | | | | | | | 8057402* | | | | 2,190 |
| | APGW15T316R-A57 | | 2 | — | | | | | | | | | | | |
| | APGW15T320R-A57 | | 2 | — | | | | | | | 8057404* | | | | 2,190 |
| | APGW15T325R-A57 | | 2 | — | | | | | | | 8057405* | | | | 2,190 |
| | APGW15T330R-A57 | | 2 | — | | | | | | | | | | | |
| | APGW15T340R-A57 | | 2 | — | | | | | | | 8057407* | | | | 2,190 |
| | APGW15T350R-A57 | | 2 | — | | | | | | | 8057408* | | | | 2,190 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

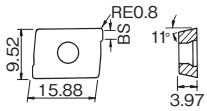
F2250A 3F90R

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | ノーズR RE | 副切れ刃幅 BS | 超硬 Grade WK10 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
|  | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former for Non-Ferrous Metals | 2 | 15.88X9.52 | 3.97 | 11° | 0.8 | 1.7 | 8033250* | 2,010 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

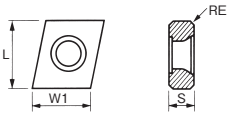
F3052 P3F90L
F3052 P3F90N
F3052 P3F90R

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| | 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① |  | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | | | | | |
| ② |  | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.8 | 8031350* | | 1,820 | | 8057350* | | | | 2,190 |
| | | APKT15T3PDL-F55 | | 2 | 1.8 | | | | | 8057355* | 8059355* | | | 2,190 |
| ③ |  | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 1.7 | | 8033250* | 2,010 | | | | | | |
| | | APHT15T3PDL-K88 | | 2 | 1.7 | | 8033255* | 2,010 | | | | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

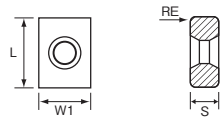
F2230

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | RE | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
|  | CNMU120608-D57T | M級 ブレーカ付き M class with chip former | 2 | 12X13 | 6.5 | 0.8 | | 8039052* | 3,150 |
| | CNMU160812-D57T | | 2 | 16X15 | 8 | 1.2 | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

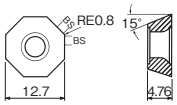
F2260 ·····P1128-131

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | コーナR RE | コーティング材種 Grade of Coated Materials WAK15 | WKP25S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
|  | LNMU150812-F57T | M級 標準タイプ M class Standard Type | 4 | 15X14 | 8 | 1.2 | 8058940* | | 3,740 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

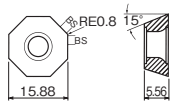
F2280MINI SL ·····P1128-122
F2280MINI SS ····P1128-121

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | WK10 | | WKP25S | WKP35S | WAK15 | WSM35S | |
|  | ODMW050408-A57 | M級 標準タイプ M class Standard Type | 8 | — | | | | | 8059991* | | 1,220 |
|  | ODHW0504ZZN-A57 | 精密級 標準タイプ Ground Standard Type | 8 | 1.2 | | | | | 8059993* | | 2,140 |
|  | ODMT0504ZZN-D57 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 8 | 1.2 | | | | 8039994* | | | 1,810 |
|  | ODHT0504ZZN-F57 | 精密級 16°ブレーカ 低抵抗タイプ Ground 16°chip former Low Resistance Type | 8 | 1.2 | | | | | | | |
|  | ODHT0504ZZN-G88 | 精密級 20°ブレーカ 非鉄金属 Ground 20°chip former For Non-Ferrous Metals | 8 | 1.2 | 8032996* | 1,850 | | | | | |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

F2010M P5E43R ··P1128-133
F2010 P5E43R ····P1128-133
F2280 SL·····P1128-124
F2280 SS ·····P1128-123

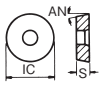
■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | WK10 | | WKP35S | WAK15 | WKP25S | WSM35S | |
|  | ODMW060508-A57 | M級 標準タイプ M class Standard Type | 8 | — | | | | 8059971* | | | 2,570 |
|  | ODMW060508T-A27 | M級 強化タイプ M class Strong Edge Type | 8 | — | | | | | | | |
|  | ODHW0605ZZN-A57 | 精密級 標準タイプ Ground Standard Type | 8 | 1.6 | | | | 8059973* | | | 3,360 |
|  | ODMT0605ZZN-D57 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 8 | 1.6 | | | | | | | |
|  | ODMT0605ZZN-D57 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 8 | 1.6 | | | | | 8037974* | | 2,830 |
|  | ODHT0605ZZN-F57 | 精密級 16°ブレーカ 低抵抗タイプ Ground 16°chip former Low Resistance Type | 8 | 1.6 | | | 8039975* | | | | 3,360 |
|  | ODHT0605ZZN-G88 | 精密級 20°ブレーカ 非鉄金属 Ground 20°chip former For Non-Ferrous Metals | 8 | 1.6 | 8033976* | 2,830 | | | | | |
|  | ODHX0605ZZR-A57 | 精密級 標準タイプ Ground Standard Type | 1 | 9.4 | | | | 8059977* | | | 4,390 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
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# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

F2034 SL
F2034 SS
F2038C BT
F2010 P4R00R

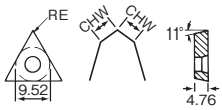
■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | RE | インサート寸法 Insert Size | | | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 内接円径 IC | 厚さ S | 逃げ角 AN | WTL71 | WTA51 | |
|  | RPNT1204M0<br>P22215-14 | M級<br>ブレーカ付き<br>M class<br>with chip former | R6 | 12 | 4.76 | 11° | ＊<br>8051140 | | 2,780 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター覧




■対応カッタ PROPER CUTTER BODY

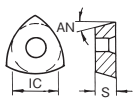
F2010M P3T90R　　F2052 P3T90R
F2010 P3T90R
F2052 P3T90L
F2052 P3T90N

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | 超硬材種 Carbide Material | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) | ダイヤインサート PCD | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RE | CHW | WPM | WKM | | WKP25S | WKP35S | WAK15 | | WDO | |
|  | TPAW1604PPN P2602-2 | 精密級 Ground | 3 | — | 1.2 | | | | | | | | | |
|  | TPJW1604PPN P2603-2 | 準精密級 Partly Ground | 3 (WDO:1) | — | 1.2 | 8010142* | 8030142* | 1,980 | | | 8058142* | 2,520 | 8080142* | 31,600 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
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■対応カッタ PROPER CUTTER BODY

F2039 ·····P1128-119
F2039G

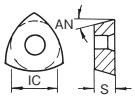
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | サイズ Size | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) | ダイヤコート Dia. Coating | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 内接円径 IC | 厚さ S | 逃げ角 AN | WKM | | WKP25S | WKP35S | | WDC | |
|  | P26315R10 | M級 ブレーカ付き M class with chip former | R10 | 3 | 6.75 | 2.78 | 14° | 8030160* | 1,810 | 8037160* | | 2,190 | 8085160* | 13,300 |
| | P26315R12 | | R12.5 | 3 | 8.5 | 3.18 | 14° | | | 8037161* | 8039161* | 2,380 | | |
| | P26315R15 | | R15 | 3 | 10.5 | 3.97 | 14° | | | | | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

F2039 ·····P1128-119

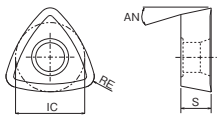
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | サイズ Size | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | 超硬材種 Carbide Material WKM | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | 標準価格 (Yen) | ダイヤコート Dia. Coating WDC | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P26315R10 | M級 ブレーカ付き M class with chip former | R10 | 3 | 6.75 | 2.78 | 14° | 8030160* | 1,810 | 8037160* | | 2,190 | 8085160* | 13,300 |
| | P26315R12 | | R12.5 | 3 | 8.5 | 3.18 | 14° | | | 8037161* | 8039161* | 2,380 | | |
| | P26315R15 | | R15 | 3 | 10.5 | 3.97 | 14° | | | | | | | |
| | P26315R16 | | R16 | 3 | 10.5 | 3.97 | 14° | | | 8037163* | | 2,810 | | |
| | P26315R20 | | R20 | 3 | 12.7 | 4.76 | 11° | | | 8037164* | | 3,400 | | |
| | P26315R25 | | R25 | 3 | 12.7 | 4.76 | 11° | | | 8037165* | | 3,590 | | |

| 形状 Appearance | 呼び Designation | | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE | 超硬材種 Carbide Material WPM | WKM | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WTL71 | WTA51 | WKP35S | 標準価格 (Yen) | ダイヤコート Dia. Coating WDC | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | P28415-00 | SPNT060304 | M級 ブレーカ付き M class with chip former | 4 | 6.35 | 3.18 | 11° | 0.4 | | 8030629* | 1,320 | | | | | 8085629* | 9,580 |
| | P28415-0 | SDNT090308 | | 4 | 9.52 | 3.18 | 14° | 0.8 | 8010630* | | 1,600 | | | | | | |
| | P28495-1 | SPMT120408 | | 4 | 12.7 | 4.76 | 11° | 0.8 | | 8030601* | 2,030 | | | 8039851* | 2,200 | | |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

F2334MINI SL
F2334MINI SS

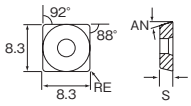
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内径円径 IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
|  | P26335R10 | M級 ブレーカ付き M class with chip former | 3 | 6.75 | 3.18 | 14° | 0.8 | | | |
| | P26335R14 | | 3 | 9.52 | 3.97 | 14° | 1.2 | 8037222* | 8039222* | 2,360 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター覧




■対応カッタ PROPER CUTTER BODY

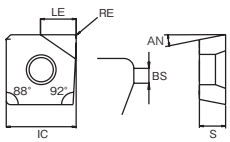
F2052 P2S90L ····P1128-140
F2052 P2S90N ····P1128-139
F2052 P2S90R ····P1128-140

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 厚さ S | 逃げ角 AN | RE | WPM | WKM | |
|  | P2700-0 | 精密級 Ground | 2 | 3.18 | 11° | 0.5 | 8010710* | | 2,170 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

F2250 A2S90R

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

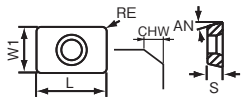
| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | | | ダイヤインサート PCD | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 内接円径 IC | 厚さ S | 逃げ角 AN | ノーズ R RE | 副切れ刃幅 BS | 切れ刃長 LE | WDO | |
|  | P2700-0 | 精密級 Ground | 1 | 8.3 | 3.18 | 11° | 0.4 | 0.6 | 4 | 8080710* | 16,400 |

◆インサート再研磨について
Notes on Re-grinding Inserts

インサートの再研磨は加工時の逃げ面干渉、ろう付け強度低下等の問題を防ぐため、総再研磨量は0.3mm以内にして下さい。
To prevent contact with relief and reduction in brazing strength during milling operation, the total re-grinding amount of inserts must be 0.3mm or less.

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在庫区分はすべてC（標準在庫品）となります。
Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

| | |
|---|---|
| F2038 SL | F2052 P3F90N |
| F2038 SS | F2052 P3F90R |
| F2042 SL | F2010M P4S75R |
| F2042 SS | F2010 P4S75R |

■先端適用インサート Applicable Front Inserts

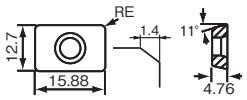
（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) | ダイヤ PCD blazed | 標準価格 (Yen) | サーメット材種 Grade of Cermet Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L×W1 | 厚さ S | 逃げ角 AN | RE | CHW | WPM | WKM | | WTL71 | WTA51 | | WDO | | WCO | |
|  | P2700-3 | 精密級 Ground | 2 | 15X9.52 | 3.18 | 14° | 0.8 | — | | ＊8030713 | 2,290 | | | | ＊8080713 | 26,700 | | |
| | P2701-3 | M級 M class | 2 | 15X9.52 | 3.18 | 14° | 0.8 | — | | | | | | | | | ＊8084723 | 1,540 |
|  | P27215-3 | M級 ブレーカ付き M class with chip former | 2 | 15X9.52 | 3.18 | 14° | 0.8 | — | | ＊8030703 | 1,820 | | | | | | | |
|  | P2706-3 | 精密級 Ground | 2 | 15.88×12.7 | 4.76 | 11° | — | 1.4 | | ＊8030743 | 3,540 | | | | | | | |
| | P2707-3 | M級 M class | 2 | 15.88×12.7 | 4.76 | 11° | — | 1.4 | ＊8010753 | ＊8030753 | 2,310 | | | | | | | |

| 形状 Appearance | 呼び Designation | | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | 超硬材種 Grade of Carbide Materials | | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L×W1 | 厚さ S | 逃げ角 AN | RE | WPM | WP40 | WKM | | WTL71 | WTA51 | WKP35S | |
|  | P2801-0 | SDNW090308 | M級 M class | 4 | 9.52 | 3.18 | 14° | 0.8 | ＊8010520 | | ＊8030520 | 1,520 | | | | |
|  | P28415-0 | SDNT090308 | M級 ブレーカ付き M class with chip former | 4 | 9.52 | 3.18 | 14° | 0.8 | ＊8010630 | | | 1,600 | | | | |
|  | P2808-1 | | 精密級 Ground | 4 | 12.7 | 4.76 | 11° | 0.8 | | | ＊8030611 | 2,680 | | | | |
| | P2809-1 | | M級 M class | 4 | 12.7 | 4.76 | 11° | 0.8 | ＊8010621 | ＊8014621 | ＊8030621 | 1,560 | | | | |
|  | P28495-1 | SPMT120408 | M級 ブレーカ付き M class with chip former | 4 | 12.7 | 4.76 | 11° | 0.8 | | | ＊8030601 | 2,030 | | | ＊8039851 | 2,200 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧




■対応カッタ PROPER CUTTER BODY

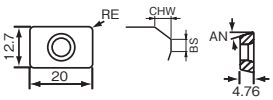
| | |
|---|---|
| F2038 BT | F2038 SS |
| F2038C BT | F2042 SL |
| F2038 CN | F2042 SS |
| F2038 SL | |

■先端適用インサート Applicable Front Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RE | WPM | WKM | | WTL71 | WTA51 | |
|  | P2706-3 | 精密級 Ground | 2 | — | | 8030743* | 3,540 | | | |
| | P2707-3 | M級 M class | 2 | — | 8010753* | 8030753* | 2,310 | | | |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

F2010 P4F90R

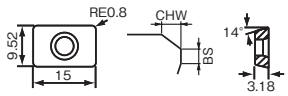
■先端適用インサート Applicable Front Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 逃げ角 AN | RE | BS | CHW | WPM | WKM | |
|  | P2707-4 | M級 M class | 2 | 11° | — | — | 0.8 | 8010754* | 8030754* | 2,310 |
|  | P27261-4 | 精密級 ブレーカ付き Ground with chip former | 2 | 11° | — | — | 0.8 | 8010784* | 8030784* | 5,060 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

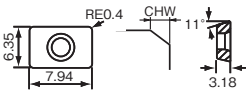
F2042 SL
F2042 SS

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | | | | BS | CHW | WKM | |
|  | P27201-3 | 精密級<br>ブレーカ付き<br>Ground<br>with chip former | 2 | — | — | 8030773 * | 3,000 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

F2037
F2038 G
F2038 GZ
F2038 MINI
F2042 MINI

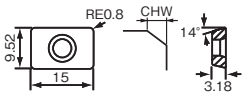
■外周適用インサート Available Peripheral Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) | ダイヤコート Dia. Coating | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | | | | CHW | WKM | | WDC | |
|  | P27215-00 | M級<br>ブレーカ付き<br>M class<br>with chip former | 2 | — | | | 8085699 * | 10,200 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター覧




■対応カッタ PROPER CUTTER BODY

| | |
|---|---|
| F2037 | F2042 SL |
| F2038 SL | F2042 SS |
| F2038 SS | |
| F2038 Z | |

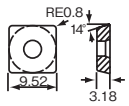
■外周適用インサート Available Peripheral Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | | | | CHW | WKM | |
|  | P27215-3 | M級<br>ブレーカ付き<br>M class<br>with chip former | 2 | — | 8030703 * | 1,820 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

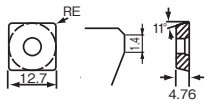
F2032SL
F2032SS
F2038SL
F2038SS

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | | | | WPM | WKM | |
|  | SDNW090308<br>P2801-0 | M級<br>M class | 4 | 8010520 * | 8030520 * | 1,520 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

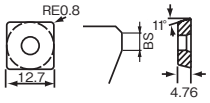
F2010M P4S75R
F2010 P4S75R

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RE | WPM | WKM | | WAK15 | WKP25S | WKP35S | |
|  | SPJW1204EDR<br>P2803-1 | 準精密級<br>Partly Ground | 4 | — | 8010531 * | 8030531 * | 2,080 | 8058531 * | | | 2,470 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

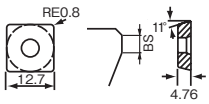
| | |
|---|---|
| F2010M P4S75R | F2038 BT |
| F2010M P4S90R | F2038C BT |
| F2010 P4S75R | F2038 CN |
| F2010 P4S90R | F2038C SET |
| F2032 SL | F2038 SS |

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | | | | BS | WKM | |
|  | P2808-1 | 精密級 Ground | 4 | — | 8030611* | 2,680 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

| | |
|---|---|
| F2010M P4S75R | F2038C BT |
| F2010 P4S75R | F2038 CN |
| F2032 SL | F2038C SET |
| F2038 BT | F2038 SS |

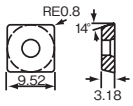
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BS | WPM | WP40 | WKM | | WTL71 | |
|  | P2809-1 | M級 M class | 4 | — | 8010621* | 8014621* | 8030621* | 1,560 | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

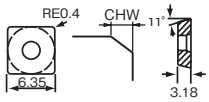
| | |
|---|---|
| F2032 SL | F2038Z |
| F2032 SS | F2039 ·····P1128-119 |
| F2037 | F2039G |
| F2038 SL | F2043 |
| F2038 SS | |

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | 超硬材種 Grade of Carbide Materials WPM | 標準価格 (Yen) |
|---|---|---|---|---|---|
|  | SDNT090308<br>P28415-0 | M級<br>ブレーカ付き<br>M class<br>with chip former | 4 | 8010630 * | 1,600 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

| | |
|---|---|
| F2037 | F2039 ·····P1128-119 |
| F2038G | F2039G |
| F2038GZ | F2043 |
| F2038MINI | |

■中心インサート Core Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size CHW | 超硬材種 Grade of Carbide Materials WKM | 標準価格 (Yen) | ダイヤコート Dia. Coating WDC | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
|  | P28415-00 | SPNT060304 | M級<br>ブレーカ付き<br>M class<br>with chip former | 4 | — | 8030629 * | 1,320 | 8085629 * | 9,580 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

■対応カッタ PROPER CUTTER BODY

B3020

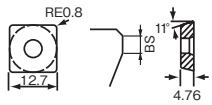
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Type | 呼び Designation | 仕様 Specification | サイズ Size | 切れ刃数 Number of Cutting Edge | コーティング材種 Coating Type WTP35 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
|  | P28467 | 精密級<br>平行ブレーカ<br>コーナカット<br>Perimeter Precision Ground Chip Breaker | 1 | 4 | | |
| | | | 2 | 4 | 8054852* | 3,900 |
| | | | 3 | 4 | 8054853* | 5,450 |
| | | | 4 | 4 | | |
| | | | 5 | 4 | | |
| | | | 6 | 4 | | |
| | | | 7 | 4 | | |
|  | P28469 | 精密級<br>波形ブレーカ<br>コーナカット<br>Perimeter Precision Ground Chip Groove from size 3 with Recessed Profile | 1 | 4 | | |
| | | | 2 | 4 | | |
| | | | 3 | 4 | | |
| | | | 4 | 4 | | |
| | | | 5 | 4 | | |
| | | | 6 | 4 | | |
| | | | 7 | 4 | 8054867* | 7,820 |
|  | P28475 | M級<br>二段ブレーカ<br>コーナカット<br>Perimeter Precision M class Chip Groove | 1 | 4 | | |
| | | | 2 | 4 | 8054872* | 2,380 |
| | | | 3 | 4 | | |
| | | | 4 | 4 | | |
| | | | 5 | 4 | 8054875* | 2,890 |
| | | | 6 | 4 | | |
| | | | 7 | 4 | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

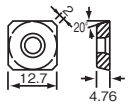
| | |
|---|---|
| F2010M P4S75R | F2038C BT |
| F2010 P4S75R | F2038 CN |
| F2010M P4S90R | F2038C SET |
| F2010 P4S90R | F2038 SS |
| F2032 SL | F2038Z |
| F2037 | F2039 ·····P1128-119 |
| F2038 BT | F2043 |

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BS | WKM | | WTL71 | WTA51 | WKP35S | |
|  | SPMT120408<br>P28495-1 | M級<br>ブレーカ付き<br>M class<br>with chip former | 4 | — | 8030601* | 2,030 | | | 8039851* | 2,200 |

＊印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

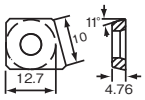
| |
|---|
| F2033 SL |
| F2033 SS |
| F2010M P4D45R |
| F2010 P4D45R |

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | WKM | | WKP35S | WTP35 | WAK15 | |
|  | SEHW1204AFN<br>P2894-1 | 精密級<br>Ground | 4 | 8030591* | 3,000 | 8039591* | | | 3,590 |

＊印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

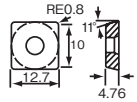
F2010M P4S75R
F2010 P4S75R

■仕上げ用インサート Finishing Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | | | | RE | WPM | WK10 | |
|  | P2901-1 (P2803用) | 精密級 Ground | 1 | — | | 8032951* | 3,750 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

| | |
|---|---|
| F2010M P4S75R | F2052 P3F90R |
| F2010M P4S90R | F2052 P3S88L |
| F2010 P4S75R | F2052 P3S88R |
| F2010 P4S90R | F2052 P3T90L |
| F2052 P3F90L | F2052 P3T90N |
| F2052 P3F90N | F2052 P3T90R |

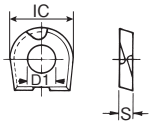
■仕上げ用インサート Finishing Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | | | | WPM | WK10 | | WAK15 | |
|  | P2905-1 (P2808用) | 精密級 Ground | 4 | 8010961* | 8032961* | 3,900 | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

F2139CS

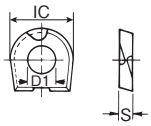
■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

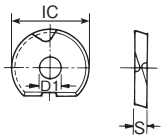
| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 内接円径 IC | 穴径 D1 | 厚さ S | WKP25 | WXH15 | WHH15X | |
|  | P3201-D08 | 精密級 IC公差±0.015 Ground IC tolerance | 2 | 8 | 3 | 2 | 8035419* | | | 8,240 |
|  | P3204-D08 | 精密級 IC公差±0.008 Ground IC tolerance | 2 | 8 | 3 | 2 | | 8078880* | | 8,240 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

IC=10～12




IC=16～20




■対応カッタ PROPER CUTTER BODY

F2139
F2139CS

■適用インサート Applicable Inserts

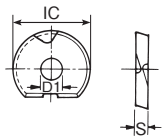
(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | コーティング材種 Grade of Coated Materials | | | | 標準価格 (Yen) | ダイヤコート Dia.Coating | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 内接円径 IC | 穴径 D1 | 厚さ S | WKP25 | WKP35 | WSP46 | WHH15X | | WDC | |
|  | P3201-D10 | 精密級 Ground IC公差 ±0.015 IC tolerance | 2 | 10 | 4 | 2.5 | 8035420* | 8036420* | | | 8,850 | | |
| | P3201-D12 | | | 12 | 5 | 2.5 | | 8036421* | | | 9,440 | | |
| | P3201-D16 | | | 16 | 5 | 3 | 8035422* | 8036422* | | | 10,100 | | |
| | P3201-D20 | | | 20 | 5 | 3 | 8035423* | 8036423* | | | 10,700 | | |
|  | P3204-D10 | 精密級 ブレーカ付き Ground with chip former IC公差 ±0.008 IC tolerance | 2 | 10 | 4 | 2.5 | | | | | | | |
| | P3204-D12 | | | 12 | 5 | 2.5 | | | | | | | |
| | P3204-D16 | | | 16 | 5 | 3 | 8035883* | | | | 10,100 | | |
| | P3204-D20 | | | 20 | 5 | 3 | | | | | | 8086884* | 70,900 |

*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター覧

IC=25～30




■対応カッタ PROPER CUTTER BODY

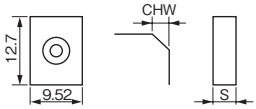
F2139

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | インサート径 IC | 穴径 D1 | 厚さ S | WKP25 | WKP35 | WHH15X | |
|  | P3201-D25 | 精密級<br>Ground<br>IC公差<br>±0.015<br>IC tolerance | 2 | 25 | 6 | 4 | 8035424* | 8036424* | | 11,400 |
| | P3201-D30 | | | 30 | 8 | 5 | | | | |
|  | P3204-D25 | 精密級<br>ブレーカ付き<br>Ground<br>with chip former<br>IC公差<br>±0.008<br>IC tolerance | 2 | 25 | 6 | 4 | | | | |
| | P3204-D30 | | | 30 | 8 | 5 | | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

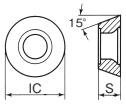
F2053 N3F90N

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | コーティング材種 Coated Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | | | | 厚さ S | CHW | WKP35S | |
|  | P4406-1 | 精密級<br>Ground | 4 | 3.5 | 0.5 | | |
| | P4406-3 | 精密級<br>Ground | 4 | 4.76 | 0.4 | | |
|  | P44462-1 | 精密級<br>ブレーカ付き<br>Ground<br>with chip former | 4 | 3.5 | 0.5 | | |
| | P44462-3 | 精密級<br>ブレーカ付き<br>Ground<br>with chip former | 4 | 4.76 | 0.4 | | |

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

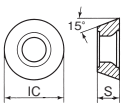
F2231 ……P1128-113

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WAP35 | WKP25S | WKP35S | WSM35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
|  | RDMW0803M0T-A27 | M級 強化タイプ M class Strong Edge Type | 8 | 3.18 | | | 8039500* | | 1,420 |
| | RDMW10T3M0T-A27 | | 10 | 3.97 | | | | | |
|  | RDMT0803M0-D57 | M級 ブレーカ付き 標準タイプ M class with chip former Standard Type | 8 | 3.18 | | | | | |
| | RDMT10T3M0-D57 | | 10 | 3.97 | | | 8039511* | | 1,880 |
|  | RDGW10T3M0-A57 | | 10 | 3.97 | 8057521* | | | | 2,330 |

＊印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

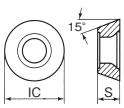
F2231 ……P1128-113
F2231B
F2234 SL ……P1128-116

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WAP35 | WKP25S | WKP35S | WSM35S | WXM15 | 超硬材種 Grade of Carbide Materials WMG40 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | RDMW1204M0T-A27 | M級<br>強化タイプ<br>M class<br>Strong Edge Type | 12 | 4.76 | | 8037502* | | | | | 1,810 |
|  | RDMT1204M0-D57 | M級<br>ブレーカ付き<br>標準タイプ<br>M class<br>with chip former<br>Standard Type | 12 | 4.76 | | | 8039512* | | | | 2,080 |
|  | RDGT1204M0-G85 | 準精密級<br>切れ味<br>重視タイプ<br>Partly Ground<br>with sharp<br>cutting edge | 12 | 4.76 | | | | | | 8040962* | 2,520 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

F2231 ……P1128-113
F2231B
F2234 SL ……P1128-116
F2234 SS ……P1128-115

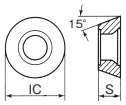
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WSM35S | WHH15 | WMG40 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
|  | RDMW1605M0T-A27 | M級<br>強化タイプ<br>M class<br>Strong Edge Type | 16 | 5.56 | | 8039503* | | | | 2,200 |
|  | RDMT1605M0-D57 | M級ブレーカ付き<br>標準タイプ<br>M class with chip former<br>Standard Type | 16 | 5.56 | | | | | | |
|  | RDHW1605M0-A57 | | 16 | 5.56 | | | | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

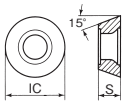
F2231 ……P1128-113
F2234 SL ……P1128-116

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WSM35S | 超硬材種 Grade of Carbide Materials WMG40 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
|  | RDMW2006M0T-A27 | M級<br>強化タイプ<br>M class<br>Strong Edge Type | 20 | 6.35 | | 8039504* | | | 2,940 |
|  | RDMT2006M0-D57 | M級<br>ブレーカ付き<br>標準タイプ<br>M class<br>with chip former<br>Standard Type | 20 | 6.35 | | 8039514* | | | 3,360 |
|  | RDGT2006M0-G85 | 準精密級<br>切れ味重視タイプ<br>Partly Ground with sharp cutting edge | 20 | 6.35 | | | | 8040964* | 4,110 |

＊印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

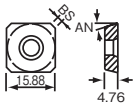
F2231（小径）……P1128-112
F2234 SS（小径）‥P1128-111

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WKP25S | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
|  | RDHX0501M0-A57 | 精密級ブレーカなし<br>Ground without chip former | 5 | 1.5 | | | |
|  | RDHX07T1M0-A57 | 精密級ブレーカなし<br>Ground without chip former | 7 | 1.99 | | | |

# インサート基準対応カッター覧




■対応カッタ PROPER CUTTER BODY

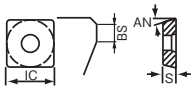
F2010 P5D45R

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | コーティング材種 Grade of Coated Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | | | | 逃げ角 AN | BS | WKP35S | |
|  | SEHW1504AFN P2894-2 | 精密級 Ground | 4 | 20° | 2 | | |

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE



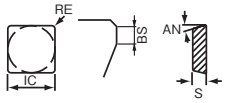

■対応カッタ PROPER CUTTER BODY

F2010M P4D75R
F2010 P4D75R

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 内接円径 IC | 厚さ S | 逃げ角 AN | BS | WK10 | |
|  | SFFW1203EFR | P2892-1 | 精密級 Ground | 4 | 12.7 | 3.18 | 26° | 2.0 | | |




■対応カッタ PROPER CUTTER BODY

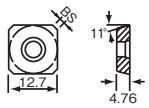
F2147

■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | | コーティング材種 Grade of Coated Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 内接円径 IC | 厚さ S | 逃げ角 AN | RE | BS | WKP35S | |
|  | SPKN1204EDR | 準精密級 Partly Ground | 4 | 12.7 | 4.76 | 11° | — | 1.4 | | |

# インサート基準対応カッター覧




■対応カッタ PROPER CUTTER BODY

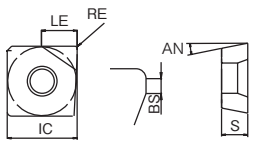
F2010M P4G45R‥P1128-135
F2010 P4G45R ····P1128-135
F2133 SL ·····P1128-126
F2133 SS ·····P1128-125

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | BS | WK10 | | WKP25S | WKP35S | WAK15 | |
|  | SPKT1204AZN | P28451-1 | 準精密級 ブレーカ付き Partly Ground with chip former | 4 | 1.4 | | | | | 8058541* | 2,140 |
| | SPGT1204AEN-K88 | | 準精密級 ブレーカ付き 非鉄金属用 Partly Ground with chip former For Non-Ferrous Metals | 4 | 1.4 | 8033551* | 2,350 | | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




■対応カッタ PROPER CUTTER BODY

F2250 A4S90R

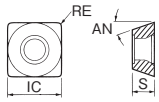
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | | | ダイヤインサート PCD | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 内接円径 IC | 厚さ S | 逃げ角 AN | ノーズ R RE | 副切れ刃幅 BS | 切れ刃長 LE | WDO | |
|  | SPHW1204PPR-S | 精密級 Ground | 1 | 12.7 | 4.76 | 11° | 0.4 | 1.6 | 4 | 8080611* | 17,300 |
| | SPHW1204PPR-L | | 1 | 12.7 | 4.76 | 11° | 0.4 | 1.6 | 6 | 8080612* | 20,800 |

＊印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

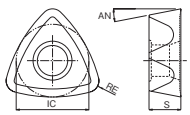
F2339 ·····P1128-117

■外周適用インサート Applicable Peripheral Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials WKP35S | WTP35 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
|  | SPMT060304-D51 | M級 ブレーカ付き M class with chip former | 4 | 6.35 | 3.18 | 11° | 0.4 | 8039831* | 8051831* | 1,470 |
| | SPMT09T308-D51 | | 4 | 9.52 | 3.97 | 11° | 0.8 | 8039841* | 8051841* | 1,850 |
| | SPMT120408-D51 | | 4 | 12.7 | 4.76 | 11° | 0.8 | 8039851* | 8051851* | 2,200 |

＊印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
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■対応カッタ PROPER CUTTER BODY

F2334 SL
F2334 SS

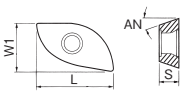
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designations | | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Carbide Materials WKP25S | WKP35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | WDMT130520-31 | P26335R25 | M級 ブレーカ付き M class with chip former | 3 | 13 | 5.56 | 11° | 2 | | 8039190* | 2,470 |
|  | WDMW130520NL-31 | P26339R25 | M級 ブレーカ付き コーナ強化形 M class with chip former with reinforced corner | 3 | 13 | 5.56 | 11° | 2 | | 8039299* | 3,150 |

＊印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
在庫区分はすべて C（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# インサート基準対応カッター一覧




■対応カッタ PROPER CUTTER BODY

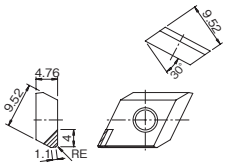
F2339 ……P1128-117

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | サイズ Size | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | コーティング材種 Grade of Coated Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | L×W1 | 厚さ S | 逃げ角 AN | WKP35S | |
|  | XDGT16T3100R-D57 | 準精密級 ブレーカ付き 標準タイプ Partly Ground with chip former Standard Type | R10 | 2 | 16 × 9 | 3.74 | 15° | | |
| | XDGT2004125R-D57 | | R12.5 | 2 | 20 ×11.3 | 4.68 | 15° | | |
| | XDGT2405150R-D57 | | R15 | 2 | 24 ×13.5 | 5.62 | 15° | | |
| | XDGT2506160R-D57 | | R16 | 2 | 25.5×14.4 | 6 | 15° | | |
| | XDGT3207200R-D57 | | R20 | 2 | 32 ×18 | 7.5 | 15° | | |
| | XDGT4009250R-D57 | | R25 | 2 | 43.5×21.6 | 9.39 | 15° | | |

# インサート基準対応カッター一覧 CUTTER BODY SELECTION GUIDE FOR INSERT SIZE




■対応カッタ PROPER CUTTER BODY

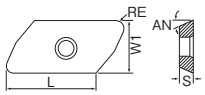
DC-P ……P1128-128

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size コーナR RE | ダイヤ PCD blazed WDO | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
|  | XOHW1104PDR | 精密級<br>非鉄金属用<br>Ground<br>For Non-Ferrous Metals | 1 | 0.3×45° | 8080801* | 21,100 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
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■対応カッタ PROPER CUTTER BODY

F3040 ……P1128-110

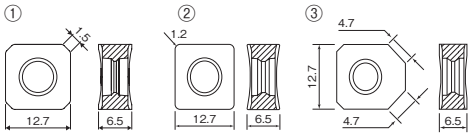
■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | 超硬材種 Grade of Carbide Materials WMG40 | WK10 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
|  | ZDGT150404R-K85 | 準精密級<br>25°ブレーカ<br>Partly Ground<br>25° chip former | 2 | 15×10.5 | 4.76 | 15° | 0.4 | | 8033980* | 2,780 |
| | ZDGT150408R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 0.8 | | | |
| | ZDGT150412R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 1.2 | | 8033982* | 2,780 |
| | ZDGT150416R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 1.6 | | | |
| | ZDGT150420R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 2 | | 8033984* | 2,780 |
| | ZDGT150425R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 2.5 | 8040985* | 8033985* | 2,780 |
| | ZDGT150430R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 3 | | 8033986* | 2,780 |
| | ZDGT150440R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 4 | | 8033987* | 2,780 |
|  | ZDGT200508R-K85 | 準精密級<br>25°ブレーカ<br>Partly Ground<br>25° chip former | 2 | 20×14 | 5.56 | 15° | 0.8 | | | |
| | ZDGT200512R-K85 | | 2 | 20×14 | 5.56 | 15° | 1.2 | | | |
| | ZDGT200516R-K85 | | 2 | 20×14 | 5.56 | 15° | 1.6 | | | |
| | ZDGT200520R-K85 | | 2 | 20×14 | 5.56 | 15° | 2 | | | |
| | ZDGT200525R-K85 | | 2 | 20×14 | 5.56 | 15° | 2.5 | | | |
| | ZDGT200530R-K85 | | 2 | 20×14 | 5.56 | 15° | 3 | | | |
| | ZDGT200540R-K85 | | 2 | 20×14 | 5.56 | 15° | 4 | | | |
| | ZDGT200550R-K85 | | 2 | 20×14 | 5.56 | 15° | 5 | | | |
| | ZDGT200560R-K85 | | 2 | 20×14 | 5.56 | 15° | 6 | | | |
| | ZDGT200564R-K85 | | 2 | 20×14 | 5.56 | 15° | 6.4 | | | |

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# インサート基準対応カッター一覧




## ■対応カッタ PROPER CUTTER BODY

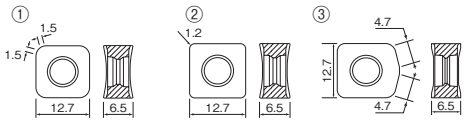
F4033 SL ……P1128-85
F4033 SS ……P1128-86
F4010 N4S45R ….P1128-90

## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | | コーティング材種 Grade of Coated Materials WKP25S | WKP35 | WKP35S | WSP45G | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SNMX1205ANN-F27 | M級 16°ブレーカ 刃先強化タイプ | M class 16°chip former Corner Facets Reinforced Type | | | | | | | | | |
| | SNMX1205ANN-F57 | M級 16°ブレーカ 標準タイプ | M class 16°chip former Corner Facets Standard Type | | | | | | | | | |
| | SNMX1205ANN-F67 | M級 16°ブレーカ 鋳鉄用 | M class 16°chip former Corner Facets For Cast iron | | | | | | | | | |
| | SNGX1205ANN-F57 | 精密級 16°ブレーカ 標準タイプ | Ground 16°chip former Corner Facets Standard Type | 8037562* | | 8039562* | | | | | | 3,740 |
| ② | SNMX120512-F27 | M級 16°ブレーカ コーナR 刃先強化タイプ | M class 16°chip former Corner R Reinforced Type | | | 8039557* | | | | | | 2,890 |
| | SNMX120512-F57 | M級 16°ブレーカ コーナR 標準タイプ | M class 16°chip former Corner R Standard Type | 8037558* | 8036558* | 8039558* | | | | | | 2,890 |
| | SNMX120512-F67 | M級 16°ブレーカ コーナR 鋳鉄用 | M class 16°chip former Corner R For Cast iron | 8037559* | | | | | | | | 2,890 |
| ③ | XNGX1205ANN-F67 | 精密級 16°ブレーカ 仕上げ用インサート | Ground 16°chip former Finishing Insert | | | | | | | 8073554* | | 4,280 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
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## ■対応カッタ PROPER CUTTER BODY

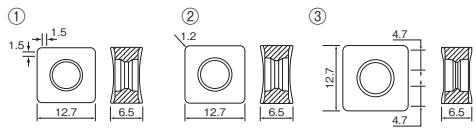
F4047 SL ……P1128-87
F4010 N4S75R ….P1128-91

## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | コーティング材種 Grade of Coated Materials WKP25 | WKP25S | WKP35 | WKP35S | WSP45 | WSP45G | WSM35 | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SNGX1205ENN-F27 | 精密級16°ブレーカ副切れ刃付き 刃先強化タイプ | Ground 16°chip former Corner Facets Reinforced Type | 8 | 8035564* | | 8036564* | | | | | | | | | 3,740 |
| | SNGX1205ENN-F57 | 精密級16°ブレーカ副切れ刃付き 標準タイプ | Ground 16°chip former Corner Facets Standard Type | | | 8037565* | | 8039565* | 8095565* | | 8094565* | | | | | 3,740 |
| | SNGX1205ENN-F67 | 精密級16°ブレーカ副切れ刃付き 鋳鉄用 | Ground 16°chip former Corner Facets For Cast iron | | 8035566* | 8037566* | | | | | | | | | | 3,740 |
| ② | SNMX120512-F27 | M級16°ブレーカ コーナR刃先強化タイプ | M class 16°chip former Corner R Reinforced Type | 8 | | | | 8039557* | | | | | | | | 2,890 |
| | SNMX120512-F57 | M級16°ブレーカ コーナR標準タイプ | M class 16°chip former Corner R Standard Type | | | 8037558* | 8036558* | 8039558* | | | | | | | | 2,890 |
| | SNMX120512-F67 | M級16°ブレーカ コーナR鋳鉄用 | M class 16°chip former Corner R For Cast iron | | | 8037559* | | | | | | | | | | 2,890 |
| ③ | XNGX1205ENN-F67 | 精密級16°ブレーカ 仕上げ用インサート | Ground 16°chip former Finishing Insert | 2 | | | | | | | | | | 8073555* | | 4,280 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
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## ■対応カッタ PROPER CUTTER BODY

F4048 SL ……P1128-88
F4010 N4S88R ….P1128-92

## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

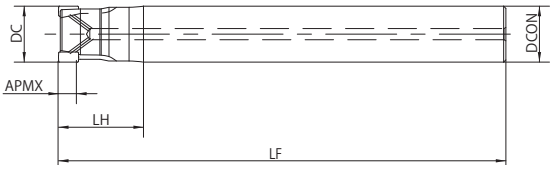
| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | コーティング材種 Grade of Coated Materials WKP25 | WKP25S | WKP35 | WKP35S | WSP45 | WSP45G | WSM35 | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SNGX1205ZNN-F27 | 精密級16°ブレーカ副切れ刃付き 刃先強化タイプ | Ground 16°chip former Corner Facets Reinforced Type | 8 | | | 8036567* | | | | | | | | | 3,740 |
| | SNGX1205ZNN-F57 | 精密級16°ブレーカ副切れ刃付き 標準タイプ | Ground 16°chip former Corner Facets Standard Type | | 8035568* | 8037568* | 8036568* | 8039568* | | | 8094568* | | | | | 3,740 |
| | SNGX1205ZNN-F67 | 精密級16°ブレーカ副切れ刃付き 鋳鉄用 | Ground 16°chip former Corner Facets For Cast iron | | 8035569* | 8037569* | | | | | | | | | | 3,740 |
| ② | SNMX120512-F27 | M級16°ブレーカ コーナR刃先強化タイプ | M class 16°chip former Corner R Reinforced Type | 8 | | | | 8039557* | | | | | | | | 2,890 |
| | SNMX120512-F57 | M級16°ブレーカ コーナR標準タイプ | M class 16°chip former Corner R Standard Type | | | 8037558* | 8036558* | 8039558* | | | | | | | | 2,890 |
| | SNMX120512-F67 | M級16°ブレーカ コーナR鋳鉄用 | M class 16°chip former Corner R For Cast iron | | | 8037559* | | | | | | | | | | 2,890 |
| ③ | XNGX1205ZNN-F67 | 精密級16°ブレーカ 仕上げ用インサート | Ground 16°chip formerFinishing Insert | 2 | | | | | | | | | | 8073556* | | 4,280 |

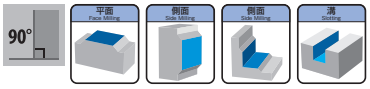
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
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# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

## F5041 SS　切削条件 Cutting Conditions | P1128-145






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | シャンク径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8015151 | **F5041.Z25.025.Z03.08** | 25 | 200 | 8 | 38 | 25 | 3 | 3 | C | 69,800 |
| ＊8015152 | **F5041.Z25.025.Z04.08** | | | | | | 4 | 4 | | 73,000 |
| ＊8015153 | **F5041.Z32.032.Z04.08** | 32 | 250 | | 39 | 32 | 4 | 4 | | 77,100 |
| ＊8015154 | **F5041.Z32.032.Z05.08** | | | | | | 5 | 5 | | 81,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

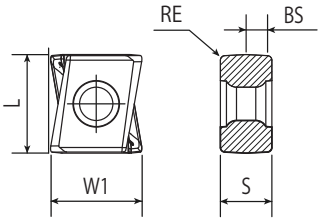
### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
| クランプねじ Clamping Screw | 8009357＊ | FS1457 (Torx 9IP) | 1.5N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
| ドライバ Screwdriver | 7808226 | 9IP-D (Torx 9IP) | 1,760 |

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.




### ■適用インサート　Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|
|  | LNHU090404R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 0.4 | 1.5 |
| | LNHU090404R-L85T | H級 低抵抗タイプ / H class Low Resistance Type | 4 | 9×8.5 | 4.5 | 0° | 0.4 | 1.5 |
| | LNHU090408R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 0.8 | 1.1 |
| | LNHU090412R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 1.2 | 0.8 |
| | LNHU090416R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 1.6 | – |
| | LNHU090420R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 2 | – |
| | LNMU090404R-L55T | M級 標準タイプ / M class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 0.4 | 1.5 |

C= 標準在庫品　C=Standard stock item.

# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

# F5041 SS

コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR－1
（例:インサートR3の場合ボディにはR2のR）

When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

（単位:mm）(Unit:mm)

| | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | WK10 | | WKP25S | WKP35G | WKP35S | WSM35S | WSP45G | WAK15 | WKK25S | |
| | | | 8015141＊ | 8015142＊ | 8015143＊ | | 8015145＊ | | | 3,470<br>4,170<br>3,660 |
| | | | | | | | | | | |
| | | | | | | | | | | |
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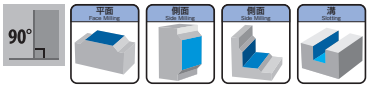
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

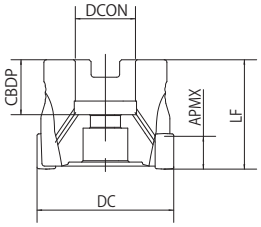
C= 標準在庫品 C=Standard stock item.

# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

## F5041 SL　切削条件 Cutting Conditions | P1128-145





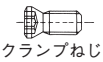




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 刃長 APMX | カッタ高さ LF | 穴径 DCON | 取り付け穴高さ CBDP | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8015155 | **F5041.B16.040.Z04.08** | 40 | 8 | 40 | 16 | 19 | 4 | 4 | C | 77,300 |
| ＊8015156 | **F5041.B16.040.Z06.08** | | 8 | | | | 6 | 6 | | 84,800 |
| ＊8015157 | **F5041.B22.050.Z05.08** | 50 | 8 | | 22 | 20 | 5 | 5 | | 97,400 |
| ＊8015158 | **F5041.B22.050.Z07.08** | | 8 | | | | 7 | 7 | | 106,000 |
| ＊8015159 | **F5041.B22.063.Z07.08** | 63 | 8 | | | | | | | 125,000 |
| ＊8015160 | **F5041.B22.063.Z10.08** | | 8 | | | | 10 | 10 | | 135,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

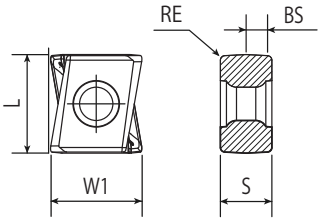
### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009357＊ | FS1457 (Torx 9IP) | 1.5N·m |

| | ツール No. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  ドライバ Screwdriver | 7808226 | 9IP-D (Torx 9IP) | 1,760 |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.




### ■適用インサート　Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|
|  | LNHU090404R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 0.4 | 1.5 |
| | LNHU090404R-L85T | H級 低抵抗タイプ / H class Low Resistance Type | 4 | 9×8.5 | 4.5 | 0° | 0.4 | 1.5 |
| | LNHU090408R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 0.8 | 1.1 |
| | LNHU090412R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 1.2 | 0.8 |
| | LNHU090416R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 1.6 | – |
| | LNHU090420R-L55T | H級 標準タイプ / H class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 2 | – |
| | LNMU090404R-L55T | M級 標準タイプ / M class Standard Type | 4 | 9×8.5 | 4.5 | 0° | 0.4 | 1.5 |

C= 標準在庫品　C=Standard stock item.

# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

# F5041 SL

コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR－1
（例:インサートR3の場合ボディにはR2のR）

When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

（単位:mm）(Unit:mm)

| | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | WK10 | | WKP25S | WKP35G | WKP35S | WSM35S | WSP45G | WAK15 | WKK25S | |
| | | | 8015141＊ | 8015142＊ | 8015143＊ | | 8015145＊ | | | 3,470<br>4,170<br>3,660 |
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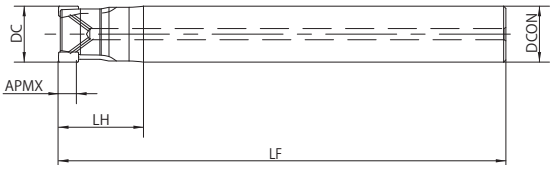
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

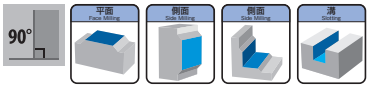
C= 標準在庫品 C=Standard stock item.

# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

## F5141 SS　切削条件 Cutting Conditions | P1128-145






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | シャンク径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8015161 | **F5141.Z32.040.Z03.12** | 40 | 250 | 12 | 44 | 32 | 3 | 3 | C | 77,300 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

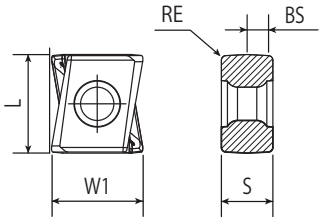
### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8015181＊ | FS2081 (Torx 15IP) | 4N·m |

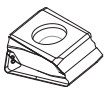
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx 15IP) | 2,010 |

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.




### ■適用インサート　Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|
|  | LNHU130608R-L55T | H級 標準タイプ H class Standard Type | 4 | 13×12 | 6.8 | 0° | 0.8 | 2.2 |
| | LNHU130608R-L85T | H級 低抵抗タイプ H class Low Resistance Type | 4 | 13×12 | 6.8 | 0° | 0.8 | 2.2 |
| | LNHU130612R-L55T | H級 標準タイプ H class Standard Type | 4 | 13×12 | 6.8 | 0° | 1.2 | 1.9 |
| | LNHU130616R-L55T | H級 標準タイプ H class Standard Type | 4 | 13×12 | 6.8 | 0° | 1.6 | 1.5 |
| | LNHU130620R-L55T | H級 標準タイプ H class Standard Type | 4 | 13×12 | 6.8 | 0° | 2 | 1.2 |
| | LNHU130625R-L55T | H級 標準タイプ H class Standard Type | 4 | 13×12 | 6.8 | 0° | 2.5 | 0.7 |
| | LNHU130630R-L55T | H級 標準タイプ H class Standard Type | 4 | 13×12 | 6.8 | 0° | 3 | – |
| | LNHU130632R-L55T | H級 標準タイプ H class Standard Type | 4 | 13×12 | 6.8 | 0° | 3.2 | – |
| | LNMU130608R-L55T | M級 標準タイプ M class Standard Type | 4 | 13×12 | 6.8 | 0° | 0.8 | 2.2 |

C= 標準在庫品　C=Standard stock item.

# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

# F5141 SS

コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR－1
（例:インサートR3の場合ボディにはR2のR）

When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

（単位:mm）(Unit:mm)

| | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | WK10 | | WKP25S | WKP35G | WKP35S | WSM35S | WSP45G | WAK15 | WKK25S | |
| | | | 8015146＊ | 8015147＊ | 8015148＊ | | 8015150＊ | | | 3,800<br>4,550<br>4,010 |
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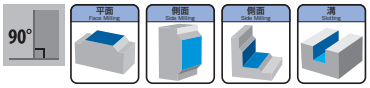
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

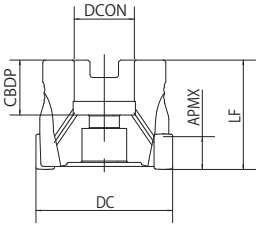
C= 標準在庫品 C=Standard stock item.

# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

## F5141 SL　切削条件 Cutting Conditions | P1128-145



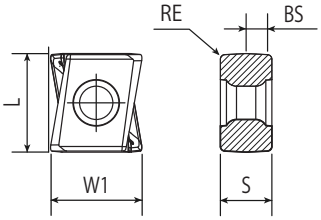



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 刃長 APMX | カッタ高さ LF | 穴径 DCON | 取り付け穴高さ CBDP | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8015163 | **F5141.B16.040.Z04.12** | 40 | 12 | 40 | 16 | 19 | 4 | 4 | C | 77,300 |
| ＊8015164 | **F5141.B16.040.Z05.12** | | | | | | 5 | 5 | | 81,000 |
| ＊8015165 | **F5141.B22.050.Z05.12** | 50 | | | 22 | 20 | 5 | 5 | | 97,400 |
| ＊8015166 | **F5141.B22.050.Z06.12** | | | | | | 6 | 6 | | 102,000 |
| ＊8015167 | **F5141.B22.063.Z06.12** | 63 | | | | | 6 | 6 | | 119,000 |
| ＊8015168 | **F5141.B22.063.Z08.12** | | | | | | 8 | 8 | | 130,000 |
| ＊8015169 | **F5141.B25.080.Z07.12** | 80 | | 50 | 25.4 | 23 | 7 | 7 | | 143,000 |
| ＊8015170 | **F5141.B25.080.Z10.12** | | | | | | 10 | 10 | | 155,000 |
| ＊8015171 | **F5141.B27.080.Z07.12** | | | | 27 | 28 | 7 | 7 | | 143,000 |
| ＊8015172 | **F5141.B27.080.Z10.12** | | | | | | 10 | 10 | | 155,000 |
| ＊8015173 | **F5141.B31.100.Z09.12** | 100 | | 63 | 31.75 | 32 | 9 | 9 | | 170,000 |
| ＊8015174 | **F5141.B31.100.Z13.12** | | | | | | 13 | 13 | | 182,000 |
| ＊8015175 | **F5141.B32.100.Z09.12** | | | 50 | 32 | 26 | 9 | 9 | | 170,000 |
| ＊8015176 | **F5141.B32.100.Z13.12** | | | | | | 13 | 13 | | 182,000 |
| ＊8015177 | **F5141.B38.125.Z11.12** | 125 | | 63 | 38.1 | 38 | 11 | 11 | | 197,000 |
| ＊8015178 | **F5141.B38.125.Z16.12** | | | | | | 16 | 16 | | 214,000 |
| ＊8015179 | **F5141.B40.125.Z11.12** | | | | 40 | 30 | 11 | 11 | | 197,000 |
| ＊8015180 | **F5141.B40.125.Z16.12** | | | | | | 16 | 16 | | 214,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.




### ■適用インサート　Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|
|  | LNHU130608R-L55T | H級 標準タイプ　H class Standard Type | 4 | 13×12 | 6.8 | 0° | 0.8 | 2.2 |
| | LNHU130608R-L85T | H級 低抵抗タイプ　H class Low Resistance Type | 4 | 13×12 | 6.8 | 0° | 0.8 | 2.2 |
| | LNHU130612R-L55T | H級 標準タイプ　H class Standard Type | 4 | 13×12 | 6.8 | 0° | 1.2 | 1.9 |
| | LNHU130616R-L55T | H級 標準タイプ　H class Standard Type | 4 | 13×12 | 6.8 | 0° | 1.6 | 1.5 |
| | LNHU130620R-L55T | H級 標準タイプ　H class Standard Type | 4 | 13×12 | 6.8 | 0° | 2 | 1.2 |
| | LNHU130625R-L55T | H級 標準タイプ　H class Standard Type | 4 | 13×12 | 6.8 | 0° | 2.5 | 0.7 |
| | LNHU130630R-L55T | H級 標準タイプ　H class Standard Type | 4 | 13×12 | 6.8 | 0° | 3 | – |
| | LNHU130632R-L55T | H級 標準タイプ　H class Standard Type | 4 | 13×12 | 6.8 | 0° | 3.2 | – |
| | LNMU130608R-L55T | M級 標準タイプ　M class Standard Type | 4 | 13×12 | 6.8 | 0° | 0.8 | 2.2 |

C= 標準在庫品　C=Standard stock item.

# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

# F5141 SL

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8015181＊ | FS2081 (Torx 15IP) | 4N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx 15IP) | 1,820 |

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.

コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR－1
(例:インサートR3の場合ボディにはR2のR)

When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

(単位:mm) (Unit:mm)

| | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | WK10 | | WKP25S | WKP35G | WKP35S | WSM35S | WSP45G | WAK15 | WKK25S | |
| | | | 8015146＊ | 8015147＊ | 8015148＊ | | 8015150＊ | | | 3,800<br>4,550<br>4,010 |
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＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

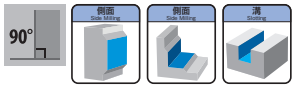
C= 標準在庫品 C=Standard stock item.

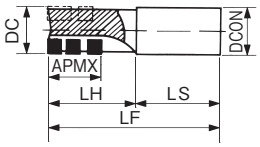
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## M4256 SS　切削条件 Cutting Conditions | P1128-145

インデキサブルタイプのラフィングエンドミル。切削抵抗の少ない2溝＝1刃構造。
Employs 2-flute-1-edge mechanism to minimize milling force.





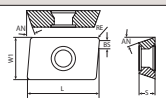
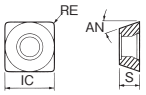




（単位:mm）(Unit:mm)

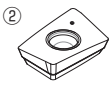
| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | シャンク径 DCON | シャンク長 LS | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8020001 | **M4256-020-A20-01-27** | 20 | 110 | 27 | 35 | 20 | 75 | 2 | 1 | ①② | 1 | ③④ | 5 | C | 61,000 |
| 8020002 | **M4256-020-A20-01-42** | | 130 | 42 | 55 | | | | | | | | 8 | | — |
| ＊8020003 | **M4256-025-A25-01-27** | 25 | 120 | 27 | 45 | 25 | | | | | | | 5 | | 63,400 |
| ＊8020004 | **M4256-025-A25-01-53** | | 145 | 53 | 70 | | | | | | | | 10 | | 77,300 |
| ＊8020005 | **M4256-025-A25-02-27** | | 120 | 27 | 45 | | | 4 | 2 | | 2 | | 10 | | 77,100 |
| ＊8020006 | **M4256-032-A32-02-37** | 32 | 130 | 37 | 55 | 32 | | | | | | | 14 | | 112,000 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| 先端適用インサート Available Front Insert | | 外周適用インサート Available Peripheral Insert | |
|---|---|---|---|
|  | ① ② |  | ③ ④ |

### ■先端適用インサート Available Front Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|
| ①  | LDMT08T204R-D51 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 2 | 8.88×6.1 | 2.58 | 15° | 0.4 | 0.8 |
| | LDMT08T204R-D57 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 2 | 8.88×6.1 | 2.58 | 15° | 0.4 | 0.8 |
| | LDMT08T204R-F57 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 2 | 8.88×6.1 | 2.58 | 15° | 0.4 | 0.8 |
| ②  | LDMW08T204R-A57 | M級 標準タイプ / M class Standard Type | 2 | 8.88×6.1 | 2.58 | 15° | 0.4 | 0.8 |

### ■外周適用インサート Available Peripheral Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE |
|---|---|---|---|---|---|---|---|
| ③  | SDMT06T204-D51 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 |
| | SDMT06T204-D57 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 |
| | SDMT06T204-F57 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 4 | 6.35 | 2.78 | 15° | 0.4 |
| ④  | SDMW06T204-A57 | M級 標準タイプ / M class Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 |

C= 標準在庫品　C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

# M4256 SS

■部品 Accessories

| | ツール No.<br>EDP No. | 呼び<br>Designation | 推奨締付けトルク<br>Recommended Tightening Torque |
|---|---|---|---|
|  <br>クランプねじ<br>Clamping Screw | | FS2084<br>(Torx 7IP) | 0.9N·m |

| | ツール No.<br>EDP No. | 呼び<br>Designation | 標準価格<br>(Yen) |
|---|---|---|---|
|  <br>ドライバ<br>Screwdriver | 7808224 | 7IP-D<br>(Torx 7IP) | 1,510 |

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.

(単位:mm) (Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020039* | 8020041* | | | | | | 1,810 |
| | | | 8020040* | | | | | 2,140 |
| | | | | 8020042* | | | | 1,810 |
| | | 8020044* | | 8020045* | | 8020046* | | 1,810 |
| | | | 8020043* | | | | | 2,140 |
| | 8020047* | | | | | | | 1,810 |

(単位:mm) (Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | | | 8020049* | | | | | 1,920 |
| | | | | 8020051* | | | | 1,600 |
| | | | | | | 8020055* | | 1,600 |
| | 8020056* | | | | | | | 1,600 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

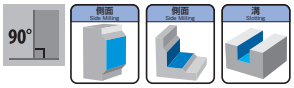
C= 標準在庫品 C=Standard stock item.

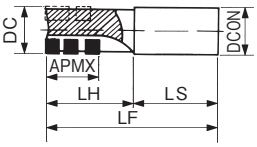
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## M4257 SS　切削条件 Cutting Conditions | P1128-146

インデキサブルタイプのラフィングエンドミル。切削抵抗の少ない2溝＝1刃構造。
Employs 2-flute-1-edge mechanism to minimize milling force.



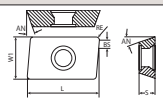
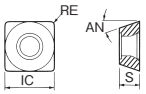


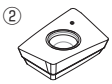

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | ｼｬﾝｸ径 DCON | ｼｬﾝｸ長 LS | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8020007 | **M4257-032-A32-01-41** | 32 | 147 | 41 | 72 | 32 | 75 | 2 | 1 | ①② | 1 | ③④ | 5 | C | 84,300 |
| ＊8020008 | **M4257-040-A32-02-47** | 40 | 155 | 47 | 80 | 32 | | 4 | 2 | | 2 | | 12 | | 119,000 |
| ＊8020009 | **M4257-040-A42-02-54** | 40 | 150 | 54 | 75 | 42 | | | | | | | 14 | | 119,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

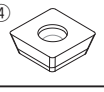
| 先端適用インサート Available Front Insert | | 外周適用インサート Available Peripheral Insert | |
|---|---|---|---|
|  | ① ② |  | ③ ④ |

### ■先端適用インサート Available Front Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|
| ①  | LDMT14T308R-D51 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 14.1×9.68 | 4.08 | 15° | 0.8 | 1.2 |
| | LDMT14T308R-D57 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 14.1×9.68 | 4.08 | 15° | 0.8 | 1.2 |
| | LDMT14T308R-F57 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 14.1×9.68 | 4.08 | 15° | 0.8 | 1.2 |
| ②  | LDMW14T308R-A57 | M級 標準タイプ | M class Standard Type | 2 | 14.1×9.68 | 4.08 | 15° | 0.8 | 1.2 |

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### ■外周適用インサート Available Peripheral Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE |
|---|---|---|---|---|---|---|---|---|
| ③  | SDMT09T308-D51 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 |
| | SDMT09T308-D57 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 |
| | SDMT09T308-F57 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 4 | 9.52 | 3.97 | 15° | 0.8 |
| ④  | SDMW09T308-A57 | M級 標準タイプ | M class Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 |

C= 標準在庫品　C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

# M4257 SS

■部品 Accessories

| | ツール No.<br>EDP No. | 呼び<br>Designation | 推奨締付けトルク<br>Recommended Tightening Torque |
|---|---|---|---|
|  <br>クランプねじ<br>Clamping Screw | 8009918＊ | FS2266<br>(Torx 10IP) | 2N·m |

| | ツール No.<br>EDP No. | 呼び<br>Designation | 標準価格<br>(Yen) |
|---|---|---|---|
|  <br>ドライバ<br>Screwdriver | 7808227 | 10IP-D<br>(Torx 10IP) | 1,820 |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.

（単位:mm）(Unit:mm)

| | コーティング材種<br>Grade of Coated Materials | | | | | | | 標準価格<br>(Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020057＊ | 8020059＊ | | | | | | 2,310 |
| | | | 8020058＊ | | | | | 2,750 |
| | | | | 8020060＊ | | | | 2,310 |
| | | 8020062＊ | | 8020063＊ | | 8020064＊ | | 2,310 |
| | 8020065＊ | | | | | | | 2,310 |

（単位:mm）(Unit:mm)

| | コーティング材種<br>Grade of Coated Materials | | | | | | | 標準価格<br>(Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020066＊ | 8020068＊ | | | | | | 2,010 |
| | | | | 8020069＊ | | | | 2,010 |
| | | 8020071＊ | | 8020072＊ | | | | 2,010 |
| | 8020074＊ | | | | | | | 2,010 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

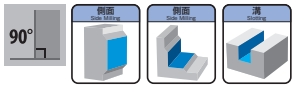
C= 標準在庫品 C=Standard stock item.

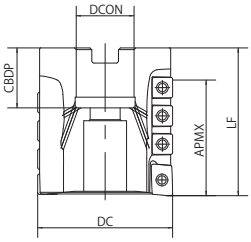
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## M4257 SL　切削条件 Cutting Conditions P1128-146

インデキサブルタイプのラフィングエンドミル。荒取り重切削加工用。フェイスミル用アーバにて使用。
Suitable for heavy-duty rough milling.





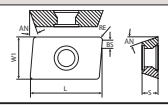

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 刃長 APMX | 穴径 DCON | 取り付け穴高さ CBDP | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8020035 | **M4257-050-B22-02-47** | 50 | 56 | 47 | 22 | 20 | 4 | 2 | ①② | 2 | ③④ | 12 | C | 222,000 |
| 8020036 | **M4257-063-B27-03-54** | 63 | 69 | 54 | 27 | 28 | 6 | 3 | | 3 | | 21 | | – |

ツール No. 欄 [ ] のものは廃番品です。
EDP No. found in [ ] are discontinued products.

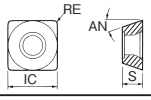
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

**先端適用インサート** Available Front Insert



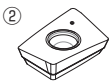

①②

**外周適用インサート** Available Peripheral Insert



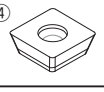

③④

### ■先端適用インサート Available Front Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|
| ①  | LDMT14T308R-D51 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 2 | 14.1×9.68 | 4.08 | 15° | 0.8 | 1.2 |
| | LDMT14T308R-D57 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 2 | 14.1×9.68 | 4.08 | 15° | 0.8 | 1.2 |
| | LDMT14T308R-F57 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 2 | 14.1×9.68 | 4.08 | 15° | 0.8 | 1.2 |
| ②  | LDMW14T308R-A57 | M級 標準タイプ / M class Standard Type | 2 | 14.1×9.68 | 4.08 | 15° | 0.8 | 1.2 |

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### ■外周適用インサート Available Peripheral Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE |
|---|---|---|---|---|---|---|---|
| ③  | SDMT09T308-D51 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 |
| | SDMT09T308-D57 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 |
| | SDMT09T308-F57 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 4 | 9.52 | 3.97 | 15° | 0.8 |
| ④  | SDMW09T308-A57 | M級 標準タイプ / M class Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 |

C= 標準在庫品　C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

# M4257 SL

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009918＊ | FS2266 (Torx 10IP) | 2N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  ドライバ Screwdriver | 7808227 | 10IP-D (Torx 10IP) | 1,820 |

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020057＊ | 8020059＊ | | | | | | 2,310 |
| | | | 8020058＊ | | | | | 2,750 |
| | | | | 8020060＊ | | | | 2,310 |
| | | 8020062＊ | | 8020063＊ | | 8020064＊ | | 2,310 |
| | 8020065＊ | | | | | | | 2,310 |

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020066＊ | 8020068＊ | | | | | | 2,010 |
| | | | | 8020069＊ | | | | 2,010 |
| | | 8020071＊ | | 8020072＊ | | | | 2,010 |
| | 8020074＊ | | | | | | | 2,010 |

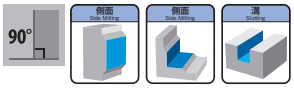
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

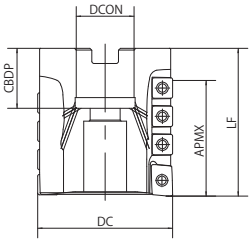
C= 標準在庫品 C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## M4258 SL　切削条件 Cutting Conditions P1128-146



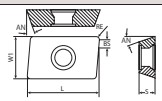
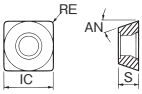


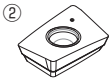

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 刃長 APMX | 穴径 DCON | 取り付け穴高さ CBDP | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts | | | | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | | |
| ＊8020037 | **M4258-080-B32-03-67** | 80 | 80 | 67 | 32 | 28 | 6 | 3 | ①② | 3 | ③④ | 18 | C | 316,000 |
| ＊8020038 | **M4258-100-B40-04-77** | 100 | 80 | 77 | 40 | 30 | 8 | 4 | | 4 | | 28 | | 452,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

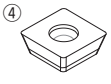
| 先端適用インサート Available Front Insert | 外周適用インサート Available Peripheral Insert |
|---|---|
|  ①② |  ③④ |

### ■先端適用インサート Available Front Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | L × W1 | 厚さ S | 逃げ角 AN | RE | BS |
| ①  | LDMT170408R-D51 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 17.24X11.78 | 4.92 | 15° | 0.8 | 1.6 |
| | LDMT170408R-D57 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 17.24X11.78 | 4.92 | 15° | 0.8 | 1.6 |
| | LDMT170408R-F57 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 17.24X11.78 | 4.92 | 15° | 0.8 | 1.6 |
| ②  | LDMW170408R-A57 | M級 標準タイプ | M class Standard Type | 2 | 17.24X11.78 | 4.92 | 15° | 0.8 | 1.6 |

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### ■外周適用インサート Available Peripheral Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 内接円径 IC | 厚さ S | 逃げ角 AN | RE |
| ③  | SDMT120408-D51 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| | SDMT120408-D57 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| | SDMT120408-F57 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| ④  | SDMW120408-A57 | M級 標準タイプ | M class Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |

C= 標準在庫品　C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

# M4258 SL

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009353＊ | FS1453 (Torx 15IP) | 3.5N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx 15IP) | 2,010 |

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020075＊ | 8020077＊ | | | | | | 3,200 |
| | | | 8020076＊ | | | | | 3,850 |
| | | | | 8020078＊ | | | | 3,200 |
| | | 8020080＊ | | 8020081＊ | | 8020082＊ | | 3,200 |
| | | | 8020079＊ | | | | | 3,850 |
| | | | | | | | | |

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020084＊ | | | | | | | 2,470 |
| | | | 8020085＊ | | | | | 2,950 |
| | | | | 8020087＊ | | | | 2,470 |
| | | 8020089＊ | | 8020090＊ | | | | 2,470 |
| | | | 8020088＊ | | | | | 2,950 |
| | 8020092＊ | | | | | | | 2,470 |

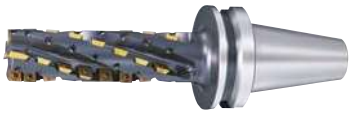
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

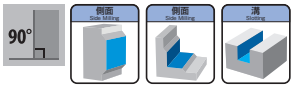
C= 標準在庫品 C=Standard stock item.

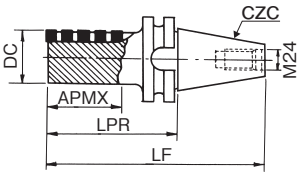
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## M4258 BT　切削条件 Cutting Conditions | P1128-146

スローアウェイタイプのラフィングエンドミル。剛性の高いBT50一体形。荒取り重切削加工用。
Highly rigid MAS BT50 solid shank. Suitable for heavy-duty rough milling.



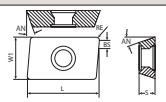
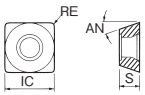



（単位:mm）(Unit:mm)

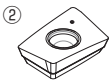
| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 突き出し長さ LPR | シャンク CZC | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8020010 | M4258-050-BT50-02- 97 | 50 | 268 | 97 | 166 | BT50 | 4 | 2 | ①② | 2 | ③④ | 18 | C | 267,000 |
| ＊8020011 | M4258-050-BT50-02-158 | | 329 | 158 | 227 | | | | | | | 30 | | 353,000 |
| ＊8020012 | M4258-063-BT50-02-107 | 63 | 278 | 107 | 176 | | | | | | | 20 | | 286,000 |
| ＊8020013 | M4258-063-BT50-02-158 | | 329 | 158 | 227 | | | | | | | 30 | | 353,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

| 先端適用インサート Available Front Insert | 外周適用インサート Available Peripheral Insert |
|---|---|
|  ①② |  ③④ |



### ■先端適用インサート Available Front Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|
| ①  | LDMT170408R-D51 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 17.24×11.78 | 4.92 | 15° | 0.8 | 1.6 |
| | LDMT170408R-D57 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 17.24×11.78 | 4.92 | 15° | 0.8 | 1.6 |
| | LDMT170408R-F57 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 17.24×11.78 | 4.92 | 15° | 0.8 | 1.6 |
| ②  | LDMW170408R-A57 | M級 標準タイプ | M class Standard Type | 2 | 17.24×11.78 | 4.92 | 15° | 0.8 | 1.6 |

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### ■外周適用インサート Available Peripheral Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE |
|---|---|---|---|---|---|---|---|---|
| ③  | SDMT120408-D51 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| | SDMT120408-D57 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| | SDMT120408-F57 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| ④  | SDMW120408-A57 | M級 標準タイプ | M class Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |

C= 標準在庫品　C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

# M4258 BT

■部品 Accessories

| | ツール No.<br>EDP No. | 呼び<br>Designation | 推奨締付けトルク<br>Recommended Tightening Torque |
|---|---|---|---|
|  <br>クランプねじ<br>Clamping Screw | 8009353＊ | FS1453<br>(Torx 15IP) | 3.5N･m |

| | ツール No.<br>EDP No. | 呼び<br>Designation | 標準価格<br>(Yen) |
|---|---|---|---|
|  <br>ドライバ<br>Screwdriver | 7808228 | 15IP-D<br>(Torx 15IP) | 2,010 |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

レンチは別途ご購入下さい。
The wrenches are sold separately from the cutters.

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020075＊ | 8020077＊ | | | | | | 3,200 |
| | | | 8020076＊ | | | | | 3,850 |
| | | | | 8020078＊ | | | | 3,200 |
| | | 8020080＊ | | 8020081＊ | | 8020082＊ | | 3,200 |
| | | | 8020079＊ | | | | | 3,850 |
| | | | | | | | | |

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020084＊ | | | | | | | 2,470 |
| | | | 8020085＊ | | | | | 2,950 |
| | | | | 8020087＊ | | | | 2,470 |
| | | 8020089＊ | | 8020090＊ | | | | 2,470 |
| | | | 8020088＊ | | | | | 2,950 |
| | 8020092＊ | | | | | | | 2,470 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

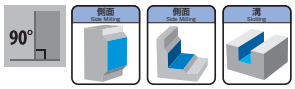
C= 標準在庫品 C=Standard stock item.

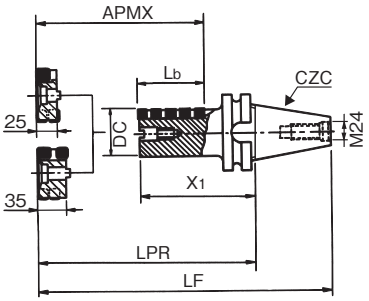
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## M4258C BT 切削条件 Cutting Conditions P1128-146

先端部が交換可能なポーキュパインカッタ。工具コストの低減が可能。荒取り重切削加工用。
For heavy-duty rough milling. Minimizes overall tool cost.






### ■ボディ Body

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | ボディ刃長 Lb | ボディ突出し長さ X1 | シャンク CZC | 全長 LF | 刃長 APMX | 突出し長さ LPR | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *8020014 | M4258-050-BT50-2 BODY | 50 | 32 | 102 | BT50 | 228 | 57 | 126 | 4 | 2 | – | – | ③④ | 6 | C | 214,000 |
| *8020015 | M4258-063-BT50-2 BODY | 63 | 52 | 122 | | 258 | 87 | 156 | | | | | | 10 | | 241,000 |
| *8020016 | M4258-080-BT50-3 BODY | 80 | 72 | 142 | | 278 | 107 | 176 | 6 | 3 | | | | 21 | | 294,000 |

ドライバ、取付けボルトは組み込まれていません。 Without Screw Driver and Clamping Screw.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

### ■フロントピース Front Piece

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 刃長 Tooth Length | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *8020017 | M4258-050-2-25 FP | 50 | 25 | 4 | 2 | ①② | 2 | ③④ | 4 | C | 122,000 |
| *8020018 | M4258-063-2-35 FP | 63 | 35 | | | | | | 6 | | 133,000 |
| 8020019 | M4258-080-3-35 FP | 80 | 35 | 6 | 3 | | 3 | | 9 | | – |

ドライバ、取付けボルトは組み込まれていません。 Without Screw Driver and Clamping Screw.
ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

### ■先端適用インサート Available Front Insert

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|
| ① | LDMT170408R-D51 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 17.24×11.78 | 4.92 | 15° | 0.8 | 1.6 |
| | LDMT170408R-D57 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 17.24×11.78 | 4.92 | 15° | 0.8 | 1.6 |
| | LDMT170408R-F57 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 17.24×11.78 | 4.92 | 15° | 0.8 | 1.6 |
| ② | LDMW170408R-A57 | M級 標準タイプ | M class Standard Type | 2 | 17.24×11.78 | 4.92 | 15° | 0.8 | 1.6 |

### ■外周適用インサート Available Peripheral Insert

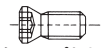
| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE |
|---|---|---|---|---|---|---|---|---|
| ③ | SDMT120408-D51 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| | SDMT120408-D57 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| | SDMT120408-F57 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 4 | 12.7 | 4.76 | 15° | 0.8 |
| ④ | SDMW120408-A57 | M級 標準タイプ | M class Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 |

C= 標準在庫品 C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

# M4258C BT

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009353＊ | FS1453 (Torx 15IP) | 3.5N·m |

| | ツール No. EDP No. | 呼び Designation | 標準価格 (Yen) |
|---|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx 15IP) | 2,010 |

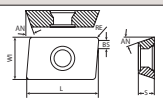
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

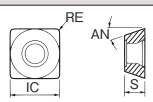
レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.

| | ツール No. EDP No. | 呼び Designation | 適用 Range | 標準価格 (Yen) |
|---|---|---|---|---|
|  取付けボルト Clamping Screw | 8008670＊ | FS370 | φ50 | 3,880 |
| | 8008673＊ | FS373 | φ63,φ80 | 9,100 |

取り付けボルトは別途ご購入下さい。 The clamping screw are sold separately from the cutters.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| 先端適用インサート Available Front Insert | |
|---|---|
|  | ①② |

| 外周適用インサート Available Peripheral Insert | |
|---|---|
|  | ③④ |

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020075＊ | 8020077＊ | | | | | | 3,200 |
| | | | 8020076＊ | | | | | 3,850 |
| | | | | 8020078＊ | | | | 3,200 |
| | | 8020080＊ | | 8020081＊ | | 8020082＊ | | 3,200 |
| | | | 8020079＊ | | | | | 3,850 |
| | | | | | | | | |

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WKP25S | WKP35S | WKP35G | WSM35S | WKK25S | WSP45S | WSP45G | |
| | 8020084＊ | | | | | | | 2,470 |
| | | | 8020085＊ | | | | | 2,950 |
| | | | | 8020087＊ | | | | 2,470 |
| | | 8020089＊ | | 8020090＊ | | | | 2,470 |
| | | | 8020088＊ | | | | | 2,950 |
| | 8020092＊ | | | | | | | 2,470 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

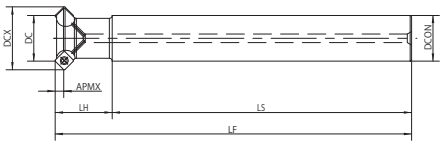
C= 標準在庫品 C=Standard stock item.

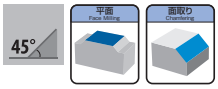
# WALTER 面取り用カッタ
**WALTER Chamfering Cutter**

## M4574

切削条件 Cutting Conditions | P1128-147





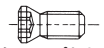

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ外径 DCX | 全長 LF | 最大切込み量 APMX | 首下長 LH | シャンク径 DCON | シャンク長さ LS | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8020020 | **M4574-012-A16-02-03** | 12 | 20.3 | 160 | 3.5 | 40 | 16 | 120 | 2 | ①② | 2 | C | — |
| ＊8020021 | **M4574-016-A16-03-03** | 16 | 24.3 | | | | | | 3 | ①② | 3 | | 54,300 |
| ＊8020022 | **M4574-016-A16-02-05** | 16 | 28.8 | | 5.5 | | | | 2 | ③④ | 2 | | 51,300 |
| 8020023 | **M4574-020-A20-02-05** | 20 | 32.8 | 200 | | | 20 | 160 | | ③④ | | | — |
| ＊8020024 | **M4574-025-A25-03-05** | 25 | 37.8 | | | | 25 | | 3 | ③④ | 3 | | 60,900 |
| ＊8020025 | **M4574-025-A25-02-07** | 25 | 41.6 | | 7.5 | | | | 2 | ⑤⑥ | 2 | | 58,000 |
| ＊8020026 | **M4574-032-A32-03-05** | 32 | 44.8 | 250 | 5.5 | | 32 | 210 | 3 | ③④ | 3 | | 64,200 |
| ＊8020027 | **M4574-032-A32-03-07** | 32 | 48.6 | | 7.5 | | | | | ⑤⑥ | | | 64,200 |
| ＊8020028 | **M4574-040-A32-04-05** | 40 | 52.8 | | 5.5 | | | | 4 | ③④ | 4 | | 71,100 |
| ＊8020029 | **M4574-040-A32-03-07** | 40 | 56.6 | | 7.5 | | | | 3 | ⑤⑥ | 3 | | 67,500 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

### ■部品 Accessories



クランプねじ Clamping Screw

| ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque | 適用インサート Applicable Inserts | |
|---|---|---|---|---|
| | FS2084 (Torx 7IP) | 0.9N·m | ①② | SDM*06 |
| 8009918＊ | FS2266 (Torx 10IP) | 2 N·m | ③④ | SDM*09 |
| 8009353＊ | FS1453 (Torx 15IP) | 3.5N·m | ⑤⑥ | SDM*12 |

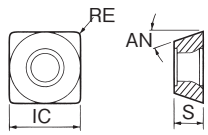
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.



ドライバ Screwdriver

| ツール No. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 標準価格 (Yen) |
|---|---|---|---|---|
| 7808224 | 7IP-D (Torx 7IP) | ①② | SDM*06 | 1,510 |
| 7808227 | 10IP-D (Torx 10IP) | ③④ | SDM*09 | 1,820 |
| 7808228 | 15IP-D (Torx 15IP) | ⑤⑥ | SDM*12 | 2,010 |

レンチは別途ご購入下さい。 The wrenches are sold separately from the cutters.




### ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WKP35G | WSM35S | WSM45X | WAK15 | WKK25S | WSP45S | WSP45G | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SDMT06T204-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 | | | 8020049＊ | | | | | | | 1,920 |
| | SDMT06T204-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 | | | | 8020051＊ | | | | | | 1,600 |
| | SDMT06T204-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 6.35 | 2.78 | 15° | 0.4 | | | | | | | | 8020055＊ | | 1,600 |
| ② | SDMW06T204-A57 | M級 標準タイプ M class Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 | 8020056＊ | | | | | | | | | 1,600 |
| ③ | SDMT09T308-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 | 8020066＊ | 8020068＊ | | | | | | | | 2,010 |
| | SDMT09T308-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 | | | | 8020069＊ | | | | | | 2,010 |
| | SDMT09T308-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 9.52 | 3.97 | 15° | 0.8 | | 8020071＊ | | 8020072＊ | | | | | | 2,010 |
| ④ | SDMW09T308-A57 | M級 標準タイプ M class Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 | 8020074＊ | | | | | | | | | 2,010 |
| ⑤ | SDMT120408-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 | 8020084＊ | | 8020085＊ | | | | | | | 2,470<br>2,950 |
| | SDMT120408-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 | | | | 8020087＊ | | | | | | 2,470 |
| | SDMT120408-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 12.7 | 4.76 | 15° | 0.8 | | 8020089＊ | 8020088＊ | 8020090＊ | | | | | | 2,470<br>2,950 |
| ⑥ | SDMW120408-A57 | M級 標準タイプ M class Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 | 8020092＊ | | | | | | | | | 2,470 |

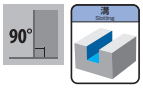
C= 標準在庫品 C=Standard stock item.

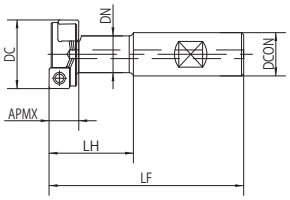
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# WALTER Tスロットカッタ
**WALTER T-slot Cutter**

## M4575　切削条件 Cutting Conditions P1128-147






※フラット付ストレートシャンクとなっております。
※Shank geometry with flat on shank.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃幅 APMX | 首下長 LH | 首径 DN | シャンク径 DCON | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8020030 | **M4575-021-W12-02-09** | 20.5 | 73 | 8.75 | 27 | 11 | 12 | | | ①② | | | — |
| 8020031 | **M4575-025-W16-02-11** | 24.5 | 80 | 10.75 | 31 | 12.1 | 16 | | | ①② | | | — |
| ＊8020032 | **M4575-032-W20-02-14** | 31.75 | 90 | 13.75 | 31 | 17 | 20 | 4 | 2 | ③④ | 4 | C | 77,000 |
| 8020033 | **M4575-040-W25-02-17** | 39.5 | 106 | 16.75 | 49 | 21 | 25 | | | ③④ | | | — |
| 8020034 | **M4575-050-W32-02-21** | 49.5 | 122 | 20.75 | 61 | 27 | 32 | | | ⑤⑥ | | | — |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

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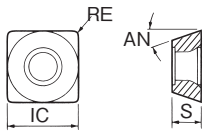
### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque | 適用インサート Applicable Inserts | |
|---|---|---|---|---|---|
| クランプねじ Clamping Screw | | FS 2084 (Torx 7IP) | 0.9N·m | ①② | SDM*06 |
| | 8009918＊ | FS2266 (Torx 10IP) | 2 N·m | ③④ | SDM*09 |
| | 8009353＊ | FS1453 (Torx 15IP) | 3.5N·m | ⑤⑥ | SDM*12 |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation | 適用インサート Applicable Inserts | | 標準価格 (Yen) |
|---|---|---|---|---|---|
| ドライバ Screwdriver | 7808224 | 7IP-D (Torx 7IP) | ①② | SDM*06 | 1,510 |
| | 7808227 | 10IP-D (Torx 10IP) | ③④ | SDM*09 | 1,820 |
| | 7808228 | 15IP-D (Torx 15IP) | ⑤⑥ | SDM*12 | 2,010 |

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### ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WKP35G | WSM35S | WSM45X | WAK15 | WKK25S | WSP45S | WSP45G | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SDMT06T204-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 | | | 8020049＊ | | | | | | | 1,920 |
| | SDMT06T204-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 | | | | 8020051＊ | | | | | | 1,600 |
| | SDMT06T204-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 6.35 | 2.78 | 15° | 0.4 | | | | | | | | 8020055＊ | | 1,600 |
| ② | SDMW06T204-A57 | M級 標準タイプ M class Standard Type | 4 | 6.35 | 2.78 | 15° | 0.4 | 8020056＊ | | | | | | | | | 1,600 |
| ③ | SDMT09T308-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 | 8020066＊ | 8020068＊ | | | | | | | | 2,010 |
| | SDMT09T308-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 | | | | 8020069＊ | | | | | | 2,010 |
| | SDMT09T308-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 9.52 | 3.97 | 15° | 0.8 | | 8020071＊ | | 8020072＊ | | | | | | 2,010 |
| ④ | SDMW09T308-A57 | M級 標準タイプ M class Standard Type | 4 | 9.52 | 3.97 | 15° | 0.8 | 8020074＊ | | | | | | | | | 2,010 |
| ⑤ | SDMT120408-D51 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 | 8020084＊ | | 8020085＊ | | | | | | | 2,470<br>2,950 |
| | SDMT120408-D57 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 | | | | 8020087＊ | | | | | | 2,470 |
| | SDMT120408-F57 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 4 | 12.7 | 4.76 | 15° | 0.8 | | 8020089＊ | 8020088＊ | 8020090＊ | | | | | | 2,470<br>2,950 |
| ⑥ | SDMW120408-A57 | M級 標準タイプ M class Standard Type | 4 | 12.7 | 4.76 | 15° | 0.8 | 8020092＊ | | | | | | | | | 2,470 |

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在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

C= 標準在庫品　C=Standard stock item.

# F4000シリーズ F4000 Series

## ブレーカのバリエーション（F4000 用） Chip Breaker Version

### ブレーカの種類と用途　Type of chip former and the application

| シリーズ名 Type | すくい角 Rake angle | ブレーカ名 Chip Former | 刃先形状 Cutting Edge Form | 用途 Application |
|---|---|---|---|---|
| Dタイプ  | 10° | D56   | | 耐欠損性に優れた刃先剛性重視の刃形。<br>突き出しの長い加工や、厳しい断続切削の加工など、刃先の剛性が要求される場合に適する。<br>Cutting edge that puts emphasis on rigidity, while offering excellent chipping resistance.<br>Suitable for applications that require rigid cutting edges, such as milling with a long tool extension, or intensive intermittent cutting. |
| Fタイプ  | 16° | F56   | | 切れ味と刃先剛性を兼ね備えた汎用刃形。<br>幅広い被削材、加工条件で安定した加工が可能。<br>The general-purpose cutting edge offers both sharpness and rigidity.<br>Stable milling on a wide range of work materials and conditions. |
| Gタイプ  | 20° | G56   | | 切削抵抗の低い切れ味重視の刃形。<br>切削動力の低い機械、クランプ剛性の低い加工に適する。<br>Cutting edge that puts emphasis on sharpness, while ensuring a low cutting resistance.<br>Suitable for milling on machines with low cutting power, and low clamping rigidity. |
| | | G88   | | 切れ味に優れ、耐溶着性も高いアルミニウム・非鉄金属加工専用。<br>高い切りくず排出性を活かした高能率加工が可能。<br>With sharp cutting edges and high fusing resistance, this tool is designed exclusively for working in aluminum and other non-ferrous metals. Its superior chip evacuation abilities help to achieve highly efficient machining. |

### インサート材種一覧　Table of inserts

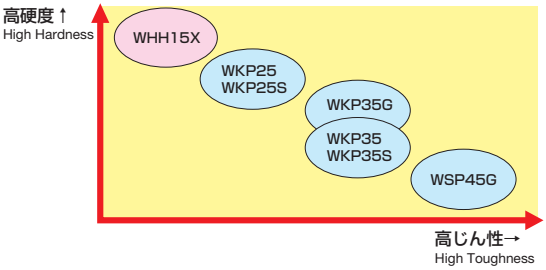
◎ 第一推奨材質 Best
○ 第二推奨材質 Good

| 材種 Product Name | コーティング Surface Treatment | コーティング法 Coating Method | 適用被削材 Applicably Work Material | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | P | M | K | N | S | H |
| WKP25<br>WKP25S | アルミナ多層タイガーテックコーティング<br>Al2O3 Multi-layer coating Tiger tec | CVD | ○ | | ◎ | | | |
| WKP35<br>WKP35S | アルミナ多層タイガーテックコーティング<br>Al2O3 Multi-layer coating Tiger tec | CVD | ◎ | | ○ | | | |
| WSM35S | アルミナ多層タイガーテックコーティング<br>Al2O3 Multi-layer coating Tiger tec | PVD | | ◎ | | | ◎ | |
| WKP35G | TiAlN 多層タイガーテックコーティング<br>TiAlN Multi-layer coating Tiger tec | CVD | ◎ | | ○ | | | |
| WSP45G | アルミナ多層タイガーテックコーティング<br>Al2O3 Multi-layer coating Tiger tec | PVD | ○ | ◎ | | | ◎ | |
| WHH15X | TiALN 多層コーティング<br>TiAlN Multi-layer coating | PVD | ○ | | ○ | | | ◎ |
| WAK15 | アルミナ多層タイガーテックコーティング<br>Al2O3 Multi-layer coating Tiger tec | CVD | | | ◎ | | | |
| WK10 | ノンコーティング<br>Uncoated | — | | | | ◎ | | |

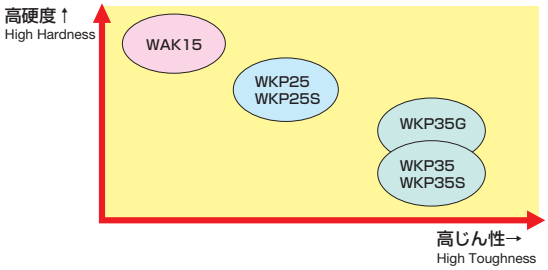
# インサート材種適用マップ(F4000 用) Inserts Application Chart

## 被削材別適用材種　Application chart of insert material

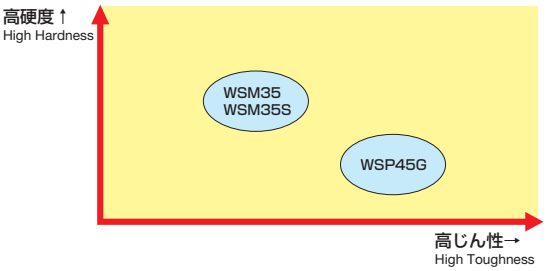
鋼系被削材（軟鋼、一般鋼、調質鋼）
Steel-based work material（Mild Steel, Steel, Hardened Steel）



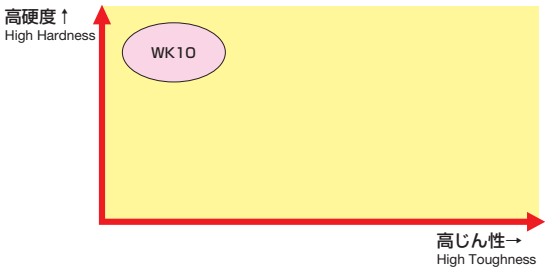

鋳鉄、ダクタイル鋳鉄
Cast Iron, Ductile Iron




ステンレス鋼、難削材
Stainless Steel, Difficult to Machine Materials




アルミニウム、非鉄金属
Aluminum, Non-Ferrous Material

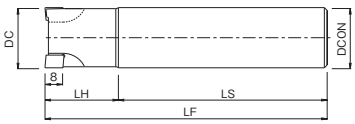


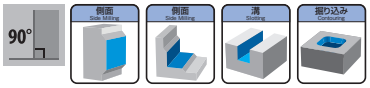
# WALTER ポジティブエンドミル
**WALTER Positive End Mill**

## F4042-08 SS 切削条件 Cutting Conditions | P1128-148

強ねじれインサート採用により低切削抵抗を実現した高能率加工用カッタ。扱い易いストレートシャンク形。
High performance cutter, designed with stronger helix angle for low cutting torque. Comes with straight shank for easier handling.



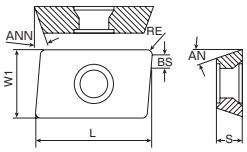



（単位:mm）(Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| レギュラー Regular | *8075511 | 10×SS12× 1 | 10 | 85 | 25 | 12 | 60 | 1 | 1 | C | 21,700 |
| | *8075512 | 12×SS12× 1 | 12 | | | | | | | | 22,000 |
| | *8075514 | 16×SS16× 2 | 16 | | | 16 | | 2 | 2 | | 26,200 |
| | *8075516 | 20×SS20× 3 | 20 | 100 | 30 | 20 | 70 | 3 | 3 | | 38,000 |
| | *8075517 | 25×SS25× 4 | 25 | 110 | | 25 | 80 | 4 | 4 | | 44,900 |
| | *8075518 | 30×SS25× 4 | 30 | 125 | 35 | | 90 | | | | 50,200 |
| | *8075519 | 32×SS32× 5 | 32 | | | 32 | | 5 | 5 | | 60,000 |
| ロングシャンク Long Shank | *8075524 | 16×SS16×150 | 16 | 150 | 35 | 16 | 115 | 2 | 2 | C | 29,900 |
| | *8075526 | 20×SS20×200 | 20 | 200 | 40 | 20 | 160 | | | | 42,700 |
| | *8075527 | 25×SS25×200 | 25 | | | 25 | | 3 | 3 | | 50,600 |
| | *8075528 | 30×SS25×200 | 30 | | 45 | | 155 | | | | 56,700 |
| | *8075529 | 32×SS32×200 | 32 | | | 32 | | 4 | 4 | | 66,900 |

*印は在庫無くなり次第、廃番となります。Tools marked * will be discontinued when it is out of stock.




## ■適用インサート Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|
|  | ADMT080304R-D56 | M級 10°ブレーカ 標準タイプ / M class 10°chip former Standard Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADMT080304R-F56 | M級 16°ブレーカ 低抵抗タイプ / M class 16°chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADMT080304R-G56 | M級 20°ブレーカ 超低抵抗タイプ / M class 20°chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADKT0803PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ / Partly Ground 16° chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADHT0803PER-G88 | H級 20°ブレーカ 超低抵抗タイプ / H class 20° chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADMT080302R-F56 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.2 | 1.2 |
| | ADMT080308R-F56 | | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.8 | 1.2 |

C= 標準在庫品 C=Standard stock item.

# WALTER ポジティブエンドミル
**WALTER Positive End Mill**

# F4042-08 SS

## ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 8009355＊ | FS1455 (Torx8IP) | φ10,φ12, φ16,φ20 | 1.2N·m |
| | 8009354＊ | FS1454 (Torx8IP) | φ25,φ30, φ32 | 1.2N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808225 | 8IP-D (Torx8IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

(単位:mm) (Unit:mm)

| 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| WK10 | | WKP25S | WKP35S | WSP45G | WSM35S | WAK15 | |
| | | | | | | 8059201＊ | 2,130 |
| | | 8037202＊ | | | | | 2,130 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | 8039375＊ | | | | 2,130 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

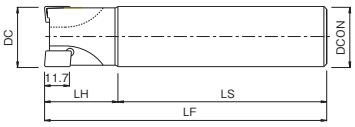
C= 標準在庫品 C=Standard stock item.

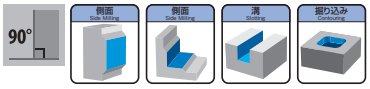
# WALTER ポジティブエンドミル
**WALTER Positive End Mill**

## F4042-12 SS 切削条件 Cutting Conditions | P1128-148

強ねじれインサート採用により低切削抵抗を実現した高能率加工用カッタ。扱い易いストレートシャンク形。
High performance cutter, designed with stronger helix angle for low cutting torque. Comes with straight shank for easier handling.






### ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance

（単位:mm）(Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| レギュラー Regular | 8075542 | 20×SS20× 1 | 20 | 105 | 35 | 20 | 70 | 1 | 1 | C | — |
| | *8075543 | 25×SS25× 3 | 25 | 115 | | 25 | 80 | 3 | 3 | | 38,800 |
| | *8075544 | 30×SS25× 3 | 30 | | 40 | | 90 | | | | 40,900 |
| | *8075545 | 32×SS32× 4 | 32 | 130 | | 32 | | 4 | 4 | | 48,200 |
| | *8075546 | 40×SS32× 5 | 40 | | | | | 5 | 5 | | 60,200 |
| | *8075547 | 50×SS32× 6 | 50 | 150 | 50 | | 100 | 6 | 6 | | 74,100 |
| ロングシャンク Long Shank | 8075552 | 20×SS20×200 | 20 | 200 | 45 | 20 | 155 | 1 | 1 | C | — |
| | *8075553 | 25×SS25×200 | 25 | | | 25 | | 2 | 2 | | 43,900 |
| | *8075554 | 30×SS25×200 | 30 | | 50 | | 150 | | | | 45,500 |
| | *8075555 | 32×SS32×200 | 32 | | | 32 | | 3 | 3 | | 54,600 |
| | *8075556 | 40×SS32×200 | 40 | | 45 | | 155 | 4 | 4 | | 68,400 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 8009356* | FS1456 (Torx9IP) | φ20,φ25 | 1.5N·m |
| | 8009357* | FS1457 (Torx9IP) | φ30,φ32, φ40,φ50 | 1.5N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808226 | 9IP-D (Torx9IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

### ■適用インサート Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|---|
|  | ADMT120408R-D56 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADMT120408R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16°chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADMT120408R-G56 | M級 20°ブレーカ 超低抵抗タイプ | M class 20°chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADGT1204PER-D56 | 精密級 10°ブレーカ 標準タイプ | Ground 10° chip former Standard Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADKT1204PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ | Partly Ground 16° chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADHT1204PER-G88 | H級 20°ブレーカ 超低抵抗タイプ | H class 20° chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADMT120404R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.4 | 1.2 |
| | ADMT120412R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 1.2 | 1.2 |
| | ADMT120416R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 1.6 | 1 |
| | ADMT120420R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 2 | 1 |
| | ADMT120425R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 2.5 | 0.8 |
| | ADMT120430R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 3 | 0.8 |
| | ADMT120440R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 4 | — |

C= 標準在庫品 C=Standard stock item.

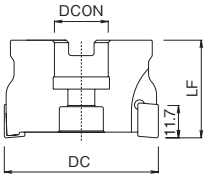
# WALTER ポジティブエンドミル
**WALTER Positive End Mill**

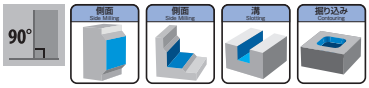
## F4042-12 SL 切削条件 Cutting Conditions | P1128-148

### ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance






### ■形状寸法表 Specification Chart

(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 穴径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ＊8075562 | **50×SL×6** | 50 | 40 | 22 | 6 | 6 | C | 83,700 |
| ＊8075563 | **63×SL×7J** | 63 | 50 | 25.4 | 7 | 7 | | 95,700 |
| ＊8075564 | **80×SL×8J** | 80 | | | 8 | 8 | | 107,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 8009357＊ | FS1457 (Torx9IP) | φ50,φ63, φ80 | 1.5N·m |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808226 | 9IP-D (Torx9IP) |

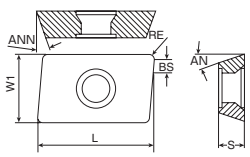
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

(単位:mm) (Unit:mm)

| 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| WK10 | | WKP25S | WKP35 | WKP35S | WSP45G | WSM35S | WAK15 | |
| | | | | | | | ＊8059204 | 2,310 |
| | | ＊8037205 | | ＊8039205 | | | | 2,310 |
| | | | | ＊8039206 | | ＊8097206 | | 2,310 |
| | | | | | | | | |
| | | | | | | | | |
| ＊8032482 | 2,540 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | ＊8039378 | | | | 2,310 |
| | | | | ＊8039379 | | | | 2,310 |
| | | | ＊8036380 | | | | | 2,310 |
| | | | | | | | | |
| | | | | | | | | |

在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.




コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR－1
(例:インサートR3の場合ボディにはR2のR)

When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

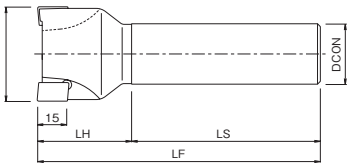
C= 標準在庫品 C=Standard stock item.

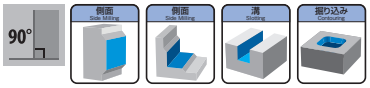
# WALTER ポジティブエンドミル
**WALTER Positive End Mill**

## F4042-16 SS 切削条件 Cutting Conditions | P1128-148

強ねじれインサート採用により低切削抵抗を実現した高能率加工用カッタ。扱い易いストレートシャンク形。
High performance cutter, designed with stronger helix angle for low cutting torque. Comes with straight shank for easier handling.






### ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance

(単位:mm) (Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| レギュラー Regular | 8075571 | 40×SS32× 4 | 40 | 130 | 40 | 32 | 90 | 4 | 4 | C | – |
| | *8075572 | 50×SS32× 5 | 50 | 150 | 50 | | 100 | 5 | 5 | | 70,900 |
| | *8075573 | 63×SS32× 6 | 63 | | | | | 6 | 6 | | 83,700 |
| | *8075574 | 80×SS32× 7 | 80 | | | | | 7 | 7 | | 94,700 |
| ロングシャンク Long Shank | *8075581 | 40×SS32×200 | 40 | 200 | 45 | 32 | 155 | 3 | 3 | C | 66,600 |
| | *8075582 | 50×SS42×250 | 50 | 250 | 50 | 42 | 200 | 4 | 4 | | 85,900 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

*印は在庫無くなり次第、廃番となります。
Tools marked * will be discontinued when it is out of stock.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 8009353* | FS1453 (Torx15IP) | φ40,φ50, φ63,φ80 | 3.5N·m |

*印は在庫無くなり次第、廃番となります。
Tools marked * will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

### ■適用インサート Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|
|  | ADMT160608R-D56 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-F56 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-G56 | M級 20°ブレーカ 超低抵抗タイプ / M class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADGT1606PER-D56 | 精密級 10°ブレーカ 標準タイプ / Ground 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADKT1606PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ / Partly Ground 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADHT1606PER-G88 | H級 20°ブレーカ 超低抵抗タイプ / H class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160612R-F56 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.2 | 1.6 |
| | ADMT160616R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.6 | 1.4 |
| | ADMT160620R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2 | 1.4 |
| | ADMT160625R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2.5 | 1.2 |
| | ADMT160630R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 3 | 1.2 |
| | ADMT160640R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 4 | 1 |
| | ADMT160650R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 5 | – |
| | ADMT160660R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 6 | – |

C= 標準在庫品 C=Standard stock item.

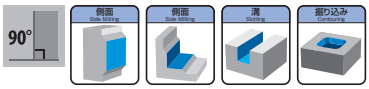
# WALTER ポジティブエンドミル
**WALTER Positive End Mill**

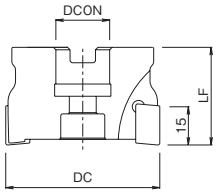
## F4042-16 SL 切削条件 Cutting Conditions | P1128-148

### ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance






(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 穴径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ＊8075592 | **50×SL×5** | 50 | 40 | 22 | 5 | 5 | C | 71,400 |
| 8075593 | **63×SL×6J** | 63 | 50 | 25.4 | 6 | 6 | | — |
| 8075594 | **80×SL×7J** | 80 | | | 7 | 7 | | — |
| ＊8075595 | **100×SL×8J** | 100 | | 31.75 | 8 | 8 | | 109,000 |
| ＊8075596 | **125×SL×9J** | 125 | 63 | 38.1 | 9 | 9 | | 121,000 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 8009353＊ | FS1453 (Torx15IP) | φ50,φ63, φ80,φ100, φ125 | 3.5N·m |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

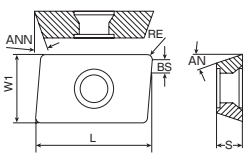
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

(単位:mm) (Unit:mm)

| 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| WK10 | | WKP25S | WKP35S | WSP45S | WSP45G | WSM35S | WAK15 | |
| | | | | | | | | |
| | | 8037208＊ | | | | | | 2,620 |
| | | | 8039209＊ | | | 8097209＊ | | 2,620 |
| | | 8037363＊ | 8039363＊ | | | | | 3,790 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | 8039388＊ | | | | | 2,620 |
| | | | | | | | | |
| | | | | | | | | |

在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.




コーナR=R2以上のインサートを使用する場合、カッタボディのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR−1
(例:インサートR3の場合ボディにはR2のR)

When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

C= 標準在庫品 C=Standard stock item.

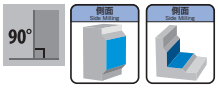
# WALTER高剛性フェースミル
**WALTER Highly Rigid Face Milling Cutter**

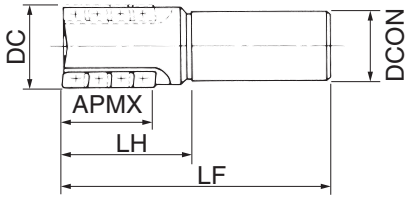
## F4038 SS

切削条件 Cutting Conditions | P1128-148

強ねじれインサート採用により低切削抵抗を実現した高能率加工用カッタ。扱い易いストレートシャンク形。
High performance cutter, designed with stronger helix angle for low cutting torque. Comes with straight shank for easier handling.



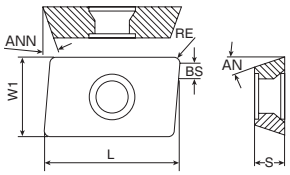



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 最大切込み量 APMX | 首下長さ LH | シャンク径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ✻8075981 | **20×SS20×22** | 20 | 105 | 22 | 35 | 20 | 1 | 4 | C | 89,400 |
| ✻8075982 | **20×SS20×30** | | 115 | 30 | 45 | | | 5 | | 97,300 |
| ✻8075983 | **25×SS25×30** | 25 | 125 | | 50 | 25 | 2 | 8 | | 115,000 |
| ✻8075984 | **25×SS25×44** | | 140 | 44 | 65 | | | 12 | | 126,000 |
| ✻8075985 | **32×SS32×30** | 32 | 125 | 30 | 50 | 32 | 3 | | | 136,000 |
| ✻8075986 | **32×SS32×44** | | 140 | 44 | 65 | | | 18 | | 149,000 |

✻印は在庫無くなり次第、廃番となります。Tools marked ✻ will be discontinued when it is out of stock.




## ■適用インサート Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|  | ADMT080304R-D56 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADMT080304R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADMT080304R-G56 | M級 20°ブレーカ 超低抵抗タイプ | M class 20° chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADKT0803PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ | Partly Ground 16° chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADHT0803PER-G88 | H級 20°ブレーカ 超低抵抗タイプ | H class 20° chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.4 | 1.2 |
| | ADMT080302R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.2 | 1.2 |
| | ADMT080308R-F56 | | | 2 | 8×6.26 | 3.35 | 15° | 20° | 0.8 | 1.2 |

C= 標準在庫品 C=Standard stock item.

# WALTER高剛性フェースミル
**WALTER Highly Rigid Face Milling Cutter**

# F4038 SS

## ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | 8009355＊ | FS1455 (Torx8IP) | φ20 | 1.2N·m |
| | 8009354＊ | FS1454 (Torx8IP) | φ25,φ32 | 1.2N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808225 | 8IP-D (Torx8IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

(単位:mm) (Unit:mm)

| 超硬材種 Carbide Material | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| | WK10 | | WKP25S | WKP35S | WSP45G | WSM35S | WAK15 | |
| | | | | | | | 8059201＊ | 2,130 |
| | | | 8037202＊ | | | | | 2,130 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | 8039375＊ | | | | 2,130 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

C= 標準在庫品 C=Standard stock item.

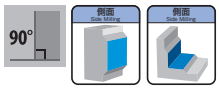
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

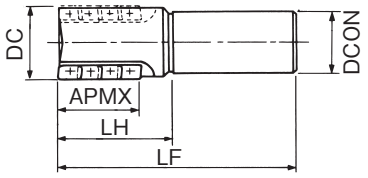
## F4138 SS

切削条件 Cutting Conditions | P1128-149

**■特殊表面処理ボディ**
Special Surface Treatment
ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance





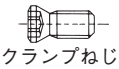




(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長さ LH | シャンク径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075951 | **32×SS32×2** | 32 | 145 | 43 | 60 | 32 | 2 | 8 | C | 116,000 |
| ＊8075952 | **40×SS42×3** | 40 | | | | 42 | 3 | 12 | | 208,000 |
| ＊8075953 | **50×SS42×4** | 50 | 160 | 54 | 80 | | 4 | 20 | | 257,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009357＊ | FS1457 (Torx9IP) | 1.5N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808226 | 9IP-D (Torx9IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

### ■適用インサート Applicable Inserts

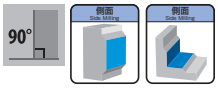
| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|---|
|  | ADMT120408R-D56 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADMT120408R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADMT120408R-G56 | M級 20°ブレーカ 超低抵抗タイプ | M class 20° chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADGT1204PER-D56 | 精密級 10°ブレーカ 標準タイプ | Ground 10° chip former Standard Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADKT1204PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ | Partly Ground 16° chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADHT1204PER-G88 | H級 20°ブレーカ 超低抵抗タイプ | H class 20° chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.8 | 1.2 |
| | ADMT120404R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 12×7.64 | 4.76 | 15° | 20° | 0.4 | 1.2 |
| | ADMT120412R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 1.2 | 1.2 |
| | ADMT120416R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 1.6 | 1 |
| | ADMT120420R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 2 | 1 |
| | ADMT120425R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 2.5 | 0.8 |
| | ADMT120430R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 3 | 0.8 |
| | ADMT120440R-F56 | | | 2 | 12×7.64 | 4.76 | 15° | 20° | 4 | – |

C= 標準在庫品 C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## F4138 SL　切削条件 Cutting Conditions | P1128-149

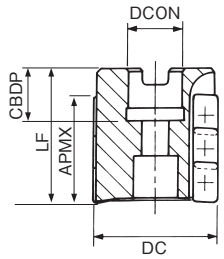





## ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上

The body has a specially treated surface that offers superior corrosion resistance

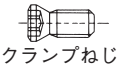



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 刃長 APMX | 穴仕様 DCON | 穴仕様 CBDP | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075956 | **50×SL×4** | 50 | 60 | 43 | 22 | 21 | 4 | 16 | C | 243,000 |
| ＊8075957 | **63×SL×5** | 63 | 70 | | 27 | 28 | 5 | 20 | | 283,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

## ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009357＊ | FS1457 (Torx9IP) | 1.5N·m |

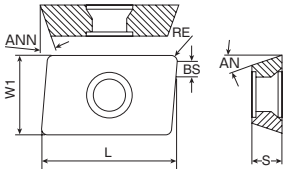
| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808226 | 9IP-D (Torx9IP) |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

（単位:mm）(Unit:mm)

| 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| WK10 | | WKP25S | WKP35 | WKP35S | WSP45G | WSM35S | WAK15 | |
| | | | | | | | 8059204＊ | 2,310 |
| | | 8037205＊ | | 8039205＊ | | | | 2,310 |
| | | | | 8039206＊ | | 8097206＊ | | 2,310 |
| | | | | | | | | |
| | | | | | | | | |
| 8032482＊ | 2,540 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | 8039378＊ | | | | 2,310 |
| | | | | 8039379＊ | | | | 2,310 |
| | | | 8036380＊ | | | | | 2,310 |
| | | | | | | | | |
| | | | | | | | | |




在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品　C=Standard stock item.

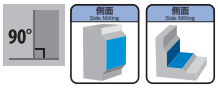
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

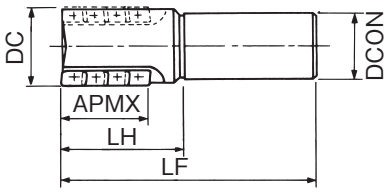
## F4238 SS

切削条件 Cutting Conditions | P1128-149

■特殊表面処理ボディ
Special Surface Treatment
ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | シャンク径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075901 | **40×SS42** | 40 | 155 | 43 | 70 | 42 | 2 | 6 | C | 155,000 |
| ＊8075902 | **50×SS42** | 50 | 170 | 57 | 85 | | 3 | 12 | | 209,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009353＊ | FS1453 (Torx15IP) | 3.5N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

### ■適用インサート Applicable Inserts

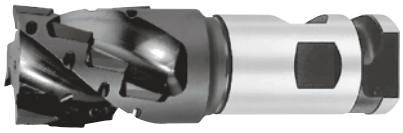
| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|---|
|  | ADMT160608R-D56 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-G56 | M級 20°ブレーカ 超低抵抗タイプ | M class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADGT1606PER-D56 | 精密級 10°ブレーカ 標準タイプ | Ground 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADKT1606PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ | Partly Ground 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADHT1606PER-G88 | H級 20°ブレーカ 超低抵抗タイプ | H class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160612R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.2 | 1.6 |
| | ADMT160616R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.6 | 1.4 |
| | ADMT160620R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2 | 1.4 |
| | ADMT160625R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2.5 | 1.2 |
| | ADMT160630R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 3 | 1.2 |
| | ADMT160640R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 4 | 1 |
| | ADMT160650R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 5 | – |
| | ADMT160660R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 6 | – |

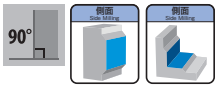
C= 標準在庫品 C=Standard stock item.

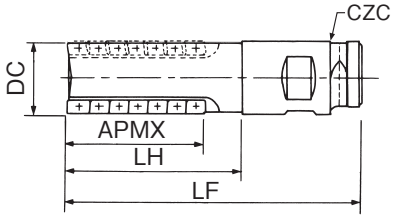
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## F4238 CN　切削条件 Cutting Conditions | P1128-149

■特殊表面処理ボディ
Special Surface Treatment
ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | シャンク CZC | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075903 | **50×CN50.8×71** | 50 | 180 | 71 | 95 | CN50.8 | 3 | 15 | C | 236,000 |
| 8075904 | **50×CN50.8×99** | | 210 | 99 | 125 | | | 21 | | — |

ツール No. 欄　　のものは廃番品です。
EDP No. found in　　are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
| クランプねじ Clamping Screw | 8009353＊ | FS1453 (Torx15IP) | 3.5N·m |

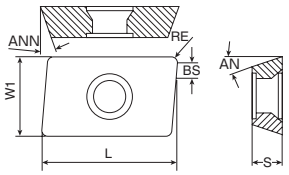
| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

（単位:mm）(Unit:mm)

| 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| WK10 | | WKP25S | WKP35S | WSP45S | WSP45G | WSM35S | WAK15 | |
| | | | | | | | | |
| | | 8037208＊ | | | | | | 2,620 |
| | | | 8039209＊ | | | 8097209＊ | | 2,620 |
| | | 8037363＊ | 8039363＊ | | | | | 3,790 |
| | | | | | | | | |
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| | | | | | | | | |
| | | | 8039388＊ | | | | | 2,620 |
| | | | | | | | | |
| | | | | | | | | |




在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

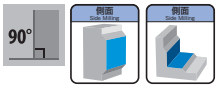
C= 標準在庫品　C=Standard stock item.

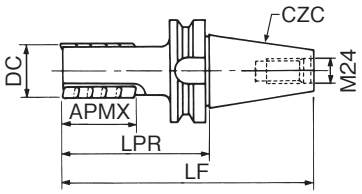
# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## F4238 BT

切削条件 Cutting Conditions | P1128-149



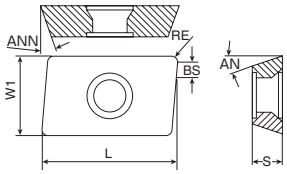



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 突き出し長さ LPR | シャンク CZC | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075911 | **50×BT50× 71** | 50 | 245 | 71 | 143.2 | BT50 | 3 | 15 | C | 311,000 |
| ＊8075912 | **50×BT50× 99** | | 275 | 99 | 173.2 | | | 21 | | 340,000 |
| ＊8075916 | **63×BT50× 85** | 63 | 260 | 85 | 158.2 | | | 18 | | 329,000 |
| ＊8075917 | **63×BT50×113** | | 290 | 113 | 188.2 | | | 24 | | 353,000 |
| ＊8075921 | **80×BT50× 99** | 80 | 275 | 99 | 173.2 | | 4 | 28 | | 364,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.




■適用インサート Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|  | ADMT160608R-D56 | M級 10°プレーカ 標準タイプ | M class 10°chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-F56 | M級 16°プレーカ 低抵抗タイプ | M class 16°chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-G56 | M級 20°プレーカ 超低抵抗タイプ | M class 20°chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADGT1606PER-D56 | 精密級 10°プレーカ 標準タイプ | Ground 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADKT1606PER-F56 | 準精密級 16°プレーカ 低抵抗タイプ | Partly Ground 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADHT1606PER-G88 | H級 20°プレーカ 超低抵抗タイプ | H class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160612R-F56 | M級 16°プレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.2 | 1.6 |
| | ADMT160616R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.6 | 1.4 |
| | ADMT160620R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2 | 1.4 |
| | ADMT160625R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2.5 | 1.2 |
| | ADMT160630R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 3 | 1.2 |
| | ADMT160640R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 4 | 1 |
| | ADMT160650R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 5 | – |
| | ADMT160660R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 6 | – |

C= 標準在庫品 C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

# F4238 BT

■部品 Accessories

| | ツール No.<br>EDP No. | 呼び<br>Designation | 推奨締付けトルク<br>Recommended Tightening Torque |
|---|---|---|---|
|  <br>クランプねじ<br>Clamping Screw | 8009353＊ | FS1453<br>(Torx15IP) | 3.5N·m |

| | ツール No.<br>EDP No. | 呼び<br>Designation |
|---|---|---|
|  <br>ドライバ<br>Screwdriver | 7808228 | 15IP-D<br>(Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

(単位:mm) (Unit:mm)

| 超硬材種<br>Carbide Material | 標準価格<br>(Yen) | コーティング材種<br>Grade of Coated Materials | | | | | | 標準価格<br>(Yen) |
|---|---|---|---|---|---|---|---|---|
| WK10 | | WKP25S | WKP35S | WSP45S | WSP45G | WSM35S | WAK15 | |
| | | | | | | | | |
| | | 8037208＊ | | | | | | 2,620 |
| | | | 8039209＊ | | | 8097209＊ | | 2,620 |
| | | 8037363＊ | 8039363＊ | | | | | 3,790 |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| | | | 8039388＊ | | | | | 2,620 |
| | | | | | | | | |
| | | | | | | | | |

在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

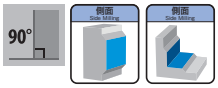
C= 標準在庫品 C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

## F4238 SL

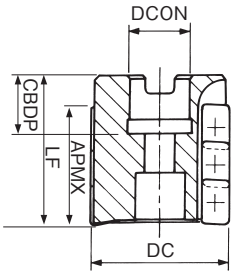
切削条件 Cutting Conditions | P1128-149






## ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 刃長 APMX | 穴径 DCON | 取り付け穴高さ CBDP | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075907 | **50×SL** | 50 | 60 | 43 | 22 | 21 | 3 | 9 | C | 208,000 |
| 8075908 | **63×SL** | 63 | 70 | | 27 | 28 | 4 | 12 | | — |
| ＊8075909 | **80×SL** | 80 | 85 | 57 | 32 | | 5 | 20 | | 262,000 |
| ＊8075910 | **100×SL** | 100 | | | 40 | 30 | 6 | 24 | | 379,000 |

ツールNo.欄 ［　］のものは廃番品です。
EDP No. found in ［　］ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009353＊ | FS1453 (Torx15IP) | 3.5N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC（標準在庫品）となります。
Stocks are categorized as C (standard stock item).

## ■適用インサート Applicable Inserts

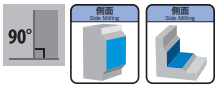
| 形状 Appearance | 呼び Designation | 仕様 Specification | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|---|
|  | ADMT160608R-D56 | M級 10°ブレーカ 標準タイプ | M class 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-G56 | M級 20°ブレーカ 超低抵抗タイプ | M class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADGT1606PER-D56 | 精密級 10°ブレーカ 標準タイプ | Ground 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADKT1606PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ | Partly Ground 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADHT1606PER-G88 | H級 20°ブレーカ 超低抵抗タイプ | H class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160612R-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.2 | 1.6 |
| | ADMT160616R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.6 | 1.4 |
| | ADMT160620R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2 | 1.4 |
| | ADMT160625R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2.5 | 1.2 |
| | ADMT160630R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 3 | 1.2 |
| | ADMT160640R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 4 | 1 |
| | ADMT160650R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 5 | — |
| | ADMT160660R-F56 | | | 2 | 16×9.85 | 6.15 | 15° | 20° | 6 | — |

C= 標準在庫品 C=Standard stock item.

# WALTER ポーキュパインカッタ
**WALTER Porcupine Cutter**

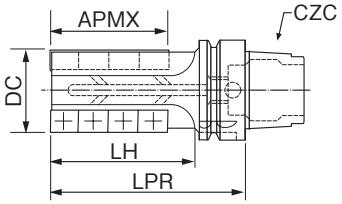
## F4238 HSK　切削条件 Cutting Conditions | P1128-149






## ■特殊表面処理ボディ
Special Surface Treatment

ボディは特殊表面処理を施すことで耐腐食性を向上
The body has a specially treated surface that offers superior corrosion resistance




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 刃長 APMX | 突き出し長さ LPR | 首下長 LH | シャンク CZC | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8075925 | **H100A.063.Z03.71** | 63 | 71 | 125 | 82 | HSK-A100 | 3 | 15 | C | — |
| 8075926 | **H100A.080.Z04.85** | 80 | 85 | 140 | 96 | | 4 | 24 | | — |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

## ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009353＊ | FS1453 (Torx15IP) | 3.5N·m |

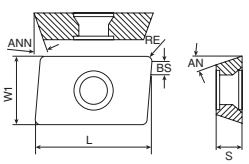
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

（単位:mm）(Unit:mm)

| 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| WK10 | | WKP25S | WKP35S | WSP45S | WSP45G | WSM35S | WAK15 | |
| | | | | | | | | |
| | | 8037208＊ | | | | | | 2,620 |
| | | | 8039209＊ | | | 8097209＊ | | 2,620 |
| | | 8037363＊ | 8039363＊ | | | | | 3,790 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | 8039388＊ | | | | | 2,620 |
| | | | | | | | | |
| | | | | | | | | |




在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品　C=Standard stock item.

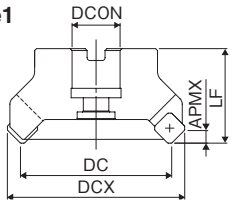
# WALTER高剛性フェースミル
**WALTER Highly Rigid Face Milling Cutter**

## F4033 SL

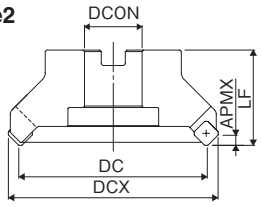
切削条件 Cutting Conditions | P1128-149



**Type1**




**Type2**

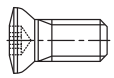



（単位:mm）(Unit:mm)

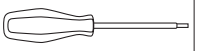
| ツール No. EDP No. | 呼び Designation | 外径 DC | 外径 DCX | カッタ高さ LF | 最大切込み量 APMX | 穴径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8070401 | **50×SL×3** | 50 | 64 | 40 | 6.5 | 22 | 3 | 3 | 1 | C | 86,700 |
| ＊8070402 | **63×SL×4J** | 63 | 77 | 50 | | 25.4 | 4 | 4 | | | 99,500 |
| ＊8070403 | **63×SL×6J** | | | | | | 6 | 6 | | | 115,000 |
| ＊8070404 | **80×SL×5J** | 80 | 94 | | | | 5 | 5 | | | 129,000 |
| ＊8070405 | **80×SL×8J** | | | | | | 8 | 8 | | | 144,000 |
| ＊8070406 | **100×SL×6J** | 100 | 114 | | | 31.75 | 6 | 6 | 2 | | 136,000 |
| ＊8070407 | **100×SL×10J** | | | | | | 10 | 10 | | | 174,000 |
| ＊8070408 | **125×SL×8J** | 125 | 139 | 63 | | 38.1 | 8 | 8 | | | 165,000 |
| ＊8070409 | **125×SL×12J** | | | | | | 12 | 12 | | | 209,000 |
| ＊8070410 | **160×SL×10J** | 160 | 174 | | | 50.8 | 10 | 10 | | | 224,000 |
| ＊8070411 | **160×SL×14J** | | | | | | 14 | 14 | | | 267,000 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

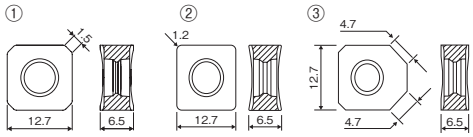
## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009359＊ | FS1459 (Torx15IP) | 4N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).




## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | | コーティング材種 Grade of Coated Materials WKP25S | WKP35 | WKP35S | WSP45G | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SNMX1205ANN-F27 | M級 16°ブレーカ 刃先強化タイプ | M class 16°chip former Corner Facets Reinforced Type | | | | | | | | | |
| | SNMX1205ANN-F57 | M級 16°ブレーカ 標準タイプ | M class 16°chip former Corner Facets Standard Type | | | | | | | | | |
| | SNMX1205ANN-F67 | M級 16°ブレーカ 鋳鉄用 | M class 16°chip former Corner Facets For Cast iron | | | | | | | | | |
| | SNGX1205ANN-F57 | 精密級 16°ブレーカ 標準タイプ | Ground 16°chip former Corner Facets Standard Type | ＊ 8037562 | | ＊ 8039562 | | | | | | 3,740 |
| ② | SNMX120512-F27 | M級 16°ブレーカ コーナR 刃先強化タイプ | M class 16°chip former Corner R Reinforced Type | | | ＊ 8039557 | | | | | | 2,890 |
| | SNMX120512-F57 | M級 16°ブレーカ コーナR 標準タイプ | M class 16°chip former Corner R Standard Type | ＊ 8037558 | ＊ 8036558 | ＊ 8039558 | | | | | | 2,890 |
| | SNMX120512-F67 | M級 16°ブレーカ コーナR 鋳鉄用 | M class 16°chip former Corner R For Cast iron | ＊ 8037559 | | | | | | | | 2,890 |
| ③ | XNGX1205ANN-F67 | 精密級 16°ブレーカ 仕上げ用インサート | Ground 16°chip former Finishing Insert | | | | | | | ＊ 8073554 | | 4,280 |

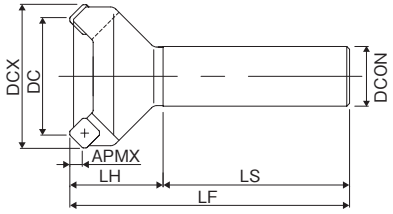
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品 C=Standard stock item.

# WALTER高剛性フェースミル
**WALTER Highly Rigid Face Milling Cutter**

## F4033 SS　切削条件 Cutting Conditions | P1128-149



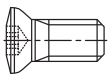



（単位:mm）(Unit:mm)

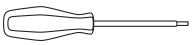
| ツール No. EDP No. | 呼び Designation | 外径 DC | 外径 DCX | 全長 LF | 首下長さ LH | シャンク径 DCON | シャンク長 LS | 最大切込み量 APMX | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8070421 | **50×SS32×3** | 50 | 64 | 150 | 50 | 32 | 100 | 6.5 | 3 | 3 | C | 63,100 |
| ＊8070422 | **63×SS32×4** | 63 | 77 | | | | | | 4 | 4 | | 76,400 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

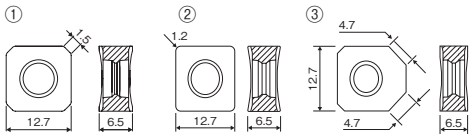
## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009359＊ | FS1459 (Torx15IP) | 4N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).




## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | | コーティング材種 Grade of Coated Materials WKP25S | WKP35 | WKP35S | WSP45G | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SNMX1205ANN-F27 | M級 16°ブレーカ 刃先強化タイプ | M class 16°chip former Corner Facets Reinforced Type | | | | | | | | | |
| | SNMX1205ANN-F57 | M級 16°ブレーカ 標準タイプ | M class 16°chip former Corner Facets Standard Type | | | | | | | | | |
| | SNMX1205ANN-F67 | M級 16°ブレーカ 鋳鉄用 | M class 16°chip former Corner Facets For Cast iron | | | | | | | | | |
| | SNGX1205ANN-F57 | 精密級 16°ブレーカ 標準タイプ | Ground 16°chip former Corner Facets Standard Type | ＊8037562 | | ＊8039562 | | | | | | 3,740 |
| ② | SNMX120512-F27 | M級 16°ブレーカ コーナR 刃先強化タイプ | M class 16°chip former Corner R Reinforced Type | | | ＊8039557 | | | | | | 2,890 |
| | SNMX120512-F57 | M級 16°ブレーカ コーナR 標準タイプ | M class 16°chip former Corner R Standard Type | ＊8037558 | ＊8036558 | ＊8039558 | | | | | | 2,890 |
| | SNMX120512-F67 | M級 16°ブレーカ コーナR 鋳鉄用 | M class 16°chip former Corner R For Cast iron | ＊8037559 | | | | | | | | 2,890 |
| ③ | XNGX1205ANN-F67 | 精密級 16°ブレーカ 仕上げ用インサート | Ground 16°chip former Finishing Insert | | | | | | | ＊8073554 | | 4,280 |

在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品 C=Standard stock item.

# WALTER 75°高剛性フェースミル
**WALTER 75° Highly Rigid Face Milling Cutter**

## F4047 SL

切削条件 Cutting Conditions | P1128-154

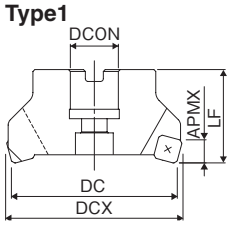




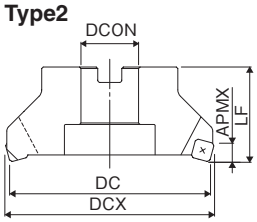




Type1




Type2




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 外径 DCX | カッタ高さ LF | 最大切込み量 APMX | 穴径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8070501 | **50×SL×4** | 50 | 56 | 40 | 8 | 22 | 4 | 4 | 1 | C | 93,600 |
| ＊8070502 | **63×SL×6J** | 63 | 69 | 50 | | 25.4 | 6 | 6 | | | 115,000 |
| ＊8070503 | **80×SL×5J** | 80 | 86 | | | | 5 | 5 | | | 129,000 |
| ＊8070504 | **80×SL×8J** | | | | | | 8 | 8 | | | 144,000 |
| ＊8070505 | **100×SL×6J** | 100 | 106 | | | 31.75 | 6 | 6 | 2 | | 136,000 |
| ＊8070506 | **100×SL×10J** | | | | | | 10 | 10 | | | 174,000 |
| ＊8070507 | **125×SL×8J** | 125 | 131 | 63 | | 38.1 | 8 | 8 | | | 165,000 |
| ＊8070508 | **125×SL×12J** | | | | | | 12 | 12 | | | 209,000 |
| ＊8070509 | **160×SL×10J** | 160 | 166 | | | 50.8 | 10 | 10 | | | 224,000 |
| ＊8070510 | **160×SL×14J** | | | | | | 14 | 14 | | | 267,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

### ■部品 Accessories

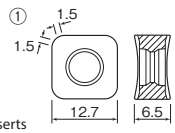
| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009359＊ | FS1459 (Torx15IP) | 4N·m |

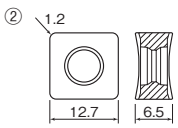
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

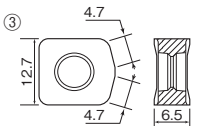
| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

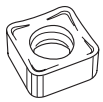
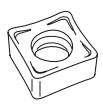
### ■適用インサート Applicable Inserts




（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | コーティング材種 Grade of Coated Materials WKP25 | WKP25S | WKP35 | WKP35S | WSP45 | WSP45G | WSM35 | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ①  | SNGX1205ENN-F27 | 精密級 16°ブレーカ 副切れ刃付き 刃先強化タイプ / Ground 16°chip former Corner Facets Reinforced Type | 8 | 8035564＊ | | 8036564＊ | | | | | | | | | 3,740 |
| | SNGX1205ENN-F57 | 精密級 16°ブレーカ 副切れ刃付き 標準タイプ / Ground 16°chip former Corner Facets Standard Type | | | 8037565＊ | | 8039565＊ | 8095565＊ | | 8094565＊ | | | | | 3,740 |
| | SNGX1205ENN-F67 | 精密級 16°ブレーカ 副切れ刃付き 鋳鉄用 / Ground 16°chip former Corner Facets For Cast iron | | 8035566＊ | 8037566＊ | | | | | | | | | | 3,740 |
| ②  | SNMX120512-F27 | M級 16°ブレーカ コーナR 刃先強化タイプ / M class 16°chip former Corner R Reinforced Type | 8 | | | | 8039557＊ | | | | | | | | 2,890 |
| | SNMX120512-F57 | M級 16°ブレーカ コーナR 標準タイプ / M class 16°chip former Corner R Standard Type | | | 8037558＊ | 8036558＊ | 8039558＊ | | | | | | | | 2,890 |
| | SNMX120512-F67 | M級 16°ブレーカ コーナR 鋳鉄用 / M class 16°chip former Corner R For Cast iron | | | 8037559＊ | | | | | | | | | | 2,890 |
| ③  | XNGX1205ENN-F67 | 精密級 16°ブレーカ 仕上げ用インサート / Ground 16°chip former Finishing Insert | 2 | | | | | | | | | | 8073555＊ | | 4,280 |

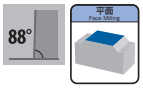
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品 C=Standard stock item.

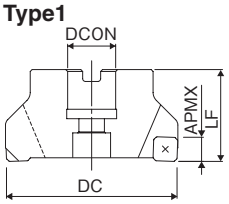
# WALTER 88°高剛性フェースミル
**WALTER 88° Highly Rigid Face Milling Cutter**

## F4048 SL　切削条件 Cutting Conditions　P1128-154

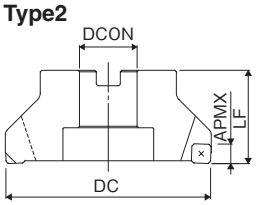





**Type1**




**Type2**




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 最大切込み量 APMX | 穴径 DCON | 刃数 ZEFP | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8070601 | **50×SL×4** | 50 | 40 | 10 | 22 | 4 | 4 | 1 | C | 93,600 |
| ＊8070602 | **63×SL×6J** | 63 | 50 | | 25.4 | 6 | 6 | | | 115,000 |
| ＊8070603 | **80×SL×5J** | 80 | | | | 5 | 5 | | | 129,000 |
| ＊8070604 | **80×SL×8J** | | | | | 8 | 8 | | | 144,000 |
| ＊8070605 | **100×SL×6J** | 100 | | | 31.75 | 6 | 6 | 2 | | 136,000 |
| ＊8070606 | **100×SL×10J** | | | | | 10 | 10 | | | 174,000 |
| ＊8070607 | **125×SL×8J** | 125 | 63 | | 38.1 | 8 | 8 | | | 165,000 |
| ＊8070608 | **125×SL×12J** | | | | | 12 | 12 | | | 209,000 |
| ＊8070609 | **160×SL×10J** | 160 | | | 50.8 | 10 | 10 | | | 224,000 |
| ＊8070610 | **160×SL×14J** | | | | | 14 | 14 | | | 267,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

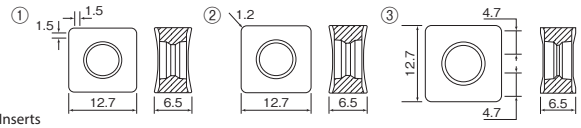
### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009359＊ | FS1459 (Torx15IP) | 4N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

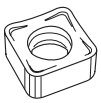
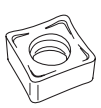
| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).




### ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | コーティング材種 Grade of Coated Materials WKP25 | WKP25S | WKP35 | WKP35S | WSP45 | WSP45G | WSM35 | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ①  | SNGX1205ZNN-F27 | 精密級 16°ブレーカ 副切れ刃付き 刃先強化タイプ / Ground 16°chip former Corner Facets Reinforced Type | | | | 8036567＊ | | | | | | | | | 3,740 |
| | SNGX1205ZNN-F57 | 精密級 16°ブレーカ 副切れ刃付き 標準タイプ / Ground 16°chip former Corner Facets Standard Type | 8 | 8035568＊ | 8037568＊ | 8036568＊ | 8039568＊ | | | 8094568＊ | | | | | 3,740 |
| | SNGX1205ZNN-F67 | 精密級 16°ブレーカ 副切れ刃付き 鋳鉄用 / Ground 16°chip former Corner Facets For Cast iron | | 8035569＊ | 8037569＊ | | | | | | | | | | 3,740 |
| ②  | SNMX120512-F27 | M級 16°ブレーカ コーナR 刃先強化タイプ / M class 16°chip former Corner R Reinforced Type | | | | | 8039557＊ | | | | | | | | 2,890 |
| | SNMX120512-F57 | M級 16°ブレーカ コーナR 標準タイプ / M class 16°chip former Corner R Standard Type | 8 | | 8037558＊ | 8036558＊ | 8039558＊ | | | | | | | | 2,890 |
| | SNMX120512-F67 | M級 16°ブレーカ コーナR 鋳鉄用 / M class 16°chip former Corner R For Cast iron | | | 8037559＊ | | | | | | | | | | 2,890 |
| ③  | XNGX1205ZNN-F67 | 精密級 16°ブレーカ 仕上げ用インサート / Ground 16°chip former Finishing Insert | 2 | | | | | | | | | | 8073556＊ | | 4,280 |

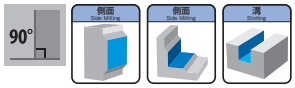
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品　C=Standard stock item.

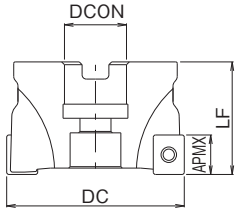
# WALTER 高剛性ショルダーミル
**WALTER High Rigidity Shoulder Mill**

## F4041　切削条件 Cutting Conditions　P1128-150

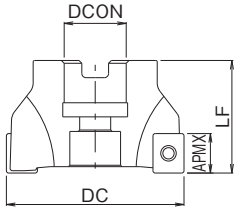





**Type1**




**Type2**



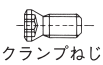

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 穴径 DCON | 最大切込み量 APMX | 刃数 ZEFP | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075702 | **50×SL×3** | 50 | 50 | 22 | 13 | 3 | 3 | 1 | C | 65,000 |
| 8075703 | **50×SL×3J** | | | 22.225 | | | | | | — |
| ＊8075704 | **50×SL×4** | | | 22 | | 4 | 4 | | | 73,300 |
| ＊8075705 | **63×SL×4** | 63 | | | | | | | | 76,800 |
| ＊8075706 | **63×SL×4J** | | | 22.225 | | | | | | 76,800 |
| ＊8075707 | **63×SL×6** | | | 22 | | 6 | 6 | | | 88,800 |
| ＊8075712 | **63×SL×6J** | | | 25.4 | | | | 2 | | 88,800 |
| 8075708 | **80×SL×5J** | 80 | 63 | 31.75 | | 5 | 5 | 1 | | — |
| ＊8075709 | **80×SL×7J** | | | | | 7 | 7 | | | 120,000 |
| ＊8075710 | **100×SL×5J** | 100 | | | | 5 | 5 | | | 116,000 |
| ＊8075711 | **100×SL×8J** | | | | | 8 | 8 | | | 133,000 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

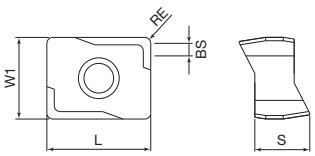
### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 推奨締付けトルク Recommended Tightening Torque |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8009358＊ | FS1458 (Torx15IP) | 2.5N·m |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

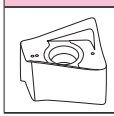
| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808228 | 15IP-D (Torx15IP) |

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).




### ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size | | | | | コーティング材種 Grade of Coated Materials | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L×W1 | 厚さ S | 逃げ角 | RE | BS | WKP25S | WKP35S | WAK15 | WSP45G | |
|  | LNGX130708R-L55 | 精密級 ブレーカ付き Ground with chip former | 4 | 13.6×11 | 7.5 | 0° | 0.8 | 1.6 | 8037100＊ | | 8058100＊ | | 3,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

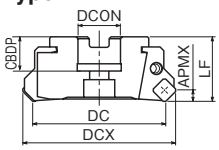
C= 標準在庫品　C=Standard stock item.

# WALTER ミーリングカッタ（F4000タイプ）
**WALTER Milling Cutter (F4000 Type)**

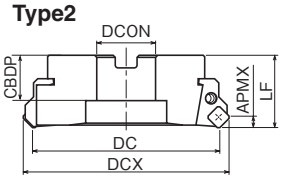
## F4010 N4S45R 切削条件 Cutting Conditions | P1128-149



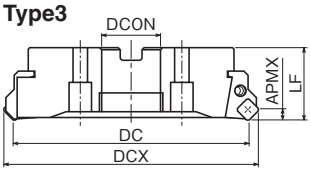
**Type1**




**Type2**




**Type3**




（単位:mm）(Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | 外径 DCX | 高さ LF | 最大切込み量 APMX | 穴仕様 DCON×CBDP | 刃数 ZEFP | 重量 (kg) | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| マイクロフェース Micro Face | 8070431 | **N4S45R08006J** | 80 | 94 | 50 | 6.5 | 25.4 ×26 | 6 | 1.5 | 6 | 1 | C | — |
| | 8070432 | **N4S45R10007J** | 100 | 114 | | | 31.75×32 | 7 | 2.6 | 7 | 2 | | — |
| | 8070433 | **N4S45R12508J** | 125 | 139 | 63 | | 38.1 ×38 | 8 | 3.4 | 8 | | | — |
| | 8070434 | **N4S45R16010J** | 160 | 174 | | | 50.8 ×38 | 10 | 6.6 | 10 | | | — |
| | 8070435 | **N4S45R20012J** | 200 | 214 | | | 47.625 | 12 | 9.8 | 12 | 3 | | — |
| | 8070436 | **N4S45R25012J** | 250 | 264 | | | | | 16.6 | | | | — |
| | 8070437 | **N4S45R25016J** | | | | | | 16 | 16.8 | 16 | | | — |

ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| カートリッジ Cartridge | 8008260＊ | FR720M |
| クランプねじ Clamping Screw | 8009359＊ | FS1459 (Torx15IP) |
| ドライバ（インサート用） Screwdriver for Insert | 7808228 | 15IP-D (Torx15IP) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ（刃先高さ調整用） Screwdriver for Microface | 7808209 | T20-D (Torx20) |
| カートリッジ用クランプねじ Clamping Screw for Cartridge | 8008547＊ | FS247 |
| 調整ねじ Adjusting Bolt | 8008603＊ | FS303 (Torx20) |

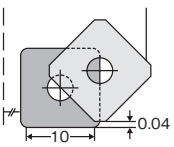
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

### ■仕上げ用カートリッジ・インサート Cartridge for finishing Finishing Inserts

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| 仕上げ用カートリッジ Cartridge for finishing | 8008108＊ | FR448M |
| | 8008230＊ | FR730M (適用インサート③用) |
| クランプねじ Clamping Screw | 8008543＊ | FS243 (Torx20) |
| ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

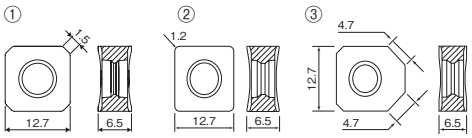
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| 形状 Appearance | 呼び Designation | コーティング材種 Grade of Coated Materials WHH15 | 標準価格 (Yen) |
|---|---|---|---|
| | P2905-1 | | |




在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

**◆仕上げ用カートリッジの使用方法** How to Use the Finishing Cartridge
装着されている標準カートリッジを1個（又は2個）仕上げ用カートリッジに交換し、仕上げ刃が他の刃よりも0.04mm程度高くなるように刃先高さ調整を行ってから使用します。
**Replace one (or two) of the installed standard cartridges with finishing cartridges. Before use, adjust the height of the finishing edges so that they are approximately 0.04 mm higher than the other cutting edges.**




### ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | | コーティング材種 Grade of Coated Materials WKP25S | WKP35 | WKP35S | WSP45G | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SNMX1205ANN-F27 | M級 16°ブレーカ 刃先強化タイプ | M class 16°chip former Corner Facets Reinforced Type | | | | | | | | | |
| | SNMX1205ANN-F57 | M級 16°ブレーカ 標準タイプ | M class 16°chip former Corner Facets Standard Type | | | | | | | | | |
| | SNMX1205ANN-F67 | M級 16°ブレーカ 鋳鉄用 | M class 16°chip former Corner Facets For Cast iron | | | | | | | | | |
| | SNGX1205ANN-F57 | 精密級 16°ブレーカ 標準タイプ | Ground 16°chip former Corner Facets Standard Type | 8037562＊ | | 8039562＊ | | | | | | 3,740 |
| ② | SNMX120512-F27 | M級 16°ブレーカ コーナR 刃先強化タイプ | M class 16°chip former Corner R Reinforced Type | | | 8039557＊ | | | | | | 2,890 |
| | SNMX120512-F57 | M級 16°ブレーカ コーナR 標準タイプ | M class 16°chip former Corner R Standard Type | 8037558＊ | 8036558＊ | 8039558＊ | | | | | | 2,890 |
| | SNMX120512-F67 | M級 16°ブレーカ コーナR 鋳鉄用 | M class 16°chip former Corner R For Cast iron | 8037559＊ | | | | | | | | 2,890 |
| ③ | XNGX1205ANN-F67 | 精密級 16°ブレーカ 仕上げ用インサート | Ground 16°chip former Finishing Insert | | | | | | | 8073554＊ | | 4,280 |

在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品 C=Standard stock item.

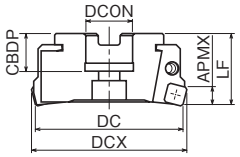
# WALTER ミーリングカッタ（F4000タイプ）
**WALTER Milling Cutter (F4000 Type)**

## F4010 N4S75R 切削条件 Cutting Conditions P1128-154

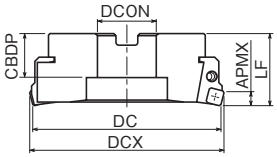


75°

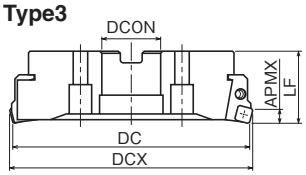
**Type1**




**Type2**




**Type3**




（単位:mm）(Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | 外径 DCX | カッタ高さ LF | 最大切込み量 APMX | 穴径 DCON×CBDP | 刃数 ZEFP | 重量 (kg) | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| マイクロフェース Micro Face | 8070531 | **N4S75R08006J** | 80 | 86 | 50 | 8 | 25.4 ×26 | 6 | 1.5 | 6 | 1 | C | — |
| | 8070532 | **N4S75R10007J** | 100 | 106 | | | 31.75×32 | 7 | 2.6 | 7 | 2 | | — |
| | 8070533 | **N4S75R12508J** | 125 | 131 | 63 | | 38.1 ×38 | 8 | 3.4 | 8 | | | — |
| | 8070534 | **N4S75R16010J** | 160 | 166 | | | 50.8 ×38 | 10 | 6.6 | 10 | | | — |
| | 8070535 | **N4S75R20012J** | 200 | 206 | | | 47.625 | 12 | 9.8 | 12 | 3 | | — |
| | 8070536 | **N4S75R25012J** | 250 | 256 | | | | | 16.6 | | | | — |
| | 8070537 | **N4S75R25016J** | | | | | | 16 | 16.8 | 16 | | | — |

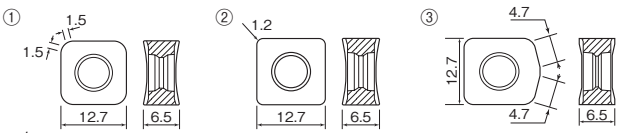
ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| カートリッジ Cartridge | 8008227* | FR727M |
| クランプねじ Clamping Screw | 8009359* | FS1459 (Torx15IP) |
| ドライバ(インサート用) Screwdriver for Insert | 7808228 | 15IP-D (Torx15IP) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ(刃先高さ調整用) Screwdriver for Microface | 7808209 | T20-D (Torx20) |
| カートリッジ用クランプねじ Clamping Screw for Cartridge | 8008547* | FS247 |
| 調整ねじ Adjusting Bolt | 8008603* | FS303 (Torx20) |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).




### ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | コーティング材種 Grade of Coated Materials WKP25 | WKP25S | WKP35 | WKP35S | WSP45 | WSP45G | WSM35 | WSM35S | WAK15 | WXM15 | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | SNGX1205ENN-F27 | 精密級 16°ブレーカ 副切れ刃付き 刃先強化タイプ Ground 16°chip former Corner Facets Reinforced Type | 8 | 8035564* | | 8036564* | | | | | | | | | 3,740 |
| | SNGX1205ENN-F57 | 精密級 16°ブレーカ 副切れ刃付き 標準タイプ Ground 16°chip former Corner Facets Standard Type | | | 8037565* | | 8039565* | 8095565* | | 8094565* | | | | | 3,740 |
| | SNGX1205ENN-F67 | 精密級 16°ブレーカ 副切れ刃付き 鋳鉄用 Ground 16°chip former Corner Facets For Cast iron | | 8035566* | 8037566* | | | | | | | | | | 3,740 |
| ② | SNMX120512-F27 | M級 16°ブレーカ コーナR 刃先強化タイプ M class 16°chip former Corner R Reinforced Type | 8 | | | | 8039557* | | | | | | | | 2,890 |
| | SNMX120512-F57 | M級 16°ブレーカ コーナR 標準タイプ M class 16°chip former Corner R Standard Type | | | 8037558* | 8036558* | 8039558* | | | | | | | | 2,890 |
| | SNMX120512-F67 | M級 16°ブレーカ コーナR 鋳鉄用 M class 16°chip former Corner R For Cast iron | | | 8037559* | | | | | | | | | | 2,890 |
| ③ | XNGX1205ENN-F67 | 精密級 16°ブレーカ 仕上げ用インサート Ground 16°chip former Finishing Insert | 2 | | | | | | | | | | 8073555* | | 4,280 |

在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品 C=Standard stock item.

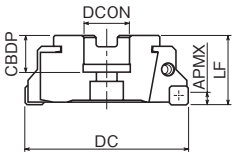
# WALTER ミーリングカッタ（F4000タイプ）
**WALTER Milling Cutter (F4000 Type)**

## F4010 N4S88R 切削条件 Cutting Conditions | P1128-154

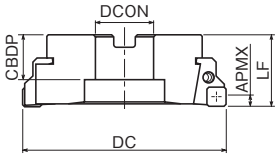


88°

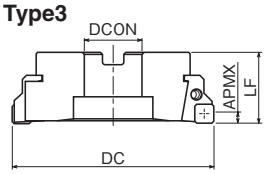
**Type1**




**Type2**




**Type3**




（単位:mm）(Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 最大切込み量 APMX | 穴径 DCON×CBDP | 刃数 ZEFP | 重量 (kg) | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| マイクロフェース Micro Face | 8070631 | **N4S88R08006J** | 80 | 50 | 10 | 25.4 ×26 | 6 | 1.5 | 6 | 1 | C | — |
| | 8070632 | **N4S88R10007J** | 100 | | | 31.75×32 | 7 | 2.6 | 7 | 2 | | — |
| | 8070633 | **N4S88R12508J** | 125 | 63 | | 38.1 ×38 | 8 | 3.4 | 8 | | | — |
| | 8070634 | **N4S88R16010J** | 160 | | | 50.8 ×38 | 10 | 6.6 | 10 | | | — |
| | 8070635 | **N4S88R20012J** | 200 | | | 47.625 | 12 | 9.8 | 12 | 3 | | — |
| | 8070636 | **N4S88R25012J** | 250 | | | | | 16.6 | | | | — |
| | 8070637 | **N4S88R25016J** | | | | | 16 | 16.8 | 16 | | | — |

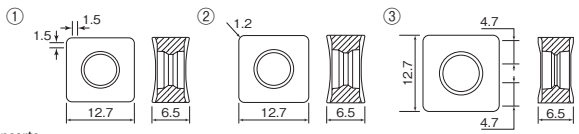
ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| カートリッジ Cartridge | 8008228* | FR728M |
| クランプねじ Clamping Screw | 8009359* | FS1459 (Torx15IP) |
| ドライバ(インサート用) Screwdriver for Insert | 7808228 | 15IP-D (Torx15IP) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ(刃先高さ調整用) Screwdriver for Microface | 7808209 | T20-D (Torx20) |
| カートリッジ用クランプねじ Clamping Screw for Cartridge | 8008547* | FS247 |
| 調整ねじ Adjusting Bolt | 8008603* | FS303 (Torx20) |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).




### ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | コーティング材種 Grade of Coated Materials | | | | | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | WKP25 | WKP25S | WKP35 | WKP35S | WSP45 | WSP45G | WSM35 | WSM35S | WAK15 | WXM15 | WHH15X | |
| ① | SNGX1205ZNN-F27 | 精密級 16°ブレーカ 副切れ刃付き 刃先強化タイプ / Ground 16°chip former Corner Facets Reinforced Type | 8 | | | 8036567* | | | | | | | | | 3,740 |
| | SNGX1205ZNN-F57 | 精密級 16°ブレーカ 副切れ刃付き 標準タイプ / Ground 16°chip former Corner Facets Standard Type | | 8035568* | 8037568* | 8036568* | 8039568* | | | 8094568* | | | | | 3,740 |
| | SNGX1205ZNN-F67 | 精密級 16°ブレーカ 副切れ刃付き 鋳鉄用 / Ground 16°chip former Corner Facets For Cast iron | | 8035569* | 8037569* | | | | | | | | | | 3,740 |
| ② | SNMX120512-F27 | M級 16°ブレーカ コーナR 刃先強化タイプ / M class 16°chip former Corner R Reinforced Type | 8 | | | | 8039557* | | | | | | | | 2,890 |
| | SNMX120512-F57 | M級 16°ブレーカ コーナR 標準タイプ / M class 16°chip former Corner R Standard Type | | | 8037558* | 8036558* | 8039558* | | | | | | | | 2,890 |
| | SNMX120512-F67 | M級 16°ブレーカ コーナR 鋳鉄用 / M class 16°chip former Corner R For Cast iron | | | 8037559* | | | | | | | | | | 2,890 |
| ③ | XNGX1205ZNN-F67 | 精密級 16°ブレーカ 仕上げ用インサート / Ground 16°chip former Finishing Insert | 2 | | | | | | | | | | 8073556* | | 4,280 |

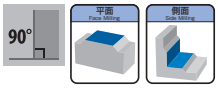
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).
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C= 標準在庫品 C=Standard stock item.

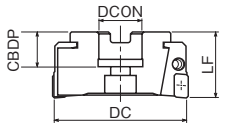
# WALTER ミーリングカッタ（F4000タイプ）
**WALTER Milling Cutter (F4000 Type)**

## F4010 P3F90R 切削条件 Cutting Conditions P1128-148

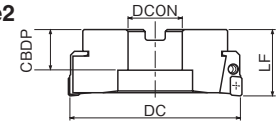




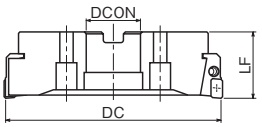

**Type1**




**Type2**




**Type3**




（単位:mm）(Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 穴径×取り付け穴高さ DCON×CBDP | 刃数 ZEFP | 重量 (kg) | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| マイクロフェース Micro Face | 8075801 | **P3F90R08006J** | 80 | 50 | 25.4 ×26 | 6 | 1.5 | 6 | 1 | C | — |
| | 8075802 | **P3F90R10007J** | 100 | | 31.75×32 | 7 | 2.6 | 7 | 2 | | — |
| | 8075803 | **P3F90R12508J** | 125 | 63 | 38.1 ×38 | 8 | 3.4 | 8 | | | — |
| | 8075804 | **P3F90R16010J** | 160 | | 50.8 ×38 | 10 | 6.6 | 10 | | | — |
| | 8075805 | **P3F90R20012J** | 200 | | 47.625 | 12 | 9.8 | 12 | 3 | | — |
| | 8075806 | **P3F90R25012J** | 250 | | | | 16.6 | | | | — |
| | 8075807 | **P3F90R25016J** | | | | 16 | 16.8 | 16 | | | — |

ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| カートリッジ Cartridge | 8008259* | FR719M |
| クランプねじ Clamping Screw | 8009353* | FS1453 (Torx15IP) |
| ドライバ(インサート用) Screwdriver for Insert | 7808228 | 15IP-D (Torx15IP) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ(刃先高さ調整用) Screwdriver for Microface | 7808209 | T20-D (Torx20) |
| カートリッジ用クランプねじ Clamping Screw for Cartridge | 8008547* | FS247 |
| 調整ねじ Adjusting Bolt | 8008603* | FS303 (Torx20) |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

### ■適用インサート Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specification | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | 逃げ角 ANN | RE | BS |
|---|---|---|---|---|---|---|---|---|---|
|  | ADMT160608R-D56 | M級 10°ブレーカ 標準タイプ / M class 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-F56 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160608R-G56 | M級 20°ブレーカ 超低抵抗タイプ / M class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADGT1606PER-D56 | 精密級 10°ブレーカ 標準タイプ / Ground 10° chip former Standard Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADKT1606PER-F56 | 準精密級 16°ブレーカ 低抵抗タイプ / Partly Ground 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADHT1606PER-G88 | H級 20°ブレーカ 超低抵抗タイプ / H class 20° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 0.8 | 1.6 |
| | ADMT160612R-F56 | M級 16°ブレーカ 低抵抗タイプ / M class 16° chip former Low Resistance Type | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.2 | 1.6 |
| | ADMT160616R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 1.6 | 1.4 |
| | ADMT160620R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2 | 1.4 |
| | ADMT160625R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 2.5 | 1.2 |
| | ADMT160630R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 3 | 1.2 |
| | ADMT160640R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 4 | 1 |
| | ADMT160650R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 5 | — |
| | ADMT160660R-F56 | | 2 | 16×9.85 | 6.15 | 15° | 20° | 6 | — |

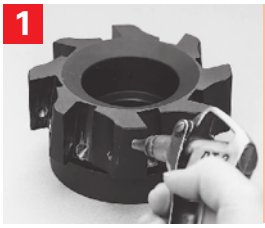
C= 標準在庫品 C=Standard stock item.

# WALTER ミーリングカッタ（F4000タイプ）
**WALTER Milling Cutter (F4000 Type)**

## F4010 P3F90R

### ■マイクロフェース型の刃先高さ調整の仕方　How to adjust edge height on microface type

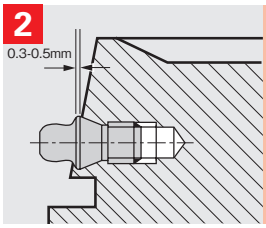
**1**



カッタ本体の付着物をエアで除去します。

First, remove debris from the cutter body using an air jet.

**2**




図の様に、調整ねじをカッタ本体に0.3～0.5ｍｍ突出して取り付けます。

As shown, insert the adjustment screw so that it protrudes 0.3-0.5mm from the cutter body.

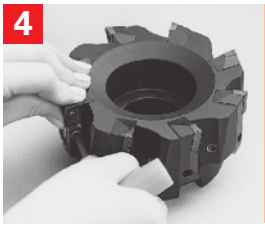
**3**



取り付けるカートリッジの付着物をエアで除去します。

Clean the cartridge using an air jet.

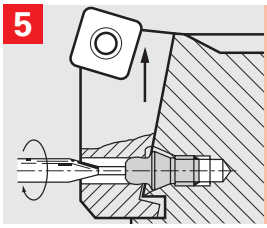
**4**



カートリッジをカッタ本体の基準面に押さえつけてカートリッジ用クランプねじで締込みます。

Hold the cartridge in place against the cutter body and tighten the adjustment screw.

**5**



刃先の調整は、ドライバで調整ねじを右回転させると図の矢印の方向に上がります。調整範囲は0.2 mmまで可能です。

Using a screwdriver, turn the adjustment screw clockwise to adjust the position of the cartridge. The cartridge will move in the direction indicated in the diagram. Adjustment is possible the range of 0.2mm

**6**



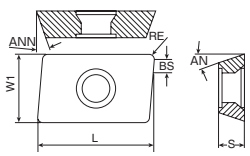
調整台にて刃先調整を行います。刃先は1μｍ内に調整できます。

Finally, use a micron adjustment platform to fine-tune the position to within 1 micron.

（単位:mm）(Unit:mm)

| | 超硬材種 Carbide Material | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | WK10 | | WKP25S | WKP35S | WSP45S | WSP45G | WSM35S | WAK15 | |
| | | | | | | | | | |
| | | | 8037208* | | | | | | 2,620 |
| | | | | 8039209* | | | 8097209* | | 2,620 |
| | | | 8037363* | 8039363* | | | | | 3,790 |
| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | 8039388* | | | | | 2,620 |
| | | | | | | | | | |
| | | | | | | | | | |

在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。Tools marked * will be discontinued when it is out of stock.




コーナR=R2以上のインサートを使用する場合、カッタボディまたはカートリッジのコーナ部を修正する必要があります。
ボディ側のコーナR=インサートのR－1
（例:インサートR3の場合ボディにはR2のR）

When using an insert with a corner radius of R2 or greater, the corner of the cutter body or cartridge must be corrected. The body corner radius should equal insert radius minus 1 (example: if insert radius is R3, body radius should be R2).

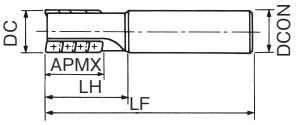
C= 標準在庫品　C=Standard stock item.

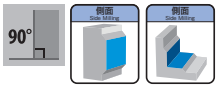
# WALTER ポーキュパインネオ
**WALTER Porcupine Cutter**

## F3038A SS　切削条件 Cutting Conditions　P1128-151

3次元ブレーカ付きインサート使用のラフィングエンドミルタイプ。
刃長が必要な側面切削に適する。
End mill with 3D forming inserts for rough milling operations. Suitable for side milling that requires a longer length of cut.



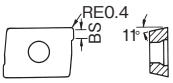



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | シャンク径 DCON | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8003002 | **20×SS20** | 20 | 110 | 24.5 | 40 | 20 | 1 | ①②③ | 4 | C | 61,000 |
| ＊8003004 | **25×SS25** | 25 | 125 | 32.5 | 50 | 25 | 2 | ④⑤⑥ | 8 | | 63,900 |
| ＊8003006 | **32×SS32×3** | 32 | 135 | 40.5 | 60 | 32 | 3 | ⑦⑧ | 15 | | 112,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.




### ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | APGT0903PPR-D51 | 精密級 10°ブレーカ Ground 10°chip former | 2 | 1.5 | | | | | | ＊8057210 | | | 1,850 |
| ② | APMT0903PPR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.2 | | | | | | | | ＊8076275 | 1,850 |
| ③ | APMT0903PPR-D56 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.2 | | | ＊8091277 | ＊8092277 | | | | | 1,850 |
| ④ | APKT0903PPR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.2 | | | | | | ＊8057310 | ＊8059310 | | 1,850 |

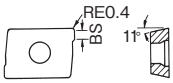
上記以外のRインサート使用の際はP.1128-102を参照下さい。
When using radius inserts other than those shown above, please consult the information on P.1128-102.

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品　C=Standard stock item.

# WALTER ポーキュパインネオ
**WALTER Porcupine Cutter**

# F3038A SS




## ■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⑤  | APMT0903PPR-F56 | M級<br>16°ブレーカ<br>低抵抗タイプ<br>M class<br>16°chip former<br>Low Resistance Type | 2 | 1.2 | | | ＊8091278 | | | | | | 1,850 |
| ⑥  | APMT0903PPR-G56 | M級<br>20°ブレーカ<br>超低抵抗タイプ<br>M class<br>20°chip former<br>Low Resistance Type | 2 | 1.2 | | | ＊8091279 | | | | | | 1,850 |
| ⑦  | APHT0903PPR-K88 | 精密級<br>25°ブレーカ<br>非鉄金属用<br>Ground<br>25°chip former<br>For Non-Ferrous Metals | 2 | 1.5 | ＊8033230 | 1,700 | | | | | | | |

上記以外のRインサート使用の際はP.1128-102を参照下さい。
When using radius inserts other than those shown above, please consult the information on P.1128-102.

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | ＊8009025 | FS925 (Torx8) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808205 | T8-D (Torx8) |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

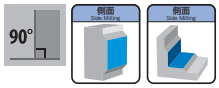
C= 標準在庫品 C=Standard stock item.

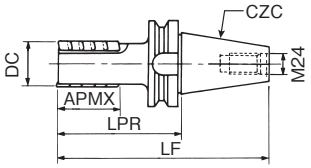
# WALTER ポーキュパインネオ
**WALTER Porcupine Cutter**

## F3038B BT　切削条件 Cutting Conditions　P1128-151

3次元ブレーカ付きインサート使用のラフィングエンドミルタイプ。剛性の高いBT50一体形。
End mill with 3D forming inserts for rough milling operations. Made with highly rigid MAS BT50, solid shank.



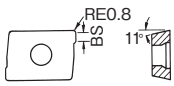



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 突き出し長さ LPR | シャンク CZC | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *8003156 | 50×BT50× 70 | 50 | 245 | 70 | 143.2 | BT50 | 3 | ①②③④⑤⑥⑦ | 15 | C | 308,000 |
| *8003157 | 50×BT50× 98 | | 275 | 98 | 173.2 | | | | 21 | | 336,000 |
| *8003160 | 63×BT50× 84 | 63 | 260 | 84 | 158.2 | | 4 | | 24 | | 311,000 |
| *8003161 | 63×BT50×112 | | 290 | 112 | 188.2 | | | | 32 | | 374,000 |
| *8003165 | 80×BT50× 98 | 80 | 275 | 98 | 173.2 | | 5 | | 35 | | 476,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.




## ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | 超硬材種 WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | APGT15T3PDR-D51 | 精密級 10°ブレーカ Ground 10°chip former | 2 | 1.8 | | | | | | | *8057330 | | | *8063330 | 2,190 |
| ② | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | | | | | | | |
| ③ | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | *8092295 | | | | | | 2,190 |
| ④ | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.8 | *8031350 | | 1,820 | | | | *8057350 | | | | 2,190 |
| ⑤ | APMT15T3PDR-F56 | M級 16°ブレーカ 低抵抗タイプ M class 16°chip former Low Resistance Type | 2 | 1.8 | | | | | *8092296 | | | | | | 2,190 |
| ⑥ | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ M class 20°chip former Low Resistance Type | 2 | 1.8 | | | | *8091297 | *8092297 | | | | | | 2,190 |
| ⑦ | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 1.7 | | *8033250 | 2,010 | | | | | | | | |

上記以外のRインサート使用の際はP.1128-102を参照下さい。
When using radius inserts other than those shown above, please consult the information on P.1128-102.

在庫区分は全てC(標準在庫品)となります。Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

## ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | | FS922 (Torx15) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

在庫区分は全てC(標準在庫品)となります。Stocks are categorized as C (standard stock item).

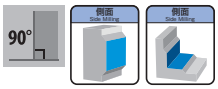
C= 標準在庫品　C=Standard stock item.

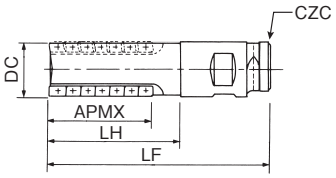
# WALTER ポーキュパインネオ
**WALTER Porcupine Cutter**

## F3038B CN 切削条件 Cutting Conditions P1128-151

3次元ブレーカ付きインサート使用のラフィングエンドミルタイプ。クランプ剛性の高いCN50.8シャンク。
End mill with 3D forming inserts for rough milling operations. Uses the CN50.8 shank for tight clamping.



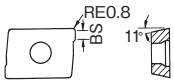



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | シャンク CZC | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8003120 | 50×CN50.8×70 | 50 | 180 | 70 | 95 | CN50.8 | 3 | ①②③④ | 15 | C | 236,000 |
| ＊8003121 | 50×CN50.8×98 | | 210 | 98 | 125 | | | ⑤⑥⑦ | 21 | | 263,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.




## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | 超硬材種 WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | APGT15T3PDR-D51 | 精密級 10°ブレーカ Ground 10°chip former | 2 | 1.8 | | | | | | | ＊8057330 | | | ＊8063330 | 2,190 |
| ② | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | | | | | | | |
| ③ | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | ＊8092295 | | | | | | 2,190 |
| ④ | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.8 | ＊8031350 | | 1,820 | | | | ＊8057350 | | | | 2,190 |
| ⑤ | APMT15T3PDR-F56 | M級 16°ブレーカ 低抵抗タイプ M class 16°chip former Low Resistance Type | 2 | 1.8 | | | | | ＊8092296 | | | | | | 2,190 |
| ⑥ | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ M class 20°chip former Low Resistance Type | 2 | 1.8 | | | | ＊8091297 | ＊8092297 | | | | | | 2,190 |
| ⑦ | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 1.7 | | ＊8033250 | 2,010 | | | | | | | | |

上記以外のRインサート使用の際はP.1128-102を参照下さい。
When using radius inserts other than those shown above, please consult the information on P.1128-102.

在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | | FS922 (Torx15) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

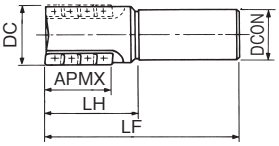
C= 標準在庫品 C=Standard stock item.

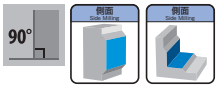
# WALTER ポーキュパインネオ
**WALTER Porcupine Cutter**

## F3038B SS　切削条件 Cutting Conditions　P1128-151

3次元ブレーカ付きインサート使用のラフィングエンドミルタイプ。
刃長が必要な側面切削に適する。
End mill with 3D forming inserts for rough milling operations. Suitable for side milling that requires longer length of cut.





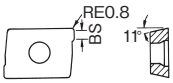




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 首下長 LH | シャンク径 DCON | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8003105 | **32×SS32×2** | 32 | 145 | 42 | 60 | 32 | 2 | ①②③ | 6 | C | – |
| ＊8003107 | **40×SS42** | 40 | | | | 42 | 3 | ④⑤⑥ | 9 | | 154,000 |
| ＊8003109 | **50×SS42×3** | 50 | 165 | 56 | 80 | | | ⑦ | 12 | | 209,000 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.




## ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | 超硬材種 WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | APGT15T3PDR-D51 | 精密級 10°ブレーカ Ground 10°chip former | 2 | 1.8 | | | | | | | ＊8057330 | | | ＊8063330 | 2,190 |
| ② | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | | | | | | | |
| ③ | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | ＊8092295 | | | | | | 2,190 |
| ④ | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.8 | ＊8031350 | | 1,820 | | | | ＊8057350 | | | | 2,190 |
| ⑤ | APMT15T3PDR-F56 | M級 16°ブレーカ 低抵抗タイプ M class 16°chip former Low Resistance Type | 2 | 1.8 | | | | | ＊8092296 | | | | | | 2,190 |
| ⑥ | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ M class 20°chip former Low Resistance Type | 2 | 1.8 | | | | ＊8091297 | ＊8092297 | | | | | | 2,190 |
| ⑦ | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 1.7 | | ＊8033250 | 2,010 | | | | | | | | |

上記以外のRインサート使用の際はP.1128-102を参照下さい。
When using radius inserts other than those shown above, please consult the information on P.1128-102.

在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

## ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | | FS922 (Torx15) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

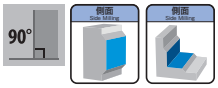
C= 標準在庫品　C=Standard stock item.

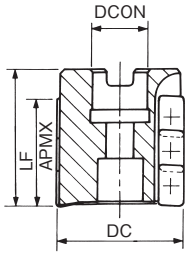
# WALTER ポーキュパインネオ
**WALTER Porcupine Cutter**

## F3038B SL　切削条件 Cutting Conditions | P1128-151

3次元ブレーカ付きインサート使用のラフィングエンドミルタイプ。
フェイスミル用アーバにて使用。
End mill with 3D forming inserts for rough milling. Requires face milling cutter body for attachment.



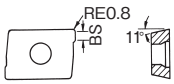



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 刃長 APMX | 穴径 DCON | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ＊8003201 | **50×SL** | 50 | 55 | 42 | 22 | 3 | ①②③④⑤⑥⑦ | 9 | C | 208,000 |
| ＊8003203 | **63×SL** | 63 | 63 | 56 | 27 | 4 | | 16 | | 229,000 |
| ＊8003205 | **80×SL** | 80 | 85 | 70 | 32 | 5 | | 25 | | 262,000 |
| ＊8003207 | **100×SL** | 100 | | | 40 | 6 | | 30 | | 379,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.




### ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | 超硬材種 Grade of Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | コーティング材種 WXM40 | コーティング材種 WTP35 | コーティング材種 WAP35 | コーティング材種 WAK15 | コーティング材種 WAK25 | コーティング材種 WAP25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | APGT15T3PDR-D51 | 精密級 10°ブレーカ Ground 10°chip former | 2 | 1.8 | | | | | | | ＊ 8057330 | | | ＊ 8063330 | 2,190 |
| ② | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | | | | | | | |
| ③ | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | ＊ 8092295 | | | | | | 2,190 |
| ④ | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.8 | ＊ 8031350 | | 1,820 | | | | ＊ 8057350 | | | | 2,190 |
| ⑤ | APMT15T3PDR-F56 | M級 16°ブレーカ 低抵抗タイプ M class 16°chip former Low Resistance Type | 2 | 1.8 | | | | | ＊ 8092296 | | | | | | 2,190 |
| ⑥ | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ M class 20°chip former Low Resistance Type | 2 | 1.8 | | | | ＊ 8091297 | ＊ 8092297 | | | | | | 2,190 |
| ⑦ | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 1.7 | | ＊ 8033250 | 2,010 | | | | | | | | |

上記以外のRインサート使用の際はP.1128-102を参照下さい。
When using radius inserts other than those shown above, please consult the information on P.1128-102.

在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | | FS922 (Torx15) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

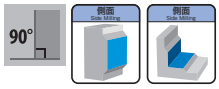
C= 標準在庫品　C=Standard stock item.

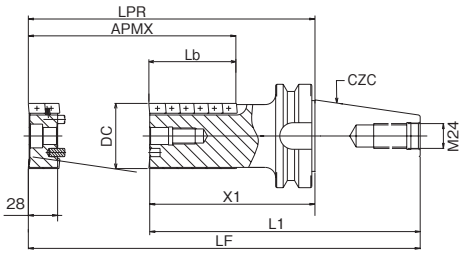
# WALTER ポーキュパインネオ
**WALTER Porcupine Cutter**

## F3038C BT　切削条件 Cutting Conditions | P1128-151

先端部が交換可能なポーキュパイン ネオカッタ。工具コストの低減が可能。
Porcupine cutter with changeable front piece. Even cheaper.






### ■セット（ボディ+フロントピース+取付けボルト+ドライバ）　Set (Body + Front Piece + Clamping Screw + Screwdriver)　（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 刃長 APMX | 突き出し長さ LPR | シャンク CZC | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8003294 | **50×BT50× 70** | 50 | 245 | 70 | 143.2 | BT50 | 3 | ①②③④⑤⑥⑦ | 15 | C | — |
| 8003295 | **50×BT50× 98** | | 275 | 98 | 173.2 | | | | 21 | | — |
| 8003299 | **63×BT50× 84** | 63 | 260 | 84 | 158.2 | | 4 | | 24 | | — |
| 8003300 | **63×BT50×112** | | 290 | 112 | 188.2 | | | | 32 | | — |
| 8003304 | **80×BT50× 98** | 80 | 275 | 98 | 173.2 | | | | 28 | | — |

ツールNo.欄 [ ] のものは廃番品です。　EDP No. found in [ ] are discontinued products.

### ■ボディ　Body　（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 L1 | ボディ刃長 Lb | ボディ突き出し長さ X1 | シャンク CZC | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8003336 | **50×BT50×42 BODY** | 50 | 217 | 42 | 115.2 | BT50 | 3 | ①②③④⑤⑥⑦ | 9 | C | 247,000 |
| ＊8003337 | **50×BT50×70 BODY** | | 247 | 70 | 145.2 | | | | 15 | | 279,000 |
| ＊8003338 | **63×BT50×56 BODY** | 63 | 232 | 56 | 130.2 | | 4 | | 16 | | 283,000 |
| ＊8003339 | **63×BT50×84 BODY** | | 262 | 84 | 160.2 | | | | 24 | | 318,000 |
| ＊8003340 | **80×BT50×70 BODY** | 80 | 247 | 70 | 145.2 | | | | 20 | | 302,000 |

ドライバ、取付けボルトは組み込まれていません。
Without Screwdriver and Clamping Screw.

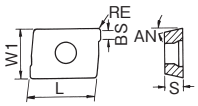
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

### ■フロントピース（フロントピース+ドライバ）　Front Piece (Front Piece + Screwdriver)　（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 刃長 Tooth Length | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ＊8003384 | **50×28×F.P** | 50 | 28 | 3 | ①②③④⑤⑥⑦ | 6 | C | 83,200 |
| 8003389 | **63×28×F.P** | 63 | | 4 | | 8 | | — |
| ＊8003394 | **80×28×F.P** | 80 | | | | | | 110,000 |

ツールNo.欄 [ ] のものは廃番品です。
EDP No. found in [ ] are discontinued products.

取付けボルトは組み込まれていません。
Without Clamping Screw.




＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

### ■適用インサート　Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | BS |
|---|---|---|---|---|---|---|---|---|
| ① | APGT15T3PDR-D51 | 精密級 10°ブレーカ　Ground 10°chip former | 2 | 15.88X9.52 | 3.97 | 11° | 0.8 | 1.8 |
| ② | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ　M class 10°chip former Standard Type | 2 | 15.88X9.52 | 3.97 | 11° | 0.8 | 1.8 |
| ③ | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ　M class 10°chip former Standard Type | 2 | 15.88X9.52 | 3.97 | 11° | 0.8 | 1.8 |
| ④ | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ　Partly Ground 16°chip former Low Resistance Type | 2 | 15.88X9.52 | 3.97 | 11° | 0.8 | 1.8 |
| ⑤ | APMT15T3PDR-F56 | M級 16°ブレーカ 低抵抗タイプ　M class 16°chip former Low Resistance Type | 2 | 15.88X9.52 | 3.97 | 11° | 0.8 | 1.8 |
| ⑥ | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ　M class 20°chip former Low Resistance Type | 2 | 15.88X9.52 | 3.97 | 11° | 0.8 | 1.8 |
| ⑦ | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用　Ground 25°chip former For Non-Ferrous Metals | 2 | 15.88X9.52 | 3.97 | 11° | 0.8 | 1.7 |

C= 標準在庫品　C=Standard stock item.

# WALTER ポーキュパインネオ
**WALTER Porcupine Cutter**

## F3038C BT

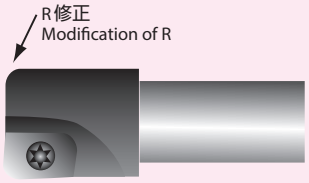
## コーナRインサート使用上の注意点!! Proper use of corner radius inserts!

### Rインサート使用時のボディ修正について
### Tips for modifying the cutter body when using radius inserts.

●フロントピース交換形についてはコーナRがR3以下を適用下さい。
Inserts with a radius of less than 3 should be used with the front piece type.

●コーナRがR2以上のインサートを使用する場合、カッタボディまたはカートリッジのコーナ部を修正する場合があります。
When inserts over R2 are used, the corner of the insert pockets on both cutter body and cartridge must modified to an appropriate radius for the clamping inserts.

目安：インサートのR－1＝ボディのR
Standard:R-1 for the insert = radius on cutter body




＊修正が必要な場合は受注品対応となりますので、御相談下さい。
Please contact our OSG staff or an OSG agent for details of our special modification service.

### F3038ポーキュパインネオの外周部での使用について
### Usage of rear inserts for F3038

●サイズ0903のインサートの場合はR0.4以下、サイズ15T3のインサートの場合はR0.8以下のインサートだけF3038の外周刃に使用できます。
These inserts can be used only in the rear position: insert size 0903 with corner radius less than 0.4mm and insert size 15T3 with corner radius less than 0.8mm.



外周部
サイズ0903……R0.4以下はOK
サイズ15T3……R0.8以下はOK

rear position
Size 0903 less than R0.4 should be used
Size 15T3 less than R0.8 should be used

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
|  取付けボルト Clamping Screw | ＊8009270 | FS1370 | φ50 |
|  取付けボルト Clamping Screw | ＊8008671 | FS371 | φ63 |
| | ＊8008673 | FS373 | φ80 |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | | FS1359 |
|  ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

（単位:mm）(Unit:mm)

| 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| WKM | WK10 | | WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | |
| | | | | | | ＊8057330 | | | ＊8063330 | 2,190 |
| | | | | | | | | | | |
| | | | | ＊8092295 | | | | | | 2,190 |
| ＊8031350 | | 1,820 | | | | ＊8057350 | | | | 2,190 |
| | | | | ＊8092296 | | | | | | 2,190 |
| | | | ＊8091297 | ＊8092297 | | | | | | 2,190 |
| | ＊8033250 | 2,010 | | | | | | | | |

在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

C= 標準在庫品 C=Standard stock item.

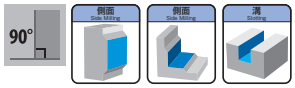
# WALTER ポジティブミルネオ
**WALTER Positive End Mill**

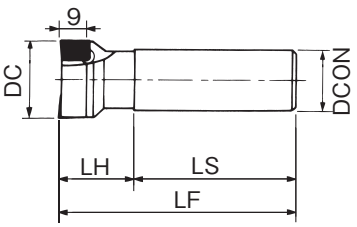
## F3042A SS　切削条件 Cutting Conditions | P1128-151

切れ味の良い3次元ブレーカ付インサート使用のエンドミルタイプ。
小型加工機での使い勝手の良い小型インサート使用の多刃仕様
20mmシャンクが加わりました。

Uses 3D forming inserts for smooth milling.
Easy-to-use 20mm shank for a compact machine.
Small insert for multiple cutting edge specifications.






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8007910 | 10×SS12×1 | 10 | 85 | 25 | 12 | 60 | 1 | ①②③④⑤⑥⑦ | 1 | C | 19,500 |
| | 11×SS12×1 | 11 | | | | | | | | □ | – |
| ＊8007912 | 12×SS12×1 | 12 | | | | | | | | C | 20,100 |
| | 13×SS12×1 | 13 | | | | | | | | □ | – |
| | 14×SS12×1 | 14 | | | | | | | | | – |
| | 15×SS12×1 | 15 | | | | | | | | | – |
| ＊8007914 | 16×SS16×2 | 16 | | | 16 | | 2 | | 2 | C | 25,700 |
| | 17×SS16×2 | 17 | | | | | | | | □ | – |
| | 18×SS16×2 | 18 | | | | | | | | | – |
| | 19×SS16×2 | 19 | | | | | | | | | – |
| ＊8007916 | 20×SS20×3 | 20 | 100 | 30 | 20 | 70 | 3 | | 3 | C | 31,600 |
| | 21×SS20×3 | 21 | | | | | | | | □ | – |
| | 22×SS20×3 | 22 | | | | | | | | | – |
| | 23×SS20×3 | 23 | | | | | | | | | – |
| | 24×SS20×3 | 24 | | | | | | | | | – |
| ＊8007921 | 25×SS20×4 | 25 | | | | 80 | 4 | | 4 | C | 37,900 |
| ＊8007918 | 25×SS25×4 | | 110 | | 25 | | | | | | 37,900 |
| | 26×SS25×4 | 26 | | | | 70 | | | | □ | – |
| | 27×SS25×4 | 27 | | | | | | | | | – |
| | 28×SS25×4 | 28 | | | | | | | | | – |
| | 29×SS25×4 | 29 | | | | | | | | | – |
| ＊8007922 | 30×SS20×4 | 30 | 100 | | 20 | | | | | C | 43,100 |
| ＊8007919 | 30×SS25×4 | | 125 | 35 | 25 | 90 | | | | | 43,100 |
| | 31×SS25×4 | 31 | | 30 | | 70 | | | | □ | – |
| ＊8007923 | 32×SS20×5 | 32 | 100 | | 20 | | 5 | | 5 | C | 47,300 |
| ＊8007920 | 32×SS32×5 | | 125 | 35 | 32 | 90 | | | | | 47,300 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
|  クランプねじ Clamping Screw | ＊8009024 | FS924 (Torx8) | φ10～φ12 |
| | ＊8009023 | FS923 (Torx8) | φ16～φ32 |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808205 | T8-D (Torx8) |

在庫区分は全てC(標準在庫品)となります。Stocks are categorized as C (standard stock item).



C= 標準在庫品 C=Standard stock item.　□ = 特定代理店在庫品 □ =Stocked by specific distributors. Contact us for price & availability.

# WALTER ポジティブミルネオ
**WALTER Positive End Mill**

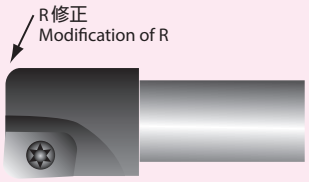
## F3042A SS

## コーナRインサート使用上の注意点!! Proper use of corner radius inserts!

**Rインサート使用時のボディ修正について**
**Tips for modifying the cutter body when using radius inserts.**

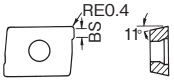
●コーナRがR1.6以上のインサートを使用する場合、カッタボディまたはカートリッジのコーナ部を修正する場合があります。
When inserts over R1.6 are used, the corner of the insert pockets on both cutter body and cartridge must modified to an appropriate radius for the clamping inserts.

目安：インサートのR－0.7＝ボディのR
Standard:R-0.7 for the insert = radius on cutter body




＊修正が必要な場合は受注品対応となりますので、御相談下さい。
Please contact our OSG staff or an OSG agent for details of our special modification service.

■適用インサート Applicable Inserts




（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | APGT0903PPR-D51 | 精密級 10°ブレーカ Ground 10°chip former | 2 | 1.5 | | | | | | ＊ 8057210 | | | 1,850 |
| ② | APMT0903PPR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.2 | | | | | | | | ＊ 8076275 | 1,850 |
| ③ | APMT0903PPR-D56 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.2 | | | ＊ 8091277 | ＊ 8092277 | | | | | 1,850 |
| ④ | APKT0903PPR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.2 | | | | | | ＊ 8057310 | ＊ 8059310 | | 1,850 |
| ⑤ | APMT0903PPR-F56 | M級 16°ブレーカ 低抵抗タイプ M class 16°chip former Low Resistance Type | 2 | 1.2 | | | ＊ 8091278 | | | | | | 1,850 |
| ⑥ | APMT0903PPR-G56 | M級 20°ブレーカ 超低抵抗タイプ M class 20°chip former Low Resistance Type | 2 | 1.2 | | | ＊ 8091279 | | | | | | 1,850 |
| ⑦ | APHT0903PPR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 1.5 | ＊ 8033230 | 1,700 | | | | | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

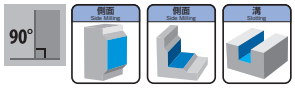
C= 標準在庫品 C=Standard stock item.

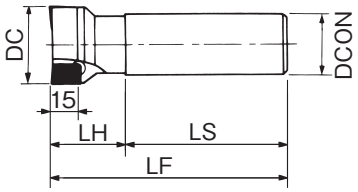
# WALTER ポジティブミルネオ
**WALTER Positive End Mill**

## F3042B SS　切削条件 Cutting Conditions | P1128-151

切れ味の良い3次元ブレーカ付きインサート使用のエンドミルタイプ。適用インサートも豊富。
Uses 3D forming inserts for smooth milling. A variety of inserts are available.






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8007930 | 20×SS20×1 | 20 | 105 | 35 | 20 | 70 | 1 | ①②③④⑤⑥⑦⑧ | 1 | C | 40,700 |
| | 21×SS20×1 | 21 | | | | | | | | □ | – |
| | 22×SS20×1 | 22 | | | | | | | | | – |
| | 23×SS20×1 | 23 | | | | | | | | | – |
| | 24×SS20×1 | 24 | | | | | | | | | – |
| ＊8007932 | 25×SS25×2 | 25 | 115 | | 25 | 80 | 2 | | 2 | C | 43,100 |
| ＊8007962 | 25×SS25×2×200 | | 200 | 45 | | 155 | | | | | 52,200 |
| | 26×SS25×2 | 26 | 115 | 35 | | 80 | | | | □ | – |
| | 27×SS25×2 | 27 | | | | | | | | | – |
| | 28×SS25×2 | 28 | | | | | | | | | – |
| | 29×SS25×2 | 29 | | | | | | | | | – |
| ＊8007933 | 30×SS25×3 | 30 | 120 | | | 85 | 3 | | 3 | C | 48,200 |
| ＊8007963 | 30×SS25×3×200 | | 200 | 45 | | 155 | | | | | 55,400 |
| | 31×SS25×3 | 31 | 120 | 35 | | 85 | | | | □ | – |
| ＊8007934 | 32×SS32×3 | 32 | | | 32 | | | | | C | 48,200 |
| ＊8007964 | 32×SS32×3×200 | | 200 | 45 | | 155 | | | | | 55,400 |
| | 33×SS32×3 | 33 | 120 | 35 | | 85 | | | | □ | – |
| | 34×SS32×3 | 34 | | | | | | | | | – |
| | 35×SS32×3 | 35 | | | | | | | | | – |
| | 36×SS32×3 | 36 | | | | | | | | | – |
| | 37×SS32×3 | 37 | | | | | | | | | – |
| | 38×SS32×3 | 38 | | | | | | | | | – |
| | 39×SS32×3 | 39 | | | | | | | | | – |
| ＊8007936 | 40×SS32×4 | 40 | 125 | 40 | | | 4 | | 4 | C | 55,200 |
| ＊8007966 | 40×SS32×4×200 | | 200 | 45 | | 155 | | | | | 65,500 |
| | 41×SS32×4 | 41 | 125 | 40 | | 85 | | | | □ | – |
| | 42×SS32×4 | 42 | | | | | | | | | – |
| | 43×SS32×4 | 43 | | | | | | | | | – |
| | 44×SS32×4 | 44 | | | | | | | | | – |
| | 45×SS32×4 | 45 | | | | | | | | | – |
| | 46×SS32×4 | 46 | | | | | | | | | – |
| | 47×SS32×4 | 47 | | | | | | | | | – |
| | 48×SS32×4 | 48 | | | | | | | | | – |
| | 49×SS32×4 | 49 | | | | | | | | | – |
| ＊8007937 | 50×SS32×3 | 50 | 150 | 45 | | 105 | 3 | | 3 | C | 62,300 |
| ＊8007938 | 50×SS32×5 | | 125 | 40 | | 85 | 5 | | 5 | | 67,900 |
| ＊8007968 | 50×SS42×5×250 | | 250 | 50 | 42 | 200 | | | | | 73,300 |
| ＊8007940 | 63×SS32×4 | 63 | 150 | 45 | 32 | 105 | 4 | | 4 | | 68,500 |
| ＊8007942 | 80×SS32×5 | 80 | | | | | 5 | | 5 | | 84,500 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
| クランプねじ Clamping Screw | ＊8009020 | FS920 (Torx15) | φ20～φ29 |
| | ＊8008659 | FS359 (Torx15) | φ30～φ80 |

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Tools marked ＊ will be discontinued when it is out of stock.

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

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C= 標準在庫品 C=Standard stock item. □ = 特定代理店在庫品 □ =Stocked by specific distributors. Contact us for price & availability.

# WALTER ポジティブミルネオ
**WALTER Positive End Mill**

# F3042B SS

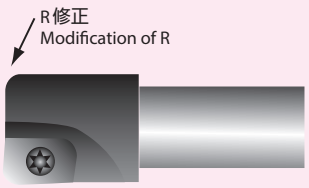
## コーナRインサート使用上の注意点!! Proper use of corner radius inserts!

**Rインサート使用時のボディ修正について**
**Tips for modifying the cutter body when using radius inserts.**

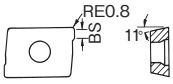
●コーナRがR2以上のインサートを使用する場合、カッタボディまたはカートリッジのコーナ部を修正する場合があります。
When inserts over R2 are used, the corner of the insert pockets on both cutter body and cartridge must modified to an appropriate radius for the clamping inserts.

目安：インサートのR－1＝ボディのR
Standard:R-1 for the insert = radius on cutter body

＊修正が必要な場合は受注品対応となりますので、御相談下さい。
Please contact our OSG staff or an OSG agent for details of our special modification service.




■適用インサート Applicable Inserts




（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | APGT15T3PDR-D51 | 精密級 10°ブレーカ Ground 10° chip former | 2 | 1.8 | | | | | | | ＊ 8057330 | | | ＊ 8063330 | 2,190 |
| ② | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 1.8 | | | | | | | | | | | |
| ③ | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ M class 10° chip former Standard Type | 2 | 1.8 | | | | | ＊ 8092295 | | | | | | 2,190 |
| ④ | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ Partly Ground 16° chip former Low Resistance Type | 2 | 1.8 | ＊ 8031350 | | 1,820 | | | | ＊ 8057350 | | | | 2,190 |
| ⑤ | APMT15T3PDR-F56 | M級 16°ブレーカ 低抵抗タイプ M class 16° chip former Low Resistance Type | 2 | 1.8 | | | | | 8092296＊ | | | | | | 2,190 |
| | APMT15T312R-F56 | | 2 | – | | | | 8091280＊ | | | | | | | 2,190 |
| | APMT15T316R-F56 | | 2 | – | | | | | | | | | | | |
| | APMT15T320R-F56 | | 2 | – | | | | 8091284＊ | | | | | | | 2,190 |
| | APMT15T325R-F56 | | 2 | – | | | | | | | | | | | |
| | APMT15T330R-F56 | | 2 | – | | | | | | | | | | | |
| | APMT15T340R-F56 | | 2 | – | | | | | | | | | | | |
| | APMT15T360R-F56 | | 2 | – | | | | 8091294＊ | | | | | | | 2,190 |
| ⑥ | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ M class 20° chip former Low Resistance Type | 2 | 1.8 | | | | 8091297＊ | ＊ 8092297 | | | | | | 2,190 |
| ⑦ | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25° chip former For Non-Ferrous Metals | 2 | 1.7 | | ＊ 8033250 | 2,010 | | | | | | | | |
| ⑧ | APGW15T308R-A57 | 精密級 標準タイプ Ground Standard Type | 2 | – | | | | | | | 8057401＊ | | | | 2,190 |
| | APGW15T312R-A57 | | 2 | – | | | | | | | 8057402＊ | | | | 2,190 |
| | APGW15T316R-A57 | | 2 | – | | | | | | | | | | | |
| | APGW15T320R-A57 | | 2 | – | | | | | | | 8057404＊ | | | | 2,190 |
| | APGW15T325R-A57 | | 2 | – | | | | | | | 8057405＊ | | | | 2,190 |
| | APGW15T330R-A57 | | 2 | – | | | | | | | | | | | |
| | APGW15T340R-A57 | | 2 | – | | | | | | | 8057407＊ | | | | 2,190 |
| | APGW15T350R-A57 | | 2 | – | | | | | | | 8057408＊ | | | | 2,190 |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

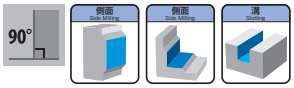
C= 標準在庫品 C=Standard stock item.

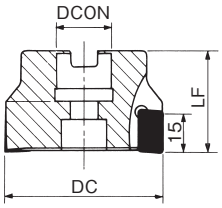
# WALTER ポジティブミルネオ
**WALTER Positive End Mill**

## F3042B SL　切削条件 Cutting Conditions | P1128-151

切れ味の良い3次元ブレーカ付きインサート使用のシェルタイプ。
フェイスミル用アーバにて使用。
Uses 3D forming inserts for smooth milling.
To be attatched to a face milling cutter body.





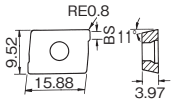




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 穴径 DCON | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ＊8007950 | **50×SL×5** | 50 | 40 | 22 | 5 | ①②③④⑤⑥⑦⑧ | 5 | C | 83,900 |
| 8007970 | **63×SL×4J** | 63 | 50 | 25.4 | 4 | | 4 | | – |
| ＊8007952 | **63×SL×6** | | 40 | 22 | 6 | | 6 | | 99,500 |
| ＊8007972 | **80×SL×5J** | 80 | 50 | 25.4 | 5 | | 5 | | 77,600 |
| ＊8007954 | **80×SL×7** | | | 27 | 7 | | 7 | | 139,000 |
| ＊8007974 | **100×SL×5J** | 100 | | 31.75 | 5 | | 5 | | 86,900 |
| ＊8007976 | **125×SL×6J** | 125 | 63 | 38.1 | 6 | | 6 | | 111,000 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

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Tools marked ＊ will be discontinued when it is out of stock.




## ■適用インサート　Applicable Inserts

| 形状 Appearance | 呼び Designation | 仕様 Specifications | | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | 超硬材種 Grade of Carbide Materials WK10 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
| ① | APGT15T3PDR-D51 | 精密級 10°ブレーカ | Ground 10°chip former | 2 | 1.8 | | | |
| ② | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 2 | 1.8 | | | |
| ③ | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 2 | 1.8 | | | |
| ④ | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 低抵抗タイプ | Partly Ground 16°chip former Low Resistance Type | 2 | 1.8 | ＊ 8031350 | | 1,820 |
| ⑤ | APMT15T3PDR-F56 | M級 16°ブレーカ 低抵抗タイプ | M class 16°chip former Low Resistance Type | 2 | 1.8 | | | |
| | APMT15T312R-F56 | | | 2 | – | | | |
| | APMT15T316R-F56 | | | 2 | – | | | |
| | APMT15T320R-F56 | | | 2 | – | | | |
| | APMT15T325R-F56 | | | 2 | – | | | |
| | APMT15T330R-F56 | | | 2 | – | | | |
| | APMT15T340R-F56 | | | 2 | – | | | |
| | APMT15T360R-F56 | | | 2 | – | | | |
| ⑥ | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ | M class 20°chip former Low Resistance Type | 2 | 1.8 | | | |
| ⑦ | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 | Ground 25°chip former For Non-Ferrous Metals | 2 | 1.7 | | ＊ 8033250 | 2,010 |
| ⑧ | APGW15T308R-A57 | 精密級 標準タイプ | Ground Standard Type | 2 | – | | | |
| | APGW15T312R-A57 | | | 2 | – | | | |
| | APGW15T316R-A57 | | | 2 | – | | | |
| | APGW15T320R-A57 | | | 2 | – | | | |
| | APGW15T325R-A57 | | | 2 | – | | | |
| | APGW15T330R-A57 | | | 2 | – | | | |
| | APGW15T340R-A57 | | | 2 | – | | | |
| | APGW15T350R-A57 | | | 2 | – | | | |

C= 標準在庫品　C=Standard stock item.

# WALTER ポジティブミルネオ
**WALTER Positive End Mill**

# F3042B SL

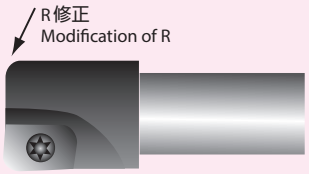
## コーナRインサート使用上の注意点!! Proper use of corner radius inserts!

**Rインサート使用時のボディ修正について**
**Tips for modifying the cutter body when using radius inserts.**

●コーナRがR2以上のインサートを使用する場合、カッタボディまたはカートリッジのコーナ部を修正する場合があります。
When inserts over R2 are used, the corner of the insert pockets on both cutter body and cartridge must modified to an appropriate radius for the clamping inserts.

目安：インサートのR－1＝ボディのR
Standard:R-1 for the insert = radius on cutter body

＊修正が必要な場合は受注品対応となりますので、御相談下さい。
Please contact our OSG staff or an OSG agent for details of our special modification service.




■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | 8008659＊ | FS359 (Torx15) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC(標準在庫品)となります。Stocks are categorized as C (standard stock item).

(単位:mm) (Unit:mm)

| コーティング材種 Grade of Coated Materials | | | | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | |
| | | | 8057330＊ | | | 8063330＊ | 2,190 |
| | | | | | | | |
| | 8092295＊ | | | | | | 2,190 |
| | | | 8057350＊ | | | | 2,190 |
| | 8092296＊ | | | | | | 2,190 |
| 8091280＊ | | | | | | | 2,190 |
| | | | | | | | |
| 8091284＊ | | | | | | | 2,190 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| 8091294＊ | | | | | | | 2,190 |
| 8091297＊ | 8092297＊ | | | | | | 2,190 |
| | | | | | | | |
| | | | 8057401＊ | | | | 2,190 |
| | | | 8057402＊ | | | | 2,190 |
| | | | | | | | |
| | | | 8057404＊ | | | | 2,190 |
| | | | 8057405＊ | | | | 2,190 |
| | | | | | | | |
| | | | 8057407＊ | | | | 2,190 |
| | | | 8057408＊ | | | | 2,190 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。Stocks are categorized as C (standard stock item).

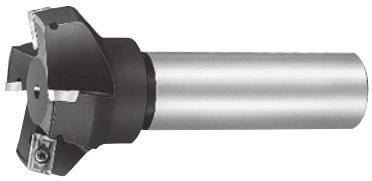
C= 標準在庫品 C=Standard stock item.

# WALTER エコノミーカッタ
**WALTER Economy Cutter**

## F3075

切削条件 Cutting Conditions | P1128-151

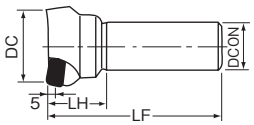
未使用コーナを無駄にしない経済的なカッタ。
Cost effective milling cutter that employs the inserts' spare corners.

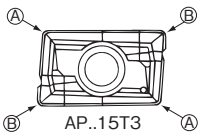










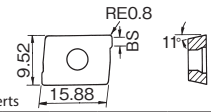




F3075 では、Ⓐコーナを使用します。
F3042B/F3038B ではⒷコーナを使用します。
Corner Ⓐ is for F3075.
Corner Ⓑ is for F3042B and F3038B.

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | シャンク径 DCON | 首下長 LH | 全長 LF | 刃数 ZEFP | 適用インサート Applicable Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ＊8007604 | **50×SS32×3** | 50 | 32 | 40 | 120 | 3 | ①②③④⑤⑥⑦ | C | 49,800 |
| ＊8007606 | **63×SS32×4** | 63 | | 45 | 125 | 4 | | | 55,400 |
| ＊8007608 | **80×SS42×5** | 80 | 42 | 50 | 135 | 5 | | | 68,400 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.




## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Grade of Carbide Materials WKM | 超硬材種 Grade of Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WQM25 | WXM40 | WTP35 | WAP35 | WAK15 | WAK25 | WAP25 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | APGT15T3PDR-D51 | 精密級 10°ブレーカ Ground 10°chip former | 2 | 1.8 | | | | | | | ＊8057330 | | | ＊8063330 | 2,190 |
| ② | APMT15T3PDR-D55 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | | | | | | | |
| ③ | APMT15T3PDR-D56 | M級 10°ブレーカ 標準タイプ M class 10°chip former Standard Type | 2 | 1.8 | | | | | ＊8092295 | | | | | | 2,190 |
| ④ | APKT15T3PDR-F55 | 準精密級 16°ブレーカ 超低抵抗タイプ Partly Ground 16°chip former Low Resistance Type | 2 | 1.8 | ＊8031350 | | 1,820 | | | | ＊8057350 | | | | 2,190 |
| ⑤ | APMT15T3PDR-F56 | M級 16°ブレーカ 超低抵抗タイプ M class 16°chip former Low Resistance Type | 2 | 1.8 | | | | | ＊8092296 | | | | | | 2,190 |
| ⑥ | APMT15T3PDR-G56 | M級 20°ブレーカ 超低抵抗タイプ M class 20°chip former Low Resistance Type | 2 | 1.8 | | | | ＊8091297 | ＊8092297 | | | | | | 2,190 |
| ⑦ | APHT15T3PDR-K88 | 精密級 25°ブレーカ 非鉄金属用 Ground 25°chip former For Non-Ferrous Metals | 2 | 1.7 | | ＊8033250 | 2,010 | | | | | | | | |

上記以外のRインサート使用の際はP.1128-108を参照下さい。
When using radius inserts other than those shown above, please consult the information on P.1128-108.

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | ＊8008659 | FS359 (Torx15) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

C= 標準在庫品 C=Standard stock item.

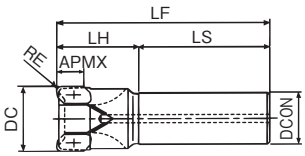
# WALTER アルミ合金用ポジティブミル
**WALTER Positive End Mill for Aluminum Alloys**

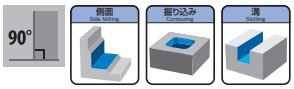
## F3040　切削条件 Cutting Conditions P1128-152

切れ味良好な3次元ブレーカ付きインサート使用のエンドミルタイプのカッタ。アルミ材の高能率加工、多機能加工(ヘリカル加工、ランピング加工、ポケット加工、側面加工、溝加工)が可能。全サイズ油穴付き。

Endmill type cutter with inserts who has sharp cutting edge due to 3D inserts breaker. Capable for higher efficiency and multipurpose applications (helical milling, ramping, side milling, pocket milling, slotting) for aluminums. All sizes are with center-through.





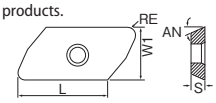




(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 全長 LF | 最大切込み量 APMX | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | バランス取り Body balance | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8007880 | **20×SS20×130** | 20 | 130 | 15 | 40 | 20 | 90 | 1 | ①～⑧ | 1 | No | C | 41,800 |
| ＊8007890 | **20×SS20×170** | | 170 | | 55 | | 115 | | | | | | 46,000 |
| ＊8007881 | **25×SS25×130** | 25 | 130 | | 50 | 25 | 80 | 2 | | 2 | Yes | | 70,700 |
| 8007891 | **25×SS25×170** | | 170 | | 80 | | 90 | | | | | | — |
| ＊8007882 | **32×SS32×150** | 32 | 150 | | 50 | 32 | 100 | | | | | | 75,900 |
| ＊8007892 | **32×SS32×200** | | 200 | | 80 | | 120 | | | | | | 78,400 |
| ＊8007883 | **40×SS32×150** | 40 | 150 | | 50 | | 100 | | | | | | 80,000 |
| ＊8007893 | **40×SS32×200** | | 200 | | | | 150 | | | | | | 82,700 |
| | **F3040.B.040.Z03.15** | 40 | 50 | 15 | — | 16 | — | 3 | ①～⑧ | 3 | Yes | — | — |
| | **F3040.B.050.Z04.15** | 50 | | | | 22 | | 4 | | 4 | | — | — |
| | **F3040.B.063.Z05.15** | 63 | | | | | | 5 | | 5 | | — | — |
| | **F3040.B.050.Z03.20** | 50 | 60 | 20 | | | | 3 | ⑨～⑱ | 3 | | — | — |
| | **F3040.B.063.Z04.20** | 63 | 50 | | | | | 4 | | 4 | | — | — |
| | **F3040.H63A.040.Z03.15** | 40 | 142 | 15 | 65 | HSK-A63 | — | 3 | ①～⑧ | 3 | Yes | — | — |
| | **F3040.H63A.032.Z02.20** | 32 | | 20 | 60 | | | 2 | ⑨～⑱ | 2 | | — | — |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.




## ■適用インサート Applicable Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | RE | 超硬材種 Grade of Carbide Materials WMG40 | WK10 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ① | ZDGT150404R-K85 | 準精密級 25°ブレーカ Partly Ground 25° chip former | 2 | 15×10.5 | 4.76 | 15° | 0.4 | | 8033980 ＊ | 2,780 |
| | ② | ZDGT150408R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 0.8 | | | |
| | ③ | ZDGT150412R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 1.2 | | 8033982 ＊ | 2,780 |
| | ④ | ZDGT150416R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 1.6 | | | |
| | ⑤ | ZDGT150420R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 2 | | 8033984 ＊ | 2,780 |
| | ⑥ | ZDGT150425R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 2.5 | 8040985 ＊ | 8033985 ＊ | 2,780 |
| | ⑦ | ZDGT150430R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 3 | | 8033986 ＊ | 2,780 |
| | ⑧ | ZDGT150440R-K85 | | 2 | 15×10.5 | 4.76 | 15° | 4 | | 8033987 ＊ | 2,780 |
| | ⑨ | ZDGT200508R-K85 | 準精密級 25°ブレーカ Partly Ground 25° chip former | 2 | 20×14 | 5.56 | 15° | 0.8 | | | |
| | ⑩ | ZDGT200512R-K85 | | 2 | 20×14 | 5.56 | 15° | 1.2 | | | |
| | ⑪ | ZDGT200516R-K85 | | 2 | 20×14 | 5.56 | 15° | 1.6 | | | |
| | ⑫ | ZDGT200520R-K85 | | 2 | 20×14 | 5.56 | 15° | 2.0 | | | |
| | ⑬ | ZDGT200525R-K85 | | 2 | 20×14 | 5.56 | 15° | 2.5 | | | |
| | ⑭ | ZDGT200530R-K85 | | 2 | 20×14 | 5.56 | 15° | 3.0 | | | |
| | ⑮ | ZDGT200540R-K85 | | 2 | 20×14 | 5.56 | 15° | 4.0 | | | |
| | ⑯ | ZDGT200550R-K85 | | 2 | 20×14 | 5.56 | 15° | 5.0 | | | |
| | ⑰ | ZDGT200560R-K85 | | 2 | 20×14 | 5.56 | 15° | 6.0 | | | |
| | ⑱ | ZDGT200564R-K85 | | 2 | 20×14 | 5.56 | 15° | 6.4 | | | |

＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
| クランプねじ Clamping Screw | 8009111＊ | FS1011 (Torx15) | φ20、φ25、φ32 |
| | 8008631＊ | FS378 (Torx15) | φ40 |
| ドライバ Screwdriver | 7808208 | T15-D (Torx15) | φ20～φ40 |

## ■切削条件基準表 Recommended milling conditions

| 被削材質 Work Material | 材料記号 Material Symbol | 引張強さ Tensile Strength | 加工内容 Processing Type | | 1刃当たりの送り Feed per tooth (mm/tooth) | 切削速度 Cutting Speed (m/min) |
|---|---|---|---|---|---|---|
| アルミニウム合金 Aluminum Alloy Casting | A**** | — | 側面 | Side Milling | 0.05～0.3 | 500～1500 |
| | | | 溝 | Slotting | 0.05～0.2 | |

●ロングタイプ使用時には、低めの推奨条件にて加工下さい。
●一般アルミ加工にはF4042も適応できます。
●Lower milling speed is recommended for long shank type.
●F4042 can be used to mill normal aluminum alloy.

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC(標準在庫品)となります。Stocks are categorized as C (standard stock item).

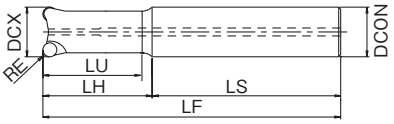
C= 標準在庫品　C=Standard stock item.

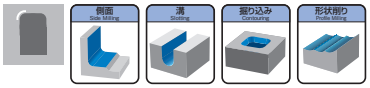
# WALTER ラジアスカッタブルノーズカッタ
**WALTER Radius Cutter**

## F2234 SS　切削条件 Cutting Conditions | P1128-152

インサートとクランプの剛性に優れた高能率三次元加工に適するラジアスカッタ。油穴付き。
Rigid clamping and efficient internal coolant supply. Suitable for high feed operations.





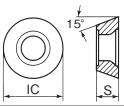




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DCX | コーナR RE | 全長 LF | 有効長 LU | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8007612 | 12×SS12×110×R2.5 | 12 | 2.5 | 110 | 24 | 27 | 12 | 83 | 3 | ① | 3 | C | 46,600 |
| ＊8007752 | 12×SS12×150×R2.5 | | | 150 | 37 | 40 | | 110 | | | | | 51,400 |
| ＊8007615 | 15×SS16×130×R2.5 | 15 | | 130 | 45 | 50 | 16 | 80 | 4 | | 4 | | 63,100 |
| ＊8007616 | 16×SS16×135×R2.5 | 16 | | 135 | 51 | 55 | | | | | | | 64,800 |
| ＊8007617 | 17×SS16×180×R2.5 | 17 | | 180 | 30 | 30 | | 150 | | | | | 69,100 |
| ＊8007620 | 20×SS20×160×R2.5 | 20 | | 160 | 65 | 70 | 20 | 90 | 5 | | 5 | | 76,400 |
| ＊8007621 | 21×SS20×200×R2.5 | 21 | | 200 | 30 | 30 | | 170 | | | | | 79,200 |
| ＊8007625 | 25×SS25×200×R3.5 | 25 | 3.5 | | 81 | 85 | 25 | 115 | | ② | | | 80,000 |
| ＊8007632 | 32×SS32×220×R3.5 | 32 | | 220 | 102 | 110 | 32 | 110 | 6 | | 6 | | 91,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

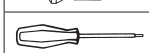
## ■適用インサート　Applicable Inserts




（単位:mm）(Unit:mm)

| 形状 Appearance | | インサート呼び Designations | 仕様 Specifications | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WKP25S | WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|
|  | ① | RDHX0501M0-A57 | 精密級ブレーカなし Ground without chip former | 5 | 1.5 | | | |
|  | ② | RDHX07T1M0-A57 | 精密級ブレーカなし Ground without chip former | 7 | 1.99 | | | |

## ■部品　Accessories

| | インサートタイプ Insert Type ① ツール No. EDP No. | ① 呼び Designation | ② ツール No. EDP No. | ② 呼び Designation |
|---|---|---|---|---|
|  クランプねじ Clamping Screw | ＊8009258 | FS1358 (Torx6) | ＊8009024 | FS924 (Torx8) |
|  ドライバ Screwdriver | 7808203 | T6-D (Torx6) | 7808205 | T8-D (Torx8) |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

C= 標準在庫品　C=Standard stock item.

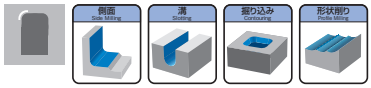
# WALTER ブルノーズカッタ中心刃付き
**WALTER Radius Cutter with Center Edge**

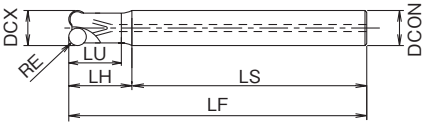
## F2231

切削条件 Cutting Conditions | P1128-152

中心刃付きでZ方向への送りが可能。金型等の高能率荒加工に最適。
Center edge for plunging operations. Suitable for rough milling in mold production.





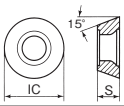




(単位:mm) (Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DCX | コーナR RE | 全長 LF | 有効長 LU | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8006010 | **10×SS12×100×R2.5** | 10 | 2.5 | 100 | 18 | 22 | 12 | 78 | 2 | 2 | C | — |

ツール No. 欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

## ■適用インサート Applicable Inserts




(単位:mm) (Unit:mm)

| 形状 Appearance | インサート呼び Designations | 仕様 Specifications | インサート寸法 Insert Size 内接円径 IC | インサート寸法 Insert Size 厚さ S | コーティング材種 Grade of Coated Materials WKP25S | コーティング材種 Grade of Coated Materials WHH15X | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| ▱ | RDHX0501M0-A57 | 精密級ブレーカなし Ground without chip former | 5 | 1.5 | | | |

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | 8009258 * | FS1358 (Torx6) |
| ドライバ Screwdriver | 7808203 | T6-D (Torx6) |

＊印は在庫無くなり次第、廃番となります。
Tools marked * will be discontinued when it is out of stock.

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

C= 標準在庫品 C=Standard stock item.

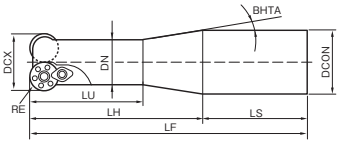
# WALTER ブルノーズカッタ中心刃付き
**WALTER Radius Cutter with Center Edge**

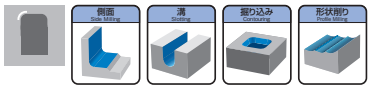
## F2231

切削条件 Cutting Conditions | P1128-153

中心刃付きでZ方向への送りが可能。金型等の高能率荒加工に最適。
Center edge for plunging operations. Suitable for rough milling in mold production.





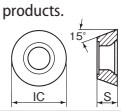




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DCX | コーナR RE | 全長 LF | 有効長 LU | 首下長 LH | シャンク径 DCON | シャンク長 LS | 首部テーパ半角 BHTA | 首径 DN | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8006020 | 16×SS16×120 | 16 | 4 | 120 | 31 | 50 | 16 | 70 | 2.5° | 14 | 2 | ① | 2 | C | 55,400 |
| ＊8006022 | 16×SS16×180 | | | 180 | | | | 130 | | | | | | | 61,000 |
| ＊8006025 | 20×SS20×130 | 20 | 5 | 130 | 35 | | 20 | 80 | 5° | 17 | | ② | | | 55,400 |
| ＊8006027 | 20×SS20×200 | | | 200 | | | | 150 | | | | | | | 61,000 |
| ＊8006030 | 24×SS25×140 | 24 | 6 | 140 | 42 | 60 | 25 | 80 | 6° | 21 | | ③ | | | 56,800 |
| ＊8006032 | 24×SS25×220 | | | 220 | | | | 160 | | | | | | | 62,300 |
| ＊8006035 | 32×SS32×160 | 32 | 8 | 160 | 57 | 80 | 32 | 80 | 4.5° | 28 | | ④ | | | 58,600 |
| ＊8006037 | 32×SS32×250 | | | 250 | | | | 170 | | | | | | | 63,900 |
| 8006040 | 40×SS42×190 | 40 | 10 | 190 | 58 | 90 | 42 | 100 | 6° | 35 | | ⑤ | | | — |
| ＊8006042 | 40×SS42×250 | | | 250 | | | | 160 | | | | | | | 72,000 |

ツール No. 欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.




### ■適用インサート Applicable Inserts

| 形状 Appearance | | 呼び Designation | 仕様 Specifications | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WAP35 | WKP25S |
|---|---|---|---|---|---|---|---|
| | ① | RDMW0803M0T-A27 | M級 強化タイプ M class Strong Edge Type | 8 | 3.18 | | |
| | ② | RDMW10T3M0T-A27 | | 10 | 3.97 | | |
| | ③ | RDMW1204M0T-A27 | | 12 | 4.76 | | 8037502＊ |
| | ④ | RDMW1605M0T-A27 | | 16 | 5.56 | | |
| | ⑤ | RDMW2006M0T-A27 | | 20 | 6.35 | | |
| | ① | RDMT0803M0-D57 | M級 ブレーカ付き 標準タイプ M class with chip former Standard Type | 8 | 3.18 | | |
| | ② | RDMT10T3M0-D57 | | 10 | 3.97 | | |
| | ③ | RDMT1204M0-D57 | | 12 | 4.76 | | |
| | ④ | RDMT1605M0-D57 | | 16 | 5.56 | | |
| | ⑤ | RDMT2006M0-D57 | | 20 | 6.35 | | |
| | ② | RDGW10T3M0-A57 | 準精密級 標準タイプ Partly Ground Standard Type | 10 | 3.97 | 8057521＊ | |
| | ④ | RDHW1605M0-A57 | H級 標準タイプ H class Standard Type | 16 | 5.56 | | |
| | ③ | RDGT1204M0-G85 | 準精密級 切れ味 重視タイプ | 12 | 4.76 | | |
| | ⑤ | RDGT2006M0-G85 | Partly Ground with sharp cutting edge | 20 | 6.35 | | |

### ■部品 Accessories

| | インサートサイズ Insert Size ① ツール No. EDP No. | ① 呼び Designation | ② ツール No. EDP No. | ② 呼び Designation | ③ ツール No. EDP No. | ③ 呼び Designation | ④ ツール No. EDP No. | ④ 呼び Designation | ⑤ ツール No. EDP No. | ⑤ 呼び Designation |
|---|---|---|---|---|---|---|---|---|---|---|
| クランプねじ Clamping Screw | 8009105＊ | FS1005 (Torx8) | 8009020＊ | FS920 (Torx15) | 8008659＊ | FS359 (Torx15) | 8009130＊ | FS1030 (Torx20) | 8009110＊ | FS1010 (Torx20) |
| 押え金 Clamp | | | | | 8009135＊ | FS1035 | 8009122＊ | FS1022 | 8009122＊ | FS1022 |
| 押え金用クランプねじ Clamping Screw | | | | | 8008659＊ | FS359 (Torx15) | 8009130＊ | FS1030 (Torx20) | 8009130＊ | FS1030 (Torx20) |
| ドライバ Screwdriver | 7808205 | T8-D (Torx8) | 7808208 | T15-D (Torx15) | 7808208 | T15-D (Torx15) | 7808209 | T20-D (Torx20) | 7808209 | T20-D (Torx20) |

C= 標準在庫品 C=Standard stock item.

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

# WALTER ブルノーズカッタ中心刃付き
**WALTER Radius Cutter with Center Edge**

# F2231

（単位:mm）(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) |
|---|---|---|---|---|---|
| | WKP35S | WSM35S | WHH15 | WMG40 | |
| | 8039500* | | | | 1,420 |
| | | | | | |
| | | | | | 1,810 |
| | 8039503* | | | | 2,200 |
| | 8039504* | | | | 2,940 |
| | | | | | |
| | 8039511* | | | | 1,880 |
| | 8039512* | | | | 2,080 |
| | | | | | |
| | 8039514* | | | | 3,360 |
| | | | | | 2,330 |
| | | | | | |
| | | | | 8040962* | 2,520 |
| | | | | 8040964* | 4,110 |

*印は在庫無くなり次第、廃番となります。Tools marked * will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

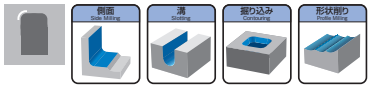
C= 標準在庫品 C=Standard stock item.

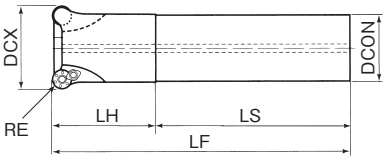
# WALTER ラジアスカッタブルノーズカッタ
**WALTER Radius Cutter**

## F2234 SS　切削条件 Cutting Conditions | P1128-153

インサートとクランプの剛性に優れた高能率三次元加工に適するラジアスカッタ。油穴付き。
Rigid clamping and efficient internal coolant supply. Suitable for high feed operations.





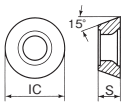




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DCX | コーナR RE | 全長 LF | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8007659 | 50×SS42×R8S | 50 | 8 | 150 | 50 | 42 | 100 | 3 | ①②③④ | 3 | C | 73,200 |
| ＊8007667 | 50×SS42×R8M | | | 250 | | | 200 | | | | | 84,600 |
| ＊8007660 | 63×SS42×R8S | 63 | | 150 | | | 100 | | | | | 79,100 |
| ＊8007668 | 63×SS42×R8M | | | 250 | | | 200 | | | | | 93,400 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

## ■適用インサート Applicable Inserts




（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WSM35S | WHH15 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ① | RDMW1605M0T-A27 | M級 強化タイプ M class Strong Edge Type | 16 | 5.56 | | ＊8039503 | | | 2,200 |
| ② | RDMT1605M0-D57 | M級 ブレーカ付き 標準タイプ M class with chip former Standard Type | 16 | 5.56 | | | | | |
| ③ | RDHW1605M0-A57 | H級 標準タイプ H class Standard Type | 16 | 5.56 | | | | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | ＊8009130 | FS1030 (Torx20) |
| 押え金 Clamp | ＊8009122 | FS1022 |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| 押え金用クランプねじ Clamping Screw | ＊8009130 | FS1030 (Torx20) |
| ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

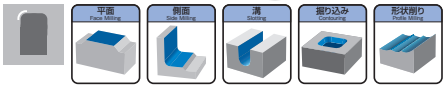
C= 標準在庫品　C=Standard stock item.

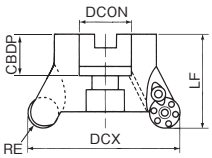
# WALTER ラジアスカッタブルノーズカッタ
**WALTER Radius Cutter**

## F2234 SL　切削条件 Cutting Conditions　P1128-153

インサートとクランプの剛性に優れた高能率三次元加工に適するラジアスカッタ。油穴付き。
Rigid clamping and efficient internal coolant supply. Suitable for high feed operations.





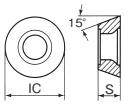

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DCX | コーナR RE | カッタ高さ LF | 穴径 DCON | 取り付け穴高さ CBDP | 刃数 ZEFP | | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *8007682 | 50×SL×R6C | 50 | 6 | 50 | 22 | 22 | 3 | C コース ピッチ Coarse Pitch | ① | 3 | C | 60,200 |
| *8007684 | 63×SL×R6JC | 63 | | | 25.4 | 26 | | | | | | 68,400 |
| *8007685 | 63×SL×R8JC | | 8 | | | | | | ② | | | 73,000 |
| *8007687 | 80×SL×R6JC | 80 | 6 | | | | 4 | | ① | 4 | | 80,000 |
| *8007688 | 80×SL×R8JC | | 8 | | | | | | ② | | | 84,000 |
| *8007689 | 80×SL×R10JC | | 10 | 55 | | | 3 | | ③ | 3 | | 84,000 |
| 8007701 | 50×SL×R6F | 50 | 6 | 50 | 22 | 20.1 | 5 | F クロス ピッチ Close Pitch | ① | 5 | C | — |
| *8007706 | 63×SL×R6F | 63 | | | | | 6 | | | 6 | | 158,000 |
| *8007707 | 63×SL×R8F | | 8 | | | | 5 | | ② | 5 | | 144,000 |
| *8007711 | 80×SL×R6F | 80 | 6 | | 27 | 22 | 7 | | ① | 7 | | 187,000 |
| *8007712 | 80×SL×R8F | | 8 | | | | 6 | | ② | 6 | | 174,000 |
| *8007713 | 80×SL×R10F | | 10 | | | | 5 | | ③ | 5 | | 160,000 |
| *8007721 | 100×SL×R8F | 100 | 8 | | 32 | 25.5 | 7 | | ② | 7 | | 203,000 |
| *8007722 | 100×SL×R10F | | 10 | | | | 6 | | ③ | 6 | | 188,000 |

ツールNo.欄　　のものは廃番品です。
EDP No. found in　　are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

### ■適用インサート　Applicable Inserts

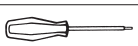



（単位:mm）(Unit:mm)

| 形状 Appearance | | 呼び Designation | 仕様 Specifications | インサート寸法 Insert Size 内接円径 IC | 厚さ S | コーティング材種 Grade of Coated Materials WKP35S | WKP25S | WSM35S | WHH15 | 超硬材種 Grade of Carbide Materials WMG40 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ① | RDMW1204M0T-A27 | M級 強化タイプ M class Strong Edge Type | 12 | 4.76 | | 8037502* | | | | 1,810 |
| | ② | RDMW1605M0T-A27 | | 16 | 5.56 | 8039503* | | | | | 2,200 |
| | ③ | RDMW2006M0T-A27 | | 20 | 6.35 | 8039504* | | | | | 2,940 |
|  | ① | RDMT1204M0-D57 | M級 ブレーカ付き標準タイプ M class with chip former Standard Type | 12 | 4.76 | 8039512* | | | | | 2,080 |
| | ② | RDMT1605M0-D57 | | 16 | 5.56 | | | | | | |
| | ③ | RDMT2006M0-D57 | | 20 | 6.35 | 8039514* | | | | | 3,360 |
|  | ② | RDHW1605M0-A57 | H級 標準タイプ H class Standard Type | 16 | 5.56 | | | | | | |
|  | ① | RDGT1204M0-G85 | 準精密級 切れ味重視タイプ Partly Ground with sharp cutting edge | 12 | 4.76 | | | | | 8040962* | 2,520 |
| | ③ | RDGT2006M0-G85 | | 20 | 6.35 | | | | | 8040964* | 4,110 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

### ■部品　Accessories

| | | インサートサイズ Insert Size ① ツール No. EDP No. | ① 呼び Designation | ② ツール No. EDP No. | ② 呼び Designation | ③ ツール No. EDP No. | ③ 呼び Designation |
|---|---|---|---|---|---|---|---|
|  | クランプねじ Clamping Screw | * 8008659 | FS359 (Torx15) | * 8009130 | FS1030 (Torx20) | * 8009110 | FS1010 (Torx20) |
|  | 押え金 Clamp | * 8009135 | FS1035 | * 8009122 | FS1022 | * 8009122 | FS1022 |
|  | 押え金用クランプねじ Clamping Screw | * 8008659 | FS359 (Torx15) | * 8009130 | FS1030 (Torx20) | * 8009130 | FS1030 (Torx20) |
|  | ドライバ Screwdriver | 7808208 | T15-D (Torx15) | 7808209 | T20-D (Torx20) | 7808209 | T20-D (Torx20) |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。Stocks are categorized as C (standard stock item).

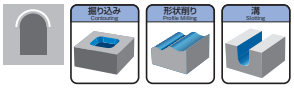
C= 標準在庫品　C=Standard stock item.

# WALTER ボールエンドミル2刃タイプ
**WALTER 2-flute Ball End Mill**

## F2339

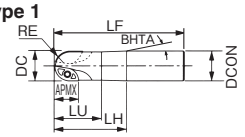
切削条件 Cutting Conditions | P1128-155



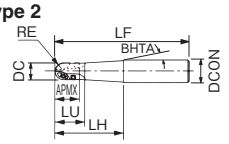



2枚刃タイプの高剛性ボールエンドミル。親刃、子刃の区別のないインサートを使用。
Double-edged ball nose end mill for processing and finishing operations. Uses the same inserts for double edges.

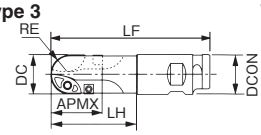
Type 1



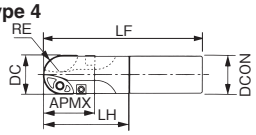

Type 2




Type 3




Type 4




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 全長 LF | 刃長 APMX | 首下長 LH | 首下ストレート LU | シャンク径 DCON | 首部テーパ半角 BHTA | 刃数 ZEFP | 適用インサート Applicable Inserts 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8069531 | R10 XSS25 X 60 | 20 | 10 | 140 | 15 | 60 | 30 | 25 | 6.2° | 2 | ① | 2 | — | — | 1 | C | 47,100 |
| ＊8069532 | R10 XSS25 X 80 | | | 160 | 28 | 80 | 40 | | 4.6° | | | | ⑦ | 2 | 2 | | 52,500 |
| ＊8069554 | R10 XSS32 X250 | | | 250 | 15 | | | 32 | 12° | | | | — | — | 1 | | 57,700 |
| ＊8069555 | R10 XSS32 X250L | | | | 28 | | | | | | | | ⑦ | 2 | 2 | | 62,000 |
| ＊8069534 | R12.5 XSS32 X 70 | 25 | 12.5 | 150 | 20 | 70 | 35 | | 6.9° | | ② | | — | — | 1 | | 49,500 |
| 8069535 | R12.5 XSS32 X100 | | | 180 | 32 | 100 | 50 | | 4.5° | | | | ⑦ | 2 | 2 | | — |
| ＊8069557 | R12.5 XSS32 X300 | | | 300 | 20 | | | | | | | | — | — | 1 | | 59,600 |
| ＊8069558 | R12.5 XSS32 X300L | | | | 32 | | | | | | | | ⑦ | 2 | 2 | | 65,300 |
| 8069537 | R15 XSS32 X 80 | 30 | 15 | 160 | 24 | 80 | | | 3.8° | | ③ | | — | — | 1 | | — |
| ＊8069538 | R15 XSS32 X100 | | | 200 | 42 | 100 | 60 | | 1° | | | | ⑧ | 2 | 2 | | 58,600 |
| ＊8069560 | R15 XSS32 X350 | | | 350 | 24 | 120 | | | 1.5° | | | | — | — | 1 | | 64,100 |
| ＊8069561 | R15 XSS32 X350L | | | | 42 | | | | | | | | ⑧ | 2 | 2 | | 70,600 |
| ＊8069540 | R16 XSS32 X 85 | 32 | 16 | 165 | 25 | 85 | 55 | | 1.9° | | ④ | | — | — | 1 | | 51,400 |
| ＊8069541 | R16 XSS32 X100 | | | 200 | 43 | 100 | 65 | | 1° | | | | ⑧ | 2 | 2 | | 58,600 |
| ＊8069543 | R20 XSS42 X100 | 40 | 20 | | 31 | | | 42 | 2° | | ⑤ | | — | — | 1 | | 74,600 |
| ＊8069544 | R20 XSS42 X150 | | | 250 | 56 | 150 | 90 | | | | | | ⑨ | 2 | 2 | | 80,300 |
| ＊8069546 | R25 XSS42 X110 | 50 | 25 | 210 | 43 | 110 | — | | — | | ⑥ | | | | 4 | | 87,800 |
| ＊8069548 | R25 XCN50.8 X110 | | | | 65 | | | CN50.8 | | | | | | | 3 | | 99,800 |
| ＊8069547 | R25 XSS42 X150 | | | 250 | | 150 | | 42 | | | | | | | 2 | | 96,600 |
| ＊8069549 | R25 XCN50.8 X150 | | | | | | | CN50.8 | | | | | | | 3 | | 112,000 |

ツールNo.欄 [ ] のものは廃番品です。
EDP No. found in [ ] are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

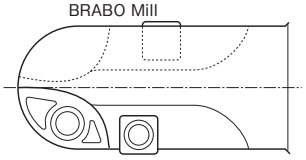
# F2339 & F2039

OSG-WALTERのボールエンドミルには、F2339とF2039があります。F2039は、千鳥刃となっている為、2溝で1枚刃となり、2枚刃タイプほど送りが上がらない弱点がありますが、切削抵抗が小さくびびりにくい点、インサートは3コーナ使え経済的な点などのメリットもあり、用途に応じて使い分けるとより効率の良い加工が可能です。

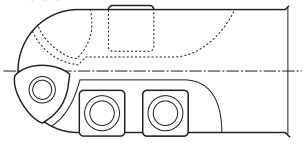
There are two types of ball nose cutters, the F2339 and F2039. As the F2039 has staggered teeth, two flutes make a complete tooth. The advantages of this are:1) low cutting force; and 2) economical inserts. However, a lower feed rate is required. Using the proper settings according to the situation will make production more efficient.

| | 刃数 ZEFP | 切削抵抗 Cutting Force | インサートコーナ数 No. Insert Corners |
|---|---|---|---|
| F2339ブラボーミル BRABO Mill | 2 | 高 High | 2 |
| F2039 | 1 | 低 Low | 3 |

F2339ブラボーミル
BRABO Mill



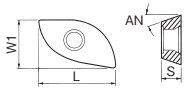
F2039



C= 標準在庫品 C=Standard stock item.

# WALTER ボールエンドミル2刃タイプ
**WALTER 2-flute Ball End Mill**

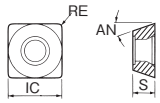
# F2339




## ■先端適用インサート　Applicable Front Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | | 呼び Designation | 仕様 Specifications | サイズ Size | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | コーティング材種 Grade of Coated Materials WAP35 | WKP35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ① | XDGT16T3100R-D57 | 準精密級 ブレーカ付き 標準タイプ Partly Ground with chip former Standard Type | R10 | 2 | 16 × 9 | 3.74 | 15° | | | |
| | ② | XDGT2004125R-D57 | | R12.5 | 2 | 20 ×11.3 | 4.68 | 15° | | | |
| | ③ | XDGT2405150R-D57 | | R15 | 2 | 24 ×13.5 | 5.62 | 15° | | | |
| | ④ | XDGT2506160R-D57 | | R16 | 2 | 25.5×14.4 | 6 | 15° | | | |
| | ⑤ | XDGT3207200R-D57 | | R20 | 2 | 32 ×18 | 7.5 | 15° | | | |
| | ⑥ | XDGT4009250R-D57 | | R25 | 2 | 43.5×21.6 | 9.39 | 15° | | | |




## ■外周適用インサート　Applicable Peripheral Inserts

(単位:mm) (Unit:mm)

| 形状 Appearance | | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE | コーティング材種 Grade of Coated Materials WKP35S | WTP35 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ⑦ | SPMT060304-D51 | M級 ブレーカ付き M class with chip former | 4 | 6.35 | 3.18 | 11° | 0.4 | 8039831＊ | 8051831＊ | 1,470 |
| | ⑧ | SPMT09T308-D51 | | 4 | 9.52 | 3.97 | 11° | 0.8 | 8039841＊ | 8051841＊ | 1,850 |
| | ⑨ | SPMT120408-D51 | | 4 | 12.7 | 4.76 | 11° | 0.8 | 8039851＊ | 8051851＊ | 2,200 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。Stocks are categorized as C (standard stock item).

## ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8008641＊ | FS1013 | R10 先端インサート Rhombic Inserts |
| | 8009023＊ | FS923 | R10 外周インサート Square Inserts |
| | 8008631＊ | FS378 | R12.5 先端インサート Rhombic Inserts |
| | 8009023＊ | FS923 | R12.5 外周インサート Square Inserts |
| | 8009130＊ | FS1030 | R15 先端インサート Rhombic Inserts |
| | 8008659＊ | FS359 | R15 外周インサート Square Inserts |
| | 8009130＊ | FS1030 | R16 先端インサート Rhombic Inserts |
| | 8008659＊ | FS359 | R16 外周インサート Square Inserts |
| | 8008651＊ | FS1036 | R20 先端インサート Rhombic Inserts |
| | 8009130＊ | FS1030 | R20 外周インサート Square Inserts |
| | 8008661＊ | FS1152 | R25 先端インサート Rhombic Inserts |
| | 8009130＊ | FS1030 | R25 外周インサート Square Inserts |

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
|  ドライバ Screwdriver | 7808205 | T8-D(Torx8) | R10 先端インサート Rhombic Inserts |
| | | | R10 外周インサート Square Inserts |
| | 7808208 | T15-D(Torx15) | R12.5 先端インサート Rhombic Inserts |
| | 7808205 | T8-D(Torx8) | R12.5 外周インサート Square Inserts |
| | 7808209 | T20-D(Torx20) | R15 先端インサート Rhombic Inserts |
| | 7808208 | T15-D(Torx15) | R15 外周インサート Square Inserts |
| | 7808209 | T20-D(Torx20) | R16 先端インサート Rhombic Inserts |
| | 7808208 | T15-D(Torx15) | R16 外周インサート Square Inserts |
| | 7808209 | T20-D(Torx20) | R20 先端インサート Rhombic Inserts |
| | | | R20 外周インサート Square Inserts |
| | 7808212 | T30-T(Torx30) | R25 先端インサート Rhombic Inserts |
| | 7808209 | T20-D(Torx20) | R25 外周インサート Square Inserts |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

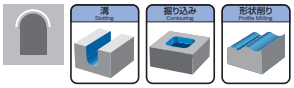
C= 標準在庫品　C=Standard stock item.

# WALTER ボールエンドミル1刃タイプ
**WALTER Single-flute Ball End Mill**

## F2039

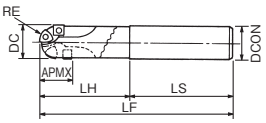
切削条件 Cutting Conditions | P1128-156



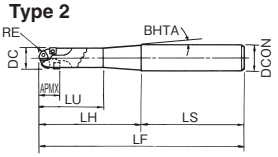



スローアウェイタイプのボールエンドミル。切削抵抗の少ない2溝＝1刃構造。荒取り重切削加工用。
For heavy-duty rough milling operations. Employs the-2-flute, 1-edge mechanism to minimize milling force.

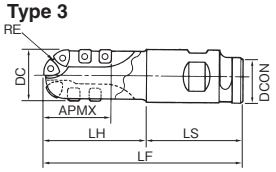
**Type 1**




**Type 2**




**Type 3**



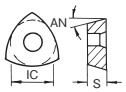

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | ボール半径 RE | 全長 LF | 刃長 APMX | 首下長 LH | 首下ストレート LU | シャンク径 DCON | シャンク長 LS | 首部テーパ半角 BHTA | 溝数 NOF | 刃数 ZEFP | 適用インサート Applicable Inserts 先端インサート Front Insert | 使用インサート数 Number of Front Inserts | 外周インサート Peripheral Insert | 使用インサート数 Number of Peripheral Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8005650 | R10 XSS20 X 45 | 20 | 10 | 116 | 20.5 | 45 | – | 20 | 71 | – | 2 | 1 | ① | 2 | ⑦ | 2 | 1 | C | 49,800 |
| ＊8005651 | R10 XSS20 X 63 | | | 134 | | 63 | | | | | | | | | | | | | 49,800 |
| ＊8005652 | R10 XSS25 X 100 | | | 200 | | 100 | 63 | 25 | 100 | 3.5° | | | | | | | 2 | | 55,400 |
| ＊8005654 | R12.5 XSS25 X 53 | 25 | 12.5 | 133 | 23 | 53 | – | | 80 | – | | | ② | | | | 1 | | 52,500 |
| ＊8005655 | R12.5 XSS25 X 75 | | | 155 | | 75 | | | | | | | | | | | | | 52,500 |
| ＊8005656 | R12.5 XSS32 X 100 | | | 200 | | 100 | 75 | 32 | 100 | 7.5° | | | | | | | 2 | | 58,400 |
| ＊8005660 | R15 XSS32 X 63 | 30 | 15 | 153 | 30.5 | 63 | – | | 90 | – | | | ③ | | ⑧ | | 1 | | 63,900 |
| 8005657 | R15 XSS32 X 100 | | | 200 | | 100 | | | 100 | | | | | | | | | C | – |
| ＊8005658 | R16 XSS32 X 63 | 32 | 16 | 153 | 31 | 63 | | | 90 | | | | ④ | | | | | | 63,900 |
| ＊8005659 | R16 XSS32 X 90 | | | 180 | | 90 | | | | | | | | | | | | | 63,900 |
| ＊8005662 | R20 XSS42 X 75 | 40 | 20 | 175 | 41.5 | 75 | | 42 | 100 | | | | ⑤ | | ⑨ | | | | 80,300 |
| ＊8005663 | R20 XSS42 X 106 | | | 206 | | 106 | | | | | | | | | | | | | 80,300 |
| ＊8005666 | R25 XSS42 X 85 | 50 | 25 | 185 | 46 | 85 | | | | | | | ⑥ | 3 | | 4 | 3 | | 109,000 |
| ＊8005690 | R25 XCN50.8 X 100 | | | 200 | 66 | 100 | | CN50.8 | | | | | | | | | | | 126,000 |
| ＊8005691 | R25 XCN50.8 X 150 | | | 250 | | 150 | | | | | | | | | | | | | 140,000 |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

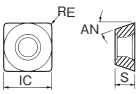
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

**先端適用インサート** Available Front Insert




① ② ③
④ ⑤ ⑥

**外周適用インサート** Available Peripheral Insert




⑦ ⑧ ⑨

## ■先端適用インサート Available Front Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | | 呼び Designation | 仕様 Specifications | サイズ Size | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN |
|---|---|---|---|---|---|---|---|---|
|  | ① | P26315R10 | M級 ブレーカ付き M class with chip former | R10 | 3 | 6.75 | 2.78 | 14° |
| | ② | P26315R12 | | R12.5 | 3 | 8.5 | 3.18 | 14° |
| | ③ | P26315R15 | | R15 | 3 | 10.5 | 3.97 | 14° |
| | ④ | P26315R16 | | R16 | 3 | 10.5 | 3.97 | 14° |
| | ⑤ | P26315R20 | | R20 | 3 | 12.7 | 4.76 | 11° |
| | ⑥ | P26315R25 | | R25 | 3 | 12.7 | 4.76 | 11° |

## ■外周適用インサート Available Peripheral Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | | 呼び Designations | | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | RE |
|---|---|---|---|---|---|---|---|---|---|
|  | ⑦ | P28415-00 | SPNT060304 | M級 ブレーカ付き M class with chip former | 4 | 6.35 | 3.18 | 11° | 0.4 |
| | ⑧ | P28415-0 | SDNT090308 | | 4 | 9.52 | 3.18 | 14° | 0.8 |
| | ⑨ | P28495-1 | SPMT120408 | | 4 | 12.7 | 4.76 | 11° | 0.8 |

C= 標準在庫品 C=Standard stock item.

# WALTER ボールエンドミル1刃タイプ
**WALTER Single-flute Ball End Mill**

# F2039

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
|  クランプねじ Clamping Screw | 8008622＊ | FS322 | R10 R12.5 |
| | 8008619＊ | FS319 (Torx15) | R15 R16 |
| | 8008543＊ | FS243 (Torx20) | R20 R25 |

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
|  レンチ Wrench | 78075＊ | FLR15S | R10 R12.5 |
|  ドライバ Screwdriver | 7808208 | T15-D (Torx15) | R15 R16 |
| | 7808209 | T20-D (Torx20) | R20 R25 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

| | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) | ダイヤコート Dia.Coating | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | WKM | | WKP25S | WKP35S | | WDC | |
| | 8030160＊ | 1,810 | 8037160＊ | | 2,190 | 8085160＊ | 13,300 |
| | | | 8037161＊ | 8039161＊ | 2,380 | | |
| | | | | | | | |
| | | | 8037163＊ | | 2,810 | | |
| | | | 8037164＊ | | 3,400 | | |
| | | | 8037165＊ | | 3,590 | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

| | 超硬材種 Grade of Carbide Materials | | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) | ダイヤコート Dia.Coating | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| | WPM | WKM | | WTL71 | WTA51 | WKP35S | | WDC | |
| | | 8030629＊ | 1,320 | | | | | 8085629＊ | 9,580 |
| | 8010630＊ | | 1,600 | | | | | | |
| | | 8030601＊ | 2,030 | | | 8039851＊ | 2,200 | | |

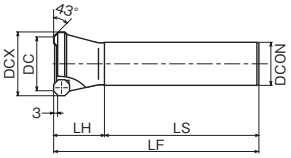
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
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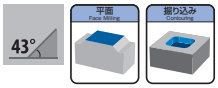
C= 標準在庫品 C=Standard stock item.

# WALTER オクタゴンカッタMINI
**WALTER Octagon Cutter MINI**

## F2280MINI SS 切削条件 Cutting Conditions | P1128-158





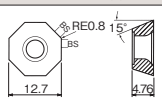




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 全長 LF | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075421 | **32×SS20×　2** | 32 | 24 | 110 | 35 | 20 | 75 | 2 | ①②③④⑤ | 2 | C | 43,600 |
| ＊8075431 | **32×SS25×200** | | | 200 | | 25 | 165 | | | | | 52,500 |
| ＊8075422 | **40×SS20×　3** | 40 | 32 | 125 | | 20 | 90 | 3 | | 3 | | 52,700 |
| ＊8075432 | **40×SS25×200** | | | 200 | | 25 | 165 | | | | | 61,300 |
| ＊8075423 | **50×SS25×　4** | 50 | 42 | 150 | | | 115 | 4 | | 4 | | 62,600 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

**適用インサート** Applicable Inserts




①②③
④⑤

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designations | 仕様 Specifications | | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP25S | WKP35S | WAK15 | WSM35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ①  | ODMW050408-A57 | M級 標準タイプ | M class Standard Type | 8 | – | | | | | ＊8059991 | | 1,220 |
| ②  | ODHW0504ZZN-A57 | 精密級 標準タイプ | Ground Standard Type | 8 | 1.2 | | | | | ＊8059993 | | 2,140 |
| ③  | ODMT0504ZZN-D57 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 8 | 1.2 | | | | ＊8039994 | | | 1,810 |
| ④  | ODHT0504ZZN-F57 | 精密級 16°ブレーカ 低抵抗タイプ | Ground 16°chip former Low Resistance Type | 8 | 1.2 | | | | | | | |
| ⑤  | ODHT0504ZZN-G88 | 精密級 20°ブレーカ 非鉄金属 | Ground 20°chip former For Non-Ferrous Metals | 8 | 1.2 | ＊8032996 | 1,850 | | | | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | ＊8008631 | FS378 (Torx15) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

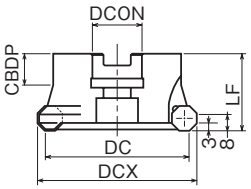
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

C= 標準在庫品 C=Standard stock item.

# WALTER オクタゴンカッタMINI
**WALTER Octagon Cutter MINI**

## F2280MINI SL 切削条件 Cutting Conditions | P1128-158






43°

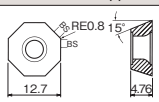
（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | カッタ高さ LF | 穴径 DCON | 取り付け穴高さ CBDP | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8075483 | **50×SL×4** | 50 | 42 | 40 | 16 | 19 | 4 | ①②③④⑤ | 4 | C | — |
| ＊8075484 | **63×SL×5** | 63 | 55 | | 22 | 20 | 5 | | 5 | | 73,900 |
| ＊8075485 | **80×SL×6J** | 80 | 72 | 50 | 25.4 | 26 | 6 | | 6 | | 79,800 |

ツール No. 欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

適用インサート Applicable Inserts




①②③
④⑤

■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designations | 仕様 Specifications | | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Carbide Materials | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | WK10 | | WKP25S | WKP35S | WAK15 | WSM35S | |
| ① | ODMW050408-A57 | M級 標準タイプ | M class Standard Type | 8 | — | | | | | ＊8059991 | | 1,220 |
| ② | ODHW0504ZZN-A57 | 精密級 標準タイプ | Ground Standard Type | 8 | 1.2 | | | | | ＊8059993 | | 2,140 |
| ③ | ODMT0504ZZN-D57 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 8 | 1.2 | | | | ＊8039994 | | | 1,810 |
| ④ | ODHT0504ZZN-F57 | 精密級 16°ブレーカ 低抵抗タイプ | Ground 16°chip former Low Resistance Type | 8 | 1.2 | | | | | | | |
| ⑤ | ODHT0504ZZN-G88 | 精密級 20°ブレーカ 非鉄金属 | Ground 20°chip former For Non-Ferrous Metals | 8 | 1.2 | ＊8032996 | 1,850 | | | | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | ＊8008631 | FS378 (Torx15) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

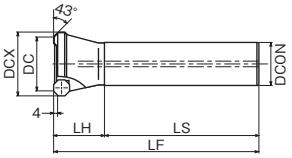
C= 標準在庫品 C=Standard stock item.

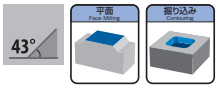
# WALTER オクタゴンカッタ
**WALTER Octagon Cutter**

## F2280 SS　切削条件 Cutting Conditions P1128-157

8角形インサート使用の多機能型カッタ。
切込みが4mm以下であれば8コーナ使用でき経済的です。インサートは1サイズ厚い5.56mmとなっており、135°の鈍角のコーナと併せて非常に高い刃先剛性を実現しています。
Multi-purpose milling cutter used with octagon inserts.
If the milling depth is less than 4mm, the insert can use eight corners. The thickness of insert-5.56mm and the obtuse angle corner 135°, povide superior rigidity on the milling edge.





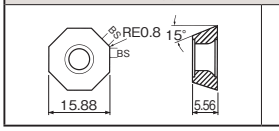




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | カッタ外径 DCX | 外径 DC | 全長 LF | 首下長 LH | シャンク径 DCON | シャンク長 LS | 刃数 ZEFP | 適用インサート Applicable Inserts | 仕上げ用インサート Finishing Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075403 | **50×SS32** | 50 | 40.7 | 150 | 50 | 32 | 100 | 3 | ①②③④⑤⑥⑦ | ⑧ | 3 | C | 58,000 |
| ＊8075413 | **50×SS42×250** | | | 250 | | 42 | 200 | | | | | | 68,700 |
| ＊8075404 | **63×SS32** | 63 | 53.7 | 150 | | 32 | 100 | | | | | | 63,100 |
| ＊8075414 | **63×SS42×250** | | | 250 | | 42 | 200 | | | | | | 74,600 |

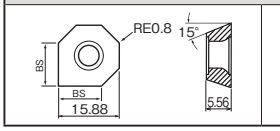
ロングシャンクタイプのみ油穴付きです。Long Shank type with coolant hole.
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

**適用インサート** Applicable Inserts




①②③
④⑤⑥
⑦

**仕上げ用（ワイパー）インサート** Finishing Inserts




⑧

## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designations | 仕様 Specifications | | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP35S | WAK15 | WKP25S | WSM35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | ODMW060508-A57 | M級 標準 タイプ | M class Standard Type | 8 | – | | | | ＊ 8059971 | | | 2,570 |
| ② | ODMW060508T-A27 | M級 強化 タイプ | M class Strong Edge Type | 8 | – | | | | | | | |
| ③ | ODHW0605ZZN-A57 | 精密級 標準 タイプ | Ground Standard Type | 8 | 1.6 | | | | ＊ 8059973 | | | 3,360 |
| ④ | ODMT0605ZZN-D57 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 8 | 1.6 | | | | | | | |
| ⑤ | ODMT0605ZZN-D57 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 8 | 1.6 | | | | | ＊ 8037974 | | 2,830 |
| ⑥ | ODHT0605ZZN-F57 | 精密級 16°ブレーカ 低抵抗タイプ | Ground 16°chip former Low Resistance Type | 8 | 1.6 | | | ＊ 8039975 | | | | 3,360 |
| ⑦ | ODHT0605ZZN-G88 | 精密級 20°ブレーカ 非鉄金属 | Ground 20°chip former For Non-Ferrous Metals | 8 | 1.6 | ＊ 8033976 | 2,830 | | | | | |
| ⑧ | ODHX0605ZZR-A57 | 精密級 標準 タイプ | Ground Standard Type | 1 | 9.4 | | | | ＊ 8059977 | | | 4,390 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | ＊ 8009130 | FS1030 (Torx20) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

C= 標準在庫品 C=Standard stock item.

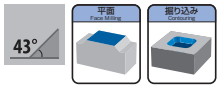
# WALTER オクタゴンカッタ
**WALTER Octagon Cutter**

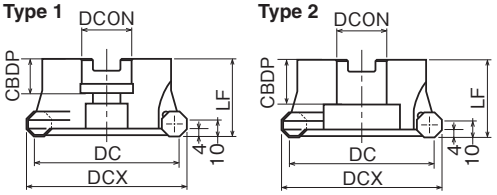
## F2280 SL　切削条件 Cutting Conditions　P1128-157

経済的な８角形インサートを使用の次世代フェイスミルカッタ。切込みが4mm以下であれば8コーナ使用でき経済的です。インサートは１サイズ厚い5.56mmとなっており、135°の鈍角のコーナと併せて非常に高い刃先剛性を実現しています。

Next generation Face Cutter used with efficient octagon inserts.
If the milling depth is less than 4mm, the insert can use eight corners.
The thickness of insert-5.56mm and the obtuse angle corner 135°, povide superior rigidity on the milling edge.





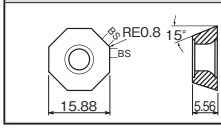




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ外径 DCX | カッタ高さ LF | 穴径 DCON | 取り付け穴高さ CBDP | 刃数 ZEFP | 適用インサート Applicable Inserts | 仕上げ用インサート Finishing Inserts | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8075455 | **80×SL×5J** | 80 | 89.3 | 50 | 25.4 | 26 | 5 | ①②③④⑤⑥⑦ | ⑧ | 5 | 1 | C | 73,800 |
| ＊8075465 | **80×SL×6J** | | | | | | 6 | | | 6 | | | 79,800 |
| ＊8075456 | **100×SL×5J** | 100 | 109.3 | | 31.75 | 32 | 5 | | | 5 | 2 | | 80,700 |
| ＊8075466 | **100×SL×7J** | | | | | | 7 | | | 7 | | | 89,900 |
| ＊8075457 | **125×SL×6J** | 125 | 134.3 | 63 | 38.1 | 38 | 6 | | | 6 | | | 97,300 |
| ＊8075467 | **125×SL×8J** | | | | | | 8 | | | 8 | | | 104,000 |

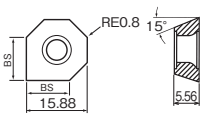
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

### 適用インサート Applicable Inserts




①②③
④⑤⑥
⑦

### 仕上げ用（ワイパー）インサート Finishing Inserts




⑧

### ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designations | 仕様 Specifications | | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS | 超硬材種 Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP35S | WAK15 | WKP25S | WSM35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | ODMW060508-A57 | M級 標準タイプ | M class Standard Type | 8 | – | | | | ＊ 8059971 | | | 2,570 |
| ② | ODMW060508T-A27 | M級 強化タイプ | M class Strong Edge Type | 8 | – | | | | | | | |
| ③ | ODHW0605ZZN-A57 | 精密級 標準タイプ | Ground Standard Type | 8 | 1.6 | | | | ＊ 8059973 | | | 3,360 |
| ④ | ODMT0605ZZN-D57 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 8 | 1.6 | | | | | | | |
| ⑤ | ODMT0605ZZN-D57 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 8 | 1.6 | | | | | ＊ 8037974 | | 2,830 |
| ⑥ | ODHT0605ZZN-F57 | 精密級 16°ブレーカ 低抵抗タイプ | Ground 16°chip former Low Resistance Type | 8 | 1.6 | | | ＊ 8039975 | | | | 3,360 |
| ⑦ | ODHT0605ZZN-G88 | 精密級 20°ブレーカ 非鉄金属 | Ground 20°chip former For Non-Ferrous Metals | 8 | 1.6 | ＊ 8033976 | 2,830 | | | | | |
| ⑧ | ODHX0605ZZR-A57 | 精密級 標準タイプ | Ground Standard Type | 1 | 9.4 | | | | ＊ 8059977 | | | 4,390 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| クランプねじ Clamping Screw | ＊ 8009130 | FS1030 (Torx20) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

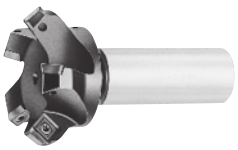
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

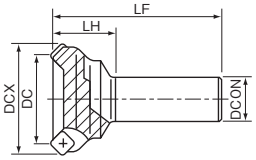
C= 標準在庫品 C=Standard stock item.

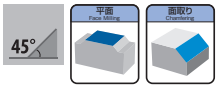
# WALTER サイクロンカッタ
**WALTER Cyclone Cutter**

## F2133 SS　切削条件 Cutting Conditions | P1128-159

切削抵抗の低いハイレーキタイプのエンドミル。深切込み高送りの高能率加工が可能。
Large rake angle inserts for minimal milling force. High feed and large cutting depth increase productivity.





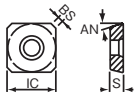




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ外径 DCX | 全長 LF | 首下長 LH | シャンク径 DCON | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8005815 | **40×SS32×3** | 40 | 54.5 | 120 | 45 | 32 | 3 | ①② | 3 | C | 60,900 |
| ＊8005816 | **50×SS32×4** | 50 | 64.4 | | | | 4 | | 4 | | 74,600 |
| ＊8005818 | **63×SS32×5** | 63 | 77.4 | | | | 5 | | 5 | | 88,500 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

## ■適用インサート　Applicable Inserts




（単位:mm）(Unit:mm)

| 形状 Appearance | | 呼び Designation | | 仕様 Specifications | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size 内接円径 IC | 厚さ S | 逃げ角 AN | BS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | ① | SPKT1204AZN | P28451-1 | 準精密級 ブレーカ付き | Partly Ground with secondary edge | 4 | 12.7 | 4.76 | 11° | 1.4 | |
| | ② | SPGT1204AEN-K88 | ー | 精密級 ブレーカ付き 非鉄金属用 | Ground with chip former For Non-Ferrous Metals | 4 | 12.7 | 4.76 | 11° | 1.4 | |

## ■部品　Accessories

| | | ツール No. EDP No. | 呼び Designation |
|---|---|---|---|
|  | クランプねじ Clamping Screw | ＊8009130 | FS1030 (Torx20) |
|  | ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

C= 標準在庫品　C=Standard stock item.

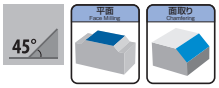
# WALTER サイクロンカッタ
**WALTER Cyclone Cutter**

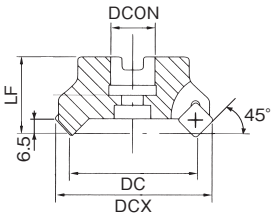
## F2133 SL

切削条件 Cutting Conditions | P1128-159

切削抵抗の低いハイレーキタイプの汎用正面フライスカッタ。深切込み高送りの高能率加工が可能。
Large rake angle inserts for minimal milling force. High feed and large cutting depth increase productivity.






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ外径 DCX | カッタ高さ LF | 穴径 DCON | 刃数 ZEFP | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8005806 | **50×SL×4** | 50 | 64.4 | 40 | 22 | 4 | ①② | 4 | – | – |
| 8005809 | **63×SL×5** | 63 | 77.4 | | | 5 | | 5 | | – |
| ＊8005820 | **80×SL×5J** | 80 | 95 | 50 | 25.4 | | | | C | 94,400 |
| 8005810 | **80×SL×6J** | | | | | 6 | | 6 | – | – |
| ＊8005821 | **100×SL×5J** | 100 | 115 | | 31.75 | 5 | | 5 | C | 111,000 |
| 8005811 | **100×SL×7J** | | | | | 7 | | 7 | – | – |
| ＊8005822 | **125×SL×6J** | 125 | 140 | 63 | 38.1 | 6 | | 6 | C | 139,000 |
| 8005812 | **125×SL×7J** | | | | | 7 | | 7 | – | – |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

（単位:mm）(Unit:mm)

| | 超硬材種 Grade of Carbide Materials | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
| | WK10 | | WKP25S | WKP35S | WAK15 | |
| | | | | | ＊ 8058541 | 2,140 |
| | ＊ 8033551 | 2,350 | | | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

### ■部品 Accessories

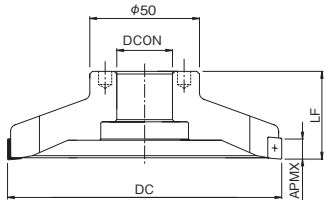
| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | ＊ 8009130 | FS1030 (Torx20) |
|  ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

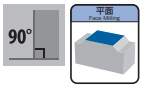
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。
Stocks are categorized as C (standard stock item).

# WALTER ディスクカッタS
**WALTER Disc Cutter S (Roughing)**

## DC-S　切削条件 Cutting Conditions　P1128-150



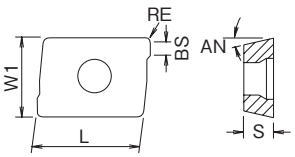



（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 最大切込み量 APMX | 穴径 DCON | 刃数 ZEFP | 重量 (kg) | 最高許容回転数 RPMX(min-1) | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8070255 | **80×SL×4J** | 80 | 40 | 9 | 25.4 | 4 | 0.44 | 15,000 | APHT0903PPR-73<br>APKT0903PPR-52 | 4 | C | 102,000 |
| ＊8070256 | **100×SL×4J** | 100 | | | | | 0.6 | 13,400 | | | | 104,000 |
| ＊8070257 | **125×SL×5J** | 125 | | | | 5 | 1 | 12,000 | | 5 | | 109,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.




### ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size L×W1 | 厚さ S | 逃げ角 AN | コーナR RE | 副切れ刃幅 BS | 超硬材種 Grade of Carbide Materials K10T | コーティング材種 Grade of Coated Materials K15CA | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | APHT0903PPR-73 | 精密級<br>25°ブレーカ<br>非鉄金属用<br>Ground<br>25°chip former<br>For Non-Ferrous Metals | 2 | 9.52×6.75 | 3.18 | 11° | 0.4 | 1.5 | | | |
|  | APKT0903PPR-52 | 準精密級<br>16°ブレーカ<br>低抵抗タイプ<br>Partly Ground<br>16°chip former<br>Low Resistance Type | 2 | 9.52×6.75 | 3.18 | 11° | 0.4 | 1.2 | | ＊8059301 | 1,850 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | ＊8009023 | FS923 (Torx8) |
|  ドライバ Screwdriver | 7808205 | T8-D (Torx8) |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。
Stocks are categorized as C (standard stock item).

### ■切削条件表　Cutting Condition

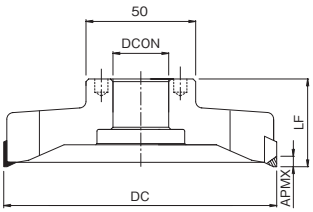
| 被削材質 Work Material | 材料記号 Material Symbol | 切削速度 Cutting speed (m/min) | 1刃当りの送り Feed per tooth (mm/t) |
|---|---|---|---|
| アルミニウム及びアルミニウム合金 Si含有量13%未満 Aluminum and Aluminum alloy ～13wt%Si | A**** AC** ADC** | 1,000～2,500 | 0.07～0.25 |
| アルミニウム及びアルミニウム合金 Si含有量13%以上 Aluminum and Aluminum alloy 13wt%Si～ | AC9A、A390 など etc. | 80～200 | 0.07～0.25 |
| 銅合金 Copper alloy | C1100 など etc. | 200～500 | 0.07～0.25 |
| 鋳鉄 Cast iron | FC250 など etc. | 100～200 | 0.07～0.15 |

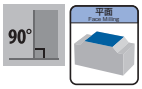
C= 標準在庫品　C=Standard stock item.

# WALTER ディスクカッタPRO
**WALTER Disc Cutter PRO (Finishing)**

## DC-P　切削条件 Cutting Conditions P1128-150



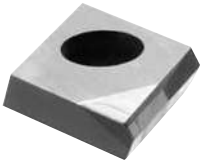


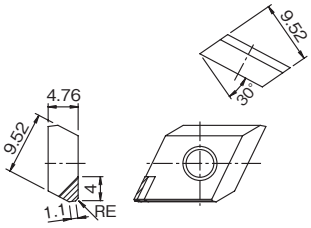




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ高さ LF | 最大切込み量 APMX | 穴径 DCON | 刃数 ZEFP | 重量 (kg) | 最高許容回転数 RPMX(min-1) | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ＊8070265 | **80×SL×3J** | 80 | 40 | 4 | 25.4 | 3 | 0.48 | 15,500 | XOHW1104PDR | 3 | C | 120,000 |
| ＊8070266 | **100×SL×4J** | 100 | | | | 4 | 0.7 | 13,800 | | 4 | | 127,000 |
| ＊8070267 | **125×SL×5J** | 125 | | | | 5 | 1.3 | 12,400 | | 5 | | 132,000 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.





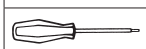

### ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size コーナ R RE | ダイヤ PCD blazed WDO | 標準価格 (Yen) |
|---|---|---|---|---|---|---|
|  | XOHW1104PDR | 精密級<br>非鉄金属用<br>Ground<br>For Non-Ferrous Metals | 1 | 0.3×45° | ＊8080801 | 21,100 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

### ■部品　Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | ＊8008626 | FS326 (Torx15) |
|  調整ねじ Adjusting Bolt | ＊8008747 | FS747 (Torx15) |
|  固定ねじ Set Screw | | FS963 (六角:SW3) |
|  ドライバ Screwdriver | 7808208 | T15-D (Torx15) |

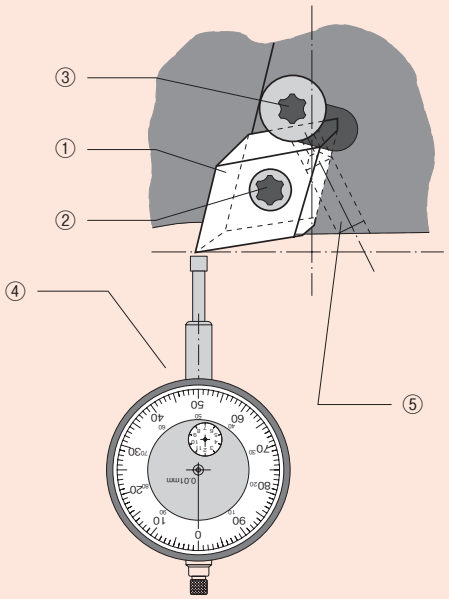
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

### ■切削条件表　Cutting Condition

| 被削材質 Work Material | 材料記号 Material Symbol | 切削速度 Cutting speed (m/min) | 1刃当りの送り Feed per tooth (mm/t) |
|---|---|---|---|
| アルミニウム及びアルミニウム合金 Si含有量13%未満 Aluminum and Aluminum alloy ～13wt%Si | A****<br>AC**<br>ADC** | 1,000～4,000 | 0.05～0.15 |
| アルミニウム及びアルミニウム合金 Si含有量13%以上 Aluminum and Aluminum alloy 13wt%Si～ | AC9A、A390 など etc. | 80～200 | 0.05～0.15 |
| 銅合金 Copper alloy | C1100 など etc. | 200～500 | 0.05～0.15 |

## ディスクカッタ PROの刃先高さ調整方法

**Setting Instructions for the axial concentricity of Disc Cutter PRO**




①インサート
Indexable insert
②クランプねじ
Clamping screw for insert
③調整ねじ
Adjusting screw
④ダイヤルゲージ
Dial gauge
⑤固定ねじ
Set screw

### 刃先高さ調整の手順 Setting of axial concentricity

手順1　固定ねじ⑤を緩めます。
手順2　インサート①をインサート座にクランプねじ②で固定します。
手順3　調整ねじ③のテーパ首部とインサートが接触しているか確認します。接触していない場合は、調整ねじ③を左回り（反時計回り）に締め込み、インサート①と接触させます。
手順4　この状態で刃先高さを測定し、最も高い刃を確認します。この最も高い刃に高さを合わせるように調整を行います。
手順5　刃先高さの低い刃の調整ねじ③を左回りに締め込み、刃先高さを最も高い刃の位置まで上げます。
手順6　固定ねじ⑤を締め込みます。
注意①　刃先高さは上げる方向にしか調整出来ません。調整可能な範囲は0.15～0.2mmです。調整範囲の上限に近いところでは、刃先高さが上がりにくくなります。この場合は、一旦インサート①を取り外し、調整ねじ③を緩めた状態から再度調整を行って下さい。
②　ダイヤル端子をインサートへ接触させたり離したりする際には、大きな衝撃を与えないよう注意して下さい。

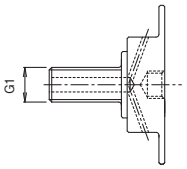
1　Loosen set screw ⑤.
2　Place indexable insert ① on the insert seat and tighten it with clamping screw ②.
3　Check that the tapered neck of adjusting screw ③ is in contact with the insert. If it is not in contact, tighten adjusting screw ③ counterclockwise until it contacts insert ①.
4　In this state, measure the edge height in order to check for the highest cutting edge. Then, adjust the height to the highest cutting edge that was measured at this time.
5　Tighten counterclockwise adjusting screw ③ for the short cutting edge until it reaches the height of the highest cutting edge.
6　Tighten set screw ⑤.
Note① An edge height can be adjusted only in the upward direction. The adjustable range is between 0.15mm and 0.20mm. The edge height may not increase easily near the upper limit of the adjustment range. In this case, first remove insert ① and loosen adjusting screw ③. Then, readjust the height.
Note② Do not to apply a large shock when placing the dial terminal in contactwith the tip.

## 形状寸法表 Dimensions

### オイルホール付きクランプボルト Clamping Bolt with Oil Hole

別売りオプション Options





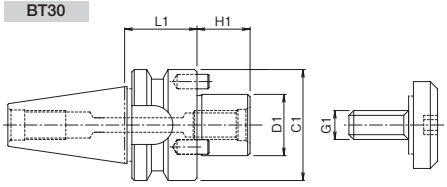

| ツール No. EDP No. | 呼び Designation | G1 | 在庫 Stock | 参考価 (Yen) |
|---|---|---|---|---|
| 99632 | **MBAH-M12** | M12 | C | – |

ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

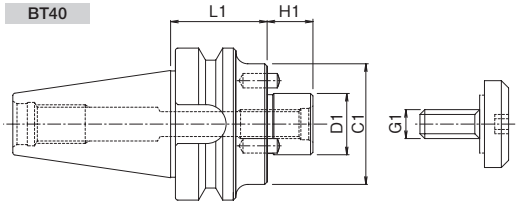
# ディスクカッタ用 専用アーバ Arbors

## BT タイプ BT type

BT30




BT40



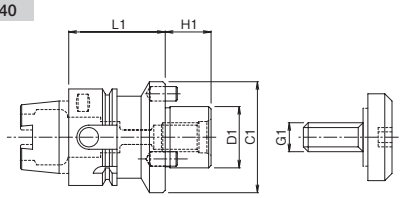

（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | $D_1$ | $L_1$ | $C_1$ | $H_1$ | $G_1$ | 重量 (kg) | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ＊99640 | **BT30-FMOA25.4-29** | 25.4 | 29 | 46 | 19 | M12 | 0.6 | C | 32,100 |
| ＊99645 | **BT40-FMOA25.4-40** | | 40 | 50 | | | 1.4 | | 33,200 |

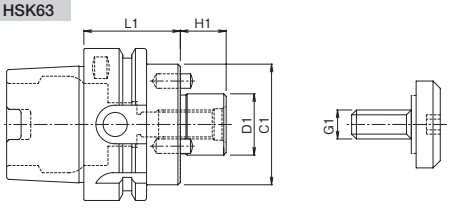
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

## HSK タイプ HSK type

HSK40




HSK63




（単位:mm）(Unit:mm)

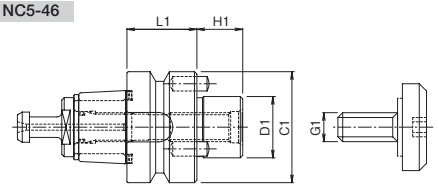
| ツール No. EDP No. | 呼び Designation | $D_1$ | $L_1$ | $C_1$ | $H_1$ | $G_1$ | 重量 (kg) | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ＊99634 | **HSK40A-FMOA25.4-49** | 25.4 | 49 | 46 | 19 | M12 | 0.6 | C | 74,900 |
| ＊99635 | **HSK63A-FMOA25.4-50** | | 50 | 50 | | | 1.2 | | 87,100 |

クーラントホース標準装備 (Coolant tube built in)

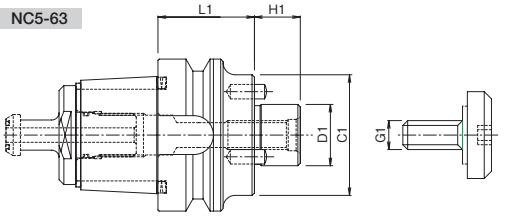
＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

## NC5 タイプ NC5 type

NC5-46




NC5-63




（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | $D_1$ | $L_1$ | $C_1$ | $H_1$ | $G_1$ | プルスタッド Pull stud | 重量 (kg) | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| 99636 | **NC5-46-FMOA25.4-29A** | 25.4 | 29 | 46 | 19 | M12 | PS-N46AE | 0.6 | C | — |
| 99638 | **NC5-46-FMOA25.4-29B** | | | | | | PS-123E | | | — |
| 99637 | **NC5-63-FMOA25.4-40A** | | 40 | 50 | | | PS-N63AE | 1.6 | | — |
| 99639 | **NC5-63-FMOA25.4-40B** | | | | | | PS-N63VE | | | — |

注1） 上記NC5ホルダはプルスタッド組み付け状態にて出荷となります。（表中のプルスタッド型式をご確認下さい。）
Note 1: The NC5 holder above is shipped fitted with a pull stud. (Refer to the pull stud types shown in the table.)
注2） 上記表以外のプルスタッドについては、当社営業まで別途ご相談下さい。
Note 2: For pull studs other than those shown in the table above, contact OSG sales.

ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

C= 標準在庫品 C=Standard stock item.

# WALTER 鋳鉄・重切削加工用ミーリングカッタ
**WALTER Heavy Duty Cutter for Cast Iron**

## F2260　切削条件 Cutting Conditions | P1128-160









（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 外径 DCX | カッタ高さ LF | 穴径 DCON | E1 | 最大切込み量 APMX | 適用インサート Applicable Inserts | 刃数 z | 重量 (kg) | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8075495 | **100XSLX6** | 100 | 113 | 50 | 32 | – | 11 | ① LN..1508 | 6 | 3 | 1 | C | – |
| 8075496 | **125XSLX8** | 125 | 138 | 63 | 40 | – | | | 8 | 4.2 | | | – |
| 8075497 | **160XSLX10** | 160 | 173 | | | 66.7 | | | 10 | 6.9 | 2 | | – |
| ＊8075498 | **200XSLX12** | 200 | 213 | | 60 | 101.6 | | | 12 | 10 | 3 | | 412,000 |
| | **F2260.B.250.Z14.11** | 250 | 263 | | | | | | 14 | 16 | | – | – |

ツールNo.欄 ▭ のものは廃番品です。
EDP No. found in ▭ are discontinued products.

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.

■部品　Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  クランプねじ Clamping Screw | ＊8009109 | FS1009 (Torx20) |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

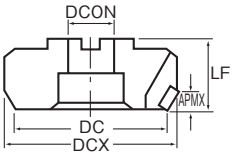
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

C= 標準在庫品　C=Standard stock item.

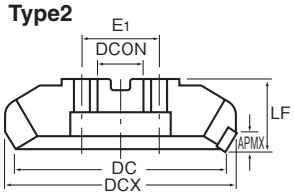
# WALTER 鋳鉄・重切削加工用ミーリングカッタ
**WALTER Heavy Duty Cutter for Cast Iron**

# F2260

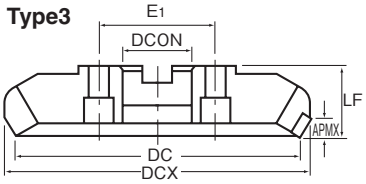
**Type1**



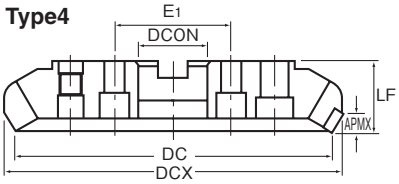

**Type2**

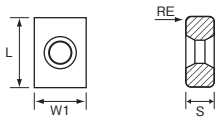



**Type3**




**Type4**




## ■適用インサート　Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | | 呼び Designation | 仕様 Specification | 切れ刃数 No. of Cutting Edges | インサート寸法 Insert Size | | | コーティング材種 Grade of Coated Materials | | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | L × W1 | 厚さ S | コーナ R RE | WAK15 | WKP25S | |
|  | ① | LNMU150812-F57T | M級<br>標準タイプ<br>M class<br>Standard Type | 4 | 15x14 | 8 | 1.2 | 8058940 * | | 3,740 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC（標準在庫品）となります。 Stocks are categorized as C (standard stock item).

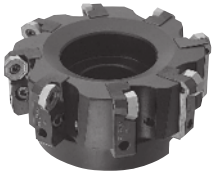
## ●インサート材種　Insert Material

（単位:mm）(Unit:mm)

| 材種名 Grade Designation | コーティング Surface Treatment | 仕様 Specification | 適用被削材質 Work Materials |
|---|---|---|---|
| WAK15 | 酸化アルミナコーティング<br>$Al_2O_3$（CVD） | タイガーテック<br>高い耐摩耗性による長寿命加工<br>良好な加工条件での加工用<br>Tiger Tec<br>High wear resistance & long tool life<br>For use under good cutting conditions | 鋳鉄・ダクタイル鋳鉄<br>For cast iron and ductile cast iron |
| WKP25S | 酸化アルミナコーティング<br>$Al_2O_3$（CVD） | タイガーテック<br>高い耐欠損性による安定した高能率加工<br>過酷な加工条件での加工用<br>Tiger Tec<br>High chipping resistance & stable, high efficiency milling<br>For use under tough cutting conditions | 鋳鉄・ダクタイル鋳鉄<br>For cast iron and ductile cast iron |

# WALTER ミーリングカッタ
**WALTER Milling Cutter**

## F2010 P5E43R 切削条件 Cutting Conditions P1128-157









高剛性8角形インサートを使用し、高い経済性と切削性能を両立。切込みが4mm以下であれば8コーナ使用でき経済的です。インサートは1サイズ厚い5.56mmとなっており、135°の鈍角のコーナと併せて非常に高い刃先剛性を実現しています。

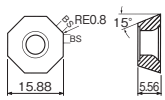
The rigid, octagon inserts provide cost-efficient, high milling performance.
If the milling depth is less than 4mm, the insert can use eight corners. The thickness of insert-5.56mm and the obtuse angle corner 1350, provide superior rigidity on the milling edge.

（単位:mm）(Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | カッタ径 DCX | カッタ高さ LF | 穴径 DCON | 刃数 ZEFP | 重量 (kg) | 適用インサート Applicable Inserts | 仕上げ用インサート Finishing Inserts | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 標準 Standard FL1035 | 8002480 | **P5E43R 25012J** | 250 | 260 | 63 | 47.625 | 12 | 16.6 | ①②③④⑤⑥⑦ | ⑧ | 12 | 3 | C | – |
| | 8002481 | **P5E43R 25016J** | | | | | 16 | | | | 16 | | | – |
| マイクロフェース Micro Face FL1034 | 8004482 | **P5E43R 08006J** | 80 | 90 | 50 | 25.4 | 6 | 1.5 | | | 6 | 1 | | – |
| | 8004483 | **P5E43R 10007J** | 100 | 110 | | 31.75 | 7 | 2.6 | | | 7 | 2 | | – |
| | 8004484 | **P5E43R 12508J** | 125 | 135 | 63 | 38.1 | 8 | 3.4 | | | 8 | | | – |
| | 8004487 | **P5E43R 16010J** | 160 | 170 | | 50.8 | 10 | 6.6 | | | 10 | 3 | | – |
| | 8004489 | **P5E43R 20012J** | 200 | 210 | | 47.625 | 12 | 9.8 | | | 12 | | | – |

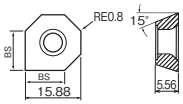
マイクロフェースは刃先高さ調整タイプです。 Micro Face Milling Cutter is an axial adjustment type.
ツール No. 欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

**適用インサート** Applicable Inserts




①②③④⑤⑥⑦

**仕上げ用（ワイパー）インサート** Finishing Inserts




⑧

## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

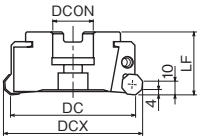
| 形状 Appearance | 呼び Designation | 仕様 Specifications | | 切れ刃数 Number of Cutting Edges | 副切れ刃 BS |
|---|---|---|---|---|---|
| ① | ODMW060508-A57 | M級 標準タイプ | M class Standard Type | 8 | – |
| ② | ODMW060508T-A27 | M級 強化タイプ | M class Strong Edge Type | 8 | – |
| ③ | ODHW0605ZZN-A57 | 精密級 標準タイプ | Ground Standard Type | 8 | 1.6 |
| ④ | ODMT0605ZZN-D57 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 8 | 1.6 |
| ⑤ | ODMT0605ZZN-D57 | M級 10°ブレーカ 標準タイプ | M class 10°chip former Standard Type | 8 | 1.6 |
| ⑥ | ODHT0605ZZN-F57 | 精密級 16°ブレーカ 低抵抗タイプ | Ground 16°chip former Low Resistance Type | 8 | 1.6 |
| ⑦ | ODHT0605ZZN-G88 | 精密級 20°ブレーカ 非鉄金属 | Ground 20°chip former For Non-Ferrous Metals | 8 | 1.6 |
| ⑧ | ODHX0605ZZR-A57 | 精密級 標準タイプ | Ground Standard Type | 1 | 9.4 |

C= 標準在庫品 C=Standard stock item.

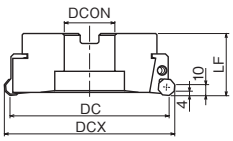
## WALTER ミーリングカッタ
**WALTER Milling Cutter**

# F2010 P5E43R

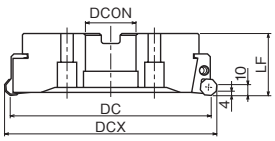
**Type1**




**Type2**




**Type3**




■部品 Accessories

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| カートリッジ Cartridge | 8008258* | FR592M |
| クランプねじ Clamping Screw | 8009130* | FS1030 (Torx20) |
| カートリッジ用クランプねじ Clanping Screw for Cartridge | 8008547* | FS247 |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
| 調整ねじ Adjusting Bolt | 8008603* | FS303 (Torx20) |
| ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

(単位:mm) (Unit:mm)

| | 超硬材種 Carbide Materials WK10 | 標準価格 (Yen) | コーティング材種 Grade of Coated Materials WKP35S | WAK15 | WKP25S | WSM35S | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| | | | | 8059971* | | | 2,570 |
| | | | | | | | |
| | | | | 8059973* | | | 3,360 |
| | | | | | | | |
| | | | | | 8037974* | | 2,830 |
| | | | 8039975* | | | | 3,360 |
| | 8033976* | 2,830 | | | | | |
| | | | | 8059977* | | | 4,390 |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分は全てC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

C= 標準在庫品 C=Standard stock item.

# WALTER ミーリングカッタ
**WALTER Milling Cutter**

## F2010 P4G45R 切削条件 Cutting Conditions P1128-159

**カートリッジ式。切削抵抗の少ない汎用ハイレーキタイプ。深切込み高送りの高能率加工が可能。**
Uses high rake angle inserts for minimized milling force. High feed and large cutting depth increase productivity. Requires cartridge attachment.







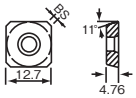


（単位:mm）(Unit:mm)

| タイプ Type | ツール No. EDP No. | 呼び Designation | 外径 DC | 最大外径 DCX | カッタ高さ LF | 最大切込み量 APMX | 穴径 DCON | 刃数 ZEFP | 重量 (kg) | 適用インサート Applicable Inserts | 使用インサート数 Number of Inserts | 形状タイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 標準 Standard FL1035 | 8002442 | **P4G45R 08006J** | 80 | 95 | 50 | 6.5 | 25.4 | 6 | 1.5 | ①② | 6 | 1 | C | — |
| | 8002443 | **P4G45R 10007J** | 100 | 115 | | | 31.75 | 7 | 2.6 | | 7 | 2 | | — |
| | 8002444 | **P4G45R 12508J** | 125 | 140 | 63 | | 38.1 | 8 | 3.4 | | 8 | | | — |
| | 8002447 | **P4G45R 16010J** | 160 | 175 | | | 50.8 | 10 | 6.6 | | 10 | 3 | | — |
| | 8002449 | **P4G45R 20012J** | 200 | 215 | | | 47.625 | 12 | 9.8 | | 12 | | | — |
| | 8002450 | **P4G45R 25012J** | 250 | 265 | | | | | 16.6 | | | | | — |
| | 8002451 | **P4G45R 25016J** | | | | | | 16 | | | 16 | | | — |
| | | **P4G45R 31514** | 315 | 330 | 80 | | 60 | 14 | 27 | | 14 | 4 | — | — |
| | | **P4G45R 31518** | | | | | | 18 | | | 18 | | — | — |
| マイクロフェース Micro Face FL1034 | 8004442 | **P4G45R 08006J** | 80 | 95 | 50 | 6.5 | 25.4 | 6 | 1.5 | ①② | 6 | 1 | C | — |
| | 8004443 | **P4G45R 10007J** | 100 | 115 | | | 31.75 | 7 | 2.6 | | 7 | 2 | | — |
| | 8004444 | **P4G45R 12508J** | 125 | 140 | 63 | | 38.1 | 8 | 3.4 | | 8 | | | — |
| | 8004447 | **P4G45R 16010J** | 160 | 175 | | | 50.8 | 10 | 6.6 | | 10 | 3 | | — |
| | 8004449 | **P4G45R 20012J** | 200 | 215 | | | 47.625 | 12 | 9.8 | | 12 | | | — |

各径の左勝手タイプ、及びDC=80～250の穴径ミリサイズについては、御相談下さい。
マイクロフェースは刃先高さ調整タイプです。
ツール No. 欄 ▭ のものは廃番品です。

For left handed cutters and cutters with metric bore dia.(DC), please consult your OSG representative.
Micro Face Milling Cutter is an axial adjustment type.
EDP No. found in ▭ are discontinued products.




### ■適用インサート Applicable Inserts

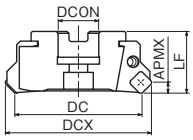
| 形状 Appearance | | 呼び Designations | | 仕様 Specifications | | 切れ刃数 Number of Cutting Edges | インサート寸法 Insert Size BS | 超硬材種 Grade of Carbide Materials WK10 | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
|  | ① | SPKT1204AZN | P28451-1 | 準精密級 ブレーカ付き | Partly Ground with chip former | 4 | 1.4 | | |
| | ② | SPGT1204AEN-K88 | | 準精密級 ブレーカ付き 非鉄金属用 | Partly Ground with chip former For Non-Ferrous Metals | 4 | 1.4 | 8033551 ❄ | 2,350 |

C= 標準在庫品 C=Standard stock item.

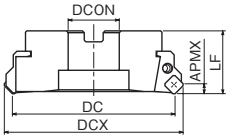
# WALTER ミーリングカッタ
**WALTER Milling Cutter**

## F2010 P4G45R

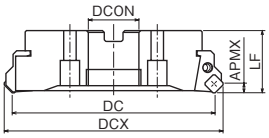
**Type1**



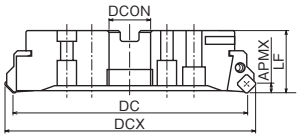

**Type2**




**Type3**




**Type4**




■部品 Accessories

| | | ツール No. EDP No. | 呼び Designation |
|---|---|---|---|
|  | カートリッジ Cartridge | 8008250* | FR495M |
|  | クランプねじ Clamping Screw | 8008543* | FS243 (Torx20) |
|  | ドライバ Screwdriver | 7808209 | T20-D (Torx20) |

| | | ツール No. EDP No. | 呼び Designation |
|---|---|---|---|
|  | カートリッジ用クランプねじ Clamping Screw for Cartridge | 8008547* | FS247 |
|  | 調整ねじ(マイクロフェース用) Adjusting Bolt(for Micro Face) | 8008603* | FS303 (Torx20) |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。
Stocks are categorized as C (standard stock item).

(単位:mm)(Unit:mm)

| | コーティング材種 Grade of Coated Materials | | | 標準価格 (Yen) |
|---|---|---|---|---|
| | WKP25S | WKP35S | WAK15 | |
| | | | 8058541* | 2,140 |
| | | | | |

＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC(標準在庫品)となります。 Stocks are categorized as C (standard stock item).

C= 標準在庫品 C=Standard stock item.

# F2010Mマイクロフェースの取扱い方法 ADJUSTING THE F2010M MICRO-FACE CUTTER



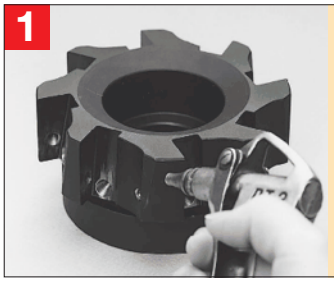
## ミクロン台の刃先調整が可能

It is possible to adjust the position of the cutting faces using a micron adjustment platform.

ミーリングカッタによるフライス加工において、各切れ刃間の精度差は①仕上げ面粗さ　②インサート寿命に大きな影響を与えます。
F2010Mマイクロフェースタイプは、ボディ本体に取り付けられる調整ねじにより、刃先高さをミクロン台に調整することができ、インサート寿命の延長をもたらすとともに、特に仕上げ切削において、超高送り切削を可能としました。

When using multiple tooth milling cutters, both the surface quality obtained after milling and the insert life depend on fine adjustment of the insert position.
Cartridges are attached to the F2010M Micro-face cutter using a special clamping screw. By using a micron adjustment platform super-fine adjustment of the tooth height is possible. Tool life can be extended and high feed-rate processing can be performed while still maintaining an excellent surface finish.

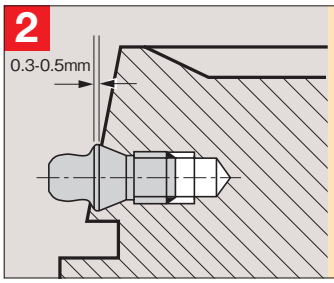
**1**



カッタ本体の付着物をエアで除去します。

First, remove debris from the cutter body using an air jet.

**2**




図の様に、調整ねじをカッタ本体に0.3～0.5mm突出して取り付けます。

As shown, insert the adjustment screw so that it protrudes 0.3-0.5mm from the cutter body.

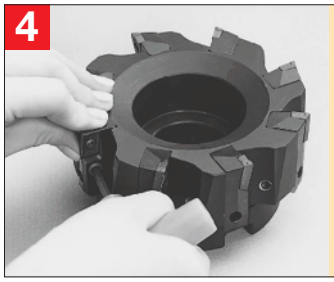
**3**




取り付けるカートリッジの付着物をエアで除去します。

Clean the cartridge using an air jet.

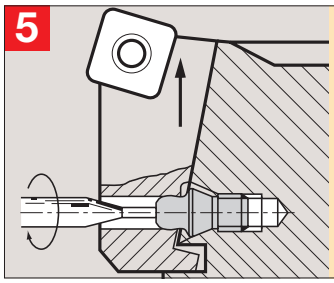
**4**



カートリッジをカッタ本体の基準面に押さえつけてカートリッジ用クランプねじで締込みます。

Hold the cartridge in place against the cutter body and tighten the adjustment screw.

**5**



刃先の調整は、ドライバで調整ねじを右回転させると図の矢印の方向に上がります。調整範囲は0.2mmまで可能です。

Using a screwdriver, turn the adjustment screw clockwise to adjust the position of the cartridge. The cartridge will move in the direction indicated in the diagram. Adjustment is possible the range of 0.2mm.

**6**

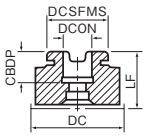


調整台にて刃先調整を行います。刃先は1μm内に調整できます。

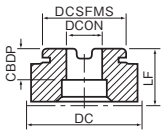
Finally, use a micron adjustment platform to fine-tune the position to within 1 micron.

# ボディ(本体)F2010、F2010M、F2052寸法表
Body

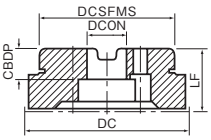
**Type1**



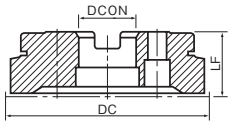

**Type2**



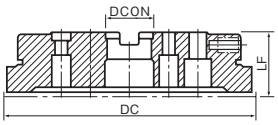

**Type3**




**Type4**




**Type5**




## ■ F2010、F2010M (本体)

(単位:mm) (Unit:mm)

| 外径 DC | カッタ高さ LF | 穴径 DCON | ボス径 DCSFMS | 取り付け穴深さ CBDP | 刃数 ZEFP | 形状タイプ Type | 標準 Standard ツール No. EDP No. | 在庫 Stock | 標準価格 (Yen) | マイクロフェース Micro Face ツール No. EDP No. | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | 50 | 25.4 | 55 | 26 | 6 | 1 | 8007102 | – | – | 8007302 | – | – |
| | | 27 | | 28 | | | | – | – | | – | – |
| 100 | | 31.75 | 74 | 32 | 7 | 2 | 8007103 | – | – | 8007303* | C | 177,000 |
| | | 32 | | 28 | | | | – | – | | – | – |
| 125 | 63 | 38.1 | 99 | 38 | 8 | | 8007104 | – | – | 8007304* | C | 192,000 |
| | | 40 | | 30 | | | | – | – | | – | – |
| 160 | | 50.8 | 134 | 38 | 10 | | 8007107 | – | – | 8007307* | C | 217,000 |
| | | 40 | | 30 | | 3 | | – | – | | – | – |
| 200 | | 47.625 | – | – | 12 | 4 | 8007109 | – | – | 8007308* | C | 257,000 |
| | | 60 | | | | | | – | – | | – | – |
| 250 | | 47.625 | | | | | 8007110* | C | 222,000 | | | |
| | | 60 | | | | | | – | – | | | |
| | | 47.625 | | | 16 | | 8007111* | C | 257,000 | | | |
| | | 60 | | | | | | – | – | | | |
| 315 | 80 | | | | 14 | 5 | | – | – | | | |
| | | | | | 18 | | | – | – | | | |

315mm以上のカッタで穴径インチサイズのものも御相談ください。 For 315mm and over cutters please consult your OSG representative.

ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

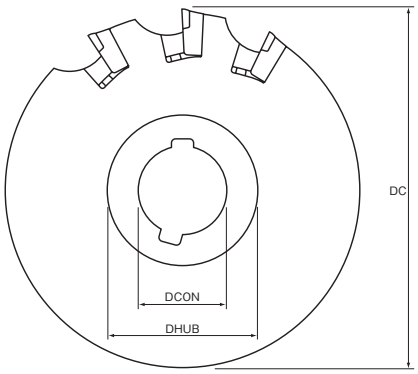
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

※詳細寸法はP.1128-162を参照下さい
See page 1128-162 for inserts.

## ■ F2052 サイドカッタ (本体)

(単位:mm) (Unit:mm)

| ツール No. EDP No. | カッタ径 DC | 穴径 DCON | 台座径 DHUB | 溝数 NOF | フランジ幅 THUB | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|
| *8007851 | 100 | 25.4 | 50 | 8 | 10 | C | 147,000 |
| *8007801 | | 31.75 | | | | | 147,000 |
| 8007852 | | 25.4 | | | 12 | | – |
| *8007802 | | 31.75 | | | | | 157,000 |
| *8007803 | | | | | 14 | | 166,000 |
| *8007805 | 125 | 38.1 | 65 | 10 | 10 | | 178,000 |
| *8007806 | | | | | 12 | | 187,000 |
| *8007807 | | | | | 14 | | 195,000 |
| *8007808 | | | | 8 | 16 | | 159,000 |
| *8007809 | | | | | 19 | | 161,000 |
| *8007810 | | | | | 22 | | 192,000 |
| *8007812 | 160 | | | 10 | 10 | | 203,000 |
| *8007813 | | | | | 12 | | 209,000 |
| *8007814 | | | | | 14 | | 214,000 |
| *8007819 | 200 | 50.8 | 75 | 12 | 16 | | 213,000 |
| *8007820 | | | | | 19 | | 217,000 |
| *8007821 | | | | | 22 | | 224,000 |
| *8007824 | 250 | | 80 | 16 | 16 | | 224,000 |
| *8007825 | | | | | 19 | | 224,000 |
| *8007826 | | | | | 22 | | 224,000 |
| *8007829 | 315 | 60 | 120 | 20 | 16 | | 262,000 |
| *8007830 | | | | | 19 | | 262,000 |




ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

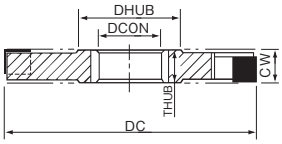
＊印は在庫無くなり次第、廃番となります。Tools marked ＊ will be discontinued when it is out of stock.

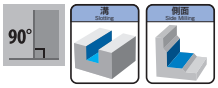
C= 標準在庫品 C=Standard stock item.

# WALTER サイドカッタ
**WALTER Side and Face Milling Cutter**

## F2052 P2S90N
切削条件 Cutting Conditions | P1128-161






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 穴径 DCON | ボス径 DHUB | 溝数 NOF | 刃数 ZEFP | 刃幅 CW | フランジ幅 THUB | 適用インサート Applicable Inserts | 仕上げ用インサート Finishing Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8068301 | **P2S90N 10010JS** | 100 | 25.4 | 50 | 8 | 4 | 10〜12 | 10 | ① | ② | 8 | C | — |
| 8067601 | **P2S90N 10010J** | | 31.75 | | | | | | | | | | — |
| 8068302 | **P2S90N 10012JS** | | 25.4 | | | | 12〜14 | 12 | | | | | — |
| 8067602 | **P2S90N 10012J** | | 31.75 | | | | | | | | | | — |
| 8067603 | **P2S90N 10014J** | | | | | | 14〜16 | 14 | | | | | — |
| 8067606 | **P2S90N 12510J** | 125 | 38.1 | 65 | 10 | 5 | 10〜12 | 10 | | | 10 | | — |
| 8067607 | **P2S90N 12512J** | | | | | | 12〜14 | 12 | | | | | — |
| 8067608 | **P2S90N 12514J** | | | | | | 14〜16 | 14 | | | | | — |
| 8067611 | **P2S90N 16010J** | 160 | | | 12 | 6 | 10〜12 | 10 | | | 12 | | — |
| 8067612 | **P2S90N 16012J** | | | | | | 12〜14 | 12 | | | | | — |
| 8067613 | **P2S90N 16014J** | | | | | | 14〜16 | 14 | | | | | — |

ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

## ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 厚さ S | インサート寸法 Insert Size 逃げ角 AN | インサート寸法 Insert Size RE | 超硬材種 Carbide Materials WPM | 超硬材種 Carbide Materials WKM | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ①  | P2700-0 | 精密級 Ground | 2 | 3.18 | 11° | 0.5 | ＊8010710 | | 2,170 |

＊印は在庫無くなり次第、廃番となります。
Tools marked ＊ will be discontinued when it is out of stock.
在庫区分はすべてC（標準在庫品）となります。
Stocks are categorized as C (standard stock item).

## ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
|  標準カートリッジ Cartridge | | FR685※ | インサートタイプ① Appearance of Inserts |
| | | FL685※ | |
|  ウェッジ Wedge | ＊8009075 | FK275 | NB10用 |
| | ＊8009076 | FK276 | NB12用 |
| | ＊8009077 | FK277 | NB14用 |

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ウェッジ用クランプねじ Wedge Screw for Cartridge | | FS239 |
|  クランプねじ Clamping Screw | ＊8008546 | FS246(Torx8) |
|  ドライバ Screwdriver | 7808205 | T8-D(Torx8) |

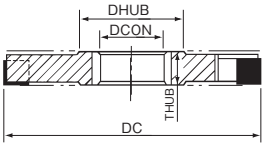
※FR＝右勝手 Right hand　FL＝左勝手 Left hand
＊印は在庫無くなり次第、廃番となります。
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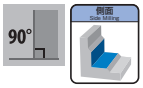
C= 標準在庫品 C=Standard stock item.

# WALTER サイドカッタ
**WALTER Side and Face Milling Cutter**

## F2052 P2S90R/L 切削条件 Cutting Conditions | P1128-161






（単位:mm）(Unit:mm)

| ツール No. EDP No. | 呼び Designation | 外径 DC | 穴径 DCON | ボス径 DHUB | 刃数 ZEFP | フランジ幅 THUB | 適用インサート Applicable Inserts | 仕上げ用インサート Finishing Inserts | 使用インサート数 Number of Inserts | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8068096 | **P2S90R 10010JS** | 100 | 25.4 | 50 | 8 | 10 | ① | ② | 8 | C | — |
| 8066096 | **P2S90R 10010J** | | 31.75 | | | | | | | | — |
| 8068101 | **P2S90R 10012JS** | | 25.4 | | | 12 | | | | | — |
| 8066101 | **P2S90R 10012J** | | 31.75 | | | | | | | | — |
| 8066106 | **P2S90R 12512J** | 125 | 38.1 | 65 | 10 | | | | 10 | | — |
| 8066111 | **P2S90R 16012J** | 160 | | | 12 | | | | 12 | | — |
| 8068126 | **P2S90L 10010JS** | 100 | 25.4 | 50 | 8 | 10 | ① | ② | 8 | C | — |
| 8066126 | **P2S90L 10010J** | | 31.75 | | | | | | | | — |
| 8068131 | **P2S90L 10012JS** | | 25.4 | | | 12 | | | | | — |
| 8066131 | **P2S90L 10012J** | | 31.75 | | | | | | | | — |
| 8066136 | **P2S90L 12512J** | 125 | 38.1 | 65 | 10 | | | | 10 | | — |
| 8066141 | **P2S90L 16012J** | 160 | | | 12 | | | | 12 | | — |

＊P2S90Rタイプは右勝手、P2S90Lタイプは左勝手です。
The P2S90R is the right hand type and the P2S90L is the left hand type.
ツールNo.欄 ▭ のものは廃番品です。 EDP No. found in ▭ are discontinued products.

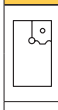
### ■適用インサート Applicable Inserts

（単位:mm）(Unit:mm)

| 形状 Appearance | 呼び Designation | 仕様 Specifications | 切れ刃数 Number of Cutting Edges | 厚さ S | インサート寸法 Insert Size 逃げ角 AN | インサート寸法 Insert Size RE | 超硬材種 Carbide Materials WPM | 超硬材種 Carbide Materials WKM | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|
| ①  | P2700-0 | 精密級 Ground | 2 | 3.18 | 11° | 0.5 | ＊8010710 | | 2,170 |

＊印は在庫無くなり次第、廃番となります。
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### ■部品 Accessories

| | ツール No. EDP No. | 呼び Designation | 適用 Range |
|---|---|---|---|
|  標準カートリッジ Cartridge | | FR685※ | インサートタイプ① Appearance of Inserts |
| | | FL685※ | |
|  ウェッジ Wedge | ＊8009075 | FK275 | NB10用 |
| | ＊8009076 | FK276 | NB12用 |

※FR＝右勝手 Right hand　FL＝左勝手 Left hand

| | ツール No. EDP No. | 呼び Designation |
|---|---|---|
|  ウェッジ用クランプねじ Wedge Screw for Cartridge | | FS239 |
|  クランプねじ Clamping Screw | ＊8008546 | FS246(Torx8) |
|  ドライバ Screwdriver | 7808205 | T8-D(Torx8) |

＊印は在庫無くなり次第、廃番となります。
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在庫区分はすべてC（標準在庫品）となります。
Stocks are categorized as C (standard stock item).

C= 標準在庫品 C=Standard stock item.

# インデキサブルツール特殊品製作事例 INDEXABLE TOOL MADE SPECIALLY UPON REQUEST



F2253 サイドミーリングカッタ（フランジタイプ）
SIDE AND FACE MILLING CUTTER
（CYLINDRICAL BORE）



F2038 面取り付ラフィングエンドミル
PORCUPINE CUTTER
WITH CHAMFERING TEETH



F2038 アンギュラカッタ
PORCUPINE CUTTER
FOR DOVE TAIL GROOVE



F2039 球形ボールエンドミル
SPHERE CUTTER

INSERTS SUITABLE FOR HIGH HARDENED AND COATED MATERIALS

# 超硬材種、コーティング材種　適用マップ

## OSG-WALTER インデキサブルインサート　OSG-WALTER INDEXABLE INSERTS

| 被削材 Work Material | | | 超硬材種 CarbideGrades | コーティング材種 Coating Grades: CVD | コーティング材種 Coating Grades: PVD |
|---|---|---|---|---|---|
| P | 軟鋼、炭素鋼、合金鋼、ダイス鋼<br>Mild Steel,Carbon Steel,Alloy Steel, Die Steel<br>(SS400, S50C, SCM440,SKD11, SKD61) | ~280HB | WPM | WKP25S<br>WKP25<br>WKP35G<br>WKP35S<br>WKP35<br>WAP35<br>WTP35 | WHH15X<br>WXM15<br>WXM40<br>WSP45G<br>WSP45S |
| M | ステンレス鋼<br>Stainless Steel<br>(SUS304, SUS420) | ~250HB | | WQM25<br>WTP35 | WSM35S<br>WXM40<br>WSP45G<br>WSP45S |
| K | 鋳鉄、ダクタイル鋳鉄<br>Cast Iron, Ductile Cast Iron<br>(FC250,FCD400) | ~800N/mm² | WKM | WAK15<br>WKP25S<br>WAK25<br>WKP35G<br>WKP35S | WHH15X<br>WXM15 |
| N | アルミニウム合金<br>Aluminium Alloy | ~13%Si | WK10<br>WMG40 | | |
| S | 超耐熱合金(湿式)<br>Superalloy(Wet)<br>(Inconel 718)<br>チタン合金(湿式)<br>Titanium Alloy(Wet)<br>(Ti-6Al-4V) | – | | WQM25 | WSM35S<br>WXM40<br>WSP45G<br>WSP45S |
| H | プリハードン鋼<br>Pre-hardened Steel<br>(NAK80) | 40~43HRC | | WKP25S<br>WKP25<br>WAP25<br>WKP35G<br>WKP35S<br>WKP35<br>WAP35<br>WTP35 | WHH15X<br>WXM15<br>WXM40<br>WSP45G<br>WSP45S |
| | ダイカスト用鋼<br>Steel for Die Casting<br>(DAC-MAGIC, DH31) | 43~48HRC | | WKP35G<br>WKP35S<br>WKP35<br>WAP35 | WHH15X<br>WXM15<br>WXM40<br>WSP45G<br>WSP45S |
| | 調質鋼<br>Hardened Steel<br>(SKD11) | 50~55HRC | | | WHH15X<br>WXM15<br>WXM40 |
| 性能傾向 Performance Trend | | | 耐摩耗性大 HIGH WEAR RESISITANCE ⟷ じん性大 HIGH TOUGHNESS | 耐摩耗性大 HIGH WEAR RESISITANCE ⟷ じん性大 HIGH TOUGHNESS | 耐摩耗性大 HIGH WEAR RESISITANCE ⟷ じん性大 HIGH TOUGHNESS |

※ページ欄に「WEB」と表記している製品はWEBカタログのみ掲載

# インデキサブルツール切削条件 目次 INDEX OF CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS


| 製品記号 Abbreviation | 仕様 Specification | ページ Page |
|---|---|---|
| **F5041 SS** | 高剛性ショルダーミル ストレートシャンク<br>HIGH RIGIDITY SHOULDER MILL STRAIGHT SHANK | **1128-145 WEB** |
| **F5041 SL** | 高剛性ショルダーミル シェルタイプ<br>HIGH RIGIDITY SHOULDER MILL SHELL TYPE | **1128-145 WEB** |
| **F5141 SS** | 高剛性ショルダーミル ストレートシャンク<br>HIGH RIGIDITY SHOULDER MILL STRAIGHT SHANK | **1128-145 WEB** |
| **F5141 SL** | 高剛性ショルダーミル シェルタイプ<br>HIGH RIGIDITY SHOULDER MILL SHELL TYPE | **1128-145 WEB** |
| **M4256 SS** | ポーキュパインカッタ ストレートシャンク<br>PORCUPINE CUTTER STRAIGHT SHANK | **1128-145 WEB** |
| **M4257 SS** | ポーキュパインカッタ ストレートシャンク<br>PORCUPINE CUTTER STRAIGHT SHANK | **1128-146 WEB** |
| **M4257 SL** | ポーキュパインカッタ シェルタイプ<br>PORCUPINE CUTTER WITH SHELL TYPE | **1128-146 WEB** |
| **M4258 SL** | ポーキュパインカッタ シェルタイプ<br>PORCUPINE CUTTER WITH SHELL TYPE | **1128-146 WEB** |
| **M4258 BT** | ポーキュパインカッタ BTシャンク<br>PORCUPINE CUTTER WITH BT SHANK | **1128-146 WEB** |
| **M4258C BT** | ポーキュパインカッタ BTフロントピース交換形<br>PORCUPINE CUTTER WITH FRONT PIECE BT SHANK | **1128-146 WEB** |
| **M4574** | 面取り用カッタ<br>CHAMFERING CUTTER | **1128-147 WEB** |
| **M4575** | Tスロットカッタ<br>T-SLOTS CUTTER | **1128-147 WEB** |
| **F4042-08SS** | ポジティブミル ストレートシャンク<br>POSITIVE MILL STRAIGHT SHANK | **1128-148 WEB** |
| **F4042-12SS** | ポジティブミル ストレートシャンク<br>POSITIVE MILL STRAIGHT SHANK | **1128-148 WEB** |
| **F4042-12SL** | ポジティブミル シェルタイプ<br>POSITIVE MILL SHELL TYPE | **1128-148 WEB** |
| **F4042-16SS** | ポジティブミル ストレートシャンク<br>POSITIVE MILL STRAIGHT SHANK | **1128-148 WEB** |
| **F4042-16SL** | ポジティブミル シェルタイプ<br>POSITIVE MILL SHELL TYPE | **1128-148 WEB** |
| **F4010 P3F90R** | ショルダーミル F4000タイプ<br>SHOULDER MILL F4000 TYPE | **1128-148 WEB** |
| **F4038** | ポーキュパインカッタ ストレートシャンク<br>PORCUPINE CUTTER STRAIGHT SHANK | **1128-148 WEB** |
| **F4238 SS** | ポーキュパインカッタ ストレートシャンク<br>PORCUPINE CUTTER STRAIGHT SHANK | **1128-149 WEB** |
| **F4238 CN** | ポーキュパインカッタ コンビネーションシャンク<br>PORCUPINE CUTTER WITH COMBINATION SHANK | **1128-149 WEB** |
| **F4238 BT** | ポーキュパインカッタ BTシャンク<br>PORCUPINE CUTTER WITH BT SHANK | **1128-149 WEB** |
| **F4238 SL** | ポーキュパインカッタ シェルタイプ<br>PORCUPINE CUTTER WITH SHELL TYPE | **1128-149 WEB** |
| **F4238 HSK** | ポーキュパインカッタ HSKシャンク<br>PORCUPINE CUTTER WITH HSK SHANK | **1128-149 WEB** |
| **F4138 SS** | ポーキュパインカッタ ストレートシャンク<br>PORCUPINE CUTTER STRAIGHT SHANK | **1128-149 WEB** |
| **F4138 SL** | ポーキュパインカッタ シェルタイプ<br>PORCUPINE CUTTER WITH SHELL TYPE | **1128-149 WEB** |
| **F4010 N4S45R** | 高剛性フェースミル F4000タイプ(45°)<br>HIGH RIGIDITY FACE MILL F4000 TYPE(45°) | **1128-149 WEB** |
| **F4033 SL** | 高剛性フェースミル シェルタイプ(45°)<br>HIGH RIGIDITY FACE MILL SHELL TYPE(45°) | **1128-149 WEB** |
| **F4033 SS** | 高剛性フェースミル ストレートシャンク<br>HIGH RIGIDITY FACE MILL STRAIGHT SHANK | **1128-149 WEB** |
| **F4041** | 高剛性ショルダーミル　シェルタイプ<br>HIGH RIGIDITY SHOULDER MILL SHELL TYPE | **1128-150 WEB** |
| **DC-S** | ディスクカッタ S<br>DISC CUTTER S | **1128-150 WEB** |
| **DC-P** | ディスクカッタ PRO<br>DISC CUTTER PRO | **1128-150 WEB** |

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| 製品記号 Abbreviation | 仕様 Specification | ページ Page |
|---|---|---|
| **F3038A SS** | ポーキュパイン　ネオ ストレートシャンク<br>PORCUPINE CUTTER WITH STRAIGHT SHANK | **1128-151 WEB** |
| **F3038B BT** | ポーキュパイン　ネオ BTシャンク<br>PORCUPINE CUTTER WITH BT SHANK | **1128-151 WEB** |
| **F3038B CN** | ポーキュパイン　ネオ コンビネーションシャンク<br>PORCUPINE CUTTER WITH COMBINATION SHANK | **1128-151 WEB** |
| **F3038B SS** | ポーキュパイン　ネオ ストレートシャンク<br>PORCUPINE CUTTER WITH STRAIGHT SHANK | **1128-151 WEB** |
| **F3038B SL** | ポーキュパイン　ネオ シェルタイプ<br>PORCUPINE CUTTER WITH SHELL TYPE | **1128-151 WEB** |
| **F3038C BT** | ポーキュパイン　ネオ フロントピース交換形<br>PORCUPINE CUTTER WITH FRONT PIECE | **1128-151 WEB** |
| **F3042A SS** | ポジティブミル ネオ　ストレートシャンク<br>END MILL WITH STRAIGHT SHANK | **1128-151 WEB** |
| **F3042B SS** | ポジティブミル ネオ　ストレートシャンク<br>END MILL WITH STRAIGHT SHANK | **1128-151 WEB** |
| **F3042B SL** | ポジティブミル ネオ シェルタイプ<br>END MILL WITH SHELL TYPE | **1128-151 WEB** |
| **F3075** | エコノミーカッタ<br>ECONOMY CUTTER | **1128-151 WEB** |
| **F3040** | ポジティブエンドミル アルミ用<br>POSITIVE END-MILL FOR ALUMINUM PROCESS | **1128-152 WEB** |
| **F2231** | ラジアスカッタ　小径ブルノーズカッタ(中心刃付き)<br>RADIUS MILLING CUTTER WITH CENTER EDGE(SMALL SIZE) | **1128-152 WEB** |
| **F2234 SS** | ラジアスカッタ　小径ブルノーズカッタ(中心刃なし)<br>BULL NOSE CUTTER RADIUS END MILL(SMALL SIZE) | **1128-152 WEB** |
| **F2231** | ラジアスカッタ　ブルノーズカッタ(中心刃付き)<br>RADIUS MILLING CUTTER WITH CENTER EDGE | **1128-153 WEB** |
| **F2234SS** | ラジアスカッタ　ブルノーズカッタ　ストレートシャンク<br>BULL NOSE CUTTER RADIUS END MILL WITH STRAIGHT SHANK | **1128-153 WEB** |
| **F2234SL** | ラジアスカッタ　ブルノーズカッタ　シェルタイプ<br>BULL NOSE CUTTER END MILL WITH SHELL TYPE | **1128-153 WEB** |
| **F4047** | 高剛性フェースミル シェルタイプ(75°)<br>HIGH RIGIDITY FACE MILL SHELL TYPE(75°) | **1128-154 WEB** |
| **F4048** | 高剛性フェースミル シェルタイプ(88°)<br>HIGH RIGIDITY FACE MILL SHELL TYPE(88°) | **1128-154 WEB** |
| **F4010 N4S75R** | 高剛性フェースミル F4000タイプ(75°)<br>HIGH RIGIDITY FACE MILL F4000 TYPE(75°) | **1128-154 WEB** |
| **F4010 N4S88R** | 高剛性フェースミル F4000タイプ(88°)<br>HIGH RIGIDITY FACE MILL F4000 TYPE(88°) | **1128-154 WEB** |
| **F2339** | ボールエンドミル　ブラボーミル(2刃タイプ)<br>BRABO MILL | **1128-155 WEB** |
| **F2039** | ボールエンドミル　汎用タイプ(1刃タイプ)<br>BALL NOSE END MILL | **1128-156 WEB** |
| **F2280 SS** | オクタゴンカッタ ストレートシャンク<br>OCTAGON CUTTER WITH STRAIGHT SHANK | **1128-157 WEB** |
| **F2280 SL** | オクタゴンカッタ シェルタイプ<br>OCTAGON CUTTER WITH SHELL TYPE | **1128-157 WEB** |
| **F2010 P5E43R** | ミーリングカッタ　オクタゴン タイプ<br>MILLING CUTTER WITH OCTAGON TYPE | **1128-157 WEB** |
| **F2280 MINI SS** | オクタゴンカッタ ストレートシャンク<br>OCTAGON CUTTER WITH STRAIGHT SHANK | **1128-158 WEB** |
| **F2280 MINI SL** | オクタゴンカッタ シェルタイプ<br>OCTAGON CUTTER WITH SHELL TYPE | **1128-158 WEB** |
| **F2133 SS** | サイクロンカッタ　ストレートシャンク<br>CYCLONE CUTTER WITH STRAIGHT SHANK | **1128-159 WEB** |
| **F2133 SL** | サイクロンカッタ　シェルタイプ<br>CYCLONE CUTTER WITH SHELL TYPE | **1128-159 WEB** |
| **F2010 P4G45R** | ミーリングカッタ　サイクロンタイプ(一般切削)<br>MILLING CUTTER | **1128-159 WEB** |
| **F2260** | 鋳鉄用重切削加工用カッタ<br>HEAVY DUTY CUTTER FOR CAST IRON | **1128-160 WEB** |
| **F2052 P2S90N** | フルスロットカッタ(千鳥刃)刃幅(SB)10～16mm<br>FULL SLOT CUTTER | **1128-161 WEB** |
| **F2052 P2S90R/L** | ハーフサイドカッタ　片刃ポジティブ<br>HALF SIDE MILLING CUTTER | **1128-161 WEB** |

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形状寸法表 SPECIFICATION CHARTS F5041 SL▶P1128-47
形状寸法表 SPECIFICATION CHARTS F5141 SS▶P1128-49
形状寸法表 SPECIFICATION CHARTS F5141 SL▶P1128-51
形状寸法表 SPECIFICATION CHARTS M4256 SS▶P1128-53

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## 高剛性ショルダーミル ストレートシャンク F5041 SS
## 高剛性ショルダーミル シェルタイプ F5041 SL
## 高剛性ショルダーミル ストレートシャンク F5141 SS
## 高剛性ショルダーミル シェルタイプ F5141 SL

HIGH RIGIDITY SHOULDER MILL STRAIGHT SHANK
HIGH RIGIDITY SHOULDER MILL SHELL TYPE
HIGH RIGIDITY SHOULDER MILL STRAIGHT SHANK
HIGH RIGIDITY SHOULDER MILL SHELL TYPE

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | F5041 SS・F5041 SL | | | F5141 SS・F5141 SL | | |
|---|---|---|---|---|---|---|---|---|
| | | | 切削速度 Vc(m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切込深さ ap(mm) | 切削速度 Vc(m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切込深さ ap(mm) |
| P | 軟鋼、低炭素鋼 Mild Steel Low Carbon Steel (SS400, S10C) | ～180HB | 180(100～ 250) | 0.15(0.05～0.25) | 3 | 180(100～ 250) | 0.18(0.05～0.3 ) | 5 |
| | 炭素鋼、合金鋼 Carbon Steel Alloy Steel (S50C, SCM440) | ～280HB | 180(100～ 250) | 0.15(0.05～0.25) | 3 | 180(100～ 250) | 0.18(0.05～0.3 ) | 5 |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ～280HB | 150( 80～ 200) | 0.12(0.05～0.2 ) | 3 | 150( 80～ 200) | 0.15(0.05～0.25) | 5 |
| M | ステンレス鋼(乾式) Stainless Steel(Dry) (SUS304, SUS420) | ～250HB | 150( 80～ 200) | 0.1 (0.05～0.18) | 2 | 150( 80～ 200) | 0.12(0.05～0.2 ) | 3 |
| | ステンレス鋼(湿式) Stainless Steel(Wet) (SUS304, SUS420) | ～250HB | 80( 60～ 120) | 0.1 (0.05～0.18) | 2 | 80( 60～ 120) | 0.12(0.05～0.18) | 3 |
| K | 鋳鉄 Cast Iron (FC250) | ～350N/mm² | 200(100～ 350) | 0.2 (0.1 ～0.3 ) | 3 | 200(100～ 350) | 0.25(0.1 ～0.3 ) | 5 |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ～800N/mm² | 180(100～ 270) | 0.15(0.05～0.25) | 3 | 180(100～ 270) | 0.2 (0.01～0.3 ) | 5 |
| N | アルミニウム合金 Aluminium Alloy | ～13%Si | 300(200～1,500) | 0.15(0.1 ～0.3 ) | 3 | 300(200～1,500) | 0.2 (0.1 ～ 0.3) | 5 |
| S | 耐熱合金(湿式) (Inconel 718) (Wet) | – | 35( 25～ 60) | 0.08(0.05～0.15) | 1 | 35( 25～ 60) | 0.12(0.05～ 0.2) | 1.5 |
| | チタン合金(湿式) Titanium Alloy(Wet) (Ti-6Al-4V) | – | 60( 30～ 120) | 0.08(0.05～0.15) | 1.5 | 60( 30～ 120) | 0.12(0.05～ 0.2) | 2 |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40～43HRC | 100( 50～ 150) | 0.1 (0.08～0.2 ) | 1.5 | 100( 50～ 150) | 0.15(0.08～ 0.2) | 2 |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH3T) | 43～48HRC | 80( 40～ 120) | 0.08(0.06～0.15) | 1 | 80( 40～ 120) | 0.15(0.08～ 0.2) | 1.5 |

1. 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
2. 最大の切込み量は、機械の出力、剛性、被削材、その他の加工環境により変化します。これらの項目を十分配慮の上条件設定を行って下さい。
3. 切削油剤を使用する場合は低めの切削条件を設定下さい。
4. 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

1. Refer to the table above to set the cutting conditions in accordance with the actual situation.
2. The maximum milling amount varies in accordance with the machine's power output, rigidity, work material, and other work conditions. Before setting the work conditions, please take these details fully into consideration.
3. Set low cutting conditions when using a cutting fluid.
4. Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

## ポーキュパインカッタ ストレートシャンク M4256 SS

PORCUPINE CUTTER WITH STRAIGHT SHANK

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 溝加工 Slotting 切削深さ ap: ≦ 0.5D 切削幅 ae:1.0D | | 側面加工 Side Milling 切削深さ ap: ≦ 1D 切削幅 ae: ≦ 0.5D | | 側面加工 Side Milling 切削深さ ap: ≦ 2D 切削幅 ae: ≦ 0.2D | |
|---|---|---|---|---|---|---|---|---|
| | | | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth |
| P | 軟鋼、低炭素鋼 Mild Steel Low Carbon Steel (SS400, S10C) | ～180HB | 100(80～160) | 0.08(0.05～0.12) | 160(100～200) | 0.12(0.08～0.15) | 160(100～200) | 0.15(0.1 ～0.2 ) |
| | 炭素鋼、合金鋼 Carbon Steel Alloy Steel (S50C, SCM440) | ～280HB | 80(60～120) | 0.08(0.05～0.12) | 150(100～200) | 0.12(0.08～0.15) | 150(100～200) | 0.15(0.1 ～0.2 ) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ～280HB | 80(60～120) | 0.08(0.05～0.12) | 120( 80～180) | 0.12(0.08～0.15) | 120( 80～180) | 0.15(0.1 ～0.2 ) |
| M | ステンレス鋼(乾式) Stainless Steel(Dry) (SUS304, SUS420) | ～250HB | – | – | 130( 80～180) | 0.12(0.08～0.15) | 130( 80～180) | 0.15(0.1 ～0.2 ) |
| | ステンレス鋼(湿式) Stainless Steel(Wet) (SUS304, SUS420) | ～250HB | – | – | 100( 50～150) | 0.12(0.08～0.15) | 100( 50～150) | 0.15(0.1 ～0.2 ) |
| K | 鋳鉄 Cast Iron (FC250) | ～350N/mm² | 100(80～160) | 0.08(0.05～0.12) | 160(100～200) | 0.15(0.08～0.2 ) | 160(100～200) | 0.2 (0.15～0.25) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ～800N/mm² | 80(60～120) | 0.08(0.05～0.12) | 160(100～220) | 0.12(0.08～0.15) | 160(100～220) | 0.15(0.1 ～0.2 ) |
| S | 耐熱合金(湿式) (Inconel 718) (Wet) | – | – | – | 35( 25～ 60) | 0.12(0.08～0.15) | 35( 25～ 60) | 0.15(0.1 ～0.2 ) |
| | チタン合金(湿式) Titanium Alloy(Wet) (Ti-6Al-4V) | – | – | – | 45( 35～ 70) | 0.12(0.08～0.15) | 45( 35～ 70) | 0.15(0.1 ～0.2 ) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40～43HRC | 80(60～120) | 0.08(0.05～0.1 ) | 80( 60～120) | 0.12(0.08～0.15) | 80( 60～120) | 0.15(0.1 ～0.2 ) |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43～48HRC | 60(40～100) | 0.08(0.05～0.1 ) | 60( 40～100) | 0.12(0.08～0.15) | 60( 40～100) | 0.15(0.1 ～0.2 ) |

1. 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
2. 最大の切込み量は、機械の出力、剛性、被削材、その他の加工環境により変化します。これらの項目を十分配慮の上条件設定を行って下さい。
3. 切削油剤を使用する場合は低めの切削条件を設定下さい。
4. 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

1. Refer to the table above to set the cutting conditions in accordance with the actual situation.
2. The maximum milling amount varies in accordance with the machine's power output, rigidity, work material, and other work conditions. Before setting the work conditions, please take these details fully into consideration.
3. Set low cutting conditions when using a cutting fluid.
4. Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## ポーキュパインカッタ ストレートシャンク M4257 SS
## ポーキュパインカッタ シェルタイプ M4257 SL

PORCUPINE CUTTER WITH STRAIGHT SHANK
PORCUPINE CUTTER WITH SHELL TYPE

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 溝加工 Slotting 切削深さ ap: ≦ 0.5D 切削幅 ae:1.0D | | 側面加工 Side Milling 切削深さ ap: ≦ 1D 切削幅 ae: ≦ 0.5D | | 側面加工 Side Milling 切削深さ ap: ≦ 2D 切削幅 ae: ≦ 0.2D | |
|---|---|---|---|---|---|---|---|---|
| | | | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth |
| P | 軟鋼、低炭素鋼 Mild Steel Low Carbon Steel (SS400, S10C) | ～180HB | 100(80～160) | 0.1 (0.08～0.15) | 160(100～200) | 0.15(0.1 ～0.2 ) | 160(100～200) | 0.2 (0.15～0.25) |
| | 炭素鋼、合金鋼 Carbon Steel Alloy Steel (S50C, SCM440) | ～280HB | 80(60～120) | 0.1 (0.08～0.15) | 150(100～200) | 0.15(0.1 ～0.2 ) | 150(100～200) | 0.2 (0.15～0.25) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ～280HB | 80(60～120) | 0.1 (0.08～0.15) | 120( 80～180) | 0.15(0.1 ～0.2 ) | 120( 80～180) | 0.2 (0.15～0.25) |
| M | ステンレス鋼(乾式) Stainless Steel(Dry) (SUS304, SUS420) | ～250HB | – | – | 130( 80～180) | 0.15(0.1 ～0.2 ) | 130( 80～180) | 0.2 (0.15～0.25) |
| | ステンレス鋼(湿式) Stainless Steel(Wet) (SUS304, SUS420) | ～250HB | – | – | 100( 50～150) | 0.15(0.1 ～0.2 ) | 100( 50～150) | 0.2 (0.15～0.25) |
| K | 鋳鉄 Cast Iron (FC250) | ～350N/mm² | 100(80～160) | 0.1 (0.08～0.15) | 160(100～200) | 0.2 (0.15～0.25) | 200(150～280) | 0.25(0.2 ～0.3 ) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ～800N/mm² | 80(60～120) | 0.1 (0.08～0.15) | 160(100～220) | 0.15(0.1 ～0.2 ) | 160(100～220) | 0.2 (0.15～0.25) |
| S | 耐熱合金(湿式) (Inconel 718)(Wet) | – | – | – | 35( 25～60 ) | 0.15(0.1 ～0.2 ) | 35( 25～ 60) | 0.2 (0.15～0.25) |
| | チタン合金(湿式) Titanium Alloy(Wet) (Ti-6Al-4V) | – | – | – | 45( 35～70 ) | 0.15(0.1 ～0.2 ) | 45( 35～ 70) | 0.2 (0.15～0.25) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40～43HRC | 80(60～120) | 0.08(0.05～0.1 ) | 80( 60～120) | 0.15(0.1 ～0.2 ) | 80( 60～120) | 0.2 (0.15～0.25) |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43～48HRC | 60(40～100) | 0.08(0.05～0.1 ) | 60( 40～100) | 0.15(0.1 ～0.2 ) | 60( 40～100) | 0.2 (0.15～0.25) |

1. 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
2. 最大の切込み量は、機械の出力、剛性、被削材、その他の加工環境により変化します。これらの項目を十分配慮の上条件設定を行って下さい。
3. 切削油剤を使用する場合は低めの切削条件を設定下さい。
4. 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

1. Refer to the table above to set the cutting conditions in accordance with the actual situation.
2. The maximum milling amount varies in accordance with the machine's power output, rigidity, work material, and other work conditions. Before setting the work conditions, please take these details fully into consideration.
3. Set low cutting conditions when using a cutting fluid.
4. Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

## ポーキュパインカッタ シェルタイプ M4258 SL
## ポーキュパインカッタ シェルタイプ M4258 BT
## ポーキュパインカッタ シェルタイプ M4258C BT

PORCUPINE CUTTER WITH SHELL TYPE
PORCUPINE CUTTER WITH BT SHANK
PORCUPINE CUTTER WITH FRONT PIECE BT SHANK

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 溝加工 Slotting 切削深さ ap: ≦ 0.5D 切削幅 ae:1.0D | | 側面加工 Side Milling 切削深さ ap: ≦ 1D 切削幅 ae: ≦ 0.5D | | 側面加工 Side Milling 切削深さ ap: ≦ 2D 切削幅 ae: ≦ 0.2D | | 側面加工 Side Milling 切削深さ ap: ≦ 3D 切削幅 ae: ≦ 0.15D | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc (m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth |
| P | 軟鋼、低炭素鋼 Mild Steel Low Carbon Steel (SS400, S10C) | ～180HB | 100( 80～160) | 0.15(0.1～0.2) | 160(100～200) | 0.2 (0.15～0.25) | 160(100～200) | 0.25(0.15～0.3) | 160(100～200) | 0.25(0.15～0.3) |
| | 炭素鋼、合金鋼 Carbon Steel Alloy Steel (S50C, SCM440) | ～280HB | 80( 60～120) | 0.15(0.1～0.2) | 150(100～200) | 0.2 (0.15～0.25) | 150(100～200) | 0.25(0.15～0.3) | 150(100～200) | 0.25(0.15～0.3) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ～280HB | 80( 60～120) | 0.15(0.1～0.2) | 120( 80～180) | 0.2 (0.15～0.25) | 120( 80～180) | 0.25(0.15～0.3) | 120( 80～180) | 0.25(0.15～0.3) |
| M | ステンレス鋼(乾式) Stainless Steel(Dry) (SUS304, SUS420) | ～250HB | – | – | 130( 80～180) | 0.2 (0.15～0.25) | 130( 80～180) | 0.25(0.15～0.3) | 130( 80～180) | 0.25(0.15～0.3) |
| | ステンレス鋼(湿式) Stainless Steel(Wet) (SUS304, SUS420) | ～250HB | – | – | 100( 50～150) | 0.2 (0.15～0.25) | 100( 50～150) | 0.25(0.15～0.3) | 100( 50～150) | 0.25(0.15～0.3) |
| K | 鋳鉄 Cast Iron (FC250) | ～350N/mm² | 100( 80～160) | 0.15(0.1～0.2) | 160(100～200) | 0.25(0.2 ～0.3 ) | 160(100～200) | 0.3 (0.2 ～0.4) | 160(100～200) | 0.3 (0.2 ～0.4) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ～800N/mm² | 80( 60～120) | 0.15(0.1～0.2) | 160(100～220) | 0.2 (0.15～0.25) | 160(100～220) | 0.25(0.15～0.3) | 160(100～220) | 0.25(0.15～0.3) |
| S | 耐熱合金(湿式) (Inconel 718) (Wet) | – | – | – | 35( 25～ 60) | 0.2 (0.15～0.25) | 35( 25～ 60) | 0.25(0.15～0.3) | 35( 25～ 60) | 0.25(0.15～0.3) |
| | チタン合金(湿式) Titanium Alloy(Wet) (Ti-6Al-4V) | – | – | – | 45( 35～ 70) | 0.2 (0.15～0.25) | 45( 35～ 70) | 0.25(0.15～0.3) | 45( 35～ 70) | 0.25(0.15～0.3) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40～43HRC | 80( 60～120) | 0.15(0.1～0.2) | 80( 60～120) | 0.2 (0.15～0.25) | 80( 60～120) | 0.25(0.15～0.3) | 80( 60～120) | 0.25(0.15～0.3) |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43～48HRC | 60( 40～100) | 0.15(0.1～0.2) | 60( 40～100) | 0.2 (0.15～0.25) | 60( 40～100) | 0.25(0.15～0.3) | 60( 40～100) | 0.25(0.15～0.3) |

1. 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
2. 最大の切込み量は、機械の出力、剛性、被削材、その他の加工環境により変化します。これらの項目を十分配慮の上条件設定を行って下さい。
3. 切削油剤を使用する場合は低めの切削条件を設定下さい。
4. 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

1. Refer to the table above to set the cutting conditions in accordance with the actual situation.
2. The maximum milling amount varies in accordance with the machine's power output, rigidity, work material, and other work conditions. Before setting the work conditions, please take these details fully into consideration.
3. Set low cutting conditions when using a cutting fluid.
4. Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

形状寸法表 SPECIFICATION CHARTS M4574▶P1128-65
形状寸法表 SPECIFICATION CHARTS M4575▶P1128-66

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## 面取り用カッタ M4574 CHAMFERING CUTTER

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | インサートサイズ Insert Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | SDM*06 | | SDM*09 | | SDM*12 | |
| | | | 切削速度 Vc(m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc(m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc(m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth |
| P | 軟鋼、低炭素鋼 Mild Steel Low Carbon Steel (SS400, S10C) | ～180HB | 160(100～200) | 0.08(0.05～0.12) | 160(100～200) | 0.12(0.05～0.2 ) | 160(100～200) | 0.12(0.05～0.2 ) |
| | 炭素鋼、合金鋼 Carbon Steel Alloy Steel (S50C, SCM440) | ～280HB | 150(100～200) | 0.08(0.05～0.12) | 150(100～200) | 0.12(0.05～0.2 ) | 150(100～200) | 0.12(0.05～0.2 ) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ～280HB | 120( 80～180) | 0.08(0.05～0.12) | 120( 80～180) | 0.12(0.05～0.2 ) | 120( 80～180) | 0.12(0.05～0.2 ) |
| M | ステンレス鋼(乾式) Stainless Steel(Dry) (SUS304, SUS420) | ～250HB | 130( 80～180) | 0.08(0.05～0.12) | 130( 80～180) | 0.12(0.05～0.2 ) | 130( 80～180) | 0.12(0.05～0.2 ) |
| | ステンレス鋼(湿式) Stainless Steel(Wet) (SUS304, SUS420) | ～250HB | 100( 50～150) | 0.08(0.05～0.12) | 100( 50～150) | 0.12(0.05～0.2 ) | 100( 50～150) | 0.12(0.05～0.2 ) |
| K | 鋳鉄 Cast Iron (FC250) | ～350N/mm² | 200(150～280) | 0.08(0.05～0.12) | 200(150～280) | 0.15(0.05～0.25) | 200(150～280) | 0.15(0.05～0.25) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ～800N/mm² | 160(100～220) | 0.08(0.05～0.12) | 160(100～220) | 0.12(0.05～0.2 ) | 160(100～220) | 0.12(0.05～0.2 ) |
| S | 耐熱合金(湿式) (Inconel 718) (Wet) | – | 35( 25～ 60) | 0.08(0.05～0.1 ) | 35( 25～ 60) | 0.1 (0.05～0.15) | 35( 25～ 60) | 0.1 (0.05～0.15) |
| | チタン合金(湿式) Titanium Alloy(Wet) (Ti-6Al-4V) | – | 45( 35～ 70) | 0.08(0.05～0.1 ) | 45( 35～ 70) | 0.1 (0.05～0.15) | 45( 35～ 70) | 0.1 (0.05～0.15) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40～43HRC | 100( 40～150) | 0.08(0.05～0.1 ) | 100( 40～150) | 0.1 (0.05～0.15) | 100( 40～150) | 0.1 (0.05～0.15) |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43～48HRC | 60( 40～ 70) | 0.08(0.05～0.1 ) | 60( 40～ 70) | 0.1 (0.05～0.15) | 60( 40～ 70) | 0.1 (0.05～0.15) |

1. 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
2. 最大の切込み量は、機械の出力、剛性、被削材、その他の加工環境により変化します。これらの項目を十分配慮の上条件設定を行って下さい。
3. 切削油剤を使用する場合は低めの切削条件を設定下さい。
4. 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

1. Refer to the table above to set the cutting conditions in accordance with the actual situation.
2. The maximum milling amount varies in accordance with the machine's power output, rigidity, work material, and other work conditions. Before setting the work conditions, please take these details fully into consideration.
3. Set low cutting conditions when using a cutting fluid.
4. Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

## Tスロットカッタ M4575 T-SLOTS CUTTER

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | インサートサイズ Insert Size | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | SDM*06 | | SDM*09 | | SDM*12 | |
| | | | 切削速度 Vc(m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc(m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth | 切削速度 Vc(m/min) Cutting Speed | 一刃当たりの送り量 fz(mm/t) Feed per Tooth |
| P | 軟鋼、低炭素鋼 Mild Steel Low Carbon Steel (SS400, S10C) | ～180HB | 160(100～200) | 0.08(0.05～0.12) | 160(100～200) | 0.1 (0.05～0.15) | 160(100～200) | 0.12(0.05～0.2 ) |
| | 炭素鋼、合金鋼 Carbon Steel Alloy Steel (S50C, SCM440) | ～280HB | 150(100～200) | 0.08(0.05～0.12) | 150(100～200) | 0.1 (0.05～0.15) | 150(100～200) | 0.12(0.05～0.2 ) |
| | ダイス鋼 Die Steel (SKD11, SKD61) | ～280HB | 120( 80～180) | 0.08(0.05～0.12) | 120( 80～180) | 0.1 (0.05～0.15) | 120( 80～180) | 0.12(0.05～0.2 ) |
| M | ステンレス鋼(乾式) Stainless Steel(Dry) (SUS304, SUS420) | ～250HB | 130( 80～180) | 0.08(0.05～0.12) | 130( 80～180) | 0.1 (0.05～0.15) | 130( 80～180) | 0.12(0.05～0.2 ) |
| | ステンレス鋼(湿式) Stainless Steel(Wet) (SUS304, SUS420) | ～250HB | 100( 50～150) | 0.08(0.05～0.12) | 100( 50～150) | 0.1 (0.05～0.15) | 100( 50～150) | 0.12(0.05～0.2 ) |
| K | 鋳鉄 Cast Iron (FC250) | ～350N/mm² | 200(150～280) | 0.08(0.05～0.12) | 200(150～280) | 0.15(0.05～0.25) | 200(150～280) | 0.15(0.05～0.25) |
| | ダクタイル鋳鉄 Ductile Cast Iron (FCD400) | ～800N/mm² | 160(100～220) | 0.08(0.05～0.12) | 160(100～220) | 0.1 (0.05～0.15) | 160(100～220) | 0.12(0.05～0.2 ) |
| S | 耐熱合金(湿式) (Inconel 718) (Wet) | – | 35( 25～ 60) | 0.08(0.05～0.1 ) | 35( 25～ 60) | 0.1 (0.05～0.15) | 35( 25～ 60) | 0.1 (0.05～0.15) |
| | チタン合金(湿式) Titanium Alloy(Wet) (Ti-6Al-4V) | – | 45( 35～ 70) | 0.08(0.05～0.1 ) | 45( 35～ 70) | 0.1 (0.05～0.15) | 45( 35～ 70) | 0.1 (0.05～0.15) |
| H | プリハードン鋼 Pre-hardened Steel (NAK80) | 40～43HRC | 100( 40～150) | 0.08(0.05～0.1 ) | 100( 40～150) | 0.1 (0.05～0.15) | 100( 40～150) | 0.1 (0.05～0.15) |
| | ダイカスト用鋼 Steel for Die Casting (DAC-MAGIC, DH31) | 43～48HRC | 60( 40～ 70) | 0.08(0.05～0.1 ) | 60( 40～ 70) | 0.1 (0.05～0.15) | 60( 40～ 70) | 0.1 (0.05～0.15) |

1. 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
2. 最大の切込み量は、機械の出力、剛性、被削材、その他の加工環境により変化します。これらの項目を十分配慮の上条件設定を行って下さい。
3. 切削油剤を使用する場合は低めの切削条件を設定下さい。
4. 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

1. Refer to the table above to set the cutting conditions in accordance with the actual situation.
2. The maximum milling amount varies in accordance with the machine's power output, rigidity, work material, and other work conditions. Before setting the work conditions, please take these details fully into consideration.
3. Set low cutting conditions when using a cutting fluid.
4. Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

形状寸法表 SPECIFICATION CHARTS F4042▶P1128-69
形状寸法表 SPECIFICATION CHARTS F4010▶P1128-93
形状寸法表 SPECIFICATION CHARTS F4038▶P1128-75

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## ポジティブミル F4042・ショルダーミル F4010

POSITIVE MILL F4042 SHOULDER MILL F4010

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength Hardness | 1刃当たりの送り量（fz） Feed Per Tooth（mm/t） インサートサイズ Insert Size | | | 切削速度（m/min） Cutting Speed |
|---|---|---|---|---|---|---|
| | | | AD..0803 | AD..1204 | AD..1606 | |
| 軟鋼、低炭素鋼 Mild Steel Low Carbon Steel | SS400、S15C | 180〜280HB | 0.08 〜 0.15 | 0.1 〜 0.2 | 0.12 〜 0.15 | 120 〜 250 |
| 炭素鋼、合金鋼 Carbon Steel Alloy Steel | S50C、SCM440 | 180〜280HB | 0.05 〜 0.12 | 0.08 〜 0.15 | 0.1 〜 0.18 | 100 〜 220 |
| | | 280〜350HB | 0.05 〜 0.1 | 0.08 〜 0.12 | 0.1 〜 0.15 | 80 〜 180 |
| プリハードン鋼 Prehardened Steel | NAK55 など etc. | 35〜45HRC | 0.05 〜 0.1 | 0.08 〜 0.12 | 0.1 〜 0.15 | 60 〜 120 |
| ダイス鋼（生材） Tool Steel | SKD | 〜250HB | 0.08 〜 0.15 | 0.1 〜 0.2 | 0.12 〜 0.15 | 100 〜 150 |
| ダイス鋼、焼入れ鋼 Die Steel Hardened Steels | SKD、SKT | 〜50HRC | 0.05 〜 0.08 | 0.05 〜 0.1 | 0.08 〜 0.12 | 50 〜 80 |
| ステンレス鋼 Stainless Steel | SUS | 〜270HB | 0.05 〜 0.08 | 0.05 〜 0.1 | 0.08 〜 0.12 | 120 〜 140 |
| チタン合金 Titanium Alloy | T*** | — | 0.05 〜 0.08 | 0.08 〜 0.12 | 0.08 〜 0.15 | 50 〜 80 |
| 普通鋳鉄 Cast Iron | FC250 など etc. | 〜350N/mm² | 0.1 〜 0.15 | 0.15 〜 0.25 | 0.18 〜 0.3 | 100 〜 300 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | 〜450N/mm² | 0.08 〜 0.12 | 0.1 〜 0.2 | 0.15 〜 0.25 | 100 〜 200 |
| | FCD500 | 500〜800N/mm² | 0.05 〜 0.1 | 0.08 〜 0.15 | 0.12 〜 0.2 | 80 〜 150 |
| アルミニウム合金 Aluminium Alloy | A****、AC、ADC | — | 0.08 〜 0.15 | 0.1 〜 0.2 | 0.15 〜 0.3 | 200 〜 1,100 |

注意）
- 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
- 切削油剤を使用する場合は低めの切削条件を設定下さい。
- 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

Note）
- Refer to the table above to set the cutting conditions in accordance with the actual situation.
- Set low cutting conditions when using a cutting fluid.
- Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

## 重切削ポーキュパインカッタ F4038

HEAVY DUTY PORCUPINE CUTTER

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 1刃当たりの送り量（fz） Feed Per Tooth（mm/t） | | 切削速度（m/min） Cutting Speed |
|---|---|---|---|---|---|
| | | | 溝加工 Slotting | 側面加工 Side Milling | |
| 軟鋼、低炭素鋼 Mild Steel,Low Carbon Steel | SS400、S15C | 180〜280HB | 0.06 〜 0.1 | 0.1 〜 0.15 | 120 〜 250 |
| 炭素鋼、合金鋼 Carbon Steel,Alloy Steel | S50C、SCM440 | 180〜280HB | 0.04 〜 0.08 | 0.06 〜 0.1 | 100 〜 220 |
| | | 280〜350HB | 0.04 〜 0.08 | 0.06 〜 0.1 | 80 〜 180 |
| プリハードン鋼 Prehardened Steel | NAK55 など etc. | 35〜45HRC | 0.04 〜 0.06 | 0.05 〜 0.08 | 60 〜 120 |
| ダイス鋼（生材） Die Steel | SKD | 〜250HB | 0.04 〜 0.06 | 0.05 〜 0.08 | 100 〜 150 |
| ダイス鋼、焼入れ鋼 Die Steel,Hardened Steel | SKD、SKT | 〜50HRC | 0.04 〜 0.06 | 0.05 〜 0.08 | 50 〜 80 |
| ステンレス鋼 Stainless Steel | SUS | 〜270HB | 0.04 〜 0.06 | 0.05 〜 0.08 | 120 〜 140 |
| チタン合金 Titanium Alloy | T*** | — | 0.04 〜 0.06 | 0.05 〜 0.08 | 50 〜 80 |
| 普通鋳鉄 Cast Iron | FC250 など etc. | 〜350N/mm² | 0.06 〜 0.1 | 0.08 〜 0.15 | 100 〜 300 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | 〜450N/mm² | 0.06 〜 0.1 | 0.08 〜 0.15 | 100 〜 200 |
| | FCD500 | 500〜800N/mm² | 0.04 〜 0.08 | 0.06 〜 0.12 | 80 〜 150 |
| アルミニウム合金 Aluminium Alloy | A****,AC,ADC | — | 0.06 〜 0.1 | 0.08 〜 0.15 | 200 〜 1,100 |

注意）
- 溝加工は刃長の短いタイプでのみ可能です。（最大溝加工深さ 1 D）
- DC=20mmサイズは2溝ですが、千鳥刃なので、切削条件は1枚刃として設定下さい。
- 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
- 最大の切込み量は、機械の出力、剛性、被削材、その他の加工環境により変化します。これらの項目を十分配慮の上条件設定を行って下さい。
- 切削油剤を使用する場合は低めの切削条件を設定下さい。
- 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

Note）
- Slotting is only possible with the short flute type.（maximum slotting depth of 1D）
- The DC=20mm size has two flutes, but since the teeth are staggered, set the cutting conditions as if using a single flute tool.
- Refer to the table above to set the cutting conditions in accordance with the actual situation.
- The maximum milling amount varies in accordance with the machine's power output, rigidity, work material, and other work conditions. Before setting the work conditions, please take these details fully into consideration.
- Set low cutting conditions when using a cutting fluid.
- Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

形状寸法表 SPECIFICATION CHARTS F4138▶P1128-77
形状寸法表 SPECIFICATION CHARTS F4238▶P1128-79
形状寸法表 SPECIFICATION CHARTS F4010 N4S45R▶P1128-90
形状寸法表 SPECIFICATION CHARTS F4033 SL▶P1128-85
形状寸法表 SPECIFICATION CHARTS F4033 SS▶P1128-86

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

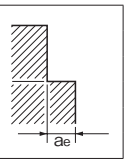
## 重切削ポーキュパインカッタ F4138・F4238 HEAVY DUTY PORCUPINE CUTTER

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 1刃当たりの送り量（fz） Feed Per Tooth(mm/t) | | 切削速度（m/min） Cutting Speed |
|---|---|---|---|---|---|
| | | | F4138 | F4238 | |
| 軟鋼、低炭素鋼 Mild Steel,Low Carbon Steel | SS400、S15C | 180～280HB | 0.12 ～ 0.2 | 0.15 ～ 0.25 | 120 ～ 250 |
| 炭素鋼、合金鋼 Carbon Steel,Alloy Steel | S50C、SCM440 | 180～280HB | 0.08 ～ 0.15 | 0.1 ～ 0.2 | 100 ～ 220 |
| | | 280～350HB | 0.06 ～ 0.15 | 0.08 ～ 0.18 | 80 ～ 180 |
| プリハードン鋼 Prehardened Steel | NAK55 など etc. | 35～45HRC | 0.06 ～ 0.12 | 0.08 ～ 0.15 | 60 ～ 120 |
| ダイス鋼(生材) Die Steel | SKD | ～250HB | 0.08 ～ 0.12 | 0.12 ～ 0.15 | 100 ～ 150 |
| ダイス鋼、焼入れ鋼 Die Steel,Hardened Steel | SKD、SKT | ～50HRC | 0.08 ～ 0.12 | 0.08 ～ 0.12 | 50 ～ 80 |
| ステンレス鋼 Stainless Steel | SUS | ～270HB | 0.08 ～ 0.12 | 0.08 ～ 0.12 | 120 ～ 140 |
| チタン合金 Titanium Alloy | T*** | — | 0.08 ～ 0.12 | 0.08 ～ 0.12 | 50 ～ 80 |
| 普通鋳鉄 Cast Iron | FC250 など etc. | ～350N/mm² | 0.1 ～ 0.25 | 0.15 ～ 0.3 | 100 ～ 300 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～450N/mm² | 0.1 ～ 0.2 | 0.15 ～ 0.25 | 100 ～ 200 |
| | FCD500 | 500～800N/mm² | 0.08 ～ 0.15 | 0.12 ～ 0.2 | 80 ～ 150 |
| アルミニウム合金 Aluminium Alloy | A****、AC、ADC | — | 0.15 ～ 0.25 | 0.15 ～ 0.25 | 200 ～ 1,100 |

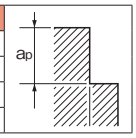
### 切込深さによる1刃当たりの送り量設定 Setting the feed amount per flute according to the milling depth

**切込み量により適正な切削条件は変化します。切込み量に応じて送り速度を調整下さい。**
The proper cutting conditions vary according to the milling amount. Therefore, adjust the feed rate according to the milling amount.

| 切削幅 ae Milling Width | 係数 Coefficient（Kr） |
|---|---|
| 0.5D以上 | 1 |
| 0.2D以上～0.5D未満 | 1.1 |
| 0.1D以上～0.2D未満 | 1.2 |
| 0.05D以上～0.1D未満 | 1.3 |
| 0.05D未満 | 1.5 |




| 切込深さ ap Milling Depth | 係数 Coefficient（Ka） |
|---|---|
| 0.5D未満 | 1 |
| 0.5D以上～0.75D未満 | 0.8 |
| 0.75D以上～1D未満 | 0.7 |
| 1D以上 | 0.5 |




**1刃当たりの送り量=表中（fz） × 切削幅係数（Kr） × 切込深さ係数（Ka）**
Feed amount per flute = fz in table × milling width coefficient (Kr) × milling depth coefficient (Ka)

注意）
- 実際の加工における切削条件は上表を参考に状況に応じて設定下さい。
- 最大の切込み量は、機械の出力、剛性、被削材、その他の加工環境により変化します。
  これらの項目を十分配慮の上条件設定を行って下さい。
- 切削油剤を使用する場合は低めの切削条件を設定下さい。
- 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件を変更下さい。

Note）
- Refer to the table above to set the cutting conditions in accordance with the actual situation.
- The maximum milling amount varies in accordance with the machine's power output, rigidity, work material, and other work conditions. Before setting the work conditions, please take these details fully into consideration.
- Set low cutting conditions when using a cutting fluid.
- Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

## F4010 N4S45R・F4033 SL/SS

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 1刃当たりの送り量（fz） Feed Per Tooth(mm/t) | 切削速度（m/min） Cutting Speed |
|---|---|---|---|---|
| 軟鋼、低炭素鋼 Mild Steel, Low Carbon Steel | SS400, S15C | 180～280HB | 0.15 ～ 0.25 | 120 ～ 250 |
| 炭素鋼、合金鋼 Carbon Steel | S50C | 180～280HB | 0.1 ～ 0.2 | 100 ～ 220 |
| 合金鋼 Alloy Steel | SCM440 | 280～350HB | 0.08 ～ 0.18 | 80 ～ 180 |
| プリハードン鋼 Prehardened Steel | NAK55 など etc. | 35～45HRC | 0.08 ～ 0.15 | 60 ～ 120 |
| ダイス鋼(生材) Die Steel | SKD | ～250HB | 0.12 ～ 0.15 | 100 ～ 150 |
| ダイス鋼、焼入れ鋼 Die Steel, Hardened Steel | SKD,SKT | ～50HRC | 0.08 ～ 0.12 | 50 ～ 80 |
| ステンレス鋼 Stainless Steel | SUS | ～270HB | 0.08 ～ 0.12 | 120 ～ 140 |
| チタン合金 Titanium Alloy | T*** | — | 0.08 ～ 0.12 | 50 ～ 80 |
| 普通鋳鉄 Cast Iron | FC250 など etc. | ～350N/mm² | 0.15 ～ 0.3 | 100 ～ 300 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～450N/mm² | 0.15 ～ 0.25 | 100 ～ 200 |
| | FCD500 | 500～800N/mm² | 0.12 ～ 0.2 | 80 ～ 150 |

注意）
- 実際の加工における切削条件は上表を参考に状況に応じて設定して下さい。
- 切削油剤を使用する場合は低めの切削条件を設定下さい。
- 機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件の変更をして下さい。

Note）
- Refer to the table above to set the cutting conditions in accordance with the actual situation.
- Set low cutting conditions when using a cutting fluid.
- Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

### 加工上の注意点 Machining Precautions

**F4033 はカッタの設計仕様により、ランピング加工、ヘリカル加工が行えません。それらの加工には F2280 オクタゴンカッタなどその他のカッタを使用下さい。**
Due to the design of the cutter, the F4033 cannot be used for ramping or helical milling. For those purposes, use other cutters such as the F2280 octagonal cutter.

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## F4041 一般加工（通常のフライス加工）時の切削条件表

F4041 Cutting Conditions for General Machining (on a Normal Milling Machine)

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 1刃当たりの送り量（fz） Feed Per Tooth (mm/t) | 切削速度（m/min） Cutting Speed |
|---|---|---|---|---|
| 軟鋼、低炭素鋼 Mild Steel, Low Carbon Steel | SS400、S15C | 180～280HB | 0.1 ～0.2 | 120～250 |
| 炭素鋼,合金鋼 Carbon Steel, Alloy Steel | S50C | 180～280HB | 0.08～0.15 | 100～220 |
| 合金鋼 Alloy Steel | SCM440 | 280～350HB | 0.08～0.12 | 80～180 |
| プリハードン鋼 Prehardened Steel | NAK55 など etc. | 35～45HRC | 0.08～0.12 | 60～120 |
| ダイス鋼(生材) Die Steel | SKD | ～250HB | 0.1 ～0.2 | 100～150 |
| ダイス鋼,焼入れ鋼 Die Steel, Hardened Steel | SKD、SKT | ～50HRC | 0.05～0.1 | 50～ 80 |
| 鋳鉄 Cast Iron | FC250 など etc. | ～350N/mm² | 0.15～0.3 | 100～300 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～450N/mm² | 0.15～0.25 | 100～200 |
| | FCD500 | 500～800N/mm² | 0.12～0.2 | 80～150 |

注意）
●実際の加工における切削条件は上表を参考に状況に応じて設定して下さい。
●切削油剤を使用する場合は低めの切削条件を設定下さい。
●機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件の変更をして下さい。
Note)
● Refer to the table above to set the cutting conditions in accordance with the actual situation.
● Set low cutting conditions when using a cutting fluid.
● Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

## F4041 高送り加工時の切削基準条件表

F4041 Standard Cutting Conditions for High Feed Rate Machining

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 切込深さ ap (mm) | 1刃当たりの送り量（fz） Feed Per Tooth (mm/t) | 切削速度（m/min） Cutting Speed |
|---|---|---|---|---|---|
| 軟鋼、低炭素鋼 Mild Steel, Low Carbon Steel | SS400、S15C | 180～280HB | 2 | ～0.7 | 120～250 |
| 炭素鋼,合金鋼 Carbon Steel, Alloy Steel | S50C | 180～280HB | 2 | ～0.6 | 100～220 |
| 鋳鉄 Cast Iron | FC250 など etc. | ～350N/mm² | 3 | ～1 | 100～300 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～450N/mm² | 2 | ～0.8 | 100～200 |
| | FCD500 | 500～800N/mm² | 2 | ～0.8 | 80～150 |

注意）
●突出しの長い加工を行なう場合は、切込み、送り、切削速度を調整し適正な条件で加工下さい。
●高送り加工時は厚い切りくずが発生する為、エアブローなどにより切削箇所より切りくずを速やかに除去するようにして下さい。
Note)
● When using a tool with a long extension, reduce the milling depth, feed and speed, and increase gradually in order to find the optimal working conditions.
● High feed rate machining creates thick chips. Therefore, use an air blower to immediately remove the chips from the milling area.

## ディスカッタ DC-S DISC CUTTER

| 被削材 Work Material | 材料記号 Material Symbol | 切削速度 Cutting Speed (m/min) | 1刃当たりの送り量 (fz) Feed Per Tooth (mm/t) |
|---|---|---|---|
| アルミニウム及びアルミニウム合金 Aliminum and Aluminum Alloy Si含有量 13%未満 ～13wt%Si | A**** AC** ADC** | 1,000～2,500 | 0.07～0.25 |
| アルミニウム及びアルミニウム合金 Aliminum and Aluminum Alloy Si含有量 13%以上 13wt%Si～ | AC9A、A390 など etc. | 80～ 200 | 0.07～0.25 |
| 銅合金 Copper Alloy | C1100 など etc. | 200～ 500 | 0.07～0.25 |
| 鋳鉄 Cast Iron | FC250 など etc. | 100～ 200 | 0.07～0.15 |

## ディスカッタ DC-P DISC CUTTER

| 被削材 Work Material | 材料記号 Material Symbol | 切削速度 Cutting Speed (m/min) | 1刃当たりの送り量 (fz) Feed Per Tooth (mm/t) |
|---|---|---|---|
| アルミニウム及びアルミニウム合金 Aliminum and Aluminum Alloy Si含有量13%未満 ～13wt%Si | A**** AC** ADC** | 1,000～4,000 | 0.05～0.15 |
| アルミニウム及びアルミニウム合金 Aliminum and Aluminum Alloy Si含有量13%以上 13wt%Si～ | AC9A、A390 など etc. | 80～ 200 | 0.05～0.15 |
| 銅合金 Copper Alloy | C1100 など etc. | 200～ 500 | 0.05～0.15 |

形状寸法表 SPECIFICATION CHARTS F3038▶P1128-95
形状寸法表 SPECIFICATION CHARTS F3042A▶P1128-103
形状寸法表 SPECIFICATION CHARTS F3042B▶P1128-105
形状寸法表 SPECIFICATION CHARTS F3075▶P1128-109

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## F3038シリーズ　側面切削 切削速度（m/min）

F3038 SERIES SIDE MILLING CUTTING SPEED (m/min)

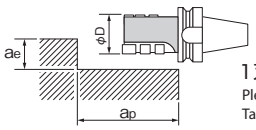
| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ・硬さ Tensile Strength・Hardness | インサート材種 Insert Grades | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | WQM25 | WXM40 | WAP35 | WAP25 | WTP35 | WAK15 | WAK25 | WKM | WK10 |
| 炭素鋼 Carbon Steel 合金鋼 Alloy Steel | S50C SCM440 | 180～280HB | 100～200 | 80～150 | 80～150 | 80～150 | 80～120 | | | | |
| | | 280～350HB | 80～180 | 80～120 | 80～120 | 80～120 | 80～100 | | | | |
| ダイス鋼 Die Steel | SKD, SKT | ～250HB | 100～200 | 80～150 | 80～150 | 80～150 | 80～120 | | | | |
| 調質鋼 Hardened Steel プリハードン鋼 Prehardened Steel | SKD, SKT, NAK | 35～45HRC | 60～100 | 60～100 | 60～100 | 60～100 | 60～ 80 | | | | |
| | | 45～55HRC | | 50～ 80 | 50～ 80 | | | | | | |
| ステンレス鋼 Stainless Steel | SUS304 | ～200HB | 120～250 | *60～100 | 120～200 | 120～200 | *60～100 | | | | |
| 鋳鉄 Cast Iron | FC250 | ～350N/mm² | 100～200 | 80～150 | | 80～150 | | 150～250 | 80～300 | 80～100 | |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～450N/mm² | 100～200 | 80～150 | 80～150 | 80～150 | 80～120 | | 80～250 | | |
| | FCD500 | ～800N/mm² | 70～120 | 70～120 | 70～120 | 70～120 | | | 70～120 | | |
| アルミニウム合金 Aluminum Alloy Casting | A*** | — | | | | | | | | | 300～800 |

第１推奨インサート材種です。 Recommended insert type.

### １刃当たりの送り量（mm/t）FEED PER TOOTH (mm/t)

①切込深さ設定表 Recommended depth of cut

| 軸方向切込深さ（ap） Depth of cut in axial direction | | 径方向切削幅（ae） Width of cut in radial direction |
|---|---|---|
| ap≦1D | → | (ae/D)≦0.5 |
| 1D<ap≦1.5D | → | (ae/D)≦0.25 |
| 1.5D<ap≦2D | → | (ae/D)≦0.1 |




１刃当たりの送り量は表①→表②の順に決めて下さい。
Please chose feed per tooth (mm/t) in this order: Table 1 and then Table 2.

②１刃当たりの送り量設定表（mm/t） Recommended feed per tooth

| 径方向切削幅（ae） Width of cut in radial direction | インサート材種 Insert Grades | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WQM25 | WXM40 | WAP35 | WAP25 | WTP35 | WAK15 | WAK25 | WKM | WK10 |
| (ae/D)≦0.1 | 0.1 ～0.3 | 0.1 ～0.4 | 0.08～0.3 | 0.05～0.3 | 0.08～0.35 | 0.08～0.3 | 0.08～0.3 | 0.08～0.3 | 0.05～0.3 |
| 0.1<(ae/D)≦0.25 | 0.08～0.25 | 0.08～0.26 | 0.08～0.2 | 0.05～0.2 | 0.08～0.2 | 0.08～0.2 | 0.08～0.2 | 0.08～0.2 | 0.05～0.2 |
| 0.25<(ae/D)≦0.5 | 0.06～0.15 | 0.06～0.16 | 0.06～0.12 | 0.05～0.12 | 0.06～0.12 | 0.06～0.12 | 0.06～0.12 | 0.06～0.12 | 0.05～0.12 |

1）aeは径方向の切込み、apは軸方向の切込み、Dはカッタ径を表します。
2）＊印は湿式加工条件を表します。
3）F3038Aを使用する場合は、1刃当たりの送りを80%に設定下さい。
4）0.5<（ae/D）の場合はM4256・M4257・M4258をご使用下さい。

1) ae: Depth of cut in radial direction　ap: Depth of cut in axial direction
D: Diameter of cutter
2) (＊) Cutting conditions for wet milling.
3) When F3038A is used, reduce feed per tooth (mm/t) by 20%.
4) With 0.5<(ae/D) use M4256,M4257,M4258

## F3042A※1・F3042B・F3075 切削速度（m/min）

F3042A※1·F3042B·F3075 CUTTING SPEED (m/min)

| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ・硬さ Tensile Strength・Hardness | インサート材種 Insert Grades | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | WQM25 | WXM40 | WAP35 | WAP25 | WTP35 | WAK15 | WAK25 | WKM | WK10 |
| 炭素鋼 Carbon Steel 合金鋼 Alloy Steel | S50C SCM440 | 180～280HB | 100～250 | 100～180 | 100～180 | 100～180 | 80～130 | | | | |
| | | 280～350HB | 80～230 | 80～150 | 80～150 | 80～150 | 60～120 | | | | |
| ダイス鋼 Die Steel | SKD, SKT | ～250HB | 100～250 | 80～180 | 80～180 | 80～180 | 60～100 | | | | |
| 調質鋼 Hardened Steel プリハードン鋼 Prehardened Steel | SKD, SKT, NAK | 35～45HRC | 60～100 | 60～100 | 60～100 | 60～100 | 60～ 80 | | | | |
| | | 45～55HRC | | 50～ 80 | 50～ 80 | | | | | | |
| ステンレス鋼 Stainless Steel | SUS304 | ～200HB | 120～250 | *60～100 | 120～200 | 120～200 | *60～100 | | | | |
| 鋳鉄 Cast Iron | FC250 | ～350N/mm² | 100～250 | 80～150 | | 80～150 | | 80～300 | 80～300 | 80～100 | |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～450N/mm² | 80～250 | 80～180 | 80～180 | 80～180 | 80～120 | | 80～250 | | |
| | FCD500 | ～800N/mm² | 70～120 | 70～120 | 70～120 | 70～120 | | | 70～120 | | |
| アルミニウム合金 Aluminum Alloy Casting | A*** | — | | | | | | | | | 400～1,100 |
| チタン合金 Titanium Alloy | T*** | — | 25～ 45 | 25～ 40 | | | | | | | |
| １刃当たりの送り量 Feed per tooth（mm/t） | | | 0.05～0.3 | 0.1～0.4 | 0.08～0.3 | 0.05～0.3 | 0.08～0.35 | 0.08～0.3 | 0.05～0.3 | 0.08～0.3 | 0.05～0.3 |

第１推奨インサート材種です。 Recommended insert type.

1）＊印は湿式加工条件を表します。
※1）F3042Aを使用する場合は、1刃当たりの送りを80%に設定下さい。

1) (＊) Cutting conditions for wet milling.
※1) When F3042A is used, reduce feed per tooth (mm/t) by 20%.

形状寸法表 SPECIFICATION CHARTS F3040▶P1128-110
形状寸法表 SPECIFICATION CHARTS F2231▶P1128-112
形状寸法表 SPECIFICATION CHARTS F2234▶P1128-111

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## ポジティブエンドミル F3040

POSITIVE END-MILL

| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ Tensile Strength | 加工内容 Processing Type | 1刃当たりの送り量 (fz) Feed per tooth (mm/t) | 切削速度 Cutting Speed (m/min) |
|---|---|---|---|---|---|
| アルミニウム合金 Aluminum Alloy Casting | A**** | — | 側面 Side Milling | 0.05〜0.3 | 500〜1,500 |
| | | | 溝 Slotting | 0.05〜0.2 | |

## F3040 最高回転速度 Speed (Max)

| カッタ径 Cutter Dia. (mm) | 最高回転速度 Speed (MAX) ($min^{-1}$) |
|---|---|
| $\phi$25 | 31,000 |
| $\phi$32 | 26,000 |
| $\phi$40 | 22,000 |

## ラジアスカッタ 小径ブルノーズカッタ F2231,F2234

SMALL DIAMETER RADIUS MILLING CUTTER

| 被削材 Work Material | 材料記号 Material Symbol | 硬さ Hardness | 1刃当たりの送り量 (fz) Feed per tooth (mm/t) | 切込深さ Depth of Cut(mm) | 切削速度 (m/min) Cutting Speed (m/min) | |
|---|---|---|---|---|---|---|
| | | | | | WKP25S | WHH15X |
| 炭素鋼 Carbon Steel<br>合金鋼 Alloy Steel | S**C<br>SKD** | 〜30HRC | 0.3〜0.5 | 0.3〜0.5 | 150〜250 | |
| 調質鋼 Hardened Steel | HPM**<br>NAK**<br>SKD** | 30〜40HRC | 0.3〜0.5 | 0.3 | | 130〜150 |
| | | 40〜45HRC | 0.3〜0.5 | 0.3 | | 100〜130 |
| | | 45〜50HRC | 0.1〜0.3 | 0.3 | | 80〜100 |
| 鋳鉄 Cast Iron | FC*** | | 0.3〜0.5 | 0.3〜0.5 | | 150〜200 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD*** | | 0.3〜0.5 | 0.3〜0.5 | 130〜150 | 130〜150 |

この数値は基準値です。加工の状況を確認の上、切削条件選定願います。
These numbers represent reference values. Select the proper cutting conditions after checking the actual machining conditions.

※加工プログラム作成上の注意点
・高硬度材を加工する際はフル溝加工の箇所が極力少なくなるようなパス（トロコイド切削など）を作成下さい。
・急激な切削負荷の変化が発生するポケットのコーナ部などではびびりが発生しやすい為、送りを落としたり、Rをつけて曲がるなどしてびびりを抑制するようにして下さい。
・Z軸方向へ切込む時はヘリカル加工で行うようにして下さい。
※加工上の注意
・切りくずはエアなどで切削箇所から除去することで、切りくずのかみ込みによる工具の損傷を防ぐことが出来ます。
・突出しを長くして使用する時は、低めの切削条件より徐々に上げるようにして適正な加工条件を見つけるようにして下さい。
※工具取り扱い上の注意点
・インサートのクランプねじは必要以上に締め込まないようして下さい。

**Notes on creating machining programs**
To work on high hardness materials, create passes(such as making trochoid cuts) with minimal full-groove cutting areas.
The corners of pockets that cause sudden changes in the cutting load are susceptible to chattering. For this reason, minimize chattering by reducing the feed rate or providing curves along those corners.
Make helical cuts when plunging in the Z direction.

**Notes on machining**
By air blowing the cutting chips from the cutting areas, the tool can be protected from damage associated with the jamming of the chips.
When using the tool with a long extension, start with minimal cutting conditions, and work gradually up in order to find the optimal working conditions.

**Notes on handling tools**
Do not overtighten the screw for clamping the insert.

形状寸法表 SPECIFICATION CHARTS F2231▶P1128-113
形状寸法表 SPECIFICATION CHARTS F2234 SS▶1128-115
形状寸法表 SPECIFICATION CHARTS F2234 SL▶P1128-116

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## ラジアスカッタ ブルノーズカッタ（中心刃付）F2231 RADIUS MILLING CUTTER WITH CENTER EDGE

| 被削材 Work Material | 材料記号 Material Symbol | 硬さ Hardness | 1刃当たりの送り量 (fz) Feed per tooth (mm/t) | 切削速度（m/min）Cutting Speed (m/min) | | | |
|---|---|---|---|---|---|---|---|
| | | | | WSM35S | WKP35S | WKP25S | WHH15 |
| 炭素鋼 Carbon Steel 合金鋼 Alloy Steel | S50C SCM440 | ～30HRC | 0.15～0.5 | | 120～200 | 120～250 | 120～250 |
| 調質鋼 Hardened Steel | — | 30～40HRC | 0.12～0.5 | | 100～180 | 100～200 | 100～200 |
| | | 40～45HRC | 0.12～0.3 | | 80～120 | 80～160 | 80～160 |
| | | 45～50HRC | 0.12～0.25 | | 50～ 80 | 50～100 | 50～100 |
| ステンレス鋼 Stainless Steel | SUS304 | — | 0.15～0.4 | 100～160 | | | |
| 鋳鉄 Cast Iron | FC250 | — | 0.08～0.25 | | 80～150 | 100～160 | 100～160 |

※使用上の注意 1）ランピング加工、ヘリカル加工、穴加工では長い切りくずが発生するので注意下さい。
2）切込深さはR6以上のインサートでインサートRの80%以下、R4、R5ではインサートRの60%以下で設定下さい。
3）Z方向へ切込んだ後、横引きをする場合、上記条件表の50～60%の条件にて使用下さい。
4）Z方向へ切込む場合は、Z方向単独ではない、ヘリカル加工またはランピング加工を推奨します。
5）小型サイズ（φ16、20）の場合、条件表の下目の条件にて使用下さい。

Comments: 1. Long disposable chips may form during ramping, helical milling, or plunging operations.
2. Use the following depth of cut:
For inserts with R6 and larger : less than mill dia. ×0.8
For inserts with R4 and R5 : less than mill dia. ×0.6
3. When crosscut milling is required after milling of the Z-axis, reduce the above conditions by 50 ～ 60%.
4. Helical and ramping milling (milling of multiple axis) are recommended for operation in the Z-axis.
5. Use the lower value of the above conditions for small diameter end mills (φ16 and 20).

## ラジアスカッタ ブルノーズカッタ ストレートシャンク F2234 SS
## ラジアスカッタ ブルノーズカッタ シェルタイプ F2234 SL

BULL NOSE CUTTER RADIUS END MILL WITH STRAIGHT SHANK WITH SHELL TYPE

| 被削材 Work Material | 材料記号 Material Symbol | 硬さ Hardness | 1刃当たりの送り量 (fz) Feed per tooth (mm/t) | 切削速度（m/min）Cutting Speed (m/min) | | | |
|---|---|---|---|---|---|---|---|
| | | | | WSM35S | WKP35S | WKP25S | WHH15 |
| 炭素鋼 Carbon Steel 合金鋼 Alloy Steel | S50C SCM440 | ～30HRC | 0.2 ～0.6 | | 150～250 | 150～300 | 150～300 |
| 調質鋼 Hardened Steel | — | 30～40HRC | 0.15～0.6 | | 120～200 | 120～250 | 120～250 |
| | | 40～45HRC | 0.15～0.4 | | 100～150 | 100～200 | 100～200 |
| | | 45～50HRC | 0.15～0.3 | | 60～100 | 60～120 | 60～120 |
| ステンレス鋼 Stainless Steel | SUS304 | — | 0.2 ～0.5 | 120～200 | | | |
| 鋳鉄 Cast Iron | FC250 | — | 0.1 ～0.3 | | 100～180 | 120～200 | 120～200 |

※使用上の注意 1）ランピング加工、ヘリカル加工、穴加工では長い切りくずが発生するので注意下さい。
2）切込深さはR6以上のインサートでインサートRの80%以下、R4、R5ではインサートRの60%以下で設定下さい。
3）Z方向へ切込んだ後、横引きをする場合、上記条件表の50～60%の条件にて使用下さい。
4）Z方向へ切込む場合は、Z方向単独ではない、ヘリカル加工またはランピング加工を推奨します。
5）ロングシャンク品の場合、条件表の60%程度の条件で使用下さい。

Comments: 1. Long disposable chips may form during ramping, helical milling, or plunging operations.
2. Use the following depth of cut:
For inserts with R6 and larger : less than mill dia. ×0.8
For inserts with R4 and R5 : less than mill dia. ×0.6
3. When crosscut milling is required after milling of the Z-axis, reduce the above conditions by 50 ～ 60%.
4. Helical and ramping milling (milling of multiple axis) are recommended for operation in the Z-axis.
5. For long shank mills, reduce the above conditions by 40%.

形状寸法表 SPECIFICATION CHARTS F4047▶P1128-87
形状寸法表 SPECIFICATION CHARTS F4010 N4S75R▶P1128-91
形状寸法表 SPECIFICATION CHARTS F4048▶P1128-88
形状寸法表 SPECIFICATION CHARTS F4010 N4S88R▶P1128-92

# CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS インデキサブルツール切削条件基準表

## F4047/F4010 N4S75R

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 1刃当たりの送り量（fz） Feed Per Tooth(mm/t) | 切削速度（m/min） Cutting Speed |
|---|---|---|---|---|
| 軟鋼、低炭素鋼 Mild Steel, Low Carbon Steel | SS400, S15C | 180〜280HB | 0.12 〜 0.22 | 120 〜 250 |
| 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | S50C, SCM440 | 180〜280HB | 0.08 〜 0.18 | 100 〜 220 |
| | | 280〜350HB | 0.06 〜 0.16 | 80 〜 180 |
| プリハードン鋼 Prehardened Steel | NAK55 など etc. | 35〜45HRC | 0.06 〜 0.13 | 60 〜 120 |
| ダイス鋼（生材） Die Steel | SKD | 〜250HB | 0.1 〜 0.13 | 100 〜 150 |
| ダイス鋼、焼入れ鋼 Die Steel, Hardened Steel | SKD, SKT | 〜50HRC | 0.06 〜 0.1 | 50 〜 80 |
| ステンレス鋼 Stainless Steel | SUS | 〜270HB | 0.06 〜 0.1 | 120 〜 140 |
| チタン合金 Titanium Alloy | T*** | — | 0.06 〜 0.1 | 50 〜 80 |
| 普通鋳鉄 Cast Iron | FC250 など etc. | 〜350N/mm² | 0.1 〜 0.25 | 100 〜 300 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | 〜450N/mm² | 0.1 〜 0.22 | 100 〜 200 |
| | FCD500 | 500〜800N/mm² | 0.1 〜 0.18 | 80 〜 150 |

## F4048/F4010 N4S88R

| 被削材 Work Material | | 引張強さ・硬さ Tensile Strength・Hardness | 1刃当たりの送り量（fz） Feed Per Tooth(mm/t) | 切削速度（m/min） Cutting Speed |
|---|---|---|---|---|
| 軟鋼、低炭素鋼 Mild Steel, Low Carbon Steel | SS400, S15C | 180〜280HB | 0.1 〜 0.2 | 120 〜 250 |
| 炭素鋼、合金鋼 Carbon Steel, Alloy Steel | S50C, SCM440 | 180〜280HB | 0.07 〜 0.17 | 100 〜 220 |
| | | 280〜350HB | 0.05 〜 0.15 | 80 〜 180 |
| プリハードン鋼 Prehardened Steel | NAK55 など etc. | 35〜45HRC | 0.05 〜 0.12 | 60 〜 120 |
| ダイス鋼（生材） Die Steel | SKD | 〜250HB | 0.08 〜 0.12 | 100 〜 150 |
| ダイス鋼、焼入れ鋼 Die Steel, Hardened Steel | SKD, SKT | 〜50HRC | 0.05 〜 0.09 | 50 〜 80 |
| ステンレス鋼 Stainless Steel | SUS | 〜270HB | 0.05 〜 0.09 | 120 〜 140 |
| チタン合金 Titanium Alloy | T*** | — | 0.05 〜 0.09 | 50 〜 80 |
| 普通鋳鉄 Cast Iron | FC250 など etc. | 〜350N/mm² | 0.08 〜 0.22 | 100 〜 300 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | 〜450N/mm² | 0.08 〜 0.2 | 100 〜 200 |
| | FCD500 | 500〜800N/mm² | 0.08 〜 0.15 | 80 〜 150 |

注意）
●実際の加工における切削条件は上表を参考に状況に応じて設定して下さい。
●切削油剤を使用する場合は低めの切削条件を設定下さい。
●機械、ワーク、ワーククランプの剛性が低い場合は、低めの条件設定を行い、加工の状況に応じて条件の変更をして下さい。

Note）
● Refer to the table above to set the cutting conditions in accordance with the actual situation.
● Set low cutting conditions when using a cutting fluid.
● Select low conditions when the rigidity of the machine, work, or the work clamp is low. Adjust the conditions to suit the machining conditions.

**加工上の注意点 Machining Precautions**
F4033 はカッタの設計仕様により、ランピング加工、ヘリカル加工が行えません。それらの加工には F2280 オクタゴンカッタなどその他のカッタを使用下さい。
Due to the design of the cutter, the F4033 cannot be used for ramping or helical milling. For those purposes, use other cutters such as the F2280 octagonal cutter.

形状寸法表
SPECIFICATION CHARTS
F2339▶P1128-117

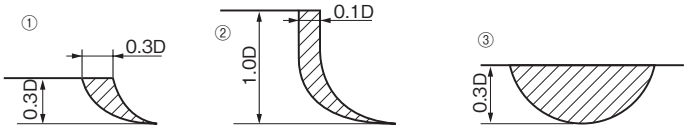
# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## ボールエンドミル ブラボーミル（2刃タイプ）F2339

BRABO MILL

| 被削材 Work Material | 切削速度 (m/min) Cutting Speed | 1刃当たりの送り量（fz） Feed per tooth (mm/t) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DC=φ20, 25 | | | DC=φ30, 32 | | | DC=φ40 | | | DC=φ50 | | |
| | | ① | ② | ③ | ① | ② | ③ | ① | ② | ③ | ① | ② | ③ |
| 炭素鋼･合金鋼<br>Carbon Steel<br>Alloy Steel | 230<br>(180) | 0.1～0.2 | 0.05～0.15 | 0.05～0.15 | 0.1～0.25 | 0.05～0.2 | 0.05～0.15 | 0.1～0.25 | 0.1～0.25 | 0.1～0.2 | 0.1～0.3 | 0.1～0.3 | 0.1～0.25 |
| 工具鋼<br>Tool Steel | 200<br>(170) | 0.1～0.2 | 0.05～0.15 | 0.05～0.15 | 0.1～0.25 | 0.05～0.2 | 0.05～0.15 | 0.1～0.25 | 0.1～0.25 | 0.1～0.2 | 0.1～0.3 | 0.1～0.3 | 0.1～0.25 |
| ステンレス鋼<br>Stainless Steel | 220<br>(180) | 0.1～0.2 | 0.05～0.15 | 0.05～0.15 | 0.1～0.25 | 0.05～0.2 | 0.05～0.15 | 0.1～0.25 | 0.1～0.25 | 0.1～0.2 | 0.1～0.3 | 0.1～0.3 | 0.1～0.25 |
| 調質鋼<br>プリハードン鋼<br>～45HRC<br>Hardened Steel<br>Prehardended Steel | 120<br>(80) | 0.05～0.15 | 0.05～0.15 | 0.05～0.1 | 0.1～0.2 | 0.05～0.15 | 0.05～0.1 | 0.1～0.2 | 0.1～0.2 | 0.1～0.15 | 0.1～0.25 | 0.1～0.2 | 0.1～0.2 |
| 調質鋼<br>45～50HRC<br>Hardened Steel | 100<br>(70) | 0.05～0.15 | 0.05～0.15 | 0.05～0.1 | 0.05～0.15 | 0.05～0.15 | 0.05～0.1 | 0.1～0.2 | 0.1～0.2 | 0.05～0.15 | 0.1～0.25 | 0.1～0.2 | 0.1～0.2 |
| 鋳鉄<br>Cast Iron | 240<br>(200) | 0.1～0.2 | 0.05～0.15 | 0.05～0.15 | 0.1～0.25 | 0.1～0.2 | 0.1～0.15 | 0.1～0.25 | 0.1～0.25 | 0.1～0.2 | 0.15～0.35 | 0.1～0.3 | 0.1～0.3 |

※（ ）はDC＝φ40,50の場合
※（ ）– used when the diameter is φ40 or 50.



形状寸法表
SPECIFICATION CHARTS
F2039▶P1128-119

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## ボールエンドミル 汎用タイプ（1刃タイプ）F2039

BALL END MILL

| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ Tensile Strength | カッタ径 DC | インサート材種 Insert Grades / 1刃当たりの送り量(fz) Feed per tooth (mm/t) | 切削速度（m/min）Cutting Speed (m/min) WKM | WKP35S | WKP25S |
|---|---|---|---|---|---|---|---|
| 炭素鋼 Carbon Steel<br>合金鋼 Alloy Steel | S50C<br>SCM440 | ～500N/mm² | DC≦25 | 0.06～0.1 | | 180～250 | 140～180 |
| | | | DC≧30 | 0.1 ～0.15 | | | |
| | | ～710N/mm² | DC≦25 | 0.06～0.1 | | 160～230 | 120～160 |
| | | | DC≧30 | 0.1 ～0.15 | | | |
| 工具鋼 Tool Steel<br>ダイス鋼 Die Steel | SKS<br>SKD | ～980N/mm² | DC≦25 | 0.04～0.08 | | 120～150 | 100～120 |
| | | | DC≧30 | 0.08～0.1 | | | |
| 鋳鉄 Cast Iron | FC250 | 350N/mm² | DC≦25 | 0.08～0.12 | 90～110 | | 100～200 |
| | | | DC≧30 | 0.12～0.18 | | | |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～500N/mm² | DC≦25 | 0.08～0.12 | | 100～200 | 100～150 |
| | | | DC≧30 | 0.12～0.18 | | | |

形状寸法表 SPECIFICATION CHARTS F2280 SS▶P1128-123
形状寸法表 SPECIFICATION CHARTS F2280 SL▶P1128-124
形状寸法表 SPECIFICATION CHARTS F2010 P5E43R▶P1128-133

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## オクタゴンカッタ ストレートシャンク F2280 SS
## オクタゴンカッタ シェルタイプ F2280 SL
## ミーリングカッタ オクタゴンタイプ F2010 P5E43R

OCTAGON CUTTER WITH STRAIGHT SHANK
OCTAGON CUTTER WITH SHELL TYPE
MILLING CUTTER WITH OCTAGON TYPE

### 荒加工 ROUGHING

| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ・硬さ Tensile Strength・Hardness | 切削速度 Cutting Speed (m/min) | 1刃当たりの送り量 (fz) Feed per tooth (mm/t) |
|---|---|---|---|---|
| 炭素鋼・合金鋼 Carbon Steel・Alloy Steel | S50C SCM440 | ～710N/mm² | 150（100～ 200） | 0.2（0.15～0.25） |
| | | ～980N/mm² | 120（ 80～ 150） | 0.2（0.15～0.25） |
| プリハードン鋼 Prehardened Steel | NAK55 | 35～45HRC | 100（ 70～ 130） | 0.2（0.15～0.25） |
| ダイス鋼（生材） Die Steel | SKD | ～780N/mm² | 150（100～ 200） | 0.2（0.15～0.25） |
| ダイス鋼・焼入れ鋼 Die Steel・Hardend Steel | SKD, SKT | ～50HRC | 60（ 50～ 80） | 0.1（0.05～0.15） |
| ステンレス鋼 Stainless Steel | SUS304 | ～270HB | 150（100～ 200） | 0.15（0.1 ～0.2 ） |
| 鋳鉄 Cast Iron | FC250 | ～350N/mm² | 160（100～ 200） | 0.3（0.25～0.35） |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～450N/mm² | 130（ 80～ 160） | 0.2（0.15～0.25） |
| | FCD500 | 500～800N/mm² | 110（ 70～ 120） | 0.2（0.15～0.25） |
| アルミニウム合金 Aluminum Alloy | AC | — | 900（600～1,100） | 0.35（0.3 ～0.4 ） |

注）4mmを越えた切込みでは送りを上表の50～70%で設定下さい。

Note: When the milling amount is over 4mm, use a feed that is 50– 70% the amount shown in the above table.

### 仕上げ加工 FINISHING

| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ・硬さ Tensile Strength・Hardness | 最大切込み Max. cutting depth (mm) | 切削速度 Cutting Speed (m/min) | 1刃当たりの送り量 (fz) Feed per tooth (mm/t) |
|---|---|---|---|---|---|
| 炭素鋼・合金鋼 Carbon Steel・Alloy Steel | S50C SCM440 | ～710N/mm² | 2 | 250（200～ 300） | 0.15（0.1 ～0.2 ） |
| | | ～980N/mm² | 2 | 200（150～ 250） | 0.15（0.1 ～0.2 ） |
| プリハードン鋼 Prehardened Steel | NAK55 | 35～45HRC | 1 | 100（ 70～ 130） | 0.15（0.1 ～0.2 ） |
| ダイス鋼（生材） Die Steel | SKD | ～780N/mm² | 2 | 250（200～ 300） | 0.15（0.1 ～0.2 ） |
| ダイス鋼・焼入れ鋼 Die Steel・Hardend Steel | SKD, SKT | ～50HRC | 1 | 60（ 50～ 80） | 0.1（0.05～0.15） |
| ステンレス鋼 Stainless Steel | SUS304 | ～270HB | 2 | 250（200～ 300） | 0.15（0.1 ～0.2 ） |
| 鋳鉄 Cast Iron | FC250 | ～350N/mm² | 2 | 250（200～ 300） | 0.15（0.1 ～0.2 ） |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～450N/mm² | 2 | 250（200～ 300） | 0.15（0.1 ～0.2 ） |
| | FCD500 | 500～800N/mm² | 2 | 250（200～ 300） | 0.15（0.1 ～0.2 ） |
| アルミニウム合金 Aluminum Alloy | AC | — | 2 | 900（600～1,100） | 0.15（0.1 ～0.2 ） |

注）仕上げ加工を行う場合、上表の最大切込み以内で切込みを設定して下さい。

Note: For finishing, the milling amount should be below the maximum amount described in the above table.

形状寸法表 SPECIFICATION CHARTS F2280MINI SS▶P1128-121
形状寸法表 SPECIFICATION CHARTS F2280MINI SL▶P1128-122

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## オクタゴンカッタMINI ストレートシャンク **F2280MINI SS** OCTAGON CUTTER MINI WITH STRAIGHT SHANK
## オクタゴンカッタMINI シェルタイプ **F2280MINI SL** OCTAGON CUTTER MINI SHELL TYPE

| 対象加工 Example Machining | 対象被削材 Example Material | 呼び Designation | 特長と用途 Feature and Application | 切削条件 Cutting Conditions 切削速度 Cutting Speed (m/min) | 1刃当たりの送り量 (fz) Feed Per Tooth (mm/t) | 切削油剤 Coolant |
|---|---|---|---|---|---|---|
| 一般荒加工用 For roughing | 鋳鉄 Cast Iron FC250 | ODMW050408-A57 | 切込深さ4mm以下で使用 (F2280MINIは3mm以下) To be used at less than 4mm milling (F2280MINI:less than 3mm) | 180 (150～250) | 0.2 (0.1～0.3) | 無 None |
| 高送り荒加工用 For high speed feed roughing | | ODMT0504ZZN-D57 | 切込深さ2mm以下にて送り量を大きく設定可能 No limitation of milling and feeding. Effective for intermittent milling as well. | 160 (150～250) | 0.5 (0.3～1) | 無 None |
| 仕上げ加工用 For finishing | | ODHW0504ZZN-A57 | 精密級タイプ使用 切込深さ1mm以下にて仕上げ加工に威力を発揮 (面粗度6.3S以下) Ground finish insert Very effective for finishing less than depth of cut 1mm (Surface roughness: less than 6.3S) | 230 (200～250) | 0.1 (0.08～0.15) | 無 None |
| 荒加工用 For roughing | ダクタイル鋳鉄 Ductile Cast Iron FCD400 | ODMT0504ZZN-D57 | 切込深さ、送り量を高く設定可能 断続切削にも効果的 Possible to set heavy milling and high speed feeding. Effective for intermittent milling as well. | 160 (150～200) | 0.2 (0.1～0.4) | 無 None |
| 仕上げ加工用 For finishing | | ODHT0504ZZN-F57 | 精密級タイプ使用 切込深さ1mm以下にて仕上げ加工に威力を発揮 (面粗度6.3S以下) Ground finish insert Very effective for finishing less than depth of cut 1mm (Surface roughness: less than 6.3S) | 200 (160～250) | 0.1 (0.08～0.12) | 無 None |
| 高送り荒加工用 For high speed feed roughing | 軟鋼・炭素鋼・合金鋼 Mild Steel Carbon Steel Alloy Steel SS400・S50C・SCM440 | ODMT0504ZZN-D57 | 切込深さ、送り量を高く設定可能 断続切削や彫り込み加工にも効果的 Possible to set heavy milling and high speed feeding. Effective for intermittent milling or curving machining as well. | 160 (150～200) | 0.5 (0.3～1) | どちらでも可 Either one is applicable. |
| 低抵抗中荒加工用 For semi roughing at low resistance | | ODHT0504ZZN-F57 | 切れ味を求める場合、 切込深さ2mm以下でびびり振動を抑制 When sharp cutting edge is required, restrain the chattering and vibration with depth of cut less than 2mm. | 200 (150～250) | 0.1 (0.08～0.2) | どちらでも可 Either one is applicable. |
| 一般仕上げ加工用 For finishing | | ODHW0504ZZN-A57 | 仕上面に光沢 (切込深さ 1.5mm以下) Gloss on machined surface (with depth of cut less than 1.5mm) | 250 (200～300) | 0.1 (0.08～0.12) | 無 None |
| 荒加工用 For roughing | ステンレス鋼 Stainless Steel SUS304 | ODMT0504ZZN-D57 | ステンレス鋼の高速荒取り加工可能 High speed roughing of stainless steel. | 180 (150～250) | 0.18 (0.15～0.2) | 無・ミスト None, mist |
| 仕上げ加工用 For finishing | | ODHT0504ZZN-F57 | 仕上面に光沢 (切込深さ 1.5mm以下) Gloss on machined surface (with depth of cut less than 1.5mm) | 120 (80～180) | 0.08 (0.06～0.1) | 必要 Necessary |
| 高硬度鋼加工用 Hardened steel | 調質鋼・焼入れ鋼 Hardened Steel SKD・SKT | ODMT0504ZZN-D57 | 40～50HRCの被削材加工が可能 Possible for work material with hardness 40 to 50 HRC. | 60 (50～100) | 0.12 (0.1～0.15) | 無 None |
| 耐熱合金加工用 Heat resistant alloys | チタン合金・インコネル Titanium Alloy・Inconel | ODMT0504ZZN-D57 | 構成刃先が発生し易いCr, Niの含有量が多い材料も加工可能※ Possible for work material which contains lots of Cr or Ni and tend to occur built-up edge. | 40 (30～80) | 0.15 (0.1～0.2) | 必要 Necessary |
| 非鉄金属加工用 Non-ferrous material | アルミニウム合金・銅合金 Aluminum Alloy・Copper Alloy A5052・ADC | ODHT0504ZZN-G88 | 非鉄金属で、切れ味が求められる材料に最適 Best for non-ferrous metals for which a sharp cutting edge is expected. | 500 (300～800) | 0.2 (0.08～0.5) | どちらでも可 Either one is applicable. |

※Cr, Niの含有量が多い程、切削速度を下げる必要があります。
1) 切削油剤は、必ず水溶性切削油剤を使用下さい。
2) 3mm超えた切込みで使用する場合は、1刃当たりの送りを50～70%に設定下さい。
3) BT30・BT40等の省力設備で使用する場合は、切削速度を50%、1刃当たりの送りを70%に設定下さい。
※ The higher the chromium and nickel content, the lower the required milling speed.
1. Be sure to use an water soluble coolant.
2. Reduce feed per tooth by 30% to 50% when cutting depth is over 3mm.
3. Reduce milling speed by 50% and feed per tooth by 30% for use with the energy saving equipments such as BT30 and BT40 and others.

形状寸法表 SPECIFICATION CHARTS F2133 SS▶P1128-125
形状寸法表 SPECIFICATION CHARTS F2133 SL▶P1128-126
形状寸法表 SPECIFICATION CHARTS F2010 P4G45R▶P1128-135

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## サイクロンカッタ F2133 SS/SL
## ミーリングカッタ サイクロンタイプ F2010 P4G45R

CYCLONE CUTTER
MILLING CUTTER

| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ・硬さ Tensile Strength・Hardness | インサート材種 Insert Grades / 1刃当たりの送り量(fz) Feed per tooth (mm/t) | 切削速度（m/min）Cutting Speed (m/min) | | | |
|---|---|---|---|---|---|---|---|
| | | | | WK10 | WKP35S | WAK15 | WKP25S |
| 炭素鋼 Carbon Steel<br>合金鋼 Alloy Steel | S50C<br>SCM440 | ～500N/mm² | 0.15～0.4 | | 160～250 | | 160～250 |
| | | ～710N/mm² | 0.15～0.4 | | 120～180 | | 120～180 |
| 調質鋼 Hardened Steel | — | ～45HRC | 0.1 ～0.15 | | 40～ 60 | | 40～ 60 |
| ステンレス鋼 Stainless Steel | SUS304 | — | 0.15～0.3 | | 140～200 | | 140～200 |
| 鋳鉄 Cast Iron | FC250 | 350N/mm² | 0.1 ～0.4 | | | 90～160 | |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～500N/mm² | 0.1 ～0.3 | | 150～200 | | 150～200 |
| アルミニウム合金 Aluminum Alloy | A7075 | — | 0.15～0.3 | 200～1,200 | | | |
| | AC | — | 0.15～0.3 | 300～ 400 | | | |

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

## 鋳鉄用重切削加工用カッタ F2260

HEAVY DUTY CUTTER

| 被削材 Work Material | 材料記号 Material Symbol | 1刃当たりの送り量（fz） Feed per tooth（mm/t） | 切削速度（m/min） Cutting Speed (m/min) | |
|---|---|---|---|---|
| | | | WAK15 | WKP25S |
| 鋳鉄 Cast Iron | FC250 | ～1 | 220～380 | 180～320 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD400 | ～0.8 | 180～260 | 150～220 |

※注意事項

1.F2260は荒加工用のカッタです。加工面粗さが要求される仕上げ加工には適しません。
仕上げ加工にはオクタゴンカッタ等のカッタをご使用下さい。
2. 使用機械の動力に見合った切削条件の設定を行ってご使用下さい。

※ Note

1.The F2260 is for rough milling cutter, and is unsuitable for finish milling,
where finer surfase finishes are required. For finish milling, use an octagon cutter.
2. Set the milling conditions to match the power of the machine that is being used.

形状寸法表
SPECIFICATION CHARTS
F2052▶P1128-139

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## ハーフサイドカッタ F2052 HALF SIDE MILLING CUTTER

| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ Tensile Strength | インサート材種 Insert Grades / 1刃当たりの送り量(fz) Feed per tooth (mm/t) | 切削速度（m/min）Cutting Speed (m/min) | | |
|---|---|---|---|---|---|---|
| | | | | WPM | WKM | WTL71 |
| 炭素鋼 Carbon Steel<br>合金鋼 Alloy Steel | S50C<br>SCM440 | ～500N/mm² | 0.1～0.4 | 80～120 | | 80～130 |
| | | ～710N/mm² | 0.1～0.35 | 80～100 | | 80～120 |
| 工具鋼 Tool Steel<br>ダイス鋼 Die Steel | SKS<br>SKD | ～980N/mm² | 0.1～0.35 | 60～ 80 | | 60～ 80 |
| 鋳鉄 Cast Iron | FC250 | 350N/mm² | 0.1～0.35 | | 70～100 | 70～120 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～500N/mm² | 0.1～0.3 | 80～100 | | 80～120 |

※WTL71は、湿式加工に最適です。
※WTL71 grade for wet milling.

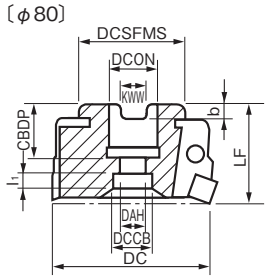
## フルスロットカッタ F2052 SIDE AND FACE MILLING CUTTER

| 被削材 Work Material | 材料記号 Material Symbol | 引張強さ Tensile Strength | インサート材種 Insert Grades / 1刃当たりの送り量(fz) Feed per tooth (mm/t) | 切削速度（m/min）Cutting Speed (m/min) | | |
|---|---|---|---|---|---|---|
| | | | | WPM | WKM | WTL71 |
| 炭素鋼 Carbon Steel<br>合金鋼 Alloy Steel | S50C<br>SCM440 | ～500N/mm² | 0.08～0.16 | 80～120 | | 80～130 |
| | | ～710N/mm² | 0.08～0.16 | 80～100 | | 80～120 |
| 工具鋼 Tool Steel<br>ダイス鋼 Die Steel | SKS<br>SKD | ～980N/mm² | 0.08～0.14 | 60～ 80 | | 60～ 80 |
| 鋳鉄 Cast Iron | FC250 | 350N/mm² | 0.1 ～0.25 | | 70～100 | 70～120 |
| ダクタイル鋳鉄 Ductile Cast Iron | FCD450 | ～500N/mm² | 0.1 ～0.16 | 80～100 | | 80～120 |

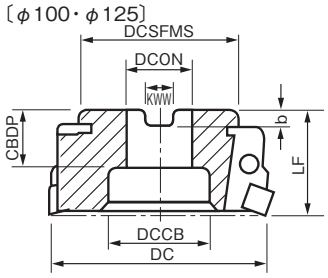
※WTL71は、湿式加工に最適です。
※WTL71 grade for wet milling.

## ■F2010

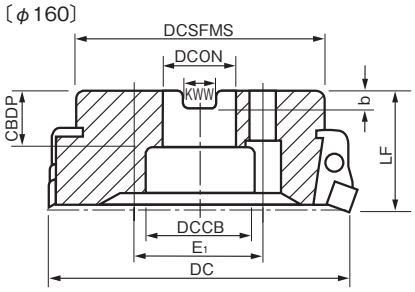
〔φ80〕



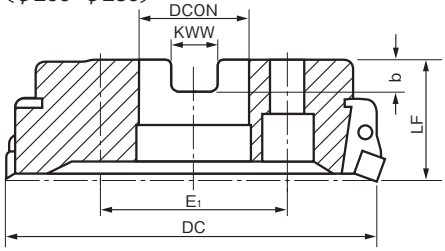

〔φ100・φ125〕



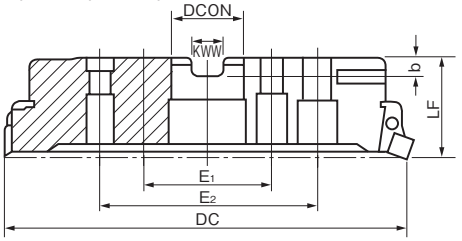

〔φ160〕




〔φ200・φ250〕



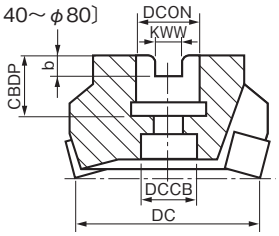

〔φ315・φ400・φ500〕



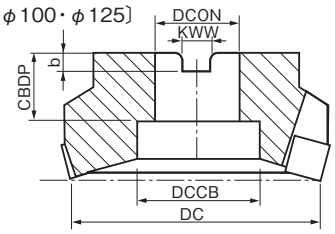

| DC | DCON | DCSFMS | DAH | DCCB | $l_1$ | CBDP | KWW | b | $E_1$ | $E_2$ | LF | キャップスクリュー・クランプボルト Clamping Screw |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| φ80 | 25.4 | 55 | 13.5 | 20 | 12.5 | 26 | 9.5 | 6 | | | 50 | M12×40 |
| | 27 | 55 | 14 | 20 | 12.5 | 28 | 12.4 | 7 | | | 50 | |
| φ100 | 31.75 | 74 | | 48 | | 32 | 12.7 | 8 | | | 50 | MBA-M16 |
| | 32 | 74 | | 48 | | 28 | 14.4 | 8 | | | 50 | |
| φ125 | 38.1 | 99 | | 60 | | 38 | 15.9 | 10 | | | 63 | MBA-M20 |
| | 40 | 99 | | 58 | | 30 | 16.4 | 9 | | | 63 | |
| φ160 | 50.8 | 134 | | 70 | | 38 | 19.1 | 11 | | | 63 | MBA-M24 |
| | 40 | 134 | | 58 | | 30 | 16.4 | 10 | 66.7 | | 63 | M12×40 |
| φ200 | 47.625 | | | | | | 25.4 | 15 | 101.6 | | 63 | M16×40 ※1 M20×80（$E_2$の場合） |
| | 60 | | | | | | 25.4 | 15 | 101.6 | | 63 | |
| φ250 | 47.625 | | | | | | 25.4 | 15 | 101.6 | | 63 | |
| | 60 | | | | | | 25.4 | 15 | 101.6 | | 63 | |
| φ315 | 60 | | | | | | 25.4 | 15 | 101.6 | 177.8※1 | 80 | |

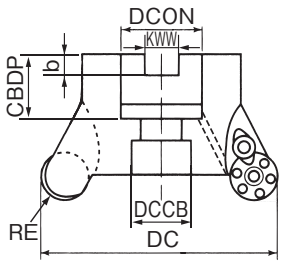
## ■その他ミーリングカッタ／Other Milling Cutter

〔φ40～φ80〕




〔φ100・φ125〕

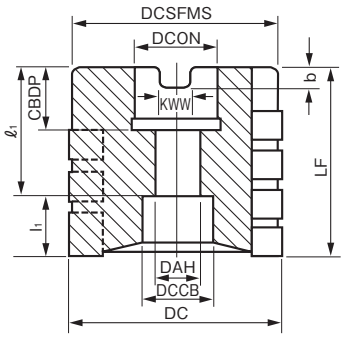



| DC | DCON | DCCB | CBDP | KWW | b | 対象カッタ Range | キャップスクリュー・クランプボルト Clamping Screw |
|---|---|---|---|---|---|---|---|
| φ40 | 16 | 13.5 | 19 | 8.4 | 5.6 | F5041, F5141 | M 8×30 |
| φ50 | 22 | 18 | 20 | 10.4 | 6.3 | F3042B, F2234, F4042, F4033, F4047, F4048, F4041, F5041, F5141 | M10×30 |
| | 22.225 | 17 | 21 | 8.4 | 5 | F4041 | M10×30 |
| φ63 | 22 | 18 | 20 | 10.4 | 6.3 | F5041, F5141 | M10×30 |
| | | | | | | F2234, F3042B, F4041 | M10×40 |
| | 22.225 | 18 | 21 | 10.4 | 6.3 | F4041 | M10×30 |
| | 25.4 | 20 | 26 | 9.5 | 6.3 | F3042B, F2234, F4042, F4033, F4047, F4048, F4041 | M12×40 |
| φ80 | 27 | 20 | 28 | 12.4 | 7 | F3042B, F2234, F5141 | M12×40 |
| | 25.4 | 20 | 23 | 9.5 | 6.3 | F5141 | M12×40 |
| | 25.4 | 20 | 26 | 9.5 | 6.3 | F2133, F3042B, F2234, F2280, F4042, F4033, F4047, F4048 | M12×40 |
| φ100 | 32 | 26 | 25.5 | 14.4 | 8 | F2234, F5141 | M16×40 |
| | 31.75 | 48 | 32 | 12.7 | 8.2 | F2133, F2280, F3042B, F4042, F4033, F4047, F4048, F4041, F5141 | MBA-M16 |
| φ125 | 40 | 33 | 30 | 16.4 | 9 | F5141 | MBA-M20 |
| | 38.1 | 60 | 38 | 15.9 | 10.2 | F2133, F2280, F3042B, F4042, F4033, F4047, F4048 | MBA-M20 |

# 取付部寸法表 DIMENSIONS

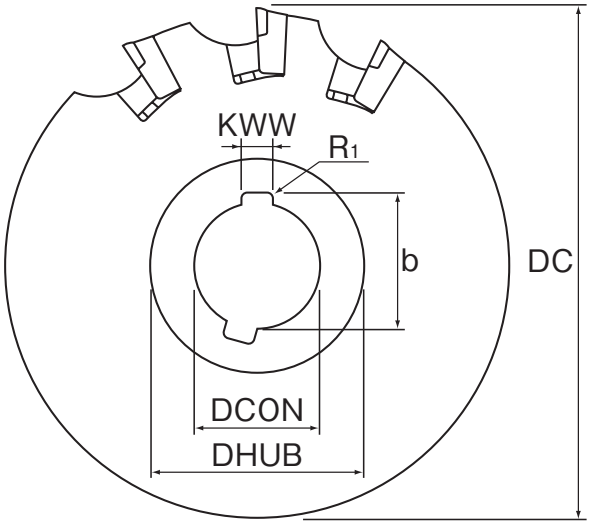
## ■ポーキュパイン　シェルタイプ／Porcupine Cutter with Shell Type




※表中（　）内の数字はF3038B SL　Figures in parentheses refer to the F3038B SL

| DC | DCON | DCSFMS | DAH | DCCB | $l_1$ | $\ell_1$ | CBDP | KWW | b +0.2 0 | LF | キャップスクリュー Clamping Screw |
|---|---|---|---|---|---|---|---|---|---|---|---|
| φ50 | 22 | 48.3 | 11 | 18 | 12（19） | 41(36) | 21.3 | 10.4 | 6.3 | 53(55) | M10×40 |
| φ63 | 27 | 61 | 14 | 20 | 13.2(17) | 41(46) | 28.3 | 12.4 | 7.0 | 54(63) | M12×40 |
| φ80 | 32 | 78 | 18 | 26 | 20（27） | 60(58) | 28.6 | 14.4 | 8.2 | 80(85) | M16×70 |
| φ100 | 40 | 98 | 22 | 33 | 24（25） | 66(60) | 30.3 | 16.4 | 9.2 | 90(85) | M20×80 |
| φ125 | 50 | 123 | 26 | 39 | 30 | 69 | 45 | 18.4 | 10.2 | 100 | M24×80 |

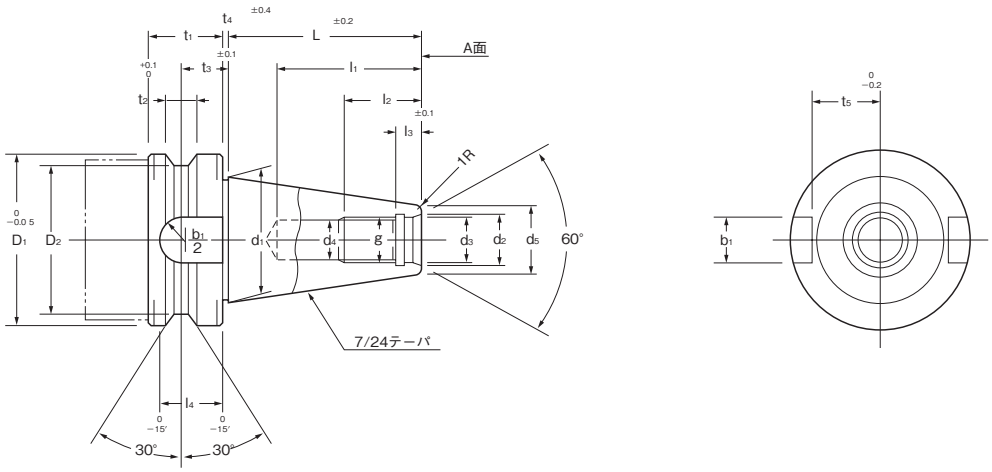
## ■サイドカッタ寸法表／Side Milling Cutter




| DC | DCON | DHUB | b | KWW | $R_1$ |
|---|---|---|---|---|---|
| φ100 | 25.4 | 50 | 28.04 | 6.35 | 1.2 |
| | 31.75 | 50 | 35.18 | 7.92 | 1.6 |
| φ125 | 32 | 50 | 34.8 | 8 | 1.2 |
| | 31.75 | 50 | 35.18 | 7.92 | 1.6 |
| | 38.1 | 65 | 42.35 | 9.53 | 1.6 |
| φ160 | 40 | 65 | 43.5 | 10 | 1.2 |
| | 38.1 | 65 | 42.35 | 9.53 | 1.6 |
| | 40 | 65 | 43.5 | 10 | 1.2 |
| φ200 | 50.8 | 75 | 55.83 | 12.7 | 1.6 |
| | 50 | 75 | 53.6 | 12 | 1.6 |
| φ250 | 50.8 | 80 | 55.83 | 12.7 | 1.6 |
| φ315 | 60 | 120 | 64.2 | 14 | 2 |

## ■テーパ規格表／List of Tapers

### ●BT シャンク／BT Shank

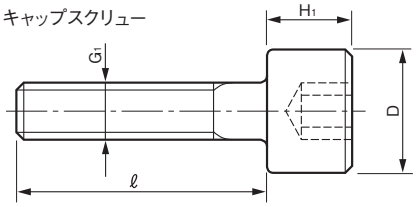



| コード Code | D1 | D2 | t1 | t2 | t3 | t4 | d1 | d2 | d3 | d4 | L | l1 | l2 | l3 | g | l4 | b1 | t5 | d5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT40 | 63 | 53 | 25 | 10 | 16.6 | 2 | 44.45 | 19 | 17 | 14 | 65.4 | 70 | 30 | 8 | M16 | 21 | 16.1 | 22.6 | 25.3 |
| BT45 | 85 | 73 | 30 | 12 | 21.2 | 3 | 57.15 | 23 | 21 | 17.5 | 82.8 | 70 | 38 | 9 | M20 | 26 | 19.3 | 29.1 | 33.1 |
| BT50 | 100 | 85 | 35 | 15 | 23.2 | 3 | 69.85 | 27 | 25 | 21 | 101.8 | 90 | 45 | 11 | M24 | 31 | 25.7 | 35.4 | 40.1 |

# クランプボルト CLAMPING SCREW

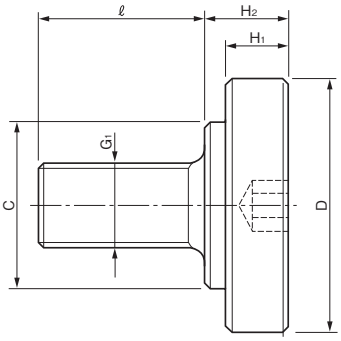
## ■クランプボルト寸法表／Clamping Screw

キャップスクリュー




| 呼び Size | G1 | D | H1 | ℓ |
|---|---|---|---|---|
| M 8×30 | 8 | 13 | 8 | 30 |
| M10×30 | 10 | 16 | 10 | 30 |
| M10×40 | 10 | 16 | 10 | 40 |
| M12×40 | 12 | 18 | 12 | 40 |
| M16×40 | 16 | 24 | 16 | 40 |
| M16×70 | 16 | 24 | 16 | 70 |
| M20×80 | 20 | 30 | 20 | 80 |
| M24×80 | 24 | 36 | 24 | 80 |

クランプボルト




| 呼び Size | G1 | D | C | H1 | H2 | ℓ |
|---|---|---|---|---|---|---|
| MBA-M12 | 12 | 33 | 23 | 10 | 12 | 30 |
| MBA-M16 | 16 | 40 | 23 | 10 | 16 | 30 |
| MBA-M20 | 20 | 50 | 27 | 14 | 20 | 30 |
| MBA-M24 | 24 | 65 | 37 | 14 | 24 | 32 |

## ●コパスリップ／ COPA SLIP

締付けねじ用の特殊潤滑油コパスリップは、極端な温度変化に対しても優れた耐久性を持っています。不溶解性ベントン油をベースに超微粒子の銅・鉛を精巧に混ぜ合わせ、ねじの表面保護と焼付き防止作用、酸化や腐食の保護も行います。コパスリップの使用によって、ねじを簡単迅速に取り外すことができます。

COPA SLIP special clamping screw lubrication has excellent heat-resistance and durabilty. COPA SLIP is made with a non-soluble base of Beston oil containing fine particles of copper and lead. This mixture safeguards the surface of the screw from corrosion, wear and extreme heat. COPA SLIP enables easy clamping screw insertion and removal.




100g チューブ入
ツール No.99930

## ■ドライバ形トルクレンチ




■チップクランプ時の締め付けトルクを正確にコントロール
Accurately controls ths tightening torque for clamping the insert
■締め過ぎや､不完全な締め付けによるトラブルを防止
Prevents problems associated with over tightening or incomplete tightening
■ビットの交換により､トルクス/トルクスプラスの各種サイズに対応
Supports various Torx or Torx-Plus sizes by replacing the bits
■専用レンチにより締め付けトルクを正確に設定が可能
Accurate tightening torque can be achieved through the use of a dedicated wrench

### ■ドライバ本体

| 呼　び Designation | ツール No. EDP No. | サイズ Size | 設定トルク値 Set Torque Value |
|---|---|---|---|
| FS2001 | 8009901 | 1 | 0.4〜1.2Nm |
| FS2003 | 8009903 | 3 | 1.5〜5.5Nm |

### ■ドライバビット
トルクス

| 呼　び Designation | ツール No. EDP No. | トルクスサイズ Torx Size |
|---|---|---|
| FS2005(T6) | 8009905 | T6 |
| FS2006(T7) | 8009906 | T7 |
| FS2007(T8) | 8009907 | T8 |
| FS2008(T10) | 8009908 | T10 |
| FS2009(T15) | 8009909 | T15 |
| FS2010(T20) | 8009910 | T20 |

トルクスプラス

| 呼　び Designation | ツール No. EDP No. | トルクスサイズ Torx Size |
|---|---|---|
| FS2011(IP7) | 8009911 | IP7 |
| FS2012(IP8) | 8009912 | IP8 |
| FS2013(IP9) | 8009913 | IP9 |
| FS2014(IP15) | 8009914 | IP15 |
| FS2015(IP20) | 8009915 | IP20 |
| FS2016(IP25) | 8009916 | IP25 |

### ■各クランプねじの締め付けトルク

| ねじ呼び Designation | ねじサイズ Thread Size | トルクスサイズ Torx Size | 推奨締付けトルク Recommended Tightening Torgue |
|---|---|---|---|
| FS924 | M2.5 | T8 | 0.8 N·m |
| FS1455 | M2.5 | IP8 | 1.2 N·m |
| FS923 | M2.5 | T8 | 0.8 N·m |
| FS1454 | M2.5 | IP8 | 1.2 N·m |
| FS1005 | M3 | T8 | 1 N·m |
| FS1456 | M3 | IP9 | 1.5 N·m |
| FS1013 | M3 | T8 | 1 N·m |
| FS1457 | M3 | IP9 | 1.5 N·m |
| FS920 | M3.5 | T15 | 2.5 N·m |
| FS359 | M3.5 | T15 | 2.5 N·m |
| FS1011 | M4 | T15 | 2.5 N·m |
| FS378 | M4 | T15 | 2.5 N·m |
| FS1453 | M4 | IP15 | 3.5 N·m |
| FS1007 | M4 | T15 | 2.5 N·m |
| FS1030 | M5 | T20 | 5 N·m |
| FS1031 | M5 | T20 | 5 N·m |
| FS1009 | M5 | T20 | 5 N·m |
| FS1036 | M6 | T20 | 5 N·m |
| FS1152 | M8 | T30 | 10 N·m |

| ねじ呼び Designation | ねじサイズ Thread Size | トルクスサイズ Torx Size | 推奨締付けトルク Recommended Tightening Torgue |
|---|---|---|---|
| FS258 | M3 | T8 | 1.5 N·m |
| FS246 | M3 | T8 | 1.5 N·m |
| FS320 | M4 | T15 | 3 N·m |
| FS245 | M4 | T15 | 3 N·m |
| FS321 | M4 | T15 | 3 N·m |
| FS319 | M4 | T15 | 3 N·m |
| FS244 | M4 | T15 | 3 N·m |
| FS326 | M4 | T15 | 3 N·m |
| FS260 | M5 | T20 | 5 N·m |
| FS243 | M5 | T20 | 5 N·m |
| FS1010 | M6 | T20 | 5 N·m |
| FS925 | M2.5 | T8 | 0.8 N·m |
| FS397 | M3 | T8 | 1 N·m |
| FS922 | M3.5 | T15 | 2.5 N·m |
| FS390 | M4 | T15 | 4 N·m |
| FS391 | M5 | T20 | 5 N·m |
| FS392 | M5 | T20 | 5 N·m |
| FS393 | M5 | T20 | 5 N·m |
| FS394 | M6 | T20 | 5 N·m |
| FS395 | M8 | T30 | 6 N·m |

# カッタ別インサート材種一覧 Type of inserts

## ■MaxiMill 274

| 材種名 Insert Grades | 標準表記 Standard Designation | 切削材種 Cutting Material | 加工用途 Application range | P 炭素鋼 | M ステンレス鋼 | K 鋳鉄 | N 非鉄金属 | S 耐熱合金 | H 高硬度材 |
|---|---|---|---|---|---|---|---|---|---|
| CTPP225 | HC-P25 | P | 01 05 10 15 20 25 30 35 40 45 50 | ● | | | | | |
| | HC-K25 | | | | | ● | | | |
| CTCP230 | HC-P30 | C | | ● | | | | | |
| | HC-K25 | | | | | ● | | | |
| | HC-M25 | | | | ○ | | | | |
| CTP1235 | HC-P35 | P | | ● | | | | | |
| | HC-M35 | | | | ○ | | | ○ | |
| CTPP235 | HC-P35 | P | | ● | | | | | |
| | HC-M30 | | | | ○ | | | | |
| CTCM235 | HC-M35 | C | | | ● | | | | |
| | HC-P40 | | | ○ | | | | | |
| CTP2235 | HC-P40 | P | | ○ | | | | | |
| | HC-M40 | | | | ● | | | ○ | |
| CTPM240 | HC-M40 | P | | | ● | | | | |
| | HC-P40 | | | ○ | | | | | |
| CTPM245 | HC-P45 | P | | ● | ● | | | | |
| | HC-M50 | | | | | | | | |
| CTCM245 | HC-P45 | C | | | | | | | |
| | HC-M50 | | | ● | ● | | | ○ | |
| | HC-S35 | | | | | | | | |
| CTCK215 | HC-K15 | C | | | | ● | | | |
| CTPK220 | HC-K20 | P | | | | ● | | | |
| CTPX715 | HC-P15 | P | | | | | | | |
| | HC-M15 | | | | | | | | |
| | HC-K15 | | | ○ | ○ | ● | ● | ○ | |
| | HC-N15 | | | | | | | | |
| | HC-S20 | | | | | | | | |
| CTWN215 | HW-N15 | W | | | | | ● | | |
| | HW-K15 | | | | | ● | | | |
| CTC5240 | HC-S40 | C | | | | | | ● | |
| CTCS245 | HC-S45 | C | | | | | | ● | |

● 主適用領域
○ 準適用領域

C=CVDコーティング付き超硬
P=PVDコーティング付き超硬
W=ノンコーティング超硬
N=セラミック
L=CBN
E=コーティング付きサーメット

# カッタ別インサート材種一覧 Type of inserts

## ■MaxiMill HEC

| 材種名 Insert Grades | 標準表記 Standard Designation | 切削材種 Cutting Material | 加工用途 Application range 01 05 10 15 20 25 30 35 40 45 50 | P 炭素鋼 | M ステンレス鋼 | K 鋳鉄 | N 非鉄金属 | S 耐熱合金 | H 高硬度材 |
|---|---|---|---|---|---|---|---|---|---|
| **CTC3215** | HC-K15 | C | | | | ● | | | |
| **CTCK215** | HC-K15 | C | | | | ● | | | |
| **CTPK220** | HC-K20 | P | | | | ● | | | |
| **CTN3105** | CN-K05 | N | | | | ● | | | |
| **CTL3215** | BC-K10 | L | | | | ● | | | |
| | BC-H10 | | | | | | | | ○ |
| **CTEP210** | HE-P10 | E | | ● | | | | | |
| | HE-K05 | | | | | ● | | | |

● 主適用領域
○ 準適用領域

## ■CTCP115/CTCP125-P/CTCP125/CTCP135

| 材種名 Insert Grades | 標準表記 Standard Designation | 切削材種 Cutting Material | 加工用途 Application range 01 05 10 15 20 25 30 35 40 45 50 | P 炭素鋼 | M ステンレス鋼 | K 鋳鉄 | N 非鉄金属 | S 耐熱合金 | H 高硬度材 |
|---|---|---|---|---|---|---|---|---|---|
| **CTCP115-P CTCP115** | HC-P15 | C | | ● | | | | | |
| | HC-K25 | | | | | ● | | | |
| | HC-M10 | | | | ○ | | | | |
| **CTCP125-P CTCP125** | HC-P25 | C | | ● | | | | | |
| | HC-K30 | | | | | ● | | | |
| | HC-M20 | | | | ○ | | | | |
| **CTCP135-P CTCP135** | HC-P35 | C | | ● | | | | | |
| | HC-M25 | | | | ○ | | | | |
| | HC-S25 | | | | | | | ○ | |

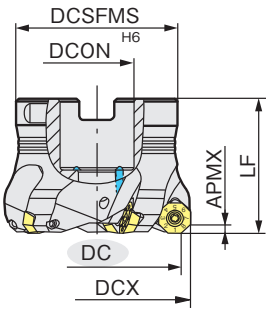
● 主適用領域
○ 準適用領域

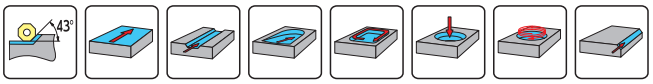
C=CVDコーティング付き超硬
P=PVDコーティング付き超硬
W=ノンコーティング超硬
N=セラミック
L=CBN
E=コーティング付きサーメット

# CERATIZIT MaxiMill 274

## 274 切削条件 Cutting Conditions | P1139






## ■4コーナインサート装着時 Used 4-corner inserts

(単位:mm) (Unit:mm)

| ツール No. EDP No. | DC | 型番 Designation | DCX | LF | APMX | DCSFMS | DCON | 刃数 ZEFP | 適用インサート Applicable Inserts |
|---|---|---|---|---|---|---|---|---|---|
| ※ | 30.7 | A274.32.R.05-09 | 39.2 | 40.7 | 3.8 | 38 | 16 | 5 | SF..0903.. |
| ※ | 38.7 | A274.40.R.04-09 | 47.6 | | | | | 4 | |
| ※ | | A274.40.R.06-09 | | | | | | 6 | |
| 8920004 | 48.7 | A274.50.R.05-09 | 57.6 | | | 48 | 22 | 5 | |
| ※ | | A274.50.R.07-09 | | | | | | 7 | |
| 8920006 | 61.7 | A274.63.R.06-09 | 70.5 | | | | | 6 | |
| ※ | | A274.63.R.09-09 | | | | | | 9 | |
| 8920008 | 78.7 | A274.80.R.07-09 | 87.5 | 50.7 | | 58 | 27 | 7 | |
| 8920023 | | A274.80.R.07-09-A100 | | | | 60 | 25.4 | | |
| ※ | | A274.80.R.11-09 | | | | 58 | 27 | 11 | |
| 8920010 | 98.7 | A274.100.R.09-09 | 107.5 | | | 78 | 32 | 9 | |
| 8920024 | | A274.100.R.09-09-B125 | | | | 70 | 31.75 | | |
| ※ | | A274.100.R.13-09 | | | | 78 | 32 | 13 | |
| 8920011 | 123.7 | A274.125.R.12-09 | 132.5 | 63.7 | | 88 | 40 | 12 | |
| 8920025 | | A274.125.R.12-09-B150 | | | | 90 | 38.1 | | |

## ■8コーナインサート装着時 Used 8-corner inserts

(単位:mm) (Unit:mm)

| ツール No. EDP No. | DC | 型番 Designation | DCX | LF | APMX | DCSFMS | DCON | 刃数 ZEFP | 適用インサート Applicable Inserts |
|---|---|---|---|---|---|---|---|---|---|
| ※ | 32 | A274.32.R.05-09 | 37.7 | 40 | 2.5 | 38 | 16 | 5 | OF..0403.. |
| ※ | 40 | A274.40.R.04-09 | 45.7 | | | | | 4 | |
| ※ | | A274.40.R.06-09 | | | | | | 6 | |
| 8920004 | 50 | A274.50.R.05-09 | 55.7 | | | 48 | 22 | 5 | |
| ※ | | A274.50.R.07-09 | | | | | | 7 | |
| 8920006 | 63 | A274.63.R.06-09 | 68.7 | | | | | 6 | |
| ※ | | A274.63.R.09-09 | | | | | | 9 | |
| 8920008 | 80 | A274.80.R.07-09 | 85.7 | 50 | | 58 | 27 | 7 | |
| 8920023 | | A274.80.R.07-09-A100 | | | | 60 | 25.4 | | |
| ※ | | A274.80.R.11-09 | | | | 58 | 27 | 11 | |
| 8920010 | 100 | A274.100.R.09-09 | 105.7 | | | 78 | 32 | 9 | |
| 8920024 | | A274.100.R.09-09-B125 | | | | 70 | 31.75 | | |
| ※ | | A274.100.R.13-09 | | | | 78 | 32 | 13 | |
| 8920011 | 125 | A274.125.R.12-09 | 130.7 | | | 88 | 40 | 12 | |
| 8920025 | | A274.125.R.12-09-B150 | | 63 | | 90 | 38.1 | | |

## ■部品 Accessories

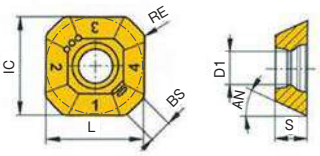
| ツール No. EDP No. | 型番 Designation |
|---|---|
| 8929999 | 10007562/M2.5X7.6/08TP |
| ※ | SD-T08IP-60mm |
| ※ | 7818267/M8.0X30.0 |
| ※ | S4/SW4 |
| ※ | DMSD 1.6Nm/SORT 08IP |

※印は取り寄せ対応となります。
在庫区分は全てC(標準在庫品)となります。
適用インサートはP.1132をご参照下さい。

Tools marked ※ are special order products.
Stock are categorized as C(Standard stock item).
See page 1132 for applicable inserts.

# CERATIZIT MaxiMill 274

## 274 インサート　切削条件 Cutting Conditions | P1139




## ■4コーナ用インサート（SF..09..） 4-corner inserts（SF..09..）

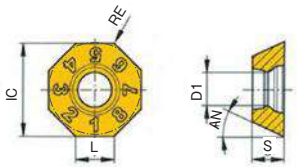
（単位：mm）（Unit：mm）

| 型番 Designation | CTPP225 | CTCP230 | CTPP235 | CTCM235 | IC | L | S | RE | D1 | AN | BS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SFHT 0903AFFR-F10 | | | | | 9.80 | 9.00 | 3.50 | 1.00 | 3.35 | 25° | 2.25 |
| SFHT 0903AFER-F40 | | | | | | | | | | | |
| SFHT 0903AFSR-F50 | ※ | ※ | 8922041 | ※ | | | | | | | |
| SFKT 0903AFSR-M50 | ※ | ※ | 8922043 | | | | | | | | |
| SFKT 0903AFSR-R50 | | | | | | | | | | | |
| 炭素鋼 P | ● | ● | ● | ○ | | | | | | | |
| ステンレス鋼 M | | ○ | ○ | ● | | | | | | | |
| 鋳鉄 K | ● | ● | | | | | | | | | |
| 非鉄金属 N | | | | | | | | | | | |
| 耐熱合金 S | | | | | | | | | | | |
| 高硬度材 H | | | | | | | | | | | |

（単位：mm）（Unit：mm）

| 型番 Designation | CTPM240 | CTPM245 | CTCM245 | CTCK215 | CTPK220 | CTPX715 | CTWN215 | CTCS5240 | IC | L | S | RE | D1 | AN | BS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SFHT 0903AFFR-F10 | | | | | | ※ | ※ | | 9.80 | 9.00 | 3.50 | 1.00 | 3.35 | 25° | 2.25 |
| SFHT 0903AFER-F40 | | | | | | | | ※ | | | | | | | |
| SFHT 0903AFSR-F50 | 8922042 | ※ | ※ | | | | | | | | | | | | |
| SFKT 0903AFSR-M50 | ※ | | | | | | | | | | | | | | |
| SFKT 0903AFSR-R50 | | | | ※ | ※ | | | | | | | | | | |
| 炭素鋼 P | ○ | ● | ● | | | ○ | | | | | | | | | |
| ステンレス鋼 M | ● | ● | ● | | | ○ | | | | | | | | | |
| 鋳鉄 K | | | | ● | ● | ● | ● | | | | | | | | |
| 非鉄金属 N | | | | | | ● | ● | | | | | | | | |
| 耐熱合金 S | | | | | | ○ | | ● | | | | | | | |
| 高硬度材 H | | | | | | | | | | | | | | | |

※印は取り寄せ対応となります。
Tools marked ※ are special order products.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。
Stock are categorized as C（Standard stock item）.




## ■8コーナ用インサート（OF..04..） 8-corner inserts（OF..04..）

（単位：mm）（Unit：mm）

| 型番 Designation | CTCP230 | ＊1 CTP1235 | CTPP235 | CTCM235 | ＊2 CTP2235 | IC | L | S | RE | D1 | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OFHW 040302EN | | | | | | 9.52 | 3.94 | 3.18 | 0.20 | 3.35 | 25° |
| OFHT 040305FN-F10 | | | | | | | | | 0.50 | | |
| OFHT 040305SN-F50 | ※ | 8922008 | 8922031 | ※ | | | | | | | |
| OFHT 040305SN-M50 | ※ | 8922012 | 8922033 | | 8922013 | | | | | | |
| 炭素鋼 P | ● | ● | ● | ○ | ○ | | | | | | |
| ステンレス鋼 M | ○ | ○ | ○ | ● | ● | | | | | | |
| 鋳鉄 K | ● | | | | | | | | | | |
| 非鉄金属 N | | | | | | | | | | | |
| 耐熱合金 S | | ○ | | | ○ | | | | | | |
| 高硬度材 H | | | | | | | | | | | |

（単位：mm）（Unit：mm）

| 型番 Designation | CTPM240 | CTPM245 | CTCM245 | CTCK215 | CTPX715 | CTWN215 | CTC5240 | CTCS245 | IC | L | S | RE | D1 | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OFHW 040302EN | | ※ | ※ | | | | 8922035 | | 9.52 | 3.94 | 3.18 | 0.20 | 3.35 | 25° |
| OFHT 040305FN-F10 | | | | | ※ | ※ | | | | | | 0.50 | | |
| OFHT 040305SN-F50 | 8922032 | ※ | ※ | | | | ※ | ※ | | | | | | |
| OFHT 040305SN-M50 | 8922034 | | | ※ | | | | | | | | | | |
| 炭素鋼 P | ○ | ● | ● | | ○ | | | | | | | | | |
| ステンレス鋼 M | ● | ● | ● | | ○ | | | | | | | | | |
| 鋳鉄 K | | | | ● | ● | ● | | | | | | | | |
| 非鉄金属 N | | | | | ● | ● | | | | | | | | |
| 耐熱合金 S | | | | | ○ | | ● | ● | | | | | | |
| 高硬度材 H | | | | | | | | | | | | | | |

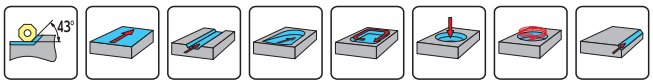
※印は取り寄せ対応となります。
Tools marked ※ are special order products.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。
Stock are categorized as C（Standard stock item）.

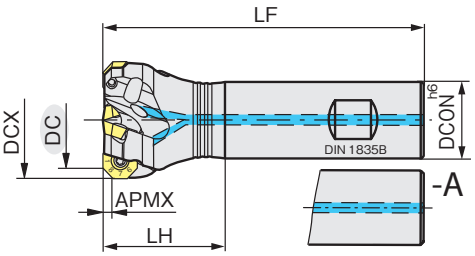
＊1 在庫無くなり次第CTPP235へ切り替えとなります。
＊1 Marked insert will be discontinued when it is out of stock, and replaced by CTPP235.
＊2 在庫無くなり次第CTPM240へ切り替えとなります。
＊2 Marked insert will be discontinued when it is out of stock, and replaced by CTPM240.

# CERATIZIT MaxiMill 274

## 274 切削条件 Cutting Conditions | P1139






## ■4コーナインサート装着時 Used 4-corner inserts

(単位 : mm) (Unit : mm)

| ツール No. EDP No. | DC | 型番 Designation | DCX | LF | LH | APMX | DCON | 最高回転数 RPMX [min-1] | 刃数 ZEFP | 適用インサート Applicable Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| 8920040 | 18.9 | **C274.20.R.03-09-A-25** | 27.4 | 77.7 | 25.7 | 3.8 | 20 | 42,600 | 3 | SF..09.. |
| 8920041 | 23.8 | **C274.25.R.04-09-A20-32** | 32.5 | 84.7 | 32.7 | | | 37,200 | 4 | |
| 8920042 | 30.7 | **C274.32.R.05-09-A25-40** | 39.5 | 98.7 | 40.7 | | 25 | 32,200 | 5 | |

## ■8コーナインサート装着時 Used 8-corner inserts

(単位 : mm) (Unit : mm)

| ツール No. EDP No. | DC | 型番 Designation | DCX | LF | LH | APMX | DCON | 最高回転数 RPMX [min-1] | 刃数 ZEFP | 適用インサート Applicable Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| 8920040 | 20 | **C274.20.R.03-09-A25** | 25.6 | 77 | 25 | 2.5 | 20 | 42,600 | 3 | OF..04.. |
| 8920041 | 25 | **C274.25.R.04-09-A20-32** | 30.7 | 84 | 32 | | | 37,200 | 4 | |
| 8920042 | 32 | **C274.32.R.05-09-A25-40** | 37.7 | 98 | 40 | | 25 | 32,200 | 5 | |

## ■部品 Accessories

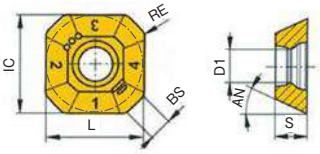
| ツール No. EDP No. | 型番 Designation |
|---|---|
| 8929999 |  **10007562/M2.5X7.6/08TP** |
| ※ |  **SD-T08IP-60mm** |
| ※ |  **DMSD 1.6Nm/SORT 08IP** |

※印は取り寄せ対応となります。
在庫区分は全てC(標準在庫品)となります。
適用インサートはP.1134をご参照下さい。

Tools marked ※ are special order products.
Stock are categorized as C (Standard stock item).
See page 1134 for applicable inserts.

# CERATIZIT MaxiMill 274

## 274 インサート　切削条件 Cutting Conditions | P1139




### ■4コーナ用インサート（SF..09..） 4-corner inserts（SF..09..）

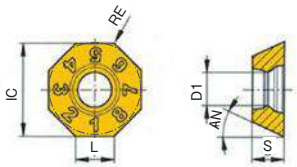
（単位：mm）（Unit：mm）

| 型番 Designation | CTPP225 | CTCP230 | CTPP235 | CTCM235 | IC | L | S | RE | D1 | AN | BS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SFHT 0903AFFR-F10 | | | | | 9.80 | 9.00 | 3.50 | 1.00 | 3.35 | 25° | 2.25 |
| SFHT 0903AFER-F40 | | | | | | | | | | | |
| SFHT 0903AFSR-F50 | ※ | ※ | 8922041 | ※ | | | | | | | |
| SFKT 0903AFSR-M50 | ※ | ※ | 8922043 | | | | | | | | |
| SFKT 0903AFSR-R50 | | | | | | | | | | | |
| 炭素鋼 P | ● | ● | ● | ○ | | | | | | | |
| ステンレス鋼 M | | ○ | ○ | ● | | | | | | | |
| 鋳鉄 K | ● | ● | | | | | | | | | |
| 非鉄金属 N | | | | | | | | | | | |
| 耐熱合金 S | | | | | | | | | | | |
| 高硬度材 H | | | | | | | | | | | |

（単位：mm）（Unit：mm）

| 型番 Designation | CTPM240 | CTPM245 | CTCM245 | CTCK215 | CTPK220 | CTPX715 | CTWN215 | CTCS5240 | IC | L | S | RE | D1 | AN | BS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SFHT 0903AFFR-F10 | | | | | | ※ | ※ | | 9.80 | 9.00 | 3.50 | 1.00 | 3.35 | 25° | 2.25 |
| SFHT 0903AFER-F40 | | | | | | | | ※ | | | | | | | |
| SFHT 0903AFSR-F50 | 8922042 | ※ | ※ | | | | | | | | | | | | |
| SFKT 0903AFSR-M50 | ※ | | | | | | | | | | | | | | |
| SFKT 0903AFSR-R50 | | | | ※ | ※ | | | | | | | | | | |
| 炭素鋼 P | ○ | ● | ● | | | ○ | | | | | | | | | |
| ステンレス鋼 M | ● | ● | ● | | | ○ | | | | | | | | | |
| 鋳鉄 K | | | | ● | ● | ● | ● | | | | | | | | |
| 非鉄金属 N | | | | | | ● | ● | | | | | | | | |
| 耐熱合金 S | | | | | | ○ | | ● | | | | | | | |
| 高硬度材 H | | | | | | | | | | | | | | | |

※印は取り寄せ対応となります。
Tools marked ※ are special order products.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。
Stock are categorized as C（Standard stock item）.




### ■8コーナ用インサート（OF..04..） 8-corner inserts（OF..04..）

（単位：mm）（Unit：mm）

| 型番 Designation | CTCP230 | ＊1 CTP1235 | CTPP235 | CTCM235 | ＊2 CTP2235 | IC | L | S | RE | D1 | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OFHW 040302EN | | | | | | 9.52 | 3.94 | 3.18 | 0.20 | 3.35 | 25° |
| OFHT 040305FN-F10 | | | | | | | | | | | |
| OFHT 040305SN-F50 | ※ | 8922008 | 8922031 | ※ | | | | | 0.50 | | |
| OFHT 040305SN-M50 | ※ | 8922012 | 8922033 | | 8922013 | | | | | | |
| 炭素鋼 P | ● | ● | ● | ○ | ○ | | | | | | |
| ステンレス鋼 M | ○ | ○ | ○ | ● | ● | | | | | | |
| 鋳鉄 K | ● | | | | | | | | | | |
| 非鉄金属 N | | | | | | | | | | | |
| 耐熱合金 S | | ○ | | | ○ | | | | | | |
| 高硬度材 H | | | | | | | | | | | |

（単位：mm）（Unit：mm）

| 型番 Designation | CTPM240 | CTPM245 | CTCM245 | CTCK215 | CTPX715 | CTWN215 | CTC5240 | CTCS245 | IC | L | S | RE | D1 | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OFHW 040302EN | | ※ | ※ | | | | 8922035 | | 9.52 | 3.94 | 3.18 | 0.20 | 3.35 | 25° |
| OFHT 040305FN-F10 | | | | | ※ | ※ | | | | | | 0.50 | | |
| OFHT 040305SN-F50 | 8922032 | ※ | ※ | | | | ※ | ※ | | | | | | |
| OFHT 040305SN-M50 | 8922034 | | | ※ | | | | | | | | | | |
| 炭素鋼 P | ○ | ● | ● | | ○ | | | | | | | | | |
| ステンレス鋼 M | ● | ● | ● | | ○ | | | | | | | | | |
| 鋳鉄 K | | | | ● | ● | ● | | | | | | | | |
| 非鉄金属 N | | | | | ● | ● | | | | | | | | |
| 耐熱合金 S | | | | | ○ | | ● | ● | | | | | | |
| 高硬度材 H | | | | | | | | | | | | | | |

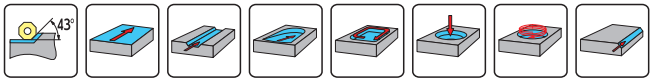
※印は取り寄せ対応となります。
Tools marked ※ are special order products.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。
Stock are categorized as C（Standard stock item）.

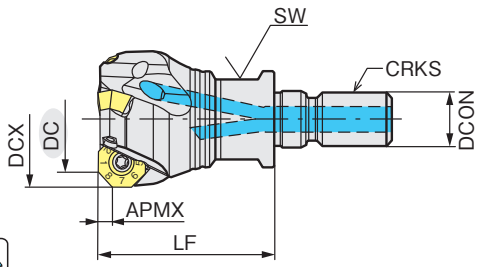
＊1 在庫無くなり次第CTPP235へ切り替えとなります。
＊1 Marked insert will be discontinued when it is out of stock, and replaced by CTPP235.
＊2 在庫無くなり次第CTPM240へ切り替えとなります。
＊2 Marked insert will be discontinued when it is out of stock, and replaced by CTPM240.

# CERATIZIT MaxiMill 274

## 274 切削条件 Cutting Conditions | P1139






## ■4コーナインサート装着時 Used 4-corner inserts

(単位：mm) (Unit：mm)

| ツール No. EDP No. | DC | 型番 Designation | DCX | LF | APMX | DCON | CRKS | 最高回転数 RPMX [min-1] | 刃数 ZEFP | 適用インサート Applicable Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| ※ | 18.9 | **G274.20.R.03-09** | 27.4 | 35.7 | 3.8 | 12.5 | M12 | 42,600 | 3 | SF..0903.. |
| ※ | 23.8 | **G274.25.R.04-09** | 32.5 | | | | | 37,200 | 4 | |
| ※ | 30.7 | **G274.32.R.05-09** | 39.5 | | | 17 | M16 | 32,200 | 5 | |

## ■8コーナインサート装着時 Used 8-corner inserts

(単位：mm) (Unit：mm)

| ツール No. EDP No. | DC | 型番 Designation | DCX | LF | APMX | DCON | CRKS | 最高回転数 RPMX [min-1] | 刃数 ZEFP | 適用インサート Applicable Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| ※ | 20 | **G274.20.R.03-09** | 25.6 | 35 | 2.5 | 12.5 | M12 | 42,600 | 3 | OF..0403.. |
| ※ | 25 | **G274.25.R.04-09** | 30.6 | | | | | 37,200 | 4 | |
| ※ | 32 | **G274.32.R.05-09** | 37.7 | | | 17 | M16 | 32,200 | 5 | |

## ■部品 Accessories

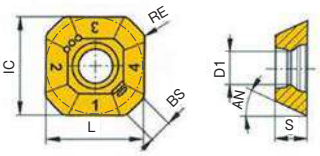
| ツール No. EDP No. | 型番 Designation |
|---|---|
| 8929999 |  **10007562/M2.5X7.6/08TP** |
| ※ |  **SD-T08IP-60mm** |
| ※ |  **DMSD 1.6Nm/SORT 08IP** |

※印は取り寄せ対応となります。
適用インサートはP.1136をご参照下さい。

Tools marked ※ are special order products.
See page 1136 for applicable inserts.

# CERATIZIT MaxiMill 274

## 274 インサート　切削条件 Cutting Conditions | P1139




## ■4コーナ用インサート（SF..09..） 4-corner inserts（SF..09..）

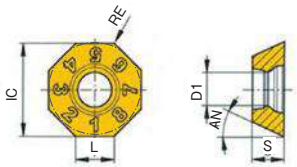
（単位：mm）（Unit：mm）

| 型番 Designation | CTPP225 | CTCP230 | CTPP235 | CTCM235 | IC | L | S | RE | D1 | AN | BS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SFHT 0903AFFR-F10 | | | | | 9.80 | 9.00 | 3.50 | 1.00 | 3.35 | 25° | 2.25 |
| SFHT 0903AFER-F40 | | | | | | | | | | | |
| SFHT 0903AFSR-F50 | ※ | ※ | 8922041 | ※ | | | | | | | |
| SFKT 0903AFSR-M50 | ※ | ※ | 8922043 | | | | | | | | |
| SFKT 0903AFSR-R50 | | | | | | | | | | | |
| 炭素鋼 P | ● | ● | ● | ○ | | | | | | | |
| ステンレス鋼 M | | ○ | ○ | ● | | | | | | | |
| 鋳鉄 K | ● | ● | | | | | | | | | |
| 非鉄金属 N | | | | | | | | | | | |
| 耐熱合金 S | | | | | | | | | | | |
| 高硬度材 H | | | | | | | | | | | |

（単位：mm）（Unit：mm）

| 型番 Designation | CTPM240 | CTPM245 | CTCM245 | CTCK215 | CTPK220 | CTPX715 | CTWN215 | CTCS5240 | IC | L | S | RE | D1 | AN | BS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SFHT 0903AFFR-F10 | | | | | | ※ | ※ | | 9.80 | 9.00 | 3.50 | 1.00 | 3.35 | 25° | 2.25 |
| SFHT 0903AFER-F40 | | | | | | | | ※ | | | | | | | |
| SFHT 0903AFSR-F50 | 8922042 | ※ | ※ | | | | | | | | | | | | |
| SFKT 0903AFSR-M50 | ※ | | | | | | | | | | | | | | |
| SFKT 0903AFSR-R50 | | | | ※ | ※ | | | | | | | | | | |
| 炭素鋼 P | ○ | ● | ● | | | ○ | | | | | | | | | |
| ステンレス鋼 M | ● | ● | ● | | | ○ | | | | | | | | | |
| 鋳鉄 K | | | | ● | ● | ● | ● | | | | | | | | |
| 非鉄金属 N | | | | | | ● | ● | | | | | | | | |
| 耐熱合金 S | | | | | | ○ | | ● | | | | | | | |
| 高硬度材 H | | | | | | | | | | | | | | | |

※印は取り寄せ対応となります。
Tools marked ※ are special order products.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。
Stock are categorized as C（Standard stock item）.




## ■8コーナ用インサート（OF..04..） 8-corner inserts（OF..04..）

（単位：mm）（Unit：mm）

| 型番 Designation | CTCP230 | ＊1 CTP1235 | CTPP235 | CTCM235 | ＊2 CTP2235 | IC | L | S | RE | D1 | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OFHW 040302EN | | | | | | 9.52 | 3.94 | 3.18 | 0.20 | 3.35 | 25° |
| OFHT 040305FN-F10 | | | | | | | | | 0.50 | | |
| OFHT 040305SN-F50 | ※ | 8922008 | 8922031 | ※ | | | | | | | |
| OFHT 040305SN-M50 | ※ | 8922012 | 8922033 | | 8922013 | | | | | | |
| 炭素鋼 P | ● | ● | ● | ○ | ○ | | | | | | |
| ステンレス鋼 M | ○ | ○ | ○ | ● | ● | | | | | | |
| 鋳鉄 K | ● | | | | | | | | | | |
| 非鉄金属 N | | | | | | | | | | | |
| 耐熱合金 S | | ○ | | | ○ | | | | | | |
| 高硬度材 H | | | | | | | | | | | |

（単位：mm）（Unit：mm）

| 型番 Designation | CTPM240 | CTPM245 | CTCM245 | CTCK215 | CTPX715 | CTWN215 | CTC5240 | CTCS245 | IC | L | S | RE | D1 | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OFHW 040302EN | | ※ | ※ | | | | 8922035 | | 9.52 | 3.94 | 3.18 | 0.20 | 3.35 | 25° |
| OFHT 040305FN-F10 | | | | | ※ | ※ | | | | | | 0.50 | | |
| OFHT 040305SN-F50 | 8922032 | ※ | ※ | | | | ※ | ※ | | | | | | |
| OFHT 040305SN-M50 | 8922034 | | | ※ | | | | | | | | | | |
| 炭素鋼 P | ○ | ● | ● | | ○ | | | | | | | | | |
| ステンレス鋼 M | ● | ● | ● | | ○ | | | | | | | | | |
| 鋳鉄 K | | | | ● | ● | ● | | | | | | | | |
| 非鉄金属 N | | | | | ● | ● | | | | | | | | |
| 耐熱合金 S | | | | | ○ | | ● | ● | | | | | | |
| 高硬度材 H | | | | | | | | | | | | | | |

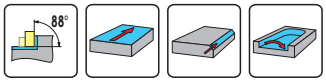
※印は取り寄せ対応となります。
Tools marked ※ are special order products.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。
Stock are categorized as C（Standard stock item）.

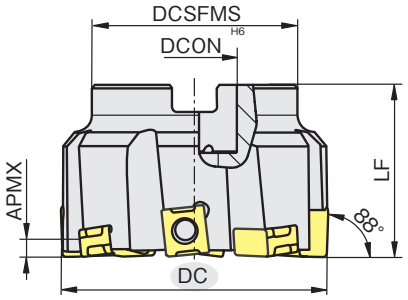
＊1 在庫無くなり次第CTPP235へ切り替えとなります。
＊1 Marked insert will be discontinued when it is out of stock, and replaced by CTPP235.
＊2 在庫無くなり次第CTPM240へ切り替えとなります。
＊2 Marked insert will be discontinued when it is out of stock, and replaced by CTPM240.

# CERATIZIT MaxiMill HEC

## HEC 切削条件 Cutting Conditions | P1141






## ■ボディ Body

(単位：mm) (Unit：mm)

| | ツール No. EDP No. | DC | 型番 Designation | DCON | LF | DCSFMS | APMX | 最高回転数 RPMX [min-1] | 刃数 ZEFP | 適用インサート Applicable Inserts |
|---|---|---|---|---|---|---|---|---|---|---|
| ノーマルピッチ Normal Pitch | ※ | 50 | **AHEC.50.R.06-11** | 22 | 40 | 48 | 6 | 12,700 | 6 | LNHX 1106 |
| | ※ | 63 | **AHEC.63.R.08-11** | | | | | 10,100 | 8 | |
| | 8920057 | 80 | **AHEC.80.R.10-11** | 27 | 50 | 58 | | 8,000 | 10 | |
| | 8920059 | 100 | **AHEC.100.R.12-11** | 32 | | 78 | | 6,400 | 12 | |
| | ※ | 125 | **AHEC.125.R.12-11** | 40 | 63 | 88 | | 5,100 | 12 | |
| | 8920061 | 125 | **AHEC.125.R.16-11** | | | | | 5,100 | 16 | |
| | 8920064 | 160 | **AHEC.160.R.20-11** | | | 100 | | 4,000 | 20 | |
| 不等ピッチ Variable Pitch | ※ | 50 | **AHEC.50.R.04B-11** | 22 | 40 | 48 | | 12,700 | 4 | |
| | ※ | 63 | **AHEC.63.R.06B-11** | | | | | 10,100 | 6 | |
| | ※ | 80 | **AHEC.80.R.08B-11** | 27 | 50 | 58 | | 8,000 | 8 | |
| | ※ | 100 | **AHEC.100.R.10B-11** | 32 | | 78 | | 6,400 | 10 | |
| | ※ | 125 | **AHEC.125.R.12B-11** | 40 | 63 | 88 | | 5,100 | 12 | |
| | ※ | 160 | **AHEC.160.R.14B-11** | | | 100 | | 4,000 | 14 | |
| 刃先高さ調整式 Axial Adjustment Type | ※ | 50 | **AHEC.50.R.06A03-11** | 22 | 40 | 48 | | 12,700 | 6 | |
| | ※ | 63 | **AHEC.63.R.08A04-11** | | | | | 10,100 | 8 | |
| | ※ | 80 | **AHEC.80.R.10A05-11** | 27 | 50 | 58 | | 8,000 | 10 | |
| | ※ | 100 | **AHEC.100.R.12A06-11** | 32 | | 78 | | 6,400 | 12 | |
| | ※ | 125 | **AHEC.125.R.16A08-11** | 40 | 63 | 88 | | 5,100 | 16 | |
| | ※ | 160 | **AHEC.160.R.20A10-11** | | | 100 | | 4,000 | 20 | |

※印は取り寄せ対応となります。
Tools marked ※ are special order products.
在庫区分は全て C（標準在庫品）となります。
Stock are categorized as C (Standard stock item).

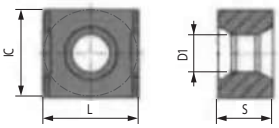
## ■部品 Accessories

| ツール No. EDP No. | 型番 Designation | |
|---|---|---|
| 8929998 | **7815102/M3.5×11.0/T15** |  |
| ※ | **SD-T15-80mm** |  |
| ※ | **DMSD 3.2Nm/SORT T15** |  |
| ※ | **10006791/KMR22** DC=50,63 用 |  |
| ※ | **10006792/KMR27** DC=80 用 | |
| ※ | **10006793/KMR32** DC=100 用 | |
| ※ | **10006794/KMR40** DC=125,160 用 | |

※印は取り寄せ対応となります。
Tools marked ※ are special order products.
適用インサートはP.1138をご参照下さい。 See page 1138 for applicable inserts.

## CERATIZIT MaxiMill HEC

# HEC インサート　切削条件 Cutting Conditions | P1141




(単位：mm) (Unit：mm)

| | コーティング付き超硬 Carbide | | | セラミック Ceramic | CBN | コーティング付きサーメット Cermet | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 型番 Designation | *1 CTC3215 | CTCK215 | CTPK220 | CTN3105 | CTL3215 | CTEP210 | IC | L | S | D1 |
| LNHX 110608EN-R50 | | | ※ | | | | 10.00 | 11.00 | 6.35 | 4.27 |
| LNHX 110616EN | | ※ | | | | | | | | |
| LNHX 1106PNER | | 8922024 | 8922025 | | | 8922026 | | | | |
| LNHX 1106PNER-R50 | | 8922021 | 8922022 | | | | | | | |
| LNHX 1106PNSR | | | | ※ | ※ | | | | | |
| LNHX 1106ZZER-Q | 8922004 | 8922023 | | | ※ | | | | | |
| 炭素鋼 P | | | | | | ● | | | | |
| ステンレス鋼 M | | | | | | | | | | |
| 鋳鉄 K | ● | ● | ● | ● | ● | ● | | | | |
| 非鉄金属 N | | | | | | | | | | |
| 耐熱合金 S | | | | | | | | | | |
| 高硬度材 H | | | | | ○ | | | | | |

※印は取り寄せ対応となります。
Tools marked ※ are special order products.
● 第一推奨材質 Best
○ 第二推奨材質 Good

在庫区分は全てC(標準在庫品)となります。
Stock are categorized as C(Standard stock item).

*1 在庫無くなり次第CTCK215へ切り替えとなります。
*1 Marked insert will be discontinued when it is out of stock, and replaced by CTCK215.

形状寸法表 SPECIFICATION CHARTS
274 ▶ P1131

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## MaxiMill 274

| 被削材 Work Material | | 熱処理 / 合金 Type of Treatment Alloy | | VDI 3323 | 硬度 HB Hardness |
|---|---|---|---|---|---|
| P | 炭素鋼 Carbon Steel | 焼きなまし Annealed | ≤0.15%C | 1 | 125 |
| | | 焼きなまし Annealed | 0.15%-0.45%C | 2 | 150-250 |
| | | 焼き戻し Tempered | ≥0.45%C | 3 | 300 |
| | 低炭素鋼 Low Carbon Steel | 焼きなまし Annealed | | 6 | 180 |
| | | 焼き戻し Tempered | | 7/8 | 250-300 |
| | | 焼き戻し Tempered | | 9 | 350 |
| | 高合金鋼 High Alloy Steel | 焼きなまし Annealed | | 10 | 200 |
| | | 焼き戻し Tempered | | 11 | 350 |
| | ステンレス鋼 Stainless Steel | 焼きなまし Annealed | フェライト/マルテンサイト Ferritic/Martensitic | 12 | 200 |
| | | 焼き戻し Tempered | マルテンサイト Martensitic | 13 | 325 |
| | | 熱処理 Heat-Treated | フェライト/マルテンサイト Ferritic/Martensitic | 13 | 200 |
| M | ステンレス鋼 Stainless Steel | 焼き入れ Quenched | マルテンサイト Martensitic | 14 | 180 |
| | | 焼き入れ Quenched | 二相 Duplex | 14 | 230-260 |
| | | 硬化処理 Hardened | マルテンサイト/オーステナイト Martensitic/Austenitic | 14 | 330 |
| S | 耐熱合金 Heat Resistant Alloy | 焼きなまし Annealed | Fe-基材種 Fe-Base | 31 | 200 |
| | | 硬化処理 Hardened | Fe-基材種 Fe-Base | 32 | 280 |
| | | 焼きなまし Annealed | NiまたはCo基材種 Ni or Co-Base | 33 | 250 |
| | | 硬化処理 Hardened | Ni/Co基材種 30-58HRC Ni or Co-Base | 34 | (350) |
| | | 鋳造 Cast | Ni/Co基材種1500-2200N/mm² Ni or Co-Base | 35 | (320) |
| | チタン合金 Titanium Alloy | | 純チタン Pure Titanium | 36 | Rm440* |
| | | | α+β型合金 Alpha+Beta Alloys | 37 | Rm1050* |

* Rm= 最大引張強度(Mpa) で表記
* Rm=Ultimate Tensile Strength, Measured in MPa.

形状寸法表 SPECIFICATION CHARTS
274 ▶ P1131

CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

# インデキサブルツール切削条件基準表

| CTP1235 | | CTPP235 | | CTP2235 | | CTPM240 | | CTC5240 | |
|---|---|---|---|---|---|---|---|---|---|
| ドライ Dry Vc (m/min) | ウェット Wet Vc (m/min) | ドライ Dry Vc (m/min) | ウェット Wet Vc (m/min) | ドライ Dry Vc (m/min) | ウェット Wet Vc (m/min) | ドライ Dry Vc (m/min) | ウェット Wet Vc (m/min) | ドライ Dry Vc (m/min) | ウェット Wet Vc (m/min) |
| 100-220 | 70-180 | 100-220 | 70-180 | 150-260 | 90-180 | 150-260 | 90-180 | - | - |
| 100-220 | 70-180 | 100-220 | 70-180 | 150-260 | 90-180 | 150-260 | 90-180 | - | - |
| 100-220 | 70-180 | 100-220 | 70-180 | 150-260 | 90-180 | 150-260 | 90-180 | - | - |
| 80-220 | 70-170 | 80-220 | 70-170 | 80-220 | 70-160 | 80-220 | 70-160 | - | - |
| 80-220 | 70-170 | 80-220 | 70-170 | 80-220 | 70-160 | 80-220 | 70-160 | - | - |
| 80-220 | 70-170 | 80-220 | 70-170 | 80-220 | 70-160 | 80-220 | 70-160 | - | - |
| 80-180 | 60-140 | 80-180 | 60-140 | 90-180 | 70-140 | 90-180 | 70-140 | - | - |
| 80-180 | 60-140 | 80-180 | 60-140 | 90-180 | 70-140 | 90-180 | 70-140 | - | - |
| 70-180 | 60-140 | 70-180 | 60-140 | 70-180 | 60-140 | 70-180 | 60-140 | - | - |
| 70-180 | 60-140 | 70-180 | 60-140 | 70-180 | 60-140 | 70-180 | 60-140 | - | - |
| 60-200 | - | 80-160 | 60-120 | 60-200 | 60-140 | 80-160 | 60-120 | - | - |
| 60-200 | - | 60-180 | 60-120 | 60-200 | 60-140 | 60-180 | 60-120 | - | 160-240 |
| 60-200 | - | 60-180 | 60-120 | 60-200 | 60-140 | 60-180 | 60-120 | - | 60-140 |
| 60-200 | - | 60-160 | 60-120 | 60-200 | 60-140 | 60-160 | 60-120 | - | 60-180 |
| - | - | - | - | - | - | - | - | - | 30-250 |
| - | - | - | - | - | - | - | - | - | 10-60 |
| - | - | - | - | - | - | - | - | - | 20-60 |
| - | - | - | - | - | - | - | - | - | 10-50 |
| - | - | - | - | - | - | - | - | - | 10-40 |
| - | - | - | - | - | - | - | - | - | 60-120 |
| - | - | - | - | - | - | - | - | - | 40-80 |

形状寸法表 SPECIFICATION CHARTS
HEC ▶ P1137

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## MaxiMill HEC

| 被削材 Work Material | | 熱処理 / 合金 Type of Treatment Alloy | | VDI 3323 | 硬度 HB Hardness | コーティング付き超硬 CTC3215 ドライ Dry Vc (m/min) | CTC3215 ウェット Wet Vc (m/min) | CTCK215 ドライ Dry Vc (m/min) | CTCK215 ウェット Wet Vc (m/min) | CTPK220 ドライ Dry Vc (m/min) | CTPK220 ウェット Wet Vc (m/min) | コーティング付きセラミック CTEP210 ドライ Dry Vc (m/min) | CTEP210 ウェット Wet Vc (m/min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | 炭素鋼 Carbon Steel | 焼きなまし Annealed | ≤0.15%C | 1 | 125 | - | - | - | - | - | - | 150 - 400 | - |
| | | 焼きなまし Annealed | 0.15%-0.45%C | 2 | 150 - 250 | - | - | - | - | - | - | 150 - 350 | - |
| | | 焼き戻し Tempered | ≥0.45%C | 3 | 300 | - | - | - | - | - | - | 150 - 320 | - |
| | 低炭素鋼 Low Carbon Steel | 焼きなまし Annealed | | 6 | 180 | - | - | - | - | - | - | 120 - 380 | - |
| | | 焼き戻し Tempered | | 7/8 | 250 - 300 | - | - | - | - | - | - | 120 - 360 | - |
| | | 焼き戻し Tempered | | 9 | 350 | - | - | - | - | - | - | 120 - 340 | - |
| | 高合金鋼 High Alloy Steel | 焼きなまし Annealed | | 10 | 200 | - | - | - | - | - | - | - | - |
| | | 焼き戻し Tempered | | 11 | 350 | - | - | - | - | - | - | - | - |
| | ステンレス鋼 Stainless Steel | 焼きなまし Annealed | フェライト/マルテンサイト Ferritic/Martensitic | 12 | 200 | - | - | - | - | - | - | - | - |
| | | 焼き戻し Tempered | マルテンサイト Martensitic | 13 | 325 | - | - | - | - | - | - | - | - |
| | | 熱処理 Heat-Treated | フェライト/マルテンサイト Ferritic/Martensitic | 13 | 200 | - | - | - | - | - | - | - | - |
| K | ネズミ鋳鉄 Grey Cast Iron | | パーライト/第二鉄 Pearlitic/Ferritic | 15 | 180 | 180 - 350 | 180 - 350 | 180 - 350 | 180 - 350 | 120 - 300 | 120 - 300 | - | - |
| | | | パーライト/マルテンサイト Pearlitic/Martensitic | 16 | 260 | 140 - 280 | 140 - 280 | 140 - 280 | 140 - 280 | 130 - 280 | 130 - 280 | 150 - 350 | - |
| | ダクタイル鋳鉄 Ductile Cast Iron | | フェライト Ferritic | 17 | 160 | 130 - 250 | 130 - 250 | 130 - 250 | 130 - 250 | 120 - 210 | 120 - 210 | 150 - 400 | - |
| | | | パーライト Pearlitic | 18 | 250 | 100 - 200 | 100 - 200 | 100 - 200 | 100 - 200 | 110 - 200 | 110 - 200 | 150 - 350 | - |
| | 可鍛鋳鉄 Malleablize | | フェライト Ferritic | 19 | 130 | 150 - 320 | 150 - 320 | 150 - 320 | 150 - 320 | 200 - 340 | 200 - 340 | 150 - 350 | - |
| | | | パーライト Pearlitic | 20 | 230 | 120 - 250 | 120 - 250 | 120 - 250 | 120 - 250 | 160 - 280 | 160 - 280 | - | - |



# 旋削工具

## TURNING


| | PAGE |
|---|---|
| 形状寸法表<br>SPECIFICATION CHARTS | 1143 |
| 切削条件基準表<br>CUTTING CONDITIONS | 1162 |




- 本カタログに掲載されている製品につきましては、在庫表記を記載しておりますが、新材種、新製品などの開発にともない改廃される場合もございます。
- 予告なく仕様、形状、表内の値等が変更となる場合がございます。

- The inventory status is indicated for respective products on this catalogue. However, the products may be improved or discontinued due to development of new materials and products, etc.
- Specifications, shapes, values in the tables, etc. are subject to change without prior notice.

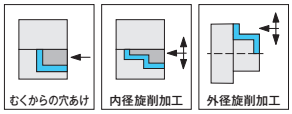
# CERATIZIT 多機能旋削エコカットクラシック
**CERATIZIT EcoCut Classic**

## EC　切削条件 Cutting Conditions | P1162

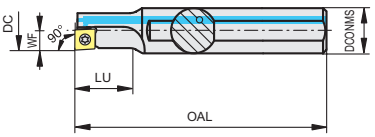
### ECC



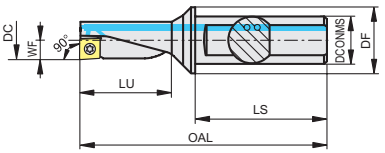
・写真は右勝手 Right Hand
・ボディ材質 Tool Material
- 1.5D / 2.25D＝スチール Steel
- 3.0D＝DENSIMET（タングステン合金）
Tungsten




1.5D / 3.0D




2.25D




（単位：mm）(Unit: mm)

| DC | L/D | ツール No. EDP No. | 型番 Designation | 勝手 HAND | DCONMS | DF | OAL | LU | LS | WF | 適用インサートタイプ Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 1.5D | 8923051 | ECC 08L-1.5D 04 | L | 12 | – | 80 | 12 | – | 4 | ① | C | 29,900 |
| | | 8923021 | ECC 08R-1.5D 04 | R | | | | | | | ② | | 29,900 |
| | 2.25D | 8923061 | ECC 08L-2.25D 04 | L | 10 | 12 | 60 | 18 | 38 | 4 | ① | | 44,500 |
| | | 8923002 | ECC 08R-2.25D 04 | R | | | | | | | ② | | 44,500 |
| | 3.0D | 8923071 | ECC 08L-3.0D 04 H | L | 12 | – | 80 | 24 | – | 4 | ① | | 102,000 |
| | | 8923041 | ECC 08R-3.0D 04 H | R | | | | | | | ② | | 102,000 |
| 10 | 1.5D | 8923052 | ECC 10L-1.5D 05 | L | 12 | – | 90 | 15 | – | 5 | ③ | C | 29,900 |
| | | 8923022 | ECC 10R-1.5D 05 | R | | | | | | | | | 29,900 |
| | 2.25D | 8923062 | ECC 10L-2.25D 05 | L | 12 | 16 | 69.5 | 22.5 | 42 | 5 | | | 44,500 |
| | | 8923004 | ECC 10R-2.25D 05 | R | | | | | | | | | 44,500 |
| | 3.0D | 8923072 | ECC 10L-3.0D 05 H | L | 12 | – | 85 | 30 | – | 5 | | | 103,000 |
| | | 8923042 | ECC 10R-3.0D 05 H | R | | | | | | | | | 103,000 |
| 12 | 1.5D | 8923053 | ECC 12L-1.5D 06 | L | 16 | – | 100 | 18 | – | 6 | ④ | C | 30,500 |
| | | 8923023 | ECC 12R-1.5D 06 | R | | | | | | | | | 30,500 |
| | 2.25D | 8923063 | ECC 12L-2.25D 06 | L | 16 | 20 | 78 | 27 | 45 | 6 | | | 45,400 |
| | | 8923006 | ECC 12R-2.25D 06 | R | | | | | | | | | 45,400 |
| | 3.0D | 8923073 | ECC 12L-3.0D 06 H | L | 16 | – | 95 | 36 | – | 6 | | | 112,000 |
| | | 8923043 | ECC 12R-3.0D 06 H | R | | | | | | | | | 112,000 |
| 14 | 1.5D | 8923054 | ECC 14L-1.5D 07 | L | 16 | – | 110 | 21 | – | 7 | ⑤ | C | 30,800 |
| | | 8923024 | ECC 14R-1.5D 07 | R | | | | | | | | | 30,800 |
| | 2.25D | 8923064 | ECC 14L-2.25D 07 | L | 16 | 20 | 83.5 | 31.5 | 45 | 7 | | | 46,600 |
| | | 8923008 | ECC 14R-2.25D 07 | R | | | | | | | | | 46,600 |
| | 3.0D | 8923074 | ECC 14L-3.0D 07 H | L | 16 | – | 100 | 42 | – | 7 | | | 114,000 |
| | | 8923044 | ECC 14R-3.0D 07 H | R | | | | | | | | | 114,000 |
| 16 | 1.5D | 8923055 | ECC 16L-1.5D 08 | L | 20 | – | 125 | 24 | – | 8 | ⑥ | C | 31,500 |
| | | 8923025 | ECC 16R-1.5D 08 | R | | | | | | | | | 31,500 |
| | 2.25D | 8923065 | ECC 16L-2.25D 08 | L | 20 | 25 | 94 | 36 | 50 | 8 | | | 47,300 |
| | | 8923010 | ECC 16R-2.25D 08 | R | | | | | | | | | 47,300 |
| | 3.0D | 8923075 | ECC 16L-3.0D 08 H | L | 20 | – | 110 | 48 | – | 8 | | | 125,000 |
| | | 8923045 | ECC 16R-3.0D 08 H | R | | | | | | | | | 125,000 |
| 18 | 1.5D | 8923056 | ECC 18L-1.5D 09 | L | 25 | – | 135 | 27 | – | 9 | ⑦ | C | 36,100 |
| | | 8923026 | ECC 18R-1.5D 09 | R | | | | | | | | | 36,100 |
| | 2.25D | 8923066 | ECC 18L-2.25D 09 | L | 25 | 32 | 109.5 | 40.5 | 56 | 9 | | | 52,200 |
| | | 8923012 | ECC 18R-2.25D 09 | R | | | | | | | | | 52,200 |
| | 3.0D | 8923076 | ECC 18L-3.0D 09 H | L | 25 | – | 125 | 54 | – | 9 | | | 151,000 |
| | | 8923046 | ECC 18R-3.0D 09 H | R | | | | | | | | | 151,000 |
| 20 | 1.5D | 8923057 | ECC 20L-1.5D 10 | L | 25 | – | 150 | 30 | – | 10 | ⑧ | C | 40,700 |
| | | 8923027 | ECC 20R-1.5D 10 | R | | | | | | | | | 40,700 |
| | 2.25D | 8923067 | ECC 20L-2.25D 10 | L | 25 | 32 | 111 | 45 | 56 | 10 | | | 56,800 |
| | | 8923014 | ECC 20R-2.25D 10 | R | | | | | | | | | 56,800 |
| | 3.0D | 8923077 | ECC 20L-3.0D 10 H | L | 25 | – | 130 | 60 | – | 10 | | | 155,000 |
| | | 8923047 | ECC 20R-3.0D 10 H | R | | | | | | | | | 155,000 |
| 25 | 1.5D | 8923058 | ECC 25L-1.5D 13 | L | 32 | – | 180 | 37.5 | – | 12.5 | ⑨ | C | 47,100 |
| | | 8923028 | ECC 25R-1.5D 13 | R | | | | | | | | | 47,100 |
| | 2.25D | 8923068 | ECC 25L-2.25D 13 | L | 32 | 40 | 129 | 56.5 | 60 | 12.5 | | | 66,100 |
| | | 8923016 | ECC 25R-2.25D 13 | R | | | | | | | | | 66,100 |
| | 3.0D | 8923078 | ECC 25L-3.0D 13 H | L | 32 | – | 150 | 75 | – | 12.5 | | | 195,000 |
| | | 8923048 | ECC 25R-3.0D 13 H | R | | | | | | | | | 195,000 |
| 32 | 1.5 D | 8923059 | ECC 32L-1.5D 17 | L | 40 | – | 200 | 48 | – | 16 | ⑩ | C | 53,200 |
| | | 8923029 | ECC 32R-1.5D 17 | R | | | | | | | | | 53,200 |
| | 2.25D | 8923069 | ECC 32L-2.25D 17 | L | 40 | 50 | 158 | 72 | 70 | 16 | | | 73,900 |
| | | 8923018 | ECC 32R-2.25D 17 | R | | | | | | | | | 73,900 |
| | 3.0D | 8923079 | ECC 32L-3.0D 17 H | L | 40 | – | 185 | 96 | – | 16 | | | 256,000 |
| | | 8923049 | ECC 32R-3.0D 17 H | R | | | | | | | | | 256,000 |

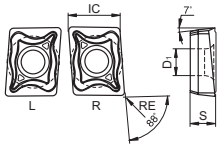
・L＝左勝手、R＝右勝手　L=Left Hand　R=Right Hand

A、B、C、D=標準在庫品　A, B, C, D=Standard stock item.　□=特定代理店在庫品　□=Stocked by specific distributors. Contact us for price & availability.

インサートタイプ①,② Type　インサートタイプ①と②(φ8用)は勝手付き ①・②(φ8):L/R


ER·EL-27P

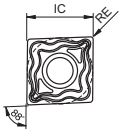

ER·EL

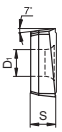



インサートタイプ③～⑩ Type


FN-27P


EN




## ■エコカットインサート EcoCut Inserts

(単位:mm) (Unit:mm)

| インサートタイプ Type | 型番 Designation | 勝手 HAND | IC | S | RE | D1 | 超硬 Non-Coated H210T | 超硬 Non-Coated H216T | コーティング材種 Grade of Coated Materials CTCP425-P | CTCP435-P | CTCP425 | CTCP435 | CTPP430 | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | XCET040102FL-27P | L | 4.5 | 1.8 | 0.2 | 2.1 | — | 8922051 | — | — | — | — | — | C | 2,040 |
| | XCET040102FL-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT040102EL | | | | | | — | — | 8927564 | 8927565 | 8922061* | 8922062* | 8922063 | C | 2,030 |
| | XCET040104FL-27P | | | | 0.4 | | — | 8922053 | — | — | — | — | — | | 2,040 |
| | XCET040104FL-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT040104EL | | | | | | — | — | 8927566 | 8927567 | 8922065* | 8922066* | 8922067 | C | 2,030 |
| | XCNT040104EL-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ② | XCET040102FR-27P | R | 4.5 | 1.8 | 0.2 | 2.1 | — | 8927511 | — | — | — | — | — | C | 2,040 |
| | XCET040102FR-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT040102ER | | | | | | — | — | 8927568 | 8927569 | 8927508* | 8927509* | 8927510 | C | 2,030 |
| | XCET040104FR-27P | | | | 0.4 | | — | 8927515 | — | — | — | — | — | | 2,040 |
| | XCET040104FR-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT040104ER | | | | | | — | — | 8927570 | 8927571 | 8927512* | 8927513* | 8927514 | C | 2,030 |
| | XCNT040104ER-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ③ | XCET050202FN-27P | N | 5.8 | 2.1 | 0.2 | 2.25 | — | 8927519 | — | — | — | — | — | C | 2,040 |
| | XCET050202FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT050202EN | | | | | | — | — | 8927572 | 8927573 | 8927516* | 8927517* | 8927518 | C | 2,030 |
| | XCET050204FN-27P | | | | 0.4 | | — | 8927523 | — | — | — | — | — | | 2,040 |
| | XCET050204FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT050204EN | | | | | | — | — | 8927574 | 8927575 | 8927520* | 8927521* | 8927522 | C | 2,030 |
| | XCNT050204EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ④ | XCET060202FN-27P | N | 6.5 | 2.38 | 0.2 | 2.5 | — | 8927527 | — | — | — | — | — | C | 2,040 |
| | XCET060202FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT060202EN | | | | | | — | — | 8927576 | 8927577 | 8927524* | 8927525* | 8927526 | C | 2,030 |
| | XCET060204FN-27P | | | | 0.4 | | — | 8927531 | — | — | — | — | — | | 2,040 |
| | XCET060204FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT060204EN | | | | | | — | — | 8927578 | 8927579 | 8927528* | 8927529* | 8927530 | C | 2,030 |
| | XCNT060204EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ⑤ | XCET070304FN-27P | N | 7.6 | 3.18 | 0.4 | 2.8 | — | 8927535 | — | — | — | — | — | C | 2,040 |
| | XCET070304FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT070304EN | | | | | | — | — | 8927580 | 8927581 | 8927532* | 8927533* | 8927534 | C | 2,030 |
| | XCNT070304EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ⑥ | XCET080304FN-27P | N | 8.5 | 3.18 | 0.4 | 3.4 | — | 8927539 | — | — | — | — | — | C | 2,080 |
| | XCET080304FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT080304EN | | | | | | — | — | 8927582 | 8927583 | 8927536* | 8927537* | 8927538 | C | 2,030 |
| | XCNT080304EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ⑦ | XCET09T304FN-27P | N | 9.6 | 3.97 | 0.4 | 3.4 | — | 8927543 | — | — | — | — | — | C | 2,110 |
| | XCET09T304FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT09T304EN | | | | | | — | — | 8927584 | 8927585 | 8927540* | 8927541* | 8927542 | C | 2,040 |
| | XCNT09T304EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ⑧ | XCET10T304FN-27P | N | 10.6 | 3.97 | 0.4 | 4.4 | — | 8927547 | — | — | — | — | — | C | 2,140 |
| | XCET10T304FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT10T304EN | | | | | | — | — | 8927586 | 8927587 | 8927544* | 8927545* | 8927546 | C | 2,110 |
| | XCNT10T304EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| | XCET10T308FN-27P | | | | 0.8 | | — | 8927551 | — | — | — | — | — | C | 2,140 |
| | XCET10T308FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT10T308EN | | | | | | — | — | 8927588 | 8927589 | 8927548* | 8927549* | 8927550 | C | 2,110 |
| | XCNT10T308EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ⑨ | XCET130404FN-27P | N | 13.5 | 4.76 | 0.4 | 5.3 | — | 8927555 | — | — | — | — | — | C | 2,620 |
| | XCET130404FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT130404EN | | | | | | — | — | 8927590 | 8927591 | 8927552* | 8927553* | 8927554 | C | 2,560 |
| | XCNT130404EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| | XCET130408FN-27P | | | | 0.8 | | — | 8927559 | — | — | — | — | — | C | 2,620 |
| | XCET130408FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT130408EN | | | | | | — | — | 8927592 | 8927593 | 8927556* | 8927557* | 8927558 | C | 2,560 |
| | XCNT130408EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |
| ⑩ | XCET170508FN-27P | N | 17.5 | 5.56 | 0.8 | 5.3 | — | 8927563 | — | — | — | — | — | C | 2,670 |
| | XCET170508FN-27Q | | | | | | * | — | — | — | — | — | — | — | — |
| | XCNT170508EN | | | | | | — | — | 8927594 | 8927595 | 8927560* | 8927561* | 8927562 | C | 2,590 |
| | XCNT170508EN-M50Q | | | | | | — | — | * | — | — | — | — | — | — |

＊= 取り寄せ対応品 納期及び価格はお問い合わせ下さい。
＊印は在庫無くなり次第、廃番となります。
・L=左勝手、R=右勝手、N=両勝手
Tool marked * are special order items, please contact us for details.
Tools marked ＊ will be discontinued when it is out of stock.
L = Left Hand, R = Right Hand, N = Neutral
-27Q・-M50Q = ワイパーインサート
-27Q・-M50Q = Wiper Insert

| | | H210T | H216T | CTCP425-P | CTCP435-P | CTCP425 | CTCP435 | CTPP430 |
|---|---|---|---|---|---|---|---|---|
| 炭素鋼 | P | | | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | | | ○ | ○ | ○ | ○ | ● |
| 鋳鉄 | K | ○ | ○ | ● | ● | ● | ● | ○ |
| 非鉄金属 | N | ● | ● | | | | | ○ |
| 耐熱合金 | S | ● | | | | | | ● |
| 高硬度材 | H | | | | | | | |

●第一推奨材質 ○第二推奨材質 ● Best ○ Good

## ■部品 Accessories

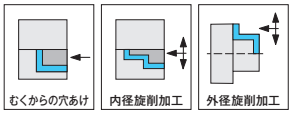
| クランプねじ Clamping Screw | 型番 Designation | トルクスサイズ | 推奨締め付けトルク [N・m] | 適用ボディ |
|---|---|---|---|---|
|  | M1,8 × 3,6-06IP/10013338 | 06IP | 0.4 | ECC 08… |
| | M2,0 × 4,3-06IP/10013332 | 06IP | 0.7 | ECC 10… |
| | M2,2 × 5,0-07IP/10009244 | 07IP | 1.0 | ECC 12… |
| | M2,5 × 6,0-08IP/10009243 | 08IP | 1.2 | ECC 14… |
| | M3,0 × 7,0-09IP/10003007 | 09IP | 2.2 | ECC 16, 18… |
| | M3,5 × 8,6-15IP/10008749 | 15IP | 3.2 | ECC 20… |
| | M4,5 × 10,5-20IP/10013040 | 20IP | 5.0 | ECC 25, 32… |

| ドライバ Driver | 型番 Designation | トルクスサイズ | 適用ボディ |
|---|---|---|---|
|  | SD-T06IP-60mm | 06IP | ECC 08, 10… |
| | SD-T07IP-60mm | 07IP | ECC 12… |
| | SD-T08IP-60mm | 08IP | ECC 14… |
| | SD-T09IP-60mm | 09IP | ECC 16, 18… |
| | SD-T15IP-80mm | 15IP | ECC 20… |
| | SD-T20IP-100mm | 20IP | ECC 25, 32… |

・ねじおよびドライバはボディに付属しています。別途ご購入の際はお問い合わせ下さい。
Clamping screw and driver come with the body. Please contact us for details.

# CERATIZIT 多機能旋削エコカットミニ
**CERATIZIT EcoCut Mini**

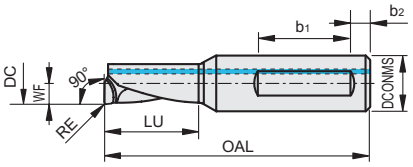
**EC** 切削条件 Cutting Conditions | **P1164**




## ECM

CTPP435 写真は2.25Dタイプ 2.25D Type






(単位：mm) (Unit:mm)

| DC | L/D | ツール No. EDP No. | 型番 Designation | 勝手 HAND | DCONMS | 全長 OAL | 溝長 LU | シャンク部寸法 Shank b1 | シャンク部寸法 Shank b2 | RE | WF | 適用アダプタタイプ Adaptor Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 2.25D | 8923137 | **ECM 02L-2.25D** | L | 4 | 28 | 4.5 | 11 | 3.5 | 0.1 | 1 | ① | C | 10,200 |
| | | 8923121 | **ECM 02R-2.25D** | R | | | | | | | | | | 10,200 |
| | 4.0D | 8923139 | **ECM 02L-4.00D** | L | | 31 | 8 | | | | | | | 10,700 |
| | | 8923123 | **ECM 02R-4.00D** | R | | | | | | | | | | 10,700 |
| 2.5 | 2.25D | 8923141 | **ECM 02.5L-2.25D** | L | 4 | 29 | 5.63 | 11 | 3.5 | 0.1 | 1.25 | ① | C | 10,600 |
| | | 8923125 | **ECM 02.5R-2.25D** | R | | | | | | | | | | 10,600 |
| | 4.0D | 8923143 | **ECM 02.5L-4.00D** | L | | 33 | 10 | | | | | | | 11,100 |
| | | 8923127 | **ECM 02.5R-4.00D** | R | | | | | | | | | | 11,100 |
| 3 | 2.25D | 8923145 | **ECM 03L-2.25D** | L | 4 | 31 | 6.75 | 11 | 3.5 | 0.1 | 1.5 | ① | C | 11,000 |
| | | 8923129 | **ECM 03R-2.25D** | R | | | | | | | | | | 11,000 |
| | 4.0D | 8923147 | **ECM 03L-4.00D** | L | | 35 | 12 | | | | | | | 11,500 |
| | | 8923131 | **ECM 03R-4.00D** | R | | | | | | | | | | 11,500 |
| 3.5 | 2.25D | 8923149 | **ECM 03.5L-2.25D** | L | 4 | 32 | 7.88 | 11 | 3.5 | 0.1 | 1.75 | ① | C | 11,300 |
| | | 8923133 | **ECM 03.5R-2.25D** | R | | | | | | | | | | 11,300 |
| | 4.0D | 8923151 | **ECM 03.5L-4.00D** | L | | 37 | 14 | | | | | | | 11,900 |
| | | 8923135 | **ECM 03.5R-4.00D** | R | | | | | | | | | | 11,900 |
| 4 | 2.25D | 8923101 | **ECM 04L-2.25D** | L | 6 | 35 | 9 | 11 | 3.5 | 0.2 | 2 | ② | C | 12,000 |
| | | 8923081 | **ECM 04R-2.25D** | R | | | | | | | | | | 12,000 |
| | 4.0D | 8923103 | **ECM 04L-4.00D** | L | | 41 | 16 | | | | | | | 12,700 |
| | | 8923083 | **ECM 04R-4.00D** | R | | | | | | | | | | 12,700 |
| 5 | 2.25D | 8923105 | **ECM 05L-2.25D** | L | 6 | 37 | 11.25 | 11 | 3.5 | 0.2 | 2.5 | ② | C | 12,500 |
| | | 8923085 | **ECM 05R-2.25D** | R | | | | | | | | | | 12,500 |
| | 4.0D | 8923107 | **ECM 05L-4.00D** | L | | 45 | 20 | | | | | | | 13,100 |
| | | 8923087 | **ECM 05R-4.00D** | R | | | | | | | | | | 13,100 |
| 6 | 2.25D | 8923109 | **ECM 06L-2.25D** | L | 8 | 38 | 13.5 | 11 | 3.5 | 0.2 | 3 | ③ | C | 12,800 |
| | | 8923089 | **ECM 06R-2.25D** | R | | | | | | | | | | 12,800 |
| | 4.0D | 8923111 | **ECM 06L-4.00D** | L | | 49 | 24 | | | | | | | 13,400 |
| | | 8923091 | **ECM 06R-4.00D** | R | | | | | | | | | | 13,400 |
| 7 | 2.25D | 8923113 | **ECM 07L-2.25D** | L | 8 | 42 | 15.75 | 11 | 3.5 | 0.2 | 3.5 | ③ | C | 13,200 |
| | | 8923093 | **ECM 07R-2.25D** | R | | | | | | | | | | 13,200 |
| | 4.0D | 8923115 | **ECM 07L-4.00D** | L | | 53 | 28 | | | | | | | 13,900 |
| | | 8923095 | **ECM 07R-4.00D** | R | | | | | | | | | | 13,900 |
| 8 | 2.25D | 8923117 | **ECM 08L-2.25D** | L | 8 | 45 | 18 | 11 | 3.5 | 0.2 | 4 | ③ | C | 13,600 |
| | | 8923097 | **ECM 08R-2.25D** | R | | | | | | | | | | 13,600 |
| | 4.0D | 8923119 | **ECM 08L-4.00D** | L | | 57 | 32 | | | | | | | 14,300 |
| | | 8923099 | **ECM 08R-4.00D** | R | | | | | | | | | | 14,300 |

| | | |
|---|---|---|
| 炭素鋼 | P | ● |
| ステンレス鋼 | M | ● |
| 鋳鉄 | K | ○ |
| 非鉄金属 | N | |
| 耐熱合金 | S | ● |
| 高硬度材 | H | |

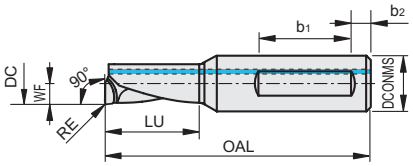
・L＝左勝手、R＝右勝手　　L = Left Hand, R = Right Hand
・EcoCut Miniの再研磨は工具径や刃先の心高が変わってしまう為、承っておりません。

●第一推奨材質 ○第二推奨材質
● Best ○ Good

A、B、C、D=標準在庫品 A、B、C、D=Standard stock item. □=特定代理店在庫品 □=Stocked by specific distributors. Contact us for price & availability.

## CTWN425　写真は4.0Dタイプ　4.0D Type






(単位：mm) (Unit：mm)

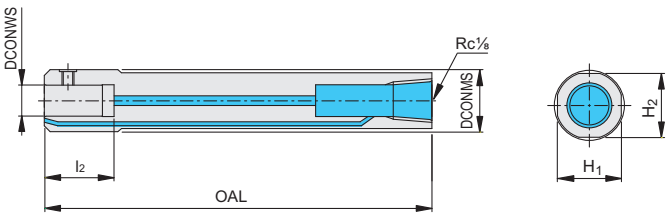
| DC | L/D | ツール No. EDP No. | 型番 Designation | 勝手 HAND | DCONMS | 全長 OAL | 溝長 LU | シャンク部寸法 Shank b1 | シャンク部寸法 Shank b2 | RE | WF | 適用アダプタタイプ Adaptor Type | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 2.25D | 8923138 | **ECM 02L-2.25D-27** | L | 4 | 28 | 4.5 | 11 | 3.5 | 0.1 | 1 | ① | C | 8,990 |
| | | 8923122 | **ECM 02R-2.25D-27** | R | | | | | | | | | | 8,990 |
| | 4.0D | 8923140 | **ECM 02L-4.00D-27** | L | | 31 | 8 | | | | | | | 9,440 |
| | | 8923124 | **ECM 02R-4.00D-27** | R | | | | | | | | | | 9,440 |
| 2.5 | 2.25D | 8923142 | **ECM 02.5L-2.25D-27** | L | 4 | 29 | 5.63 | 11 | 3.5 | 0.1 | 1.25 | ① | C | 9,250 |
| | | 8923126 | **ECM 02.5R-2.25D-27** | R | | | | | | | | | | 9,250 |
| | 4.0D | 8923144 | **ECM 02.5L-4.00D- 27** | L | | 33 | 10 | | | | | | | 9,690 |
| | | 8923128 | **ECM 02.5R-4.00D-27** | R | | | | | | | | | | 9,690 |
| 3 | 2.25D | 8923146 | **ECM 03L-2.25D-27** | L | 4 | 31 | 6.75 | 11 | 3.5 | 0.1 | 1.5 | ① | C | 9,550 |
| | | 8923130 | **ECM 03R-2.25D-27** | R | | | | | | | | | | 9,550 |
| | 4.0D | 8923148 | **ECM 03L-4.00D-27** | L | | 35 | 12 | | | | | | | 10,100 |
| | | 8923132 | **ECM 03R-4.00D-27** | R | | | | | | | | | | 10,100 |
| 3.5 | 2.25D | 8923150 | **ECM 03.5L-2.25D-27** | L | 4 | 32 | 7.88 | 11 | 3.5 | 0.1 | 1.75 | ① | C | 9,950 |
| | | 8923134 | **ECM 03.5R-2.25D-27** | R | | | | | | | | | | 9,950 |
| | 4.0D | 8923152 | **ECM 03.5L-4.00D-27** | L | | 37 | 14 | | | | | | | 10,500 |
| | | 8923136 | **ECM 03.5R-4.00D-27** | R | | | | | | | | | | 10,500 |
| 4 | 2.25D | 8923102 | **ECM 04L-2.25D-27** | L | 6 | 35 | 9 | 11 | 3.5 | 0.2 | 2 | ② | C | 10,600 |
| | | 8923082 | **ECM 04R-2.25D-27** | R | | | | | | | | | | 10,600 |
| | 4.0D | 8923104 | **ECM 04L-4.00D-27** | L | | 41 | 16 | | | | | | | 11,200 |
| | | 8923084 | **ECM 04R-4.00D-27** | R | | | | | | | | | | 11,200 |
| 5 | 2.25D | 8923106 | **ECM 05L-2.25D-27** | L | 6 | 37 | 11.25 | 11 | 3.5 | 0.2 | 2.5 | ② | C | 11,000 |
| | | 8923086 | **ECM 05R-2.25D-27** | R | | | | | | | | | | 11,000 |
| | 4.0D | 8923108 | **ECM 05L-4.00D-27** | L | | 45 | 20 | | | | | | | 11,500 |
| | | 8923088 | **ECM 05R-4.00D-27** | R | | | | | | | | | | 11,500 |
| 6 | 2.25D | 8923110 | **ECM 06L-2.25D-27** | L | 8 | 38 | 13.5 | 11 | 3.5 | 0.2 | 3 | ③ | C | 11,300 |
| | | 8923090 | **ECM 06R-2.25D-27** | R | | | | | | | | | | 11,300 |
| | 4.0D | 8923112 | **ECM 06L-4.00D-27** | L | | 49 | 24 | | | | | | | 11,800 |
| | | 8923092 | **ECM 06R-4.00D-27** | R | | | | | | | | | | 11,800 |
| 7 | 2.25D | 8923114 | **ECM 07L-2.25D-27** | L | 8 | 42 | 15.75 | 11 | 3.5 | 0.2 | 3.5 | ③ | C | 11,700 |
| | | 8923094 | **ECM 07R-2.25D-27** | R | | | | | | | | | | 11,700 |
| | 4.0D | 8923116 | **ECM 07L-4.00D-27** | L | | 53 | 28 | | | | | | | 12,100 |
| | | 8923096 | **ECM 07R-4.00D-27** | R | | | | | | | | | | 12,100 |
| 8 | 2.25D | 8923118 | **ECM 08L-2.25D-27** | L | 8 | 45 | 18 | 11 | 3.5 | 0.2 | 4 | ③ | C | 11,900 |
| | | 8923098 | **ECM 08R-2.25D-27** | R | | | | | | | | | | 11,900 |
| | 4.0D | 8923120 | **ECM 08L-4.00D-27** | L | | 57 | 32 | | | | | | | 12,600 |
| | | 8923100 | **ECM 08R-4.00D-27** | R | | | | | | | | | | 12,600 |

| | | |
|---|---|---|
| 炭素鋼 | P | |
| ステンレス鋼 | M | |
| 鋳鉄 | K | ○ |
| 非鉄金属 | N | ● |
| 耐熱合金 | S | |
| 高硬度材 | H | |

・L＝左勝手、R＝右勝手　　L = Left Hand, R = Right Hand
・EcoCut Miniの再研磨は工具径や刃先の心高が変わってしまう為、承っておりません。

●第一推奨材質　○第二推奨材質
● Best　○ Good






## ■エコカットミニ アダプタ EcoCut Mini Adaptor

(単位：mm) (Unit：mm)

| アダプタタイプ Adaptor Type | ツール No. EDP No. | 型番 Designation | DCONWS | DCONMS | OAL | l2 | H1・H2 | 適用 ECM | 在庫 Stock | 標準価格 (Yen) |
|---|---|---|---|---|---|---|---|---|---|---|
| ① | 8929017 | **EC-ADJ16-04** | 4 | 16 | 100 | 18 | 15 | ECM 02… | C | 37,400 |
| | 8929018 | **EC-ADJ19.05-04** | | 19.05 | 120 | 18 | 17.05 | | | 37,400 |
| | 8929019 | **EC-ADJ20-04** | | 20 | 120 | 18 | 18 | 02.5… | | 37,400 |
| | 8929020 | **EC-ADJ22-04** | | 22 | 120 | 18 | 20 | 03… | | 37,500 |
| | 8929021 | **EC-ADJ25-04** | | 25 | 120 | 18 | 23 | | | 37,500 |
| | 8929022 | **EC-ADJ25.4-04** | | 25.4 | 120 | 18 | 23.4 | 03.5… | | 37,500 |
| ② | 8929001 | **EC-ADJ16-06** | 6 | 16 | 100 | 18 | 15 | ECM 04… | C | 37,400 |
| | 8929002 | **EC-ADJ19.05-06** | | 19.05 | 120 | 18 | 17.05 | | | 37,400 |
| | 8929003 | **EC-ADJ20-06** | | 20 | 120 | 18 | 18 | | | 37,400 |
| | 8929004 | **EC-ADJ22-06** | | 22 | 120 | 18 | 20 | 05… | | 37,500 |
| | 8929005 | **EC-ADJ25-06** | | 25 | 120 | 18 | 23 | | | 37,500 |
| | 8929006 | **EC-ADJ25.4-06** | | 25.4 | 120 | 18 | 23.4 | | | 37,500 |
| ③ | 8929011 | **EC-ADJ16-08** | 8 | 16 | 100 | 18 | 15 | ECM 06… | C | 37,400 |
| | 8929012 | **EC-ADJ19.05-08** | | 19.05 | 120 | 18 | 17.05 | | | 37,400 |
| | 8929013 | **EC-ADJ20-08** | | 20 | 120 | 18 | 18 | 07… | | 37,400 |
| | 8929014 | **EC-ADJ22-08** | | 22 | 120 | 18 | 20 | | | 37,500 |
| | 8929015 | **EC-ADJ25-08** | | 25 | 120 | 18 | 23 | 08… | | 37,500 |
| | 8929016 | **EC-ADJ25.4-08** | | 25.4 | 120 | 18 | 23.4 | | | 37,500 |

・アダプタがなくても加工できますが、安定加工・リピート性向上のため、アダプタの使用を推奨いたします。
・レンチはアダプタに付属しています。

# CTCPインサート
CTCP Insert

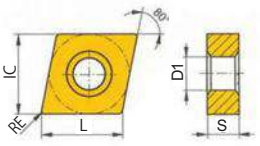
## CNMG CNMM インサート　切削条件 Cutting Conditions | P1165




（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.40 | CNMG 090304EN-F50 | N | ※ | | ※ | | ※ | 9.70 | 9.52 | 3.18 | 3.81 |
| | CNMG 090308EN-F50 | | ※ | | ※ | | ※ | | | | |
| | CNMG 120404EN-TF | | | 8927039＊ | | | | 12.90 | 12.70 | 4.76 | 5.16 |
| | CNMG 120404EN-TFQ | | ※ | | ※ | | | | | | |
| | CNMG 120404EN-XU | | ※ | | ※ | | | | | | |
| | CNMG 120404EN-TMF | N | | 8927041＊ | | 8927042＊ | | | | | |
| | CNMG 120404EN-M50 | | ※ | 8927037＊ | ※ | 8927038＊ | ※ | | | | |
| | CNMG 120404EN-F50 | | ※ | | ※ | | ※ | | | | |
| 0.80 | CNMG 120408EN-42 | | | | | | ※ | | | | |
| | CNMG 120408EN-TFQ | | ※ | | ※ | | | | | | |
| | CNMG 120408EN-XU | | ※ | | ※ | | | | | | |
| | CNMG 120408EN-TMF | | | 8927050＊ | | 8927051＊ | | | | | |
| | CNMG 120408EN-TM | | | 8927048＊ | | | | | | | |
| | CNMG 120408EN-TMQ | | ※ | | ※ | | | | | | |
| | CNMG 120408EN-M50 | | ※ | | ※ | | ※ | | | | |
| | CNMG 120408EN-F50 | | ※ | | ※ | | ※ | | | | |
| | CNMG 120408EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 120408EN-R28 | | ※ | | ※ | | | | | | |
| | CNMM 120408EN-R58 | | ※ | | ※ | | ※ | | | | |
| 1.20 | CNMG 120412EN-TFQ | | ※ | | ※ | | | | | | |
| | CNMG 120412EN-XU | | ※ | | ※ | | | | | | |
| | CNMG 120412EN-TM | | | | | 8927061＊ | | | | | |
| | CNMG 120412EN-TMQ | N | ※ | | ※ | | | | | | |
| | CNMG 120412EN-F50 | | ※ | | ※ | | ※ | | | | |
| | CNMG 120412EN-M50 | | ※ | 8927057＊ | ※ | 8927058＊ | ※ | | | | |
| | CNMG 120412EN-TMR | | | 8927064＊ | | 8927065＊ | | | | | |
| | CNMG 120412EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 120412EN-R28 | | ※ | | ※ | | ※ | | | | |
| | CNMM 120412EN-R58 | | ※ | | ※ | | ※ | | | | |
| 1.60 | CNMG 120416EN-M50 | | ※ | | ※ | | ※ | | | | |
| | CNMG 120416EN-TMR | | | | | 8927067＊ | | | | | |
| | CNMG 120416EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 120416EN-R28 | | ※ | | ※ | | ※ | | | | |
| | CNMM 120416EN-R58 | | ※ | | ※ | | ※ | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | |
| 高硬度材 | H | | | | | |




※印は取り寄せ対応となります。 Tools marked ※ are special order products.
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
TMRブレーカは無くなり次第M70ブレーカへ切り替えとなります。
TMR breaker with discontinued when it is out of stock, and replaced by M70 breaker.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
CTCP Insert

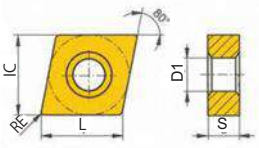
## CNMG CNMM CNMT インサート　切削条件 Cutting Conditions | P1165




（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.80 | CNMG 160608EN-M50 | N | ※ | | ※ | | ※ | 16.10 | 15.88 | 6.35 | 6.35 |
| | CNMG 160608EN-M70 | | ※ | | ※ | | ※ | | | | |
| 1.20 | CNMG 160612EN-M50 | | ※ | | ※ | | ※ | | | | |
| | CNMG 160612EN-TMR | | | 8927071* | | 8927072* | | | | | |
| | CNMG 160612EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 160612EN-R28 | | ※ | | ※ | | ※ | | | | |
| | CNMM 160612EN-R58 | | ※ | | ※ | | ※ | | | | |
| 1.60 | CNMG 160616EN-M50 | | ※ | | ※ | | ※ | | | | |
| | CNMG 160616EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 160616EN-R28 | | ※ | | ※ | | ※ | | | | |
| | CNMM 160616EN-R58 | | ※ | | ※ | | ※ | | | | |
| 2.40 | CNMG 160624EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 160624EN-R58 | | ※ | | ※ | | ※ | | | | |
| | CNMM 160624SN-R88 | | ※ | | ※ | | ※ | | | | |
| 0.80 | CNMG 190608EN-M70 | | ※ | | ※ | | ※ | 19.30 | 19.05 | 6.35 | 7.94 |
| 1.20 | CNMG 190612EN-TMR | | | 8927078* | | | | | | | |
| | CNMG 190612EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190612EN-R28 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190612EN-R58 | | ※ | | ※ | | ※ | | | | |
| 1.60 | CNMG 190616EN-TMR | | | | | 8927082* | | | | | |
| | CNMG 190616EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190616EN-R28 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190616EN-R58 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190616SN-R88 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190616SN-R80 | | | | ※ | | | | | | |
| 2.40 | CNMG 190624EN-M70 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190624EN-R28 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190624EN-R58 | | ※ | | ※ | | ※ | | | | |
| | CNMM 190624SN-R88 | | ※ | | ※ | | ※ | | | | |
| | CNMG 250924EN-M70 | | | | ※ | | | 25.80 | 25.40 | 9.52 | 9.12 |
| | CNMM 250924EN-R28 | | ※ | | ※ | | ※ | | | | |
| | CNMM 250924EN-R58 | | ※ | | ※ | | ※ | | | | |
| | CNMM 250924SN-R88 | | ※ | | ※ | | ※ | | | | |
| 3.20 | CNMT 320932SN-R88 | | ※ | | | | ※ | 32.24 | 31.75 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
TMRブレーカは無くなり次第M70ブレーカへ切り替えとなります。
TMR breaker with discontinued when it is out of stock, and replaced by M70 breaker.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
**CTCP Insert**

## DNMG インサート 切削条件 Cutting Conditions | P1165

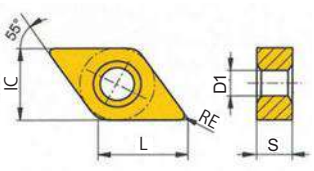


-M50

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP125-P | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|
| 0.20 | **DNMG110402EN-F50** | | ※ | ※ | ※ | 11.60 | 9.52 | 4.76 | 3.81 |
| 0.40 | **DNMG110404EN-F50** | | ※ | ※ | ※ | | | | |
| | **DNMG110404EN-M50** | N | ※ | ※ | ※ | | | | |
| 0.80 | **DNMG110408EN-F50** | | ※ | ※ | ※ | | | | |
| | **DNMG110408EN-M50** | N | ※ | ※ | ※ | | | | |
| | **DNMG110408EN-M70** | | ※ | ※ | ※ | | | | |
| 1.20 | **DNMG110412EN-F50** | | ※ | ※ | ※ | | | | |
| | **DNMG110412EN-M50** | N | ※ | ※ | ※ | | | | |
| | **DNMG110412EN-M70** | | ※ | ※ | ※ | | | | |

| | | | | |
|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | |
| 非鉄金属 | N | | | |
| 耐熱合金 | S | | | ○ |
| 高硬度材 | H | | | |




※印は取り寄せ対応となります。 Tools marked ※ are special order products.
● 第一推奨材質 Best
○ 第二推奨材質 Good
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
CTCP Insert

## DNMG DNMM インサート 切削条件 Cutting Conditions | P1165


-R28


-TFQ


-M50

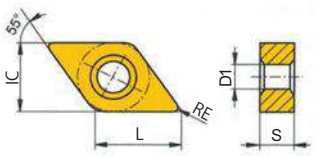

-TMQ


-R58

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.40 | DNMG150404EN-F50 | N | ※ | ※ | | ※ | 15.50 | 12.70 | 4.76 | 5.16 |
| | DNMG150404EN-M50 | | ※ | ※ | 8927182* | ※ | | | | |
| 0.80 | DNMG150408EN-F50 | | ※ | ※ | | ※ | | | | |
| | DNMG150408EN-M50 | | ※ | ※ | | ※ | | | | |
| | DNMG150408EN-M70 | | ※ | ※ | | ※ | | | | |
| 1.20 | DNMG150412EN-F50 | | ※ | ※ | | ※ | | | | |
| | DNMG150412EN-M50 | | ※ | ※ | 8927184* | ※ | | | | |
| | DNMG150412EN-M70 | | ※ | ※ | | ※ | | | | |
| 1.60 | DNMG150416EN-M50 | | ※ | ※ | | ※ | | | | |
| | DNMG150416EN-M70 | | ※ | ※ | | ※ | | | | |
| 0.40 | DNMG150604EN-TFQ | | ※ | ※ | | | | | 6.35 | |
| | DNMG150604EN-F50 | | ※ | ※ | | ※ | | | | |
| | DNMG150604EN-M50 | | ※ | ※ | | ※ | | | | |
| | DNMG150604EN-XU | | ※ | ※ | | | | | | |
| 0.80 | DNMG150608EN-TFQ | | ※ | ※ | | | | | | |
| | DNMG150608EN-TMQ | | ※ | ※ | | | | | | |
| | DNMG150608EN-F50 | | ※ | ※ | | ※ | | | | |
| | DNMG150608EN-M50 | | ※ | ※ | | ※ | | | | |
| | DNMG150608EN-M70 | | ※ | ※ | | ※ | | | | |
| | DNMG150608EN-XU | | ※ | ※ | | | | | | |
| 1.20 | DNMG150612EN-TFQ | | ※ | ※ | | | | | | |
| | DNMG150612EN-TMQ | | ※ | ※ | | | | | | |
| | DNMG150612EN-F50 | | ※ | ※ | | ※ | | | | |
| | DNMG150612EN-M50 | | ※ | ※ | | ※ | | | | |
| | DNMG150612EN-M70 | | ※ | ※ | | ※ | | | | |
| | DNMM150612EN-R28 | | ※ | ※ | | ※ | | | | |
| | DNMM150612EN-R58 | | ※ | ※ | | ※ | | | | |
| | DNMG150612EN-XU | | ※ | ※ | | | | | | |
| 1.60 | DNMG150616EN-M50 | | ※ | ※ | | ※ | | | | |
| | DNMG150616EN-M70 | | ※ | ※ | | ※ | | | | |
| | DNMM150616EN-R28 | | ※ | ※ | | ※ | | | | |
| | DNMM150616EN-R58 | | ※ | ※ | | ※ | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | |
| 非鉄金属 | N | | | | |
| 耐熱合金 | S | | | | ○ |
| 高硬度材 | H | | | | |




※印は取り寄せ対応となります。 Tools marked ※ are special order products.
＊印は在庫無くなり次第、廃番となります。 Tools marked ＊ will be discontinued when it is out of stock.
● 第一推奨材質 Best
○ 第二推奨材質 Good
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
CTCP Insert

## SNMG SNMM インサート 切削条件 Cutting Conditions | P1165


-TF


-M50


-R28


-TR


-TM


-TMR

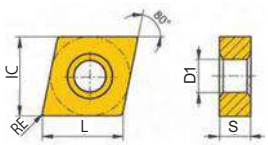

-R58


EN

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.80 | SNMG090308EN | N | | | ※ | | ※ | 9.52 | 9.52 | 3.18 | 3.81 |
| | SNMG090308EN-F50 | | ※ | | ※ | | ※ | | | | |
| 0.40 | SNMG120404EN-TF | | | | | 8927258* | | 12.70 | 12.70 | 4.76 | 5.16 |
| | SNMG120404EN-F50 | | ※ | | ※ | | ※ | | | | |
| 0.80 | SNMG120408EN-TM | | | 8927261* | | 8927262* | | | | | |
| | SNMG120408EN-M50 | | ※ | 8927259* | ※ | | ※ | | | | |
| | SNMG120408EN-F50 | | ※ | | ※ | | ※ | | | | |
| | SNMG120408EN-TMR | | | 8927264* | | 8927265* | | | | | |
| | SNMG120408EN-M70 | | ※ | | ※ | | ※ | | | | |
| | SNMM120408EN-R58 | | ※ | | ※ | | ※ | | | | |
| | SNMM120408EN-TR | | | | | | | | | | |
| 1.20 | SNMG120412EN-TM | | | | | 8927268* | | | | | |
| | SNMG120412EN-M50 | | ※ | 8927266* | ※ | 8927267* | ※ | | | | |
| | SNMG120412EN-F50 | | ※ | | ※ | | ※ | | | | |
| | SNMG120412EN-TMR | | | | | 8927269* | | | | | |
| | SNMG120412EN-M70 | | ※ | | ※ | | ※ | | | | |
| | SNMM120412EN-R58 | | ※ | | ※ | | ※ | | | | |
| 1.60 | SNMG120416EN-TM | | | | | | | | | | |
| | SNMG120416EN-M50 | | ※ | | ※ | | ※ | | | | |
| | SNMG120416EN-M70 | | ※ | | ※ | | ※ | | | | |
| 0.80 | SNMG150608EN-M50 | | ※ | | ※ | | ※ | 15.88 | 15.88 | 6.35 | 6.35 |
| 1.20 | SNMG150612EN-M50 | | ※ | | ※ | | ※ | | | | |
| | SNMG150612EN-TMR | | | | | 8927272* | | | | | |
| | SNMG150612EN-M70 | | ※ | | ※ | | ※ | | | | |
| | SNMM150612EN-R28 | | ※ | | ※ | | ※ | | | | |
| | SNMM150612EN-R58 | | ※ | | ※ | | ※ | | | | |
| 1.60 | SNMG150616EN-M50 | | ※ | | ※ | | ※ | | | | |
| | SNMG150616EN-M70 | | ※ | | ※ | | ※ | | | | |
| | SNMM150616EN-R28 | | ※ | | ※ | | ※ | | | | |
| | SNMM150616EN-R58 | | ※ | | ※ | | ※ | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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TMRブレーカは無くなり次第M70ブレーカへ切り替えとなります。
TMR breaker with discontinued when it is out of stock, and replaced by M70 breaker.
● 第一推奨材質 Best
○ 第二推奨材質 Good
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
CTCP Insert

## SNMG SNMM SNMT インサート　切削条件 Cutting Conditions | P1165


-TMR

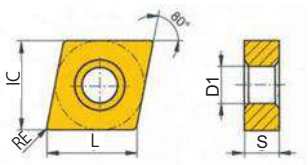

-R88


-R58

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.20 | SNMG190612EN-TMR | N | | | 8927274* | | 19.05 | 19.05 | 6.35 | 7.94 |
| | SNMG190612EN-M70 | | ※ | ※ | | ※ | | | | |
| | SNMM190612EN-R58 | | ※ | ※ | | ※ | | | | |
| 1.60 | SNMG190616EN-TMR | | | | 8927275* | | | | | |
| | SNMG190616EN-M70 | | ※ | ※ | | ※ | | | | |
| | SNMM190616EN-R28 | | ※ | ※ | | ※ | | | | |
| | SNMM190616EN-R58 | | ※ | ※ | | ※ | | | | |
| | SNMM190616SN-R88 | | ※ | ※ | | ※ | | | | |
| 2.40 | SNMG190624EN-M70 | | ※ | ※ | | ※ | | | | |
| | SNMM190624EN-R58 | | ※ | ※ | | ※ | | | | |
| | SNMM190624SN-R88 | | ※ | ※ | | ※ | | | | |
| | SNMG250924EN-M70 | | | ※ | | | 25.40 | 25.40 | 7.94 | 9.12 |
| | SNMM250724EN-R28 | | | | | ※ | | | | |
| | SNMM250724EN-R58 | | ※ | ※ | | ※ | | | | |
| | SNMM250724SN-R88 | | ※ | ※ | | ※ | | | | |
| | SNMM250924EN-R28 | | ※ | ※ | | ※ | | | 9.52 | |
| | SNMM250924EN-R58 | | ※ | ※ | | ※ | | | | |
| | SNMM250924SN-R88 | | ※ | ※ | | ※ | | | | |
| 3.20 | SNMM250732SN-R88 | | ※ | ※ | | ※ | | | 7.94 | |
| | SNMM250932SN-R88 | | ※ | ※ | | ※ | | | 9.52 | |
| | SNMM310932SN-R88 | | ※ | ※ | | | 31.75 | 31.75 | | |
| | SNMT310932SN-R88 | | ※ | ※ | | ※ | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | |
| 非鉄金属 | N | | | | |
| 耐熱合金 | S | | | | ○ |
| 高硬度材 | H | | | | |




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TMRブレーカは無くなり次第M70ブレーカへ切り替えとなります。
TMR breaker with discontinued when it is out of stock, and replaced by M70 breaker.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
CTCP Insert

## TNMG TNMM インサート 切削条件 Cutting Conditions | P1165


-TF


-M50


-TRM


-TR


EN


-TMF


-TM

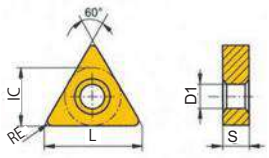

-TMR


ER-EL

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.40 | TNMG110304EN-F50 | | ※ | | ※ | | ※ | 11.00 | 6.35 | 3.18 | 2.26 |
| 0.80 | TNMG110308EN-F50 | | ※ | | ※ | | ※ | | | | |
| 0.40 | TNMG160404ER | R | | | ※ | | ※ | 16.50 | 9.52 | 4.76 | 3.81 |
| | TNMG160404EN-TF | N | | 8927334* | | 8927335* | | | | | |
| | TNMG160404EN-TMF | | | 8927336* | | 8927337* | | | | | |
| | TNMG160404EN-M50 | | ※ | | ※ | 8927333* | ※ | | | | |
| | TNMG160404EN-F50 | | ※ | | ※ | | ※ | | | | |
| 0.80 | TNMG160408EL | L | | | ※ | | | | | | |
| | TNMG160408EN-TF | N | | 8927342* | | 8927343* | | | | | |
| | TNMG160408EN-TM | | | 8927344* | | 8927345* | | | | | |
| | TNMG160408EN-M50 | | ※ | 8927340* | ※ | | ※ | | | | |
| | TNMG160408EN-F50 | | ※ | | ※ | | ※ | | | | |
| | TNMG160408EN-TMR | | | | | 8927347* | | | | | |
| | TNMG160408EN-M70 | | ※ | | ※ | | ※ | | | | |
| | TNMG160408ER | R | | | ※ | | ※ | | | | |
| 1.20 | TNMG160412EN-TM | N | | | | 8927352* | | | | | |
| | TNMG160412EN-M50 | | ※ | 8927350* | ※ | 8927351* | ※ | | | | |
| | TNMG160412EN-F50 | | ※ | | ※ | | ※ | | | | |
| | TNMG160412EN-TRM | | | | | | | | | | |
| | TNMG160412EN-TMR | | | | | 8927354* | | | | | |
| | TNMG160412EN-M70 | | ※ | | ※ | | ※ | | | | |
| | TNMM160412EN-TR | | | | | | | | | | |
| 0.40 | TNMG220404EN-M70 | | | | ※ | | | 22.00 | 12.70 | 4.76 | 5.16 |
| 0.80 | TNMG220408EN-TM | | | 8927356* | | 8927357* | | | | | |
| | TNMG220408EN-M50 | | ※ | | ※ | | ※ | | | | |
| | TNMG220408EN-TRM | | | | | | | | | | |
| | TNMG220408EN-TMR | N | | | | 8927358* | | | | | |
| | TNMG220408EN-M70 | | ※ | | ※ | | ※ | | | | |
| 1.20 | TNMG220412EN-M50 | | ※ | | ※ | | ※ | | | | |
| | TNMG220412EN-TMR | | | | | 8927361* | | | | | |
| | TNMG220412EN-M70 | | ※ | | ※ | | ※ | | | | |
| | TNMM220412EN-R58 | | ※ | | ※ | | ※ | | | | |
| 1.60 | TNMG220416EN-TMR | | | | | 8927363* | | | | | |
| | TNMG220416EN-M70 | | ※ | | ※ | | ※ | | | | |
| | TNMM220416EN-R28 | | ※ | | ※ | | ※ | | | | |
| | TNMM270616EN-R58 | | | | ※ | | | 27.50 | 15.88 | 6.35 | 6.35 |
| 2.40 | TNMG330924EN | N | | | ※ | | | 33.00 | 19.05 | 9.52 | 7.94 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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TMRブレーカは無くなり次第M70ブレーカへ切り替えとなります。
TMR breaker with discontinued when it is out of stock, and replaced by M70 breaker.
● 第一推奨材質 Best
○ 第二推奨材質 Good
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## CTCPインサート
CTCP Insert

# VNMG インサート 切削条件 Cutting Conditions | P1165


-F40

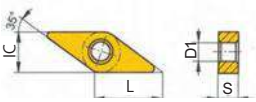

-M40


-M50

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.40 | VNMG160404EN-F40 | N | | | ※ | 8927394* | | 16.60 | 9.52 | 4.76 | 3.81 |
| | VNMG160404EN-F50 | | ※ | | ※ | | ※ | | | | |
| | VNMG160404EN-M40 | | | | ※ | | | | | | |
| | VNMG160404EN-M50 | | ※ | 8927396* | ※ | 8927397* | | | | | |
| | VNMG160404EN-XU | | ※ | | ※ | | | | | | |
| 0.80 | VNMG160408EN-F40 | | | | ※ | 8927398* | | | | | |
| | VNMG160408EN-F50 | | ※ | | ※ | | ※ | | | | |
| | VNMG160408EN-M40 | | | | ※ | | | | | | |
| | VNMG160408EN-M50 | | ※ | 8927400* | ※ | 8927401* | | | | | |
| | VNMG160408EN-XU | | ※ | | ※ | | | | | | |
| 1.20 | VNMG160412EN-M50 | | ※ | | ※ | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
● 第一推奨材質 Best
○ 第二推奨材質 Good
在庫区分は全てC(標準在庫品)となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
CTCP Insert

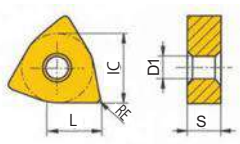
## WNMG インサート　切削条件 Cutting Conditions | P1165




（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.40 | WNMG 060404EN-F50 | | ※ | | ※ | | ※ | 6.50 | 9.52 | 4.76 | 3.81 |
| | WNMG 060404EN-TFQ | N | ※ | | ※ | | | | | | |
| | WNMG 060404EN-TMF | | | | | | | | | | |
| | WNMG 060404EN-M50 | | ※ | | ※ | | ※ | | | | |
| 0.80 | WNMG 060408EN-TFQ | | ※ | | ※ | | | | | | |
| | WNMG 060408EN-M50 | | ※ | | ※ | | ※ | | | | |
| | WNMG 060408EN-F50 | | ※ | | ※ | | ※ | | | | |
| | WNMG 060408EN-TRM | N | | | | | | | | | |
| | WNMG 060408EN-M70 | | ※ | | ※ | | ※ | | | | |
| 1.20 | WNMG 060412EN-M50 | | ※ | | ※ | | ※ | | | | |
| | WNMG 060412EN-M70 | | ※ | | ※ | | ※ | | | | |
| 0.40 | WNMG 080404EN-TF | | | 8927417* | | | | 8.69 | 12.70 | 4.76 | 5.16 |
| | WNMG 080404EN-M50 | | ※ | | ※ | | ※ | | | | |
| | WNMG 080404EN-XU | | ※ | | ※ | | | | | | |
| | WNMG 080404EN-F50 | N | ※ | | ※ | | ※ | | | | |
| 0.80 | WNMG 080408EN-TF | | | | | 8927421* | | | | | |
| | WNMG 080408EN-TFQ | | ※ | | ※ | | | | | | |
| | WNMG 080408EN-TMF | | | 8927426* | | 8927427* | | | | | |
| | WNMG 080408EN-TM | | | 8927424* | | 8927425* | | | | | |
| | WNMG 080408EN-TMQ | | ※ | | ※ | | | | | | |
| | WNMG 080408EN-M50 | | ※ | 8927419* | ※ | 8927420* | ※ | | | | |
| | WNMG 080408EN-XU | | ※ | | ※ | | | | | | |
| | WNMG 080408EN-F50 | | ※ | | ※ | | ※ | | | | |
| | WNMG 080408EN-TMR | | | | | 8927429* | | | | | |
| | WNMG 080408EN-M70 | | ※ | | ※ | | ※ | | | | |
| 1.20 | WNMG 080412EN-TFQ | | ※ | | ※ | | | | | | |
| | WNMG 080412EN-TM | | | | | 8927434* | | | | | |
| | WNMG 080412EN-TMQ | | ※ | | ※ | | | | | | |
| | WNMG 080412EN-M50 | N | ※ | 8927431* | ※ | 8927432* | ※ | | | | |
| | WNMG 080412EN-XU | | ※ | | ※ | | | | | | |
| | WNMG 080412EN-F50 | | ※ | | ※ | | ※ | | | | |
| | WNMG 080412EN-TMR | | | | | 8927437* | | | | | |
| | WNMG 080412EN-M70 | | ※ | | ※ | | ※ | | | | |
| 1.60 | WNMG 080416EN-M50 | | ※ | | ※ | | ※ | | | | |
| | WNMG 080416EN-M70 | | ※ | | ※ | | ※ | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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*印は在庫無くなり次第、廃番となります。 Tools marked * will be discontinued when it is out of stock.
TMRブレーカは無くなり次第M70ブレーカへ切り替えとなります。
TMR breaker with discontinued when it is out of stock, and replaced by M70 breaker.
● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
CTCP Insert

## CCGT CCMT インサート　切削条件 Cutting Conditions | P1165


-SF


-SM

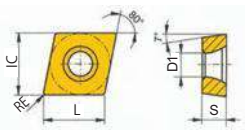

-SMF


-SMQ

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.20 | CCGT 060202EN-SF | N | | | ※ | | ※ | 6.40 | 6.35 | 2.38 | 2.80 |
| | CCGT 060202EN-SM | | | | ※ | | ※ | | | | |
| 0.40 | CCMT 060204EN-SF | | ※ | | ※ | | ※ | | | | |
| | CCMT 060204EN-SMF | | | | ※ | | ※ | | | | |
| | CCMT 060204EN-SM | | ※ | | ※ | | ※ | | | | |
| 0.80 | CCMT 060208EN-SMF | | | | ※ | | | | | | |
| | CCMT 060208EN-SM | | ※ | | | | ※ | | | | |
| 0.40 | CCMT 09T304EN-SF | | ※ | 8927009* | ※ | 8927010* | ※ | 9.70 | 9.52 | 3.97 | 4.40 |
| | CCMT 09T304EN-SMF | | ※ | | ※ | | ※ | | | | |
| | CCMT 09T304EN-SM | | ※ | 8927011* | ※ | 8927012* | ※ | | | | |
| | CCMT 09T304EN-SMQ | | ※ | | ※ | | | | | | |
| 0.80 | CCMT 09T308EN-SF | | ※ | 8927016* | ※ | 8927017* | | | | | |
| | CCMT 09T308EN-SMF | | ※ | | ※ | | | | | | |
| | CCMT 09T308EN-SM | | ※ | 8927018* | ※ | 8927019* | ※ | | | | |
| | CCMT 09T308EN-SMQ | | ※ | | ※ | | | | | | |
| 0.40 | CCMT 120404EN-SF | | | | ※ | | | 12.90 | 12.70 | 4.76 | 5.50 |
| | CCMT 120404EN-SMF | | | | ※ | | | | | | |
| | CCMT 120404EN-SM | | ※ | | ※ | | ※ | | | | |
| | CCMT 120404EN-SMQ | | ※ | | ※ | | | | | | |
| 0.80 | CCMT 120408EN-SF | | | | ※ | | | | | | |
| | CCMT 120408EN-SMF | | ※ | | | | ※ | | | | |
| | CCMT 120408EN-SM | | ※ | | ※ | | ※ | | | | |
| | CCMT 120408EN-SMQ | | ※ | | ※ | | | | | | |
| 1.20 | CCMT 120412EN-SM | | | | ※ | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | |
| 高硬度材 | H | | | | | |




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● 第一推奨材質　Best
○ 第二推奨材質　Good
在庫区分は全てC（標準在庫品）となります。 Stock are categorized as C(Standard stock item).

# CTCPインサート
CTCP Insert

## DCGT DCMT インサート　切削条件 Cutting Conditions | P1165



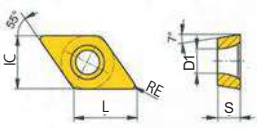




（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.20 | DCGT 070202EN-SF | N | | | ※ | | | 7.75 | 6.35 | 2.38 | 2.80 |
| | DCGT 070202EN-SM | | | | ※ | | ※ | | | | |
| 0.40 | DCMT 070204EN-SF | | ※ | 8927141* | ※ | 8927142* | ※ | | | | |
| | DCMT 070204EN-SMF | | | | ※ | | ※ | | | | |
| | DCMT 070204EN-SM | | ※ | 8927143* | ※ | 8927144* | ※ | | | | |
| | DCMT 070204EN-SMQ | | ※ | | ※ | | | | | | |
| 0.80 | DCMT 070208EN-SMF | | | | | | ※ | | | | |
| | DCMT 070208EN-SM | | ※ | | ※ | | ※ | | | | |
| 0.40 | DCMT 11T304EN-SF | | ※ | 8927151* | ※ | 8927152* | ※ | 11.60 | 9.52 | 3.97 | 4.40 |
| | DCMT 11T304EN-SMF | | ※ | | ※ | | ※ | | | | |
| | DCMT 11T304EN-SM | | ※ | 8927153* | ※ | 8927154* | ※ | | | | |
| | DCMT 11T304EN-SMQ | | ※ | | ※ | | | | | | |
| | DCMT 11T304EL-SMQ | L | ※ | | ※ | | | | | | |
| | DCMT 11T304ER-SMQ | R | ※ | | ※ | | | | | | |
| 0.80 | DCMT 11T308EN-SF | N | ※ | 8927159* | ※ | | ※ | | | | |
| | DCMT 11T308EN-SMF | | ※ | | ※ | | ※ | | | | |
| | DCMT 11T308EN-SM | | ※ | 8927161* | ※ | 8927162* | ※ | | | | |
| | DCMT 11T308EN-SMQ | | ※ | | ※ | | | | | | |
| 1.20 | DCMT 11T312EN-SM | | ※ | | ※ | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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○ 第二推奨材質　Good
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# CTCPインサート
CTCP Insert

## RCGT RCMT RCMX インサート 切削条件 Cutting Conditions | P1165

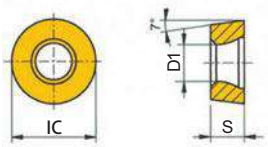

-SM


-R83

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP125-P | CTCP135-P | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|
| 3.00 | RCGT 0602MOEN-SM | N | | ※ | ※ | 6.00 | 2.38 | 2.80 |
| 4.00 | RCGT 0803MOEN-SM | | ※ | ※ | ※ | 8.00 | 3.18 | 3.40 |
| | RCMT0803MOSN-M23 | | ※ | | | | | |
| 5.00 | RCMT10T3MOSN-M23 | | ※ | | | | | |
| | RCMT 1003MOSN-SM | | | ※ | ※ | 10.00 | 3.18 | 4.00 |
| 6.00 | RCMT 1204MOSN-SM | | ※ | ※ | ※ | 12.00 | 4.76 | 4.90 |
| | RCMT1204MOSN-M23 | | ※ | ※ | | | | |
| 8.00 | RCMT 1606MOSN-SM | | ※ | ※ | ※ | 16.00 | 6.35 | 5.30 |
| | RCMT 1606MOSN-M23 | | ※ | ※ | | | | |
| 10.00 | RCMT 2006MOSN-SM | | ※ | ※ | ※ | 20.00 | 6.35 | 6.50 |
| | RCMT 2006MOSN-M23 | | ※ | ※ | | | | |
| 12.50 | RCMT 2507MOSN-SM | | ※ | ※ | ※ | 25.00 | 7.94 | 7.20 |
| | RCMX2507MOSN-M23 | | ※ | | | | | |
| | RCMX2507MOSN-R33 | | ※ | | | | | |
| | RCMX2507MOSN-R63 | | ※ | | | | | |
| 16.00 | RCMX3209MOSN-R33 | | ※ | | | 32.00 | 9.52 | 9.50 |

| | | | | |
|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | |
| 非鉄金属 | N | | | |
| 耐熱合金 | S | | | ○ |
| 高硬度材 | H | | | |




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○ 第二推奨材質 Good
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# CTCPインサート
CTCP Insert

## SCMT インサート　切削条件 Cutting Conditions | P1165


-SF

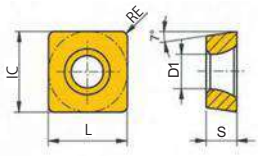

-SM


-SMF

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP-135P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.40 | SCMT 09T304EN-SF | N | | | ※ | 8927242* | | 9.52 | 9.52 | 3.97 | 4.40 |
| | SCMT 09T304EN-SMF | | ※ | | | | | | | | |
| | SCMT 09T304EN-SM | | ※ | 8927243* | ※ | 8927244* | ※ | | | | |
| 0.80 | SCMT 09T308EN-SF | | ※ | | ※ | 8927246* | | | | | |
| | SCMT 09T308EN-SMF | | ※ | | | | | | | | |
| | SCMT 09T308EN-SM | | ※ | 8927247* | ※ | | ※ | | | | |
| | SCMT 120408EN-SF | | | | ※ | | | 12.70 | 12.70 | 4.76 | 5.30 |
| | SCMT 120408EN-SMF | | | | | | ※ | | | | |
| | SCMT 120408EN-SM | | ※ | | ※ | | ※ | | | | |
| 1.20 | SCMT 120412EN-SM | | | | ※ | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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○ 第二推奨材質　Good
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# CTCPインサート
**CTCP Insert**

## TCGT TCMT インサート　切削条件 Cutting Conditions | P1165


-SF

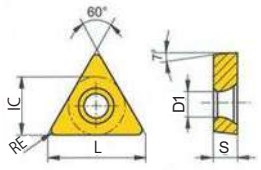

-SM


-SMF

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.40 | **TCMT 090204EN-SM** | N | | | ※ | | ※ | 9.60 | 5.56 | 2.38 | 2.50 |
| 0.20 | **TCGT 110202EN-SM** | | | | | | ※ | 11.00 | 6.35 | | 2.80 |
| 0.40 | **TCMT 110204EN-SF** | | | | ※ | 8927318* | | | | | |
| | **TCMT 110204EN-SM** | | ※ | 8927319* | ※ | 8927320* | ※ | | | | |
| 0.80 | **TCMT 110208EN-SF** | | | | ※ | 8927321* | | | | | |
| | **TCMT 110208EN-SMF** | | ※ | | | | ※ | | | | |
| | **TCMT 110208EN-SM** | | ※ | 8927322* | | | ※ | | | | |
| 0.40 | **TCMT 16T304EN-SF** | | | | ※ | 8927324* | | 16.50 | 9.52 | 3.97 | 4.40 |
| | **TCMT 16T304EN-SMF** | | ※ | | | | | | | | |
| | **TCMT 16T304EN-SM** | | ※ | 8927325* | ※ | 8927326* | ※ | | | | |
| 0.80 | **TCMT 16T308EN-SF** | | | | ※ | 8927327* | | | | | |
| | **TCMT 16T308EN-SMF** | | ※ | | | | | | | | |
| | **TCMT 16T308EN-SM** | | ※ | 8927328* | ※ | 8927329* | ※ | | | | |
| | **TCMT 220408EN-SM** | | ※ | | ※ | | ※ | 22.00 | 12.70 | 4.76 | 5.30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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● 第一推奨材質　Best
○ 第二推奨材質　Good
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# CTCPインサート
CTCP Insert

## VCGT VCMT インサート 切削条件 Cutting Conditions | P1165


-SF

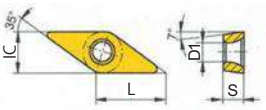

-SM


-SMF

（単位：mm）(Unit：mm)

| RE | 型番 Designation | 勝手 HAND | CTCP115-P | CTCP115 | CTCP125-P | CTCP125 | CTCP135-P | L | IC | S | D1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.20 | VCGT 110302EN-SF | N | ※ | | ※ | | ※ | 11.10 | 6.35 | 3.18 | 2.80 |
| | VCGT 110302EN-SMF | | | | | | ※ | | | | |
| 0.40 | VCGT 110304EN-SF | | ※ | | ※ | | ※ | | | | 2.90 |
| | VCMT 110304EN-SMF | | ※ | | ※ | | ※ | | | | |
| 0.80 | VCGT 110308EN-SF | | ※ | | ※ | | ※ | | | | |
| 0.40 | VCMT 160404EN-SF | | ※ | 8927381* | ※ | 8927382* | ※ | 16.60 | 9.52 | 4.76 | 4.40 |
| | VCMT 160404EN-SMF | | ※ | | ※ | | ※ | | | | |
| | VCMT 160404EN-SM | | ※ | 8927383* | ※ | 8927384* | ※ | | | | |
| 0.60 | VCMT 160406EN-SM | | ※ | | | | | | | | |
| 0.80 | VCMT 160408EN-SF | | ※ | 8927388* | ※ | 8927389* | | | | | |
| | VCMT 160408EN-SM | | ※ | 8927390* | ※ | 8927391* | ※ | | | | |
| | VCMT 160408EN-SMF | | ※ | | ※ | | ※ | | | | |
| 1.20 | VCMT 160412EN-SM | | ※ | | ※ | | ※ | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 炭素鋼 | P | ● | ● | ● | ● | ● |
| ステンレス鋼 | M | ○ | ○ | ○ | ○ | ○ |
| 鋳鉄 | K | ● | ● | ● | ● | |
| 非鉄金属 | N | | | | | |
| 耐熱合金 | S | | | | | ○ |
| 高硬度材 | H | | | | | |




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○ 第二推奨材質 Good
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CUTTING CONDITIONS FOR EcoCut Classic

# エコカットクラシック切削条件基準表

## ■ECC 1.5D・2.25D

| | 被削材 Work Material | ドリル加工（旋削加工）切削速度 Vc (m/min) Cutting Speed | ドリル加工 送り量 f (mm/rev) Feed Rate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | φ 8 | φ 10 | φ 12 | φ 14 | φ 16 | φ 18 | φ 20 | φ 25 | φ 32 |
| P | 軟鋼、低炭素鋼 (SS400、S10C) Mild Steel, Low Carbon Steel | 160 (100~200) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |
| | 炭素鋼、合金鋼 (S50C、SCM440) Carbon Steel, Alloy Steel | 160 (100~200) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |
| | ダイス鋼 (SKD11、SKD61) Die Steel | 120 (80~180) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |
| M | ステンレス鋼 (SUS304、SUS420) Stainless Steel | 120 (80~180) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |
| K | 鋳鉄 (FC250) Cast Iron | 160 (100~200) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |
| | ダクタイル鋳鉄 (FCD400) Ductile Cast Iron | 160 (100~200) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |
| N | アルミニウム合金 Aluminum Alloy | 200 (100~300) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |
| S | 耐熱合金 (Inconel 718) Heat Resistant Alloy | 30 (20~60) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |
| | チタン合金 (Ti-6Al-4V) Titanium Alloy | 50 (30~70) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) | 0.12 (0.08~0.15) |

## ■ECC 3.0D

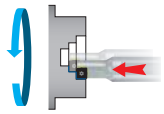
| | 被削材 Work Material | ドリル加工（旋削加工）切削速度 Vc (m/min) Cutting Speed | ドリル加工 送り量 f (mm/rev) Feed Rate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | φ 8 | φ 10 | φ 12 | φ 14 | φ 16 | φ 18 | φ 20 | φ 25 | φ 32 |
| P | 軟鋼、低炭素鋼 (SS400、S10C) Mild Steel, Low Carbon Steel | 160 (100~200) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |
| | 炭素鋼、合金鋼 (S50C、SCM440) Carbon Steel, Alloy Steel | 160 (100~200) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |
| | ダイス鋼 (SKD11、SKD61) Die Steel | 120 (80~180) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |
| M | ステンレス鋼 (SUS304、SUS420) Stainless Steel | 120 (80~180) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |
| K | 鋳鉄 (FC250) Cast Iron | 160 (100~200) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |
| | ダクタイル鋳鉄 (FCD400) Ductile Cast Iron | 160 (100~200) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |
| N | アルミニウム合金 Aluminum Alloy | 200 (100~300) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |
| S | 耐熱合金 (Inconel 718) Heat Resistant Alloy | 30 (20~60) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |
| | チタン合金 (Ti-6Al-4V) Titanium Alloy | 50 (30~70) | 0.02 (0.01~0.03) | 0.03 (0.02~0.04) | 0.04 (0.02~0.05) | 0.05 (0.03~0.06) | 0.06 (0.04~0.08) | 0.06 (0.04~0.08) | 0.07 (0.04~0.1) | 0.08 (0.05~0.1) | 0.1 (0.06~0.12) |

形状寸法表 SPECIFICATION CHARTS
ECC ▶ P1143

# エコカットクラシック切削条件基準表 CUTTING CONDITIONS FOR EcoCut Classic

施削時の切削条件はP.1438をご参照下さい。 Cutting speed for turning : Please refer to P.1438.

## 内径／外径旋削の切込み/送り条件
## Cutting Conditions of Internal / External Turning



### 1.5D

| 型番 | 切込み深さ ap (mm) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 |
| | 送り量 f (mm/rev) | | | | | | | | | | | |
| ECC 08... | 0.06～0.12 | 0.06～0.12 | 0.04～0.1 | 0.02～0.08 | - | - | - | - | - | - | - | - |
| ECC 10... | 0.07～0.15 | 0.07～0.15 | 0.05～0.13 | 0.04～0.11 | 0.02～0.09 | - | - | - | - | - | - | - |
| ECC 12... | 0.08～0.16 | 0.08～0.16 | 0.08～0.16 | 0.06～0.14 | 0.04～0.12 | 0.02～0.1 | - | - | - | - | - | - |
| ECC 14... | 0.09～0.18 | 0.09～0.18 | 0.09～0.18 | 0.09～0.18 | 0.07～0.16 | 0.05～0.14 | 0.02～0.11 | - | - | - | - | - |
| ECC 16... | 0.1 ～0.2 | 0.1 ～0.2 | 0.1 ～0.2 | 0.1 ～0.2 | 0.08～0.18 | 0.06～0.16 | 0.04～0.14 | 0.02～0.12 | - | - | - | - |
| ECC 18... | 0.11～0.22 | 0.11～0.22 | 0.11～0.22 | 0.11～0.22 | 0.11～0.22 | 0.09～0.2 | 0.07～0.18 | 0.05～0.16 | 0.03～0.13 | - | - | - |
| ECC 20... | 0.12～0.24 | 0.12～0.24 | 0.12～0.24 | 0.12～0.24 | 0.12～0.24 | 0.11～0.23 | 0.09～0.21 | 0.07～0.19 | 0.05～0.17 | 0.03～0.15 | - | - |
| ECC 25... | 0.13～0.26 | 0.13～0.26 | 0.13～0.26 | 0.13～0.26 | 0.13～0.26 | 0.13～0.26 | 0.13～0.26 | 0.11～0.24 | 0.09～0.22 | 0.07～0.2 | 0.03～0.16 | - |
| ECC 32... | 0.15～0.3 | 0.15～0.3 | 0.15～0.3 | 0.15～0.3 | 0.15～0.3 | 0.14～0.3 | 0.15～0.3 | 0.15～0.3 | 0.13～0.28 | 0.11～0.26 | 0.07～0.22 | 0.03～0.18 |

・M50Q 及び 27Q を使用する場合は、送り量を 50%～ 75%程度下げて下さい。
Feed f may be increased by 50 - 75% when using M50Q and 27Q.

### 2.25D

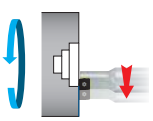
| 型番 | 切込み深さ ap (mm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 2.5 | 3 | 3.5 | 4 | 4.5 | 5 | 5.5 | 6 | 7 |
| | 送り量 f (mm/rev) | | | | | | | | | | |
| ECC 08... | 0.06～0.12 | 0.04～0.1 | 0.02～0.08 | - | - | - | - | - | - | - | - |
| ECC 10... | 0.07～0.15 | 0.05～0.13 | 0.03～0.11 | 0.02～0.09 | - | - | - | - | - | - | - |
| ECC 12... | 0.08～0.16 | 0.08～0.16 | 0.06～0.14 | 0.04～0.12 | 0.02～0.1 | - | - | - | - | - | - |
| ECC 14... | 0.09～0.18 | 0.09～0.18 | 0.07～0.16 | 0.05～0.14 | 0.04～0.13 | 0.02～0.11 | - | - | - | - | - |
| ECC 16... | 0.1 ～0.2 | 0.1 ～0.2 | 0.09～0.19 | 0.07～0.17 | 0.05～0.15 | 0.03～0.13 | - | - | - | - | - |
| ECC 18... | 0.11～0.22 | 0.11～0.22 | 0.11～0.22 | 0.09～0.2 | 0.07～0.18 | 0.05～0.16 | 0.03～0.14 | - | - | - | - |
| ECC 20... | 0.12～0.24 | 0.12～0.24 | 0.12～0.24 | 0.12～0.24 | 0.1 ～0.22 | 0.08～0.2 | 0.06～0.18 | 0.04～0.16 | - | - | - |
| ECC 25... | 0.13～0.26 | 0.13～0.26 | 0.13～0.26 | 0.13～0.26 | 0.13～0.26 | 0.12～0.25 | 0.1 ～0.23 | 0.08～0.21 | 0.06～0.19 | 0.04～0.17 | - |
| ECC 32... | 0.15～0.3 | 0.15～0.3 | 0.15～0.3 | 0.15～0.3 | 0.15～0.3 | 0.15～0.3 | 0.14～0.29 | 0.12～0.27 | 0.1 ～0.25 | 0.08～0.23 | 0.05～0.2 |

・M50Q 及び 27Q を使用する場合は、送り量を 50%～ 75%程度下げて下さい。
Feed f may be increased by 50 - 75% when using M50Q and 27Q.

### 3D

| 型番 | 切込み深さ ap (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 2.5 | 3 | 3.5 | 4 | 5 | 6 | 7 |
| | 送り量 f (mm/rev) | | | | | | | | |
| ECC 08... | 0.05～0.1 | 0.02～0.06 | - | - | - | - | - | - | - |
| ECC 10... | 0.06～0.11 | 0.03～0.07 | - | - | - | - | - | - | - |
| ECC 12... | 0.06～0.12 | 0.04～0.1 | 0.02～0.08 | - | - | - | - | - | - |
| ECC 14... | 0.07～0.13 | 0.05～0.11 | 0.02～0.09 | - | - | - | - | - | - |
| ECC 16... | 0.07～0.15 | 0.06～0.14 | 0.04～0.12 | 0.02～0.09 | - | - | - | - | - |
| ECC 18... | 0.08～0.16 | 0.08～0.16 | 0.06～0.14 | 0.04～0.12 | - | - | - | - | - |
| ECC 20... | 0.09～0.18 | 0.09～0.18 | 0.09～0.18 | 0.07～0.16 | 0.05～0.14 | 0.03～0.12 | - | - | - |
| ECC 25... | 0.1 ～0.19 | 0.1 ～0.19 | 0.1 ～0.19 | 0.08～0.17 | 0.06～0.15 | 0.03～0.13 | - | - | - |
| ECC 32... | 0.11～0.22 | 0.11～0.22 | 0.11～0.22 | 0.11～0.22 | 0.09～0.2 | 0.07～0.18 | 0.03～0.14 | - | - |

## 端面旋削の切込み/送り条件
## Cutting Conditions of Face Turning



| 型番 | 1.5D | | 2.25D | | 3D | |
|---|---|---|---|---|---|---|
| | ap (mm) | f (mm/rev) | ap (mm) | f (mm/rev) | ap (mm) | f (mm/rev) |
| ECC 08... | 2 | 0.05～0.1 | 1.9 | 0.04～0.09 | 1.1 | 0.04～0.07 |
| ECC 10... | 2.5 | 0.06～0.12 | 2.2 | 0.05～0.1 | 1.2 | 0.04～0.09 |
| ECC 12... | 3 | 0.07～0.14 | 2.6 | 0.06～0.12 | 1.4 | 0.05～0.11 |
| ECC 14... | 3.5 | 0.08～0.16 | 3 | 0.07～0.14 | 1.6 | 0.06～0.12 |
| ECC 16... | 4 | 0.09～0.18 | 3.4 | 0.08～0.16 | 1.9 | 0.06～0.13 |
| ECC 18... | 4.5 | 0.1 ～0.2 | 3.8 | 0.09～0.18 | 2 | 0.07～0.14 |
| ECC 20... | 5 | 0.11～0.22 | 4.2 | 0.1 ～0.2 | 2.2 | 0.08～0.15 |
| ECC 25... | 6 | 0.12～0.24 | 5 | 0.11～0.22 | 2.6 | 0.09～0.18 |
| ECC 32... | 8 | 0.13～0.27 | 6 | 0.12～0.25 | 3 | 0.1 ～0.2 |

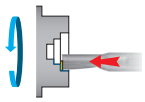
# CUTTING CONDITIONS FOR EcoCut Mini エコカットミニ切削条件基準表

## ■ECM

| | 被削材 Work Material | ドリル加工（旋削加工）切削速度 Vc (m/min) Cutting Speed | ドリル加工 送り量 f (mm/rev) Feed Rate | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | EcoCut Mini 2.25D | | | | | | | EcoCut Mini 4.0D | | | | | | |
| | | | φ2 | φ2.5 | φ3 | φ3.5 | φ4, 5, 6 | φ7 | φ8 | φ2 | φ2.5 | φ3 | φ3.5 | φ4, 5, 6 | φ7 | φ8 |
| P | 軟鋼、低炭素鋼 (SS400、S10C) Mild Steel, Low Carbon Steel | 80 (40~120) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |
| P | 炭素鋼、合金鋼 (S50C、SCM440) Carbon Steel, Alloy Steel | 80 (40~120) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |
| P | ダイス鋼 (SKD11、SKD61) Die Steel | 60 (30~100) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |
| M | ステンレス鋼 (SUS304、SUS420) Stainless Steel | 60 (30~100) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |
| K | 鋳鉄 (FC250) Cast Iron | 80 (40~120) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |
| K | ダクタイル鋳鉄 (FCD400) Ductile Cast Iron | 80 (40~120) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |
| N | アルミニウム合金 Aluminum Alloy | 120 (80~200) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |
| S | 耐熱合金 (Inconel 718) Heat Resistant Alloy | 20 (10~30) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |
| S | チタン合金 (Ti-6Al-4V) Titanium Alloy | 40 (30~50) | 0.005 (0.003~0.007) | 0.0075 (0.003~0.01) | 0.01 (0.003~0.012) | 0.012 (0.003~0.015) | 0.02 (0.005~0.03) | 0.025 (0.005~0.035) | 0.03 (0.005~0.04) | 0.004 (0.003~0.005) | 0.0045 (0.003~0.005) | 0.008 (0.003~0.01) | 0.008 (0.003~0.01) | 0.015 (0.005~0.02) | 0.02 (0.005~0.025) | 0.025 (0.005~0.03) |

旋削時の切削速度は上記表をご参照下さい。Please see the above cutting speed for turning.

## 内径／外径旋削の切込み/送り条件 Cutting Conditions of Internal / External Turning



### 2.25D

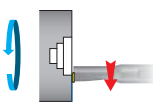
| 型番 | 切込み深さ ap (mm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.25 | 0.5 | 0.75 | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 |
| | 送り量 f (mm/rev) | | | | | | | | | |
| ECM 02... | 0.02 ~ 0.07 | 0.02 ~ 0.07 | - | - | - | - | - | - | - | - |
| ECM 02.5... | 0.02 ~ 0.07 | 0.02 ~ 0.07 | 0.02 ~ 0.05 | - | - | - | - | - | - | - |
| ECM 03... | 0.02 ~ 0.07 | 0.02 ~ 0.07 | 0.02 ~ 0.05 | 0.02 ~ 0.05 | - | - | - | - | - | - |
| ECM 03.5... | 0.02 ~ 0.07 | 0.02 ~ 0.07 | 0.02 ~ 0.05 | 0.02 ~ 0.05 | 0.02 ~ 0.05 | - | - | - | - | - |
| ECM 04... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.07 | 0.01 ~ 0.05 | - | - | - | - |
| ECM 05... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.08 | 0.02 ~ 0.06 | 0.01 ~ 0.04 | - | - | - |
| ECM 06... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.08 | 0.02 ~ 0.06 | 0.01 ~ 0.04 | - | - |
| ECM 07... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.08 | 0.02 ~ 0.06 | 0.01 ~ 0.04 | - |
| ECM 08... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.08 | 0.02 ~ 0.06 | 0.01 ~ 0.04 |

### 4D

| 型番 | 切込み深さ ap (mm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.25 | 0.5 | 0.75 | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 |
| | 送り量 f (mm/rev) | | | | | | | | | |
| ECM 02... | 0.02 ~ 0.05 | 0.01 ~ 0.05 | - | - | - | - | - | - | - | - |
| ECM 02.5... | 0.02 ~ 0.05 | 0.01 ~ 0.05 | - | - | - | - | - | - | - | - |
| ECM 03... | 0.02 ~ 0.05 | 0.02 ~ 0.05 | 0.01 ~ 0.05 | - | - | - | - | - | - | - |
| ECM 03.5... | 0.02 ~ 0.05 | 0.02 ~ 0.05 | 0.02 ~ 0.05 | 0.01 ~ 0.05 | - | - | - | - | - | - |
| ECM 04... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.08 | 0.01 ~ 0.05 | - | - | - | - | - |
| ECM 05... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.085 | 0.02 ~ 0.06 | 0.01 ~ 0.04 | - | - | - | - |
| ECM 06... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.085 | 0.02 ~ 0.06 | 0.01 ~ 0.04 | - | - | - | - |
| ECM 07... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.03 ~ 0.08 | 0.02 ~ 0.06 | 0.01 ~ 0.04 | - | - | - |
| ECM 08... | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.1 | 0.04 ~ 0.095 | 0.03 ~ 0.8 | 0.02 ~ 0.06 | 0.01 ~ 0.04 | - | - |

## 端面旋削の切込み/送り条件 Cutting Conditions of Face Turning

| 型番 | 2.25D | | 4D | |
|---|---|---|---|---|
| | ap (mm) | f (mm/rev) | ap (mm) | f (mm/rev) |
| ECM 02... | 0.3 | 0.01~0.05 | 0.3 | 0.01~0.03 |
| ECM 02.5... | 0.3 | 0.01~0.05 | 0.3 | 0.01~0.03 |
| ECM 03... | 0.5 | 0.01~0.06 | 0.5 | 0.01~0.04 |
| ECM 03.5... | 0.5 | 0.01~0.06 | 0.5 | 0.01~0.04 |
| ECM 04... | 0.7 | 0.03~0.07 | 0.7 | 0.02~0.05 |
| ECM 05... | 0.7 | 0.03~0.07 | 0.7 | 0.02~0.05 |
| ECM 06... | 0.7 | 0.03~0.07 | 0.7 | 0.02~0.05 |
| ECM 07... | 1 | 0.04~0.08 | 1 | 0.03~0.06 |
| ECM 08... | 1 | 0.04~0.08 | 1 | 0.03~0.06 |



形状寸法表 SPECIFICATION CHARTS
CTCP ▶ P1147

# インデキサブルツール切削条件基準表 CUTTING CONDITIONS FOR INDEXABLE TYPE TOOLS

## CTCP115/CTCP125-P/CTCP125/CTCP135

| 被削材 Work Material | | 熱処理 / 合金 Type of Treatment Alloy | | VDI 3323 | 硬度 HB Hardness | CTCP115 | CTCP125-P CTCP125 | CTCP135 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Vc (m/min) | Vc (m/min) | Vc (m/min) |
| P | 炭素鋼 Carbon Steel | 焼きなまし Annealed | ≤ 0.15% C | 1 | 125 | 250-500 | 190-290 | 160-210 |
| | | 焼きなまし Annealed | 0.15%-0.45%C | 2 | 150-250 | 220-400 | 170-240 | 150-170 |
| | | 焼き戻し Tempered | ≥ 0.45% C | 3 | 300 | 180-300 | 130-200 | 110-130 |
| | 低炭素鋼 Low Carbon Steel | 焼きなまし Annealed | | 6 | 180 | 250-400 | 170-250 | 150-170 |
| | | 焼き戻し Tempered | | 7/8 | 250-300 | 200-320 | 100-190 | 80-130 |
| | | 焼き戻し Tempered | | 9 | 350 | 150-280 | 80-170 | 60-110 |
| | 高合金鋼 High Alloy Steel | 焼きなまし Annealed | | 10 | 200 | 180-320 | 130-210 | 100-180 |
| | | 焼き戻し Tempered | | 11 | 350 | 120-280 | 80-160 | 40-80 |
| | ステンレス鋼 Stainless Steel | 焼きなまし Annealed | フェライト / マルテンサイト Ferritic/Martensitic | 12 | 200 | 200-320 | 130-220 | 120-160 |
| | | 焼き戻し Tempered | マルテンサイト Martensitic | 13 | 325 | 150-280 | 110-190 | 90-140 |
| | | 熱処理 Heat-Treated | フェライト / マルテンサイト Ferritic/Martensitic | 13 | 200 | 220-300 | 140-210 | 120-180 |
| M | ステンレス鋼 Stainless Steel | 焼き入れ Quenched | マルテンサイト Martensitic | 14 | 180 | - | 100-210 | 90-170 |
| | | 焼き入れ Quenched | 二相 Duplex | 14 | 230-260 | - | - | 70-130 |
| | | 硬化処理 Hardened | マルテンサイト / オーステナイト Martensitic/Austenitic | 14 | 330 | - | 70-100 | 40-60 |
| K | ネズミ鋳鉄 Grey Cast Iron | | パーライト / 第二鉄 Pearlitic/Ferritic | 15 | 180 | 140-370 | 130-210 | - |
| | | | パーライト / マルテンサイト Pearlitic/Martensitic | 16 | 260 | 140-330 | 120-200 | - |
| | ダクタイル鋳鉄 Ductile Cast Iron | | フェライト Ferritic | 17 | 160 | 190-350 | 120-240 | - |
| | | | パーライト Pearlitic | 18 | 250 | 140-270 | 120-200 | - |
| | 可鍛鋳鉄 Malleablize | | フェライト Ferritic | 19 | 130 | 180-320 | 150-250 | - |
| | | | パーライト Pearlitic | 20 | 230 | 150-270 | 120-200 | - |

# 各種製品

## OTHER PRODUCTS


| | PAGE |
|---|---|
| タングレス・インサート<br>NON-TANG TYPE INSERT | 1167～1169 |
| E-サート（ネジインサート）<br>E-SERT (THREAD INSERT) | 1170 |
| エンザート<br>ENSAT | 1171～1174 |
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| ブローバックドラム<br>BLOVAC DRUM | 1176 |
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| OZTツールプリセッタ<br>OZT TOOL PRESETTER | 1193, 1194 |
| OSG-HAIMER | 1195, 1196 |




- 本カタログに掲載されている製品につきましては、在庫表記を記載しておりますが、新材種、新製品などの開発にともない改廃される場合もございます。
- 予告なく仕様、形状、表内の値等が変更となる場合がございます。

- The inventory status is indicated for respective products on this catalogue. However, the products may be improved or discontinued due to development of new materials and products, etc.
- Specifications, shapes, values in the tables, etc. are subject to change without prior notice.

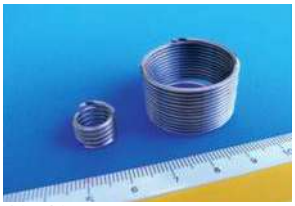
# 商品シリーズ タングレス・インサート NON-TANG TYPE INSERT

accurate 株式会社 アキュレイト **タングレス・インサート** Non-tang type insert

## ■タングレス・インサート Non-tang type insert


フリー Free


リン青銅 Phosphor Bronze


小径・大径 Small・Large Dia.


ロック Lock

## メトリックサイズ Metric sizes

| 呼び径 Thread Size | レンジ Range | ステンレス(SUS304相当) 304 Stainless Steel フリー Free | ロック Lock | リン青銅 Phosphor Bronze |
|---|---|---|---|---|
| M 2 − 0.4 | 1 D | 9201025 | | |
| | 1.5 D | 9201026 | | |
| | 2 D | 9201027 | | |
| M 2.5 − 0.45 | 1 D | 9201001 | 9201101 | |
| | 1.5 D | 9201002 | 9201102 | |
| | 2 D | 9201003 | 9201103 | |
| M 2.6 − 0.45 | 1 D | 9201028 | | |
| | 1.5 D | 9201029 | | |
| | 2 D | 9201030 | | |
| M 3 − 0.5 | 1 D | 9201004 | 9201104 | 9201054 |
| | 1.5 D | 9201005 | 9201105 | 9201055 |
| | 2 D | 9201006 | 9201106 | 9201056 |
| | 2.5 D | 9812006 | | |
| | 3 D | 9812007 | | |
| M 4 − 0.7 | 1 D | 9201007 | 9201107 | 9201057 |
| | 1.5 D | 9201008 | 9201108 | 9201058 |
| | 2 D | 9201009 | 9201109 | 9201059 |
| | 2.5 D | 9812008 | | |
| | 3 D | 9812009 | | |
| M 5 − 0.8 | 1 D | 9201010 | 9201110 | 9201060 |
| | 1.5 D | 9201011 | 9201111 | 9201061 |
| | 2 D | 9201012 | 9201112 | 9201062 |
| | 2.5 D | 9811293 | | |
| | 3 D | 9812010 | | |
| M 6 − 1.0 | 1 D | 9201013 | 9201113 | 9201063 |
| | 1.5 D | 9201014 | 9201114 | 9201064 |
| | 2 D | 9201015 | 9201115 | 9201065 |
| | 2.5 D | 9812011 | | |
| | 3 D | 9812012 | | |
| M 8 − 1.25 | 1 D | 9201016 | 9201116 | |
| | 1.5 D | 9201017 | 9201117 | |
| | 2 D | 9201018 | 9201118 | |
| M10 − 1.5 | 1 D | 9201019 | 9201119 | |
| | 1.5 D | 9201020 | 9201120 | |
| | 2 D | 9201021 | 9201121 | |
| M12 − 1.75 | 1 D | 9201022 | 9201122 | |
| | 1.5 D | 9201023 | 9201123 | |
| | 2 D | 9201024 | 9201124 | |
| M16 − 1.5 | 1 D | 9811287 | | |
| M16 − 2.0 | 1 D | 9811284 | | |
| | 1.5 D | 9811285 | | |
| | 2 D | 9811286 | | |
| M20 − 1.5 | 1 D | 9811290 | | |
| M20 − 2.5 | 1 D | 9812013 | | |
| | 1.5 D | 9811288 | | |
| | 2 D | 9811289 | | |
| M22 − 1.5 | 1 D | 9811291 | | |
| M24 − 1.5 | 1 D | 9811292 | | |

## ユニファイサイズ ANSI sizes

| 呼び径 Thread Size | レンジ Range | ステンレス(SUS304相当) 304 Stainless Steel フリー Free | ロック Lock |
|---|---|---|---|
| U 2 − 56 | 1 D | 9201151 | 9201201 |
| | 1.5 D | 9201152 | 9201202 |
| | 2 D | 9201153 | 9201203 |
| U 4 − 40 | 1 D | 9201154 | 9201204 |
| | 1.5 D | 9201155 | 9201205 |
| | 2 D | 9201156 | 9201206 |
| U 6 − 32 | 1 D | 9201157 | 9201207 |
| | 1.5 D | 9201158 | 9201208 |
| | 2 D | 9201159 | 9201209 |
| U 8 − 32 | 1 D | 9201160 | 9201210 |
| | 1.5 D | 9201161 | 9201211 |
| | 2 D | 9201162 | 9201212 |
| U10 − 24 | 1 D | 9201163 | 9201213 |
| | 1.5 D | 9201164 | 9201214 |
| | 2 D | 9201165 | 9201215 |
| U10 − 32 | 1 D | 9201241 | 9201271 |
| | 1.5 D | 9201242 | 9201272 |
| | 2 D | 9201243 | 9201273 |
| U1/ 4 − 20 | 1 D | 9201166 | 9201216 |
| | 1.5 D | 9201167 | 9201217 |
| | 2 D | 9201168 | 9201218 |
| U1/ 4 − 28 | 1 D | 9201244 | 9201274 |
| | 1.5 D | 9201245 | 9201275 |
| | 2 D | 9201246 | 9201276 |
| U5/16 − 18 | 1 D | 9201169 | 9201219 |
| | 1.5 D | 9201170 | 9201220 |
| | 2 D | 9201171 | 9201221 |
| U5/16 − 24 | 1 D | 9201247 | 9201277 |
| | 1.5 D | 9201248 | 9201278 |
| | 2 D | 9201249 | 9201279 |
| U3/ 8 − 16 | 1 D | 9201172 | 9201222 |
| | 1.5 D | 9201173 | 9201223 |
| | 2 D | 9201174 | 9201224 |
| U3/ 8 − 24 | 1 D | 9201250 | 9201280 |
| | 1.5 D | 9201251 | 9201281 |
| | 2 D | 9201252 | 9201282 |

# 商品シリーズ タングレス・インサート NON-TANG TYPE INSERT

| サイズ Size | 挿入工具 Insert Tool | | | |
|---|---|---|---|---|
| | フリー Free | | ロック Lock | |
| | 型式 Product Number | ツールNo. EDP No. | 型式 Product Number | ツールNo. EDP No. |
| M 2 | 2CT10－M2F | 9201309 | － | － |
| M 2.5 | 2CT10－M2.5F | 9201301 | 2KPHM－2.5（手動プリワインダー工具） | 9201311 |
| M 2.6 | 2CT10－M2.6F | 9201310 | － | － |
| M 3 | 2CT10－M3F | 9201302 | 2KPHM－3（手動プリワインダー工具） | 9201312 |
| M 4 | 2CT10－M4F | 9201303 | 2KPHM－4（手動プリワインダー工具） | 9201313 |
| M 5 | 2CT10－M5F | 9201304 | 2CT10－M5L | 9201314 |
| M 6 | 2CT10－M6F | 9201305 | 2CT10－M6L | 9201315 |
| M 8 | 2CT10－M8F | 9201306 | 2CT10－M8L | 9201316 |
| M 10 | 2CT10－M10 | 9201307 | 2CT10－M10 | 9201307 |
| M 12 | 2CT10－M12 | 9201308 | 2CT10－M12 | 9201308 |

| サイズ Size | 抜取工具 Extract tool | | | |
|---|---|---|---|---|
| | フリー Free | | ロック Lock | |
| | 型式 Product Number | ツールNo. EDP No. | 型式 Product Number | ツールNo. EDP No. |
| M 2 | 2CT30－M2F | 9201359 | － | － |
| M 2.5 | 2CT30－M2.5F | 9201351 | 2CT30－M2.5L | 9201371 |
| M 2.6 | 2CT30－M2.6F | 9201360 | － | － |
| M 3 | 2CT30－M3F | 9201352 | 2CT30－M3L | 9201372 |
| M 4 | 2CT30－M4F | 9201353 | 2CT30－M4L | 9201373 |
| M 5 | 2CT30－M5F | 9201354 | 2CT30－M5L | 9201374 |
| M 6 | 2CT30－M6F | 9201355 | 2CT30－M6L | 9201375 |
| M 8 | 2CT30－M8F | 9201356 | 2CT30－M8L | 9201376 |
| M 10 | 2CT30－M10 | 9201357 | 2CT30－M10 | 9201357 |
| M 12 | 2CT30－M12 | 9201358 | 2CT30－M12 | 9201358 |

※リン青銅の工具は、SUSと共用となります。
※M16以上の工具は、別途お問い合わせ下さい。
※プリワインダー式は、手動専用となります。

※The same insert and extract tools are used for both the phosphor bronze and stainless steel non-tang type inserts.
※For M16 or larger tools, please contact us.
※For pre-winder tools, only hand-operated types are available.

| サイズ Size | 挿入工具 Insert Tool | | 抜取工具 Extract tool | |
|---|---|---|---|---|
| | フリー・ロック 共用 Free・Lock | | フリー・ロック 共用 Free・Lock | |
| | 型式 Product Number | ツールNo. EDP No. | 型式 Product Number | ツールNo. EDP No. |
| U 2 －56 | 2KHEC－02 | 9201321 | 2KRTC－02 | 9201381 |
| U 4 －40 | 2KHEC－04 | 9201322 | 2KRTC－04 | 9201382 |
| U 6 －32 | 2KHEC－06 | 9201323 | 2KRTC－06 | 9201383 |
| U 8 －32 | 2KHEC－2 | 9201324 | 2KRTC－2 | 9201384 |
| U 10 －24 | 2KHEC－3 | 9201325 | 2KRTC－3 | 9201385 |
| U 1/4 －20 | 2KHEC－4 | 9201328 | 2KRTC－4 | 9201386 |
| U 5/16 －18 | 2KPHC－5（※プリワインダー式） | 9201337 | 2KRTC－5 | 9201387 |
| U 3/8 －16 | 2KPHC－6（※プリワインダー式） | 9201338 | 2KRTC－6 | 9201388 |
| U 10 －32 | 2KPHF－3（※プリワインダー式） | 9201339 | 2KRTF－3 | 9201389 |
| U 1/4 －28 | 2KPHF－4（※プリワインダー式） | 9201340 | 2KRTF－4 | 9201390 |
| U 5/16 －24 | 2KPHF－5（※プリワインダー式） | 9201341 | 2KRTF－5 | 9201391 |
| U 3/8 －24 | 2KPHF－6（※プリワインダー式） | 9201342 | 2KRTF－6 | 9201392 |

※プリワインダー式は、手動専用となります。
※電動非対応となります。（手動専用）

※For pre-winder tools, only hand-operated types are available.
※Power tools are not available. (hand-operated types only)


マンドルタイプ（電動対応）


ユニファイ抜取（電動非対応）


プリワインダー式

accurate 株式会社 アキュレイト **タングレス・インサート** Non-tang type insert

# NEW タングレス専用 ブラシレス® 電動ドライバー

## ACI-030
（手動挿入 / 抜取工具、電動プリワインダーツール対応）






専用電源 T-45BL

## ACI-100
（手動挿入 / 抜取工具のみ対応）






専用電源 T-70BL

## ブラシレス®ドライバーの特徴

**○地球に優しいブラシレスモーター採用**
ブラシレスモーター採用によりカーボン粒子の排出がなく、
電子部品や職場にクリーンな環境をご提供します。また漏電などの心配がありません。

**○安心・安全の低電圧DC 30V**
どなたでも安心してお使いいただける低電圧設計でメンテナンスも可能です。

**○ドライバーの発熱を大幅に削減**
ドライバーの発熱が少なくドライバーの性能を損なう事がありません。

**○抜群の耐久性**
消耗部品の摩耗によるドライバーの動作不良や
故障を解消して、耐久性が大幅にUPしました。

**○国際規格認証**
米国安全規格UL、欧州安全規格CE対応品です。

**○ROHS対応品**
EU特定有害物質使用禁止令

## ■仕様

| 機種名 | | ACI-030 | ACI-100 |
|---|---|---|---|
| 適合サイズ | メトリック | M2、M2.5、M2.6、M3、M4、M5、M6 | M6、M8、M10、M12、M16 |
| | ユニファイ | 2-56 ～1/4-20 | 1/4-20 |
| 出力トルク範囲 | N・m（kgf・cm） | 0.1 ～0.7（1 ～7） | 0.5 ～2.0（5 ～20） |
| 無負荷回転速度（r.p.m）±10% | HI（DC30V） | 720 | 730 |
| | LOW（DC20V） | 480 | 490 |
| 付帯機能 | | 自動反転装置 | |
| 付属品 | | 専用電源T-45BL（HIOS社製）1台 | 専用電源T-70BL（HIOS社製）1台 |
| | | ドライバーコード1.5m（5P）1本<br>電源コード1.8m 1本<br>トルク調整スプリング<br>取扱説明書、保証書 | ドライバーコード1.5m（5P）1本<br>電源コード1.8m 1本<br>取扱説明書、保証書 |

※M6、1/4-20に関してはACI-030、ACI-100のどちらでも作業ができます。
※ACI-030は回転速度HIのみでご使用下さい。
※ACI-100は回転速度LOWのみでご使用下さい。

# 幅広いサイズ・長さを標準在庫として完備。掲載していないサイズ・長さにも特殊品対応可能です。当社営業所へお問い合わせください。

**OSG stocks a wide range of sizes and lengths as standard items. Specifications not listed can be tailor-made to meet your needs. Contact your local OSG sales representative for details.**



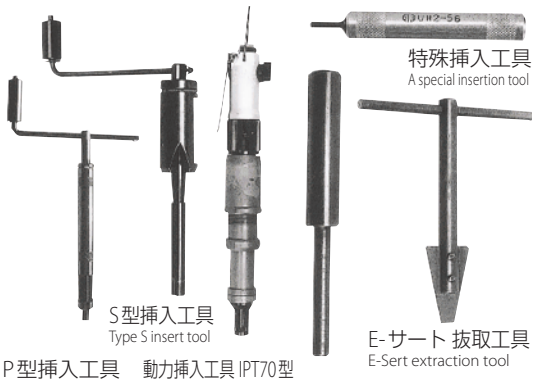
標準インサート
Standard Insert



ロックインサート
Lock Insert

■E-サートはJIS1級めねじへの対応も可能
■E-サートはMS規格品(NASA・米軍規格品)にも対応可能
■E-Sert can be used for JIS 1 Class
■E-Sert can be used for MS standard (NASA, Military standard)

## ■E-サート工具の種類 Types of E-Sert Tool




### P型挿入工具 Type P insert tool

初心者でも容易に挿入できます。サイズ、ピッチ等による共用はできません。M2.5mm以上のサイズで、並目、細目用があります。又8mm未満のサイズは、標準インサート用とロック用とがあります。
Even a beginner can do it. Cannot be share with different sizes or pitches A course and fine pitches are available M2.5 and over Standard insert and Locking insert are available under 8mm.

### S型挿入工具 Type S insert tool

S型挿入工具は6mm以上の並目ネジに使用します。
Type S is for course pitches of 6mm and over.

### 動力挿入工具 Power drive tool

エアーモーター式で安定した機能を持ち、操作が簡単で初心者も容易に使用できます。使用範囲は下記の通りです。
A consistent performance with air drive motor and easy to use for beginners. Availabilities as follow.

| | 使用サイズ Size | 適応ピッチ Pitch |
|---|---|---|
| IPT70型 | M 3~M10※ | 0.5 ~1.5 |
| IPT75型 | M12~M16 | 1.75 ~2.0 |
| IPT75B型 | M18~M24 | 2.0 ~3.0 |

※M12でもピッチが細目(1.5、1.25)ならIPT70型での使用が可能です。より安定した挿入を得る為に支持スタンドをおすすめします。(IPT70用)
※IPT70 can be used for M12 with fine pitch thread. A supporting stand is recommended for stable insertions.

### 特殊挿入工具 A special insertion tool

M2-0.4、M2.2-0.45、U*2-56の他、特殊形状の挿入工具も承ります。
Special shape insert tools are available, ex. M2-0.4, M2.2-0.45, No.2-56, etc.

### E-サート タング折取工具 E-Sert tang chipping tool

インサート挿入後、タングをノッチ部より折り取る工具です。
サイズに適した工具をご使用ください。

### E-サート 抜取工具 E-Sert extraction tool

挿入されたインサートをタップ穴から抜取る時に使用します。
サイズに適した工具をご使用ください。
The tool to tip off the tang after the insertion.Please use proper tool for each size.

## ■E-サートサイズ表 E-Sert size list

| ねじの種類 Thread type | ねじの呼び Thread size | タップ下穴径 Drill hole diameter 最大 Max | 最小 Min |
|---|---|---|---|
| メートル並目ねじ Metric coarse screw threads | M 2.0 − 0.4 | 2.18 | 2.09 |
| | M 2.2 − 0.45 | 2.39 | 2.30 |
| | M 2.5 − 0.45 | 2.69 | 2.60 |
| | M 2.6 − 0.45 | 2.79 | 2.70 |
| | M 3 − 0.5 | 3.20 | 3.11 |
| | M 3.5 − 0.6 | 3.75 | 3.64 |
| | M 4 − 0.7 | 4.29 | 4.16 |
| | M 5 − 0.8 | 5.33 | 5.18 |
| | M 6 − 1.0 | 6.40 | 6.22 |
| | M 7 − 1.0 | 7.40 | 7.22 |
| | M 8 − 1.25 | 8.48 | 8.28 |
| | M 10 − 1.5 | 10.56 | 10.33 |
| | M 12 − 1.75 | 12.64 | 12.38 |
| | M 14 − 2.0 | 14.73 | 14.44 |
| | M 16 − 2.0 | 16.73 | 16.44 |
| | M 18 − 2.5 | 18.89 | 18.55 |
| | M 20 − 2.5 | 20.89 | 20.55 |
| | M 22 − 2.5 | 22.89 | 22.55 |
| | M 24 − 3.0 | 25.05 | 24.65 |
| | M 27 − 3.0 | 28.05 | 27.65 |
| | M 30 − 3.5 | 31.20 | 30.76 |
| | M 33 − 3.5 | 34.20 | 33.76 |
| | M 36 − 4.0 | 37.34 | 36.87 |
| | M 39 − 4.0 | 40.34 | 39.87 |
| | M 42 − 4.5 | 43.50 | 42.98 |

※メートル細目ねじ、ユニファイねじ、ロックインサートも在庫しております。
※Metric fine pitch, Unified thread, Lock-insert also available from stock.

## ■品番例 Product number

**L M 10 − 1.5 × 2D N S**

- **呼び径** Size / **ねじの呼び径** Thread size: 10
- **ピッチ** Pitch / **ねじのピッチ** Thread pitch: 1.5
- **呼び長さ** Size length: 2D (D表示:呼び径に対する呼び長さの表示 D:depth×O/D / L表示:組立長さで表示 L:thread depth)
- **材質** Material: N (S:ステンレス S:Stainless / P:リン青銅 P:Phosphorus bronze)
- **ノッチ** Notch: S (無記号:ノッチ無し No mark:without notch / N:ノッチあり N:With notch)
- **ねじの種類** Thread type: M (M:メートルねじ M:Metric / U:ユニファイねじ U:Unified / W:ウイットねじ W:Whitworth / PF:管用平行ねじ PF:Parallel pipe thread / S:内燃機関用スパークプラグ S:Spark plug thread / SA:航空ピストンエンジン用スパークプラグ SA:Spark plug thread for Aerospace piston engine)
- **インサートタイプ** Type of Insert: L (無記号:標準タイプ No marking:standard type / L:スクリューロックタイプ L:Screw lock type / T:タッピングタイプ T:Tapping type / K:モールドタイプ K:Mold type / 左:左ねじ Left:Left hand thread / ⊕:三脚用 for tripod)

# 商品シリーズ エンザート ENSAT





Kerb Konus

ISO/TS 16949:2002認定工場
ケー・ケー・ヴィ・コーポレーション株式会社

■エンザートは直タップではめねじ破壊が起こり易い樹脂やアルミ等に使用出来る作業性の良いインサートナットです。
■割溝又は三つ穴形状の切刃を持ち、自身の刃で相手材を切るので前タップが必要ありません。
■エンザートでめねじ補強すれば、部品のアルミ化や樹脂化が可能になるので、軽量化に役立ちます。
■エンザートは内ねじに加わる力を一回り大きい外ねじで支えるため、直タップに比べて高い力に耐えることが出来ます。
■エンザートを使った補強は相手材固有のせん断強さ、又は使用するボルトの機械的強さが限界となります。

■Ensat is a lineup of highly workable insert nuts that can be used for resin and aluminum materials, etc. whose internal threads are easily damaged when direct tapping is employed.
■Equipped with cutting edges (slots or three holes), these insert nuts are designed to cut the mating material, eliminating the need for preliminary tapping.
■By reinforcing internal threads with Ensat, parts can be manufactured using aluminum and resin, helping reduce weight.
■Ensat is designed to bear the force applied to the internal thread with the external thread (that is larger than the internal thread), and offers higher bearing force than direct tapping.
■Reinforcement using Ensat is limited by the shear strength of the mating material or the mechanical strength of bolts used.

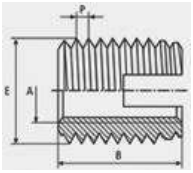
## ■302型 割溝タイプ 302 slot type

### ■特徴 Feature

• 快削性のあるアルミ合金や可塑性の高い樹脂などに使用できます。
• 切り刃である割り溝部分が長く、相手材によく食いつきます。
• 下穴径を小さめに設定したり硬い相手材に挿入すると、先端の割溝部がすぼんで加工不良が発生します。

· Applicable for free-cutting aluminum alloys and highly plastic resins, etc.
· The long slots (cutting edges) ensure smooth cutting of the mating material.
· When the borehole diameter is small or Ensat is inserted into hard mating materials, the slots at the tip may be bent inwards, resulting in machining defects.

| 材質 Material | 材質品番【※】Material product number |
|---|---|
| SUM22L 快削鋼(相当) 三価クロメート | 【112】 |
| SUM22L 快削鋼(相当) 六価クロメート | 【160】 |
| SUS430F ステンレス鋼 (相当) M16まで | 【400】 |
| SUS303 ステンレス鋼 (相当) M20まで | 【500】 |
| 真鍮 M16まで | 【800】 |




内ねじ：ISO6H　Internal thread : ISO6H
外ねじ：ワークススタンダード　External thread : Works Standard
公　差：ISO2768-m　Tolerance : ISO 2768-m

| 品番 Product Number | 内ねじ Internal thread | 外ねじ External thread | | 長さ Length | 参考下穴径 Reference borehole diameter (mm) | 参考下穴径 Reference borehole diameter (mm) | ツールNo. EDP No. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 型式 サイズ 材質 | A | E | P | B | 樹脂 Resin | 軽金属 Light metal | 材質 Material | | | | |
| | | | | | | | 112 | 160 | 400 | 500 | 800 |
| 302 000 025. 【※】 | M 2.5 | 4.5 | 0.5 | 6 | 4.1 - 4.2 | 4.2 - 4.3 | | 9820026 | | 9821025 | 9821525 |
| 302 000 030. 【※】 | M 3 | 5 | 0.5 | 6 | 4.6 - 4.7 | 4.7 - 4.8 | 9819030 | 9820031 | 9820530 | 9821030 | 9821530 |
| 302 000 035. 【※】 | M 3.5 | 6 | 0.75 | 8 | 5.4 - 5.6 | 5.6 - 5.7 | | 9820035 | 9820535 | 9821035 | 9821535 |
| 302 000 040. 【※】 | M 4 | 6.5 | 0.75 | 8 | 5.9 - 6.1 | 6.1 - 6.2 | 9819040 | 9820042 | 9820540 | 9821040 | 9821540 |
| 302 000 050. 【※】 | M 5 | 8 | 1 | 10 | 7.2 - 7.5 | 7.5 - 7.6 | 9819050 | 9820052 | 9820550 | 9821050 | 9821550 |
| 302 000 061. 【※】 | M 6a | 9 | 1 | 12 | 8.2 - 8.5 | 8.5 - 8.6 | 9819061 | 9820063 | 9820561 | 9821061 | 9821561 |
| 302 000 060. 【※】 | M 6 | 10 | 1.5 | 14 | 8.8 - 9.2 | 9.2 - 9.4 | 9819060 | 9820061 | 9820560 | 9821060 | 9821560 |
| 302 000 080. 【※】 | M 8 | 12 | 1.5 | 15 | 10.8 - 11.2 | 11.2 - 11.4 | 9819080 | 9820081 | 9820580 | 9821080 | 9821580 |
| 302 000 100. 【※】 | M 10 | 14 | 1.5 | 18 | 12.8 - 13.2 | 13.2 - 13.4 | 9819100 | 9820100 | 9820600 | 9821100 | 9821600 |
| 302 000 120. 【※】 | M 12 | 16 | 1.5 | 22 | 14.8 - 15.2 | 15.2 - 15.4 | 9819120 | 9820120 | 9820620 | 9821120 | 9821620 |
| 302 000 140. 【※】 | M 14 | 18 | 1.5 | 24 | 16.8 - 17.2 | 17.2 - 17.4 | | 9820140 | 9820640 | 9821140 | 9821640 |
| 302 000 160. 【※】 | M 16 | 20 | 1.5 | 22 | 18.8 - 19.2 | 19.2 - 19.4 | | 9820160 | 9820660 | 9821160 | 9821660 |
| 302 000 180. 【※】 | M 18 | 22 | 1.5 | 24 | 20.8 - 21.2 | 21.2 - 21.4 | | 9820180 | | 9821180 | |
| 302 000 200. 【※】 | M 20 | 26 | 1.5 | 27 | 24.8 - 25.2 | 25.2 - 25.4 | | 9820200 | | 9821200 | |
| 302 000 220. 【※】 | M 22 | 26 | 1.5 | 30 | 24.8 - 25.2 | 25.2 - 25.4 | | 9820220 | | | |
| 302 000 240. 【※】 | M 24 | 30 | 1.5 | 30 | 28.8 - 29.2 | 29.2 - 29.4 | | 9820240 | | | |
| 302 000 270. 【※】 | M 27 | 34 | 1.5 | 30 | 32.8 - 33.2 | 33.2 - 33.4 | | 9820270 | | | |
| 302 000 300. 【※】 | M 30 | 36 | 1.5 | 40 | 34.8 - 35.2 | 35.2 - 35.4 | | 9820300 | | | |

## 各タイプの使い分け Application by type

エンザートは樹脂、アルミ、木材に使用出来ますが、下の例のように相手材質によりタイプを使い分ける必要があります。
割溝タイプは高強度材料に使用したり、下穴径を小さめに設定すると、加工不良を起こす場合があります。
小外径タイプ(303,347/348型)は、内径同サイズの標準タイプ(302,307/308型)に比べ、外径が小さいため各種強度が低下します。
スペースに制約がある場合を除き、標準型をお勧めします。

Ensat can be used for resin, aluminum, and wood. Different types must be used depending on the mating materials, as shown in the examples below.
In the case of a slot type, machining defects may occur if Ensat is used with high-strength materials or if the diameter of the borehole is small.
For the small outer diameter type (303, 347/348), the outer diameter is smaller than that of the standard type (302, 307/308), whose inner diameter is the same. Thus, the small outer diameter type is weaker than the standard type.
The standard type is recommended unless space is limited.

| エンザート型式 Ensat model / 材料名 Material | 割溝タイプ 302型等 | 三つ穴タイプ 307/308型等 |
|---|---|---|
| 樹脂 PP | ○ | ○ |
| 樹脂 POM | ○ | ○ |
| 樹脂 PC | × | ○ |
| 樹脂 FRP | × | ○ |
| 樹脂 PVC | ○ | ○ |
| 樹脂 PTFE | ○ | ○ |
| アルミ A5052S | ○ | ○ |
| アルミ A5083S | × | ○ |
| アルミ AC4C-T6 | × | ○ |
| 木材 合板 | △（309型○） | × |

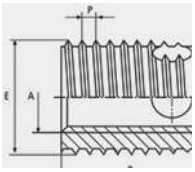
## ■307/308型 三つ穴タイプ 307/308 three-hole type

### ■特徴 Feature

- 割溝型と違いエンザートがすぼまることは無いので、硬軟どちらの相手材にも広く適しています。
- 基本的には樹脂やアルミに使用しますが、タップを併用すると鉄や熱処理アルミに使える可能性があります。

· The three-hole type is widely usable for both hard and soft mating materials because the shape is different from the slot type, whose slots at the tip may be bent inwards.
· In principle, the three-hole type is used for resin and aluminum. In combination with tapping, the three-hole type may be used for steel and heat-treated aluminum.

| 材質 Material | 材質品番【※】Material product number |
|---|---|
| SUM22L 快削鋼(相当) 三価クロメート | 【112】 |
| SUM22L 快削鋼(相当) 六価クロメート | 【160】 |
| SUS430F ステンレス鋼（相当） | 【400】 |
| SUS303 ステンレス鋼（相当） | 【500】 |




内ねじ：ISO6H　Internal thread : ISO6H
外ねじ：ワークススタンダード　External thread : Works Standard
公　差：ISO2768-m　Tolerance : ISO 2768-m

| 品番 Product Number | 内ねじ Internal thread | 外ねじ External thread | | 長さ Length | 参考下穴径 Reference borehole diameter (mm) | 参考下穴径 Reference borehole diameter (mm) | ツールNo. EDP No. | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 型式 サイズ 材質 | A | E | P | B | 樹脂 Resin | 軽金属 Light metal | 材質 Material | | | |
| | | | | | | | 112 | 160 | 400 | 500 |
| 307 000 030.【※】 | M 3 | 5 | 0.6 | 4 | 4.6－4.7 | 4.7－4.8 | 9822330 | 9822530 | 9823030 | 9823530 |
| 308 000 030.【※】 | | | | 6 | | | 9823830 | 9824030 | 9824530 | 9825030 |
| 307 000 035.【※】 | M 3.5 | 6 | 0.8 | 5 | 5.5－5.6 | 5.6－5.7 | － | 9822535 | － | － |
| 308 000 035.【※】 | | | | 8 | | | － | 9824035 | － | － |
| 307 000 040.【※】 | M 4 | 6.5 | 0.8 | 6 | 6.0－6.1 | 6.1－6.2 | 9822340 | 9822540 | 9823040 | 9823540 |
| 308 000 040.【※】 | | | | 8 | | | 9823840 | 9824040 | 9824540 | 9825040 |
| 307 000 050.【※】 | M 5 | 8 | 1 | 7 | 7.4－7.6 | 7.5－7.7 | 9822350 | 9822550 | 9823050 | 9823550 |
| 308 000 050.【※】 | | | | 10 | | | 9823850 | 9824050 | 9824550 | 9825050 |
| 307 000 060.【※】 | M 6 | 10 | 1.25 | 8 | 9.3－9.5 | 9.4－9.6 | 9822360 | 9822560 | 9823060 | 9823560 |
| 308 000 060.【※】 | | | | 12 | | | 9823860 | 9824060 | 9824560 | 9825060 |
| 307 000 080.【※】 | M 8 | 12 | 1.5 | 9 | 11.1－11.3 | 11.2－11.5 | 9822380 | 9822580 | 9823080 | 9823580 |
| 308 000 080.【※】 | | | | 14 | | | 9823880 | 9824080 | 9824580 | 9825080 |
| 307 000 100.【※】 | M 10 | 14 | 1.5 | 10 | 13.1－13.3 | 13.2－13.5 | 9822400 | 9822600 | 9823100 | 9823600 |
| 308 000 100.【※】 | | | | 18 | | | 9823900 | 9824100 | 9824600 | 9825100 |
| 307 000 120.【※】 | M 12 | 16 | 1.75 | 12 | 15.0－15.2 | 15.1－15.4 | 9822420 | 9822620 | 9823120 | 9823620 |
| 308 000 120.【※】 | | | | 22 | | | 9823920 | 9824120 | 9824620 | 9825120 |
| 307 000 140.【※】 | M 14 | 18 | 2 | 14 | 17.0－17.2 | 17.1－17.4 | － | 9822640 | 9823140 | 9823640 |
| 308 000 140.【※】 | | | | 24 | | | － | 9824140 | － | 9825140 |
| 307 000 160.【※】 | M 16 | 20 | 2 | 14 | 19.0－19.2 | 19.1－19.4 | － | 9822660 | － | 9823650 |
| 308 000 160.【※】 | | | | 24 | | | － | 9824160 | 9824660 | 9825160 |

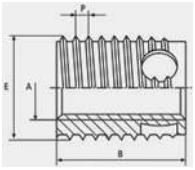
# 商品シリーズ エンザート ENSAT

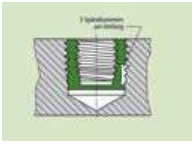
## 337/338型 チップフリータイプ 337/338 insert,free type

### 特徴 Feature

- 三つ穴の切り刃が止まり穴になっているので、挿入時に出る切り粉を閉じ込めることができます。
- 挿入加工の食いつき時に僅かに切り粉が外に出ますが、大部分は止まり穴に収まるので切り粉の除去工程が不要です。
- 相手材が金属の場合、下穴径は最大下穴径でご使用下さい。

- The cutting edges of the three holes serve as blind holes, containing chips that are generated in the insertion process.
- In the insertion process, some chips are generated at the start of cutting. However, most of the chips are retained in the blind holes. This eliminates the need for removing chips.
- When the mating material is a metal, select the largest borehole diameter.



| 材質 Material | 材質品番【※】Material product number |
|---|---|
| SUM22L 快削鋼(相当) 三価クロメート | 【112】 |
| SUM22L 快削鋼(相当) 六価クロメート | 【160】 |
| SUS430F ステンレス鋼 (相当) | 【400】 |
| SUS303 ステンレス鋼 (相当) | 【500】 |
| SUS316L ステンレス鋼 (相当) M8まで | 【504】 |

内ねじ：ISO6H
外ねじ：ワークススタンダード
公　差：ISO2768-m

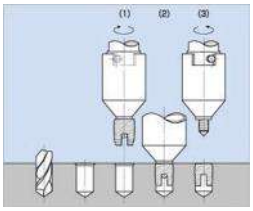
Internal thread : ISO6H
External thread : Works Standard
Tolerance : ISO 2768-m

| 品番 Product Number | 内ねじ Internal thread | 外ねじ External thread | | 長さ Length | 参考下穴径 Reference borehole diameter (mm) | 参考下穴径 Reference borehole diameter (mm) | ツールNo. EDP No. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 型式 サイズ 材質 | A | E | P | B | 樹脂 Resin | 軽金属 Light metal | 材質 Material | | | | |
| | | | | | | | 112 | 160 | 400 | 500 | 504 |
| 337 000 030.【※】 | M3 | 5 | 0.6 | 4 | 4.6－4.7 | 4.8 | 9825830 | 9826030 | 9826530 | 9827030 | － |
| 338 000 030.【※】 | | | | 6 | | | 9827330 | 9827530 | 9828030 | 9828530 | － |
| 337 000 040.【※】 | M4 | 6.5 | 0.8 | 6 | 6.0－6.1 | 6.2 | 9825840 | 9826040 | 9826540 | 9827040 | － |
| 338 000 040.【※】 | | | | 8 | | | 9827340 | 9827540 | 9828040 | 9828540 | － |
| 337 000 050.【※】 | M5 | 8 | 1 | 7 | 7.4－7.6 | 7.7 | 9825850 | 9826050 | 9826550 | 9827050 | － |
| 338 000 050.【※】 | | | | 10 | | | 9827350 | 9827550 | 9828050 | 9828550 | － |
| 337 000 060.【※】 | M6 | 10 | 1.25 | 8 | 9.3－9.5 | 9.6 | 9825860 | 9826060 | 9826560 | 9827060 | － |
| 338 000 060.【※】 | | | | 12 | | | 9827360 | 9827560 | 9828060 | 9828560 | － |
| 337 000 080.【※】 | M8 | 12 | 1.5 | 9 | 11.1－11.3 | 11.5 | 9825880 | 9826080 | 9826580 | 9827080 | － |
| 338 000 080.【※】 | | | | 14 | | | 9827380 | 9827580 | 9828080 | 9828580 | － |
| 337 000 100.【※】 | M10 | 14 | 1.5 | 10 | 13.1－13.3 | 13.5 | 9825900 | 9826100 | 9826600 | 9827100 | － |
| 338 000 100.【※】 | | | | 18 | | | 9827400 | 9827600 | 9828100 | 9828600 | － |
| 337 000 120.【※】 | M12 | 16 | 1.75 | 12 | 15.0－15.2 | 15.4 | 9825920 | 9826120 | 9826620 | 9827120 | － |
| 338 000 120.【※】 | | | | 22 | | | 9827420 | 9827620 | 9828120 | 9828620 | － |
| 337 000 140.【※】 | M14 | 18 | 2 | 14 | 17.0－17.2 | 17.4 | － | 9826140 | － | － | － |
| 338 000 140.【※】 | | | | 24 | | | － | 9827640 | － | － | － |
| 337 000 160.【※】 | M16 | 20 | 2 | 14 | 19.0－19.2 | 19.4 | － | 9826160 | － | 9827160 | － |
| 338 000 160.【※】 | | | | 24 | | | － | 9827660 | － | 9828660 | － |

## 挿入工具 Insert tools

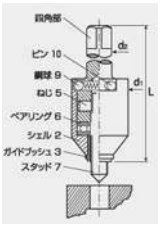
■反転位置を機械側で設定できるタッパー又はボール盤を使用して下さい。
■目測による反転では専用工具とワークの衝突を完全に防げないため、加工不良の原因となります。
■専用工具の先端スタッドやベアリングを保護するためにも反転位置は事前に設定して下さい。

■Use a tapping machine or drilling machine that enables users to set a reversal position.
■Reversal based on eye measurement cannot completely prevent interference between a custom tool and a workpiece, resulting in a machining defect.
■Set the reversal position in advance to protect studs at the tip and bearings of custom tools.



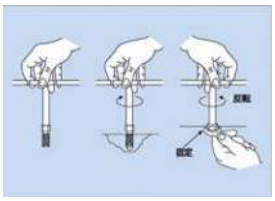

1. 割溝又は三つ穴を下にし、専用工具にエンザートを取り付けます。
2. 下に送っていくとワークにエンザートが喰い付きます。その後は回転だけで下穴をセルフ・タップします。
3. 事前に設定した加工深さで回転が反転すればピンの位置が右に移動し、専用工具だけがリリースされます。

1. Install Ensat to a custom tool, with the slots or three holes pointing downward.
2. Lower Ensat until it starts to cut the workpiece. The hole is self-tapped only by rotation.
3. When the rotation is reversed at the preset machining depth, the pin position moves to the right. Only the custom tool is released.



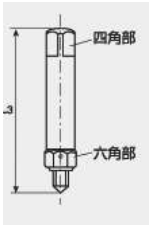

| 品番 Product Number | サイズ Size | 胴径 Shell diameter d1 | シャンク径 Shank diameter d2 | 四角部 Square section 対辺 Opposite side | 全長 Overall length (mm) L | ツール No. EDP No. |
|---|---|---|---|---|---|---|
| 620 000 025.000 | M 2.5 | 18 | 8 | 6.3 | 78 | 9586025 |
| 620 000 030.000 | M 3 | 18 | 8 | 6.3 | 78 | 9586030 |
| 620 000 035.000 | M 3.5 | 18 | 8 | 6.3 | 78 | – |
| 620 000 040.000 | M 4 | 18 | 8 | 6.3 | 78 | 9586040 |
| 620 000 050.000 | M 5 | 24 | 12.5 | 10 | 95 | 9586050 |
| 620 000 060.000 | M 6 | 24 | 12.5 | 10 | 95 | 9586060 |
| 620 000 080.000 | M 8 | 24 | 12.5 | 10 | 95 | 9586080 |
| 620 000 100.000 | M10 | 32 | 16 | 12.5 | 118 | 9586100 |
| 620 000 106.000 | M10×1.25 | 32 | 16 | 12.5 | 118 | – |
| 620 000 120.000 | M12 | 32 | 16 | 12.5 | 118 | 9586120 |
| 620 000 126.000 | M12×1.25 | 32 | 16 | 12.5 | 118 | – |
| 620 000 140.000 | M14 | 50 | 25 | 20 | 145 | 9586140 |
| 620 000 160.000 | M16 | 50 | 25 | 20 | 145 | 9586160 |
| 620 000 180.000 | M18 | 50 | 25 | 20 | 145 | 9586180 |
| 620 000 200.000 | M20 | 58 | 25 | 20 | 169 | 9586200 |
| 620 000 220.000 | M22 | 58 | 25 | 20 | 169 | 9586220 |
| 620 000 240.000 | M24 | 70 | 30 | 25 | 198 | 9586240 |
| 620 000 270.000 | M27 | 70 | 30 | 25 | 198 | 9586270 |
| 620 000 300.000 | M30 | 70 | 30 | 25 | 198 | 9586300 |

■ハンド専用の610工具だけでなく機械用の620,621工具も使用できます。
■Ensat works with 610 (hand-operated type) and also 620/621 (machine type) tools.




1. 割溝又は三つ穴を下にしてエンザートを最後まで工具先端に取り付けます。620,621 工具を使う場合は必ずピンの位置を意識的に向かって左側に来るようにして下さい。
2. エンザートの喰付き時（1 ～2ピッチ）にX、Y、の両方向から下穴に対して傾きがないかチェックして下さい。傾きがあれば工具を反転しないで立て直して下さい。エンザートが1/3 ～ 1/2以上入った後は立て直しは不可になります。
3. 所定の位置まで入ればハンド専用610工具は六角部をスパナで固定しハンドル側を左へ反転すれば工具だけフリーになります。620,621工具はシェルが共回りしないように反転してください。

1. Fully install Ensat to the tip of a tool, with the slots or three holes pointing downward. When using a 620/621 tool, make sure to set the pin to the left.
2. When the Ensat starts to cut (1–2 pitches), check from both X and Y directions that the tool is not tilted to the borehole. If the tool is tilted, align it without reversing the tool. The tool can no longer be aligned after Ensat is inserted by more than 1/3–1/2.
3. In the case of a 610 hand-operated tool, insert Ensat to a specified position, secure the hexagonal section using a spanner, and reverse the handle to the left to release the tool. In the case of a 620/621 tool, prevent simultaneous rotation of the shell at the time of reversal.




| 品番 Product Number | サイズ Size | 全長 Overall length L3 | 四角部 Square section 対辺 Opposite side | 六角部 Hexagonal section 対辺 Opposite side | ツール No. EDP No. |
|---|---|---|---|---|---|
| 610 000 025.000 | M 2.5 | 55 | 5 | 7 | – |
| 610 000 030.000 | M 3 | 55 | 5 | 7 | 9587030 |
| 610 000 035.000 | M 3.5 | 60 | 5 | 7 | – |
| 610 000 040.000 | M 4 | 60 | 5 | 7 | 9587040 |
| 610 000 050.000 | M 5 | 75 | 8 | 13 | 9587050 |
| 610 000 060.000 | M 6 | 75 | 8 | 13 | 9587060 |
| 610 000 080.000 | M 8 | 75 | 8 | 13 | 9587080 |
| 610 000 100.000 | M10 | 95 | 12.5 | 19 | 9587100 |
| 610 000 106.000 | M10×1.25 | 95 | 12.5 | 19 | – |
| 610 000 120.000 | M12 | 95 | 12.5 | 19 | 9587120 |
| 610 000 126.000 | M12×1.25 | 95 | 12.5 | 19 | – |
| 610 000 140.000 | M14 | 95 | 12.5 | 19 | 9587140 |
| 610 000 160.000 | M16 | 105 | 12 | 26 | 9587160 |

# 商品シリーズ ブローバッククリーナー BLOVAC CLEANER

## BLOVAC CLEANER 圧縮空気利用 圧縮空気を利用した産業用バキュームクリーナー

**Industrial vacuum cleaner powered by compressed air**

**お手持ちのペール缶に乗せるだけで、工場やガソリンスタンド等の様々な現場で発生する不要物を強力に回収致します。水、油、切り粉、ペレット、粉塵、ヘドロ等乾湿問わずお使い頂けます。また、エジェクターにニードルを採用した独自設計により機能アップをはかり、様々な現場で、経済的、効果的にご利用頂けます。**

Simply set a BLOVAC CLEANER on an empty pail can. This strong vacuum cleaner can handle both dry and wet waste (e.g. water, oil, chips, pellets, dust, and sludge) generated at various workplaces, including factories and gas stations. Performance has been enhanced by employing a proprietary design with a needle used as an ejector. The BLOVAC CLEANER offers an economical and effective solution at various worksites.



※写真はサイレンサー付です。
ペール缶・キャスターは別売になります。
※The above product is equipped with a silencer. Pail cans and casters are available separately.

■高真空タイプ High vacuum type



■大容量タイプ Large capacity type



| ツールNo. EDP No. | 型式 Model | 仕様 Specifications | 性能 Performance at.5Kg/cm² 消費量 Air Consumption Amount L/min | 真空度 Vacuum Degree mm $H_2O$ | 吸入量 Air Suction Amount m³/min | 標準価格 Yen |
|---|---|---|---|---|---|---|
| 9600705 | V300 | 標準機<br>耐油ホースφ25X2M<br>丸・角ノズル各1本付 | 350 | 2,600 | 1.1 | 48,000 |
| 9600706 | V300-OS | オイルストッパー付 | | | | 58,000 |
| 9600708 | V300-F | フィルター付 | | | | 64,500 |
| 9600709 | VS300 | サイレンサー付 | | | 1.0 | 69,000 |
| 9600701 | VS300-OS | サイレンサー・オイルストッパー付 | | | | 73,000 |
| 9600702 | VS300-F | サイレンサー・フィルター付 | | | | 79,500 |
| 9600703 | V300H | 高真空タイプ | | 7,000 | 0.4 | 62,000 |
| 9600704 | V300H-OS | 高真空タイプ・オイルストッパー付 | | | | 72,000 |
| 9600737 | VS300H | 高真空タイプ・サイレンサー付 | | | 0.3 | 79,000 |
| 9600738 | VS300H-OS | 高真空タイプ・サイレンサー・オイルストッパー付 | | | | 89,000 |
| 9600710 | V500 | 標準機<br>耐油ホースφ32X2M<br>丸・角ノズル各1本付 | 500 | 2,600 | 1.8 | 48,000 |
| 9600711 | V500-OS | オイルストッパー付 | | | | 58,000 |
| 9600714 | V500-F | フィルター付 | | | | 64,500 |
| 9600715 | VS500 | サイレンサー付 | | | 1.6 | 69,000 |
| 9600716 | VS500-OS | サイレンサー・オイルストッパー付 | | | | 73,000 |
| 9600717 | VS500-F | サイレンサー・フィルター付 | | | | 79,500 |
| 9600718 | V500H | 高真空タイプ | | 7,000 | 0.5 | 62,000 |
| 9600719 | V500H-OS | 高真空タイプ・オイルストッパー付 | | | | 72,000 |
| 9600739 | VS500H | 高真空タイプ・サイレンサー付 | | | 0.4 | 79,000 |
| 9600740 | VS500H-OS | 高真空タイプ・サイレンサー・オイルストッパー付 | | | | 89,000 |
| 9600721 | V530W | 大容量タイプ<br>耐油ホースφ38X2M<br>丸・角ノズル各1本付 | 750 | 1,500 | 2.9 | 68,000 |
| 9600723 | V530W-OS | オイルストッパー付 | | | | 82,500 |
| 9600725 | V530W-F | フィルター付 | | | | 86,000 |
| 9600731 | VS530W | サイレンサー付 | | | 2.6 | – |
| 9600732 | VS530W-OS | サイレンサー・オイルストッパー付 | | | | – |
| 9600733 | VS530W-F | サイレンサー・フィルター付 | | | | – |
| 9600720 | V550W | 大容量タイプ<br>耐油ホースφ50X2.5M<br>丸・角ノズル各1本付 | 750 | 1,500 | 3.3 | 82,000 |
| 9600722 | V550W-OS | オイルストッパー付 | | | | 96,500 |
| 9600724 | V550W-F | フィルター付 | | | | 100,000 |
| 9600734 | VS550W | サイレンサー付 | | | 2.9 | – |
| 9600735 | VS550W-OS | サイレンサー・オイルストッパー付 | | | | – |
| 9600736 | VS550W-F | サイレンサー・フィルター付 | | | | – |

### 特長 Features & Benefits

◎ペール缶に乗せるだけで掃除機に早変わり
◎コンパクトな設計で持ち運びが便利
◎摩耗等によるトラブルがなく、メンテナンスフリー
◎空気式のため、防爆地域でも安心
◎低価格

◎Simply set a BLOVAC CLEANER on an empty pail can
◎Compact and portable
◎Not subject to mechanical problems due to wear and tear etc. and does not require maintenance
◎Pneumatically operated and can be safely used in explosion-proof areas
◎Low price

### ■注意事項／保守 Caution/Maintenance

(1) 容器（ペール缶）は傷みの少ないもので、縁に凹凸や変形のない、肉厚のものをご使用下さい。
(2) コンプレッサーは、Model V300/V300H は3馬力、V500/V500Hは5馬力、V530W/V550Wは10馬力以上のものをご使用下さい。
(3) 供給空気圧は7kg/cm²以下でご使用下さい。
(4) 標準使用の場合は、吸引物の温度は60℃以下でご使用下さい。
(5) Model V300H/V500Hは液体専用タイプです。高真空のため、必ず専用缶（HS19L）をご使用下さい。
(6) ホースに詰まりや傷があると機能低下の原因となります。定期的にチェック願います。
(7) カプラの中にあるストレーナーが詰まると機能低下の原因となります。時々石鹸水等で洗ってください。（ストレーナーは取り出さないでください）

(1) Prepare a container(pail) of thicker wall with no bruise and also with the even rim which has not been deformed.
(2) The capacity of air compressor required is 3HP for V300/V300H, 5HP for V500/V500H and more than 10HP for V530W/V550W.
(3) The air pressure to be supplied must be below 7kg/cm².
(4) The temperature of the thing to be sucked must be below 60℃.
(5) V300H/V500H are only for the liquid. Be sure to use an exclusive can (HS19L) or a can of thick wall according to the exclusive can.
(6) If the hose is stuffed up or damaged, it causes functional fall. Check it regularly.
(7) If the strainer in the coupler is blocked, functional fall will occur. Sometimes wash it with the soap water etc. (Do not take the strainer out of the coupler)

# 圧縮空気を利用し、故障知らず。お手持ちのドラム缶にセットするだけで、水・油・ヘドロをスピード吸入・スピード吐出。

**An empty metal barrel can be used as a suction/discharge tank. Powered by compressed air, the BLOVAC DRUM is free from mechanical problems, and achieves speedy suction/discharge of water, oil, and sludge.**



ブローバック・ドラムは、お手持ちの鋼製ドラム缶(JIS)の給油口の口金にセットするだけで、圧縮空気を利用して吸入・吐出の作業が簡単かつ素早くできるドラム缶用のポンプです。内部に回転体がないため、摩耗等による故障の心配がありません。また豊富なラインナップにより、水、油はもちろん、ガソリンやシンナー、各種溶剤等の吸排にもご利用いただけます。さらに吐出作業時における安全対策として従来の減圧弁(レギュレーター)の他に新しく安全弁を取り付けるなど、安全面に配慮いたしており、安心してご使用いただけます。

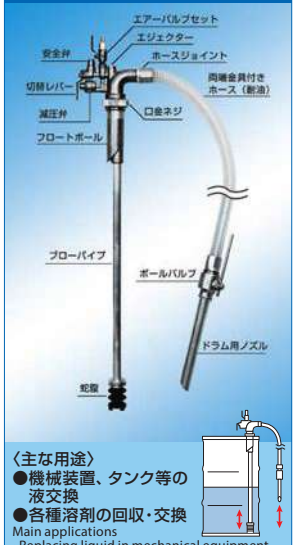
Set a BLOVAC DRUM (a pump for metal barrels) to the cap of the oil filler port of an empty steel metal barrel (JIS). Easy and quick suction/discharge is ensured using compressed air. The BLOVAC DRUM is not subject to mechanical problems due to wear and tear etc. because it does not have a rotating mechanism inside. With an extensive lineup, the product can be used for suction/discharge of water, oil, gasoline, thinner, various solvents, etc. To ensure safety during discharge, a safety valve has been added in addition to a reducing valve (regulator). These safety features enhance reliability and safety.

## 特長 Features & Benefits

◎スピード吸入／スピード吐出(水200Lを約2分)
◎吸・吐の切り換えワンタッチ(QTO型)
◎豊富な品揃え
◎防爆エリアでも安心使用(空気駆動)
◎1馬力のコンプレッサーでOK
◎二重の安全対策(減圧弁と安全弁のダブルチェック)(QTO型、TO型)
◎抜群の耐久性

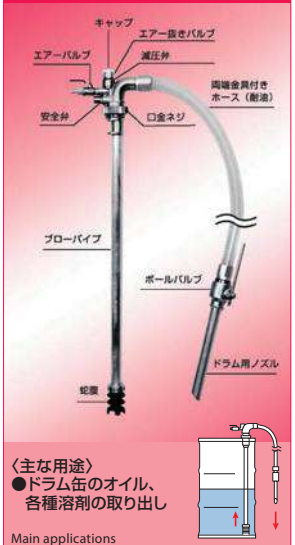
◎Speedy suction/discharge (about 2 min for 200 L of water)
◎Suction/discharge can be switched by a one-touch operation (QTO model)
◎Extensive product lineup
◎Safely used in explosion-proof areas (pneumatic operation)
◎Operable using a 1 hp compressor
◎Double safety mechanism (a reducing valve and a safety valve) (QTO/TO models)
◎Excellent durability

### 吸入・吐出両用
For suction/discharge
〈QTO型〉 QTO model
水100リットルを約60秒で吸入・吐出
Suction/discharge speed: 100 L of water in about 60 sec



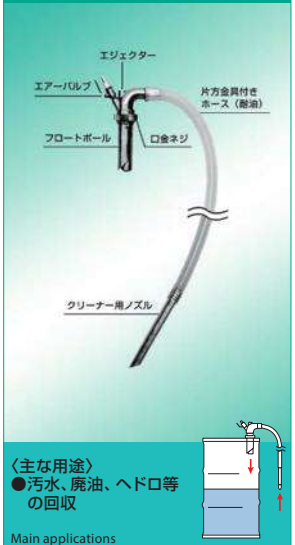

〈主な用途〉
●機械装置、タンク等の液交換
●各種溶剤の回収・交換
Main applications
• Replacing liquid in mechanical equipment, tanks, etc.
• Recovering/replacing various solvents

### 吐出専用
For discharge only
〈TO型〉 TO model
水100リットルを約60秒で吐出
Discharge speed: 100 L of water in about 60 sec




〈主な用途〉
●ドラム缶のオイル、各種溶剤の取り出し
Main applications
• Discharging oils and various solvents from metal barrels

### 吸入専用
For suction only
〈Q型〉 Q model
水100リットルを約60秒で吸入
Suction speed: 100 L of water in about 60 sec




〈主な用途〉
●汚水、廃油、ヘドロ等の回収
Main applications
• Recovering wastewater, waste oil, sludge, etc.

●フロートボール：ドラム缶が満杯になると自動的に吸引を止めます。
• Float ball : Automatically stops suction when a metal barrel is full.
●減圧弁：ドラム缶内の圧力が0.5～0.6kg/cm2以上になるのを防ぎます。
• Reducing valve : Prevents the pressure in a metal barrel from reaching 0.5–0.6 kg/cm² or higher.
●ボールバルブ：手元でON／OFFの切替えができます。
• Ball valve : Able to be switched on/off using a switch.
●安全弁：ドラム缶内の圧力が0.8kg/cm2以上になるのを防ぎます。
• Safety valve : Prevents the pressure in a metal barrel from reaching 0.8 kg/cm² or higher.

| ツールNo. EDP No. | 型式 Model | 仕様 Specifications | ホース Hose | 性能 Performance at.5Kg/cm² 真空度 Vacuum Degree mm H₂O | 性能 Performance at.5Kg/cm² 吐出圧 Air Discharge Pressure kgf/cm² | 標準価格 Yen |
|---|---|---|---|---|---|---|
| 9601301 | Q | 一般耐油用 | 片方金具付32×3M | 4,600 | — | 43,000 |
| 9601321 | Q-G | ガソリン用 | 片方金具付25×3M | | | 77,000 |
| 9601341 | Q-S | シンナー用 | 片方金具付25×3M | | | 95,000 |
| 9601331 | Q-N | 一般溶剤用 | 両端金具付25×2M | | | – |
| 9601305 | TO | 一般耐油用 | 両端金具付32×3M | — | 0.55 | 75,000 |
| 9601325 | TO-G | ガソリン用 | 両端金具付25×3M | | | 109,000 |
| 9601345 | TO-S | シンナー用 | 両端金具付25×3M | | | 127,000 |
| 9601335 | TO-N | 一般溶剤用 | 両端金具付25×2M | | | – |
| 9601310 | QTO | 一般耐油用 | 両端金具付32×3M | 4,600 | — | 98,000 |
| 9601328 | QTO-G | ガソリン用 | 両端金具付25×3M | | | 132,000 |
| 9601350 | QTO-S | シンナー用 | 両端金具付25×3M | | | 150,000 |
| 9601340 | QTO-N | 一般溶剤用 | 両端金具付25×2M | | | – |

# 商品シリーズ サイレントクリーナー SILENT-CLEANER

オオサワ&カンパニー

## サイレントクリーナー Silent-Cleaner

### 強い吸引力・消音型の万能クリーナー！ A versatile, quiet cleaner characterized by a strong suction force!

従来の工業用クリーナーでは回収が不十分な水、油、ヘドロ、穀物、小砂利、金属片等を強力に回収。あらゆる職場に大活躍。圧縮空気を利用したクリーナーなので回転部がないため、故障の心配がありません。また、排気音も非常に静かです。
ミニポーターサイクロンと組むことにより、粉体・粉塵に強い性能を発揮します。
The Silent-Cleaner strongly sucks up water, oil, sludge, grain, small gravel, metal pieces, etc. that cannot be fully sucked up using a conventional industrial cleaner. The Silent-Cleaner is very useful in any workplace. This compressed air-powered cleaner is not subject to mechanical problems because it does not have a rotating mechanism inside. The exhaust noise is very low.
The Silent-Cleaner can strongly suck up powder and fine dust in combination with the Mini-Porter-Cyclone.

| ツールNo. EDP No. | 商品名 Product name | 吸引物 Material sucked | タンク容量 Tank capacity | ホース内径 Hose inner diameter | 重量 Weight |
|---|---|---|---|---|---|
| 9601614 | SC20-32 | 集塵用 | 20ℓペール缶付 | φ32 | 10.0kg |
| 9601621 | SC20-32 W/F | 粉塵用 | 20ℓペール缶付 | φ32 | 10.0kg |
| 9601615 | SC20-32P | 集塵用 | 20ℓペール缶用 | φ32 | 6.0kg |
| 9601622 | SC20-32P W/F | 粉塵用 | 20ℓペール缶用 | φ32 | 6.0kg |
| 9601613 | SC30-32S | 集塵用 | 30ℓ SUS缶付 | φ32 | 11.0kg |
| 9601620 | SC30-32S W/F | 粉塵用 | 30ℓ SUS缶付 | φ32 | 11.0kg |
| 9601611 | SC60-32S | 集塵用 | 60ℓ SUS缶付 | φ32 | 18.5kg |
| 9601618 | SC60-32S W/F | 粉塵用 | 60ℓ SUS缶付 | φ32 | 18.5kg |
| 9601610 | SC60-38S | 集塵用 | 60ℓ SUS缶付 | φ38 | 18.5kg |
| 9601617 | SC60-38S W/F | 粉塵用 | 60ℓ SUS缶付 | φ38 | 18.5kg |
| 9800410 | SC3T-19 | 集塵・粉塵用 | 19ℓ透明タンク付 | φ19 | 1.7kg |

※型番のW/Fは、粉塵フィルターです。※SC60シリーズには、ホース内径φ50タイプもあります。
※全機種、強力型もあります。
※W/F in the product name represents the fine dust filter.
※The SC60 series also offers types with a hose inner diameter of φ50.
※Strong suction types are available for all models.


SC20-32P


SC3T-19


SC30-32S


SC60-38S

## サイレントクリーナー グリス吸引専用タイプ Silent-Cleaner for high viscosity fluid

### 一般のクリーナーでは吸引が困難なグリス等を強力に回収。

Grease and similar substances that are difficult to suck up with a general cleaner can be recovered with a strong suction force.

圧縮空気を動力源として吸引力を発生させるため、回転部品等が無く故障は皆無です。
マヨネーズ・グリスなど高粘度液体吸引に最適！！
Compressed air is used to generate the suction force. This cleaner is not subject to mechanical problems because it does not have rotating parts etc. Best suited to sucking up high-viscosity liquids such as mayonnaise and grease!



SC30-32TVG

| ツールNo. EDP No. | 商品名 Product name | 高さ(㎜) Height | 幅(㎜) Width | タンク容量 Tank capacity | ホース内径 Hose inner diameter | 重量 Weight |
|---|---|---|---|---|---|---|
| 9811264 | SC30-32TVG | 890 | 480 | 25ℓ | φ32 | 11.0kg |

※タンク容量・材質などご希望に応じて製作致します。
※We manufacture products that meet customers' requirements (e.g. tank capacity, material).

## ミニポーターサイクロン Mini-Porter-Cyclone

### 大量の粉塵・粉体の処理に！ あらゆる掃除機との組み合わせOK!

Suited to sucking up a large amount of powder and fine dust! Can be used in combination with any type of cleaner!

### 粉塵・粉体の処理にお困りの方へ For problems with powder and fine dust

粉塵や粉体を掃除機で回収する場合、フィルターの目詰まりの頻度が高く掃除機の"掃除"に手間がかかっているが……「ミニポーターサイクロン」は掃除機のパワーによってサイクロン内の空気を吸引して粉体を呼び込むと同時に、下降らせん気流(遠心力)を発生させ、粉体を自重と気流でサイクロン下部の容器に落とし込み回収する構造になっており、粉体等がフィルターを通過しないのが大きな特徴です。例えば小麦粉などの回収は、ほぼ100%可能です。
When a conventional cleaner is used to suck up powder and fine dust, the filter gets clogged frequently, and it takes time to clean the cleaner.
The Mini-Porter-Cyclone takes advantage of the power of a cleaner to suck air in the cyclone and remove powder. A downward spiral air current (centrifugal force) is generated to trap and recover powder in a container at the bottom of the cyclone by means of a dead weight and an air current. Powder etc. does not go through the filter. For example, almost 100% of flour can be recovered.



MP-38 CF12
●本サイクロン単体ではご使用できません。
The cyclone unit cannot be used on its own.

| ツールNo. EDP No. | 商品名 Product name | 高さ(㎜) Height | 幅(㎜) Width | タンク容量 Tank capacity | ホース内径 Hose inner diameter | 重量 Weight |
|---|---|---|---|---|---|---|
| 9601638 | MP-38 CF12 | 990 | 450 | 25ℓ | φ38 | 13.5kg |

※クリーナーの接続口はφ38(φ32アダプター付)※タンク容量・材質などご希望に応じて製作致します。
※Connection port to the cleaner: φ38 (φ32 adapter included in the package)
※We manufacture products that meet customers' requirements (e.g. tank capacity, material).

## ワンダーガン Wonder-Gun

### 業界初の1台3役。吹き飛ばし・吸込・搬送で能率アップ！

First in the industry to offer three functions – blow, suction, and transfer – in order to increase work efficiency!

**ワンダーガンとは…… What is the Wonder-Gun?**

コンプレッサーのエアーを動力源として、吹き飛ばし、吸い込み、搬送にと各産業界で幅広く使用されている異色のエアーガンです。
ワンダーガン製品はスパイラルジェット方式を採用し、動力源の圧縮エアーを有効利用しています。また、ガンの内部は障害物がない筒体で、吸い込みや搬送の際、吸引物が内部につまる心配は全くありません。
This unique air gun is powered by compressed air, and is used for various applications (blow, suction, and transfer) in various industries.
The Wonder-Gun effectively utilizes its power source (compressed air) with a spiral jet mechanism. No obstacles are present inside the gun cylinder, eliminating clogging caused by sucked or transferred materials.

**※スパイラルジェット方式とは？ What is a spiral jet mechanism?**

圧縮空気をスパイラル状に噴射することで大量の空気を生み出す機構です。
This mechanism is designed to produce a high air flow rate by jet-feeding compressed air in a spiral form.




**Aセット内容 Details of Package A**

- ガン本体…1個 Gun main unit …1
- 吸込ノズル…1本 Suction nozzle …1
- 集塵袋…1枚 Dust collection bag …1
- ホースバンド…1個 Hose clamp …1
- カプラ…1個 Coupler …1

**Bセット内容 Details of Package B**

- ガン本体…1個 Gun main unit …1
- 吸込ノズル…1本 Suction nozzle …1
- ダクトホース2m…1本 Duct hose (2 m) …1
- 集塵袋…1枚 Dust collection bag …1
- ホースバンド…2個 Hose clamp …2
- カプラ…1個 Coupler …1

| ツールNo. EDP No. | 商品名 Product name | 全長(mm) Overall length | 最小内径(mm) Minimum inner diameter | ノズルオリフィス(mm) Nozzle orifice | 重量 Weight |
|---|---|---|---|---|---|
| 9601800 | W101 | 144 | φ22 | φ1.4×6穴 | 310g |
| 9601830 | W301 | 142 | φ11 | φ1.4×3穴 | 260g |

| ツールNo. EDP No. | 商品名 Product name |
|---|---|
| 9601808 | W101-Aセット |
| 9601809 | W101-Bセット |

| ツールNo. EDP No. | 商品名 Product name |
|---|---|
| 9601838 | W301-Aセット |
| 9601839 | W301-Bセット |

※取付型もあります。別途お問い合わせください。
※A mountable type is also available. Please contact us for details.

## ワンダーガン 深穴タイプ Wonder-Gun hole cleaning model

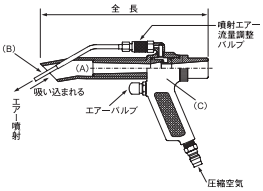
### 深穴部(底つき穴)の切削粉等を完全に除去！タッピング作業などに最適！ 噴射ノズル付！(全開～全閉まで調整可能)

Completely eliminates chips etc. in deep-bottomed holes! Suitable for tapping!
Equipped with a jet nozzle! (Adjustable from fully open to fully closed)

**使用方法 How to use the product**

エアーバルブを押すと噴射ノズル先端よりエアーが噴射されます。
それと同時に吸い込みが発生して切削粉等が深穴内部より完全に除去されます。
Press the air valve, and jet air is fed from the tip of the jet nozzle.
At the same time, suction force is generated to completely remove chips etc. from deep holes.




**セット内容 Details of the package**

- 深穴用ガン本体…1個 Gun main unit for hole cleaning …1
- ダクトホース2m…1本 Duct hose (2 m) …1
- 集塵袋…1枚 Dust collection bag …1
- ホースバンド…2個 Hose clamp …2

| ツールNo. EDP No. | 商品名 Product name | 全長(mm) Overall length | 口径(A)(mm) Diameter | 噴射ノズル外径(B)(mm) Jet nozzle outer diameter | ガン本体最小内径(C)(mm) Minimum inner diameter of the gun main unit | ノズルオリフィス(mm) Nozzle orifice | エアー圧力 Air pressure | 重量 Weight |
|---|---|---|---|---|---|---|---|---|
| 9601874 | W101-Ⅱ | 235 | φ31 | φ5 | φ22 | φ1.4×6穴 | 0.4MPa(4kg/cm²以上) | 435g |
| 9601883 | W301-Ⅱ | 210 | φ20 | φ4 | φ11 | φ1.4×3穴 | 0.4MPa(4kg/cm²以上) | 350g |

※取付型もあります。別途お問い合わせください。 ※別注で噴射ノズルの外径や長さの変更もできます。
※A mountable type is also available. Please contact us for details.
※We also accept orders to change the outer diameter and length of the jet nozzle.

## ワンダーガン ワイドキャッチセット Wonder-Gun wide-catch model

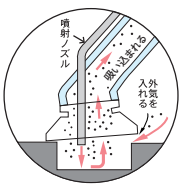
### 吹き飛ばしながら吸い込みができる異色のエアーガン！広口ビン内の清掃、食品容器内の除塵、深穴部の切削粉除去に！

A unique air gun which can perform both air blow and suction at the same time! Suitable for cleaning inside wide-necked bottles, removing fine dust in food containers, and removing chips from deep holes!

**使用方法 How to use the product**

ガン先端に吸込用広口ノズルと、噴射ノズル(全開～全閉まで調整可能)があり、エアーバルブを押すと、吹き飛ばしと吸い込みが同時に行われます。
深穴部、広口ビン等の清掃に最適です。
A wide-mouthed nozzle for suction and a jet nozzle (adjustable from fully open to fully closed) are provided at the tip of a gun. When the air valve is pressed, both air blow and suction are performed at the same time. Suitable for cleaning deep holes, wide-necked bottles, etc.



吸込用広口ノズルは密着させない

**セット内容 Details of the package**

- W101-YZ用ガン本体…1個 W101-YZ gun main unit …1
- Φ32ダクトホース2m…1本 φ32 duct hose (2 m) …1
- 集塵袋…1枚 Dust collection bag …1
- ホースバンド…2個 Hose clamp …2

| ツールNo. EDP No. | 商品名 Product name | 全長(mm) Overall length | 広口金具口径(mm) Diameter of the wide-mouthed fitting | エアー噴射ノズル外径(mm) Outer diameter of the air jet nozzle | 最小内径(mm) Minimum inner diameter | 重量 Weight |
|---|---|---|---|---|---|---|
| 9601892 | W101-YZ | 280 | φ100 | φ4 | φ22 | 600g |

※取付型もあります。別途お問い合わせください。 ※集塵機W1-20・PC-1とのセットも可能です。
※A mountable type is also available. Please contact us for details.
※Also available with W1-20/PC-1 (dust collectors).

# 商品シリーズ エグザイアー ガン&チューブ EXAIR AIR GUN & TUBE

## ■1台5役〈エアーブロー、吸引、搬送、冷却、水切り(乾燥)〉
## ■ローコスト

**■Offering five functions: air blow, suction, transfer, cooling, and drainage (drying)**
**■Low cost**

チューブ(移送管)とグリップは分離しますので、吸引する物の大きさや量、作業内容によりφ25、φ32、φ38のチューブを使い分けて下さい。チューブ(移送管)は各種機械、装置、ライン等に取り付けてお使いください。
流量(力)の調整ができますので、空気消費量の無駄を省き効率良くご使用頂けます。

The transfer tube can be separated from the grip. Use a φ25, φ32, or φ38 tube depending on the size or amount of materials to be sucked up or details of work. The tube can be attached to various machines, units, production lines, etc.
By adjusting the flow rate (force), waste in air consumption can be minimized ensuring efficient use of air.

EXAIR®



MODEL BV32



MODEL T32

| ツールNo. EDP No. | 型式 Model | 全長 Overall Length | 外径 Outer dia. | 最少内径 Minimum inner diameter | 接続径 Connection | 標準価格 Yen |
|---|---|---|---|---|---|---|
| 9601960 | BV25 | 169.1 | φ25 | φ15 | PT1/4メス | 17,000 |
| 9601964 | BV32 | | φ32 | φ22 | | 18,000 |
| 9601968 | BV38 | | φ38 | φ28 | | 19,000 |
| 9601972 | T25 | 169.1 | φ25 | φ15 | PT1/4オス | 9,000 |
| 9601973 | T32 | | φ32 | φ22 | | 10,000 |
| 9601974 | T38 | | φ38 | φ28 | | 11,000 |

### Aセット
A SET
(MODEL BV32-A)



ガン(チューブ)、ノズル(丸)、集塵袋、ホースバンド(1)
GUN (TUBE), NOZZLE, DUST BAG, HOSE BAND (1)

### Bセット
B SET
(MODEL BV32-B)



ガン(チューブ)、ノズル(丸)、集塵袋、ダクトホース(2m)、ホースバンド(2)
GUN (TUBE), NOZZLE, DUST BAG, DUCT HOSE (2m), HOSE BAND (2)

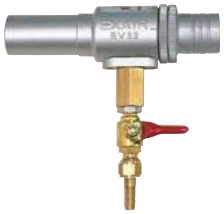
### S型
ホースジョイント付
S type With hose joint



### L型
※自在エルボ+ホースジョイント付
L type With ※universal elbow+hose joint



### SV型
バルブ+ホースジョイント付
SV type With valve+hose joint



### LV型
※自在エルボ+バルブ+ジョイント
LV type With ※universal elbow+valve+joint



※自在エルボ:空気供給口の方向を、360°自由に変えることができます。
※UNIVERSAL ELBOW: Direction of air inlet can be freelychanged in 360°.

| 型式 Model | | BV(ガン) Gun | ツールNo. EDP No. T(チューブ) Tube 標準 Standard type | S型 S type | L型 L type | SV型 SV type | LV型 LV type |
|---|---|---|---|---|---|---|---|
| BV25・T25 | 標準 | 9601960 | 9601972 | 9711027 | 9601979 | 9711043 | 9711052 |
| | —Aセット | 9601961 | 9711021 | 9711028 | 9711036 | 9711044 | 9711053 |
| | —Bセット | 9601962 | 9711022 | 9711029 | 9711037 | 9711045 | 9711054 |
| BV32・T32 | 標準 | 9601964 | 9601973 | 9711030 | 9711038 | 9711046 | 9711055 |
| | —Aセット | 9601965 | 9711023 | 9711031 | 9711039 | 9711047 | 9711056 |
| | —Bセット | 9601966 | 9711024 | 9711032 | 9711040 | 9711048 | 9711057 |
| BV38・T38 | 標準 | 9601968 | 9601974 | 9711033 | 9601980 | 9711049 | 9711058 |
| | —Aセット | 9601969 | 9711025 | 9711034 | 9711041 | 9711050 | 9711059 |
| | —Bセット | 9601970 | 9711026 | 9711035 | 9711042 | 9711051 | 9711060 |

UNICRAFT ユニクラフトナグラ株式会社 **悠遊フィルター SFシリーズ**
UNICRAFT NAGURA CORPORATION YuYu Filter SF series

特許出願
Patent pending

# TPM活動で生まれたアイデア商品発売 故障ゼロに貢献!!
# SFシリーズ追加でフレキシブルな対応が可能に!

**This innovative product that was invented through TPM activities helps eliminate equipment problems!**
**The newly added SF series offers flexible applications!**

■ワンタッチ取付け
■Quick installation

■ミスト・粉塵をシャットアウト!
■Eliminates ingress of mist and fine dust!

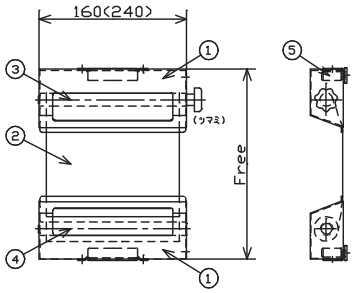
この商品は、制御盤内へのミスト及び粉塵の進入を防止し、盤内の電子部品の性能を守るために考案した、ワンタッチで取付可能なミストフィルターです。
This quickly installable mist filter prevents ingress of mist and fine dust into control panels to maintain the performance of electronic parts inside.

**特長 Features**

- 取付けはワンタッチ式（マグネット式）
- フィルターの更新は、巻き取り方式で簡単。更新頻度も自由に設定できます。
- 取付け長さは、FREEサイズです。
- フィルターは、ポリエステル素材使用で取扱いが容易です。（標準フィルターメッシュ =30μ）

- Quick installation (using magnets)
- New filter can be easily fed by turning the roll. New filter feed frequency can be flexibly set.
- The installation length is freely adjustable.
- The filter is made from polyester and is easy to handle. (Standard filter mesh = 30 μm)

## 各部の名称 Names of parts

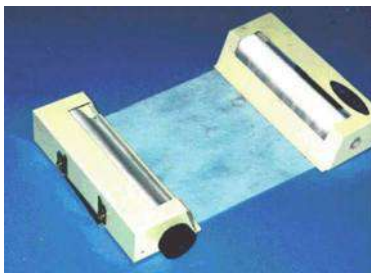



| | |
|---|---|
| ①本体 | ① Main unit |
| ②フィルター | ② Filter |
| ③フィルターローラーA | ③ Filter roller A |
| ④フィルターローラーB | ④ Filter roller B |
| ⑤マグネット | ⑤ Magnet |

（　）内寸法は SF-220B

＊ 2m のフィルターは元から入ってます。
The dimensions of the SF-220B are given in parentheses.
＊ Product is set with a 2 m filter at product shipment.

## 仕　様 Specifications

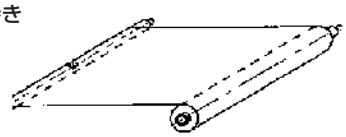




| 機種 Model | 用途 Application | 使用範囲 Scope of use |
|---|---|---|
| SF-150B | 制御盤用 | 吸入口巾150mm（長さはフリー） |
| SF-220B | 制御盤用 | 吸入口巾200mm（長さはフリー） |

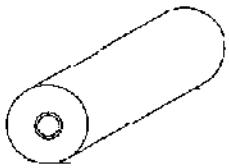
## 別売品 Separately available

◆フィルターローラー AB　2m巻き
Filter roller AB (a 2 m roll)



| 機種 Model | 交換用機種 Model for replacement |
|---|---|
| FLAB-150 | SF-150B用 |
| FLAB-220 | SF-220B用 |

◆フィルター　100m巻き
Filter (a 100 m roll)



| 機種 Model | 交換用機種 Model for replacement |
|---|---|
| FF14-100 | SF-150B用 |
| FF22-100 | SF-220B用 |

# 再研磨・再コーティング

Tool Reconditioning

## 再研磨・再コーティングを 一貫対応

Coherent support system for tool reconditioning




総合工具メーカーとしてオーエスジーが長年培ってきた工具設計のノウハウとコーティング技術を
最大限に活かし新品同様の切削性能と工具寿命を実現します。
オーエスジーでは再研磨・再コーティングを当社グループ会社で対応するため一括で受け入れ可能です。

As a comprehensive cutting tool manufacturer with tool design and coating technology know-how cultivated over many years, OSG is capable of restoring used tools to like-new condition. Tool reconditioning is handled by OSG group companies with a coherent support system to enable a seamless process.

再研磨・再コーティングの
詳細はこちら
Scan for details on tool reconditioning

## 再研磨・再コーティングは環境に優しい取組みです

Tool reconditioning promotes resource conservation and is environmentally friendly

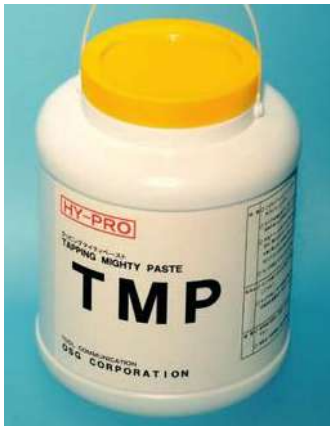
使用できなくなった工具を蘇らせ再使用することは、
省資源化と地球環境の保護活動への貢献につながります。

Tool reconditioning contributes to resource conservation by bringing worn cutting tools back to life, which is environmentally friendly and sustainable.



# 商品シリーズ タッピングオイル TAPPING OIL

## タッピングマイティペースト TMP TAPPING MIGHTY PASTE




**タッピングマイティペーストTMPは、非常に使い勝手の良いペースト状タップ作業用切削剤です。常温でペースト状のため、取り扱いが容易で使用量も少なくて済み、横型機械でのタッピングにも最適です。タップの切削熱で液状となり、加工部に浸透するため、切りくずの排出性も良好で作業環境を汚すこともありません。**

Tapping Might Paste (TMP) is very handy tapping paste. Because it is paste type oil at normal temperature, it applies to tapping operation on horizontal machining center. As it changes to liquid with the cutting heat of tapping operation, the oil can be easily penetrated into machine parts, evacuate chips smoothly, and keep working environment clean.

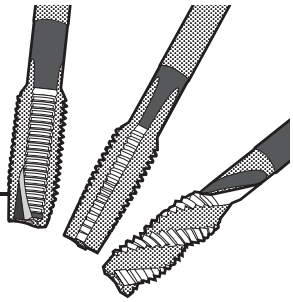
**特長** Features & Benefits

- ＊合金鋼、ステンレス鋼、銅、アルミニウムとあらゆる材質に適応できます。被削材質によって油種を変える必要はありません。
- ＊環境問題に配慮した、非塩素タイプです。
- ＊小径から大径にいたる広範囲に適用可能で、特に低速加工において効果を発揮します。

- ＊TMP applies to a wide range of work materials such as alloy steels, stainless steels, copper, aluminum alloys.
- ＊It is non-chlorine oil.
- ＊It applies to a wide range of tool size, and it especially achieves high performance in low speed machining.

HY-PRO

**タッピングオイル**
TAPPING OIL






それぞれ特長を持った3種類のタッピングオイルを用意いたしました。被削材対応表を参考に、用途に応じた最良のタッピングオイルをお選び下さい。

3 types of tapping lubricants are available for proper applications. Please pick proper lubricant using the selsction chart.

| | 外観 Appearance of concentrate | 引火点 Flash Point (c.o.c) | 動粘度 Kinematic Viscocity $mm^2/s$ | 荷姿 Packaging | 特長 Features & Benefits | 関係法令 |
|---|---|---|---|---|---|---|
| **OTO-A** | 褐色透明液体 Amber Clear Liquid | 196 | 31 | 4L缶 | 難削材、難加工条件の旋削、フライス、ドリル、リーマ、タップに適応。特に高炭素鋼に威力を発揮します。噴射の場合もオイルミスト対策しております。 Applicable to milling, drilling, reamering, and tapping on difficult-to-cut materials and difficult cutting conditions. High performance in machining carbon steels especially. | 第四類第3石油類 労働安全衛生法 169鉱油 |
| **OTO-B** | 褐色透明液体 Amber Clear Liquid | 194 | 33 | 4L缶 | 難削材、難加工条件の精密ドリル、小径深孔リーマ、高速小径ロールタップに適応できます。特にステンレス鋼に威力を発揮します。 Applicable to high precision drilling, small-sized and long-depth reamering, and high-speed tapping by small-sized forming taps. High performance in machining stainless steels especially. | 第四類第3石油類 労働安全衛生法 169鉱油 |
| **OTO-C** | 褐色透明液体 Amber Clear Liquid | 224 | 49 | 4L缶 | 炭素鋼、銅、銅合金兼用油です。リーマ、ロールタップに適応できます。 Oil for carbon steels, copper, and copper alloys. Applicable to reamering and tapping by forming taps. | 第四類第4石油類 労働安全衛生法 169鉱油 |

| 被削材質 Work Material / 製品記号 Abbreviation | 低炭素鋼 Low Carbon Steel C ~0.25% | 中炭素鋼 Medium Carbon Steel C0.25% ~0.45% | 高炭素鋼 High Carbon Steel C 0.45% ~ | 合金鋼 Alloy Steel SCM | 調質鋼 Hardened Steel 25~45 HRC | 調質鋼 Hardened Steel 45~55 HRC | 調質鋼 Hardened Steel 50~60 HRC | ステンレス鋼 Stainless Steel SUS | 工具鋼 Tool Steel SKD | 鋳鋼 Cast Steel SC | 鋳鉄 Cast Iron FC | ダクタイル鋳鉄 Ductile Cast Iron FCD | 銅 Copper Cu | 黄銅 Brass Bs | 黄銅鋳物 Brass Casting BsC | 青銅 Bronze PB | アルミ圧延材 Aluminum Rolled AL | アルミ合金鋳物 Aluminum Alloy Casting AC,ADC | マグネシウム合金鋳物 Magnesium Alloy Casting MC | 亜鉛合金鋳物 Zinc Alloy Casting ZDC | チタン合金 Titanium Alloy | Ni基合金 Nickel Alloy | 熱硬化性プラスチック Thermo Setting Plastic | 熱可塑性プラスチック Thermo Plastic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OTO-A** | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ○ | ◎ | ◎ | ◎ | ◎ | × | × | × | × | ◎ | ◎ | ◎ | ◎ | ○ | ◎ | | |
| **OTO-B** | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | × | × | × | × | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | | |
| **OTO-C** | ◎ | ◎ | ○ | ○ | ○ | | | ○ | ○ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | | |

# 脱着式ツーリング保管庫 MS8段 棚板組合わせ自由

## Removable Tool Storage Cabinet MS8

Shelves can be combined as desired

脱着方式 Removable type

実用新案登録番号 第3083651号

### 扉取り外し可能 Removable doors




●本体寸法 Size

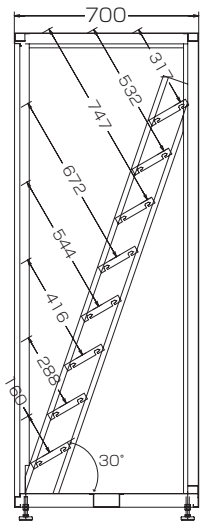
(W) (D) (H)

947×700×1,850mm

●重量 Weight 103kg

●均等耐荷重 60kg/棚板1段

Uniform withstand load 60kg/shelf




アジャスター標準

Adjusters provided as standard equipment

※ 車上渡し：商品到着後の搬入、設置はお客様でお願い致します。

| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| TD50 | #A #P | 6 |
| TD40 | #B #C | 12 |
| TD46 | #B #C #D #E #R | 10 |
| TD30 | #F #J #L #M | 20 |

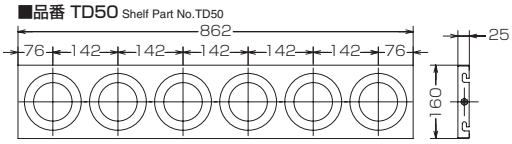
(色/ベージュ)(Color/Beige)

### 棚 板 Shelves

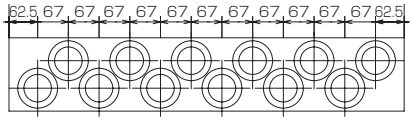
棚板の枚数が合計8枚/1台になる様、ご注文下さい。

Order a total of 8 shelves per cabinet

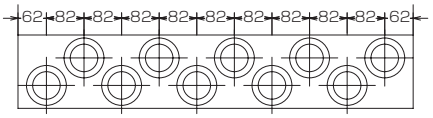
■品番 TD50 Shelf Part No.TD50



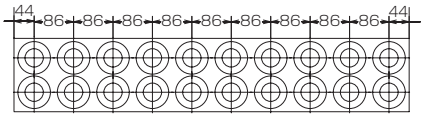

■品番 TD40 Shelf Part No.TD40




■品番 TD46 Shelf Part No.TD46




■品番 TD30 Shelf Part No.TD30




適用ホルダは下記ホルダー一覧を参照下さい。
色/ベージュ 指定色は別途ご相談下さい。

See the holder list below for the applicable holder.
Color/Beige. Please contact us if you wish to specify a particular color.

運賃別途 Shipping charge is additional.

## ホルダー一覧 List of Holders

| ホルダ Holders | 材質 Material |
|---|---|
| #A ～ #F、#J ～ #R | PPT |

#A φ100
HSK-A100&BT50 PAT.



#B φ63
HSK-A63&BT40 PAT.



#C φ63
HSK-F63



#D φ63
KENNAMETAL KM-63XM PAT.



#E φ63
COROMANT CAPTO-C6



#F φ46
BT30&NC5-46&BBT30 PAT.



#J φ50
COROMANT CAPTO-C5



#L φ40
COROMANT CAPTO-C4

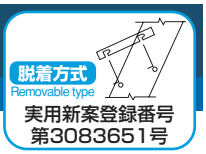


#M φ50
HSK-A50



# 脱着式ツーリング保管庫 MS3段 棚板組合わせ自由

## Removable Tool Storage Cabinet MS3 Shelves can be combined as desired




■天板厚 2mm 大型焼バメ装置用に開発しました。
2mm-thick top panel Developed for large-size shrink-fit equipment

**扉取り外し可能**
Removable doors

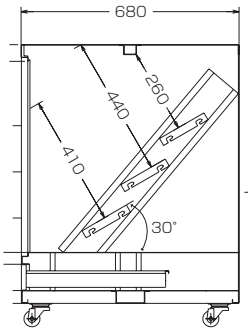



■標準装備 Standard equipment
天板用耐油性黒ゴム板・フリーバスケット
Oil-resistant black rubber sheet for top board,free basket

●本体寸法 Size
(W) (D) (H)
945×680×880mm

●重量 Weight 74kg

●均等耐荷重 60kg/棚板1段
Uniform withstand load 60kg/shelf

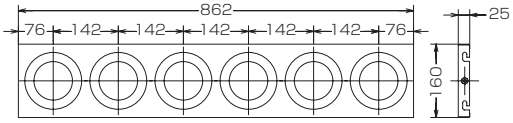



キャスター標準
Casters provided as standard equipment

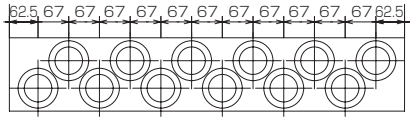
棚 板 Shelves

棚板の枚数が合計3枚/1台になる様、ご注文下さい。
Order a total of 3 shelves per cabinet

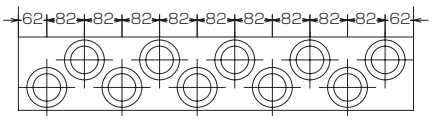
■品番 TD50 Shelf Part No.TD50



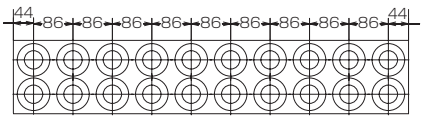

■品番 TD40 Shelf Part No.TD40




■品番 TD46 Shelf Part No.TD46




■品番 TD30 Shelf Part No.TD30



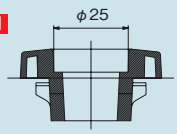

| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| TD50 | #A #P | 6 |
| TD40 | #B #C | 12 |
| TD46 | #B #C #D #E #R | 10 |
| TD30 | #F #J #L #M | 20 |

(色/ベージュ) (Color/Beige)

適用ホルダは下記ホルダー一覧を参照下さい。
色/ベージュ 指定色は別途ご相談下さい。

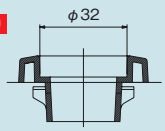
See the holder list below for the applicable holder.
Color/Beige. Please contact us if you wish to specify a particular color.

運賃別途 Shipping charge is additional.

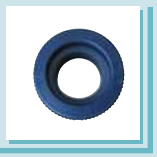
#N


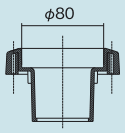
HSK-E25



#O


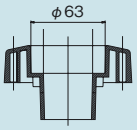
HSK-E32



#P


COROMANT CAPTO-C8



#R


KENNAMETAL KM-6350



# ツーリングワゴン MS-ID型 棚板組合わせ自由

## Tooling Wagon MS-ID Shelves can be combined as desired

■天板厚2mm 作業台としても使える様開発しました。
2mm-thick top panel Developed to be used also as a workbench

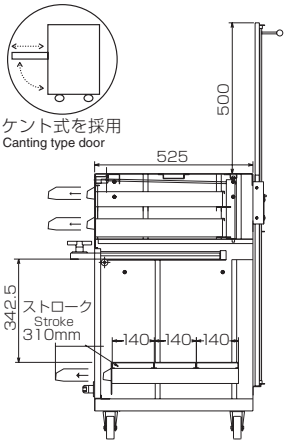



■標準装備 Standard equipment
天板用耐油性黒ゴム板・ホワイトボード・取っ手・フリーバスケット・引出し用マット
Oil-resistant black rubber sheet for top board,whiteboard, handles,free basket,and drawer mats

●本体寸法 Size
(W) (D) (H)
810×525×880mm

●重量 Weight 82kg

●均等耐荷重 180kg
Uniform withstand load



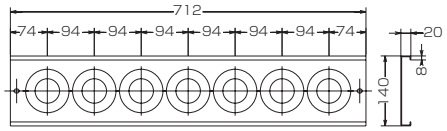

キャスター標準 φ75（ウレタン車輪）
Casters provided as standard equipment (Urethane wheels)

ラッチ機構 Latch mechanism

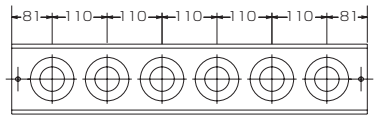
棚 板 Shelves

棚板の枚数が合計3枚/1台になる様、ご注文下さい。
Order a total of 3 shelves per cabinet

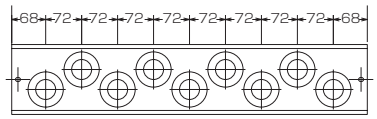
■品番 T140 Shelf Part No.T140




■品番 T146 Shelf Part No.T146




■品番 T130 Shelf Part No.T130




| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| T140 | #B #C | 7 |
| T146 | #B #C #D #E #R | 6 |
| T130 | #F #J #L #M | 9 |

(色/シルバー)(Color/Silver)

適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

運賃別途 Shipping charge is additional.

## ホルダー一覧 List of Holders

| ホルダ Holders | 材質 Material |
|---|---|
| #A ～ #F、#J ～ #R | PPT |

#A φ100
HSK-A100&BT50 PAT.



#B φ63
HSK-A63&BT40 PAT.



#C φ63
HSK-F63



#D φ63
KENNAMETAL KM-63XM PAT.



#E φ63
COROMANT CAPTO-C6



#F φ46
BT30&NC5-46&BBT30 PAT.



#J φ50
COROMANT CAPTO-C5



#L φ40
COROMANT CAPTO-C4



#M φ50
HSK-A50



# ツーリングワゴン MS-I型　棚板組合わせ自由

## Tooling Wagon MS-I　Shelves can be combined as desired

■天板厚 2mm 作業台としても使える様開発しました。
2mm-thick top panel Developed to be used also as a workbench

### スライド式ホワイトボード
Sliding type white board

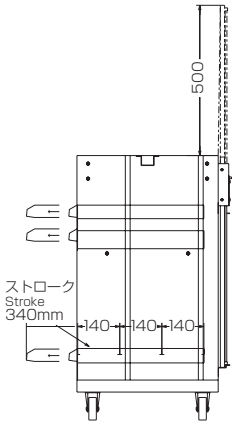



■標準装備 Standard equipment
天板用耐油性黒ゴム板・ホワイトボード・取っ手
・フリーバスケット・引出し用マット
Oil-resistant black rubber sheet for top board,whiteboard,
handles,free basket,and drawer mats

●本体寸法 Size
(W)　(D)　(H)
810×470×880mm

●重量 Weight　65kg

●均等耐荷重　180kg
Uniform withstand load



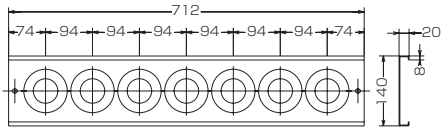

キャスター標準　φ75
Casters provided as standard equipment
(ウレタン車輪
Urethane wheels)

**ラッチ機構** Latch mechanism

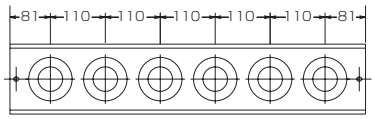
**棚　板** Shelves

棚板の枚数が合計3枚/1台になる様、ご注文下さい。
Order a total of 3 shelves per cabinet

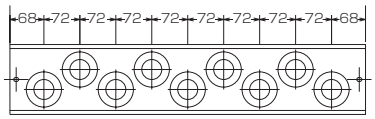
■品番 T140 Shelf Part No.T140




■品番 T146 Shelf Part No.T146




■品番 T130 Shelf Part No.T130



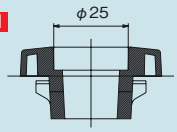

| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| T140 | #B #C | 7 |
| T146 | #B #C #D #E #R | 6 |
| T130 | #F #J #L #M | 9 |

(色/シルバー)(Color/Silver)

適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

運賃別途　Shipping charge is additional.

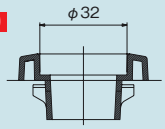
#N




HSK-E25



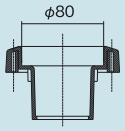
#O



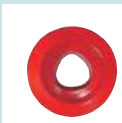

HSK-E32



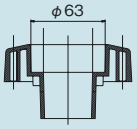
#P




COROMANT CAPTO-C8



#R




KENNAMETAL KM-6350



# ツーリングワゴン MS-ⅡD型

## Tooling Wagon MS-ⅡD

■天板厚2mm 作業台としても使える様開発しました。
2mm-thick top panel Developed to be used also as a workbench

### スライド式ホワイトボード
Sliding type white board

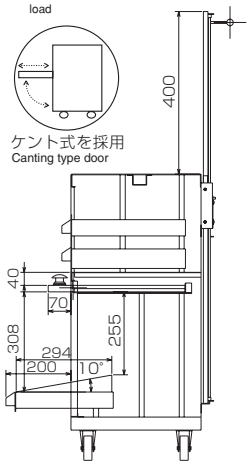



■標準装備 Standard equipment
天板用耐油性黒ゴム板・ホワイトボード・取っ手
・フリーバスケット・引出し用マット
Oil-resistant black rubber sheet for top board,whiteboard,
handles,free basket,and drawer mats

●本体寸法 Size
(W) (D) (H)
600×400×880mm

●重量 Weight 40kg

●均等耐荷重 150kg
Uniform withstand load

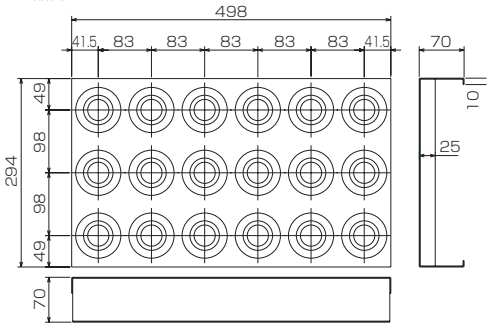



キャスター標準 φ75
Casters provided as standard equipment
(ウレタン車輪 Urethane wheels)

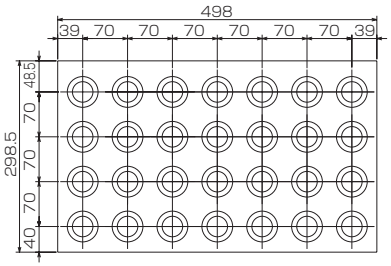
ラッチ機構 Latch mechanism

棚 板 Shelves

■品番 TDV30 Shelf Part No.TDV30




■品番 TDV22 Shelf Part No.TDV22




| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| TDV30 | #F | 18 |
| TDV22 | #N #O | 28 |

(色/シルバー)(Color/Silver)

適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

運賃別途 Shipping charge is additional.

## ホルダー一覧 List of Holders

| ホルダ Holders | 材質 Material |
|---|---|
| #A ～ #F、#J ～ #R | PPT |

#A φ100
HSK-A100&BT50 PAT.



#B φ63
HSK-A63&BT40 PAT.



#C φ63
HSK-F63



#D φ63
KENNAMETAL KM-63XM PAT.



#E φ63
COROMANT CAPTO-C6



#F φ46
BT30&NC5-46&BBT30 PAT.



#J φ50
COROMANT CAPTO-C5



#L φ40
COROMANT CAPTO-C4



#M φ50
HSK-A50

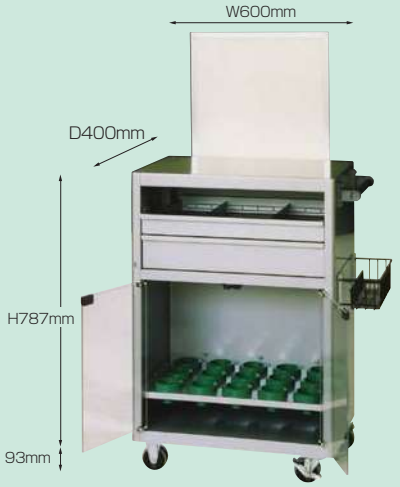


# ツーリングワゴン MS-Ⅱ型 棚板組合わせ自由

## Tooling Wagon MS-Ⅱ Shelves can be combined as desired

■天板厚 2mm 作業台としても使える様開発しました。
2mm-thick top panel Developed to be used also as a workbench

### スライド式ホワイトボード
Sliding type white board

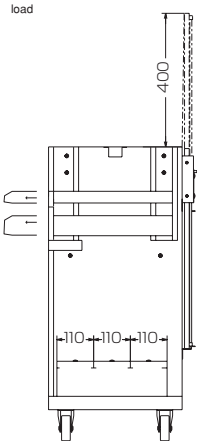



■標準装備 Standard equipment
天板用耐油性黒ゴム板・ホワイトボード・取っ手
・フリーバスケット・引出し用マット
Oil-resistant black rubber sheet for top board,whiteboard,
handles,free basket,and drawer mats

●本体寸法 Size
(W) (D) (H)
600×400×880mm

●重量 Weight 40kg

●均等耐荷重 150kg
Uniform withstand load



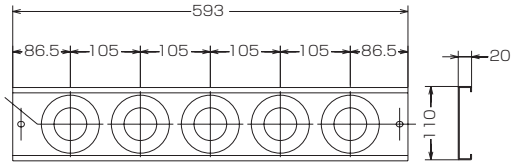

キャスター標準 φ75
Casters provided as standard equipment
(ウレタン車輪
Urethane wheels)

キャッチレール機構 Catch rail mechanism

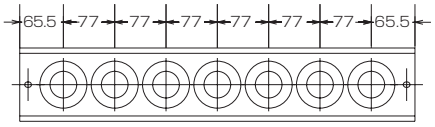
棚 板 Shelves

棚板の枚数が合計3枚/1台になる様、ご注文下さい。
Order a total of 3 shelves per cabinet

■品番 T244 Shelf Part No.T244




■品番 T230 Shelf Part No.T230



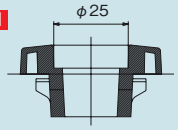

| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| T244 | #B #C #D #E #R | 5 |
| T230 | #F #J #L #M | 7 |

(色/シルバー)(Color/Silver)

適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

運賃別途 Shipping charge is additional.

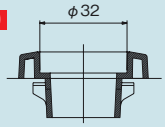
#N φ25



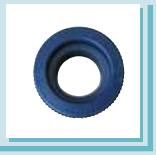
HSK-E25



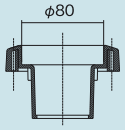
#O φ32



HSK-E32



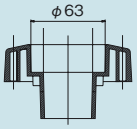
#P φ80



COROMANT CAPTO-C8



#R φ63



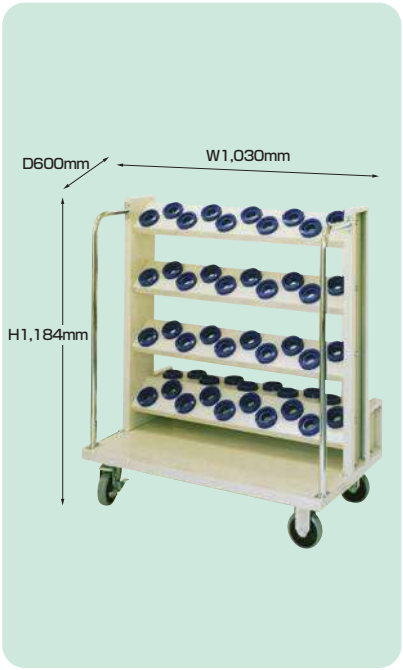
KENNAMETAL KM-6350



# ツーリングタワー 4段+1（プラスワン） 棚板組合わせ自由

## Tooling Tower 4shelves+1 Shelves can be combined as desired

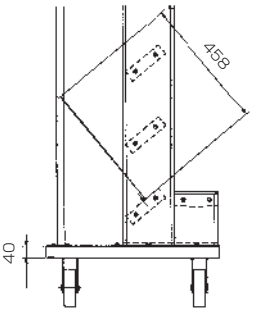
棚 板 Shelves
実用新案登録番号 第3095640号




●本体寸法 Size
(W) (D) (H)
1,030×600×1,184mm

●重量 Weight 42kg

●均等耐荷重 300kg/台
Uniform withstand load 300kg/cabinet



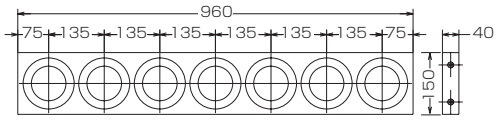

キャスター標準 φ130
Casters provided as standard equipment
（ウレタン車輪 Urethane wheels）

お客様にて組立て Installed by user

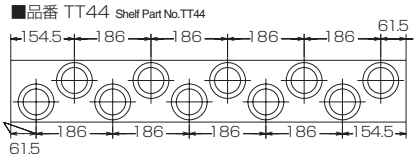
### 棚 板 Shelves

棚板の枚数が合計5枚/1台になる様、ご注文下さい。
Order a total of 5 shelves per cabinet

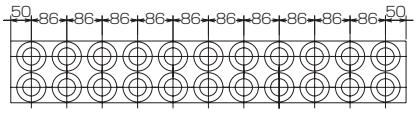
■品番 TT50 Shelf Part No.TT50




■品番 TT44 Shelf Part No.TT44




■品番 TT30 Shelf Part No.TT30




| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| TT50 | #A #P | 7 |
| TT44 | #B #C #D #E #R | 10 |
| TT30 | #F #J #L #M | 22 |

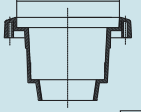
（色/ベージュ）(Color/Beige)

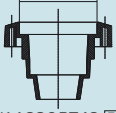
適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

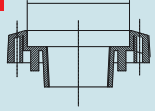
運賃別途 Shipping charge is additional.

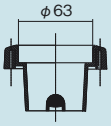
## ホルダー一覧 List of Holders

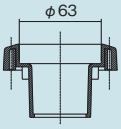
| ホルダ Holders | 材質 Material |
|---|---|
| #A ～ #F、#J ～ #R | PPT |

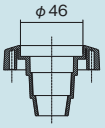
#A φ100

HSK-A100&BT50 PAT.

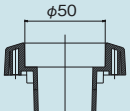

#B φ63

HSK-A63&BT40 PAT.

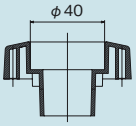

#C φ63

HSK-F63

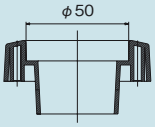

#D φ63

KENNAMETAL KM-63XM PAT.


#E φ63

COROMANT CAPTO-C6


#F φ46

BT30&NC5-46&BBT30 PAT.


#J φ50

COROMANT CAPTO-C5


#L φ40

COROMANT CAPTO-C4


#M φ50

HSK-A50


# ツーリングワゴン MTW 棚板組合わせ自由

## Tooling Wagon MTW Shelves can be combined as desired

**TypeA** ホルダ棚板2枚タイプ
Holder Shelves:2pcs type



**TypeB** ホルダ棚板1枚+油受け用棚板1枚タイプ
Holder Shelf:1pcs+Oil pan shelf:1pcs type

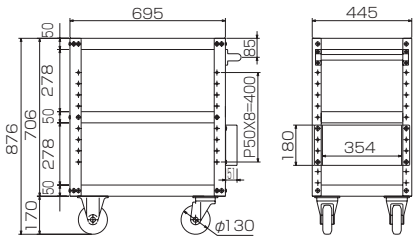


●本体寸法 Size (W) (D) (H) 695×445×876mm

●重量 Weight 32kg

●均等耐荷重 Uniform withstand load 100kg/棚板1段 100kg/shelf

●油受け用棚板 Oil Pan Shelf 品番OP1 Shelf Part No.
寸法 Size (W) (D) (H) 690×440×40mm



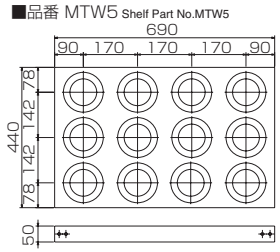

お客様にて組立て Installed by user

| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| MTW5 | #A #P | 12 |
| MTW4 | #B #C #D #E #R | 24 |
| MTW3 | #F #J #L #M | 28 |
| OP1 | ———— | ———— |

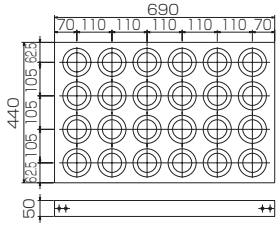
**棚　板 Shelves**

棚板の枚数が合計2枚/1台になる様、ご注文下さい。
Order a total of 2 shelves per wagon

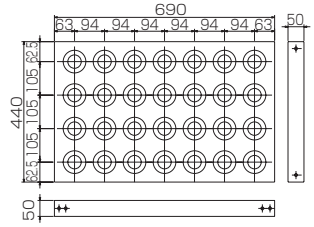
■品番 MTW5 Shelf Part No.MTW5




■品番 MTW4 Shelf Part No.MTW4



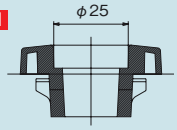

■品番 MTW3 Shelf Part No.MTW3




適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

運賃別途 Shipping charge is additional.

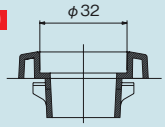
#N φ25



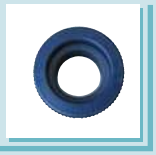
HSK-E25



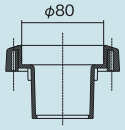
#O φ32



HSK-E32



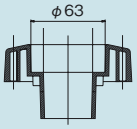
#P φ80



COROMANT CAPTO-C8



#R φ63

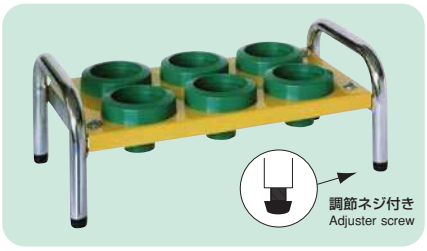


KENNAMETAL KM-6350

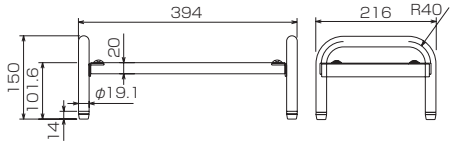


# ツーリングスタンド MTS

## Tooling Stand MTS

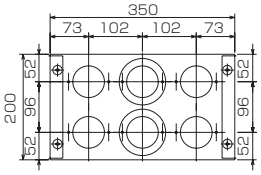



●本体寸法 Size (W) (D) (H) 394×216×150mm

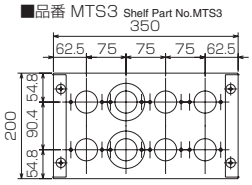



棚　板 Shelves ＊棚板は２種類のうちいずれかをお選び下さい。Choose one out of two shelves.

■品番 MTS4 Shelf Part No.MTS4




■品番 MTS3 Shelf Part No.MTS3




| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| MTS4 | #B #C #D #E #R | 6 |
| MTS3 | #F #J #L #M | 8 |

適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

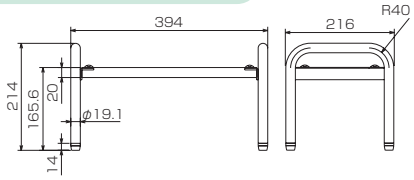
運賃別途　Shipping charge is additional.

# ツーリングスタンド MTS5

## Tooling Stand MTS5

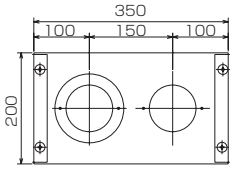



●本体寸法 Size (W) (D) (H) 394×216×214mm




棚　板 Shelves

■品番 MTS5 Shelf Part No.MTS5




| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| MTS5 | #A #P | 2 |

適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

運賃別途　Shipping charge is additional.

## ホルダー一覧 List of Holders

| ホルダ Holders | 材質 Material |
|---|---|
| #A ～ #F、#J ～ #R | PPT |

#A φ100
HSK-A100&BT50 PAT.



#B φ63
HSK-A63&BT40 PAT.



#C φ63
HSK-F63



#D φ63
KENNAMETAL KM-63XM PAT.



#E φ63
COROMANT CAPTO-C6



#F φ46
BT30&NC5-46&BBT30 PAT.



#J φ50
COROMANT CAPTO-C5



#L φ40
COROMANT CAPTO-C4

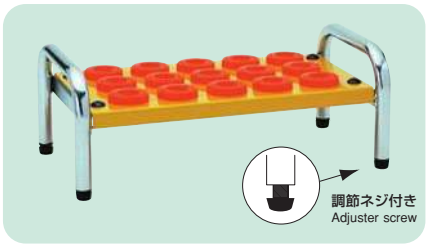


#M φ50
HSK-A50

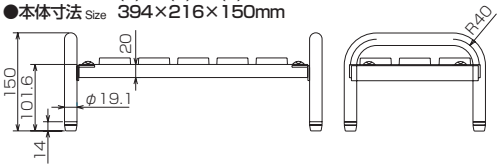


# ツーリングスタンド MTS15

## Tooling Stand MTS15

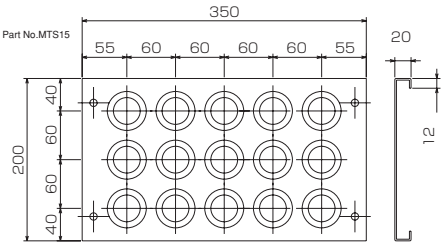



●本体寸法 Size (W) (D) (H) 394×216×150mm




棚　板 Shelves

■品番 MTS15 Shelf Part No.MTS15



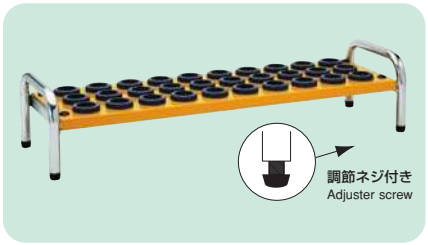

| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| MTS15 | #N #O | 15 |

適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

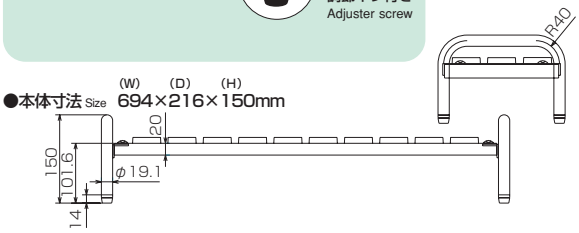
運賃別途　Shipping charge is additional.

# ツーリングスタンド MTS30

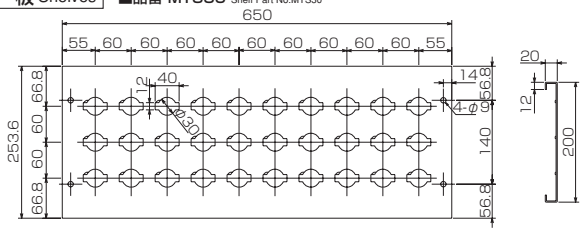
## Tooling Stand MTS30




●本体寸法 Size (W) (D) (H) 694×216×150mm




棚　板 Shelves　■品番 MTS30 Shelf Part No.MTS30

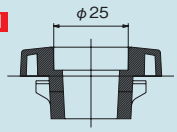



| 棚板品番 Shelf Part No. | 適用ホルダ Applicable Holders | 収納数 Storage Quantity |
|---|---|---|
| MTS30 | #N #O | 30 |

適用ホルダは下記ホルダー一覧を参照下さい。
See the holder list below for the applicable holder.

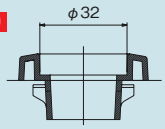
運賃別途　Shipping charge is additional.

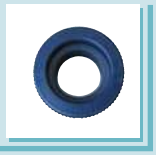
#N



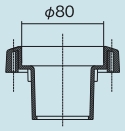


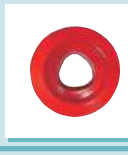

#O



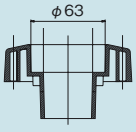



#P



#R






# EROWA電極ワゴン EW88

## EROWA Electrode Wagon EW88

**TypeA**



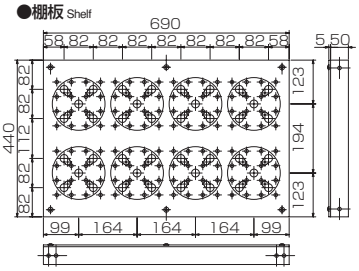
電極棚板2枚タイプ
Electrode Shelves 2pcs type

**TypeB**



電極棚板1枚
＋油受け用棚板1枚タイプ
Electrode Shelf 1pcs+Oil pan shelf:1pcs type

●棚板 Shelf




電極ホルダ収納数
Storage Quantity of Electrode Holders
（＊ITS50:32個 ITS50:32pcs
＊ITS100:8個 ITS100:8pcs）



ITS50電極ホルダ
ITS50 Electrode Holder



ITS100電極ホルダ
ITS100 Electrode Holder

●油受け用棚板 Oil Pan Shelf　品番OP2 Shelf Part No.
寸法 Size (W) (D) (H) 690×440×40mm

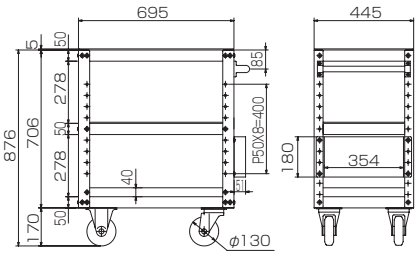
●本体寸法 Size (W) (D) (H) 695×445×881mm

●重量 Weight 34kg

●均等耐荷重 Uniform withstand load 300kg/台 300kg/wagon

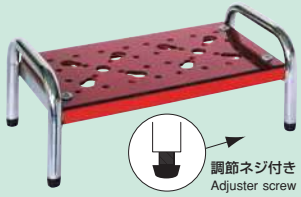
お客様にて組立て Installed by user

運賃別途 Shipping charge is additional.

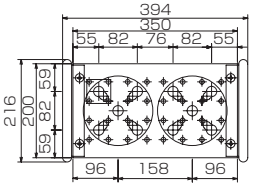



# EROWA電極スタンド MES1

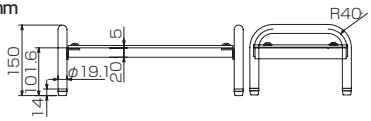
## EROWA Electrode Stand MES1




電極ホルダ収納数
Storage Quantity of Electrode Holders
（＊ITS50:8個 ITS50:8pcs
＊ITS100:2個 ITS100:2pcs）




●本体寸法 Size
(W) (D) (H)
394×216×150mm




運賃別途 Shipping charge is additional.

# ワイヤーカット用ワゴン MS1HY

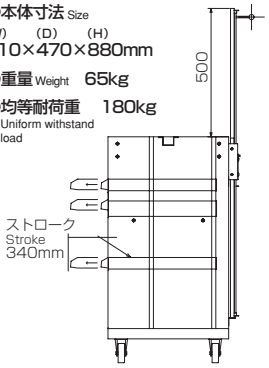
## Wire Cut Wagon MS1HY




●本体寸法 Size
(W) (D) (H)
810×470×880mm

●重量 Weight 65kg

●均等耐荷重 Uniform withstand load 180kg




キャスター標準 φ75
Casters provided as standard equipment
（ウレタン車輪 Urethane wheels）

運賃別途 Shipping charge is additional.

◆製品については、常に研究・改良を行っておりますので、予告なく本カタログ掲載仕様を変更する場合があります。

◆ Tool specifications subject to change without notice

実用新案登録番号　第3083651号
第3095640号

# 脱着式ツーリング保管庫

## *Removable Tool Storage Cabinet*



















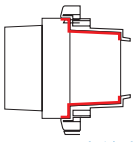


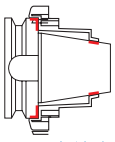
**NEW** 更に充実!!


CAPTO-C8


KENNAMETAL KM-6350

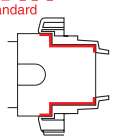
## ISO規格＋JIS規格 PAT.


HSK-100 収納時 Storing

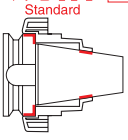

BT50 収納時 Storing

HSK-A100+BT50+NT50

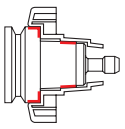
Standard

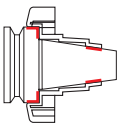

HSK-A63 収納時 Storing

Standard


BT40 収納時 Storing

HSK-A63+BT40+NT40


NC5-46 収納時 Storing


BT30 収納時 Storing

BT30+NT30+NC5-46 BBT30

HY-PRO

## 他社メーカより豊富なホルダの種類

**Rich array of holders available from another manufacturer**

上記メーカ以外のホルダに関しては当社営業までお問い合わせ下さい。
Contact our sales regarding holders offered by manufacturers other than the above.

# OZTツールプリセッタ OZT Tool Presetter




## OZT-1 ニーズに合わせたカスタマイズ可能 *Various options available*

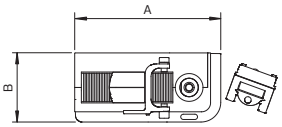


### OZTクリックで回す・押す・簡単測定！

***Measurement is as simple as turning and pressing OZT Click.***

***測定プログラムを用意。オプション追加で、ご要望に対応可能。***
***Several measuring programs are available. Add the options you require.***

| | OZT-1 350 | OZT-1 420 | OZT-1 600 |
|---|---|---|---|
| 機械高さ Machine height | 870mm | 1,050mm | 1,250mm |
| 最大工具長 Max. tool length | 350mm | 420mm | 600mm |
| 最大工具半径 Max. tool diameter | 160mm | 210mm | 210mm |
| 機械幅（A） Machine width (A) | 750mm | 890mm | 890mm |
| 機械奥行（B） Machine depth (B) | 360mm | 420mm | 420mm |
| 重量 Weight | 80kg | 100kg | 115kg |




## OZT-2 工具管理機能を標準装備 *Tool management feature provided as standard*



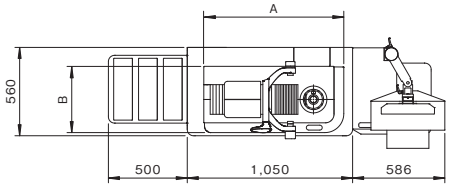
### OZTタッチ（パネル）で手軽に！

***Easy-to-operate OZT Touch (panel)***

***<オプション>***
- ***データ転送可能。***
- ***オートフォーカス機能による測定。***
- ***バキューム/パワークランプ※対応。***

***Options***
- ***Data transmission***
- ***Autofocus measurement***
- ***Vacuum / power clamp***

| | OZT-2 350 | OZT-2 420 | OZT-2 600 |
|---|---|---|---|
| 総高さ Total height | 1,600mm | 1,750mm | 1,950mm |
| 機械高さ Machine height | 864mm | 1,015mm | 1,215mm |
| 最大工具長 Max. tool length | 350mm | 420mm | 600mm |
| 最大工具半径 Max. tool diameter | 160mm | 210mm | 210mm |
| 機械幅（A） Machine width (A) | 750mm | 890mm | 890mm |
| 機械奥行（B） Machine depth (B) | 360mm | 420mm | 420mm |
| 重量 Weight | 180kg | 275kg | 290kg |




## OZT-3 ソフトウェアにより高精度な測定を自動化！ *Measuring machine software for automated high-precision measurement!*



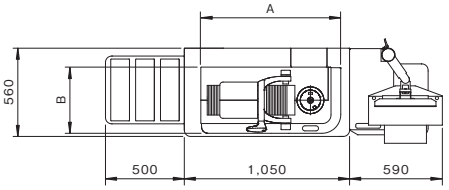
### タッチ&スライドの高い操作性！

***Touch & slide feature provides high-operability***

***<オプション>***
- ***データ転送可能。***
- ***バキューム/パワークランプ※対応。***
- ***CNC制御によるカメラの自動移動対応 (OZT-3 420/600のみ対応)。***

***Options***
- ***Data transmission***
- ***Vacuum / power clamp***

| | OZT-3 350 | OZT-3 420 | OZT-3 600 |
|---|---|---|---|
| 総高さ Total height | 1,600mm | 1,750mm | 1,950mm |
| 機械高さ Machine height | 864mm | 1,015mm | 1,215mm |
| 最大工具長 Max. tool length | 350mm | 420mm | 600mm |
| 最大工具半径 Max. tool diameter | 160mm | 210mm | 210mm |
| 機械幅（A） Machine width (A) | 750mm | 890mm | 890mm |
| 機械奥行（B） Machine depth (B) | 360mm | 420mm | 420mm |
| 重量 Weight | 180kg | 275kg | 290kg |

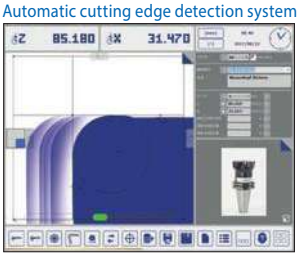



※印：OZT-2 420/600 及び OZT-3 420/600 に対応 ※corresponds to OZT-2 420/600 and OZT-3 420/600

# OZTツールプリセッタ OZT Tool Presetter

## 機能例 *Example features*

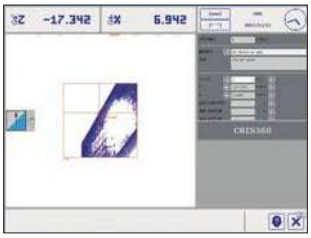
### 刃先自動認識システム
Automatic cutting edge detection system



画面内の刃先形状、位置を自動認識

Automatically detects cutting edge shape and position on screen.

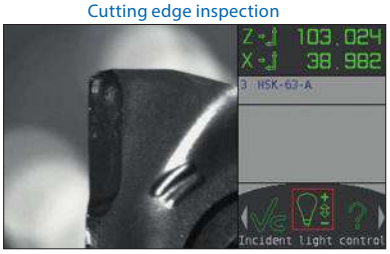
### 最大輪郭測定
Measures maximum contour of tool



工具を360°回して最大輪郭を検出測定

Turns the tool by 360 degrees to detect and measure the maximum contour.

### 刃先検査
Cutting edge inspection




工具を拡大映像で観察

Enlarged view of tool for observation.

## 測定例 *Example measurements*

### 段付きドリル
Step drill

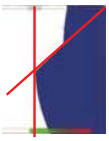




最大径測定 Max. diameter measurement



任意面取り位置 Desired chamfering position



肩部 Shoulder

### ボーリング
Boring tool






狙い値、公差の設定 Target and tolerance settings




色判定 Judgment by color

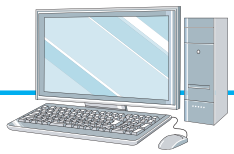
| アダプタ | BT | HSK | CAPTO |
|---|---|---|---|
| BT50以外のホルダを測定する場合、アダプタが必要です。<br>An adapter is required when measuring holders other than BT50. | BT30, BT40 | HSK32, HSK40, HSK50, HSK63, HSK100 | C3, C4, C5, C6, C8 |
| |  |  |  |

※上記以外のホルダは別途ご相談ください。
※For other holders, please consult us.

## データ出力方法 測定値を効率的に出力管理 *Data output methods Efficient control of measurement outputs*



LAN / USB



PC



ラベルプリンタ出力
Output to label printer



MCへ出力
Output to machining center

# OSG-HAIMER SAFE-LOCK®システム SAFE-LOCK® System

## UVX-TI＋SAFE-LOCK®新たな提案
New Tool & Holder Combo

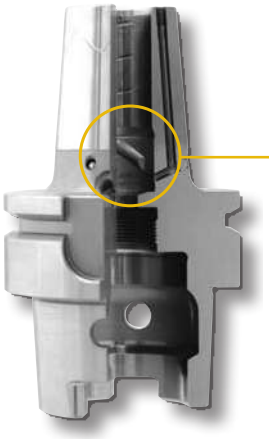
### Safe-Lock™システムの特長
Features of Safe-Lock™ system

・高い振れ精度（3㎛未満）
・工具突出し長さの調整が可能
・工具が折損しても取り外し可能
・ホルダの内部給油が可能
・ハイス工具にも適用可能
· High runout accuracy (less than 3㎛)
· Adjustable tool overhang length
· Easy removal of broken tools
· Internal coolant supply capability from the holder
· Applicable to high speed steel tools

### こんなときはSafe-Lock™が有効
On the safe side with Safe-Lock™

・加工中に工具が抜けてしまうとき
・加工能率を上げたいとき
・高価なワークで不良を出したくないとき
・大径加工をするとき
· No pull out of the tool
· Achieves maximum metal removal rate
· No damages on expensive work piece
· Ideal for large diameter milling

### 高能率条件下でも加工の安全を確保
The key to stability in high performance machining






SAFE-LOCK® by HAIMER

SAFE-LOCK®はハイマー社の登録商標です。
SAFE-LOCK® is a registered trademark of the Haimer GmbH.

## SAFE-LOCK® 機構付きホルダ
SAFE-LOCK® Mechanism Equipped Holder

| 焼きばめタイプ Shrink Fit Type | | | コレットタイプ Collet Type |
|---|---|---|---|
|  |  |  |  |
| スタンダードタイプ Standard Type | 強力タイプ Power Type | 超強力タイプ Heavy Duty Type | 強力タイプ Power Type |
| シュリンクフィットチャック Shrink Fit Chuck | パワーシュリンクチャック Power Shrink Chuck | ヘビーデューティーチャック Heavy Duty Chuck | パワーコレットチャック Power Collet Chuck |

## 高精度芯出し装置 3Dセンサ
3D-Sensor High-precision Centering Device

### ワークの原点出し作業を効率化
Efficient edge-finder with exact positioning of the spindle axis



・オフセット不要
　プローブをワーク端面に当て、2つの針がそれぞれ0を示すまで押し込むだけで原点出し完了
・X, Y, Z軸の測定が可能
　機上での簡易的なワーク測定も可能
・豊富なバリエーション
・測定方法によってプローブの交換が可能（オプション）
・複数の機械で共用可能
· No need for offset
  Just place the probe on the edge of the workpiece and bring the needles to zero
· Able to measure X, Y and Z axes
  Enables simple workpiece measurement on the machine
· Abundant variations
· Probes can be changed depending on the measurement method (optional)
· Can be shared by multiple machines

## 高精度芯出し装置 セントロ
Centro High-precision Centering Device

### 丸穴、丸ボスの芯出し作業を効率化
Quick and exact centering of bores and arbors



・見やすいダイヤル
　ダイヤル部が大きく、見やすい
　測定時常にダイヤルが正面を向いている為、調整しやすい
・芯出し時間の短縮
　主軸を起動させて回転できる為、両手が空いた状態での芯出しが可能
・丸穴、丸ボスの大きさに合わせてプローブの交換が可能（オプション）
・複数の機械で共用可能
· Easy-to-read dial
  Large dial with great legibility
  The dial always faces the front during measurement, making it easy to adjust
· Reduction of centering time
  Since the spindle can be started and rotated, centering is possible with both hands free
· The probe can be changed according to the size of the bores and arbors (optional)
· Can be shared by multiple machines

## 焼きばめ装置 Power Clampの特長
**Features of the Shrink Fit Machine “Power Clamp”**




・シャンク径φ3～φ50の工具に対応
・ハイス工具の焼きばめ可能
・短時間での加熱･冷却が可能
・高い安全性
　→高熱部分に触れることが少ない設計
　→オーバーヒート防止機能付き
・ 操作性の良さ

- Applicable to φ3-φ50 of tool shank diameter
- Applicable to high speed steel tools
- Short heating and cooling time
- High level of safety
  →A design decreasing the danger of touching highly heated areas
  →Equipped with an overheating prevention function
- Easy to operate

## Power Clamp パッケージ　ラインナップ一覧
**The Power Clamp Package List**

OSG-HAIMERでは、稼働に必要な備品・アクセサリをあらかじめパッケージ化しています。
お客様の加工環境に合わせて、最適な機種を選定します。
詳しくは当社営業にお問い合わせ下さい。

OSG-HAIMER includes the parts and accessories necessary for operation in a package.
We select the appropriate machine according to the customer's work environment.
For further details, please contact our sales representative.

| パッケージ名 Package name | ナノ Nano | スターター Starter | スタンダード Standard | スタンダードプラス※ Standard Plus | プレミアム Premium |
|---|---|---|---|---|---|
| 外観 Appearance |  |  |  | |  |
| | 小径用横型モデル Horizontal model for small diameters | 手軽に始めてみたい方へ Simple for first time users | 標準モデル Standard model | 大径、ヘビーデューティーチャックも少量焼きばめ可 Able to do low-volume shrink-fitting with large diameters and heavy duty chucks | 大径、ヘビーデューティーチャックも連続焼きばめ可 Able to do continuous shrink-fitting with large diameters and heavy duty chucks |
| 本体機種名 Machine name | Power Clamp Nano | Power Clamp Economic NG | Power Clamp Economic Plus NG | | Power Clamp Profi Plus NG |
| 対応シャンク径 Tool shank Dia. | φ3 - φ16 | φ3 - φ32 | φ3 - φ32 | φ3 - φ50 | φ3 - φ50 |
| 対応主軸タイプ Spindle type | BT30/40 HSK25/32/40/50/63 | BT30/40/45/50 HSK25/32/40/50/63/80/100/125 Capto C3/C4/C5/C6/C8 | BT30/40/45/50 HSK25/32/40/50/63/80/100/125 Capto C3/C4/C5/C6/C8 | | BT30/40/45/50 HSK25/32/40/50/63/80/100/125 Capto C3/C4/C5/C6/C8 |
| ホルダ最大長さ（ゲージラインより） Maxmum length | 230mm | 570mm | 570mm | | 570mm |

※ スタンダードプラスは、スタンダードに 13kW HD コイルを追加したパッケージです。

## インダストリー4.0対応 Power Clamp i4.0シリーズ
**Industry 4.0 Compatible Power Clamp i4.0 Series**

### i4.0シリーズの特長
**Features of the i4.0 Series**

・タッチディスプレイ
　シンプルで見やすいカラーディスプレイを採用
・ ハンドスキャナー（オプション）
　ホルダに印字された2次元コードを読み取ることで加熱パラメータを設定

- Touch-display
  Simple and user-friendly interface
- Hand scanner (optional)
  Readout shrinking parameters from data matrix code on every holder for easy shrinking

### 主なラインナップ
**Main Lineup**



Power Clamp Nano NG i4.0
3-32mm対応の横型モデル
Horizontal model compatible with φ3–32 mm



Power Clamp Comfort i4.0
接触式冷却の立型モデル
Vertical model with integrated contact cooling



Power Clamp Sprint i4.0
エアー&ミスト冷却の立型モデル
Vertical model with air and mist cooling



Power Clamp Premium i4.0
接触式冷却の立型・上位モデル
Premium vertical model with integrated contact cooling

# 金型材質一覧比較表 DIE MATERIAL COMPARISON CHART

## ■冷間金型用鋼のブランド対照表／Brand Name of Cold Work Die Steels

| 分類 | JIS 他 | 会社名／Company | | | | | | | | | | | | | 使用硬さ (HRC) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 日立金属 HITACHI METALS | 愛知製鋼 AICHI STEEL | 関東特殊鋼 KANTO STEEL | 山陽特殊鋼 SANYO SPECIAL STEEL | 大同特殊鋼 DAIDO STEEL | NKK | 日本高周波鋼業 NIHON KOSHUHA STEEL | 不二越 NACHI-FUJIKOSHI | 三菱製鋼 MITSUBISHI SEIKO | 理研製鋼 RIKEN SEIKO | ボーラー BÖHLER | ウッデホルム UDDEHOLM | エラスチール ERASTEEL | |
| 炭素工具鋼 Carbon Tool Steels | SK3 | | SK3 | | SK3 | YK3 | SK3 | K3 | | SK3 | | K990 | | | 58～61 |
| 合金工具鋼 Alloy Tool Steels | SKS93 | | SK301 | | QK3M | YK30 | NKG93 | K3M | | SKS93 | | | | | 55～60 |
| | SKS3 | | SKS3 | | QKS3 | GOA | NKE3 | KS3 | | SKS3 | | K460 | ARNE | | 55～62 |
| | SKS31 | | SKS31 | | | GO31 | | KS31 | | | | K465 | | | 55～62 |
| | SKD1 | CRD | SKD1 | RFB | QC1 | DC1 | | KD1 | | R32 | | K100 | SVERKER3 | | 55～62 |
| | SKD11 | SLD SLD-i | SKD11 | | QC11 | DC11 | | KD11 | CDS11 | R31 | RD11 | K105 | SVERKER21 | | 55～62 |
| | SKD11（改） | SLD8 SLD10 | AUD11 | | QCM8 QCM10 | DC53 | | KD11S KD11MAX KD21 | MDS9 | | | K340 | SLEPNER | | 55～62 |
| | SKD12 | SCD | SKD12 | | QC12 | DC12 | | KD12 | | | | K305 | RIGOR | | 55～62 |
| | AISI D 2 | SLD2 | A-D2 | | QCD2 | DC3 | | KD11V | | | | K105 K110 | | | 55～62 |
| | プリハードン Pre-hardened Steels 40HRC | HPM1 HPM2T | | | PCM40 | NAK55 GO40F | | KAP | | | | | IMPAX RAMAX S | | 40 |
| | プリハードン Pre-hardened Steels 33HRC | HPM2 | | | | PX5 | | KPM30 | | | | | | | 33 |
| | プリハードン Pre-hardened Steels | HPM7 | | | | PXA30 | | | | | | | | | 33 |
| | 火炎焼入鋼 Flame Hardening Steels | HMD5 HMD1 | SX105V SX4 | | QF3 | GO5 | | FH5 | | | | | FERMO CALMAX | | 55～62 |
| | 高温戻し用鋼 High Temperature Tempening Type Steel | SLD8 | AUD15 | | QCM8 | DC53 DCMX | NKD101 | KD11S | MCR12 | | | | | | 62～64 |
| | 低温高焼入鋼 Low Temperature Air Quenched Steel | ACD37 | AKS3 | | | GO4 | | KSM | | | | | | | 58～62 |
| | 耐衝撃用鋼 Steels for Impact Resistance | YSM | AKS4 | | QF1 | GS5 | | KTV5 | SRS6 | | | K630 | PREGA COMPAX | | 55～60 |
| | その他 Other | ACD8 | | | | | | KDQ1 | ICS22 | | | K190PM | | | - |
| | | ARK1 | SX5 | | | DC-MX | | KDQ2 | MCR1 | | | | CALMAX | | - |
| | | | SX44 | | | | | KDQ3 | | | | | ELMAX（粉末） | | - |
| | | SLD-MAGIC | TCD | | | | | KD23A | | | | | VANADIS4E（粉末） | | - |
| | | | SXACE | | | | | | | | | | | | - |
| | | | | | | | | | | | | | VANADIS10（粉末） | | - |
| 高速度工具鋼 High Speed Tool Steels | SKH51 | YXM1 | | | QH51 | | | H51 | SKH9 | | RHM1 | S600 | | M2 | 55～65 |
| | SKH51（改） | | | | | | | | SKH9D | | | | | | 57～66 |
| | SKH52 | YXM2 | | | | | | | | | | | | EM3-1 | 57～66 |
| | SKH55 | YXM4 | | | | | | | HM35 | | RHM5 | S705 | | EM35 | 57～66 |
| | SKH55（改） | | | | | | | HM35 | HS53M | | | | | WKE42 | 57～66 |
| | SKH57 | XVC5 | | | | | | MV10 | HS93R | | RHM7 | S700 | | WKE45 | 55～66 |
| | SKH57（改） | YXM60 | | | | | | | FM38V HS98M | | | | | | 57～68 |
| | マトリックス Matrix type of High Speed Tool Steels | YXR3 YXR7 YXR33 | | | QHS GHZ | DRM1 DRM2 DRM3 | | KMX1 KMX2 KMX3 | DURO-FZ DURO-F1 DURO-F3 DURO-F7 DURO-SP | | | | | | 55～64 |
| | その他 Other | | | | | | | S70 | HSU2C | | | | | | - |
| | 粉末高速度鋼 Powder Metal High Speed Tool Steels | HAP10 HAP50 HAP72 HAP5R | | | SPM23 SPM60 SPMR8 SPMV6 SPMX4N | DEX20 DEX80 DEX-M1 DEX-M3 | | | FAX31 FAX40 FAX55 FAXG1 FAXG2 | | | S390 S690 S790 | VANADIS23 VANADIS60 | ASP2005 ASP2015 ASP2023 ASP2052 ASP2060 | 58～70 |
| | SKH40 | HAP40 | | | SPM30 | DEX40 | | | FAX38 | | | S590 | VANADIS30 | ASP2030 | |

## ■熱間鍛造金型用鋼のブランド対照表／Brand Name of Die Steels for Casting

| 分類 | JIS 他 | 会社名／Company | | | | | | | | | | | | 使用硬さ(HRC) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 日立金属 HITACHI METALS | 愛知製鋼 AICHI STEEL | 関東特殊鋼 KANTO STEEL | 山陽特殊鋼 SANYO SPECIAL STEEL | 大同特殊鋼 DAIDO STEEL | NKK | 日本高周波鋼業 NIHON KOSHUHA STEEL | 不二越 NACHI-FUJIKOSHI | 三菱製鋼 MITSUBISHI SEIKO | 理研製鋼 RIKEN SEIKO | ボーラー BÖHLER | ウッデホルム UDDEHOLM | |
| 合金工具鋼 Alloy Tool Steels | SKD4 | YDC | SKD4 | | QD4 | | | KD4 | HDS4 | HD25 | | W105 | | 40～50 |
| | SKD5 | HDC | SKD5 | | | | | KD5 | HDS5 | HD26 | | W100 | | 45～50 |
| | SKD6 | | | | | | | KD6 | HDS6 | HD21A | | W300 | | 40～52 |
| | SKD6(改) | | | | | | | | | | | | VIDER | 40～52 |
| | SKD61 | DAC | SKD61 | | QD61 | DHA1 | | KDA | HDS61 | HD21AX | | W302 | | 40～52 |
| | SKD61(改) | DAC3<br>DAC10<br>DAC55<br>DAC-S<br>DAC-MAGIC | AUD61 | | QDA61 | DHA2<br>DH21<br>DH31-S<br>DHA-WORLD<br>DH31-EX | | KDA1<br>KDA1S<br>KDAMAX | | | | W303<br>W403 | ORVAR 2M | 40～52 |
| | | DAC3<br>DAC10<br>DAC55 | AUD61 | | QDA61 | DH31-S | | KDA1<br>KDA5<br>KDAMAX | | | | | ORVAR-S<br>DIEVER | 40～52 |
| | SKD62 | DBC | SKD62 | | QD62 | DH62 | | KDB | | HD21B | | | | 40～52 |
| | SKD7 | YEM | AUD7 | | QD10 | DH72 | | KDH1 | | HD23 | | W320 | | 40～50 |
| | SKD7(改) | DAC40<br>YEM-K | AUD71<br>AUD72 | | QDH | DH71<br>DH32<br>DH73 | | | HDN1 | HD23M | | | | 40～50 |
| | SKD8 | MDC | SKD8 | | | DH41 | | KDF | | HD27 | | | | 40～50 |
| | SKD8(改) | MDC-K<br>DAC45 | | | | DH42 | | KDF2 | | HD28<br>(NT200) | | | | 40～50 |
| | SKT4 | DM | SKT4A | | QT41 | GFA | | KTV | | HD13T | | W500 | | 38～45 |
| | SKT4(改) | YHD26<br>YHD28 | AUD60 | | QDT | GF78 | | KTV2 | | HD14M<br>HD20B | | | | 38～45 |
| | 折出硬化鋼 Precipitation Steel | YHD3 | AUD91<br>MPH-K | | | DH76 | | | | HD22B | | | | - |
| | その他 Other | FDAC<br>E-DAC | | | QF5 | DH2F<br>DHA-FX<br>DHA-Thermo | | KAP90F | | | | W335<br>W303<br>W321 | | - |
| 高速度工具鋼 High Speed Tool Steels | SKH51 | YXM1 | | | QH51 | | | H51 | SKH9 | | RHM1 | S600 | | 55～63 |
| | SKH51(改) | | | | | | | | SKH9D | | | | | 57～65 |
| | SKH55 | YXM4 | | | | | | HM35 | HM35 | | RHM5 | S705 | | 57～62 |
| | マトリックス系 Matrix type of High Speed Tool Steels | YXR33 | QHZ | | | DRM1<br>DRM2<br>DRM3 | | | DURO-FZ<br>DURO-F1 | | | W360 | | 53～65 |

## ■ダイキャスト金型用鋼のブランド対照表／Brand Name of Die Steels for Die Casting

| 分類 | JIS 他 | 会社名／Company | | | | | | | | | | | | 使用硬さ(HRC) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 日立金属 HITACHI METALS | 愛知製鋼 AICHI STEEL | 関東特殊鋼 KANTO STEEL | 山陽特殊鋼 SANYO SPECIAL STEEL | 大同特殊鋼 DAIDO STEEL | NKK | 日本高周波鋼業 NIHON KOSHUHA STEEL | 不二越 NACHI-FUJIKOSHI | 三菱製鋼 MITSUBISHI SEIKO | 理研製鋼 RIKEN SEIKO | ボーラー BÖHLER | ウッデホルム UDDEHOLM | |
| 一般用 for General | SKD61 | DAC | SKD61 | | QD61 | DHA1 | | MFA | | | | W302 | | 40～50 |
| | SKD61(改) | DAC10<br>DAC-S | | | QDA61 | | | KDA1 | | | | | ORVAR-S<br>DIEVER | 40～50 |
| | SKD6 | | | | | | | KD6 | | | | W300 | | 40～50 |
| | 快削プリハードン Free Cutting Pre-hardened Steels | FDAC | | | QD6F | DH2F | | KDA SS | | | | | | 38～42 |
| | その他 Other | | | | | DHA-WORLD | | KDA5<br>MFA-K | | | | | | - |
| 大物用 for Large | SKD61(改) | DAC55<br>DAC-MAGIC | AUD61 | | QDN | DH31<br>DH31-EX<br>DHA-WORLD | | MFA-H | | | | | ORVER-S<br>DIEVER | 44～48 |
| | その他 Other | | | | | | | MFA-KH | | | | W303 | | - |
| 精密用 for Precision | SKD7 | YEM | AUD7 | | QD10 | DH72 | | KDH1 | | | | W320 | | 42～50 |
| | SKD7(改) | DAC40 | | | QDH | | | KDW | | | | W321 | | 42～50 |
| | その他 Other | DAC10<br>DAC55<br>DAC-MAGIC | | | | DH21<br>DH33 | | MFA-K | DURO-N1 | | | | | 48～53 |
| 高融点用 for High Melting Point | SKD8 | MDC | | | | DH41 | | KDF | | | | | | 42～50 |
| | SKD8(改) | DAC45 | | | | DH42 | | KDF2 | | | | | | 47～51 |
| | その他 Other | | | | | | | | | | | | | - |
| 特殊用 for Special Using | マルエージング鋼 Maraging Steels | YAG | AMAR | | QM300 | MAS1C | | KMS18-20 | EXE0-M21 | | | V720 | | 50～57 |
| | SKH51 | YXM1 | | | QH51 | | | H51 | SKH9 | | RHM1 | S600 | | 55～60 |
| | マトリックス系 Matrix type of High Speed Tool Steels | YXR33 | | | QHZ | DRM1 | | KDW2 | MDS1 | | | | | 52～58 |
| | SCM系 Choromium Molybdenum Steels | HPM2<br>HPM7 | | | | PX5<br>PXA30 | | KPM30 | | | | | IMPAX<br>HOLODAX | 30～33 |
| | その他 Other | | | | | | | | | | | | HOTVAR | 30～40 |

# 金型材質一覧比較表 DIE MATERIAL COMPARISON CHART

## ■プラスチック金型用鋼のブランド対照表／Brand Name of Plastic Mold Steels

| 分類 | JIS 他 | 会社名／Company | | | | | | | | | | | | | | | | 硬さ（HRC） |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 日立金属 HITACHI METALS | 愛知製鋼 AICHI STEEL | 川崎製鉄 | 神戸製鋼所 KOBE STEEL | 山陽特殊鋼 SANYO SPECIAL STEEL | 大同特殊鋼 DAIDO STEEL | NKK | 日本高周波鋼業 NIHON KOSHUHA STEEL | 新日本製鐵 | 三菱製鋼 MITSUBISHI SEIKO | 住友金属工業 SUMITOMO METAL | 中部鋼鈑 CYUBU STEEL | トピー工業 TOPY | 日本製鋼所 JAPAN STEEL | ボーラー BÖHLER | ウッデホルム UDDEHOLM | |
| アズ・ロールド鋼 As-Rolled Steel | SC系 Carbon Steels | | | RMS | S50C<br>S55C | | | S45C～S55C（厚板） | | S45C～S55C（厚板） | | | S50C | S50C | | | | 13 |
| | SCM系 Chromium Molybdenum Steels | | | SCM435<br>SCM440 | SCM435<br>SCM440 | | | SCM415<br>SCM435<br>SCM440 | | SCM440 | | | SCM440 | | | | | 13 |
| プリハードン鋼 Pre-hardened Steels | SC系 Carbon Steels | | AUK1 | RMS53CN<br>RMS55CN | KTSM2A<br>KTSM21<br>KTSM22<br>U2000 | PC55 | PDS1 | | KPM1 | N-PUK30 | MT50C | SD10<br>SD17<br>SD21 | | | NPD2<br>NPD2S | | UHB11 | 13 |
| | SCM系（AISIP 20系） | | AUK11 | RMS-P28<br>RMS-30PH | KTSM3A<br>KTSM31<br>U3000 | PCM28 | PDS3 | | | N-PUK40 | | SD61<br>SD90<br>SD200 | | | NPD3<br>NPD3S | | CALMO | 28 |
| | SCM（改） | HPM7 | | | KTSM3M<br>U3500 | | PX5<br>PXA30 | | KPM30 | | MU-M<br>MU-P<br>MT24T | SD70<br>SD100 | | | NPD3MF<br>NPD3M<br>NPD5S | M200<br>M238 | PLAMAX<br>IMPAX | 33 |
| | SUS系（快削） Stainless Steel | HPM77 | | | | | S-STAR<br>D-ATAR<br>G-STAR | | KSP1 | | | | | | NPD7 | MAX0<br>MAX1<br>MAX4<br>MAX3 | STAVAX<br>RoyAlloy | 33 |
| | SUS系 | PSL<br>HPM38 | | | | QSH6 | NAK101 | | U630 | | | | | | NPD8 | M303 | STAVAX | 35 |
| | SKD61（改） | FDAC | AUD61 | | | QD6F | DH2F | | KDA | | | | | | NPD5 | W302 | ORVAR | 40 |
| | AISIP21 | HPM1<br>HPM-MAGIC<br>CENA1<br>HPM-PRO | | | KTSM40EF<br>KTSM40E | PCM40<br>PCD40S | NAK55<br>NAK80<br>NAX-PRM | | KAP65<br>KAP88 | | MEX41 | | | | | M261<br>M461 | NIMAX | 40 |
| 焼き入れ焼き戻し鋼 Quenching and Tempering | SKD11（改） | HPM31<br>ZDP4（粉末）<br>ZCD-M<br>HAP5R | AUD11 | | KAD181（粉末） | QCM8 | PD613 | | KD21<br>KD11S | | | | | | NPD6<br>NPD6MA<br>NPD6MB | K105<br>K110<br>K340 | CALMAX<br>RIGOR<br>VANADIS4<br>VANADIS6<br>VANADIS10 | 60 |
| | SUS系 | SUS440C | | | KAS440（粉末） | QPD5<br>SPC5（粉末） | SUS440C<br>DEX-P1（粉末） | | KSP2<br>KSP3 | | | | | | | M340<br>N685<br>N690<br>N695 | ELMAX（粉末） | 57 |
| | | HPM38<br>HPM38S | | | | QSD40M | S-STAR<br>D-STAR | | KSP1 | | | | | | | MAX1<br>MAX4<br>MAX3 | STAVAX<br>RAMAX S | 52 |
| 時効処理鋼 Age Hardening | マルエージング鋼 Maraging Steels | YAG | | HT210 | | QM300 | MASIC | | KMS18-20 | | DMG シリーズ | SMA200<br>SMA245 | | | | V720<br>V721 | | 53 |
| | SUS系 | ASL407 | | | | | | | | | | | | | | | | |
| | 非磁性鋼 Non-magnetic steels | HPM75 | | | | QSD15 | | | | | | | | | JUS289S | | | 43 |
| その他 Other | | HIT51,52,55（Al系）<br>HIT71,72,75（Cu系） | | | | | | | | | | | | | | | PREMO<br>PRODAX SUPER（Al系） | - |

## 鋼のロックウェルC硬さに対する近似的換算表／Approximate relationship between various hardness scales

| (HRC) ロックウェル Cスケール 硬さ注1) Rockwell hardness C scale 150kg Brale | (HV) ビッカース 硬さ Diamond Pyramid hardness number, Vickers | ブリネル硬さ（HB） 10mm球・荷重29.42kN Brinell hardness 29.42kN | | | ロックウェル硬さ注1) Rockwell hardness | | | ロックウェルスーパーフィシャル硬さ ダイヤモンド円錐圧子 Rockwell hardness | | | (Hs) ショア硬さ Shore scleroscope hardness number | 引張強さ N/mm² Approx. tensile strength N/mm² | (HRC) ロックウェル Cスケール 硬さ注1) Rockwell hardness C scale 150kg Brale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 標準球 Standard 10mm ball | Hultgren球 Hultgren 10mm ball | タングステン カーバイト球 Tungsten carbide 10mm | (HRA) Aスケール 荷重588.4N ダイヤモンド 円錐圧子 A scale 60kg Brale | (HRB) Bスケール荷重 980.7N 径1/16in球 B scale 100kg 1/16-in | (HRD) Dスケール 荷重980.7N ダイヤモンド 円錐圧子 D scale 100kg Brale | 15 N スケール 荷重 147.1N Superficial 15N | 30N スケール 荷重 294.2N Superficial 30N | 45N スケール 荷重 441.3N Superficial 45N | | | |
| 68 | 940 | — | — | — | 85.6 | — | 76.9 | 93.2 | 84.4 | 75.4 | 97 | — | 68 |
| 67 | 900 | — | — | — | 85.0 | — | 76.1 | 92.9 | 83.6 | 74.2 | 95 | — | 67 |
| 66 | 865 | — | — | — | 84.5 | — | 75.4 | 92.5 | 82.8 | 73.3 | 92 | — | 66 |
| 65 | 832 | — | — | 739 | 83.9 | — | 74.5 | 92.2 | 81.9 | 72.0 | 91 | — | 65 |
| 64 | 800 | — | — | 722 | 83.4 | — | 73.8 | 91.8 | 81.1 | 71.0 | 88 | — | 64 |
| 63 | 772 | — | — | 705 | 82.8 | — | 73.0 | 91.4 | 80.1 | 69.9 | 87 | — | 63 |
| 62 | 746 | — | — | 688 | 82.3 | — | 72.2 | 91.1 | 79.3 | 68.8 | 85 | — | 62 |
| 61 | 720 | — | — | 670 | 81.8 | — | 71.5 | 90.7 | 78.4 | 67.7 | 83 | — | 61 |
| 60 | 697 | — | 613 | 654 | 81.2 | — | 70.7 | 90.2 | 77.5 | 66.6 | 81 | — | 60 |
| 59 | 674 | — | 599 | 634 | 80.7 | — | 69.9 | 89.8 | 76.6 | 65.5 | 80 | — | 59 |
| 58 | 653 | — | 587 | 615 | 80.1 | — | 69.2 | 89.3 | 75.7 | 64.3 | 78 | — | 58 |
| 57 | 633 | — | 575 | 595 | 79.6 | — | 68.5 | 88.9 | 74.8 | 63.2 | 76 | — | 57 |
| 56 | 613 | — | 561 | 577 | 79.0 | — | 67.7 | 88.3 | 73.9 | 62.0 | 75 | — | 56 |
| 55 | 595 | — | 546 | 560 | 78.5 | — | 66.9 | 87.9 | 73.0 | 60.9 | 74 | 2079 | 55 |
| 54 | 577 | — | 534 | 543 | 78.0 | — | 66.1 | 87.4 | 72.0 | 59.8 | 72 | 2010 | 54 |
| 53 | 560 | — | 519 | 525 | 77.4 | — | 65.4 | 86.9 | 71.2 | 58.6 | 71 | 1952 | 53 |
| 52 | 544 | 500 | 508 | 512 | 76.8 | — | 64.6 | 86.4 | 70.2 | 57.4 | 69 | 1883 | 52 |
| 51 | 528 | 487 | 494 | 496 | 76.3 | — | 63.8 | 85.9 | 69.4 | 56.1 | 68 | 1824 | 51 |
| 50 | 513 | 475 | 481 | 481 | 75.9 | — | 63.1 | 85.5 | 68.5 | 55.0 | 67 | 1755 | 50 |
| 49 | 498 | 464 | 469 | 469 | 75.2 | — | 62.1 | 85.0 | 67.6 | 53.8 | 66 | 1687 | 49 |
| 48 | 484 | 451 | 455 | 455 | 74.7 | — | 61.4 | 84.5 | 66.7 | 52.5 | 64 | 1638 | 48 |
| 47 | 471 | 442 | 443 | 443 | 74.1 | — | 60.8 | 83.9 | 65.8 | 51.4 | 63 | 1579 | 47 |
| 46 | 458 | 432 | 432 | 432 | 73.6 | — | 60.0 | 83.5 | 64.8 | 50.3 | 62 | 1530 | 46 |
| 45 | 446 | 421 | 421 | 421 | 73.1 | — | 59.2 | 83.0 | 64.0 | 49.0 | 60 | 1481 | 45 |
| 44 | 434 | 409 | 409 | 409 | 72.5 | — | 58.5 | 82.5 | 63.1 | 47.8 | 58 | 1432 | 44 |
| 43 | 423 | 400 | 400 | 400 | 72.0 | — | 57.7 | 82.0 | 62.2 | 46.7 | 57 | 1383 | 43 |
| 42 | 412 | 390 | 390 | 390 | 71.5 | — | 56.9 | 81.5 | 61.3 | 45.5 | 56 | 1334 | 42 |
| 41 | 402 | 381 | 381 | 381 | 70.9 | — | 56.2 | 80.9 | 60.4 | 44.3 | 55 | 1294 | 41 |
| 40 | 392 | 371 | 371 | 371 | 70.4 | — | 55.4 | 80.4 | 59.5 | 43.1 | 54 | 1245 | 40 |
| 39 | 382 | 362 | 362 | 362 | 69.9 | — | 54.6 | 79.9 | 58.6 | 41.9 | 52 | 1216 | 39 |
| 38 | 372 | 353 | 353 | 353 | 69.4 | — | 53.8 | 79.4 | 57.7 | 40.8 | 51 | 1177 | 38 |
| 37 | 363 | 344 | 344 | 344 | 68.9 | — | 53.1 | 78.8 | 56.8 | 39.6 | 50 | 1157 | 37 |
| 36 | 354 | 336 | 336 | 336 | 68.4 | (109.0) | 52.3 | 78.3 | 55.9 | 38.4 | 49 | 1118 | 36 |
| 35 | 345 | 327 | 327 | 327 | 67.9 | (108.5) | 51.5 | 77.7 | 55.0 | 37.2 | 48 | 1079 | 35 |
| 34 | 336 | 319 | 319 | 319 | 67.4 | (108.0) | 50.8 | 77.2 | 54.2 | 36.1 | 47 | 1059 | 34 |
| 33 | 327 | 311 | 311 | 311 | 66.8 | (107.5) | 50.0 | 76.6 | 53.3 | 34.9 | 46 | 1030 | 33 |
| 32 | 318 | 301 | 301 | 301 | 66.3 | (107.0) | 49.2 | 76.1 | 52.1 | 33.7 | 44 | 1000 | 32 |
| 31 | 310 | 294 | 294 | 294 | 65.8 | (106.0) | 48.4 | 75.6 | 51.3 | 32.5 | 43 | 981 | 31 |
| 30 | 302 | 286 | 286 | 286 | 65.3 | (105.5) | 47.7 | 75.0 | 50.4 | 31.3 | 42 | 951 | 30 |
| 29 | 294 | 279 | 279 | 279 | 64.7 | (104.5) | 47.0 | 74.5 | 49.5 | 30.1 | 41 | 932 | 29 |
| 28 | 286 | 271 | 271 | 271 | 64.3 | (104.0) | 46.1 | 73.9 | 48.6 | 28.9 | 41 | 912 | 28 |
| 27 | 279 | 264 | 264 | 264 | 63.8 | (103.0) | 45.2 | 73.3 | 47.7 | 27.8 | 40 | 883 | 27 |
| 26 | 272 | 258 | 258 | 258 | 63.3 | (102.5) | 44.6 | 72.8 | 46.8 | 26.7 | 38 | 863 | 26 |
| 25 | 266 | 253 | 253 | 253 | 62.8 | (101.5) | 43.8 | 72.2 | 45.9 | 25.5 | 38 | 843 | 25 |
| 24 | 260 | 247 | 247 | 247 | 62.4 | (101.0) | 43.1 | 71.6 | 45.0 | 24.3 | 37 | 824 | 24 |
| 23 | 254 | 243 | 243 | 243 | 62.0 | 100.0 | 42.1 | 71.0 | 44.0 | 23.1 | 36 | 804 | 23 |
| 22 | 248 | 237 | 237 | 237 | 61.5 | 99.0 | 41.6 | 70.5 | 43.2 | 22.0 | 35 | 785 | 22 |
| 21 | 243 | 231 | 231 | 231 | 61.0 | 98.5 | 40.9 | 69.9 | 42.3 | 20.7 | 35 | 775 | 21 |
| 20 | 238 | 226 | 226 | 226 | 60.5 | 97.8 | 40.1 | 69.4 | 41.5 | 19.6 | 34 | 755 | 20 |
| (18) | 230 | 219 | 219 | 219 | — | 96.7 | — | — | — | — | 33 | 736 | (18) |
| (16) | 222 | 212 | 212 | 212 | — | 95.5 | — | — | — | — | 32 | 706 | (16) |
| (14) | 213 | 203 | 203 | 203 | — | 93.9 | — | — | — | — | 31 | 677 | (14) |
| (12) | 204 | 194 | 194 | 194 | — | 92.3 | — | — | — | — | 29 | 647 | (12) |
| (10) | 196 | 187 | 187 | 187 | — | 90.7 | — | — | — | — | 28 | 618 | (10) |
| ( 8) | 188 | 179 | 179 | 179 | — | 89.5 | — | — | — | — | 27 | 598 | ( 8) |
| ( 6) | 180 | 171 | 171 | 171 | — | 87.1 | — | — | — | — | 26 | 579 | ( 6) |
| ( 4) | 173 | 165 | 165 | 165 | — | 85.5 | — | — | — | — | 25 | 549 | ( 4) |
| ( 2) | 166 | 158 | 158 | 158 | — | 83.5 | — | — | — | — | 24 | 530 | ( 2) |
| ( 0) | 160 | 152 | 152 | 152 | — | 81.7 | — | — | — | — | 24 | 520 | ( 0) |

注1)表中括弧( )内の数字はあまり用いられない範囲のものです。 In the above chart, figures with ( ) are not commonly used.

# アルファベット順 CLASSIFIED BY ALPHABETICAL ORDER

※掲載ページ欄に「WEB」と表記している製品は、WEBカタログのみ掲載

| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| A | 1040 | A-Bar | セレクトローラー/A-Bar | Select Roller/A-Bar |
| | 763 | A-CHT | FXコート油穴付き超硬ハンドタップ | FX Coated Carbide Straight Fluted Tap with Internal Coolant Supply |
| | 651 | A-CSF | FXコート油穴付き超硬スパイラルタップ | FX Coated Carbide Spiral Fluted Tap with Internal Coolant Supply |
| | 133 | AD-2D | EgiAsコート超硬ドリル2Dタイプ | EgiAs Coated Carbide Drill (2D Type) |
| | 137 | AD-4D | EgiAsコート超硬ドリル4Dタイプ | EgiAs Coated Carbide Drill (4D Type) |
| | 338 | ADF-2D | コーティング超硬フラットドリル2Dタイプ | Coated Carbide Flat Drill (2D Type) |
| | 350 | ADFLS-2D | EgiAsコート超硬フラットドリルロングシャンク2Dタイプ | EgiAs Coated Carbide Flat Drill with Long Shank (2D Type) |
| | 355 | ADF-NC | EgiAsコート超硬フラットドリル小型自動盤対応型 | EgiAs Coated Carbide Flat Drill Compatible with Sliding Head Lathes |
| | 353 | ADFO-3D | EgiAsコート油穴付き超硬フラットドリル3Dタイプ | EgiAs Coated Carbide Flat Drill with Internal Coolant Supply (3D Type) |
| | 356 | ADFO-NC | EgiAsコート油穴付き超硬フラットドリル小型自動盤対応型 | EgiAs Coated Carbide Flat Drill with Internal Coolant Supply Compatible with Sliding Head Lathes |
| | 321 | AD-LDS | コーティング超硬リーディングドリル | Coated Carbide Starter Drill |
| | 322 | AD-LS-LDS | EgiAsコート超硬リーディングドリルロングシャンク | EgiAs Coated Carbide Starter Drill with Long Shank |
| | 145 | ADO-3D | EgiAsコート油穴付き超硬ドリル3Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (3D Type) |
| | 149 | ADO-5D | EgiAsコート油穴付き超硬ドリル5Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (5D Type) |
| | 153 | ADO-8D | EgiAsコート油穴付き超硬ドリル8Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (8D Type) |
| | 156 | ADO-10D | EgiAsコート油穴付き超硬ドリル10Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (10D Type) |
| | 158 | ADO-15D | EgiAsコート油穴付き超硬ドリル15Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (15D Type) |
| | 160 | ADO-20D | EgiAsコート油穴付き超硬ドリル20Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (20D Type) |
| | 162 | ADO-25D | EgiAsコート油穴付き超硬ドリル25Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (25D Type) |
| | 164 | ADO-30D | EgiAsコート油穴付き超硬ドリル30Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (30D Type) |
| | 166 | ADO-40D | EgiAsコート油穴付き超硬ドリル40Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (40D Type) |
| | 167 | ADO-50D | EgiAsコート油穴付き超硬ドリル50Dタイプ | EgiAs Coated Carbide Drill with Internal Coolant Supply (50D Type) |
| | 140 | ADO-MICRO2D | IchAdaコート小径油穴付き超硬ドリル2Dタイプ | IchAda Coated Small Diameter Carbide Drill with Internal Coolant Supply (2D Type) |
| | 141 | ADO-MICRO5D | IchAdaコート小径油穴付き超硬ドリル5Dタイプ | IchAda Coated Small Diameter Carbide Drill with Internal Coolant Supply (5D Type) |
| | 142 | ADO-MICRO12D | IchAdaコート小径油穴付き超硬ドリル12Dタイプ | IchAda Coated Small Diameter Carbide Drill with Internal Coolant Supply (12D Type) |
| | 143 | ADO-MICRO20D | IchAdaコート小径油穴付き超硬ドリル20Dタイプ | IchAda Coated Small Diameter Carbide Drill with Internal Coolant Supply (20D Type) |
| | 144 | ADO-MICRO30D | IchAdaコート小径油穴付き超硬ドリル30Dタイプ | IchAda Coated Small Diameter Carbide Drill with Internal Coolant Supply (30D Type) |
| | 168 | ADO-PLT | エキストラロングドリル用EgiAsコート油穴付き超硬パイロットドリル | EgiAs Coated Carbide Pilot Drill with Internal Coolant Supply for Extra Long Drills |
| | 169 | ADO-SUS-3D | ステンレス・チタン合金用WXLコート油穴付き超硬ドリル3Dタイプ | WXL Coated Carbide Drill with Internal Coolant Supply for Stainless Steel and Titanium Alloy (3D Type) |
| | 172 | ADO-SUS-5D | ステンレス・チタン合金用WXLコート油穴付き超硬ドリル5Dタイプ | WXL Coated Carbide Drill with Internal Coolant Supply for Stainless Steel and Titanium Alloy (5D Type) |
| | 176 | ADO-SUS-8D | ステンレス・チタン合金用WXLコート油穴付き超硬ドリル8Dタイプ | WXL Coated Carbide Drill with Internal Coolant Supply for Stainless Steel and Titanium Alloy (8D Type) |
| | 178 | ADO-TRS-3D | EgiAsコート3枚刃油穴付き超硬ドリル3Dタイプ | EgiAs Coated 3-flute Carbide Drill with Internal Coolant Supply (3D Type) |
| | 180 | ADO-TRS-5D | EgiAsコート3枚刃油穴付き超硬ドリル5Dタイプ | EgiAs Coated 3-flute Carbide Drill with Internal Coolant Supply (5D Type) |
| | 377 | AERO-ETL | アルミ合金用DLCコート3枚刃超硬エンドミルロング形 | DLC Coated 3-flute Carbide End Mill Long Length for Aluminum Alloys |
| | 376 | AERO-ETS | アルミ合金用DLCコート3枚刃超硬エンドミルショート形 | DLC Coated 3-flute Carbide End Mill Short Length for Aluminum Alloys |
| | 378 | AERO-EXTL | アルミ合金用DLCコート3枚刃超硬エンドミルエキストラロング形 | DLC Coated 3-flute Carbide End Mill Extra Long Length for Aluminum Alloys |
| | 377 | AERO-O-ETS | アルミ合金用DLCコート3枚刃油穴付き超硬エンドミルショート形 | DLC Coated 3-flute Carbide End Mill Short Length with Internal Coolant Supply for Aluminum Alloys |
| | 324 | AE-BD-H | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ボールエンドミル | DUROREY Coated 2-flute High-precision Finishing Carbide Ball End Mill for High-hardness Steels |
| | 337 | AE-BM-H | 高硬度鋼用DUROREYコート4枚刃超硬ボールエンドミル高能率型 | DUROREY Coated 4-flute High-efficiency Carbide Ball End Mill for High-hardness Steels |
| | 406 | AE-CPR2-H | 高硬度鋼用DUROREYコート2枚刃超硬ロングネックラジアスエンドミル | DUROREY Coated 2-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels |

■は別冊 穴加工・ねじ加工カタログをご覧下さい。 ■ = Please see our special drilling and threading tools catalogue.

# アルファベット順 CLASSIFIED BY ALPHABETICAL ORDER

※掲載ページ欄に「WEB」と表記している製品は、WEBカタログのみ掲載

| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| A | 411 | AE-CPR4-H | 高硬度鋼用DUROREYコート4枚刃超硬ロングネックラジアスエンドミル | DUROREY Coated 4-flute Long Neck Carbide End Mill with Corner Radius for High-hardness Steels |
| | 398 | AE-CPR-N | 銅電極・高能率仕上げ用DLCコート超硬ロングネックラジアスエンドミル | DLC Coated High-efficiency Finishing Long Neck Carbide End Mill with Corner Radius for Copper Electrodes |
| | 383 | AE-CRE-H | 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高能率型 | DUROREY Coated Multi-flute High Efficiency Carbide End Mill with Corner Radius for High-hardness Steels |
| | 384 | AE-HFE-H | 高硬度鋼用DUROREYコート多刃超硬ラジアスエンドミル高送り型 | DUROREY Coated Multi-flute High Feed Carbide End Mill with Corner Radius for High-hardness Steels |
| | 348 | AE-LNBD-H | 高硬度鋼・高精度仕上げ用DUROREYコート2枚刃超硬ロングネックボールエンドミル | DUROREY Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for High-hardness Steels |
| | 357 | AE-LNBD-N | 銅電極・高精度仕上げ用DLCコート2枚刃超硬ロングネックボールエンドミル | DLC Coated 2-flute High-precision Finishing Long Neck Carbide Ball End Mill for Copper Electrodes |
| | 307 | AE-ML-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルロング形 | DUROREY Coated Multi-flute Carbide End Mill Long Length for High-hardness Steels |
| | 290・405 | AE-MS-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルショート形 | DUROREY Coated Multi-flute Carbide End Mill Short Length for High-hardness Steels |
| | 289 | AE-MSS-H | 高硬度鋼用DUROREYコート多刃超硬エンドミルスタブ形 | DUROREY Coated Multi-flute Carbide End Mill Stub Length for High-hardness Steels |
| | 284 | AE-TL-N | 非鉄用DLCコート3枚刃超硬エンドミルロング形 | DLC Coated 3-flute Carbide End Mill Long Length for Non-ferrous Materials |
| | 278・395 | AE-TS-N | 非鉄用DLCコート3枚刃超硬エンドミルショート形 | DLC Coated 3-flute Carbide End Mill Short Length for Non-ferrous Materials |
| | 288・393 | AE-VMFE | DUARISEコート超硬防振型エンドミル立ち壁対応型 | DUARISE Coated Anti-Vibration Carbide End Mill for Deep Side Milling |
| | 305 | AE-VML | DUARISEコート超硬防振型エンドミルロング形 | DUARISE Coated Anti-Vibration Carbide End Mill Long Length |
| | 300・370 | AE-VMS | DUARISEコート超硬防振型エンドミルショート形 | DUARISE Coated Anti-Vibration Carbide End Mill Short Length |
| | 296・318 | AE-VMSS | DUARISEコート超硬防振型エンドミルスタブ形 | DUARISE Coated Anti-Vibration Carbide End Mill Stub Length |
| | 311・397 | AE-VTFE-N | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプ立ち壁対応型 | DLC Coated 3-flute High Performance Carbide End Mill for Deep Side Milling in Non-ferrous Materials |
| | 280・396 | AE-VTS-N | 非鉄用DLCコート3枚刃超硬エンドミル高機能タイプショート形 | DLC Coated 3-flute High Performance Carbide End Mill Short Length for Non-ferrous Materials |
| | 309 | AE-VTSS | DUARISEコート超硬防振型エンドミル自動旋盤対応型 | DUARISE Coated Anti-Vibration Carbide Stub End Mill Compatible with Sliding Head Lathes |
| | 823-7 WEB | AL-EDL | アルミ合金用2枚刃ハイススクエアエンドミルロング形 | 2-flute End Mill Long Length for Aluminum Alloys |
| | 776 | AL-EDS | アルミ合金用2枚刃ハイススクエアエンドミルショート形 | 2-flute End Mill Short Length for Aluminum Alloys |
| | 823-21 WEB | AL-EOL | アルミ合金用1枚刃ハイススクエアエンドミルロング形 | Single-flute End Mill Long Length for Aluminum Alloys |
| | 823-21 WEB | AL-EOS | アルミ合金用1枚刃ハイススクエアエンドミルショート形 | Single-flute End Mill Short Length for Aluminum Alloys |
| | 761 | AL-HT | アルミ合金用ハイスハンドタップ | Straight Fluted Tap for Aluminum Alloys |
| | 666 | A-LT-POT | 高能率・多機能Vコート粉末ハイスポイントタップロングシャンク | V Coated High-efficiency and Multi-purpose CPM Spiral Pointed Tap with Long Shank |
| | 595 | A-LT-SFT | 高能率・多機能Vコート粉末ハイススパイラルタップロングシャンク | V Coated High-efficiency and Multi-purpose CPM Spiral Fluted Tap with Long Shank |
| | 820 | A-LT-SFT HL | 高能率・多機能Vコートインサートねじ用粉末ハイススパイラルタップロングシャンク | V Coated High-efficiency and Multi-purpose CPM Spiral Fluted Tap with Long Shank for Helicoil/EG/STI |
| | 385 | AM-CRE | アディティブ・マニュファクチャリング用DUROREYコート多刃超硬ラジアスエンドミル | DUROREY Coated Multi-flute Carbide End Mill with Corner Radius for Additive Manufacturing |
| | 334 | AM-EBT | アディティブ・マニュファクチャリング用DUROREYコート3枚刃超硬ボールエンドミル | DUROREY Coated 3-flute Carbide Ball End Mill for Additive Manufacturing |
| | 386 | AM-HFC | アディティブ・マニュファクチャリング用DUROREYコート6枚刃高送り超硬ラジアスエンドミル | DUROREY Coated 6-flute High Feed Carbide End Millwith Corner Radius for Additive Manufacturing |
| | 546 | A-OIL-XPF | 高能率・多機能VIコート油穴付き粉末ハイス転造タップ | VI Coated Highly Efficient Multi-pupose CPM Forming Tap with Internal Coolant Supply |
| | 661 | A-POT | 高能率・多機能Vコート粉末ハイスポイントタップ | V Coated High-efficiency and Multi-purpose CPM Spiral Pointed Tap |
| | 587 | A-SFT | 高能率・多機能Vコートハイススパイラルタップ | V Coated High-efficiency and Multi-purpose Spiral Fluted Tap |
| | 819 | A-SFT HL | 高能率・多機能Vコートインサートねじ用粉末ハイススパイラルタップ | V Coated High-efficiency and Multi-purpose CPM Spiral Fluted Tap for Helicoil/EG/STI |
| | 800 | A-SPT(G) | 高能率・多機能Vコートハイス管用平行スパイラルタップ | V Coated High-efficiency and Multi-purpose Spiral Fluted Parallel Pipe Thread Tap |
| | 817 | A-SPT(NPS) | 高能率・多機能Vコートハイス管用平行スパイラルタップ | V Coated High-efficiency and Multi-purpose Spiral Fluted Parallel Pipe Thread Tap |
| | 796 | A-SPT(Rp) | 高能率・多機能Vコートハイス管用平行スパイラルタップ | V Coated High-efficiency and Multi-purpose Spiral Fluted Parallel Pipe Thread Tap |
| | 812 | A-S-TPT(NPT) | 高能率・多機能Vコートハイス管用テーパスパイラルタップ短ねじ形 | V Coated High-efficiency and Multi-purpose Spiral Fluted Taper Pipe Thread Tap (Short Thread) |
| | 772 | A-S-TPT(PT) | 高能率・多機能Vコートハイス管用テーパスパイラルタップ短ねじ形 | V Coated High-efficiency and Multi-purpose Spiral Fluted Taper Pipe Thread Tap (Short Thread) |
| | 505 | AT-1 | EgiAsコートワンレボリューション超硬スレッドミル | EgiAs Coated One Pass Carbide Thread Mill |
| | 508 | AT-2 | 高硬度鋼用DUROREYコート底刃付き超硬スレッドミル | DUROREY Coated Carbide Thread Mill with End-cutting Edge for High-hardness Steels |

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|---|---|---|---|---|
| A | 511 | AT-2 R-SPEC | 非鉄用DLCコート高能率底刃付き超硬スレッドミル | DLC Coated High-efficiency Carbide Thread Mill with End-cutting Edge for Non-ferrous Materials |
| | 992 | A-TPD | 管用テーパねじ切り丸ダイス | Adjustable Round Dies for Taper Pipe Thread |
| | 811 | A-TPT(NPT) | 高能率・多機能Vコートハイス管用テーパスパイラルタップ | V Coated High-efficiency and Multi-purpose Spiral Fluted Taper Pipe Thread Tap |
| | 771 | A-TPT(PT,Rc) | 高能率・多機能Vコートハイス管用テーパスパイラルタップ | V Coated High-efficiency and Multi-purpose Spiral Fluted Taper Pipe Thread Tap |
| | 545 | A-XPF | 高能率・多機能VIコートハイス粉末転造タップ | VI Coated Highly Efficient Multi-purpose CPM Forming Tap |
| B | 585 | B-HRT | 非鉄用窒化処理ハイスハイロールタップ | Hi-roll Tap for Non-ferrous Materials (with Nitride) |
| | 870-16 WEB | BKML | 多刃ハイスベストカットロング形 | Multi-flute Best-Kut End Mill Long Length |
| | 863 | BKMS | 多刃ハイスベストカットショート形 | Multi-flute Best-Kut End Mill Short Length |
| | 575 | B-NRT | 非鉄用窒化処理ハイスニューロールタップ | Nu-roll Tap for Non-ferrous Materials (with Nitride) |
| | 870-10 WEB | BS-REE | ハイスラフィングエンドミルBSシャンクロング形 | Roughing End Mill Long Length with BS Shank |
| | 870-19 WEB | BS-RFE | ハイスラフアンドフィニッシュBSシャンクロング形 | Roughing and Finishing End Mill Long Length with BS Shank |
| C | 394 | CA-CR-ETS | 銅・アルミ合金用3枚刃超硬ラジアスエンドミルショート形 | 3-flute Carbide End Mill Short Length with Corner Radius for Copper and Aluminum Alloys |
| | 282 | CA-ETS | 銅・アルミ合金用3枚刃超硬スクエアエンドミルショート形 | 3-flute Carbide End Mill Short Length for Copper and Aluminum Alloys |
| | 467 | CA-LS-SCC | 銅・アルミ合金面取り用2枚刃超硬エンドミルロングシャンク | 2-flute Carbide End Mill with Long Shank for Chamfering Copper and Aluminum Alloys |
| | 367 | CA-LS-ZDS | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルロングシャンクショート形 | 2-flute Carbide End Mill Short Length with Long Shank for Copper and Aluminum Alloys for Counterboring |
| | 457 | CA-LS-ZDS | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルロングシャンクショート形 | 2-flute Carbide End Mill Short Length with Long Shank for Copper and Aluminum Alloys for Counterboring |
| | 310 | CA-MFE | 銅・アルミ合金用3枚刃超硬エンドミル立ち壁対応型 | 3-flute Carbide End Mill for Deep Side Milling in Copper and Aluminum Alloys |
| | 404 | CA-MFE-SF | 銅・アルミ合金用3枚刃超硬ラジアスエンドミル立ち壁対応型（焼きばめ対応） | 3-flute Carbide End Mill with Corner Radius for Deep Side Milling in Copper and Aluminum Alloys (Shrink Fit Type) |
| | 203 | CAO-GDXL | 銅・アルミ合金用油穴付き超硬エキストラロングドリル | Carbide Drill Extra Long Length with Internal Coolant Supply for Copper Alloys and Aluminum Alloys |
| | 331 | CAP-EBD | 銅・アルミ合金・プラスチック用2枚刃超硬ボールエンドミル | 2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics |
| | 311-21 WEB | CAP-EDL | 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルロング形 | 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics |
| | 311-11 WEB | CAP-EDS | 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルショート形 | 2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics |
| | 311-14 WEB | CAP-EDS-SF | 銅・アルミ合金・プラスチック用2枚刃超硬スクエアエンドミルショート形（焼きばめ対応） | 2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics(Shrink Fit Type) |
| | 402 | CA-PKE | 銅・アルミ合金用3枚刃超硬ラジアスエンドミル多機能強力型 | 3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type for Copper and Aluminum Alloys |
| | 359-9 WEB | CAP-LN-EBD | 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックボールエンドミル | 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics |
| | 340-28 WEB | CAP-LN-EBD-SF | 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックボールエンドミル（焼きばめ対応） | 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (Shrink Fit Type) |
| | 321-8 WEB | CAP-LN-EDS | 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックスクエアエンドミルショート形 | 2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics |
| | 311-15 WEB | CAP-LN-EDS-SF | 銅・アルミ合金・プラスチック用2枚刃超硬ロングネックスクエアエンドミルショート形（焼きばめ対応） | 2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (Shrink Fit Type) |
| | 340-21 WEB | CA-RG-EBD | 銅・アルミ合金用2枚刃超硬ボールエンドミル | 2-flute Carbide Ball End Mill for Copper and Aluminum Alloys |
| | 277 | CA-RG-EDL | 銅・アルミ合金用2枚刃超硬スクエアエンドミルロング形 | 2-flute Carbide End Mill Long Length for Copper and Aluminum Alloys |
| | 270 | CA-RG-EDS | 銅・アルミ合金用2枚刃超硬スクエアエンドミルショート形 | 2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys |
| | 466 | CA-SCC | 銅・アルミ合金面取り用2枚刃超硬エンドミル | 2-flute Carbide End Mill for Chamfering Copper and Aluminum Alloys |
| | 365 | CA-ZDS | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルショート形 | 2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys for Counterboring |
| | 455 | CA-ZDS | 銅・アルミ合金座ぐり用2枚刃超硬エンドミルショート形 | 2-flute Carbide End Mill Short Length for Copper and Aluminum Alloys for Counterboring |
| | 381 | CBN-CR-EDS | 2枚刃CBNラジアスエンドミルショート形 | 2-flute CBN End Mill Short Length with Corner Radius |
| | 331 | CBN-EBD | 2枚刃CBNボールエンドミル | 2-flute CBN Ball End Mill |
| | 359 | CBN-LN-SXB | 2枚刃小径CBNロングネックボールエンドミル | 2-flute Long Neck Small Size CBN Ball End Mill |
| | 433 | CBN-LN-SXR | 2枚刃小径CBNロングネックラジアスエンドミル | 2-flute Long Neck Small Size CBN End Mill with Corner Radius |
| | 330 | CBN-SXB | 2枚刃小径CBNボールエンドミル | 2-flute Small Size CBN Ball End Mill |
| | 381 | CBN-SXR | 2枚刃小径CBNラジアスエンドミル | 2-flute Small Size CBN End Mill with Corner Radius |

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|---|---|---|---|---|
| C | 815 | CC-EML | 4枚刃ハイススクエアエンドミルセンタカットロング形 | 4-flute End Mill Center Cut Long Length |
| | 823-17 WEB | CC-EMN | 4枚刃ハイススクエアエンドミルセンタカットミディアム形 | 4-flute End Mill Center Cut Medium Length |
| | 805 | CC-EMS | 4枚刃ハイススクエアエンドミルセンタカットショート形 | 4-flute End Mill Center Cut Short Length |
| | 634 | CC-SUS-SFT | ステンレス用コーティングハイススパイラルタップ水溶性切削油剤対応タイプ | Coated Spiral Fluted Tap for Stainless Steels (Compatible with Water-soluble Coolant) |
| | 823-18 WEB | CE-EML | 多刃ハイススクエアエンドミルセンタ付きロング形 | Multi-flute End Mill Long Length with Center Hole |
| | 809 | CE-EMS | 多刃ハイススクエアエンドミルセンタ付きショート形 | Multi-flute End Mill Short Length with Center Hole |
| | 436 | CM-CRE | セラミックエンドミル底刃タイプ | Ceramic End Mill with Corner Radius Bottom Cutting Edge Type |
| | 435 | CM-RMS | セラミックラジアスエンドミル外周刃タイプ | Ceramic End Mill with Corner Radius Outer Cutting Edge Type |
| | 823-23 WEB | CN-EHL | 多刃ハイススクエアエンドミルコンビネーションシャンクハイヘリックスロング形 | Multi-flute High Helix End Mill Long Length with Combination Shank |
| | 823-23 WEB | CN-EML | 多刃ハイススクエアエンドミルコンビネーションシャンクロング形 | Multi-flute End Mill Long Length with Combination Shank |
| | 870-10 WEB | CN-REE | 8枚刃ハイスラフィングエンドミルコンビネーションシャンクロング形 | 8-flute Roughing End Mill Long Length with Combination Shank |
| | 870-15 WEB | CPM-BKMS | 多刃CPMベストカットショート形 | Multi-flute CPM Best-Kut End Mill Short Length |
| | 835-1 WEB | CPM-EBD | 2枚刃CPMボールエンドミル | 2-flute CPM Ball End Mill |
| | 835-6 WEB | CPM-EBDS | 2枚刃CPMボールエンドミルショート形 | 2-flute CPM Ball End Mill Short Length |
| | 835-8 WEB | CPM-EBM | 多刃CPMボールエンドミル | Multi-flute CPM Ball End Mill |
| | 823-8 WEB | CPM-EDL | 2枚刃CPMスクエアエンドミルロング形 | 2-flute CPM End Mill Long Length |
| | 823-5 WEB | CPM-EDN | 2枚刃CPMスクエアエンドミルミディアム形 | 2-flute CPM End Mill Medium Length |
| | 774 | CPM-EDS | 2枚刃CPMスクエアエンドミルショート形 | 2-flute CPM End Mill Short Length |
| | 823-24 WEB | CPM-EHL | CPMスクエアエンドミルハイヘリックスロング形 | High Helix CPM End Mill Long Length |
| | 823-22 WEB | CPM-EHS | CPMスクエアエンドミルハイヘリックスショート形 | High Helix CPM End Mill Short Length |
| | 818 | CPM-EML | 4枚刃CPMスクエアエンドミルロング形 | 4-flute CPM End Mill Long Length |
| | 811 | CPM-EMS | 多刃CPMスクエアエンドミルショート形 | Multiple-flute CPM End Mill Short Length |
| | 753 | CPM-HT | 難削材用粉末ハイスハンドタップ | CPM Straight Fluted Tap for Difficult to Machine Materials |
| | 870-2 WEB | CPM-LS-RESF | CPMファインピッチラフィングエンドミルロングシャンクショート形 | CPM Roughing End Mill Fine Pitch Short Length with Long Shank |
| | 754 | CPM-LT | 難削材用粉末ハイスハンドタップロングシャンク | CPM Straight Fluted Tap with Long Shank for Difficult to Machine Materials |
| | 686 | CPM-LT-POT | 難削材用粉末ハイスポイントタップロングシャンク | CPM Spiral Pointed Tap with Long Shank for Difficult to Machine Materials |
| | 633 | CPM-LT-SFT | 難削材用粉末ハイススパイラルタップロングシャンク | CPM Spiral Fluted Tap with Long Shank for Difficult to Machine Materials |
| | 784 | CPM-LT-S-TPT | 難削材用粉末ハイス管用テーパタップロングシャンク短ねじ形 | CPM Taper Pipe Thread Tap with Long Shank for Difficult to Machine Materials (Short Thread) |
| | 685 | CPM-POT | 難削材用粉末ハイスポイントタップ | CPM Spiral Pointed Tap for Difficult to Machine Materials |
| | 870-7 WEB | CPM-REE | CPMラフィングエンドミルレギュラ形 | CPM Roughing End Mill Regular Length |
| | 870-17 WEB | CPM-RFE | CPMラフアンドフィニッシュレギュラ形 | CPM Roughing and Finishing End Mill Regular Length |
| | 632 | CPM-SFT | 難削材用粉末ハイススパイラルタップ | CPM Spiral Fluted Tap for Difficult to Machine Materials |
| | 804 | CPM-SPT | 難削材用粉末ハイス管用平行タップ | CPM Parallel Pipe Thread Tap for Difficult to Machine Materials |
| | 823-5 WEB | CPM-STD | 成形用2枚刃CPMエンドミル直刃ショート形 | 2-flute CPM Straight Fluted End Mill Short Length for Reforming |
| | 784 | CPM-STDN | 成形用2枚刃CPMエンドミル直刃ミディアム形 | 2-flute CPM Straight Fluted End Mill Medium Length for Reforming |
| | 784 | CPM-S-TPT | 難削材用粉末ハイス管用テーパタップ短ねじ形 | CPM Taper Pipe Thread Tap for Difficult to Machine Materials (Short Thread) |
| | 887-2 WEB | CPM-TPED | 台形ランナ用2枚刃CPMテーパエンドミル | 2-flute CPM Taper End Mill for Trapezoidal Runner |
| | 783 | CPM-TPT | 難削材用粉末ハイス管用テーパタップ | CPM Taper Pipe Thread Tap for Difficult to Machine Materials |
| | 823-2 WEB | CPM-XLS-EDS | 2枚刃CPMスクエアエンドミルエキストラロングシャンクショート形 | 2-flute CPM End Mill Short Length with Extra Long Shank |
| | 823-13 WEB | CPM-XLS-EMS | 多刃CPMスクエアエンドミルエキストラロングシャンクショート形 | Multi-flute CPM End Mill Short Length with Extra Long Shank |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| C | 837-3 WEB | CR-EDL | 2枚刃ハイスラジアスエンドミルロング形 | 2-flute End Mill Long Length with Corner Radius |
| | 837-2 WEB | CR-EDS | 2枚刃ハイスラジアスエンドミルショート形 | 2-flute End Mill Short Length with Corner Radius |
| | 837-4 WEB | CR-EMS | 4枚刃ハイスラジアスエンドミルショート形 | 4-flute End Mill Short Length with Corner Radius |
| | 375 | CRM | 超硬ストレートリーマ | Carbide Straight Reamer |
| | 340-21 WEB | CRN-EBD | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル | CrN Coated 2-flute Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics |
| | 340-22 WEB | CRN-EBD-3 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル（ミニチュア） | CrN Coated 2-flute Miniature Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ3 Shank) |
| | 311-23 WEB | CRN-EDL | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルロング形 | CrN Coated 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics |
| | 311-22 WEB | CRN-EDL-4 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルロング形（φ4シャンク） | CrN Coated 2-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics (φ4 Shank) |
| | 311-23 WEB | CRN-EDLL | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルエキストラロング形 | CrN Coated 2-flute Carbide End Mill Extra Long Length for Copper, Aluminum Alloys and Plastics |
| | 311-16 WEB | CRN-EDN | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルミディアム形 | CrN Coated 2-flute Carbide End Mill Medium Length for Copper, Aluminum Alloys and Plastics |
| | 311-12 WEB | CRN-EDS | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形 | CrN Coated 2-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics |
| | 311-12 WEB | CRN-EDS-3 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形（ミニチュア） | CrN Coated 2-flute Miniature Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics (φ3 Shank) |
| | 311-37 WEB | CRN-EML | 銅・アルミ合金・プラスチック用CrNコート4枚刃超硬スクエアエンドミルロング形 | CrN Coated 4-flute Carbide End Mill Long Length for Copper, Aluminum Alloys and Plastics |
| | 311-35 WEB | CRN-EMS | 銅・アルミ合金・プラスチック用CrNコート4枚刃超硬スクエアエンドミルショート形 | CrN Coated 4-flute Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics |
| | 340-22 WEB | CRN-HS-EBD | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミル（HSK対応） | CrN Coated 2-flute Carbide Ball End Mill with HS Shank for Copper, Aluminum Alloys and Plastics |
| | 311-13 WEB | CRN-HS-EDS | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬スクエアエンドミルショート形（HSK対応） | CrN Coated 2-flute Carbide End Mill with HS Shank Short Length for Copper, Aluminum Alloys and Plastics |
| | 359-10 WEB | CRN-LN-EBD | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックボールエンドミル | CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics |
| | 359-10 WEB | CRN-LN-EBD-4 | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックボールエンドミル（φ4シャンク） | CrN Coated 2-flute Long Neck Carbide Ball End Mill for Copper, Aluminum Alloys and Plastics (φ4 Shank) |
| | 321-9 WEB | CRN-LN-EDS | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ロングネックスクエアエンドミルショート形 | CrN Coated 2-flute Long Neck Carbide End Mill Short Length for Copper, Aluminum Alloys and Plastics |
| | 340-23 WEB | CRN-LS-EBD | 銅・アルミ合金・プラスチック用CrNコート2枚刃超硬ボールエンドミルロングシャンク | CrN Coated 2-flute Carbide Ball End Mill with Long Shank for Copper, Aluminum Alloys and Plastics |
| | 893-16 WEB | CR-TPDR | 2枚刃ハイステーパラジアスエンドミルレギュラ形 | 2-flute Taper End Mill Regular Length with Corner Radius |
| | 893-12 WEB | CR-TPDS | 2枚刃ハイステーパラジアスエンドミルショート形 | 2-flute Taper End Mill Short Length with Corner Radius |
| | 836 | CR-XPM-EDS | 2枚刃XPMラジアスエンドミルショート形 | 2-flute XPM End Mill Short Length with Corner Radius |
| | 837-6 WEB | CS-EDS | 2枚刃ハイスエンドミルコーナC面付きショート形 | 2-flute End Mill Short Length with Corner Chamfering |
| | 1147 | CTCP115/125/135 | CERATIZIT インサート | CERATIZIT Insert |
| | 580 | CU-NRT | 銅用CrNコートハイスニューロールタップ | CrN Coated Nu-roll Tap for Copper |
| | 696 | CU-POT | 銅用CrNコートハイスポイントタップ | CrN Coated Spiral Pointed Tap for Copper |
| | 653 | CU-SFT | 銅用CrNコートハイススパイラルタップ | CrN Coated Spiral Fluted Tap for Copper |
| D | 1038 | D-Bar | 塗工用ロッド | Non-Wire Coated Bar |
| | 480 | DCE | 超硬綾目ルーター（メートル） | Diamond Cut Carbide Router |
| | 241 | D-CF-GDN | CFRP加工用DIAコート超硬ドリルミディアム形 | Diamond Coated Carbide Drill Medium Length for Composite Material |
| | 480 | DCR | 超硬綾目ルーター（インチ） | Diamond Cut Carbide Router |
| | 503 | DCT | スレッドミル用径補正ツール(メモリ付) | Diameter Correction Tool for Thread Mill (with Scale) |
| | 501 | DCT75 | スレッドミル用径補正ツール | Diameter Correction Tool for Thread Mill |
| | 245 | D-DAD | CFRP用DIAコート超硬ダブルアングルドリル | Diamond Coated Double Angle Carbide Drill for Composite Material |
| | 781 | DE-XPM-EDN | 深彫り用2枚刃XPMスクエアエンドミルミディアム形 | 2-flute XPM End Mill Medium Length for Deep Contouring |
| | 801 | DE-XPM-EMS | 深彫り用4枚刃XPMスクエアエンドミルショート形 | 4-flute XPM End Mill Short Length for Deep Contouring |
| | 434 | DG-CPR | グラファイト用DGコート超硬ロングネックラジアスエンドミル | DG Coated Long Neck Carbide End Mills with Corner Radius for Graphite |
| | 239 | D-GDN | DIAコート超硬ドリルミディアム形 | Diamond Coated Carbide Drill Medium Length |
| | 247 | D-GDN90 | CFRP用DIAコート超硬ドリルミディアム形先端角90° | Diamond Coated Drill for Composite Material (90° Point Angle) |

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※掲載ページ欄に「WEB」と表記している製品は、WEBカタログのみ掲載

| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| D | 333 | DG-EBD | グラファイト用DGコート2枚刃超硬ボールエンドミル | DG Coated 2-flute Carbide Ball End Mill for Graphite |
| | 338 | DG-EBM | グラファイト用DGコート4枚刃超硬ボールエンドミル | DG Coated 4-flute Carbide Ball End Mill for Graphite |
| | 293 | DG-EMS | グラファイト用DGコート4枚刃超硬スクエアエンドミルショート形 | DG Coated 4-flute Carbide End Mill Short Length for Graphite |
| | 340-26 WEB | D-GF-LS-EBDR | グラファイト用DIAコート2枚刃超硬ボールエンドミルロングシャンク | Diamond Coated 2-flute Carbide Ball End Mill with Long Shank for Graphite |
| | 355 | DG-LN-EBD | グラファイト用DGコート2枚刃超硬ロングネックボールエンドミル | DG Coated 2-flute Long Neck Carbide Ball End Mill for Graphite |
| | 356 | DG-LN-EBM | グラファイト用DGコート4枚刃超硬ロングネックボールエンドミル | DG Coated 4-flute Long Neck Carbide Ball End Mill for Graphite |
| | 321 | DG-LN-EMS | グラファイト用DGコート4枚刃超硬ロングネックスクエアエンドミルショート形 | DG Coated 4-flute Long Neck Carbide End Mill Short Length for Graphite |
| | 311-8 WEB | DIA-2D-DE | DIAコート2枚刃超硬スクエアエンドミル2D刃長 | Diamond Coated 2-flute Carbide End Mill (2D Type) |
| | 472 | DIA-BNC | DIAコート超硬ルーターファインクロスニック | Diamond Coated Fine Nicked Carbide Router |
| | 473 | DIA-CNC | DIAコート超硬ルーター高能率コースクロスニック | Diamond Coated Coarse Nicked Carbide Router |
| | 478 | DIA-COE | DIAコート1枚刃超硬ルーター弱ねじれ | Diamond Coated Single-flute Low Helix Carbide Router |
| | 436-4 WEB | DIA-CR-EDS | DIAコート2枚刃超硬ラジアスエンドミルショート形 | Diamond Coated 2-flute Carbide End Mill Short Length with Corner Radius |
| | 475 | DIA-DCE | DIAコート超硬綾目ルーター底刃有り | Diamond CoatedDiamond Cut Carbide Router with End Mill Cut |
| | 476 | DIA-DCE-D | DIAコート超硬綾目ルーター底刃ドリル仕様 | Diamond Coated Diamond Cut Carbide Router with Drill Point |
| | 475 | DIA-DCE-N | DIAコート超硬綾目ルーター底刃無し | Diamond Coated Diamond Cut Carbide Router with No End Cut |
| | 474 | DIA-DCR | DIAコート超硬綾目ルーター底刃有り | Diamond Coated Diamond Cut Carbide Router with End Mill Cut |
| | 474 | DIA-DCR-N | DIAコート超硬綾目ルーター底刃無し | Diamond Coated Diamond Cut Carbide Router with No End Cut |
| | 333 | DIA-EBD | DIAコート2枚刃超硬ボールエンドミル | Diamond Coated 2-flute Carbide Ball End Mill |
| | 340 | DIA-EBD-SF | DIAコート2枚刃超硬ボールエンドミル（焼きばめ対応） | Diamond Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) |
| | 340-27 WEB | DIA-EBM | DIAコート4枚刃超硬ボールエンドミル | Diamond Coated 4-flute Carbide End Mill |
| | 340-26 WEB | DIA-EBT | DIAコート3枚刃超硬ボールエンドミル | Diamond Coated 3-flute Carbide Ball End Mill |
| | 465-6 WEB | DIA-ECR | DIAコート2枚刃超硬コーナラウンディング | Diamond Coated 2-flute Carbide End Mill with Corner Rounding |
| | 272 | DIA-EDS | DIAコート2枚刃超硬スクエアエンドミルショート形 | Diamond Coated 2-flute Carbide End Mill Short Length |
| | 311-45 WEB | DIA-EHDL | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスロング形 | Diamond Coated 2-flute High Helix Carbide End Mill Long Length |
| | 311-46 WEB | DIA-EHDL-3 | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスロング形（ミニチュア） | Diamond Coated 2-flute High Helix Miniature Carbide End Mill Long Length (φ3 Shank) |
| | 311-42 WEB | DIA-EHDS | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスショート形 | Diamond Coated 2-flute High Helix Carbide End Mill Short Length |
| | 311-44 WEB | DIA-EHDS-3 | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスショート形（ミニチュア） | Diamond Coated 2-flute High Helix Miniature Carbide End Mill Short Length (φ3 Shank) |
| | 311-47 WEB | DIA-EOE | DIAコート1枚刃超硬スクエアエンドミルロング形 | Diamond Coated Single-flute Carbide End Mill Long Length |
| | 311-26 WEB | DIA-ETS | DIAコート3枚刃超硬スクエアエンドミルショート形 | Diamond Coated 3-flute Carbide End Mill Short Length |
| | 340-25 WEB | DIA-GF-EBDR | グラファイト用DIAコート2枚刃超硬ボールエンドミル | Diamond Coated 2-flute Carbide Ball End Mill for Graphite |
| | 472 | DIA-HBC4 | DIAコート4枚刃超硬ヘリングボーンカッタ | Diamond Coated Carbide Router for CFRP Herringbone Type |
| | 473 | DIA-HBC60 | DIAコート超硬ヘリングボーンカッタ60° | Diamond Coated Carbide Router Herringbone Type (60°) |
| | 355 | DIA-LN-EBD | DIAコート2枚刃超硬ロングネックボールエンドミル | Diamond Coated 2-flute Long Neck Carbide Ball End Mill |
| | 321-10 WEB | DIA-LN-EDS | DIAコート2枚刃超硬ロングネックスクエアエンドミルショート形 | Diamond Coated 2-flute Long Neck Carbide End Mill Short Length |
| | 321-14 WEB | DIA-LN-EMS | DIAコート4枚刃超硬ロングネックスクエアエンドミルショート形 | Diamond Coated 4-flute Long Neck Carbide End Mill Short Length |
| | 402 | DIA-LS-CRED | DIAコート2枚刃超硬ラジアスエンドミルロングシャンク | Diamond Coated 2-flute Carbide End Mill with Corner Radius, Long Shank |
| | 311-47 WEB | DIA-LS-EHDL | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスロングシャンクショート形 | Diamond Coated 2-flute High Helix Carbide End Mill Short Length with Long Shank |
| | 311-44 WEB | DIA-LS-EHDS | DIAコート2枚刃超硬スクエアエンドミルハイヘリックスロングシャンクショート形 | Diamond Coated 2-flute High Helix Carbide End Mill Short Length with Long Shank |
| | 311-25 WEB | DIA-LS-ETS | DIAコート3枚刃超硬スクエアエンドミルロングシャンクショート形 | Diamond Coated 3-flute Carbide End Mill Short Length with Long Shank |
| | 478 | DIA-MFC | 仕上げ用DIAコート多刃超硬ルーター | Diamond Coated Multi-flute Carbide Router for Finishing |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| D | 477 | DIA-MRC | DIAコート超硬ルーター底刃コーナR付 | Diamond Coated Carbide Router with Corner Radius |
| | 369-6 WEB | DIA-PC-EBD | DIAコート2枚刃超硬ペンシルネックボールエンドミル | Diamond Coated 2-flute Pencil Neck Carbide Ball End Mill |
| | 476 | DIA-REC | 荒用DIAコート超硬ルーターラフィングタイプ | Diamond Coated Carbide Router for Roughing |
| | 479 | DIA-TRE | 薄板トリミング用DIAコート超硬綾目ルーター底刃無し | Diamond Coated Diamond Cut Carbide Router with No End Cut for Trimming Laminates |
| | 479 | DIA-TRE-D | 薄板トリミング用DIAコート超硬綾目ルーター底刃ドリル仕様 | Diamond Coated Diamond Cut Carbide Router with Drill Point for Trimming Laminates |
| | 465 | DIA-VCM | 面取り用DIAコート2枚刃超硬エンドミルVカット | Diamond Coated 2-flute Carbide End Mill V Cut Type |
| | 364 | DIA-ZDS | 座ぐり用DIAコート2枚刃超硬エンドミルショート形 | Diamond Coated 2-flute Carbide End Mill Short Length for Counterboring |
| | 454 | DIA-ZDS | 座ぐり用DIAコート2枚刃超硬エンドミルショート形 | Diamond Coated 2-flute Carbide End Mill Short Length for Counterboring |
| | 376 | DLC-AIR-EDS | アルミ合金用DLCコート2枚刃超硬ラジアスエンドミルショート形 | DLC Coated 2-flute Carbide End Mill with Corner Radius Short Length for Aluminum Alloys |
| | 202-5 WEB | DLC-BD-4D | DLCコート超硬バニシングドリル4Dタイプ | DLC Coated Carbide Burnishing Drill (4D Type) |
| | 202-8 WEB | DLC-BDO-4D | DLCコート油穴付き超硬バニシングドリル4Dタイプ | DLC Coated Carbide Burnishing Drill with Internal Coolant Supply (4D Type) |
| | 202-9 WEB | DLC-BDO-8D | DLCコート油穴付き超硬バニシングドリル8Dタイプ | DLC Coated Carbide Burnishing Drill with Internal Coolant Supply (8D Type) |
| | 368-6 WEB | DLC-CR-LS-ZDS | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルロングシャンクショート形 | DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius and Long Shank for Counterboring |
| | 458-6 WEB | DLC-CR-LS-ZDS | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルロングシャンクショート形 | DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius and Long Shank for Counterboring |
| | 368-5 WEB | DLC-CR-ZDS | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルショート形 | DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring |
| | 458-5 WEB | DLC-CR-ZDS | 座ぐり用DLCコート2枚刃超硬ラジアスエンドミルショート形 | DLC Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring |
| | 311-48 WEB | DLC-E1-3D | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長 | DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type) |
| | 311-48 WEB | DLC-E1-3D-L | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ | DLC Coated Single-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix) |
| | 311-49 WEB | DLC-E1-5D | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長 | DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type) |
| | 311-49 WEB | DLC-E1-5D-L | アルミサッシ用DLCコート1枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ | DLC Coated Single-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix) |
| | 311-50 WEB | DLC-E2-3D | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長 | DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type) |
| | 311-50 WEB | DLC-E2-3D-L | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル3D刃長右刃左ねじれ | DLC Coated 2-flute Carbide End Mill for Aluminum Sash (3D Type, RH Cut and LH Helix) |
| | 311-51 WEB | DLC-E2-5D | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長 | DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type) |
| | 311-51 WEB | DLC-E2-5D-L | アルミサッシ用DLCコート2枚刃超硬スクエアエンドミル5D刃長右刃左ねじれ | DLC Coated 2-flute Carbide End Mill for Aluminum Sash (5D Type, RH Cut and LH Helix) |
| | 332 | DLC-EBD | DLCコート2枚刃超硬ボールエンドミル | DLC Coated 2-flute Carbide Ball End Mill |
| | 340-1 WEB | DLC-EBD-SF | DLCコート2枚刃超硬ボールエンドミル（焼きばめ対応） | DLC Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) |
| | 272 | DLC-EDS | DLCコート2枚刃超硬スクエアエンドミルショート形 | DLC Coated 2-flute Carbide End Mill Short Length |
| | 359-11 WEB | DLC-EQD | DLCコート2枚刃超硬エンドミル球形 | DLC Coated 2-flute Carbide End Mill Sphere Type |
| | 283 | DLC-ETS | DLCコート3枚刃超硬スクエアエンドミルショート形 | DLC Coated 3-flute Carbide End Mill Short Length |
| | 323-1 WEB | DLC-LDS | DLCコート超硬リーディングドリル | DLC Coated Carbide Starter Drill |
| | 948 | DLC-LG | DLCコートねじ用限界プラグゲージ | DLC Coated Thread Limit Plug Gauge |
| | 356 | DLC-LN-EBD | DLCコート2枚刃超硬ロングネックボールエンドミル | DLC Coated 2-flute Long Neck Carbide Ball End Mill |
| | 317 | DLC-LN-EDS | DLCコート2枚刃超硬ロングネックスクエアエンドミルショート形 | DLC Coated 2-flute Long Neck Carbide End Mill Short Length |
| | 323-2 WEB | DLC-LS-LDS | DLCコート超硬リーディングドリルロングシャンク | DLC Coated Carbide Starter Drill with Long Shank |
| | 323-2 WEB | DLC-LS-LDS-L | DLCコート超硬リーディングドリルロングシャンク左刃左ねじれ | DLC Coated Carbide Starter Drill with Long Shank (LH Cut and LH Helix) |
| | 368-3 WEB | DLC-LS-ZDS | 座ぐり用DLCコート2枚刃超硬エンドミルロングシャンクショート形 | DLC Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring |
| | 458-3 WEB | DLC-LS-ZDS | 座ぐり用DLCコート2枚刃超硬エンドミルロングシャンクショート形 | DLC Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring |
| | 436-12 WEB | DLC-MFE-SF | DLCコート3枚刃超硬ラジアスエンドミル立ち壁対応型（焼きばめ対応） | DLC Coated 3-Flute Carbide End Mill with Corner Radius for Deep Side Milling (Shrink Fit Type) |
| | 311-8 WEB | DLC-MR-EDS | DLCコート2枚刃超硬スクエアエンドミルショート形左刃左ねじれ | DLC Coated 2-flute Carbide End Mill (LH Cut and LH Helix) |
| | 311-31 WEB | DLC-MR-EMS | DLCコート多刃超硬スクエアエンドミルショート形左刃左ねじれ | DLC Coated Multi-flute Carbide End Mill Short Length (LH Cut and LH Helix) |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| D | 325-3 WEB | DLC-NC-LDS | DLCコートハイスリーディングドリル | DLC Coated Starter Drill |
| | 325-4 WEB | DLC-NC-LDS-L | DLCコートハイスリーディングドリル左刃左ねじれ | DLC Coated Starter Drill (LH Cut and LH Helix) |
| | 202-3 WEB | DLC-NF-GDN | 非鉄用DLCコート超硬ドリルミディアム形 | DLC Coated Carbide Drill Medium Length for Non-ferrous Materials |
| | 202-1 WEB | DLC-NF-GDS | 非鉄用DLCコート超硬ドリルショート形 | DLC Coated Carbide Drill Short Length for Non-ferrous Materials |
| | 403 | DLC-PKE | DLCコート3枚刃超硬ラジアスエンドミル多機能強力型 | DLC Coated 3-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type |
| | 465-1 WEB | DLC-VCMP | 面取り用DLCコート2枚刃超硬エンドミルVカット | DLC Coated 2-flute Carbide End Mill V Cut Type |
| | 368-1 WEB | DLC-ZDS | 座ぐり用DLCコート2枚刃超硬エンドミルショート形 | DLC Coated 2-flute Carbide End Mill Short Length for Counterboring |
| | 458-1 WEB | DLC-ZDS | 座ぐり用DLCコート2枚刃超硬エンドミルショート形 | DLC Coated 2-flute Carbide End Mill Short Length for Counterboring |
| | 443-12 WEB | DLC-RB-TPE | 非鉄用DLCコート2枚刃超硬テーパエンドミル（深リブ形） | DLC Coated 2-flute Carbide Taper End Mill for Non-ferrous Materials and Rib Processing |
| | 1001 | DP | ねじ転造平ダイス | Thread Rolling Flat Dies |
| | 379-1 WEB | DRM | CFRP用4枚刃超硬ドリルリーマ | 4-flute Carbide Drill Reamer for Composite Material |
| | 524 | DR-O-PNAC | 複合加工用FXコート油穴付き超硬スーパープラネットカッタ | FX Coated Carbide Super-Planet Cutter with Internal Coolant Supply for Multifunction Milling |
| | 523 | DR-PNAC | 複合加工用FXコート超硬スーパープラネットカッタ | FX Coated Carbide Super-Planet Cutter for Multifunction Milling |
| | 831 | DRT | ハイスドリルタップ | Straight Fluted Tap Combined with Drill |
| | 244 | D-STAD | CFRP用DIAコート超硬トリプルアングルドリル | Diamond Coated Triple Angle Carbide Drill for Composite Material |
| | 465-5 WEB | DUR-ECR | DUROREYコート2枚刃超硬コーナラウンディング | DUROREY Coated 2-flute Carbide End Mill with Corner Rounding |
| | 465-4 WEB | DUR-MG-VCM | 面取り用DUROREYコート2枚刃超硬エンドミルVカット | DUROREY Coated 2-flute Carbide End Mill V Cut Type |
| | 311-31 WEB | DUR-SMF | DUROREYコート超多刃超硬エンドミルショート形 | DUROREY Coated Super Multi-flute Carbide End Mill Short Length |
| E | 830 | EBD | 2枚刃ハイスボールエンドミル | 2-flute Ball End Mill |
| | 835-4 WEB | EBDL | 2枚刃ハイスボールエンドミルロング形 | 2-flute Ball End Mill Long Length |
| | 835 | EBM | 多刃ハイスボールエンドミル | Multi-flute Ball End Mill |
| | 381 | ECC | CERATIZIT 多機能旋削エコカットクラシック | CERATIZIT EcoCut Classic |
| | 1143 | ECC | CERATIZIT 多機能旋削エコカットクラシック | CERATIZIT EcoCut Classic |
| | 383 | ECM | CERATIZIT 多機能旋削エコカットミニ | CERATIZIT EcoCut Mini |
| | 1145 | ECM | CERATIZIT 多機能旋削エコカットミニ | CERATIZIT EcoCut Mini |
| | 243 | ED-DS | 電着ダイヤモンドセラドリル | Electroplated Diamond Drill for Ceramics |
| | 482 | ED-EB | 電着ダイヤモンドボールエンドミル | Electroplated Diamond Ball End |
| | 481 | ED-EM | 電着ダイヤモンドルーター | Electroplated Diamond Router for CFRP |
| | 835-11 WEB | ED-EQ-80 | 電着ダイヤモンドボールエンドミル#80タイプ | Electroplated Diamond Ball End Mill #80 |
| | 835-12 WEB | ED-EQ-100 | 電着ダイヤモンドボールエンドミル#100タイプ | Electroplated Diamond Ball End Mill #100 |
| | 789 | EDL | 2枚刃ハイススクエアエンドミルロング形 | 2-flute End Mill Long Length |
| | 782 | EDN | 2枚刃ハイススクエアエンドミルミディアム形 | 2-flute End Mill Medium Length |
| | 524 | ED-PNT | 電着ダイヤモンドセラタップ | Electroplated Diamond Thread Mill for Ceramics |
| | 766 | EDS | 2枚刃ハイススクエアエンドミルショート形 | 2-flute End Mill Short Length |
| | 765 | EDS-3 | 2枚刃ハイススクエアエンドミル（ミニチュア） | 2-flute Miniature End Mill (φ3 Shank) |
| | 773 | EKD | キー溝用2枚刃ハイススクエアエンドミル | 2-flute End Mill for Keyway |
| | 835-9 WEB | ER | 4枚刃ハイスエンドミルラージR | 4-flute End Mill with Large Radius |
| | 794 | ETS | 3枚刃ハイススクエアエンドミルショート形 | 3-flute End Mill Short Length |
| | 823-11 WEB | ETXL | 3枚刃ハイススクエアエンドミルエキストラロング形 | 3-flute End Mill Extra Long Length |
| | 649 | EX-AL-SFT | アルミ合金用ハイススパイラルタップ | Spiral Fluted Tap for Aluminum Alloys |

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|---|---|---|---|---|
| E | 646 | EX-B-DH-SFT | 非鉄・深穴用ハイススパイラルタップ | Spiral Fluted Tap for Non-ferrous Materials and Deep Holes |
| | 870-11 WEB | EX-CN-REE | 6枚刃ハイスラフィングエンドミルコンビネーションシャンクロング形 | 6-flute Roughing End Mill Long Length with Combination Shank |
| | 762 | EX-DC-HT | ダイカスト用窒化処理ハイスハンドタップ | Straight Fluted Tap for Die Castings (with Nitride) |
| | 691 | EX-DH-POT | 深穴用ホモ処理ハイスポイントタップ | Spiral Pointed Tap for Deep Holes (with Steam Oxide) |
| | 792 | EXDL | 2枚刃ハイススクエアエンドミルエキストラロング形 | 2-flute End Mill Extra Long Length |
| | 757 | EX-FC-HT | 鋳鉄用窒化処理ハイスハンドタップ | Straight Fluted Tap for Cast Iron (with Nitride) |
| | 758 | EX-FC-LT | 鋳鉄用窒化処理ハイスハンドタップロングシャンク | Straight Fluted Tap with Long Shank for Cast Iron (with Nitride) |
| | 787 | EX-FC-TPT | 鋳鉄用窒化処理ハイス管用テーパタップ | Taper Pipe Thread Tap for Cast Iron (with Nitride) |
| | 290 | EX-GDN | TiNコートハイスドリルミディアム形 | TiN Coated Drill Medium Length |
| | 293 | EX-GDR | TiNコートハイスドリルレギュラ形 | TiN Coated Drill Regular Length |
| | 286 | EX-GDS | TiNコートハイスドリルスタブ形 | TiN Coated Drill Stub Length |
| | 297 | EX-GDXL | TiNコートハイスドリルロング形 | TiN Coated Drill Long Length |
| | 652 | EX-HC-SFT | 高炭素鋼用ハイススパイラルタップ | Spiral Fluted Tap for High Carbon Steels |
| | 316 | EX-H-DRL | 折損タップ除去用超硬ドリル | Carbide Drill for Tap Removal |
| | 822 | EX-HL-POT | インサートねじ用ハイスポイントタップ | Spiral Pointed Tap for Helicoil/EG/STI |
| | 821 | EX-HL-SFT | インサートねじ用ハイススパイラルタップ | Spiral Fluted Tap for Helicoil/EG/STI |
| | 748 | EX-H-LT | ホモ処理ハイスハンドタップロングシャンク | Straight Fluted Tap with Long Shank (with Steam Oxide) |
| | 301 | EX-HO-GDR | TiNコート油穴付きハイスドリルレギュラ形 | TiN Coated Drill Regular Length with Internal Coolant Supply |
| | 679 | EX-H-POT | ホモ処理ハイスポイントタップ | Spiral Pointed Tap (with Steam Oxide) |
| | 617 | EX-H-SFT | ホモ処理ハイススパイラルタップ | Spiral Fluted Tap (with Steam Oxide) |
| | 793 | EX-IRT | ホモ処理ハイス管用テーパタップインターラップ形 | Taper Pipe Thread Tap with Interrupted Threads (with Steam Oxide) |
| | 816 | EX-IRT(NPTF) | ホモ処理ハイス管用テーパタップインターラップ形 | Taper Pipe Thread Tap with Interrupted Threads (with Steam Oxide) |
| | 289 | EX-LS-GDS | TiNコートハイスドリルロングシャンクスタブ形 | TiN Coated Drill Stub Length with Long Shank |
| | 870 | EX-LS-REBS | ハイスラフィングボールエンドミルロングシャンクショート形 | Roughing Ball End Mill Short Length with Long Shank |
| | 849 | EX-LS-REES | ハイスラフィングエンドミルロングシャンクショート形 | Roughing End Mill Short Length with Long Shank |
| | 847 | EX-LS-RESF | ハイスファインピッチラフィングエンドミルロングシャンクショート形 | Roughing End Mill Fine Pitch Short Length with Long Shank |
| | 741 | EX-LT | ハイスハンドタップロングシャンク | Straight Fluted Tap with Long Shank |
| | 693 | EX-LT-DH-POT | 深穴用ホモ処理ハイスポイントタップロングシャンク | Spiral Pointed Tap with Long Shank for Deep Holes (with Steam Oxide) |
| | 680 | EX-LT-H-POT | ホモ処理ハイスポイントタップロングシャンク | Spiral Pointed Tap with Long Shank (with Steam Oxide) |
| | 619 | EX-LT-H-SFT | ホモ処理ハイススパイラルタップロングシャンク | Spiral Fluted Tap with Long Shank (with Steam Oxide) |
| | 794 | EX-LT-IRT | ホモ処理ハイス管用テーパタップインターラップ形ロングシャンク | Taper Pipe Thread Tap with Interrupted Threads with Long Shank (with Steam Oxide) |
| | 746 | EX-LT-OST | オーバサイズ用ハイスハンドタップロングシャンク | Straight Fluted Tap with Long Shank for Oversize |
| | 675 | EX-LT-POT | ハイスポイントタップロングシャンク | Spiral Pointed Tap with Long Shank |
| | 610 | EX-LT-SFT | ハイススパイラルタップロングシャンク | Spiral Fluted Tap with Long Shank |
| | 794 | EX-LT-S-IRT | ホモ処理ハイス管用テーパタップインターラップロングシャンク短ねじ形 | Taper Pipe Thread Tap with Interrupted Threads with Long Shank (with Steam Oxide, Short Thread) |
| | 690 | EX-LT-SUS-POT | ステンレス用ホモ処理ハイスポイントタップロングシャンク | Spiral Pointed Tap with Long Shank for Stainless Steels (with Steam Oxide) |
| | 639 | EX-LT-SUS-SFT | ステンレス用ホモ処理ハイススパイラルタップロングシャンク | Spiral Fluted Tap with Long Shank for Stainless Steels (with Steam Oxide) |
| | 830 | EX-MCT | マシニングセンタ用ホモ処理ハイスタップロングシャンク | Tap with Long Shank for Machining Centers (with Steam Oxide) |
| | 819 | EXML | 多刃ハイススクエアエンドミルエキストラロング形 | Multi-flute End Mill Extra Long Length |
| | 823-26 WEB | EXML-NT40 | 多刃ハイススクエアエンドミルエキストラロング形（NT40） | Multi-flute End Mill Extra Long Length (NT40) |

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|---|---|---|---|---|
| E | 823-26 WEB | EXML-NT50 | 多刃ハイススクエアエンドミルエキストラロング形（NT50） | Multi-flute End Mill Extra Long Length (NT50) |
| | 303 | EX-MT-GDR | TiNコートハイスドリルMTシャンクレギュラ形 | TiN Coated Drill Regular Length with Morse Taper Shank |
| | 315 | EX-MT-TDR | 鉄骨用TiNコートハイスドリルMTシャンクレギュラ形 | TiN Coated Drill Regular Length with Morse Taper Shank for Steel Frame |
| | 740 | EX-OST | オーバサイズ用ハイスハンドタップ | Straight Fluted Tap for Oversize |
| | 761 | EX-PLA-HT | 樹脂用窒化処理ハイスハンドタップ | Straight Fluted Tap for Plastic and Resin (with Nitride) |
| | 669 | EX-POT | ハイスポイントタップ | Spiral Pointed Tap |
| | 810 | EX-POT-SPT | ハイス管用平行ポイントタップ | Spiral Pointed Parallel Pipe Thread Tap |
| | 870-5 WEB | EX-REE | ハイスラフィングエンドミル | Roughing End Mill |
| | 870-6 WEB | EX-REE-3F | 3枚刃ハイスラフィングエンドミル | 3-flute Roughing End Mill |
| | 857 | EX-REEL | ハイスラフィングエンドミルロング形 | Roughing End Mill Long Length |
| | 853 | EX-REEN | ハイスラフィングエンドミルミディアム形 | Roughing End Mill Medium Length |
| | 848 | EX-REES | ハイスラフィングエンドミルショート形 | Roughing End Mill Short Length |
| | 858 | EX-REXL | ハイスラフィングエンドミルエキストラロング形 | Roughing End Mill Extra Long Length |
| | 621 | EX-SC-SFT | ハイススパイラルタップショートチャンファ形 | Spiral Fluted Tap Short Chamfer Type |
| | 599 | EX-SFT | ハイススパイラルタップ | Spiral Fluted Tap |
| | 767 | EX-SH-HT | 高硬度鋼用ハイスハンドタップ | Straight Fluted Tap for High-hardness Steels |
| | 793 | EX-S-IRT | ホモ処理ハイス管用テーパタップインターラップ短ねじ形 | Taper Pipe Thread Tap with Interrupted Threads (with Steam Oxide, Short Thread) |
| | 830 | EX-S-MCT | マシニングセンタ用ホモ処理ハイスタップショート形 | Tap for Machining Centers (with Steam Oxide, Normal Length) |
| | 802 | EX-SPT | オーバサイズ用ハイス管用平行タップ | Oversize Parallel Pipe Thread Tap |
| | 695 | EX-SS-POT | 薄板用ホモ処理ハイスポイントタップ | Spiral Pointed Tap for Sheet Steels (with Steam Oxide) |
| | 749 | EX-SST | 深穴用ハイスハンドタップスリムシャンク | Straight Fluted Tap with Slim Shank for Deep Holes |
| | 277 | EX-SUS-GDN | ステンレス・軟鋼用TiNコートハイスドリルミディアム形 | TiN Coated Drill Medium Length for Stainless and Mild Steels |
| | 279 | EX-SUS-GDR | ステンレス・軟鋼用TiNコートハイスドリルレギュラ形 | TiN Coated Drill Regular Length for Stainless and Mild Steels |
| | 269 | EX-SUS-GDS | ステンレス・軟鋼用TiNコートハイスドリルスタブ形 | TiN Coated Drill Stub Length for Stainless and Mild Steels |
| | 756 | EX-SUS-HT | ステンレス用ホモ処理ハイスハンドタップ | Straight Fluted Tap for Stainless Steels (with Steam Oxide) |
| | 687 | EX-SUS-POT | ステンレス用ホモ処理ハイスポイントタップ | Spiral Pointed Tap for Stainless Steels (with Steam Oxide) |
| | 635 | EX-SUS-SFT | ステンレス用ホモ処理ハイススパイラルタップ | Spiral Fluted Tap for Stainless Steels (with Steam Oxide) |
| | 805 | EX-SUS-SPT(PF) | ステンレス用ホモ処理ハイス管用平行タップ | Parallel Pipe Thread Tap for Stainless Steels (with Steam Oxide) |
| | 799 | EX-SUS-SPT(PS,Rp) | ステンレス用ホモ処理ハイス管用平行タップ | Parallel Pipe Thread Tap for Stainless Steels (with Steam Oxide) |
| | 790 | EX-SUS-S-TPT | ステンレス用ホモ処理ハイス管用テーパタップ短ねじ形 | Taper Pipe Thread Tap for Stainless Steels (with Steam Oxide, Short Thread) |
| | 790 | EX-SUS-TPT | ステンレス用ホモ処理ハイス管用テーパタップ | Taper Pipe Thread Tap for Stainless Steels (with Steam Oxide) |
| | 837-1 WEB | EX-TIN-CR-EDS | TiNコート2枚刃ハイスラジアスエンドミルショート形 | TiN Coated 2-flute End Mill Short Length with Corner Radius |
| | 829 | EX-TIN-EBD | TiNコート2枚刃ハイスボールエンドミル | TiN Coated 2-flute Ball End Mill |
| | 787 | EX-TIN-EDL | TiNコート2枚刃ハイススクエアエンドミルロング形 | TiN Coated 2-flute End Mill Long Length |
| | 782 | EX-TIN-EDN | TiNコート2枚刃ハイススクエアエンドミルミディアム形 | TiN Coated 2-flute End Mill Medium Length |
| | 761 | EX-TIN-EDS | TiNコート2枚刃ハイススクエアエンドミルショート形 | TiN Coated 2-flute End Mill Short Length |
| | 765 | EX-TIN-EKD | キー溝用TiNコート2枚刃ハイススクエアエンドミル | TiN Coated 2-flute End Mill for Keyway |
| | 814 | EX-TIN-EML | TiNコート多刃ハイススクエアエンドミルロング形 | TiN Coated Multi-flute End Mill Long Length |
| | 802 | EX-TIN-EMS | TiNコート多刃ハイススクエアエンドミルショート形 | TiN Coated Multi-flute End Mill Short Length |
| | 823-10 WEB | EX-TIN-ETS | TiNコート3枚刃ハイススクエアエンドミルショート形 | TiN Coated 3-flute End Mill Short Length |

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|---|---|---|---|---|
| E | 823-10 WEB | EX-TIN-ETXL | TiNコート3枚刃ハイススクエアエンドミルエキストラロング形 | TiN Coated 3-flute End Mill Extra Long Length |
| | 823-6 WEB | EX-TIN-EXDL | TiNコート2枚刃ハイススクエアエンドミルエキストラロング形 | TiN Coated 2-flute End Mill Extra Long Length |
| | 823-19 WEB | EX-TIN-EXML | TiNコート多刃ハイススクエアエンドミルエキストラロング形 | TiN Coated Multi-flute End Mill Extra Long Length |
| | 835-3 WEB | EX-TIN-LS-EBD | TiNコート2枚刃ハイスボールエンドミルロングシャンク | TiN Coated 2-flute Ball End Mill with Long Shank |
| | 835-6 WEB | EX-TIN-LS-EBM | TiNコート4枚刃ハイスボールエンドミルロングシャンク | TiN Coated 4-flute Ball End Mill with Long Shank |
| | 823-6 WEB | EX-TIN-LS-EDL | TiNコート2枚刃ハイススクエアエンドミルロングシャンクロング形 | TiN Coated 2-flute End Mill Long Length with Long Shank |
| | 870-20 WEB | EX-TIN-LS-REBS | TiNコートハイスラフィングボールエンドミルロングシャンク | TiN Coated Roughing Ball End Mill with Long Shank |
| | 870-4 WEB | EX-TIN-REE | TiNコートハイスラフィングエンドミル | TiN Coated Roughing End Mill |
| | 856 | EX-TIN-RELF | TiNコートファインピッチハイスラフィングエンドミルロング形 | TiN Coated Roughing End Mill Fine Pitch Long Length |
| | 851 | EX-TIN-RENF | TiNコートハイスファインピッチラフィングエンドミルミディアム形 | TiN Coated Roughing End Mill Fine Pitch Medium Length |
| | 845 | EX-TIN-RESF | TiNコートハイスファインピッチラフィングエンドミルショート形 | TiN Coated Roughing End Mill Fine Pitch Short Length |
| | 870-8 WEB | EX-TIN-REXL | TiNコートハイスラフィングエンドミルエキストラロング形 | TiN Coated Roughing End Mill Extra Long Length |
| | 893-3 WEB | EX-TIN-TPBDR | TiNコート2枚刃ハイステーパボールエンドミルレギュラ形 | TiN Coated 2-flute Taper Ball End Mill Regular Length |
| | 893-1 WEB | EX-TIN-TPBDS | TiNコート2枚刃ハイステーパボールエンドミルショート形 | TiN Coated 2-flute Taper Ball End Mill Short Length |
| | 887-3 WEB | EX-TIN-TPDR | TiNコート2枚刃ハイステーパエンドミルレギュラ形 | TiN Coated 2-flute Taper End Mill Regular Length |
| | 887-1 WEB | EX-TIN-TPDS | TiNコート2枚刃ハイステーパエンドミルショート形 | TiN Coated 2-flute Taper End Mill Short Length |
| | 887-9 WEB | EX-TIN-TPMR | TiNコート4枚刃ハイステーパエンドミルレギュラ形 | TiN Coated 4-flute Taper End Mill Regular Length |
| | 887-8 WEB | EX-TIN-TPMS | TiNコート4枚刃ハイステーパエンドミルショート形 | TiN Coated 4-flute Taper End Mill Short Length |
| | 870-7 WEB | EX-XLS-REE | ハイスラフィングエンドミルエキストラロングシャンク | Roughing End Mill with Extra Long Shank |
| | 609 | EXZ-SFT | 高耐久型特殊表面処理ハイススパイラルタップ | Highly Durable Spiral Fluted Tap (with NZ Treatment) |
| | 1018 | E-サート | ツガミE-サートコイル | - |
| F | 205 | FH-GDN | 高硬度鋼用FXコート超硬ドリルミディアム形 | FX Coated Carbide Drill Medium Length for High-hardness Steels |
| | 204 | FH-GDS | 高硬度鋼用FXコート超硬ドリルスタブ形 | FX Coated Carbide Drills Stub Length for High-hardness Steels |
| | 212 | FHL-GDTS | 高硬度鋼用FXコート3枚刃超硬ドリルロングネックスタブ形 | FX Coated 3-flute Long Neck Carbide Drill Stub Length for High-hardness Steels |
| | 214-10 WEB | FS-GDN | 高速加工用FXコート超硬ドリルミディアム形 | FX Coated Carbide Drill Medium Length for High Speed Processing |
| | 214-9 WEB | FS-GDS | 高速加工用FXコート超硬ドリルスタブ形 | FX Coated Carbide Drill Stub Length for High Speed Processing |
| | 214-15 WEB | FT-GDN | FXコート超硬ドリルミディアム形 | FX Coated Carbide Drill Medium Length |
| | 214-13 WEB | FT-GDS | FXコート超硬ドリルスタブ形 | FX Coated Carbide Drill Stub Length |
| | 214-2 WEB | FTO-GDN | 高速加工用FXコート油穴付き超硬ドリルミディアム形 | FX Coated Carbide Drill Medium Length with Internal Coolant Supply for High Speed Processing |
| | 214-1 WEB | FTO-GDS | 高速加工用FXコート油穴付き超硬ドリルスタブ形 | FX Coated Carbide Drill Stub Length with Internal Coolant Supply for High Speed Processing |
| | 214-7 WEB | FTO-GDXL | 高速加工用FXコート油穴付き超硬ドリルエキストラロング形 | FX Coated Carbide Drill Extra Long Length with Internal Coolant Supply for High Speed Processing |
| | 214 | FTO-H-GDXL | 高硬度金型材用FXコート油穴付き超硬ドリルエキストラロング形 | FX Coated Carbide Drill Extra Long Length with Internal Coolant Supply for Hard Mold Materials |
| | 213 | FTO-M-GDXL | 金型用FXコート油穴付き超硬ドリルエキストラロング形 | FX Coated Carbide Drill Extra Long Length with Internal Coolant Supply for Molds |
| | 436-1 WEB | FX-CR-EDS-6 | FXコート2枚刃超硬ラジアスエンドミルショート形（φ6シャンク） | FX Coated 2-flute Carbide End Mill Short Length with Corner Radius (φ6 Shank) |
| | 380 | FX-CR-MG-EDL | FXコート2枚刃超硬ラジアスエンドミルロング形 | FX Coated 2-flute Carbide End Mill Long Length with Corner Radius |
| | 379 | FX-CR-MG-EDS | FXコート2枚刃超硬ラジアスエンドミルショート形 | FX Coated 2-flute Carbide End Mill Short Length with Corner Radius |
| | 390 | FX-CR-MG-EHS | FXコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形 | FX Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius |
| | 382 | FX-CR-MG-EML | FXコート4枚刃超硬ラジアスエンドミルロング形 | FX Coated 4-flute Carbide End Mill Long Length with Corner Radius |
| | 436-5 WEB | FX-CR-MG-EMS | FXコート4枚刃超硬ラジアスエンドミルショート形 | FX Coated 4-flute Carbide End Mill Short Length with Corner Radius |
| | 436-9 WEB | FX-CS-EDS | FXコート2枚刃超硬エンドミルコーナC面付きショート形 | FX Coated 2-flute Carbide End Mill Short Length with Corner Chamfering |

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# アルファベット順 CLASSIFIED BY ALPHABETICAL ORDER

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| F | 340-5 WEB | FX-EBD-6 | FXコート2枚刃超硬ボールエンドミル高精度タイプ（φ6シャンク） | FX Coated 2-flute Carbide Ball End Mill High-precision Type (φ6 Shank) |
| | 340-7 WEB | FX-EBD-DL-6 | FXコート2枚刃超硬ボールエンドミルDL形（φ6シャンク） | FX Coated 2-flute Carbide Ball End Mill (φ6 Shank DL Type) |
| | 340-6 WEB | FX-EBDSS-6 | FXコート2枚刃超硬ボールエンドミルスタブ形（φ6シャンク） | FX Coated 2-flute Carbide Ball End Mill Stub Length (φ6 Shank) |
| | 466 | FX-ECR | FXコート2枚刃超硬コーナラウンディング | FX Coated 2-flute Carbide End Mill with Corner Rounding |
| | 311-17 WEB | FX-ED-DL-6 | FXコート2枚刃超硬スクエアエンドミルDL形（φ6シャンク） | FX Coated 2-flute Carbide End Mill (φ6 Shank DL Type) |
| | 311-5 WEB | FX-EDS-6 | FXコート2枚刃超硬スクエアエンドミルショート形（φ6シャンク） | FX Coated 2-flute Carbide End Mill Short Length (φ6 Shank) |
| | 311-6 WEB | FX-EDSS-6 | FXコート2枚刃超硬スクエアエンドミルスタブ形（φ6シャンク） | FX Coated 2-flute Carbide End Mill Stub Length (φ6 Shank) |
| | 340-11 WEB | FX-H-EBD | 仕上げ用FXコート2枚刃超硬ボールエンドミル（HSK対応） | FX Coated 2-flute Carbide Ball End Mill with HS Shank |
| | 214-6 WEB | FX-HO-GDL | 高速加工用FXコート油穴付き超硬ドリルロング形 | FX Coated Carbide Drill Long Length with Internal Coolant Supply for High Speed Processing |
| | 214-5 WEB | FX-HO-GDR | 高速加工用FXコート油穴付き超硬ドリルレギュラ形 | FX Coated Carbide Drill Regular Length with Internal Coolant Supply for High Speed Processing |
| | 214-4 WEB | FX-HO-GDS | 高速加工用FXコート油穴付き超硬ドリルスタブ形 | FX Coated Carbide Drill Stub Length with Internal Coolant Supply for High Speed Processing |
| | 340-11 WEB | FX-HO-MG-EBD | FXコート2枚刃油穴付き超硬ボールエンドミル | FX Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply |
| | 363 | FX-HO-ZDN | 座ぐり用FXコート2枚刃油穴付き超硬エンドミルミディアム形 | FX Coated 2-flute Carbide End Mill Medium Length with Internal Coolant Supply for Counterboring |
| | 449 | FX-HO-ZDN | 座ぐり用FXコート2枚刃油穴付き超硬エンドミルミディアム形 | FX Coated 2-flute Carbide End Mill Medium Length with Internal Coolant Supply for Counterboring |
| | 340-10 WEB | FX-HS-EBDS | 重切削用FXコート2枚刃超硬ボールエンドミル強力型（HSK対応） | FX Coated 2-flute Carbide Ball End Mill with HS Shank (Heavy-duty Operation Type) |
| | 323 | FX-LDS | FXコート超硬リーディングドリル | FX Coated Carbide Starter Drill |
| | 436-11 WEB | FX-LN-CR-EDS-6 | FXコート2枚刃超硬ロングネックラジアスエンドミルショート形（φ6シャンク） | FX Coated 2-flute Long Neck Carbide End Mill with Corner Radius (φ6 Shank) |
| | 359-5 WEB | FX-LN-EBD-6 | FXコート2枚刃超硬ロングネックボールエンドミル高精度タイプ(φ6シャンク) | FX Coated 2-flute Long Neck Carbide Ball End Mill High-precision Type (φ6 Shank) |
| | 321-6 WEB | FX-LN-EDS-6 | FXコート2枚刃超硬ロングネックスクエアエンドミルショート形（φ6シャンク） | FX Coated 2-flute Long Neck Carbide End Mill Short Length (φ6 Shank) |
| | 321-13 WEB | FX-LN-EMS-6 | FXコート4枚刃超硬ロングネックスクエアエンドミルショート形（φ6シャンク） | FX Coated 4-flute Long Neck Carbide End Mill Short Length (φ6 Shank) |
| | 359-6 WEB | FX-LN-MG-EBD | FXコート2枚刃超硬ロングネックボールエンドミル | FX Coated 2-flute Long Neck Carbide Ball End Mill |
| | 323 | FX-LS-LDS | FXコート超硬リーディングドリルロングシャンク | FX Coated Carbide Starter Drill with Long Shank |
| | 327 | FX-LS-MG-EBD | FXコート2枚刃超硬ボールエンドミルロングシャンク | FX Coated 2-flute Carbide Ball End Mill with Long Shank |
| | 340-12 WEB | FX-LS-MG-EBDL | FXコート2枚刃超硬ボールエンドミルロングシャンクロング形 | FX Coated 2-flute Carbide Ball End Mill Long Length with Long Shank |
| | 464 | FX-LS-SCC | 面取り用FXコート2枚刃超硬エンドミルロングシャンク | FX Coated 2-flute Carbide End Mill with Long Shank for Chamfering |
| | 360 | FX-LS-ZDS | 座ぐり用FXコート2枚刃超硬エンドミルロングシャンクショート形 | FX Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring |
| | 450 | FX-LS-ZDS | 座ぐり用FXコート2枚刃超硬エンドミルロングシャンクショート形 | FX Coated 2-flute Carbide End Mill Short Length with Long Shank for Counterboring |
| | 403 | FX-MCF | 底面仕上げ用FXコート4枚刃サーメットラジアスエンドミル | FX Coated 4-flute Cermet End Mill with Corner Radius for Bottom Finishing |
| | 337 | FX-MG-CS×60 | FXコート3枚刃カウンターシンク | FX Coated 3-flute Countersink |
| | 468 | FX-MG-CS×60 | FXコート3枚刃カウンターシンク | FX Coated 3-flute Countersink |
| | 337 | FX-MG-CS×90 | FXコート3枚刃カウンターシンク | FX Coated 3-flute Countersink |
| | 469 | FX-MG-CS×90 | FXコート3枚刃カウンターシンク | FX Coated 3-flute Countersink |
| | 340-3 WEB | FX-MG-EBD | FXコート2枚刃超硬ボールエンドミル | FX Coated 2-flute Carbide Ball End Mill |
| | 340-8 WEB | FX-MG-EBD-3 | FXコート2枚刃超硬ボールエンドミル（ミニチュア） | FX Coated 2-flute Miniature Carbide Ball End Mill (φ3 Shank) |
| | 340-9 WEB | FX-MG-EBDL-3 | FXコート2枚刃超硬ボールエンドミルロング形（ミニチュア） | FX Coated 2-flute Miniature Carbide Ball End Mill Long Length (φ3 Shank) |
| | 340-10 WEB | FX-MG-EBDLL-3 | FXコート2枚刃超硬ボールエンドミルエキストラロング形（ミニチュア） | FX Coated 2-flute Miniature Carbide Ball End Mill Extra Long Length (φ3 Shank) |
| | 340-27 WEB | FX-MG-EBM | FXコート4枚刃超硬ボールエンドミル | FX Coated 4-flute Carbide Ball End Mill |
| | 274 | FX-MG-EDL | FXコート2枚刃超硬スクエアエンドミルロング形 | FX Coated 2-flute Carbide End Mill Long Length |
| | 311-19 WEB | FX-MG-EDL-3 | FXコート2枚刃超硬スクエアエンドミルロング形（ミニチュア） | FX Coated 2-flute Miniature Carbide End Mill Long Length (φ3 Shank) |
| | 311-19 WEB | FX-MG-EDLL-3 | FXコート2枚刃超硬スクエアエンドミルエキストラロング形（ミニチュア） | FX Coated 2-flute Miniature Carbide End Mill Extra Long Length (φ3 Shank) |

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|---|---|---|---|---|
| F | 311-15 WEB | FX-MG-EDN | FXコート2枚刃超硬スクエアエンドミルミディアム形 | FX Coated 2-flute Carbide End Mill Medium Length |
| | 311-1 WEB | FX-MG-EDS | FXコート2枚刃超硬スクエアエンドミルショート形 | FX Coated 2-flute Carbide End Mill Short Length |
| | 311-4 WEB | FX-MG-EDS OH1 | FXコート2枚刃超硬スクエアエンドミルショート形 (OH1) | FX Coated 2-flute Carbide End Mill Short Length(Cutting diameter plus tolerance) |
| | 311-4 WEB | FX-MG-EDSS | FXコート2枚刃超硬スクエアエンドミルスタブ形 | FX Coated 2-flute Carbide End Mill Stub Length |
| | 309 | FX-MG-EHL | FXコート超硬スクエアエンドミルハイヘリックスロング形 | FX Coated High Helix Carbide End Mill Long Length |
| | 294 | FX-MG-EML | FXコート4枚刃超硬スクエアエンドミルロング形 | FX Coated 4-flute Carbide End Mill Long Length |
| | 311-26 WEB | FX-MG-EMS | FXコート4枚刃超硬スクエアエンドミルショート形 | FX Coated 4-flute Carbide End Mill Short Length |
| | 311-27 WEB | FX-MG-EMS OH1 | FXコート4枚刃超硬スクエアエンドミルショート形 (OH1) | FX Coated 4-flute Carbide End Mill Short Length(Cutting diameter plus tolerance) |
| | 311-27 WEB | FX-MG-EMSS | FXコート4枚刃超硬スクエアエンドミルスタブ形 | FX Coated 4-flute Carbide End Mill Stub Length |
| | 275 | FX-MG-EXDL | FXコート2枚刃超硬スクエアエンドミルエキストラロング形 | FX Coated 2-flute Carbide End Mill Extra Long Length |
| | 294 | FX-MG-EXML | FXコート4枚刃超硬スクエアエンドミルエキストラロング形 | FX Coated 4-flute Carbide End Mill Extra Long Length |
| | 439 | FX-MG-TPDS | FXコート2枚刃超硬テーパエンドミルショート形 | FX Coated 2-flute Carbide Taper End Mill Short Length |
| | 443-3 WEB | FX-MG-TRC | 台形ランナ用FXコート2枚刃超硬テーパエンドミル | FX Coated 2-flute Carbide Taper End Mill for Trapezoidal Runner |
| | 465 | FX-MG-VCM | 面取り用FXコート2枚刃超硬エンドミルVカット | FX Coated 2-flute Carbide End Mill V Cut Type |
| | 340-13 WEB | FX-MR-EBD | FXコート2枚刃超硬ボールエンドミル左刃左ねじれ | FX Coated 2-flute Carbide Ball End Mill (LH Cut and LH Helix) |
| | 311-7 WEB | FX-MR-EDS | FXコート2枚刃超硬スクエアエンドミルショート形左刃左ねじれ | FX Coated 2-flute Carbide End Mill Short Length (LH Cut and LH Helix) |
| | 311-28 WEB | FX-MR-EMS | FXコート4枚刃超硬スクエアエンドミルショート形左刃左ねじれ | FX Coated 4-flute Carbide End Mill Short Length (LH Cut and LH Helix) |
| | 311-7 WEB | FX-NC-EDSS | NC旋盤用FXコート2枚刃超硬スクエアエンドミルスタブ形 | FX Coated 2-flute Carbide End Mill Stub Length for Lathes |
| | 311-28 WEB | FX-NC-EMSS | NC旋盤用FXコート4枚刃超硬スクエアエンドミルスタブ形 | FX Coated 4-flute Carbide End Mill Stub Length for Lathes |
| | 369-5 WEB | FX-PCL-EBD | FXコート2枚刃超硬ペンシルロングネックボールエンドミル | FX Coated 2-flute Pencil Long Neck Carbide Ball End Mill |
| | 369-4 WEB | FX-PC-MG-EBD | FXコート2枚刃超硬ペンシルネックボールエンドミル | FX Coated 2-flute Pencil Neck Carbide Ball End Mill |
| | 369-1 WEB | FX-PCS-EBD-6 | FXコート2枚刃超硬ペンシルショートネックボールエンドミル高精度タイプ (φ6シャンク) | FX Coated 2-flute Pencil Short Neck Carbide Ball End Mill High-precision Type (φ6 Shank) |
| | 464 | FX-SCC | 面取り用FXコート2枚刃超硬エンドミル | FX Coated 2-flute Carbide End Mill for Chamfering |
| | 436-7 WEB | FXS-CR-EML | WXSコート多刃超硬ラジアスエンドミルロング形高剛性タイプ | WXS Coated Multi-flute Carbide End Mill Long Length with Corner Radius (Highly Rigid Type) |
| | 436-6 WEB | FXS-CR-EMS | WXSコート多刃超硬ラジアスエンドミルショート形高剛性タイプ | WXS Coated Multi-flute Carbide End Mill Short Length with Corner Radius (Highly Rigid Type) |
| | 336 | FXS-EBT | WXSコート3枚刃超硬ボールエンドミル高能率タイプ | WXS Coated 3-flute Carbide Ball End Mill (Highly Efficient Type) |
| | 311-36 WEB | FXS-EML | WXSコート多刃超硬スクエアエンドミルロング形高剛性タイプ | WXS Coated Multi-flute Carbide End Mill Long Length (Highly Rigid Type) |
| | 311-29 WEB | FXS-EMS | WXSコート多刃超硬スクエアエンドミルショート形高剛性タイプ | WXS Coated Multi-flute Carbide End Mill Short Length (Highly Rigid Type) |
| | 311-29 WEB | FXS-EMSS | WXSコート多刃超硬スクエアエンドミルスタブ形高剛性タイプ | WXS Coated Multi-flute Carbide End Mill Stub Length (Highly Rigid Type) |
| | 364 | FXS-EQD | FXコート2枚刃超硬エンドミル球形 | FX Coated 2-flute Carbide End Mill Sphere Type |
| | 340-13 WEB | FXS-HO-EBDS | WXSコート2枚刃油穴付き超硬ボールエンドミル高剛性タイプ | WXS Coated 2-flute Carbide Ball End Mill with Internal Coolant Supply (Highly Rigid Type) |
| | 392 | FXS-HS-PKE | FXコート4枚刃超硬ラジアスエンドミル多機能強力型 (HSK対応) | FX Coated 4-flute Carbide End Mill with Corner Radius HS Shank High Speed Pocket Operation Type |
| | 336 | FXS-LS-EBT | WXSコート3枚刃超硬ボールエンドミルロングシャンク高能率タイプ | WXS Coated 3-flute Carbide Ball End Mill with Long Shank (Highly Efficient Type) |
| | 311-30 WEB | FXS-LS-EMS | WXSコート多刃超硬スクエアエンドミルロングシャンクショート形高剛性タイプ | WXS Coated Multi-flute Carbide End Mill Short Length with Long Shank (Highly Rigid Type) |
| | 311-30 WEB | FXS-LS-EMS-S | WXSコート多刃超硬スクエアエンドミルロングスリムシャンクショート形 | WXS Coated Multi-flute Carbide End Mill Short Length with Long Slim Shank |
| | 369 | FXS-PC-EBT | WXSコート3枚刃超硬ペンシルネックボールエンドミル高能率タイプ | WXS Coated 3-flute Pencil Neck Carbide Ball End Mill Highly Efficient Type |
| | 391 | FXS-PKE | FXコート4枚刃超硬ラジアスエンドミル多機能強力型 | FX Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type |
| | 436-8 WEB | FXS-PKER | FXコート4枚刃超硬ラジアスエンドミルレギュラ形多機能強力型 | FX Coated 4-flute Carbide End Mill Regular Length with Corner Radius High Speed Pocket Operation Type |
| | 445-1 WEB | FXS-RB-TPB | FXコート多刃超硬テーパボールエンドミル (深リブ形) | FX Coated Multi-flute Taper Ball End Mill for Rib Processing |
| | 445-7 WEB | FXS-RB-TPCR | FXコート多刃超硬テーパラジアスエンドミル (深リブ形) | FX Coated Multi-flute Carbide Taper End Mill with Corner Radius for Rib Processing |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| F | 443-4 WEB | FXS-RB-TPE | FXコート多刃超硬テーパエンドミル（深リブ形） | FX Coated Multi-flute Carbide Taper End Mill for Rib Processing |
| | 326 | FX-SS-EBD | FXコート2枚刃超硬ボールエンドミルスリムシャンク | FX Coated 2-flute Carbide Ball End Mill with Slim Shank |
| | 362 | FX-ZDN | 座ぐり用FXコート2枚刃超硬エンドミルミディアム形 | FX Coated 2-flute Carbide End Mill Medium Length for Counterboring |
| | 452 | FX-ZDN | 座ぐり用FXコート2枚刃超硬エンドミルミディアム形 | FX Coated 2-flute Carbide End Mill Medium Length for Counterboring |
| | 357 | FX-ZDS | 座ぐり用FXコート2枚刃超硬エンドミルショート形 | FX Coated 2-flute Carbide End Mill Short Length for Counterboring |
| | 446 | FX-ZDS | 座ぐり用FXコート2枚刃超硬エンドミルショート形 | FX Coated 2-flute Carbide End Mill Short Length for Counterboring |
| G | 340-24 WEB | GF-EBDL | グラファイト用2枚刃超硬ボールエンドミルロング形 | 2-flute Carbide Ball End Mill Long Length for Graphite |
| | 340-24 WEB | GF-EBDR | グラファイト用2枚刃超硬ボールエンドミルレギュラ形 | 2-flute Carbide Ball End Mill Regular Length for Graphite |
| | 311-25 WEB | GF-EDL | グラファイト用2枚刃超硬スクエアエンドミルロング形 | 2-flute Carbide End Mill Long Length for Graphite |
| | 311-24 WEB | GF-EDR | グラファイト用2枚刃超硬スクエアエンドミルレギュラ形 | 2-flute Carbide End Mill Regular Length for Graphite |
| | 311-38 WEB | GF-EML | グラファイト用4枚刃超硬スクエアエンドミルロング形 | 4-flute Carbide End Mill Long Length for Graphite |
| | 311-37 WEB | GF-EMR | グラファイト用4枚刃超硬スクエアエンドミルレギュラ形 | 4-flute Carbide End Mill Regular Length for Graphite |
| | 340-25 WEB | GF-LS-EBDR | グラファイト用2枚刃超硬ボールエンドミルロングシャンクレギュラ形 | 2-flute Carbide Ball End Mill Regular Length with Long Shank for Graphite |
| | 311-24 WEB | GF-LS-EDR | グラファイト用2枚刃超硬スクエアエンドミルロングシャンクレギュラ形 | 2-flute Carbide End Mill Regular Length with Long Shank for Graphite |
| | 311-38 WEB | GF-LS-EMR | グラファイト用4枚刃超硬スクエアエンドミルロングシャンクレギュラ形 | 4-flute Carbide End Mill Regular Length with Long Shank for Graphite |
| | 551 | GRT | 高性能・低炭素型Vコート粉末ハイス転造タップ | V Coated High-performance Low-carbon CPM Forming Tap |
| | 404 | GX-CR-EDS-SF | GXコート2枚刃超硬ラジアスエンドミルショート形（焼きばめ対応） | GX Coated 2-flute Carbide End Mill Short Length with Corner Radius (Shrink Fit Type) |
| | 340-17 WEB | GX-EBD | GXコート2枚刃超硬ボールエンドミル | GX Coated 2-flute Carbide Ball End Mill |
| | 339 | GX-EBD-SF | GXコート2枚刃超硬ボールエンドミル（焼きばめ対応） | GX Coated 2-flute Carbide Ball End Mill (Shrink Fit Type) |
| | 311-11 WEB | GX-EDS | GXコート2枚刃超硬スクエアエンドミルショート形 | GX Coated 2-flute Carbide End Mill Short Length |
| | 311-33 WEB | GX-EMS | GXコート4枚刃超硬スクエアエンドミルショート形 | GX Coated 4-flute Carbide End Mill Short Length |
| | 339 | GX-EQD-SF | GXコート2枚刃超硬エンドミル球形（焼きばめ対応） | GX Coated 2-flute Carbide End Mill Sphere Type (Shrink Fit Type) |
| H | 481 | HBC60 | 超硬ヘリングボーンカッタ60° | Carbide Router Herringbone Type (60°) |
| | 375 | HFC-TI | チタン合金用高送り超硬ラジアスエンドミル | High Feed Carbide End Mill with Corner Radius for Titanium Alloy |
| | 747 | H-HT | ホモ処理ハイスハンドタップ | Straight Fluted Tap (with Steam Oxide) |
| | 827 | HL-B-NRT | 非鉄・インサートねじ用窒化処理ハイスニューロールタップ | Nu-roll Tap for Helicoil/EG/STI Non-ferrous Materials (with Nitride) |
| | 823 | HL-HT | インサートねじ用ハイスハンドタップ | Straight Fluted Tap for Helicoil/EG/STI |
| | 958 | HL-LG | インサートねじ用限界プラグゲージ | Thread Limit Plug Gauge for Helicoil/EG/STI |
| | 826 | HL-LT | インサートねじ用ハイスハンドタップロングシャンク | Straight Fluted Tap with Long Shank for Helicoil/EG/STI |
| | 827 | HL-LT-B-NRT | 非鉄・インサートねじ用窒化処理ハイスニューロールタップロングシャンク | Nu-roll Tap with Long Shank for Helicoil/EG/STI Non-Ferrous Materials (with Nitride) |
| | 822 | HL-LT-POT | インサートねじ用ハイスポイントタップロングシャンク | Spiral Pointed Tap with Long Shank for Helicoil/EG/STI |
| | 821 | HL-LT-SFT | インサートねじ用ハイススパイラルタップロングシャンク | Spiral Fluted Tap with Long Shank for Helicoil/EG/STI |
| | 584 | HRT | スチール用ホモ処理ハイスハイロールタップ | Hi-roll Tap for Steels (with Steam Oxide) |
| | 581 | HS-AL-NRT | アルミ合金用ハイス高速シンクロニューロールタップ | Nu-roll Synchro Tap for Aluminum Alloys |
| | 703 | HS-AL-RFT | アルミ合金用ハイス高速シンクロタップ | Synchro Tap for Aluminum Alloys |
| | 659 | HS-AL-SFT | アルミ合金用ハイス高速シンクロスパイラルタップ | Spiral Fluted Synchro Tap for Aluminum Alloys |
| | 461 | HSCT-N | 面取り用3枚刃超硬エンドミルネガタイプ | 3-flute Carbide End Mill for Chamfering (Negative) |
| | 461 | HSCT-P | 面取り用3枚刃超硬エンドミルポジタイプ | 3-flute Carbide End Mill for Chamfering (Positive) |
| | 701 | HS-LT-RFT | TiNコートハイス高速シンクロタップロングシャンク | TiN Coated Synchro Tap with Long Shank |
| | 658 | HS-LT-SFT | TiNコートハイス高速シンクロスパイラルタップロングシャンク | TiN Coated Spiral Fluted Synchro Tap with Long Shank |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| H | 803 | H-SPT | ホモ処理ハイス管用平行タップ | Parallel Pipe Thread Tap (with Steam Oxide) |
| | 700 | HS-RFT | TiNコートハイス高速シンクロタップ | TiN Coated Synchro Tap |
| | 657 | HS-SFT | TiNコートハイス高速シンクロスパイラルタップ | TiN Coated Spiral Fluted Synchro Tap |
| | 775 | H-S-TPT | ホモ処理ハイス管用テーパタップ短ねじ形 | Taper Pipe Thread Tap (with Steam Oxide, Short Thread) |
| | 705 | HT | ハイスハンドタップ | Straight Fluted Tap |
| | 739 | HT-3F | ハイスハンドタップ3溝 | Straight Fluted Tap (3-flute) |
| | 738 | HT-4F | ハイスハンドタップ4溝 | Straight Fluted Tap (4-flute) |
| | 775 | H-TPT | ホモ処理ハイス管用テーパタップ | Taper Pipe Thread Tap (with Steam Oxide) |
| | 628 | HXL-SFT | 大径横形加工機用ホモ処理ハイススパイラルタップ | Spiral Fluted Tap for Large Thread Size Horizontal Machines (with Steam Oxide) |
| | 471 | HY-BCC | 裏面取り用WXLコート超硬エンドミル | WXL Coated Carbide End Mill for Back Chamfering |
| | 463 | HY-HSCM-P | 面取り用WXLコート多刃超硬エンドミルポジタイプ | WXL Coated Multi-flute Carbide End Mill for Chamfering (Positive) |
| | 533 | HY-PRO P PNTC | ハイプロプラネットカッタ | HY-PRO Planet Cutter |
| | 470 | HY-QCC | 面取り用WXLコート超硬Qボールエンドミル | WXL Coated Carbide Q Ball End Mill for Chamfering |
| I | 444 | IB-TPBT | インペラ・タービンブレード用コーティング3枚刃超硬テーパボールエンドミル | Coated 3-flute Carbide Taper Ball End Mill for Impellers and Turbine Blades |
| | 816 | IRT(NPT) | ホモ処理ハイス管用テーパタップインターラップ形 | Taper Pipe Thread Tap with Interrupted Threads (with Steam Oxide) |
| | 311-14 WEB | IT-EDS | コバール用FXコート2枚刃超硬スクエアエンドミルショート形 | FX Coated 2-flute Carbide End Mill Short Length for Kovar |
| | 311-13 WEB | IT-EDS-6 | コバール用FXコート2枚刃超硬スクエアエンドミルショート形 (φ6シャンク) | FX Coated 2-flute Carbide End Mill Short Length for Kovar (φ6 Shank) |
| | 311-36 WEB | IT-EMS | コバール用FXコート4枚刃超硬スクエアエンドミルショート形 | FX Coated 4-flute Carbide End Mill Short Length for Kovar |
| | 311-35 WEB | IT-EMS-6 | コバール用FXコート4枚刃超硬スクエアエンドミルショート形 (φ6シャンク) | FX Coated 4-flute Carbide End Mill Short Length for Kovar (φ6 Shank) |
| | 558 | IT-NRT | Vコート粉末ハイスITニューロールタップ | V Coated CPM IT Nu-roll Tap |
| J | 700 | J-HS-RFT | TiNコートハイス高速シンクロタップJISシャンク | TiN Coated Synchro Tap with JIS Shank |
| | 657 | J-HS-SFT | TiNコートハイス高速シンクロスパイラルタップJISシャンク | TiN Coated Spiral Fluted Synchro Tap with JIS Shank |
| K | 867 | KFR | ホモ処理ハイスクラフトミルレギュラ形 | Kraft Mill End Mill Regular Length (with Steam Oxide) |
| L | 973 | LCG | 摩耗点検ねじゲージ | Thread Gauge for Checking Wear |
| | 895 | LG(ねじ用) | ねじ用限界ゲージ | Thread Limit Gauge |
| | 954 | LG(内径用) | 内径プラグゲージ | Limit Plug Gauge for Minor Diameter |
| | 950 | LG(管用) | ねじ用限界ゲージ | Thread Limit Gauge |
| | 976 | LG(XPM) | ねじ用限界ゲージ | Thread Limit Gauge |
| | 977 | LG(超硬) | ねじ用限界ゲージ | Thread Limit Gauge |
| | 1035 | LH-STIX | LHスティックス手動ドライバー | - |
| | 823-27 WEB | LN-CPM-EDS | 2枚刃CPMロングネックスクエアエンドミルショート形 | 2-flute Long Neck CPM End Mill Short Length |
| | 823-27 WEB | LN-EDN-OH | 2枚刃ハイスロングネックスクエアエンドミルオーバサイズ | 2-flute Long Neck End Mill Medium Length (Over Size) |
| | 321-7 WEB | LN-MG-EDS | 2枚刃超硬ロングネックスクエアエンドミルショート形 | 2-flute Long Neck Carbide End Mill Short Length |
| | 864 | LS-BKMS | 多刃ハイスベストカットロングシャンクショート形 | Multi-flute Best-Kut End Mill Short Length with Long Shank |
| | 837-5 WEB | LS-CR-EMN | 4枚刃ハイスラジアスエンドミルロングシャンクミディアム形 | 4-flute Radius End Mill Medium Length with Long Shank |
| | 835-5 WEB | LS-EBD | 2枚刃ハイスボールエンドミルロングシャンク | 2-flute Ball End Mill with Long Shank |
| | 835-7 WEB | LS-EBM | 4枚刃ハイスボールエンドミルロングシャンク | 4-flute Ball End Mill with Long Shank |
| | 823-7 WEB | LS-EDL | 2枚刃ハイススクエアエンドミルロングシャンクロング形 | 2-flute End Mill Long Length with Long Shank |
| | 784 | LS-EDN | 2枚刃ハイススクエアエンドミルロングシャンクミディアム形 | 2-flute End Mill Medium Length with Long Shank |
| | 818 | LS-EML | 4枚刃ハイススクエアエンドミルロングシャンクロング形 | 4-flute End Mill Long Length with Long Shank |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| L | 810 | LS-EMS | 4枚刃ハイススクエアエンドミルロングシャンクショート形 | 4-flute End Mill Short Length with Long Shank |
| | 823-11 WEB | LS-EMSS | 4枚刃ハイススクエアエンドミルロングシャンクスタブ形 | 4-flute End Mill Stub Length with Long Shank |
| | 462 | LS-HSCT-N | 面取り用3枚刃超硬エンドミルロングシャンクネガタイプ | 3-flute Carbide End Mill with Long Shank for Chamfering (Negative) |
| | 462 | LS-HSCT-P | 面取り用3枚刃超硬エンドミルロングシャンクポジタイプ | 3-flute Carbide End Mill with Long Shank for Chamfering (Positive) |
| | 327 | LS-NC-LDS | ハイスリーディングドリルロングシャンク | Starter Drill with Long Shank |
| | 327-1 WEB | LS-NC-LDS-L | ハイスリーディングドリルロングシャンク左刃左ねじれ | Starter Drill with Long Shank (LH Cut and LH Helix) |
| | 870-21 WEB | LS-REBS | ハイスラフィングボールエンドミルロングシャンク | Roughing Ball End Mill with Long Shank |
| | 870-3 WEB | LS-REES | ハイスラフィングエンドミルロングシャンクショート形 | Roughing End Mill Short Length with Long Shank |
| | 863 | LS-RFES | ハイスラフアンドフィニッシュロングシャンクショート形 | Roughing and Finishing End Mill Short Length with Long Shank |
| | 870-13 WEB | LS-TFS | ハイスタフニックエンドミルロングシャンクショート形 | TUF-NICK End Mill Short Length with Long Shank |
| | 828 | LS-XPM-EBD | 2枚刃XPMボールエンドミルロングシャンク | 2-flute XPM Ball End Mill with Long Shank |
| | 870-1 WEB | LS-XPM-RESF | XPMファインピッチラフィングエンドミルロングシャンク | XPM Roughing End Mill Fine Pitch Short Length with Long Shank |
| | 579 | LT-B-NRT | 非鉄用窒化処理ハイスニューロールタップロングシャンク | Nu-roll Tap with Long Shank for Non-ferrous Materials (with Nitride) |
| | 645 | LT-MS-DH-SFT | 軟鋼・深穴用ホモ処理ハイススパイラルタップロングシャンク | Spiral Fluted Tap with Long Shank for Mild Steels and Deep Holes (with Steam Oxide) |
| | 572 | LT-NRT | スチール用ホモ処理ハイスニューロールタップロングシャンク | Nu-roll Tap with Long Shank for Steels (with Steam Oxide) |
| | 760 | LT-OTT | 超硬ハンドタップロングシャンク | Carbide Straight Fluted Tap with Long Shank |
| | 624 | LT-SC-SFT | ハイススパイラルタップロングシャンクショートチャンファ形 | Spiral Fluted Tap Short Chamfer Type with Long Shank |
| | 809 | LT-SFT-SPT | ハイス管用平行スパイラルタップロングシャンク | Spiral Fluted Parallel Pipe Thread Tap with Long Shank |
| | 778 | LT-SFT-S-TPT | ハイス管用テーパスパイラルタップロングシャンク短ねじ形 | Spiral Fluted Taper Pipe Thread Tap with Long Shank (Short Thread) |
| | 778 | LT-SFT-TPT | ハイス管用テーパスパイラルタップロングシャンク | Spiral Fluted Taper Pipe Thread Tap with Long Shank |
| | 803 | LT-SPT(PF,G) | ハイス管用平行タップロングシャンク | Parallel Pipe Thread Tap with Long Shank |
| | 798 | LT-SPT(PS,Rp) | ハイス管用平行タップロングシャンク | Parallel Pipe Thread Tap with Long Shank |
| | 776 | LT-S-TPT | ハイス管用テーパタップロングシャンク短ねじ形 | Taper Pipe Thread Tap with Long Shank (Short Thread) |
| | 642 | LT-SUS-DH-SFT | ステンレス・深穴用ホモ処理ハイススパイラルタップロングシャンク | Spiral Fluted Tap with Long Shank for Stainless Steels and Deep Holes (with Steam Oxide) |
| | 791 | LT-SUS-S-TPT | ステンレス用ホモ処理ハイス管用テーパタップロングシャンク短ねじ形 | Taper Pipe Thread Tap with Long Shank for Stainless Steels (with Steam Oxide, Short Thread) |
| | 791 | LT-SUS-TPT | ステンレス用ホモ処理ハイス管用テーパタップロングシャンク | Taper Pipe Thread Tap with Long Shank for Stainless Steels (with Steam Oxide) |
| | 549 | LT-S-XPF | XパフォーマーVコートハイス転造タップロングシャンク | V Coated X Performer Forming Tap with Long Shank |
| | 776 | LT-TPT | ハイス管用テーパタップロングシャンク | Taper Pipe Thread Tap with Long Shank |
| | 647 | LW-SFT | ハイスロースパイラルタップ | Low Spiral Fluted Tap |
| M | 1131 | MaxiMill 274 | CERATIZIT MaxiMill 274 | CERATIZIT MaxiMill 274 |
| | 1137 | MaxiMill HEC | CERATIZIT MaxiMill HEC | CERATIZIT MaxiMill HEC |
| | 269 | MBOS | 1枚刃CBNスクエアエンドミルショート形 | Single-flute CBN Brazed End Mill Short Length |
| | 270 | MDOS | 1枚刃PCDスクエアエンドミルショート形 | Single-flute PCD End Mill Short Length |
| | 436-3 WEB | MG-CR-EDS | 2枚刃超硬ラジアスエンドミルショート形 | 2-flute Carbide End Mill Short Length with Corner Radius |
| | 436-6 WEB | MG-CR-EMS | 4枚刃超硬ラジアスエンドミルショート形 | 4-flute Carbide End Mill Short Length with Corner Radius |
| | 436-10 WEB | MG-CS-EDS | 2枚刃超硬エンドミルコーナC面付きショート形 | 2-flute Carbide End Mill Short Length with Corner Chamfering |
| | 328 | MG-EBD | 2枚刃超硬ボールエンドミル | 2-flute Carbide Ball End Mill |
| | 340-18 WEB | MG-EBD-3 | 2枚刃超硬ボールエンドミル（ミニチュア） | 2-flute Miniature Carbide Ball End Mill (φ3 Shank) |
| | 340-18 WEB | MG-EBD-4 | 2枚刃超硬ボールエンドミル（φ4シャンク） | 2-flute Carbide Ball End Mill (φ4 Shank) |
| | 340-20 WEB | MG-EBD-DL | 2枚刃超硬ボールエンドミルDL形 | 2-flute Carbide Ball End Mill (DL Type) |

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|---|---|---|---|---|
| M | 340-19 WEB | MG-EBDL-3 | 2枚刃超硬ボールエンドミルロング形（ミニチュア） | 2-flute Miniature Carbide Ball End Mill Long Length (φ3 Shank) |
| | 340-19 WEB | MG-EBDLL-3 | 2枚刃超硬ボールエンドミルエキストラロング形（ミニチュア） | 2-flute Miniature Carbide Ball End Mill Extra Long Length (φ3 Shank) |
| | 276 | MG-EDL | 2枚刃超硬スクエアエンドミルロング形 | 2-flute Carbide End Mill Long Length |
| | 311-20 WEB | MG-EDL-3 | 2枚刃超硬スクエアエンドミルロング形（ミニチュア） | 2-flute Miniature Carbide End Mill Long Length (φ3 Shank) |
| | 311-20 WEB | MG-EDL-4 | 2枚刃超硬スクエアエンドミルロング形（φ4シャンク） | 2-flute Carbide End Mill Long Length (φ4 Shank) |
| | 311-21 WEB | MG-EDLL-3 | 2枚刃超硬スクエアエンドミルエキストラロング形（ミニチュア） | 2-flute Miniature Carbide End Mill Extra Long Length (φ3 Shank) |
| | 273 | MG-EDN | 2枚刃超硬スクエアエンドミルミディアム形 | 2-flute Carbide End Mill Medium Length |
| | 267 | MG-EDS | 2枚刃超硬スクエアエンドミルショート形 | 2-flute Carbide End Mill Short Length |
| | 268 | MG-EDS OH1 | 2枚刃超硬スクエアエンドミルショート形 | 2-flute Carbide End Mill Short Length |
| | 266 | MG-EDS-3 | 2枚刃超硬スクエアエンドミルショート形（ミニチュア） | 2-flute Miniature Carbide End Mill (φ3 Shank) |
| | 311-39 WEB | MG-EHS | 超硬スクエアエンドミルハイヘリックスショート形 | High Helix Carbide End Mill Short Length |
| | 269 | MG-EKD | キー溝用2枚刃超硬スクエアエンドミル（OH1,OL1） | 2-flute Carbide End Mill for Keyway (OH1,OL1) |
| | 295 | MG-EML | 4枚刃超硬スクエアエンドミルロング形 | 4-flute Carbide End Mill Long Length |
| | 292 | MG-EMS | 4枚刃超硬スクエアエンドミルショート形 | 4-flute Carbide End Mill Short Length |
| | 311-34 WEB | MG-EMS OH1 | 4枚刃超硬スクエアエンドミルショート形（OH1） | 4-flute Carbide End Mill Short Length (OH1) |
| | 276 | MG-EXDL | 2枚刃超硬スクエアエンドミルエキストラロング形 | 2-flute Carbide End Mill Extra Long Length |
| | 295 | MG-EXML | 4枚刃超硬スクエアエンドミルエキストラロング形 | 4-flute Carbide End Mill Extra Long Length |
| | 359-8 WEB | MG-LN-EBD | 2枚刃超硬ロングネックボールエンドミル | 2-flute Long Neck Carbide Ball End Mill |
| | 273 | MG-STDN | 成形用2枚刃超硬エンドミル直刃ミディアム形 | 2-flute Carbide Straight Fluted End Mill Medium Length for Reforming |
| | 445-6 WEB | MG-TPBDS | 2枚刃超硬テーパボールエンドミルショート形 | 2-flute Carbide Taper Ball End Mill Short Length |
| | 443-1 WEB | MG-TPDS | 2枚刃超硬テーパエンドミルショート形 | 2-flute Carbide Taper End Mill Short Length |
| | 443-2 WEB | MG-TPMS | 4枚刃超硬テーパエンドミルショート形 | 4-flute Carbide Taper End Mill Short Length |
| | 443 | MG-TRC | 台形ランナ用2枚刃超硬テーパエンドミル | 2-flute Carbide Taper End Mill for Trapezoidal Runner |
| | 823-3 WEB | MR-EDS | 2枚刃ハイススクエアエンドミルショート形左刃左ねじれ | 2-flute End Mill Short Length (LH Cut and LH Helix) |
| | 823-13 WEB | MR-EMS | 4枚刃ハイススクエアエンドミルショート形左刃左ねじれ | 4-flute End Mill Short Length (LH Cut and LH Helix) |
| | 197 | MRS-GDL | ステンレス用スムースコート小径超硬マイクロレボリューションドリルロング形 | Smooth Coated Small Size Carbide Drill Long Length for Stainless |
| | 196-1 WEB | MRS-GDN | ステンレス用スムースコート小径超硬マイクロレボリューションドリルミディアム形 | Smooth Coated Small Size Carbide Drill Medium Length for Stainless |
| | 835-3 WEB | MR-XPM-EBD | 2枚刃XPMボールエンドミル左刃左ねじれ | 2-flute XPM Ball End Mill (LH Cut and LH Helix) |
| | 643 | MS-DH-SFT | 軟鋼・深穴用ホモ処理ハイススパイラルタップ | Spiral Fluted Tap for Mild Steels and Deep Holes (with Steam Oxide) |
| | 823-25 WEB | MT-EHL | 4枚刃ハイススクエアエンドミルハイヘリックスモールステーパシャンクロング形 | 4-flute High Helix End Mill Long Length with Morse Taper Shank |
| | 870-11 WEB | MT-REE | ハイスラフィングエンドミルモールステーパシャンクロング形 | Roughing End Mill Long Length with Morse Taper Shank |
| | 870-12 WEB | MT-REEL | ハイスラフィングエンドミルモールステーパシャンクロング形 | Roughing End Mill Long Length with Morse Taper Shank |
| | 870-20 WEB | MT-RFE | ハイスラフアンドフィニッシュモールステーパシャンクロング形 | Roughing and Finishing End Mill Long Length with Morse Taper Shank |
| | 285 | MT-SUS-GDR | ステンレス・軟鋼用TiNコートハイスドリルMTシャンクレギュラ形 | TiN Coated Drill Regular Length with Morse Taper Shank for Stainless and Mild Steels |
| N | 311-33 WEB | NC-EMSS | NC旋盤用4枚刃超硬スクエアエンドミルスタブ形 | 4-flute Carbide End Mill Stub Length for Lathes |
| | 314-1 WEB | NC-GDS | 自動盤用WXLコートハイスドリル | WXL Coated Drill Compatible with Sliding Head Lathes |
| | 324 | NC-LDS | ハイスリーディングドリル | Starter Drill |
| | 324-1 WEB | NC-LDS-L | ハイスリーディングドリル左刃左ねじれ | Starter Drill (LH Cut and LH Helix) |
| | 382 | NEO-CR-EMS | FXコート6枚刃超硬ラジアスエンドミルショート形不等リード | FX Coated 6-flute Variable Lead Carbide End Mill Short Length with Corner Radius |
| | 389 | NEO-CR-PHS | FXコート4枚刃超硬ラジアスエンドミルショート形強力重切削型不等リード | FX Coated 4-flute Variable Lead Carbide End Mill Short Length with Corner Radius (Heavy-duty Operation Type) |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| N | 291 | NEO-EMS | FXコート6枚刃超硬スクエアエンドミルショート形不等リード | FX Coated 6-flute Variable Lead Carbide End Mill Short Length |
| | 303 | NEO-PHS | FXコート4枚刃超硬スクエアエンドミルショート形強力重切削型不等リード | FX Coated 4-flute Variable Lead Carbide End Mill Short Length (Heavy-duty Operation Type) |
| | 248 | NEPTUNE | 耐熱合金スターティング穴加工用TiAlNコートハンド穴あけ超硬ドリル | TiAlN Coated Carbide Starter Hand Drill for HRSA |
| | 268 | NEXUS-GDR | WDIコートハイスネクサスドリルレギュラ形 | WDI Coated Drill Regular Length (NEXUS Drill) |
| | 267 | NEXUS-GDS | WDIコートハイスネクサスドリルスタブ形 | WDI Coated Drill Stub Length (NEXUS Drill) |
| | 201 | NF-GDN | 非鉄用超硬ドリルミディアム形 | Carbide Drill Medium Length for Non-ferrous Materials |
| | 870-19 WEB | NI-EXML | 多刃ハイスエンドミルニック付エキストラロング形 | Multi-flute Nicked End Mill Extra Long Length |
| | 699 | NI-POT | Ni基超耐熱合金用粉末ハイスポイントタップ | CPM Spiral Pointed Tap for Nickel Alloy |
| | 656 | NI-SFT | Ni基超耐熱合金用粉末ハイススパイラルタップ | CPM Spiral Fluted Tap for Nickel Alloy |
| | 569 | NRT | スチール用ホモ処理ハイスニューロールタップ | Nu-roll Tap for Steels (with Steam Oxide) |
| | 806 | NRT-SPT | ホモ処理ハイス管用平行ニューロールタップ | Nu-roll Parallel Pipe Thread Tap (with Steam Oxide) |
| | 828 | NT | ハイスナットタップ | Nut Tap |
| O | 755 | OIL-HT | ホモ処理油穴付きハイスハンドタップ | Straight Fluted Tap with Internal Coolant Supply (with Steam Oxide) |
| | 694 | OIL-POT | ホモ処理油穴付きハイスポイントタップ | Spiral Pointed Tap with Internal Coolant Supply (with Steam Oxide) |
| | 648 | OIL-SFT | ホモ処理油穴付きハイススパイラルタップ | Spiral Fluted Tap with Internal Coolant Supply (with Steam Oxide) |
| | 550 | OIL-S-XPF | Xパフォーマーコート油穴付きハイス転造タップ | V Coated X Performer Forming Tap with Internal Coolant Supply |
| | 786 | OIL-TPT | ホモ処理油穴付きハイス管用テーパタップ | Taper Pipe Thread Tap with Internal Coolant Supply (with Steam Oxide) |
| | 829 | O-NT | オーバサイズ用ハイスナットタップ | Nut Tap for Oversize |
| | 334 | OP-SFA | OSG PHOENIX ねじ込みタイプ専用ホルダ | OSG PHOENIX Indexable Arbor for Screw Fit Type |
| | 1045 | OSG-HAIMER | OSG-HAIMER 部品 | OSG-HAIMER Accessories |
| | 765 | OT-DC-HT | ダイカスト用超硬ハンドタップ | Carbide Straight Fluted Tap for Die Castings |
| | 574 | OT-IN-NRT | 超硬チップろう付けニューロールタップ | Carbide Nu-roll Tap (Brazed Type) |
| | 574 | OT-LT-NRT | 超硬ニューロールタップロングシャンク | Carbide Nu-roll Tap with Long Shank |
| | 807 | OT-LT-SPT | 超硬管用平行タップロングシャンク | Carbide Parallel Pipe Thread Tap with Long Shank |
| | 789 | OT-LT-TPT | 超硬管用テーパタップロングシャンク | Carbide Taper Pipe Thread Tap with Long Shank |
| | 573 | OT-NRT | 超硬ニューロールタップ | Carbide Nu-roll Tap |
| | 1028 | OTO-A | 切削油 | Tapping Oil |
| | 1028 | OTO-B | 切削油 | Tapping Oil |
| | 1028 | OTO-C | 切削油 | Tapping Oil |
| | 520 | OT-PNGT | FXコート超硬プラネットカッタ | FX Coated Carbide Planet Cutter |
| | 650 | OT-SFT | 超硬スパイラルタップ | Carbide Spiral Fluted Tap |
| | 519 | OT-SFT-PNGT | FXコート超硬スパイラルプラネットカッタ | FX Coated Carbide Spiral Fluted Planet Cutter |
| | 807 | OT-SPT | 超硬管用平行タップ | Carbide Parallel Pipe Thread Tap |
| | 788 | OT-S-TPT | 超硬管用テーパタップ短ねじ形 | Carbide Taper Pipe Thread Tap (Short Thread) |
| | 759 | OTT | 超硬ハンドタップ | Carbide Straight Fluted Tap |
| | 788 | OT-TPT | 超硬管用テーパタップ | Carbide Taper Pipe Thread Tap |
| | 1043 | OZT | OZT ツールプリセッタ | OZT Tool Presetter |
| P | 225 | P2D | OSG PHOENIX インデキサブルドリル2Dタイプ | OSG PHOENIX Indexable Drill (2D Type) |
| | 1045 | P2D | OSG PHOENIX インデキサブルドリル2Dタイプ | OSG PHOENIX Indexable Drill (2D Type) |
| | 227 | P3D | OSG PHOENIX インデキサブルドリル3Dタイプ | OSG PHOENIX Indexable Drill (3D Type) |

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|---|---|---|---|---|
| P | 1047 | P3D | OSG PHOENIX インデキサブルドリル3Dタイプ | OSG PHOENIX Indexable Drill (3D Type) |
| | 229 | P4D | OSG PHOENIX インデキサブルドリル4Dタイプ | OSG PHOENIX Indexable Drill (4D Type) |
| | 1049 | P4D | OSG PHOENIX インデキサブルドリル4Dタイプ | OSG PHOENIX Indexable Drill (4D Type) |
| | 231 | P5D | OSG PHOENIX インデキサブルドリル5Dタイプ | OSG PHOENIX Indexable Drill (5D Type) |
| | 1051 | P5D | OSG PHOENIX インデキサブルドリル5Dタイプ | OSG PHOENIX Indexable Drill (5D Type) |
| | 943 | PAO | OSG PHOENIX 正面フライスオクタゴンタイプ | OSG PHOENIX Indexable 45° Face Milling Cutter Octagon Insert Type |
| | 942 | PAS | OSG PHOENIX 正面フライススクエアタイプ | OSG PHOENIX Indexable 45° Face Milling Cutter Square Insert Type |
| | 835-14 WEB | PC-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル | 2-flute Pencil Neck CPM Ball End Mill |
| | 835-16 WEB | PC-CPM-EBL | CPMペンシルネックボールエンドミルロング形 | Pencil Neck CPM Ball End Mill Long Length |
| | 823-28 WEB | PC-CPM-EDS | 2枚刃CPMペンシルネックスクエアエンドミルショート形 | 2-flute Pencil Neck CPM End Mill Short Length |
| | 238-1 WEB | PCD-GDN | PCDツイストドリルミディアム形 | PCD Helix Twist Drill Medium Length for Aluminum Alloys with High Silicon Content |
| | 835-13 WEB | PCS-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル強力型 | 2-flute Pencil Neck CPM Ball End Mill Short Length |
| | 978 | PDR | OSG PHOENIX 高送りラジアスカッタ | OSG PHOENIX Indexable Deep Feed Radius Cutter |
| | 235 | PDZ | OSG PHOENIX インデキサブルフラットドリル | OSG PHOENIX Indexable Flat Drill |
| | 1055 | PDZ | OSG PHOENIX インデキサブルフラットドリル | OSG PHOENIX Indexable Flat Drill |
| | 985 | PFAL | OSG PHOENIX アルミ合金用仕上げカッタ | OSG PHOENIX Indexable Finishing Cutter for Aluminum Alloys |
| | 986 | PFB | OSG PHOENIX 仕上げ用ボールエンドミル | OSG PHOENIX Indexable Finishing Ball End Mill |
| | 904 | PFB ねじ込みタイプ | OSG PHOENIX 仕上げ用ボールエンドミル | OSG PHOENIX Indexable Finishing Ball End Mill |
| | 967 | PFDC | OSG PHOENIX ディスクカッタ | OSG PHOENIX Indexable Disc Cutter |
| | 993 | PFR | OSG PHOENIX 仕上げ用ラジアスエンドミル | OSG PHOENIX Indexable Finishing End Mill with Corner Radius |
| | 905 | PFR ねじ込みタイプ | OSG PHOENIX 仕上げ用ラジアスエンドミル | OSG PHOENIX Indexable Finishing End Mill with Corner Radius |
| | 971 | PG | 限界プレーンゲージ | Plain Limit Gauge |
| | 879 | PHC | OSG PHOENIX 高送りラジアスカッタ | OSG PHOENIX Indexable High Feed Radius Cutter |
| | 902 | PHC ねじ込みタイプ | OSG PHOENIX 高送りラジアスカッタ | OSG PHOENIX Indexable High Feed Radius Cutter |
| | 223 | PHP | OSG PHOENIX インデキサブルドリル3Dタイプ | OSG PHOENIX Indexable Drill (3D Type) |
| | 1058 | PHP | OSG PHOENIX インデキサブルドリル3Dタイプ | OSG PHOENIX Indexable Drill (3D Type) |
| | 388 | PHX-CRT | FXコート3枚刃超硬ラジアスエンドミル | FX Coated 3-flute Carbide End Mill with Corner Radius |
| | 335 | PHX-DBT | FXコート3枚刃超硬ボールエンドミル | FX Coated 3-flute Carbide Ball End Mill |
| | 387 | PHX-DFR | WXSコート3枚刃超硬ラジアスエンドミル | WXS Coated 3-flute Carbide End Mill with Corner Radius |
| | 430 | PHX-LN-CRE | WXSコート4枚刃小径超硬ロングネックラジアスエンドミル | WXS Coated 4-flute Long Neck Small Size Carbide End Mill with Corner Radius |
| | 354 | PHX-LN-DBT | WXSコート3枚刃超硬ロングネックボールエンドミル | WXS Coated 3-flute Long Neck Carbide Ball End Mill |
| | 431 | PHX-LN-DFR | WXSコート3枚刃超硬ロングネックラジアスエンドミル | WXS Coated 3-flute Long Neck Carbide End Mill with Corner Radius |
| | 365 | PHX-PC-DBT | WXSコート3枚刃超硬ペンシルネックボールエンドミル | WXS Coated 3-flute Pencil Neck Carbide Ball End Mill |
| | 427 | PHX-PC-DFR | WXSコート3枚刃超硬ペンシルネックラジアスエンドミル | WXS Coated 3-flute Pencil Neck Carbide End Mill with Corner Radius |
| | 329 | PLDS | OSG PHOENIX インデキサブルリーディングドリル | OSG PHOENIX Indexable Centering and Chamfering Cutter |
| | 926 | PLDS | OSG PHOENIX インデキサブルリーディングドリル | OSG PHOENIX Indexable Centering and Chamfering Cutter |
| | 908 | PMD | OSG PHOENIX 多機能カッタ | OSG PHOENIX Indexable Multi-function Cutter |
| | 909 | PMD ねじ込みタイプ | OSG PHOENIX 多機能カッタ | OSG PHOENIX Indexable Multi-function Cutter |
| | 330 | PMEN | OSG PHOENIX 面取り用カッタ | OSG PHOENIX Chamfering Cutter |
| | 1062 | PMEN | OSG PHOENIX 面取り用カッタ | OSG PHOENIX Chamfering Cutter |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| P | 521 | PNGT | TiNコートハイスプラネットカッタ | TiN Coated Planet Cutter |
| | 887 | PRC | OSG PHOENIX 丸駒カッタ | OSG PHOENIX Indexable Radius Cutter |
| | 982 | PRC ねじ込みタイプ | OSG PHOENIX 丸駒カッタ | OSG PHOENIX Indexable Radius Cutter |
| | 837-5 WEB | PS-CR-EXML | 発泡スチロール加工用多刃ハイスラジアスエンドミルエキストラロング形 | Multi-flute End Mill Extra Long Length with Corner Radius for Expanded Polystyrene |
| | 855 | PSE | OSG PHOENIX 肩削り用カッタ | OSG PHOENIX Indexable Shoulder Cutter |
| | 901 | PSE ねじ込みタイプ | OSG PHOENIX 肩削り用カッタ | OSG PHOENIX Indexable Shoulder Cutter |
| | 835-9 WEB | PS-EBXML | 発泡スチロール加工用多刃ボールエンドミルエキストラロング形 | Multiple-flute Ball End Mill Extra Long Length for Expanded Polystyrene |
| | 866 | PSEL | OSG PHOENIX ラフィングエンドミル | OSG PHOENIX Indexable Roughing End Mill |
| | 823-20 WEB | PS-EXML | 発泡スチロール加工用多刃スクエアエンドミルロング形 | Multi-flute End Mill Long Length for Expanded Polystyrene |
| | 872 | PSF | OSG PHOENIX 4コーナ肩削り用カッタ | OSG PHOENIX Indexable 4-Corner Shoulder Cutter |
| | 874 | PSFL | OSG PHOENIX 4コーナラフィングエンドミル | OSG PHOENIX Indexable 4-Corner Roughing End Mill |
| | 876 | PSTW | OSG PHOENIX 6コーナ肩削り用カッタ | OSG PHOENIX Indexable 6-corner Shoulder Cutter Triangle W-sided Insert Type |
| | 219 | PXD | OSG PHOENIX ヘッド交換式ドリル用ヘッド(KC) | OSG PHOENIX Exchangeable Head Drill for Cast Iron |
| | 1041 | PXD | OSG PHOENIX ヘッド交換式ドリル用ヘッド(KC) | OSG PHOENIX Exchangeable Head Drill for Cast Iron |
| | 221 | PXD | OSG PHOENIX ヘッド交換式ドリル用ヘッド(NC) | OSG PHOENIX Exchangeable Head Drill for Non-ferrous Materials |
| | 1043 | PXD | OSG PHOENIX ヘッド交換式ドリル用ヘッド(NC) | OSG PHOENIX Exchangeable Head Drill for Non-ferrous Materials |
| | 217 | PXD | OSG PHOENIX ヘッド交換式ドリル用ヘッド(PC) | OSG PHOENIX Exchangeable Head Drill for Steel |
| | 1039 | PXD | OSG PHOENIX ヘッド交換式ドリル用ヘッド(PC) | OSG PHOENIX Exchangeable Head Drill for Steel |
| | 215 | PXDZ | OSG PHOENIX ヘッド交換式ドリル | OSG PHOENIX Exchangeable Head Drill |
| | 914 | PXDZ | OSG PHOENIX ヘッド交換式ドリル | OSG PHOENIX Exchangeable Head Drill |
| | 1007 | PXM PXAL | OSG PHOENIX ヘッド交換式エンドミル3枚刃スクエア・コーナラジアスタイプ | OSG PHOENIX Exchangeable Head End Mill 4-flute Square and Corner Radius Type |
| | 1014 | PXM PXBE | OSG PHOENIX ヘッド交換式エンドミル3枚刃ボールタイプ | OSG PHOENIX Exchangeable Head End Mill 3-flute Ball Type |
| | 1016 | PXM PXBM | OSG PHOENIX ヘッド交換式エンドミル多刃ボールタイプ | OSG PHOENIX Exchangeable Head End Mill Multiple-flute Ball Type |
| | 1011 | PXM PXDR | OSG PHOENIX ヘッド交換式エンドミル コーナラジアスタイプ | OSG PHOENIX Exchangeable Head End Mill with Corner Radius |
| | 1013 | PXM PXHF-AM | OSG PHOENIX ヘッド交換式エンドミル多刃高送りラジアスタイプ | OSG PHOENIX Exchangeable Head End Mill Multiple-flute High Feed Radius Type |
| | 1008 | PXM PXNH | OSG PHOENIX ヘッド交換式エンドミル4枚刃ラフィング形状不等リード強ねじれタイプ | OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead High Helix Type |
| | 1009 | PXM PXNL | OSG PHOENIX ヘッド交換式エンドミル4枚刃ラフィング形状不等リード弱ねじれタイプ | OSG PHOENIX Exchangeable Head Roughing End Mill 4-flute Variable Lead Low Helix Type |
| | 1010 | PXM PXRE | OSG PHOENIX ヘッド交換式エンドミル直刃コーナラジアスタイプ | OSG PHOENIX Exchangeable Head End Mill Straight Flute with Corner Radius |
| | 1001 | PXM PXSE | OSG PHOENIX ヘッド交換式エンドミル4枚刃不等分割スクエア・コーナラジアスタイプ | OSG PHOENIX Exchangeable Head End Mill 4-flute Unequal Spacing Square and Corner Radius Type |
| | 1012 | PXM PXSH | OSG PHOENIX ヘッド交換式エンドミル高硬度鋼用多刃スクエア | OSG PHOENIX Exchangeable Head End Mill Multiple-flute Square Type for High-hardness Steels |
| | 1005 | PXM PXSM | OSG PHOENIX ヘッド交換式エンドミル多刃不等分割スクエア・コーナラジアスタイプ | OSG PHOENIX Exchangeable Head End Mill Multiple-flute Unequal Spacing Square and Corner Radius Type |
| | 1003 | PXM PXVC | OSG PHOENIX ヘッド交換式エンドミル4枚刃ハイヘリックス不等リードスクエア・コーナラジアスタイプ | OSG PHOENIX Exchangeable Head End Mill 4-flute High Helix Variable Lead Square and Corner Radius Type |
| | 1022 | PXMC | OSG PHOENIX ヘッド交換式エンドミルPXM用コレット | OSG PHOENIX Collet for Exchangeable Head End Mills |
| | 1021 | PXMJ | OSG PHOENIX 部品 | OSG PHOENIX Accessories |
| | 1017 | PXMZ | OSG PHOENIX ヘッド交換式エンドミルPXM用ストレートシャンクホルダ | OSG PHOENIX Straight Shank Holder for Exchangeable Head End Mills |
| | 372 | PZAG | OSG PHOENIX 座ぐり用カッタ | OSG PHOENIX Counterboring Cutter |
| | 911 | PZAG | OSG PHOENIX 座ぐり用カッタ | OSG PHOENIX Counterboring Cutter |
| R | 443-9 WEB | RB-MG-TPE | 2枚刃超硬テーパエンドミル（深リブ形） | 2-flute Carbide Taper End Mill for Rib Processing |
| | 1005 | RCD,RSD | プラネタリねじ転造ダイス | Thread Rolling Planetary Dies |
| | 985 | RD | ねじ切り丸ダイス | Round Dies Adjustable Type for General Use |

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|---|---|---|---|---|
| R | 993 | RD(HSS) | ねじ切り丸ダイス | Round Dies Adjustable Type for General Use |
| | 870-21 WEB | REB | ハイスラフィングボールエンドミル | Roughing Ball End Mill |
| | 835-8 WEB | REBM | 4枚刃ハイスボールエンドミル | 4-flute Ball End Mill |
| | 870-6 WEB | REE | ハイスラフィングエンドミル | Roughing End Mill |
| | 870-9 WEB | REEL | ハイスラフィングエンドミルロング形 | Roughing End Mill Long Length |
| | 870-5 WEB | REEM | ハイスラフィングエンドミルミディアム形 | Roughing End Mill Medium Length |
| | 870-3 WEB | REES | ハイスラフィングエンドミルショート形 | Roughing End Mill Short Length |
| | 870-12 WEB | REXL-NT50 | ハイスラフィングエンドミルエキストラロング形（NT50） | Extra Long Roughing End Mill (NT50) |
| | 1007 | RF | ラック形転造ダイス | Rack Type Rolling Dies |
| | 870-22 WEB | RFB | ハイスラフアンドフィニッシュボールエンドミル | Roughing and Finishing Ball End Mill |
| | 868 | RFE | ハイスラフアンドフィニッシュレギュラ形 | Roughing and Finishing End Mill Regular Length |
| | 869 | RFEL | ハイスラフアンドフィニッシュロング形 | Roughing and Finishing End Mill Long Length |
| | 862 | RFES | ハイスラフアンドフィニッシュショート形 | Roughing and Finishing End Mill Short Length |
| | 894 | RF-TSC | ハイスTスロットカッタ | End Mill for T-slots |
| | 972 | RG-M | 基準リングゲージ | Master Ring Gauge |
| | 893-18 WEB | RTPMS | 4枚刃ハイス逆テーパエンドミルショート形 | Inverted 4-flute Taper End Mill Short Length |
| S | 286 | SEP-EL | スーパーエンプラ用DLCコート超硬エンドミル | DLC Coated Carbide End Mill for Super Engineering Plastic |
| | 808 | SFT-SPT(PF,G) | ハイス管用平行スパイラルタップ | Spiral Fluted Parallel Pipe Thread Tap |
| | 799 | SFT-SPT(PS,Rp) | ハイス管用平行スパイラルタップ | Spiral Fluted Parallel Pipe Thread Tap |
| | 777 | SFT-S-TPT | ハイス管用テーパスパイラルタップ短ねじ形 | Spiral Fluted Taper Pipe Thread Tap (Short Thread) |
| | 815 | SFT-TPT(NPT) | ハイス管用テーパスパイラルタップ | Spiral Fluted Taper Pipe Thread Tap |
| | 777 | SFT-TPT(PT,Rc) | ハイス管用テーパスパイラルタップ | Spiral Fluted Taper Pipe Thread Tap |
| | 961 | SG | 標準ねじゲージ | Standard Screw Thread Gauge |
| | 214-18 WEB | S-GDN | 高速加工用超硬ドリルミディアム形 | Carbide Drill Medium Length for High Speed Processing |
| | 210 | SH-DRL | 高硬度鋼用超硬ドリル | Carbide Drill for High-hardness Steels |
| | 311-10 WEB | SH-MG-EDS | 高硬度鋼用TiNコート2枚刃超硬スクエアエンドミルショート形 | TiN Coated 2-flute Carbide End Mill Short Length for High-hardness Steels |
| | 438 | SI-WC-RESF | WXLコートファインピッチ超硬ラフィングエンドミルショート形サイレントタイプ | WXL Coated Carbide Roughing End Mill Fine Pitch Short Length and Silent Type |
| | 838 | SI-WH-RESF | WXLコートCPMファインピッチラフィングエンドミルショート形サイレントタイプ | WXL Coated CPM Roughing End Mill Fine Pitch Short Length and Silent Type |
| | 835-15 WEB | SPC-CPM-EBD | 2枚刃CPMペンシルネックボールエンドミル | 2-flute Pencil Neck CPM Ball End Mill |
| | 991 | SPD | 管用平行ねじ切り丸ダイス | Round Dies Adjustable Type for Parallel Pipe Thread |
| | 994 | SPD(HSS) | 管用平行ねじ切り丸ダイス | Round Dies Adjustable Type for Parallel Pipe Thread |
| | 818 | SPT(NPS,NPSF) | ハイス管用平行タップ | Parallel Pipe Thread Tap |
| | 801 | SPT(PF,G) | ハイス管用平行タップ | Parallel Pipe Thread Tap |
| | 797 | SPT(PS,Rp) | ハイス管用平行タップ | Parallel Pipe Thread Tap |
| | 1000 | SR | スプライン転造丸ダイス | Cylindrical Dies for Spline |
| | 832 | SR-HT | めねじ補修・溶接スパッタ除去用ハイスハンドタップ | Straight Fluted Tap for Spatter Removal |
| | 246 | STCH | CFRP/メタルスタック穴あけ用FXコート超硬ドリル | FX Coated High Helix Drill for Composite Material and Stacks |
| | 214-17 WEB | ST-GDS | 小径・難削材用超硬ドリルスタブ形 | Small Size Carbide Drill Stub Length for Difficult-to-machine Materials |
| | 785 | STL-S-TPT | 軟鋼用ホモ処理ハイス管用テーパタップ短ねじ形 | Taper Pipe Thread Tap for Mild Steels (with Steam Oxide, Short Thread) |
| | 785 | STL-TPT | 軟鋼用ホモ処理ハイス管用テーパタップ | Taper Pipe Thread Tap for Mild Steels (with Steam Oxide) |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| S | 813 | S-TPT(NPT) | ハイス管用テーパタップ短ねじ形 | Taper Pipe Thread Tap (Short Thread) |
| | 814 | S-TPT(NPTF) | ハイス管用テーパタップ短ねじ形 | Taper Pipe Thread Tap (Short Thread) |
| | 774 | S-TPT(PT,Rc) | ハイス管用テーパタップ短ねじ形 | Taper Pipe Thread Tap (Short Thread) |
| | 641 | SUS-DH-SFT | ステンレス・深穴用ホモ処理ハイススパイラルタップ | Spiral Fluted Tap for Stainless Steels and Deep Holes (with Steam Oxide) |
| | 777 | SUS-EDS | ステンレス用ホモ処理2枚刃ハイススクエアエンドミルショート形 | 2-flute End Mill Short Length for Stainless Steels (with Steam Oxide) |
| | 995 | SUS-SD | ステンレス用ホモ処理ねじ切り丸ダイス | Solid Dies for Stainless Steels (with Steam Oxide) |
| | 805 | SUS-SFT-SPT | ステンレス用ホモ処理ハイス管用平行スパイラルタップ | Spiral Fluted Parallel Pipe Thread Tap for Stainless Steels (with Steam Oxide) |
| | 792 | SUS-SFT-S-TPT | ステンレス用ホモ処理ハイス管用テーパスパイラルタップ短ねじ形 | Spiral Fluted Taper Pipe Thread Tap for Stainless Steels (with Steam Oxide, Short Thread) |
| | 792 | SUS-SFT-TPT | ステンレス用ホモ処理ハイス管用テーパスパイラルタップ | Spiral Fluted Taper Pipe Thread Tap for Stainless Steels (with Steam Oxide) |
| | 436-7 WEB | SXL-CR-MG-EHS | SXLコート4枚刃超硬ラジアスエンドミルハイヘリックスショート形 | SXL Coated 4-flute High Helix Carbide End Mill Short Length with Corner Radius |
| | 368-7 WEB | SXL-CR-ZDS | 座ぐり用SXLコート2枚刃超硬ラジアスエンドミルショート形 | SXL Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring |
| | 458-7 WEB | SXL-CR-ZDS | 座ぐり用SXLコート2枚刃超硬ラジアスエンドミルショート形 | SXL Coated 2-flute Carbide End Mill Short Length with Corner Radius for Counterboring |
| | 465-5 WEB | SXL-ECR | SXLコート2枚刃超硬コーナラウンディング | SXL Coated 2-flute Carbide End Mill with Corner Rounding |
| | 340-2 WEB | SXLE-EBD | SXLコート超硬エキストラボールエンドミル | SXL Coated Carbide Ball End Mill (Super High Precision) |
| | 311-41 WEB | SXL-MG-EHL | SXLコート超硬スクエアエンドミルハイヘリックスロング形 | SXL Coated High Helix Carbide End Mill Long Length |
| | 311-40 WEB | SXL-MG-EHS | SXLコート超硬スクエアエンドミルハイヘリックスショート形 | SXL Coated High Helix Carbide End Mill Short Length |
| | 436-12 WEB | SXL-PKE | SXLコート4枚刃超硬ラジアスエンドミル多機能強力型 | SXL Coated 4-flute Carbide End Mill with Corner Radius High Speed Pocket Operation Type |
| | 438-1 WEB | SXL-RESF | SXLコートファインピッチ超硬ラフィングエンドミルショート形 | SXL Coated Carbide Roughing End Mill Fine Pitch Short Length |
| | 547 | S-XPF | Xパフォーマーコートハイス転造タップ | V Coated X Performer Forming Tap |
| | 837 | SynchroMaster | シンクロマスター | SynchroMaster |
| T | 1003 | T-DP | タッピンねじ転造平ダイス | Thread Rolling Flat Dies for Tapping Screws |
| | 306 | TDXL | WXLコートハイススラスタードリル | WXL Coated Extra Long Drill |
| | 865 | TFGN | TiNコートハイスタフニックゴールドエンドミルミディアム形 | TiN Coated TUF-NICK End Mill Medium Length |
| | 859 | TFGS | TiNコートハイスタフニックゴールドエンドミルショート形 | TiN Coated TUF-NICK End Mill Short Length |
| | 870-14 WEB | TFL | ハイスタフニックエンドミルロング形 | TUF-NICK End Mill Long Length |
| | 866 | TFN | ハイスタフニックエンドミルミディアム形 | TUF-NICK End Mill Medium Length |
| | 860 | TFS | ハイスタフニックエンドミルショート形 | TUF-NICK End Mill Short Length |
| | 967 | TG | 管用テーパねじゲージ | Gauge for Taper Pipe Threads |
| | 960 | TIN-HL-LG | TiNコートインサートねじ用限界プラグゲージ | TIN Coated Thread Limit Plug |
| | 751 | TIN-HT | TiNコートハイスハンドタップ | TiN Coated Straight Fluted Tap |
| | 795 | TIN-IRT(PT,Rc) | TiNコートハイス管用テーパタップインターラップ形 | TiN Coated Taper Pipe Thread Tap with Interrupted Threads |
| | 816 | TIN-IRT(NPT) | TiNコートハイス管用テーパタップインターラップ形 | TiN Coated Taper Pipe Thread Tap with Interrupted Threads |
| | 870-18 WEB | TIN-KFR | TiNコートハイスクラフトミルレギュラ形 | TiN Coated Kraft Mill End Mill Regular Length |
| | 945 | TIN-LG | TiNコートねじ用限界プラグゲージ | TIN Coated Thread Limit Plug Gauge |
| | 328 | TIN-LS-NC-LDS | TiNコートハイスリーディングドリルロングシャンク | TiN Coated Starter Drill with Long Shank |
| | 846 | TIN-LS-RESF | TiNコートハイスファインピッチラフィングエンドミルロングシャンクショート形 | TiN Coated Roughing End Mill Fine Pitch Short Length with Long Shank |
| | 752 | TIN-LT | TiNコートハイスハンドタップロングシャンク | TiN Coated Straight Fluted Tap with Long Shank |
| | 568 | TIN-LT-NRT | TiNコートハイスニューロールタップロングシャンク | TiN Coated Nu-roll Tap with Long Shank |
| | 684 | TIN-LT-POT | TiNコートハイスポイントタップロングシャンク | TiN Coated Spiral Pointed Tap with Long Shank |
| | 631 | TIN-LT-SFT | TiNコートハイススパイラルタップロングシャンク | TiN Coated Spiral Fluted Tap with Long Shank |

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|---|---|---|---|---|
| T | 795 | TIN-LT-S-IRT | TiNコートハイス管用テーパタップインターラップロングシャンク短ねじ形 | TiN Coated Taper Pipe Thread Tap with Interrupted Threads and Long Shank (Short Thread) |
| | 782 | TIN-LT-S-TPT | TiNコートハイス管用テーパタップロングシャンク短ねじ形 | TiN Coated Taper Pipe Thread Tap with Long Shank (Short Thread) |
| | 782 | TIN-LT-TPT | TiNコートハイス管用テーパタップロングシャンク | TiN Coated Taper Pipe Thread Tap with Long Shank |
| | 436-2 WEB | TIN-MG-CR-EDS | TiNコート2枚刃超硬ラジアスエンドミルショート形 | TiN Coated 2-flute Carbide End Mill Short Length with Corner Radius |
| | 340-15 WEB | TIN-MG-EBD | TiNコート2枚刃超硬ボールエンドミル | TiN Coated 2-flute Carbide Ball End Mill |
| | 311-10 WEB | TIN-MG-EDS-3 | TiNコート2枚刃超硬スクエアエンドミルショート形（ミニチュア） | TiN Coated 2-flute Miniature Carbide End Mill Short Length (φ3 Shank) |
| | 359-7 WEB | TIN-MG-LN-EBD | TiNコート2枚刃超硬ロングネックボールエンドミル | TiN Coated 2-flute Long Neck Carbide Ball End Mill |
| | 445-5 WEB | TIN-MG-TPBDR | TiNコート2枚刃超硬テーパボールエンドミルレギュラ形 | TiN Coated 2-flute Carbide Taper Ball End Mill Regular Length |
| | 445-4 WEB | TIN-MG-TPBDS | TiNコート2枚刃超硬テーパボールエンドミルショート形 | TiN Coated 2-flute Carbide Taper Ball End Mill Short Length |
| | 325 | TIN-NC-LDS | TiNコートハイスリーディングドリル | TiN Coated Starter Drill |
| | 325-1 WEB | TIN-NC-LDS-L | TiNコートハイスリーディングドリル左刃左ねじれ | TiN Coated Starter Drill (LH Cut and LH Helix) |
| | 565 | TIN-NRT | TiNコートハイスニューロールタップ | TiN Coated Nu-roll Tap |
| | 683 | TIN-POT | TiNコートハイスポイントタップ | TiN Coated Spiral Pointed Tap |
| | 630 | TIN-SFT | TiNコートハイススパイラルタップ | TiN Coated Spiral Fluted Tap |
| | 795 | TIN-S-IRT | TiNコートハイス管用テーパタップインターラップ短ねじ形 | TiN Coated Taper Pipe Thread Tap with Interrupted Threads (Short Thread) |
| | 804 | TIN-SPT | TiNコートハイス管用平行タップ | TiN Coated Parallel Pipe Thread Tap |
| | 781 | TIN-S-TPT | TiNコートハイス管用テーパタップ短ねじ形 | TiN Coated Taper Pipe Thread Tap (Short Thread) |
| | 781 | TIN-TPT | TiNコートハイス管用テーパタップ | TiN Coated Taper Pipe Thread Tap |
| | 895-1 WEB | TIN-TUF-TSC | TiNコートハイスTスロットカッタ | TiN Coated TUF-NICK End Mill for T-slots |
| | 835-2 WEB | TIN-XPM-EBD | TiNコート2枚刃XPMボールエンドミル | TiN Coated 2-flute XPM Ball End Mill |
| | 823-9 WEB | TIN-XPM-EDL | TiNコート2枚刃XPMスクエアエンドミルロング形 | TiN Coated 2-flute XPM End Mill Long Length |
| | 779 | TIN-XPM-EDN | TiNコート2枚刃XPMスクエアエンドミルミディアム形 | TiN Coated 2-flute XPM End Mill Medium Length |
| | 823-4 WEB | TIN-XPM-EDS | TiNコート2枚刃XPMスクエアエンドミルショート形 | TiN Coated 2-flute XPM End Mill Short Length |
| | 822 | TIN-XPM-EHL | TiNコートXPMスクエアエンドミルハイヘリックスロング形 | TiN Coated High Helix XPM End Mill Long Length |
| | 822 | TIN-XPM-EHS | TiNコートXPMスクエアエンドミルハイヘリックスショート形 | TiN Coated High Helix XPM End Mill Short Length |
| | 823-15 WEB | TIN-XPM-EML | TiNコート4枚刃XPMスクエアエンドミルロング形 | TiN Coated 4-flute XPM End Mill Long Length |
| | 823-14 WEB | TIN-XPM-EMS | TiNコート4枚刃XPMスクエアエンドミルショート形 | TiN Coated 4-flute XPM End Mill Short Length |
| | 1015 | TL-INSERT | アキュレイトタングレス・インサートコイル | Non-tang Type Inserts |
| | 826 | T-LS-XPM-EBD | TiNコート2枚刃XPMボールエンドミルロングシャンク | TiN Coated 2-flute XPM Ball End Mill with Long Shank |
| | 844 | TLS-XPM-RESF | TiNコートXPMファインピッチラフィングエンドミルロングシャンク | TiN Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank |
| | 1013 | TMD | トリミングダイス | Trimming Dies |
| | 1028 | TMP | 切削油 | Tapping Mighty Paste |
| | 893-2 WEB | TPBD.E | 2枚刃ハイステーパボールエンドミルミディアム形 | 2-flute Taper Ball End Mill Medium Length |
| | 893-2 WEB | TPBD.K | 2枚刃ハイステーパボールエンドミルミディアム形 | 2-flute Taper Ball End Mill Medium Length |
| | 893-6 WEB | TPBDL | 2枚刃ハイステーパボールエンドミルロング形 | 2-flute Taper Ball End Mill Long Length |
| | 893-4 WEB | TPBDN | 2枚刃ハイステーパボールエンドミルミディアム形 | 2-flute Taper Ball End Mill Medium Length |
| | 892 | TPBDR | 2枚刃ハイステーパボールエンドミルレギュラ形 | 2-flute Taper Ball End Mill Regular Length |
| | 889 | TPBDS | 2枚刃ハイステーパボールエンドミルショート形 | 2-flute Taper Ball End Mill Short Length |
| | 893-8 WEB | TPBML | 4枚刃ハイステーパボールエンドミルロング形 | 4-flute Taper Ball End Mill Long Length |
| | 893-8 WEB | TPBMR | 4枚刃ハイステーパボールエンドミルレギュラ形 | 4-flute Taper Ball End Mill Regular Length |

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|---|---|---|---|---|
| T | 893-7 WEB | TPBMS | 4枚刃ハイステーパボールエンドミルショート形 | 4-flute Taper Ball End Mill Short Length |
| | 991 | TPD | 管用テーパねじ切り丸ダイス | Solid Type Round Dies for Taper Pipe Threads |
| | 995 | TPD(HSS) | 管用テーパねじ切り丸ダイス | Solid Type Round Dies for Taper Pipe Threads |
| | 887-6 WEB | TPDL | 2枚刃ハイステーパエンドミルロング形 | 2-flute Taper End Mill Long Length |
| | 887-4 WEB | TPDN | 2枚刃ハイステーパエンドミルミディアム形 | 2-flute Taper End Mill Medium Length |
| | 878 | TPDR | 2枚刃ハイステーパエンドミルレギュラ形 | 2-flute Taper End Mill Regular Length |
| | 874 | TPDS | 2枚刃ハイステーパエンドミルショート形 | 2-flute Taper End Mill Short Length |
| | 871 | TPDSS | 2枚刃ハイステーパエンドミルスタブ形 | 2-flute Taper End Mill Stub Length |
| | 956 | TPG-P | 管用テーパねじ用内径プラグゲージ | Taper Pipe Thread Plug Gauge for Minor Diameter |
| | 887-12 WEB | TPML | 4枚刃ハイステーパエンドミルロング形 | 4-flute Taper End Mill Long Length |
| | 887-10 WEB | TPMN | 4枚刃ハイステーパエンドミルミディアム形 | 4-flute Taper End Mill Medium Length |
| | 885 | TPMR | 4枚刃ハイステーパエンドミルレギュラ形 | 4-flute Taper End Mill Regular Length |
| | 882 | TPMS | 4枚刃ハイステーパエンドミルショート形 | 4-flute Taper End Mill Short Length |
| | 813 | TPT(NPT) | ハイス管用テーパタップ | Taper Pipe Thread Tap |
| | 814 | TPT(NPTF) | ハイス管用テーパタップ | Taper Pipe Thread Tap |
| | 773 | TPT(PT,Rc) | ハイス管用テーパタップ | Taper Pipe Thread Tap |
| | 997 | TR | ねじ転造丸ダイス | Thread Rolling Cylindrical Dies |
| | 833 | TRP-SFT | カメラ三脚取付けねじ用ハイススパイラルタップ | Spiral Fluted Tap for Camera Tripod Mount Threads |
| | 182 | TRS-HO-3D | WDIコート3枚刃油穴付き超硬ドリル3Dタイプ | WDI Coated 3-flute Carbide Drill with Internal Coolant Supply (3D Type) |
| | 184 | TRS-HO-5D | WDIコート3枚刃油穴付き超硬ドリル5Dタイプ | WDI Coated 3-flute Carbide Drill with Internal Coolant Supply (5D Type) |
| | 186 | TRS-HO-10D | WDIコート3枚刃油穴付き超硬ドリル10Dタイプ | WDI Coated 3-flute Carbide Drill with Internal Coolant Supply (10D Type) |
| U | 559 | UM-NRT | CrNコート粉末ハイス極小径ニューロールタップ | CrN Coated CPM Nu-roll Tap for Ultra-small Diameter Threads |
| | 303 | UP-PHS | FXコート4枚刃超硬スクエアエンドミルショート形多機能防振型 | FX Coated Multi-purpose 4-flute Carbide End Mill Short Length (Vibration-resistant Type) |
| | 582 | US-AL-NRT | アルミ合金用Vコートハイスウルトラシンクロニューロールタップ | V Coated Nu-roll Ultra Synchro Tap for Aluminum Alloys |
| | 704 | US-AL-RFT | アルミ合金用ハイスウルトラシンクロタップ | Ultra Synchro Tap for Aluminum Alloys |
| | 659 | US-AL-SFT | アルミ合金用ハイスウルトラシンクロスパイラルタップ | Spiral Fluted Ultra Synchro Tap for Aluminum Alloys |
| | 190-3 WEB | UV-GDN-DIA | DIAコート小径超硬ドリルミディアム形 | Diamond Coated Small Size Drill Medium Length |
| | 190-1 WEB | UV-GDS-DIA | DIAコート小径超硬ドリルスタブ形 | Diamond Coated Small Size Drill Stub Length |
| | 187 | UVM-DRL-5D | スムースコート極小径UVM超硬ドリル5Dタイプ | Smooth Coated Ultra Small Size UVM Carbide Drill (5D Type) |
| | 187 | UVM-DRL-10D | スムースコート極小径UVM超硬ドリル10Dタイプ | Smooth Coated Ultra Small Size UVM Carbide Drill (10D Type) |
| | 188 | UVM-DRL-15D | スムースコート極小径UVM超硬ドリル15Dタイプ | Smooth Coated Ultra Small Size UVM Carbide Drill (15D Type) |
| | 188 | UVM-DRL-20D | スムースコート極小径UVM超硬ドリル20Dタイプ | Smooth Coated Ultra Small Size UVM Carbide Drill (20D Type) |
| | 189 | UVM-DRL-DIA-5D | DIAコート極小径UVM超硬ドリル5Dタイプ | Diamond Coated Ultra Small Size UVM Carbide Drill (5D Type) |
| | 189 | UVM-DRL-DIA-10D | DIAコート極小径UVM超硬ドリル10Dタイプ | Diamond Coated Ultra Small Size UVM Carbide Drill (10D Type) |
| | 190 | UVM-DRL-DIA-15D | DIAコート極小径UVM超硬ドリル15Dタイプ | Diamond Coated Ultra Small Size UVM Carbide Drill (15D Type) |
| | 190 | UVM-LDS | スムースコート極小径UVM超硬リーディングドリル | Smooth Coated Ultra Small Size UVM Carbide Starter Drill |
| | 372 | UVX-TI-4FL | チタン合金用FXコート4枚刃超硬エンドミル不等リード | FX Coated 4-flute Carbide End Mill Variable Lead for Titanium Alloy |
| | 373 | UVX-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミル不等リード | FX Coated 5-flute Carbide End Mill Variable Lead for Titanium Alloy |
| | 374 | UVXL-TI-5FL | チタン合金用FXコート5枚刃超硬エンドミルロング形不等リード | FX Coated 5-flute Carbide End Mill Long Length Variable Lead for Titanium Alloy |
| V | 786 | V-AL-TPT | アルミ合金用Vコートハイス管用テーパタップ | V Coated Taper Pipe Thread Tap for Aluminum Alloys |

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|---|---|---|---|---|
| V | 831 | V-DR-SFT | Vコートハイスドリル付きスパイラルタップ | V Coated Spiral Fluted Tap Combined with Drill |
| | 564 | V-EG-NRT | Vコート内径仕上げ刃付きハイスニューロールタップ | V Coated Nu-roll Tap with Cutting Edge on Minor Diameter |
| | 340-14 WEB | V-LS-MG-EBD | Vコート2枚刃超硬ボールエンドミルロングシャンク | V Coated 2-flute Carbide Ball End Mill with Long Shank |
| | 841 | VLS-XPM-RESF | VコートXPMファインピッチラフィングエンドミルロングシャンクショート形 | V Coated XPM Roughing End Mill Fine Pitch Short Length with Long Shank |
| | 750 | V-LT | Vコートハイスハンドタップロングシャンク | V Coated Straight Fluted Tap with Long Shank |
| | 583 | V-LT-DH-NRT | 深穴用Vコートハイスニューロールタップロングシャンク | V Coated Nu-roll Tap with Long Shank for Deep Holes |
| | 562 | V-LT-NRT | Vコートハイスニューロールタップロングシャンク | V Coated Nu-roll Tap with Long Shank |
| | 682 | V-LT-POT | Vコートハイスポイントタップロングシャンク | V Coated Spiral Pointed Tap with Long Shank |
| | 627 | V-LT-SFT | Vコートハイススパイラルタップロングシャンク | V Coated Spiral Fluted Tap with Long Shank |
| | 311-9 WEB | V-MG-EDS | Vコート2枚刃超硬スクエアエンドミルショート形 | V Coated 2-flute Carbide End Mill Short Length |
| | 314 | V-MT-GDN | 旋盤用VコートハイスドリルMTシャンクミディアム形 | V Coated Drill with Morse Taper Shank Medium Length |
| | 561 | V-NRT | Vコートハイスニューロールタップ | V Coated Nu-roll Tap |
| | 766 | VO-DC-HT | ダイカスト用Vコート油穴付きハイスハンドタップゼロタップ | V Coated Straight Fluted Tap for Die Castings with Internal Coolant Supply (Zero Tap) |
| | 870-17 WEB | VP-CR-BKMS | Vコート多刃CPMベストカットショート形コーナR | V Coated Multi-flute CPM Best-Kut End Mill with Corner Radius Short Length |
| | 766 | VP-DC-HT | ダイカスト用Vコート粉末ハイスハンドタップゼロタップ | V Coated CPM Straight Fluted Tap for Die Castings (Zero Tap) |
| | 843 | VP-DE-RESF | 深彫り用VコートXPMファインピッチラフィングエンドミルショート形 | V Coated XPM Roughing End Mill Fine Pitch Short Length for Deep Contouring |
| | 257 | VP-GDR | Vコートスーパープレミアムハイスドリルレギュラ形 | V Coated Super Premium HSS Drill Regular Length |
| | 260 | VP-GDXL | Vコート粉末ハイスドリルエキストラロング形 | V Coated CPM Drill Extra Long Length |
| | 256-1 WEB | VPH-GDN | 調質鋼用Vコート粉末ハイスドリルミディアム形 | V Coated XPM Drill Medium Length for Hardened Steel |
| | 256-3 WEB | VPH-GDR | 調質鋼用WDIコート粉末ハイスドリルレギュラ形 | WDI Coated XPM Drill Regular Length for Hardened Steel |
| | 249 | VPH-GDS | 調質鋼用コーティング粉末ハイスドリルスタブ形 | Coated XPM Drill Stub Length for Hardened Steel |
| | 266-1 WEB | VP-HO-GDL | 高速加工用Vコート油穴付き粉末ハイスドリルロング形 | V Coated CPM Drills Long Length with Internal Coolant Supply for High Speed Processing |
| | 264 | VP-HO-GDR | 高速加工用Vコート油穴付き粉末ハイスドリルレギュラ形 | V Coated CPM Drill Regular Length with Internal Coolant Supply for High Speed Processing |
| | 261 | VP-HO-GDS | 高速加工用Vコート油穴付き粉末ハイスドリルスタブ形 | V Coated CPM Drill Stub Length with Internal Coolant Supply for High Speed Processing |
| | 326 | VP-LDS | Vコート粉末ハイスリーディングドリル | V Coated XPM Starter Drill |
| | 327 | VP-LS-LDS | Vコート粉末ハイスリーディングドリルロングシャンク | V Coated XPM Starter Drill with Long Shank |
| | 371 | VP-LS-ZDS | 座ぐり用Vコート2枚刃CPMエンドミルロングシャンクショート形 | V Coated 2-flute XPM End Mill Short Length with Long Shank for Counterboring |
| | 898 | VP-LS-ZDS | 座ぐり用Vコート2枚刃CPMエンドミルロングシャンクショート形 | V Coated 2-flute XPM End Mill Short Length with Long Shank for Counterboring |
| | 554 | VP-LT-NRT | Vコート粉末ハイスニューロールタップロングシャンク | V Coated CPM Nu-roll Tap with Long Shank |
| | 557 | VP-LT-SC-NRT | Vコート粉末ハイスニューロールタップロングシャンクショートチャンファ形 | V Coated CPM Nu-roll Tap Short Chamfer Type with Long Shank |
| | 552 | VP-NRT | Vコート粉末ハイスニューロールタップ | V Coated CPM Nu-roll Tap |
| | 560 | VP-NRTS | Vコート粉末ハイスニューロールタップ短ねじ形 | V Coated CPM Nu-roll Tap (Short Thread Type) |
| | 681 | V-POT | Vコートハイスポイントタップ | V Coated Spiral Pointed Tap |
| | 702 | VPO-US-POT | スチール用Vコート粉末ハイス油穴付き高速シンクロポイントタップ | V Coated CPM Ultra Synchro Spiral Pointed Tap with Internal Coolant Supply for Steels |
| | 660 | VPO-US-SFT | スチール用Vコート粉末ハイス油穴付き高速シンクロスパイラルタップ | V Coated CPM Ultra Synchro Spiral Fluted Tap with Internal Coolant Supply for Steels |
| | 855 | VP-RELF | VコートXPMファインピッチラフィングエンドミルロング形 | V Coated XPM Roughing End Mill Fine Pitch Long Length |
| | 850 | VP-RENF | VコートXPMファインピッチラフィングエンドミルミディアム形 | V Coated XPM Roughing End Mill Fine Pitch Medium Length |
| | 840 | VP-RESF | VコートXPMファインピッチラフィングエンドミルショート形 | V Coated XPM Roughing End Mill Fine Pitch Short Length |
| | 899 | VP-SCC | 面取り用Vコート2枚刃XPMエンドミル | V Coated 2-flute XPM End Mill for Chamfering |
| | 556 | VP-SC-NRT | Vコート粉末ハイスニューロールタップショートチャンファ形 | V Coated CPM Nu-roll Tap Short Chamfer Type |

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| | ページ Page | 製品記号 Abbreviation | 品名 | Description |
|---|---|---|---|---|
| V | 796 | VPS-EMS | Vコート多刃XPMエンドミルショート形高剛性タイプ | V Coated Multi-flute XPM End Mill Short Length (Highly Rigid Type) |
| | 625 | VP-SFT | Vコート粉末ハイススパイラルタップ | V Coated CPM Spiral Flutes Tap |
| | 369 | VP-ZDS | 座ぐり用Vコート2枚刃CPMエンドミルショート形 | V Coated 2-flute XPM End Mill Short Length for Counterboring |
| | 896 | VP-ZDS | 座ぐり用Vコート2枚刃CPMエンドミルショート形 | V Coated 2-flute XPM End Mill Short Length for Counterboring |
| | 317 | V-SDR | Vコートハイスストレートドリル | V Coated Drill Regular |
| | 626 | V-SFT | Vコートハイススパイラルタップ | V Coated Spiral Fluted Tap |
| | 563 | V-SS-NRT | 薄板用Vコートハイスニューロールタップ | V Coated Nu-roll Tap for Sheet Steels |
| | 825 | V-SS-XPM-EBD | Vコート2枚刃XPMボールエンドミルスリムシャンク | V Coated 2-flute XPM Ball End Mill with Slim Shank |
| | 778 | V-SS-XPM-EDN | Vコート2枚刃XPMスクエアエンドミルスリムシャンクミディアム形 | V Coated 2-flute XPM End Mill Medium Length with Slim Shank |
| | 796 | V-SS-XPM-EMS | Vコート4枚刃XPMスクエアエンドミルスリムシャンクショート形 | V Coated 4-flute XPM End Mill Short Length with Slim Shank |
| | 842 | VSS-XPM-RESF | VコートXPMファインピッチラフィングエンドミルスリムシャンク | V Coated XPM Roughing End Mill Fine Pitch Short Length with Slim Shank |
| | 697 | V-TI-POT | チタン合金用Vコート粉末ハイスポイントタップ | V Coated CPM Spiral Pointed Tap for Titanium Alloy |
| | 654 | V-TI-SFT | チタン合金用Vコート粉末ハイススパイラルタップ | V Coated CPM Spiral Fluted Tap for Titanium Alloy |
| | 337 | V-UCS | Vコート3枚刃カウンターシンク | V Coated 3-flute Countersink |
| | 445 | VU-TBR | 仕上げ用WXLコート超硬エンドミルテーパバレル型 | WXL Coated Taper Barrel Type End Mill for Finishing |
| | 629 | VXL-SFT | 大径立形加工機用ホモ処理ハイススパイラルタップ | Spiral Fluted Tap for Large Thread Size Vertical Machines (with Steam Oxide) |
| | 770 | VX-OT | 高硬度鋼用Vコート超硬ハンドタップ(50HRC～) | V Coated Carbide Straight Fluted Tap for High-hardness Steels (50 HRC~) |
| | 824 | V-XPM-EBD | Vコート2枚刃XPMボールエンドミル | V Coated 2-flute XPM Ball End Mill |
| | 899 | V-XPM-ECR | Vコート3枚刃XPMコーナラウンディング | V coated 3-flute XPM End Mill with Corner Rounding |
| | 785 | V-XPM-EDL | Vコート2枚刃XPMスクエアエンドミルロング形 | V Coated 2-flute XPM End Mill Long Length |
| | 778 | V-XPM-EDN | Vコート2枚刃XPMスクエアエンドミルミディアム形 | V Coated 2-flute XPM End Mill Medium Length |
| | 753 | V-XPM-EDS | Vコート2枚刃XPMスクエアエンドミルショート形 | V Coated 2-flute XPM End Mill Short Length |
| | 821 | V-XPM-EHL | VコートXPMスクエアエンドミルハイヘリックスロング形 | V Coated High Helix XPM End Mill Long Length |
| | 821 | V-XPM-EHS | VコートXPMスクエアエンドミルハイヘリックスショート形 | V Coated High Helix XPM End Mill Short Length |
| | 756 | V-XPM-EKD | キー溝用Vコート2枚刃XPMスクエアエンドミル | V Coated 2-flute XPM End Mill for Keyway Slotting |
| | 812 | V-XPM-EML | Vコート4枚刃XPMスクエアエンドミルロング形 | V Coated 4-flute XPM End Mill Long Length |
| | 795 | V-XPM-EMS | Vコート4枚刃XPMスクエアエンドミルショート形 | V Coated 4-flute XPM End Mill Short Length |
| | 768 | V-XPM-HT | 高硬度鋼用Vコート粉末ハイスハンドタップ(42～52HRC) | V Coated XPM Straight Fluted Tap for High-hardness Steels (42~52 HRC) |
| | 859 | V-XPM-NHS | VコートXPMエンドミルハイヘリックスニック付ショート形 | V Coated High Helix XPM Nicked End Mill Short Length |
| | 779 | V-XPM-TPT | 高硬度鋼用Vコート粉末ハイス管用テーパタップ | V Coated XPM Taper Pipe Thread Tap for High-hardness Steels |
| | 900-1 WEB | V-XPM-VCM | 面取り用Vコート2枚刃XPMエンドミルVカット | V Coated 2-flute XPM End Mill V Cut Type |
| | 900-1 WEB | V-XPM-VCMS | 面取り用Vコート2枚刃XPMエンドミルVカットショート形 | V Coated 2-flute XPM End Mill V Cut Short Type |
| | 780 | VX-TPT | 高硬度鋼用Vコート超硬管用テーパタップ | V Coated Carbide Taper Pipe Thread Tap for High-hardness Steels |
| W | 206 | WH55-5D | 高硬度鋼用WXSコート超硬ドリル5Dタイプ(～55HRC) | WXS Coated Carbide Drill for High-hardness Steels (5D Type) |
| | 769 | WH55-OT | 高硬度鋼用Vコート超硬ハンドタップ(～55HRC) | V Coated Carbide Straight Fluted Tap for High-hardness Steels (~55 HRC) |
| | 208 | WH70-DRL | 高硬度鋼用WXSコート超硬ドリル(～70HRC) | WXS Coated Carbide Drill for High-hardness Steels (70HRC) |
| | 837-3 WEB | WH-NC-CRDS | NC旋盤用WXLコート2枚刃ハイスラジアスエンドミルショート形 | WXL Coated 2-flute End Mill Short Length with Corner Radius for Lathes |
| | 837-7 WEB | WH-NC-CSDS | NC旋盤用WXLコート2枚刃ハイスエンドミルコーナC面付きショート形 | WXL Coated 2-flute End Mill Short Length with Corner Chamfering for Lathes |
| | 823-3 WEB | WH-NC-EDSS | NC旋盤用WXLコート2枚刃ハイススクエアエンドミルスタブ形 | WXL Coated 2-flute End Mill Stub Length for Lathes |
| | 823-16 WEB | WH-NC-EMSS | NC旋盤用WXLコート4枚刃ハイススクエアエンドミルスタブ形 | WXL Coated 4-flute End Mill Stub Length for Lathes |

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|---|---|---|---|---|
| W | 835-10 WEB | WH-NC-EQD | NC旋盤用WXLコート2枚刃ハイスエンドミル球形 | WXL Coated 2-flute End Mill Spherical Type for Lathes |
| | 870-2 WEB | WH-NC-RESF | NC旋盤用WXLコートハイスラフィングエンドミル | WXL Coated Roughing End Mill for Lathes |
| | 900-2 WEB | WH-NC-VCM | 面取り用WXLコート2枚刃ハイスエンドミルVカット | WXL Coated 2-flute End Mill V Cut Type |
| | 900-3 WEB | WH-NC-VCMF | 面取り用WXLコート2枚刃ハイスエンドミルVカット | WXL Coated 2-flute End Mill V Cut Type |
| | 207 | WHO55-5D | 高硬度鋼用WXSコート油穴付き超硬ドリル5Dタイプ(～55HRC) | WXS Coated Carbide Drill with Internal Coolant Supply (5D Type) for High-hardness Steels |
| | 854 | WH-REEL | WXLコートハイスラフィングエンドミルロング形 | WXL Coated Roughing End Mill Long Length |
| | 852 | WH-REEN | WXLコートハイスラフィングエンドミルミディアム形 | WXL Coated Roughing End Mill Medium Length |
| | 839 | WH-REES | WXLコートハイスラフィングエンドミルショート形 | WXL Coated Roughing End Mill Short Length |
| | 854 | WH-RELF | WXLコートハイスファインピッチラフィングエンドミルロング形 | WXL Coated Roughing End Mill Fine Pitch Long Length |
| | 850 | WH-RENF | WXLコートハイスファインピッチラフィングエンドミルミディアム形 | WXL Coated Roughing End Mill Fine Pitch Medium Length |
| | 839 | WH-RESF | WXLコートハイスファインピッチラフィングエンドミルショート形 | WXL Coated Roughing End Mill Fine Pitch Short Length |
| | 698 | WHR-NI-POT | Ni基超耐熱合金用HRコート粉末ハイスポイントタップ | HR Coated CPM Spiral Pointed Tap for Nickel Alloy |
| | 655 | WHR-NI-SFT | Ni基超耐熱合金用HRコート粉末ハイススパイラルタップ | HR Coated CPM Spiral Fluted Tap for Nickel Alloy |
| | 460 | W-HSCT-N | 面取り用WXLコート3枚刃超硬エンドミルネガタイプ | WXL Coated 3-flute Carbide End Mill for Chamfering (Negative) |
| | 459 | W-HSCT-P | 面取り用WXLコート3枚刃超硬エンドミルポジタイプ | WXL Coated 3-flute Carbide End Mill for Chamfering (Positive) |
| | 513 | WH-VM-PNC | 小径ねじ用コーティング超硬プラネットカッタ | Coated Carbide Planet Cutter for Small Size |
| | 460 | WLS-HSCT-N | 面取り用WXLコート3枚刃超硬エンドミルロングシャンクネガタイプ | WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Negative) |
| | 459 | WLS-HSCT-P | 面取り用WXLコート3枚刃超硬エンドミルロングシャンクポジタイプ | WXL Coated 3-flute Carbide End Mill with Long Shank for Chamfering (Positive) |
| | 387 | WX-CRE | WXコート超硬ラジアスエンドミル | WX Coated Carbide End Mill with Corner Radius |
| | 265 | WX-G-EDSS | WXコート2枚刃超硬スクエアエンドミルスタブ形 | WX Coated 2-flute Carbide End Mill Stub Length |
| | 288 | WX-G-EMSS | WXコート4枚刃超硬スクエアエンドミルスタブ形 | WX Coated 4-flute Carbide End Mill Stub Length |
| | 259 | WXL-1.5D-DE | WXLコート2枚刃超硬スクエアエンドミル1.5D刃長 | WXL Coated 2-flute Carbide End Mill (1.5D Type) |
| | 260 | WXL-2D-DE | WXLコート2枚刃超硬スクエアエンドミル2D刃長 | WXL Coated 2-flute Carbide End Mill (2D Type) |
| | 263 | WXL-3D-DE | WXLコート2枚刃超硬スクエアエンドミル3D刃長 | WXL Coated 2-flute Carbide End Mill (3D Type) |
| | 264 | WXL-4D-DE | WXLコート2枚刃超硬スクエアエンドミル4D刃長 | WXL Coated 2-flute Carbide End Mill (4D Type) |
| | 322 | WXL-EBD | WXLコート2枚刃超硬ボールエンドミル | WXL Coated 2-flute Carbide Ball End Mill |
| | 287 | WXL-EMS | WXLコート4枚刃超硬スクエアエンドミルショート形 | WXL Coated 4-flute Carbide End Mill Short Length |
| | 323 | WXL-HS-EBD | WXLコート2枚刃超硬ボールエンドミル（HSK対応） | WXL Coated 2-flute Carbide Ball End Mill with HS Shank |
| | 341 | WXL-LN-EBD | WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形） | WXL Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing |
| | 359-1 WEB | WXL-LN-EBD-3 | WXLコート2枚刃超硬ロングネックボールエンドミル（深リブ形、ミニチュア） | WXL Coated 2-flute Long Neck Miniature Carbide Ball End Mill for Rib Processing (φ3 Shank) |
| | 312 | WXL-LN-EDS | WXLコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形） | WXL Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing |
| | 319 | WXL-LN-EMS | WXLコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形） | WXL Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing |
| | 438-3 WEB | WXL-MG-NC-RESF | NC旋盤用WXLコートファインピッチ超硬ラフィングエンドミル | WXL Coated Carbide Roughing End Mill for Lathes |
| | 465-2 WEB | WXL-MG-VCMR | 面取り用WXLコート2枚刃超硬エンドミルVカット | WXL Coated 2-flute Carbide End Mill V Cut Type |
| | 359-2 WEB | WX-LN-EBD | WXコート2枚刃超硬ロングネックボールエンドミル（深リブ形） | WX Coated 2-flute Long Neck Carbide Ball End Mill for Rib Processing |
| | 321-1 WEB | WX-LN-EDS | WXコート2枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形） | WX Coated 2-flute Long Neck Carbide End Mill Short Length for Rib Processing |
| | 321-11 WEB | WX-LN-EMS | WXコート4枚刃超硬ロングネックスクエアエンドミルショート形（深リブ形） | WX Coated 4-flute Long Neck Carbide End Mill Short Length for Rib Processing |
| | 360 | WXL-PC-EBD | WXLコート2枚刃超硬ペンシルネックボールエンドミル | WXL Coated 2-flute Pencil Neck Carbide Ball End Mill |
| | 438-3 WEB | WXL-REBM | WXLコート超硬ラフィングボールエンドミル | WXL Coated Carbide Roughing Ball End Mill |
| | 438-2 WEB | WX-LS-RESF | WXコートファインピッチ超硬ラフィングエンドミルロングシャンク | WX Coated Carbide Roughing End Mill Fine Pitch with Long Shank |

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|---|---|---|---|---|
| W | 191 | WX-MS-GDS | 極小径・精密加工用WXコート超硬ドリルスタブ形 | WX Coated Carbide Small Size Drill Stub Length for Precision Operation |
| | 516 | WXO-ST-PNC | スチール用WXコート油穴付き超硬プラネットカッタ | WX Coated Carbide Planet Cutter with Internal Coolant Supply for Steel |
| | 306 | WX-PHL | WXコート4枚刃超硬スクエアエンドミルロング形 | WX Coated 4-flute Carbide End Mill Long Length |
| | 304 | WX-PHN | WXコート4枚刃超硬スクエアエンドミルミディアム形 | WX Coated 4-flute Carbide End Mill Medium Length |
| | 299 | WX-PHSS | WXコート4枚刃超硬スクエアエンドミルスタブ形強力重切削型 | WX Coated 4-flute Carbide End Mill Stub Length (Heavy-duty Operation Type) |
| | 517 | WX-PNC | 非鉄・耐熱合金用WXコート超硬プラネットカッタ | WX Coated Carbide Planet Cutter for Non-ferrous Materials and Heat-resistant Alloys |
| | 437 | WX-RESF | WXコートファインピッチ超硬ラフィングエンドミルショート形 | WX Coated Carbide Roughing End Mill Fine Pitch Short Length |
| | 419 | WXS-CPR | WXSコート超硬ラジアスエンドミル高精度タイプ | WXS Coated High-precision Carbide End Mill with Corner Radius |
| | 325 | WXS-EBD | WXSコート2枚刃超硬ボールエンドミル | WXS Coated 2-flute Carbide Ball End Mill |
| | 291 | WXS-EMS | WXSコート多刃超硬スクエアエンドミルショート形 | WXS Coated Multi-flute Carbide End Mill Short Length |
| | 308 | WX-SHTSS | スロッティング用WXコート3枚刃超硬スクエアエンドミルスタブ形 | WX Coated 3-flute Carbide End Mill Stub Length for Slotting |
| | 514 | WX-ST-PNC | スチール用WXコート超硬プラネットカッタ | WX Coated Carbide Planet Cutter for Steel |
| X | 835-5 WEB | XLS-EBD | 2枚刃ハイスボールエンドミルエキストラロングシャンク | 2-flute Ball End Mill with Extra Long Shank |
| | 835-7 WEB | XLS-EBM | 4枚刃ハイスボールエンドミルエキストラロングシャンク | 4-flute Ball End Mill with Extra Long Shank |
| | 823-1 WEB | XLS-EDS | 2枚刃ハイススクエアエンドミルエキストラロングシャンクショート形 | 2-flute End Mill Short Length with Extra Long Shank |
| | 823-12 WEB | XLS-EMS | 多刃ハイススクエアエンドミルエキストラロングシャンクショート形 | Multi-flute End Mill Short Length with Extra Long Shank |
| | 870-22 WEB | XLS-REB | ハイスラフィングボールエンドミルエキストラロングシャンク | Roughing Ball End Mill with Extra Long Shank |
| | 893-14 WEB | XPM-CR-TPDR | 2枚刃XPMテーパラジアスエンドミルレギュラ形 | 2-flute XPM Taper End Mill Regular Length with Corner Radius |
| | 893-10 WEB | XPM-CR-TPDS | 2枚刃XPMテーパラジアスエンドミルショート形 | 2-flute XPM Taper End Mill Short Length with Corner Radius |
| | 827 | XPM-EBD | 2枚刃XPMボールエンドミル | 2-flute XPM Ball End Mill |
| | 786 | XPM-EDL | 2枚刃XPMスクエアエンドミルロング形 | 2-flute XPM End Mill Long Length |
| | 779 | XPM-EDN | 2枚刃XPMスクエアエンドミルミディアム形 | 2-flute XPM End Mill Medium Length |
| | 757 | XPM-EDS | 2枚刃XPMスクエアエンドミルショート形 | 2-flute XPM End Mill Short Length |
| | 823 | XPM-EHL | XPMスクエアエンドミルハイヘリックスロング形 | High Helix XPM End Mill Long Length |
| | 823 | XPM-EHS | XPMスクエアエンドミルハイヘリックスショート形 | High Helix XPM End Mill Short Length |
| | 813 | XPM-EML | 多刃XPMスクエアエンドミルロング形 | Multi-flute XPM End Mill Long Length |
| | 823-16 WEB | XPM-EMN | 4枚刃XPMスクエアエンドミルミディアム形 | 4-flute XPM End Mill Medium Length |
| | 797 | XPM-EMS | 4枚刃XPMスクエアエンドミルショート形 | 4-flute XPM End Mill Short Length |
| | 891 | XPM-TPBDR | 2枚刃XPMテーパボールエンドミルレギュラ形 | 2-flute XPM Taper Ball End Mill Regular Length |
| | 888 | XPM-TPBDS | 2枚刃XPMテーパボールエンドミルショート形 | 2-flute XPM Taper Ball End Mills Short Length |
| | 877 | XPM-TPDR | 2枚刃XPMテーパエンドミルレギュラ形 | 2-flute XPM Taper End Mill Regular Length |
| | 872 | XPM-TPDS | 2枚刃XPMテーパエンドミルショート形 | 2-flute XPM Taper End Mill Short Length |
| | 871 | XPM-TPDSS | 2枚刃XPMテーパエンドミルスタブ形 | 2-flute XPM Taper End Mill Stub Length |
| | 884 | XPM-TPMR | 4枚刃XPMテーパエンドミルレギュラ形 | 4-flute XPM Taper End Mill Regular Length |
| | 881 | XPM-TPMS | 4枚刃XPMテーパエンドミルショート形 | 4-flute XPM Taper End Mill Short Length |
| | 873 | XPM-TRC | 台形ランナ用2枚刃XPMテーパエンドミル | 2-flute XPM Taper End Mill for Trapezoidal Runner |

■は別冊 穴加工・ねじ加工カタログをご覧下さい。 ■ = Please see our special drilling and threading tools catalogue.

# 営業・流通拠点 BUSINESS AND DISTRIBUTION BASES

## お客様のニーズに合わせた きめ細かな対応をお約束する営業流通体制

国内に営業所ならびにセールスエンジニアを配置し、技術相談から製品講習会の開催、トラブル相談まで、各地域の産業の特色とニーズに合わせたきめの細かいサービス活動を展開しています。

## Sales and distribution network structured to fulfill every customer needs

OSG's domestic sales network is structured to provide optimal customer support. With sales engineers stationed nationwide, OSG is able to quickly respond to customer needs, provide tailored technical support, and offer industry specific workshops.



### ●西日本営業部
**Western Regional Office**

〒550-0013 大阪府大阪市西区新町2-18-2
オーエスジーセンタービル 8F
OSG Center Bldg. 8F, 2-18-2 Shinmachi, Nishi-ku, Osaka-City, Osaka 550-0013, JAPAN
Phone.06-6538-3880 Fax.06-6538-3879






### ●東日本営業部
**Eastern Regional Office**

〒140-0002 東京都品川区東品川4-12-6
（品川シーサイドキャナルタワー19階）
Shinagawa Seaside Canal Tower 19F, 4-12-6 Higashi Shinagawa, Shinagawa-ku, Tokyo 140-0002, JAPAN
Phone.03-5715-2966 Fax.03-5460-2966



### ●本社・CSセンター
**Headquarters·CS Center**

〒442-8543 愛知県豊川市本野ケ原三丁目22番地
3-22 Honnogahara, Toyokawa-City, Aichi 442-8543, JAPAN
Phone.0533-82-1111 Fax.0533-82-1131



### ●アプリケーション営業部
**Application Sales Office**

〒451-0051 愛知県名古屋市西区則武新町3-1-17 BIZrium名古屋4階
BIZrium Nagoya 4F, 3-1-17, Noritakeshimmachi, Nishi-Ku, Nagoya-City, Aichi, 451-0051, JAPAN
Phone.052-589-8320 Fax.052-561-8310

### 在庫センター

**ロジス東京** Logis Tokyo
〒140-0003 東京都品川区八潮3-2-34
(㈱ダイワコーポレーション品川営業所内)
3-2-34 Yashio Shinagawa-ku, Tokyo 140-0003, JAPAN
Phone.03-3790-5591 Fax.03-3790-5592

**ロジス名古屋** Logis Nagoya
〒460-0012 名古屋市中区千代田4-1-11
4-1-11 Chiyoda, Naka-ku, Nagoya-City, Aichi 460-0012, JAPAN
Phone.052-339-1380 Fax.052-331-0840

**ロジス大阪** Logis Osaka
〒550-0013 大阪市西区新町2-18-2
（オーエスジーセンタービル2F）
2-18-2 Shinmachi, Nishi-ku, Osaka-City, Osaka 550-0013, JAPAN
Phone.06-6531-3573 Fax.06-6531-3976

### 国内グループ会社 Domestic Group Companies

| | | |
|---|---|---|
| オーエスジーコーティングサービス株式会社 | 〒441-1317 | 愛知県新城市有海丸山1-2<br>Phone.0536-25-1314 Fax.0536-25-1305 |
| オーエスジーシステムプロダクツ株式会社 | 〒441-1202 | 愛知県豊川市上長山町手取8-24<br>Phone.0533-92-1511 Fax.0533-92-1512 |
| 大高精工株式会社 | 〒441-1317 | 愛知県新城市有海高田1-10<br>Phone.0536-25-0833 Fax.0536-25-0835 |
| 株式会社相原製作所 | 〒441-1306 | 愛知県新城市川路夜燈23-7<br>Phone.0536-23-5801 Fax.0536-23-5803 |
| 株式会社エスデイ製作所 | 〒300-2748 | 茨城県常総市馬場442-2<br>Phone.0297-43-7181 Fax.0297-43-7180 |
| 株式会社青山製作所 | 〒441-1231 | 愛知県豊川市一宮町宮前149<br>Phone.0533-93-2524 Fax.0533-93-2725 |
| 日本ハードメタル株式会社 | 〒243-0303 | 神奈川県愛甲郡愛川町中津4004<br>Phone.046-285-0388 Fax.046-285-3136 |
| ORS株式会社 | 〒470-2102 | 愛知県知多郡東浦町緒川大草1-156<br>Phone.0562-83-9841 Fax.0562-83-9053 |
| ノダプレシジョン株式会社 | 〒583-0841 | 大阪府羽曳野市駒ヶ谷5-89<br>Phone.072-950-1192 Fax.072-950-1196 |
| オーエスジーダイヤモンドツール株式会社 | 〒520-1621 | 滋賀県高島市今津町今津1572<br>Phone.0740-22-2415 Fax.0740-22-4178 |
| 株式会社クリエイトツール | 〒726-0002 | 広島県府中市鵜飼町800-136<br>Phone.0847-47-6211 Fax.0847-43-1560 |

# 生産拠点 PRODUCTION SITES

## OSGアカデミー OSG Academy
(開発・設計 Development・Design)

### グローバルテクノロジーセンター Global Technology Center



〒441-1231 愛知県豊川市一宮町宮前149
149 Miyamae, Ichinomiya-cho, Toyokawa-City, Aichi 441-1231, JAPAN
Phone.0533-93-0021 Fax.0533-93-0022

### デザインセンター Design Center



〒441-1231 愛知県豊川市一宮町宮前149
149 Miyamae, Ichinomiya-cho, Toyokawa-City, Aichi 441-1231, JAPAN
Phone.0533-93-0021 Fax.0533-93-0022

### D-Lab(ディーラボ)



〒441-1231 愛知県豊川市一宮町宮前149
149 Miyamae, Ichinomiya-cho, Toyokawa-City, Aichi 441-1231, JAPAN
Phone.0533-93-0021 Fax.0533-93-0022




### 八名工場 YANA FACTORY
(生産品目：タップ Taps)



〒441-1335 愛知県新城市富岡赤岩50-5
50-5 Akaiwa, Tomioka, Shinshiro-City, Aichi 441-1335, JAPAN
Phone.0536-26-1411 Fax.0536-26-1410

### 大池工場 OIKE FACTORY
(生産品目：超硬エンドミル Carbide End Mills)



〒441-1294 愛知県豊川市一宮町上新切450
450 Kamishinkiri, Ichinomiya-cho, Toyokawa-City, Aichi 441-1294, JAPAN
Phone.0533-93-2187 Fax.0533-93-5811

### 新城工場 SHINSHIRO FACTORY
(生産品目：超硬ドリル・超硬タップ・ハイスドリル・ハイスエンドミル
Carbide Drills, Carbide Taps, HSS Drills, HSS End Mills)



〒441-1317 愛知県新城市有海丸山1-2
1-2 Maruyama, Arumi, Shinshiro-City, Aichi 441-1317, JAPAN
Phone.0536-25-1311 Fax.0536-25-1310

### 豊橋工場 TOYOHASHI FACTORY
(生産品目：転造工具・ねじゲージ・カッターボディ
Rolling Dies, Gauges, Cutter Bodies)



〒441-1101 愛知県豊橋市賀茂町神山3-12
3-12 Kamiyama, Kamo-cho, Toyohashi-City, Aichi 441-1101, JAPAN
Phone.0532-88-1141 Fax.0532-88-4538

### その他の事業所

| | | |
|---|---|---|
| 豊川工場 | 〒442-0018 愛知県豊川市白雲町2-17 | Phone.0533-86-2188 Fax.0533-86-2180 |
| 本野ケ原センター | 〒442-8544 愛知県豊川市本野ケ原1-15 | Phone.0533-82-1121 Fax.0533-82-1141 |

## オーエスジーコーティングサービス

# 最高品質のコーティングを あらゆるお客様へお届けいたします。

**Providing high quality coatings to our wide range of customers.**

オーエスジーコーティングサービス(株)は、工具のオーエスジーが30年に亘って培ってきた技術のすべてを結集しお客様のニーズにお応えいたします。日々進化する切削技術、そして刻々と変化する被削材への工具に要求されるすべてを知り尽しているオーエスジーのコーティング技術を受け継ぎ、コーティング処理炉国内最大級の処理能力により、高品質で短納期体制を可能としています。

OSG Coating Service Corporation has collectively incorporated the technologies of OSG developed through 30 years of experience, to meet the needs of customers. OSG Coating Service Corporation has been established to inherit the coating technology and experiences of OSG to respond to the continuously evolving milling technologies and tools for the frequently changing work materials. With our high capacity coating treatment furnaces that is the largest in Japan, we have been able achieve prompt delivery while maintaining high quality.

## ■コーティング皮膜の種類と特性 Types and characteristics of coatings

| | | | | | |
|---|---|---|---|---|---|
| **EgiAs**<br>耐摩耗性<br>高じん性<br>Wear resistance<br>High toughness | **IchAda**<br>表面平滑<br>耐摩耗性<br>Smooth surface<br>Wear resistance | **DLC-SUPER HARD**<br>耐溶着性<br>高潤滑性<br>Anti-welding resistance<br>Excellent lubricity | **DUROREY**<br>超耐熱性<br>超耐摩耗性<br>Super heat resistance<br>Super wear resistance | **WXL**<br>耐摩耗性<br>耐溶着性<br>Wear resistance<br>Anti-welding resistance | **SXL**<br>耐サーマルクラック性<br>耐摩耗性<br>Thermal crack resistance<br>Wear resistance |
| **DLC-IGUSS**<br>耐溶着性<br>耐摩耗性<br>Anti-welding resistance<br>Wear resistance | **DIA**<br>超微結晶・耐摩耗性<br>耐溶着性<br>Ultra Micro Diamond・Wear resistance<br>Anti-welding resistance | **GranDIA**<br>耐摩耗性<br>耐熱性・導電性<br>Wear resistance<br>Heat Resistance・Electrical Conductivity | **TiN**<br>耐摩耗性<br>Wear resistance | **V**<br>(TiCN系)<br>耐摩耗性・低摩擦係数<br>Wear resistance・Low friction coefficient | **FX**<br>(TiAlN系)<br>耐熱性・耐摩耗性<br>Heat resistance・Wear resistance |




## オーエスジーコーティングサービス㈱ ホームページ

**OCS's website**
**http://www.e-ocs.com**



# コーティングサービス COATING SERVICE

## ■コーティング設備の紹介 Coating Equipment

**電子ビーム法**

TiN,TiCN,CrNで平滑な被膜表面を有し耐溶着性の優れた被膜を生成します。

**Electron Beam method**

This method creates smooth TiN, TiCN, and CrN coatings with superior welding resistance.



**アークイオンプレーティング法**

高エネルギーの蒸着源を複数装着しており、多元素系の多層膜を形成できます。このため靭性に優れた耐摩耗性被膜を成膜することができます。

**Arc Ion Plating method**

Equipped with multiple high-energy vapor deposition sources to form multi-element multilayer films, which enables the formation of a highly wear-resistant film with excellent toughness.




## 切削工具のほか、各種部品へのコーティングも承ります。

**Various coating are available for requested parts**



コーティング各種ご用命は…

**●オーエスジーコーティングサービス株式会社 OSG Coating Service Co., Ltd**

〒441-1317　愛知県新城市有海丸山1-2（オーエスジー新城工場内）
Phone.0536-25-1314　Fax.0536-25-1305
1-2 Maruyama, Arumi, Shinshiro-City, Aichi Pref. 441-1317, Japan
Phone.0536-25-1314　Fax.0536-25-1305

# 再研削工場紹介 REGRINDING PLANTS



**●株式会社　青山製作所**
**Aoyama Seisakusho Co., Ltd.**

〒441-1231　愛知県豊川市一宮町宮前149
149 Miyamae, Ichinomiya-cho, Toyokawa-City, Aichi Pref., Japan
Phone.0533-93-2524　Fax.0533-93-2725



**●株式会社　エスデイ製作所**
**SD Seisakusho Co., Ltd.**

〒300-2748　茨城県常総市馬場442-2
442-2 Baba, Joso-City, Ibaraki Pref., Japan
Phone.0297-43-7181　Fax.0297-43-7180




**●ORS株式会社**
**ORS Co., Ltd.**

〒470-2102　愛知県知多郡東浦町緒川大草1-156
1-156 Ohkusa, Ogawa, Higashiura-cho, Chita-gun, Aichi Pref., Japan
Phone.0562-83-9841　Fax.0562-83-9053

# 地球規模の事業展開を加速させる グローバルネットワーク

## A global network that accelerates international business development




● 営業・製造拠点
Sales & Manufacturing Sites

2024年2月末現在
As of February 29, 2024



ベルギー（OSG Europe Logistics S.A.）
Belgium (OSG Europe Logistics S.A.)




シンガポール（OSG Asia Pte Ltd.）
Singapore (OSG Asia Pte Ltd.)

# グローバル・オペレーション GLOBAL OPERATIONS

**1968年、海外進出の第一歩として米国現地法人をシカゴにスタートさせて以来、オーエスジーは地球規模で活躍する切削工具メーカーとして、海外各地に生産拠点および営業拠点を積極的に展開してきました。世界33ケ国に拠点を置き、グローバルに事業展開を行っています。**

In 1968, OSG Corporation established its very first overseas subsidiary in the United States. Since then, OSG has dynamically expanded its global presence, establishing a production, sales and technical support network spanning 33 countries.




## EUROPE

ベルギー Belgium
オーストリア Austria
デンマーク Denmark
フランス France
ドイツ Germany
イタリア Italy
アイルランド Ireland
オランダ The Netherlands
ポーランド Poland
ポルトガル Portugal
ルーマニア Romania
スペイン Spain
スロバキア Slovakia
スウェーデン Sweden
南アフリカ South Africa
スイス Switzerland
トルコ Turkey
イギリス United Kingdom

## ASIA

シンガポール Singapore
中国 China
インド India
インドネシア Indonesia
日本 Japan
マレーシア Malaysia
フィリピン Philippines
韓国 South Korea
台湾 Taiwan
タイ Thailand
ベトナム Vietnam

## THE AMERICAS

アメリカ United States of America
カナダ Canada
ブラジル Brazil
メキシコ Mexico




アメリカ（OSG USA, Inc.）
United States of America (OSG USA, Inc.)

海外拠点について
詳しくはホームページをご覧ください
Visit OSG's homepage
to learn more about our global network

# オーエスジー公式サイトのご案内
## Information About the OSG Official Website

**各種端末に対応し、欲しい情報をいつでもどこでもチェックいただけます**
Get the information whenever and wherever you need by access our website from various devices.

**https://www.osg.co.jp/**

QRコードから簡単アクセス！
Easy access from QR code!



日英言語切り換え可能
You can switch between Japanese and English

### ■コンテンツのご案内 Information

**お問い合わせ**
**Contact Us**
電話・FAX・インターネットでの
各種お問い合わせ
Contact us by phone, Fax, or the Internet

**拠点一覧**
**Global Network**
国内・海外拠点の
連絡先
Contact details for our Japanese and international offices

**カタログ各種資料**
**Catalogs**
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Various materials including General catalogs, New Product catalogs, and Safety Data Sheets, etc.

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**Exhibition**
国内・海外の展示会
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Information about our exhibits in Japan and International exhibitions

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かんたん検索
Easy search system for products and price

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**Investor**
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Investor Relations information and related documents

**最新情報はSNSでも配信中！**
Get the latest information from social networking services as well!

メールマガジン
# OSG E-mail 倶楽部

**オーエスジーでは、メールマガジンをお送りしています。**
**E-mailにて、新製品やお得なキャンペーンなどの情報をいち早くお届け。**

メルマガ newsletter

登録は簡単！
今すぐ
登録ください！

QRコードを読み取って今すぐアクセス！

https://www.osg.co.jp/support/club/index.html

■ホームページTOP画面




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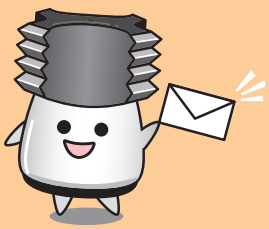
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# 法令一部改正によるコバルトの特定化学物質指定について

About the designation of cobalt as a specified chemical substance by the revision of the law

2014年10月30日

October 30, 2014

**お客様各位**

下記に記載の通り、コバルトが特定化学物質に指定されました。工具を通常使用する場合は健康障害を引き起こすことはありませんが、お客様に安心して弊社の製品をご使用いただく為にも、弊社製品のコバルト含有の有無を総合カタログへ記載することにいたしました。ご確認いただきますようお願い申し上げます。

**1. 法改正内容について**

労働安全衛生法施行令等一部改正により特定化学物質の第2類物質として「コバルト及びその無機化合物」が新たに追加指定され、2012年9月20日公布、2013年1月1日施行されております。

法改正に伴い、特定化学物質による健康障害防止措置として下記対策を講じる必要があります。

- 製品（粉末・合金・工具）への表示　※
- 発散抑制措置（コバルト濃度として0.02mg/㎥以下）
- 漏洩のための措置
- 作業主任者の選任
- 作業環境測定（6ヶ月毎）
- 健康診断（6ヶ月毎）、記録の30年保管
- 保護具装備、作業記録30年保管、休憩室設置、洗浄設備設置、取扱注意表示

※「製品への表示」のうち「工具への表示」につきましては、以下の通りです。
当業界の工具は、労働者による取扱いの過程において工具等の摩耗により作業者が健康障害を生じるコバルト粉じん等の飛散はないため表示対象外製品であると判断されました。従いまして表示に関しましても今まで通り変更ございません。

**2. 法改正に伴う対応について**

（1）工具をご使用いただくお客様

工具を通常ご使用いただく場合は、工具等の摩耗により作業者が健康障害を引き起こすコバルト粉じん等の発散は生じないことから、特定化学物質による健康障害防止措置を実施する対象となりません。今までどおりご使用いただきますよう、お願い申し上げます。

（2）コバルトを含む工具を購入され、それを研削などにより追加工をされるお客様

コバルトを含む工具の追加工および再研削工程などでは、上記1項の対策を講じる必要があると思われます。なお、詳細は所轄の労働基準監督署または法令等でご確認ください。

**Dear Customers**

As described below, cobalt has been listed as specified chemical substances. Although it does not cause health problems in regular use of tools, however, for our customers to be able to use our products with confidence, we put a notice on our catalog about which tool contains cobalt. We ask you to refer it for your information.

**1. The amendments of the law**

"Cobalt and its inorganic compounds" are newly added as second type of specific chemical substances by the partial revision of Ordinance for Enforcement of the Act on Occupational Safety and Health, issued on September 20, 2012, and enforced from January 1, 2013.
According to the amendments to the Act, we must take following actions to prevent health problems caused by specific chemical substances.

- Marking on the tools (Powder, Alloys, Tools) ※
- Divergence control measures
  (Less than 0.02mg / $m^3$ as cobalt concentration)
- Measures for leakage
- Appointment of Operations Chief
- Measurement and working environment
  (every 6 months)
- Keeping health diagnosis records for 30 years
  (every 6 months)
- Wearing protective equipment, Keep work records for 30 years, Set up a break room, Installation of cleaning equipment, handling notices

※Details of "Making on Tools" found in "Making on Product" are as below:
Scattering of cobalt dust which causes health disorders are not recognized during the machining process using tools of our industry. Therefore, it is judged that the marks indicating cobalt is unnecessary and no changes are made with the marks on products.

**2. The correspondence with the revision of the law**

(1) Customers who use the tool
Ordinal usage of tools does not cause the scattering of cobalt dust which causes the health disorders. Therefore, it is not subject to take actions preventing the health impairment of workers. Please use our product as before.

(2) Customers who purchase the tool contain cobalt, and make any alterations to it such as by grinding
It is required for the processes as re-grinding and alteration to the tool contains cobalt to take measures above Section 1. Since there is a setting of the grace period, please check the laws of regulations of the competent or Labor Standards Inspection Office for more information.

# 安全にお使いいただくために
Observe These Precautions For Safe Use

## 加工前の注意　Prior to Operations:

●鋭利な切れ刃を素手で触るとけがの危険があります。切れ刃を素手で触らないで下さい。特にケースからの取り出し時や機械への操着時には、保護手袋等を使用して下さい。
●重量の重い工具を扱う時は、落下によるけがの危険があります。適切な運搬機具やチェーンブロック等を使用し、安全靴を着用して下さい。
●工具に傷､割れ等があると使用中に破損し飛び散ることがあります。使用前に傷、割れ等のないことを確認して下さい。
●使用前に工具および加工物の寸法を確認して下さい。
●回転方向を誤ると工具が破損、飛散しけがをする危険があります。使用前に回転方向を確認して下さい。
●工作機械保持具を含めた回転部のバランスが悪いと、振れ振動により工具が破損しけがをする危険があります。試運転を必ず実施し、バランスの確認をして下さい。
●工具の保持が不十分ですと破損、飛散を招きけがをする危険があります。ホルダ等は、工具および加工内容に見合ったものを使用して下さい。工具はホルダにしっかりと固定し、振れを抑えるようにして下さい。インデキサブル工具では、インサートや部品が確実にクランプされている事も確認して下さい。
●加工物の保持が不十分ですと、工具や加工物が破損し飛散する危険があります。加工物の保持は確実におこなって下さい。

● Touching sharp cutting edges with bare hands can cause injury. Never touch the cutting edges with bare hands. Wear protective gloves, especially when removing tools from the case and attaching them to the machine.
● When handling heavy tools, dropping poses danger. Use appro-priate transport equipment or chain block and wear safety shoes.
● Scratches or cracks in the tools can cause breakage and flying debris during operation. Ensure that there are no scratches or cracks prior to using the tools.
● Check if the tools and the work materials are correct prior to use.
● If the tool is rotating in the wrong direction, it can cause breakage or flying debris, leading to injury. Check the rotation direction prior to use.
● If the rotational balance is poor (including that for the retainer of the machine tools), the shaking vibration could cause breakage and lead to accidents. Ensure that you always carry out a test operation and check the balance.
● Insufficient retention of the tool can lead to breakage or flying debris, causing injuries. Ensure you use holders, etc. that match the tools and the nature of the processing operations. The tool should be firmly attached to the holder to prevent shaking. When using indexable tools ensure you check before-hand that indexable inserts and parts are securely clamped.
● Insufficient retention of the work materials can cause tools and work materials to break or cause flying debris. Ensure that the work materials are firmly secured.

## 加工する時の注意　During Operations:

●回転中の工具、加工物等に触るとけがをします。回転中の工具、加工物等には絶対に触らないで下さい。また、衣服にたるみがあると巻き込まれる危険があります。たるみのない衣服を着用して下さい。
●工具が加工中に衝撃的な負荷を受けると破損、飛散しけがをする危険があります。また、高温の切りくずが飛散し、けがや火傷をする危険があります。必ず安全カバーや保護めがね等の保護具を使用して下さい。
●工具を改造したり、本来の使用目的以外で使用すると、工具が破損、飛散しけがをする危険があります。工具は改造しないで下さい。本来の使用目的で使用して下さい。
●切削条件基準表の数値は、新しく作業を立ち上げる時の目安として下さい。加工物の形状や機械剛性に合わせて切削条件を調節する必要があります。
●加工中に異常な振動等が発生した場合は、直ちに加工を中止して下さい。そのまま続けると工具が破損、飛散しけがをする危険があります。異常の原因を取り除いてから加工を再開して下さい。
●摩耗が進んだり、痛んだ状態の工具を使用し続けると破損、飛散の原因となります。切れ味が悪くなったら工具を交換して下さい。
●用途に応じ切削油を選定して下さい。不水溶性切削油剤を使用する時は、加工時に発生する火花や破損による発熱で引火、火災の危険があります。防火対策を必ずおこなって下さい。

● Touching the tools or the work materials during rotation can cause injury. Never touch tools or work materials during rotation. As loose clothing can become caught in mechanisms, ensure that you wear work clothes that can not become caught.
● If the tool receives a shock load during processing, this can cause breakage or flying debris, leading to injury. As hot flying cutting chips cause injury or burns, ensure you use protective equipment including safety covers and eye protection.
● Modifying the tool or attempting to use it for purposes other than the original purpose can cause breakage or flying debris, leading to possible injury. Never attempt to modify the tool and never use it for any purpose other than the designated purpose.
● The numerical value listed in the table of recommended cutting conditions should be used as a general guide when starting new operations. It is necessary to adjust conditions according to the dimensions of work materials and the rigidity of the machine.
● If abnormal vibration, etc. occurs during processing, stop processing immediately. Attempting to continue processing can cause tool breakage or flying debris, leading to possible injury. Ensure that you eliminate the cause of the abnormality before resuming processing.
● Attempting to use tools with considerable wear can cause breakage or flying debris. Replace the tool when it no longer cuts well.
● Select a cutting oil appropriate to the particular usage. Using a non-water-soluble cutting oil could lead to fires due to sparks generated during processing or heat caused by breakage. Ensure that you take proper fire-prevention measures.

## 加工後の注意　After Use:

●加工直後の工具、加工物は、高温になっているため火傷をする危険があります。加工物を素手で触らないで下さい。
●加工物に生じたバリでけがをする危険があります。素手で触らないで下さい。
●加工後は必ず加工物の寸法を確認して下さい。
●工具を再研削すると粉塵が発生します。粉塵は健康を害する危険があるので、必ず防塵マスク、吸塵機等の粉塵対策をして下さい。

● Tools and work materials are very hot immediately after processing. Never touch them with your bare hands.
● The burrs generated during processing can cause injury. Never touch them with your bare hands.
● Ensure that you check the measurements of the work materials after processing.
● When the tool is reground, grinding dust is generated which is dangerous to your health. Ensure that you take proper safety measures such as wearing a dustproof mask or using a respirator.

以上は、当社製品を安全にお使いいただくための基本的注意です。その他の詳細につきましては、当社までお問い合わせ下さい。

This completes the basic precautions for safe use of this company's equipment. Please feel free to contact us at any time if you have any further questions.

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