高效能・長耐久 轉造絲攻系列

Vol.4

HP-NRT

High performance, better wear resistance
Forming Tap Series

HY-PRO

INDEX
目次

HP-NRT
高效能•長耐久 轉造絲攻系列

特長 Features 2

加工案例 Cutting Data ..... 3 ▶ 4

HP-NRT 公制螺紋形狀表 ..... 5 ▶ 7
HP-NRT Metric Screw Threads Dimension

HP-NRT 美制螺紋形狀表 8
HP-NRT Unified Coarse Screw Threads Dimension

HP-SC-NRT 公制螺紋形狀表 ..... 9 ▶ 10
HP-SC-NRT Metric Screw Threads Dimension

加工要點 ..... 11 ▶ 12
Useful Tips

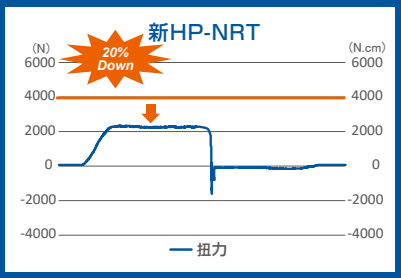
切削條件表 13
Cutting Conditions

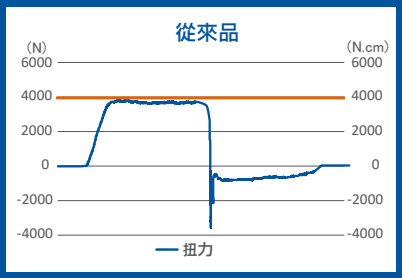
螺紋下孔徑表(轉造絲攻用) 14
Recommended Drill Hole Size (For Forming Taps)

HY-PRO 轉造絲攻系列

❶ 特殊螺紋設計 Special thread design

特殊螺紋設計，可降低攻牙扭力，並提升內螺紋品質。
Special thread design can lower the forming torque and improve the quality of internal thread .





使用工具：轉造絲攻
螺紋尺寸：M10X1.5
被削材：SCM440(30HRC)
回轉速度：447 min^{-1}
進給速度：671 mm/min

Tool: Forming Tap
Thread Size: M10X1.5
Work Material: SCM440(30HRC)
Speed: 447 min^{-1}
Feed: 671mm/min

❷ 多油槽 Multi-flutes design

多油槽可提升加工時的潤滑性，使切削油直接注入加工點，有效抑制加工發熱，延長工具壽命。
Multi-flutes design can let the cutting oil directly inject into tapping point, which can improve lubricity which effectively reduce tapping heat and extend tool life.

❸ TiCN表面處理 TiCN surface treatment

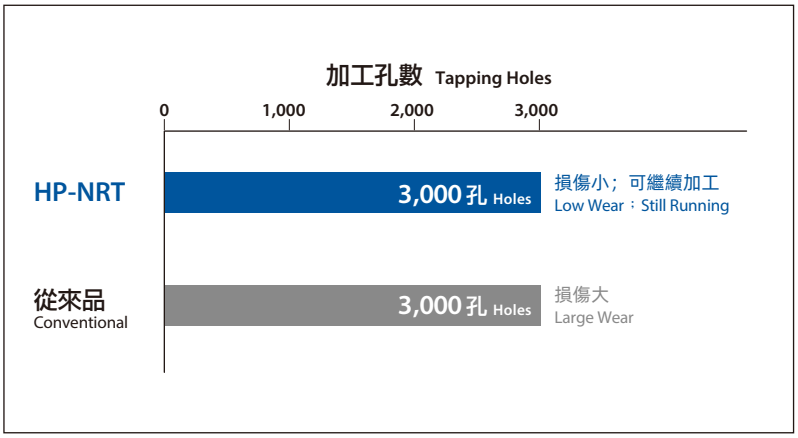
兼具耐磨耗性與抗溶著性的表面塗層，可強化絲攻的耐久性。
TiCN coating provides welding and wear resistance ,which can lengthen the durability of taps.

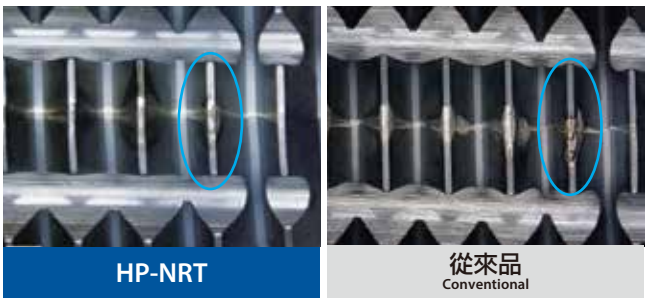
❹ 高韌性材料使用 Using high tenacity material

M1-M5 使用CPM高韌性材料；
M6-M12 導入OSG專利鋼種EXO，可提升刀具耐磨性
M1-M5 use CPM high tenacity material ;
M6~M12 use EXO material with OSG specfic patent steel type,increase the wear resistance of tools.

耐久性能測試 The tool life test of a taps

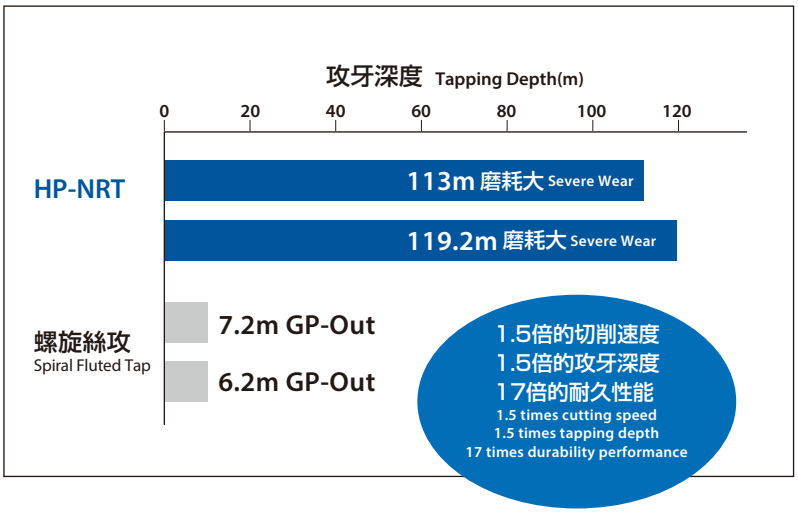
使用工具 Tool	HP-NRT M10 X 1.5 B	從來品 Conventional
被削材 Work Material	SCM440（30~32HRC）	
下孔徑 Drill Hole Size	φ 9.3 X 22 mm 深 Depth	
攻牙深度 Tapping Depth	20mm	
切削速度 Cutting Speed	15m/min	
切削油 Coolant	油性切削油 Soluble Oil	
加工機械 Machine	立式加工機 Vertical Machining center	





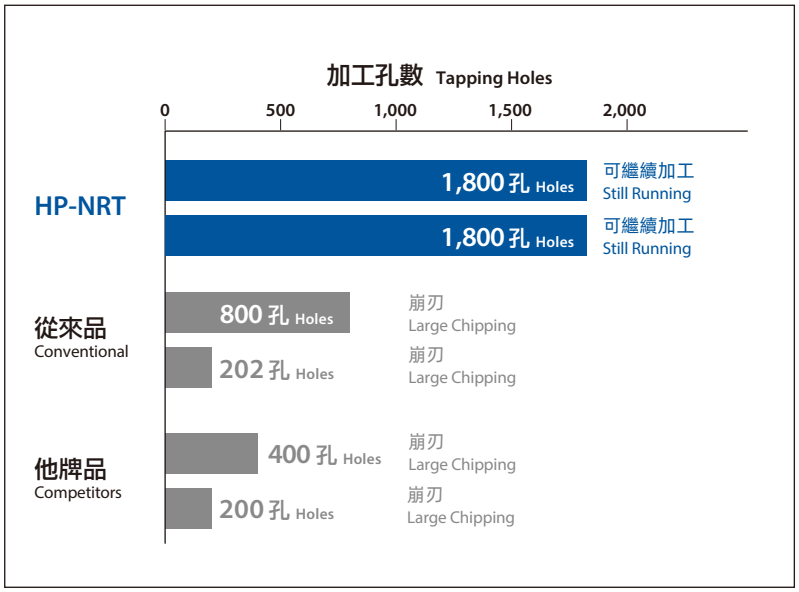
切削絲攻的17倍耐久性！ 17 times the durability of cutting taps !

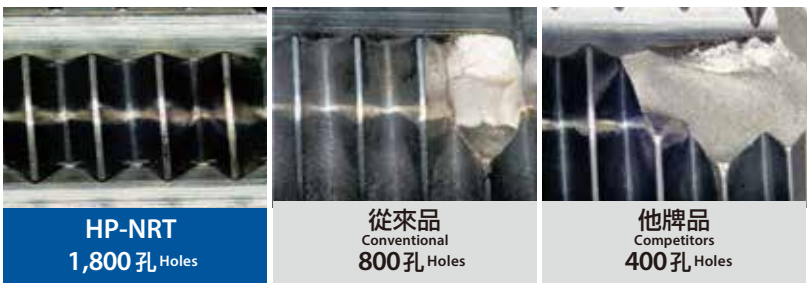
使用工具 Tool	HP-NRT M6 X 1 B	螺旋絲攻 M6 X 1 Spiral Fluted Tap
被削材 Work Material	S45C（90HRB）	
下孔徑 Drill Hole Size	φ5.55 X 25mm深 Depth	φ5 X 15mm深 Depth
攻牙深度 Tapping Depth	18mm（3D）	12mm（2D）
切削速度 Cutting Speed	15m/min	10m/min
切削油 Coolant	水溶性切削油 無氯(10%) Water-Soluble Chlorine-Free (10%)	
加工機械 Machine	臥式加工機 Horizontal Machining center	



特殊的牙山仕様、穩定的耐久性能 Stable durability with special thread specification.

使用工具 Tool	HP-NRT M3 X 0.5 B	從來品 Conventional	他牌品 Competitors
被削材 Work Material	SUS304		
下孔徑 Drill Hole Size	ϕ 2.8 X 9 mm 深 Depth		
攻牙深度 Tapping Depth	6mm		
切削速度 Cutting Speed	10m/min		
切削油 Coolant	水溶性切削油 無氯(5%) Water-Soluble Chlorine-Free (5%)		
加工機械 Machine	立式加工機 Vertical Machining center		

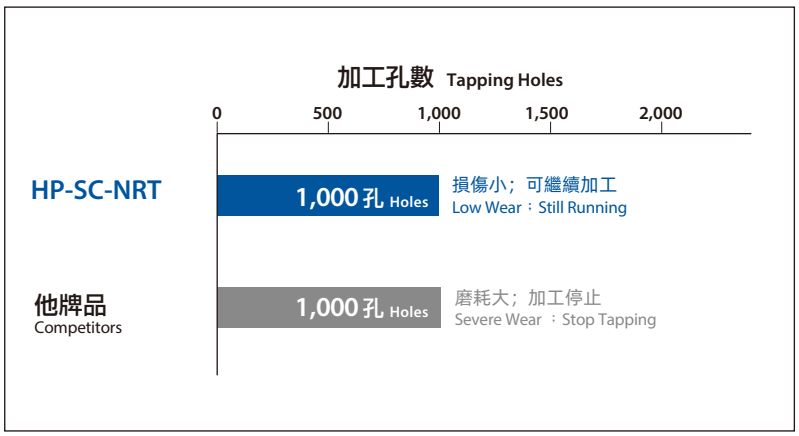




HP-NRT 1,800 孔 Holes | 從來品 Conventional 800 孔 Holes | 他牌品 Competitors 400 孔 Holes

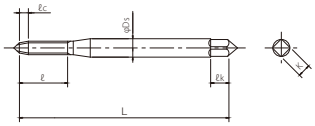
耐久性能測試 The tool life test of a taps.

使用工具 Tool	HP-SC-NRT	M1.2 X0.25 特殊品
被削材 Work Material	SUS316	

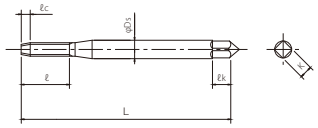


HP-NRT

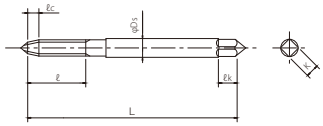
Type 1



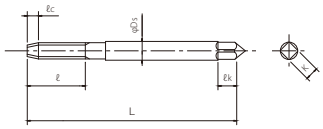
Type 2



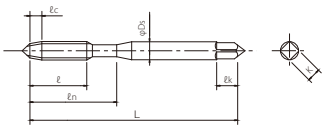
Type 3



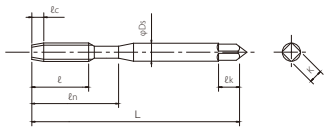
Type 4



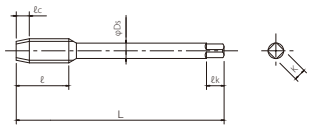
Type 5



Type 6



Type 7



CPM M1~M5 | EXO M6~M12 | V

螺紋種類Thread Type：M

單位unit : mm

產品編號 EDP NO.	螺紋尺寸 Thread Size	精度 Grade	品輔 ℓc	全長 L	螺紋長 ℓ	頸長 ℓn	柄徑 Ds	四角部長 ℓk	四角部寬 K	形狀類型 Type
165004	M 1 × 0.25	RH4	P	30	2.5	-	3	5	2.5	1
165124			B							2
165014	M 1.2 × 0.25	RH4	P	32	2.5	-	3	5	2.5	1
165134			B							2
165024	M 1.4 × 0.3	RH4	P	34	3	-	3	5	2.5	1
165025		RH5								
165144		RH4	B							2
165145		RH5								
165034	M 1.6 × 0.35	RH4	P	36	3.5	-	3	5	2.5	1
165035		RH5								
165154		RH4	B							2
165155		RH5								
165044	M 1.7 × 0.35	RH4	P	36	3.5	-	3	5	2.5	1
165045		RH5								
165164		RH4	B							2
165165		RH5								
165054	M 2 × 0.4	RH4	P	40	4	-	3	5	2.5	1
165055		RH5								
165174		RH4	B							2
165175		RH5								

- 精度欄 為適合加工6H、2級內螺紋之推薦精度
- 絲攻精度不能夠保證內螺紋精度
- 品輔P=食付4山(通孔用)，B=食付2山(盲孔用)
- P(M6以下)為尖頭式樣
- M2.6以下無油槽

- The recommended TAP limit corresponds to JIS class 2 & 6H internal thread standard.
- TAP limit does not guarantee thread limit for the internal thread.
- P=4P(for through hole) B=2P(for blind hole)
- P≤M6: external center
- Thread size ≤ M2.6: without oil groove.

NEXT

被削材 Work Material / 製品記號 Abbreviation	低碳鋼 軟鋼 Low Carbon Steel Mild Steel	中碳鋼 Medium Carbon Steel	高碳鋼 High Carbon Steel	合金鋼 Alloy Steel	調質鋼 Hardened Steel	不鏽鋼 Stainless Steel	銅合金 Copper	黃銅 Brass	黃銅鑄件 Brass Casting	鑄鋼 Cast Steel	延展鋁合金 Aluminum Rolled	鋁合金鑄件 Aluminum Alloy Casting	鎂合金鑄件 Magnesium Alloy Casting	鋅合金鑄件 Zinc Alloy Casting
	C~0.25%	C0.25% ~0.45%	C0.45%~	SCM・SCr・SNCM	SCM440 28~34HRC	SUS	Cu	Bs	YBSC	SC	AL	AC,ADC	MC	ZDC
HP-NRT	◎	◎	◎	◎	○	◎	◎	◎	◎	○	◎	◎		◎

FROM

螺紋種類Thread Type：M

單位unit : mm

產品編號 EDP NO.	螺紋尺寸 Thread Size	精度 Grade	品輔 ℓc	全長 L	螺紋長 ℓ	頸長 ℓn	柄徑 Ds	四角部長 ℓk	四角部寬 K	形狀類型 Type
165064	M 2.5 × 0.45	RH4	P	44	5.4	-	3	5	2.5	3
165065		RH5								
165184		RH4	B							4
165185		RH5								
165074	M 2.6 × 0.45	RH4	P	44	5.4	-	3	5	2.5	3
165075		RH5								
165194		RH4	B							4
165195		RH5								
166614	M 3 × 0.5	RH4	P	46	9	18	4	6	3.2	5
166615		RH5								
166616		RH6								
166734		RH4	B							6
166735		RH5								
166736		RH6								
166625	M 4 × 0.7	RH5	P	52	10	20	5	7	4	5
166626		RH6								
166627		RH7								
166745		RH5	B							6
166746		RH6								
166747		RH7								
166635	M 5 × 0.8	RH5	P	60	11	22	5.5	7	4.5	5
166636		RH6								
166637		RH7								
166755		RH5	B							6
166756		RH6								
166757		RH7								
166646	M 6 × 1	RH6	P	62	10	24	6	7	4.5	5
166647		RH7								
166648		RH8								
166766		RH6	B							6
166767		RH7								
166768		RH8								
166769		RH9								
166666	M 8 × 1.25	RH6	P	70	12	-	6.2	8	5	7
166667		RH7								
166668		RH8								
166786		RH6	B							
166787		RH7								
166788		RH8								

NEXT

HP-NRT

CPM | EXO | V

M1~M5 M6~M12

FROM

螺紋種類Thread Type：M

單位unit : mm

產品編號 EDP NO.	螺紋尺寸 Thread Size	精度 Grade	品輔 ℓc	全長 L	螺紋長 ℓ	頸長 ℓn	柄徑 Ds	四角部長 ℓk	四角部寬 K	形狀類型 Type
166686	M 10 × 1.5	RH6	P	75	15	-	7	8	5.5	7
166687		RH7								
166688		RH8								
166806		RH6	B							
166807		RH7								
166808		RH8								
166676	M 10 × 1.25	RH6	P	75	15	-	7	8	5.5	7
166677		RH7								
166678		RH8								
166796		RH6	B							
166797		RH7								
166798		RH8								
166727	M 12 × 1.75	RH7	P	82	17	-	8.5	9	6.5	7
166728		RH8								
166729		RH9								
166847		RH7	B							
166848		RH8								
166849		RH9								
166716	M 12 × 1.5	RH6	P	82	17	-	8.5	9	6.5	7
166717		RH7								
166718		RH8								
166836		RH6	B							
166837		RH7								
166838		RH8								
166706	M 12 × 1.25	RH6	P	82	17	-	8.5	9	6.5	7
166707		RH7								
166708		RH8								
166826		RH6	B							
166827		RH7								
166828		RH8								

- 精度欄 為適合加工6H、2級內螺紋之推薦精度
- 絲攻精度不能夠保證內螺紋精度
- 品輔P=食付4山(通孔用)，B=食付2山(盲孔用)
- P(M6以下)為尖頭式樣
- M2.6以下無油槽

- The recommended TAP limit corresponds to JIS class 2 & 6H internal thread standard.
- TAP limit does not guarantee thread limit for the internal thread.
- P=4P(for through hole) B=2P(for blind hole)
- P≤M6: external center
- Thread size ≤ M2.6: without oil groove.

被削材 Work Material / 製品記號 Abbreviation	低碳鋼 軟鋼 Low Carbon Steel Mild Steel	中碳鋼 Medium Carbon Steel	高碳鋼 High Carbon Steel	合金鋼 Alloy Steel	調質鋼 Hardened Steel	不鏽鋼 Stainless Steel	銅合金 Copper	黃銅 Brass	黃銅鑄件 Brass Casting	鑄鋼 Cast Steel	延展鋁合金 Aluminum Rolled	鋁合金鑄件 Aluminum Alloy Casting	鎂合金鑄件 Magnesium Alloy Casting	鋅合金鑄件 Zinc Alloy Casting
	C~0.25%	C0.25% ~0.45%	C0.45%~	SCM・SCr・SNCM	SCM440 28~34HRC	SUS	Cu	Bs	YBSC	SC	AL	AC,ADC	MC	ZDC
HP-NRT	◎	◎	◎	◎	○	◎	◎	◎	◎	○	◎	◎		◎

CPM EXO V

No.5~No.12 1/4~1/2

螺紋種類Thread Type：U

單位unit：mm

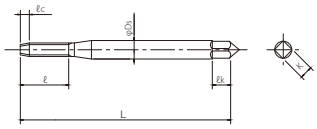
產品編號 EDP NO.	螺紋尺寸 Thread Size	精度 Tap Limit	品輔 ℓc	全長 L	螺紋長 ℓ	頸長 ℓn	柄徑 Ds	四角部長 ℓk	四角部寬 K	形狀類型 Type
165005	No. 5 - 40UNC	RH5	P	46	9	18	4	6	3.2	5
165015			B							6
165205	No. 5 - 44UNF	RH5	P	46	9	18	4	6	3.2	5
165215			B							6
165485	No. 6 - 32UNC	RH5	P	48	9	18	4	6	3.2	5
165495			B							6
165225	No. 6 - 40UNF	RH5	P	48	9	18	4	6	3.2	5
165235			B							6
165505	No. 8 - 32UNC	RH5	P	52	10	20	5	7	4	5
165515			B							6
165245	No. 8 - 36UNF	RH5	P	52	10	20	5	7	4	5
165255			B							6
165066	No.10 - 24UNC	RH6	P	60	11	22	5.5	7	4.5	5
165076			B							6
165266	No. 10 - 32UNF	RH5	P	60	11	22	5.5	7	4.5	5
165276			B							6
165086	No. 12 - 24UNC	RH6	P	60	11	22	5.5	7	4.5	5
165096			B							6
165286	No. 12 - 28UNF	RH5	P	60	11	22	5.5	7	4.5	5
165296			B							6
165106	1/4 - 20UNC	RH6	P	62	13	24	6	7	4.5	5
165116			B							6
165306	1/4 - 28UNF	RH5	P	62	13	24	6	7	4.5	5
165316			B							6
165127	5/16 - 18UNC	RH7	P	70	14	-	6.1	8	5	7
165137			B							
165327	5/16 - 24UNF	RH6	P	70	14	-	6.1	8	5	7
165337			B							
165147	3/8 - 16UNC	RH7	P	75	16	-	7	8	5.5	7
165157			B							
165347	3/8 - 24 UNF	RH6	P	75	16	-	7	8	5.5	7
165357			B							
165167	7/16 - 14UNC	RH7	P	80	18	-	8	9	6	7
165177			B							
165367	7/16 - 20UNF	RH7	P	80	18	-	8	9	6	7
165377			B							
165188	1/2 - 13UNC	RH8	P	85	20	-	9	10	7	7
165198			B							
165388	1/2 - 20UNF	RH7	P	85	20	-	9	10	7	7
165398			B							

- 精度欄 為適合加工2B級內螺紋之推薦精度
- 絲攻精度不能夠保證內螺紋精度
- 品輔P=食付4山(通孔用)，B=食付2山(盲孔用)
- P(1/4以下)為尖頭式樣

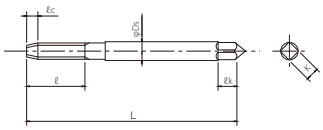
- The recommended TAP limit corresponds to JIS class 2B internal thread standard.
- TAP limit does not guarantee thread limit for the internal thread.
- P=4P(for through hole) B=2P(for blind hole)
- P≤1/4: external center

HP-SC-NRT

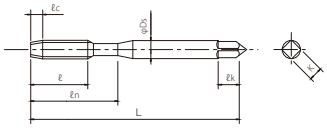
Type 1



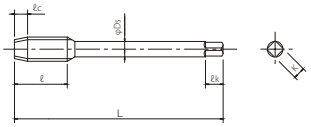
Type 2



Type 3



Type 4



CPM M1~M5 | EXO M6~M12 | V

螺紋種類Thread Type：M

單位unit：mm

產品編號 EDP NO.	螺紋尺寸 Thread Size	精度 Grade	品輔 ℓc	全長 L	螺紋長 ℓ	頸長 ℓn	柄徑 Ds	四角部長 ℓk	四角部寬 K	形狀類型 Type
167004	M 1 × 0.25	RH4	1B	30	2.5	-	3	5	2.5	1
167014	M 1.2 × 0.25	RH4		32	2.5	-	3	5	2.5	
167024	M 1.4 × 0.3	RH4		34	3	-	3	5	2.5	
167025		RH5								
167034	M 1.6 × 0.35	RH4		36	3.5	-	3	5	2.5	
167035		RH5								
167044	M 1.7 × 0.35	RH4		36	3.5	-	3	5	2.5	
167045		RH5								
167054	M 2 × 0.4	RH4		40	4	-	3	5	2.5	
167055		RH5								
167064	M 2.5 × 0.45	RH4		44	5.4	-	3	5	2.5	2
167065		RH5								
167074	M 2.6 × 0.45	RH4		44	5.4	-	3	5	2.5	
167075		RH5								
167084	M 3 × 0.5	RH4		46	9	18	4	6	3.2	3
167085		RH5								
167086		RH6								
167095	M 4 × 0.7	RH5		52	10	20	5	7	4	
167096		RH6								
167097		RH7								
167105	M 5 × 0.8	RH5		60	11	22	5.5	7	4.5	
167106		RH6								
167107		RH7								
167116	M 6 × 1	RH6		62	10	24	6	7	4.5	
167117		RH7								
167118		RH8								

NEXT

被削材 Work Material / 製品記號 Abbreviation	低碳鋼 軟鋼 Low Carbon Steel Mild Steel	中碳鋼 Medium Carbon Steel	高碳鋼 High Carbon Steel	合金鋼 Alloy Steel	調質鋼 Hardened Steel	不鏽鋼 Stainless Steel	銅合金 Copper	黃銅 Brass	黃銅鑄件 Brass Casting	鑄鋼 Cast Steel	延展鋁合金 Aluminum Rolled	鋁合金鑄件 Aluminum Alloy Casting	鎂合金鑄件 Magnesium Alloy Casting	鋅合金鑄件 Zinc Alloy Casting
	C~0.25%	C0.25% ~0.45%	C0.45%~	SCM・SCr・SNCM	SCM440 25~35HRC	SUS	Cu	Bs	YBSC	SC	AL	AC,ADC	MC	ZDC
HP-SC-NRT	◎	◎	◎	◎	○	◎	◎	◎	◎	○	◎	◎		◎

FROM

螺紋種類Thread Type：M

單位unit : mm

產品編號 EDP NO.	螺紋尺寸 Thread Size	精度 Grade	品輔 ℓc	全長 L	螺紋長 ℓ	頸長 ℓn	柄徑 Ds	四角部長 ℓk	四角部寬 K	形狀類型 Type
167126	M 8 × 1.25	RH6	1B	70	12	-	6.2	8	5	4
167127		RH7								
167128		RH8								
167136	M 10 × 1.5	RH6		75	15	-	7	8	5.5	
167137		RH7								
167138		RH8								
167146	M 10 × 1.25	RH6		75	15	-	7	8	5.5	
167147		RH7								
167148		RH8								
167157	M 12 × 1.75	RH7		82	17	-	8.5	9	6.5	
167158		RH8								
167159		RH9								
167166	M 12 × 1.5	RH6		82	17	-	8.5	9	6.5	
167167		RH7								
167168		RH8								
167176	M 12 × 1.25	RH6		82	17	-	8.5	9	6.5	
167177		RH7								
167178		RH8								

■ 精度欄 為適合加工6H、2級內螺紋之推薦精度

■ 絲攻精度不能夠保證內螺紋精度

■ M2.6以下無油槽

■ The recommended TAP limit corresponds to JIS class 2 & 6H internal thread standard.

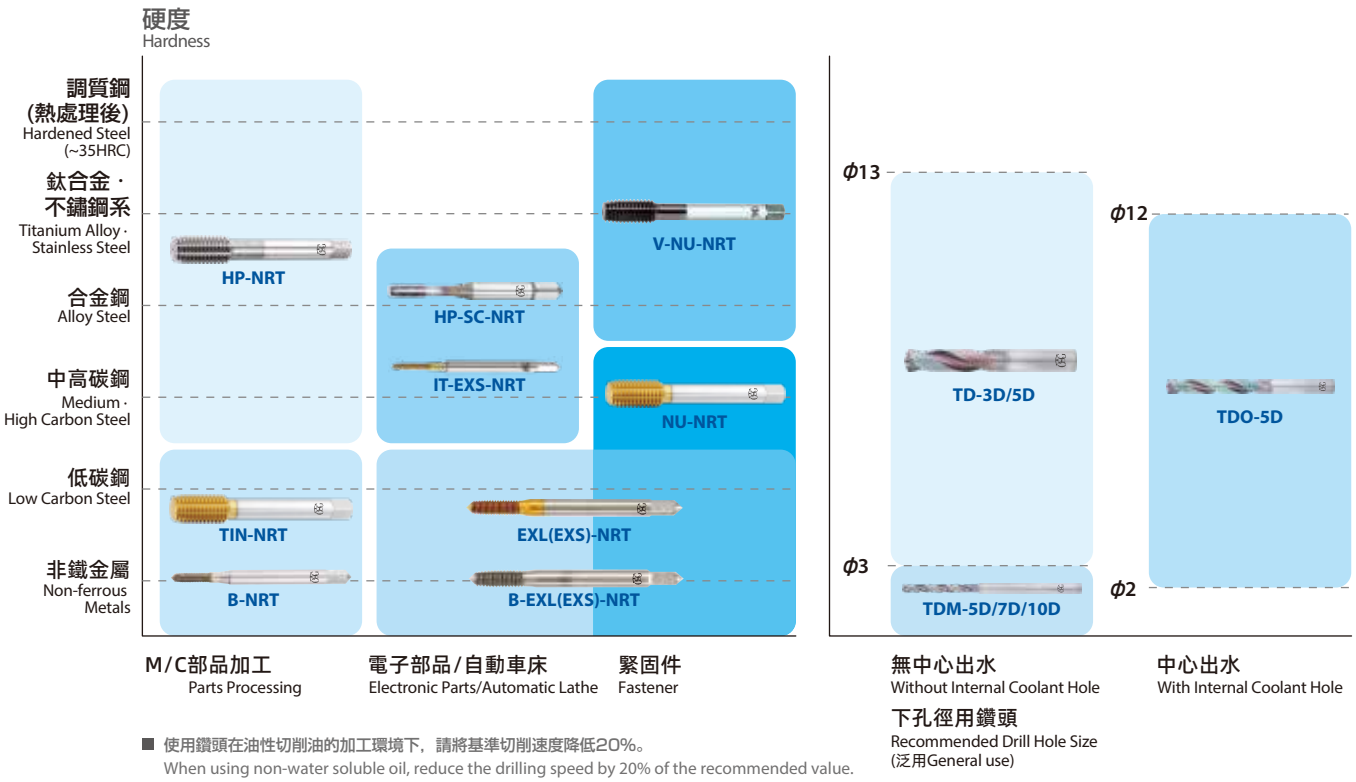
■ TAP limit does not guarantee thread limit for the internal thread.

■ Thread size ≤ M2.6: without oil groove.

加工工具選擇基準 Tool guide for hole rproessing

依據加工材質、加工類別及以下絲攻和鑽頭對照圖，您可選擇適用的刀具來穩定鑽孔及攻牙後的加工表現。

Based on the processing material, type, and the comparison chart of tap and drill below, you can choose the suitable tool to stabilize the machining performance after drilling and tapping.

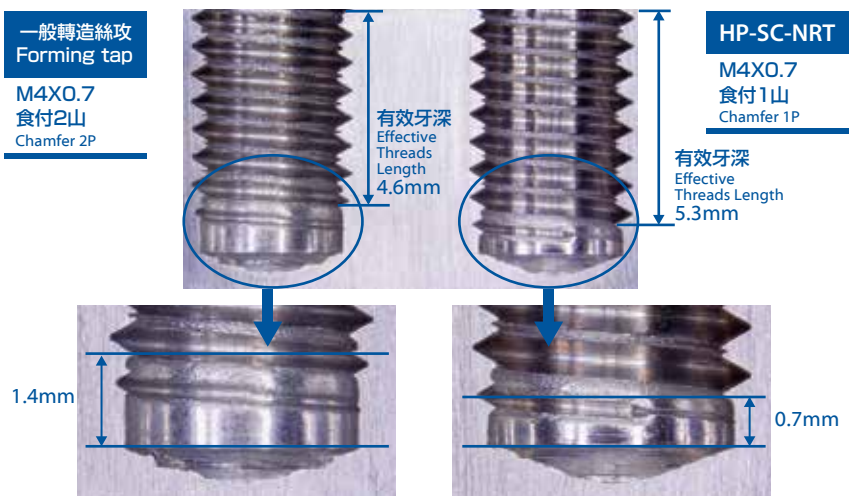


■ 使用鑽頭在油性切削油的加工環境下，請將基準切削速度降低20%。
When using non-water soluble oil, reduce the drilling speed by 20% of the recommended value.

短食付HP-SC-NRT式樣 Short chamfer HP-SC-NRT

對應下孔深預留空間較短的盲孔加工、使用食付長1山的式樣攻牙，可確保內螺紋的有效牙長足夠。

When encounter blind hole tapping that has shorter reserved space, using 1 chamfer thread to process can ensure the effective threads length.



上圖(右)為HP-SC-NRT，上圖(左)為一般食付長2山的轉造絲攻，在有限的孔身內HP-SC-NRT可使有效牙長更貼近底孔，增加內螺紋的有效深度

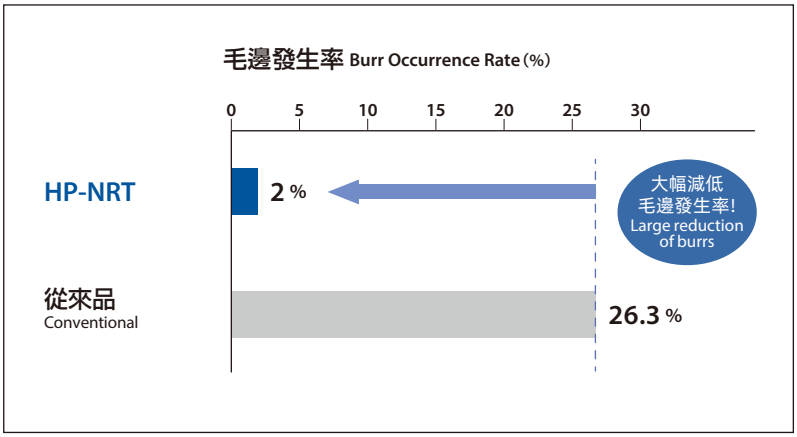
The above picture(right) is HP-SC-NRT, The above picture(left) is regular forming tap. HP-SC-NRT can increases the effective threads length and make it closer to the bottom.

■ 毛邊對策 Countermeasure for Burr

以低扭力式樣的HP-NRT與從來品的轉造絲攻相比，可抑制毛邊產生。

Comparing with the conventional forming taps, HP-NRT reduces burr with low-torque spec.

使用工具 Tool	HP-NRT M3X0.5 P	從來品 Conventional
被削材 Work Material	黃銅 Brass	
下孔徑 Drill Hole Size	ϕ 2.76 X 3 mm	
攻牙深度 Tapping Depth	3 mm	
切削速度 Cutting Speed	非公開 N/A	
切削油 Coolant	不水溶性切削液 Non-Water Soluble	
使用機械 Machine	專用機械 Specialized Machine	

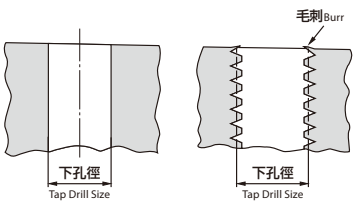


有毛邊
Burr with conventional forming tap

無毛邊
No burr with HP-NRT

■ 推薦倒角角度60°

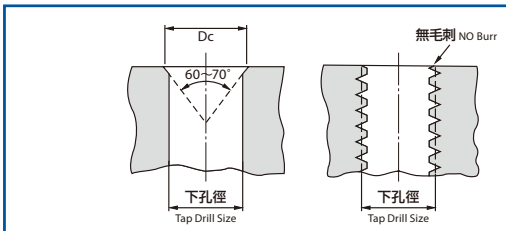
Recommending 60° for the chamfer.



工件出口端面-無倒角 Without chamfering

轉造絲攻是透過塑性變形而成形螺紋牙山，如果在工件出口端面沒有倒角，就會產生毛刺。為了抑制毛刺・毛邊，請以60°~70°的角度進行倒角。

Forming tap forms the screw thread by plastic deformation. Therefore, without having chamfering, burr is made on the edge of the hole. To prevent burr, chamfering with 60°~70° is highly recommended.



工件出口端面-有倒角 With chamfering

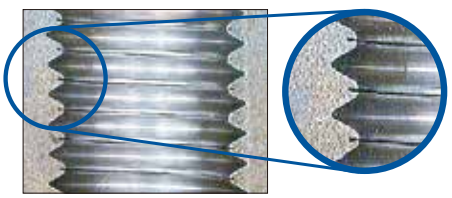
另外，若鑽頭加工需要倒角118°，則需將倒角端面的直徑設定為螺紋尺寸+2牙距可抑制毛刺。

例：M10 X 1.5 => 10mm+(1.5x2)=13mm

If 118° of chamfering is required for drilling, burr is prevented by setting the diameter of chamfering to screw size+2 pitches.

Example: M10×1.5⇒10mm+(1.5×2)=13mm

■ 螺紋山形的不同 Shape of complete thread and its' difference



此為轉造絲攻加工後的內螺紋山頂，具有凹槽形狀。(參照圖片)

The formed thread has a small slit at the crest (See photo) .

HP-NRT

切削速度 Cutting Speed		0	10	20	30 (m/min)
軟鋼・低碳鋼 Mild Steel Low Carbon Steel	C~0.25%	8-13 / 8-25			
中碳鋼 Medium Carbon Steel	C0.25%~0.45%	7-10 / 8-25			
高碳鋼 High Carbon Steel	C0.45%~	5-8 / 5-20			
合金鋼 (C≧0.3%) Alloy Steel	SCM	5-8 / 10-25			
不鏽鋼 Stainless Steel	SUS	5-10 / 5-15			
銅 Copper	Cu	7-12 / 10-25			

HP-SC-NRT

切削速度 Cutting Speed		0	10	20	30 (m/min)
軟鋼・低碳鋼 Mild Steel Low Carbon Steel	C~0.25%	8-13 / 8-25			
中碳鋼 Medium Carbon Steel	C0.25%~0.45%	7-10 / 8-25			
高碳鋼 High Carbon Steel	C0.45%~	5-8 / 5-20			
合金鋼 (C≧0.3%) Alloy Steel	SCM	5-8 / 10-25			
不鏽鋼 Stainless Steel	SUS	5-10 / 5-15			
銅 Copper	Cu	7-12 / 10-25			

M6未滿 Below　　M6以上 More than

注意：

1. 此切削條件表適用於水溶性切削液(氯)。
2. 加工不鏽鋼請使用不水溶性切削液或是潤滑性較優的水溶性切削液。

Note：

1. The indicated speeds and feeds are for tapping with chlorine-free water soluble coolant.
2. We recommended using the non-water-soluble coolant or highly lubricated water-soluble-coolant for the stainless steels.

螺紋下孔徑表(轉造絲攻用) Recommended Drill Hole Size (For Forming Taps)

公制螺紋 Metric screw threads

■ 紅字 = JIS粗牙 Red character=JIS coarse pitch thread

單位unit : mm

螺紋尺寸 Thread size	舊 JIS 1級 for JIS Class 1 drill hole dia.		舊 JIS 2級 for JIS Class 2 drill hole dia.		4H		5H		6H	
	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)
M 1 × 0.25	2	0.87 ~ 0.89 (100%~85%)	4	0.90 ~ 0.92 (100%~80%)	2	0.875~ 0.889(100%~85%)	4	0.901~ 0.920(100%~80%)	—	—
M 1.2 × 0.25	2	1.07 ~ 1.09 〃	4	1.10 ~ 1.12 〃	2	1.075~ 1.089 〃	4	1.101~ 1.120 〃	—	—
M 1.4 × 0.3	2	1.244~ 1.263 〃	4	1.270~ 1.294 〃	2	1.245~ 1.262 〃	4	1.270~ 1.294 〃	4	1.270~ 1.291(100%~82%)
M 1.6 × 0.35	2	1.41 ~ 1.44 (100%~80%)	4	1.44 ~ 1.48 (100%~75%)	2	1.415~ 1.442(100%~80%)	4	1.440~ 1.466(100%~81%)	4	1.440~ 1.475(100%~75%)
※M 1.7 × 0.35	—	—	4	*1.54 ~ 1.58 〃	—	—	—	—	—	
M 2 × 0.4	2	1.78 ~ 1.82 〃	4	1.81 ~ 1.85 〃	2	1.785~ 1.806 〃	4	1.810~ 1.840 〃	4	1.810~ 1.849
M 2.5 × 0.45	2	2.25 ~ 2.29 (100%~80%)	4	2.28 ~ 2.33 〃	2	2.255~ 2.279(100%~86%)	4	2.280~ 2.312(100%~82%)	4	2.280~ 2.324(100%~75%)
※M 2.6 × 0.45	—	—	4	*2.38 ~ 2.43 〃	—	—	—	—	—	—
M 3 × 0.5	3	2.74 ~ 2.78 (100%~80%)	5	2.76 ~ 2.81 (100%~75%)	3	2.737~ 2.764(100%~86%)	5	2.762~ 2.798(100%~82%)	5	2.762~ 2.812(100%~75%)
M 4 × 0.7	4	3.63 ~ 3.67 (100%~85%)	6	3.65 ~ 3.70 (100%~85%)	4	3.63 ~ 3.66 (100%~88%)	4	3.63 ~ 3.67 (100%~85%)	6	3.66 ~ 3.69 (100%~85%)
M 5 × 0.8	4	4.57 ~ 4.62 〃	6	4.59 ~ 4.66 (100%~80%)	4	4.57 ~ 4.60 〃	4	4.57 ~ 4.61 〃	6	4.60 ~ 4.65 (100%~80%)
M 6 × 1	4	5.45 ~ 5.51 〃	7	5.48 ~ 5.57 〃	4	5.45 ~ 5.49 〃	4	5.45 ~ 5.50 〃	7	5.49 ~ 5.56 〃
M 8 × 1.25	5	7.31 ~ 7.38 〃	7	7.34 ~ 7.41 (100%~85%)	5	7.31 ~ 7.36 (100%~90%)	7	7.34 ~ 7.40 (100%~87%)	7	7.34 ~ 7.41 (100%~85%)
M 10 × 1.5	5	9.16 ~ 9.22 (100%~90%)	7	9.18 ~ 9.28 〃	5	9.16 ~ 9.21 (100%~91%)	7	9.19 ~ 9.24 (100%~90%)	7	9.19 ~ 9.27 〃
M 10 × 1.25	5	9.31 ~ 9.38 (100%~85%)	7	9.34 ~ 9.41 〃	5	9.31 ~ 9.36 (100%~90%)	7	9.34 ~ 9.40 (100%~87%)	7	9.34 ~ 9.41 〃
M 12 × 1.75	5	11.01 ~11.08 (100%~90%)	8	11.05 ~11.15 〃	5	11.01 ~11.07 (100%~91%)	8	11.05 ~11.11 (100%~90%)	8	11.05 ~11.15 〃
M 12 × 1.5	5	11.16 ~11.22 〃	7	11.18 ~11.28 〃	5	11.16 ~11.21 〃	7	11.19 ~11.24 〃	7	11.19 ~11.27 〃
M 12 × 1.25	5	11.31 ~11.38 (100%~85%)	7	11.34 ~11.41 〃	5	11.31 ~11.36 (100%~90%)	7	11.34 ~11.40 (100%~87%)	7	11.34 ~11.41 〃

美制粗牙螺紋 Unified Coarse screw threads

單位unit : mm

螺紋尺寸 Thread size	2B 級 for JIS Class 2B drill hole dia.		3B 級 for JIS Class 3B drill hole dia.	
	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)
NO. 5 - 40 UNC	5	2.86 ~ 2.93 (100%~70%)	3	2.83 ~ 2.91 (100%~70%)
NO. 6 - 32 UNC	5	3.09 ~ 3.17 (100%~75%)	3	3.06 ~ 3.14 (100%~75%)
NO. 8 - 32 UNC	5	3.75 ~ 3.83 〃	4	3.74 ~ 3.82 〃
NO.10 - 24 UNC	6	4.26 ~ 4.35 (100%~80%)	4	4.24 ~ 4.32 (100%~80%)
NO.12 - 24 UNC	6	4.92 ~ 5.01 〃	4	4.90 ~ 4.96 (100%~85%)
1/4 - 20 UNC	6	5.66 ~ 5.76 〃	4	5.64 ~ 5.74 (100%~80%)
5/16 - 18 UNC	7	7.18 ~ 7.29 〃	5	7.15 ~ 7.24 (100%~85%)
3/8 - 16 UNC	7	8.66 ~ 8.78 〃	5	8.63 ~ 8.73 〃
7/16 - 14 UNC	7	10.11 ~10.25 〃	5	10.08 ~10.19 〃
1/2 - 13 UNC	8	11.62 ~11.78 〃	6	11.60 ~11.68 (100%~90%)

美制細牙螺紋 Unified Fine screw threads

單位unit : mm

螺紋尺寸 Thread size	2B 級 for JIS Class 2B drill hole dia.		3B 級 for JIS Class 3B drill hole dia.	
	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)	RH 精度 RH Limits	最小～最大(咬合率%) Min.~Max.(Thread Overlap Ratio)
NO. 5 - 44 UNF	5	2.89 ~ 2.96 (100%~70%)	3	2.87 ~ 2.94 (100%~70%)
NO. 6 - 40 UNF	5	3.19 ~ 3.26 〃	3	3.16 ~ 3.22 (100%~75%)
NO. 8 - 36 UNF	5	3.8 ~ 3.88 (100%~75%)	4	3.79 ~ 3.86 〃
NO.10 - 32 UNF	5	4.41 ~ 4.48 (100%~80%)	4	4.4 ~ 4.46 (100%~80%)
NO.12 - 28 UNF	5	5 ~ 5.08 〃	4	4.99 ~ 5.06 〃
1/4 - 28 UNF	5	5.86 ~ 5.93 〃	4	5.85 ~ 5.92 〃
5/16 - 24 UNF	6	7.38 ~ 7.46 〃	5	7.36 ~ 7.43 (100%~85%)
3/8 - 24 UNF	6	8.96 ~ 9.05 〃	5	8.95 ~ 9.02 〃
7/16 - 20 UNF	7	10.44 ~10.54 〃	5	10.41 ~10.49 〃
1/2 - 20 UNF	7	12.02 ~12.12 〃	5	12 ~12.05 (100%~90%)

■ 4H~6H對應於JIS B 0209-2001。
■ 粗牙螺紋尺寸對應於JIS B 0209-1982附錄1。
■ 細牙螺紋尺寸對應於JIS B 0211-1982附錄。
■ *符號對應於JIS B 0209-1982附錄2。
■ ※符號為JIS廢止尺寸。

1. 根據此下孔徑表，會因被削材種類等不同而變化，請使用建議標準的下孔徑尺寸。
2. 下孔徑表會根據被削材、硬度、形狀尺寸等不同而變化，請試加工後確認。
3. 考慮到耐久性，下孔徑尺寸較大比較有利。請依加工目的在行選定。
4. 為避免加工發生異常，不得有彎曲、波浪化變形、錯位等現象。

■ 4H-6H corresponds to JIS B 0209-2001.
■ Coarse thread sizes correspond to the appendix 1 of JIS B 0209-1982.
■ Fine pitch thread sizes correspond to the appendix of JIS B 0211-1982.
■ *Corresponds to the appendix 2 of JIS B 0209-1982.
■ ※ Size abolished by JIS.

1. The proper drill hole size may change due to material variety.Use the recommended drill hole size as a benchmark.
2. As the hole diameter may vary by behavior of plasticity depending on the material, hardness and shapes of workpiece, the hole diameter should be determined through trial tapping prior to final machining.
3. A large drill hole size is better for extending tool life. Select a drill hole size based on your particular application.
4. To avoid tapping trouble,correct hole must be maintained free from warp,deformation, stagger and the like.

shaping your dreams

總公司 Headquarters
820439 高雄市岡山區大寶街27號
No. 27, Dabao St., Gangshan Dist., Kaohsiung City 820439, Taiwan
TEL：+886-7-624-0338 FAX：+886-7-623-3137

台北營業所 Taipei Sales Office
241561 新北市三重區光復路二段69號18樓
18F, No. 69, Sec. 2, Guangfu Rd., Sanchong Dist., New Taipei City 241561, Taiwan
TEL：+886-2-8512-2900 FAX：+886-2-8511-2655

台中營業所 Taichung Sales Office
403020 台中市西區台灣大道二段573號12樓之E室(中港經貿大樓)
12F-E, No.573, Sec. 2, Taiwan Blvd., West Dist., Taichung City 403020, Taiwan
TEL：+886-4-2359-6959 FAX：+886-4-2359-6958

高雄營業所 Kaohsiung Sales Office
820110 高雄市岡山區本工一路23號
No. 23, Bengong 1st Rd., Gangshan Dist., Kaohsiung City 820110 , Taiwan
TEL：+886-7-621-6159 FAX：+886-7-621-6285

昆山營業所 Kunshan Sales Office
江蘇省昆山市祖沖之南路1666號清華科技園科技大廈7樓
Science&Technology Building 7F, Tsinghua Science & Technology Park, Zuchongzhi South Rd., No.1666, Kunshan city, Jiangsu Province, China
TEL：+86-512-5779-9688 FAX：+86-512-5779-9689

寧波營業所 Ningbo Sales Office
浙江省寧波市海曙區藍天路201號麗園尚都A2幢504室
Room 504, Building A2, Liyuan Shangdu, No.201, Lantian Rd., Haishu District, Ningbo City, Zhejiang Province, China
TEL：+86-574-8750-1180 FAX：+86-574-8750-1132

⚠ 安全使用注意事項

- 使用工具時，工具可能會有破損的風險，請務必使用上蓋、護目鏡、安全鞋等等防護物品，以策安全。
- 請勿空手碰觸切屑與切刃。
- 工具切刃銳利度下降時，請停止使用。
- 發生異音、異常震動時，請立刻停止使用。
- 請勿修改工具樣式。
- 加工前，請確認工具尺寸。

⚠ Safe use of cutting tools

- Use safety cover, safety glasses and safety shoes during operation.
- Do not touch cutting edges and chips with bare hands.
- Stop cutting when the tool becomes dull.
- Stop using immediately if you hear any abnormal sounds or the vibration is abnormal.
- Do not modify tools.
- Check the dimension of tool before processing for proper selection.

大寶精密工具代理店

Copyright © 2026 TAIHO TOOL MFG. Co., Ltd. All rights reserved.

- 製品經常進行研究、改良，本目錄中的工具樣式如有更改，恕不另行通知。
  Products are often researched and improved.
  Tool specifications are subject to change without notice.
- 本目錄內容請勿任意轉載及複製。
  Reproduction and copy is prohibited.

2026.06