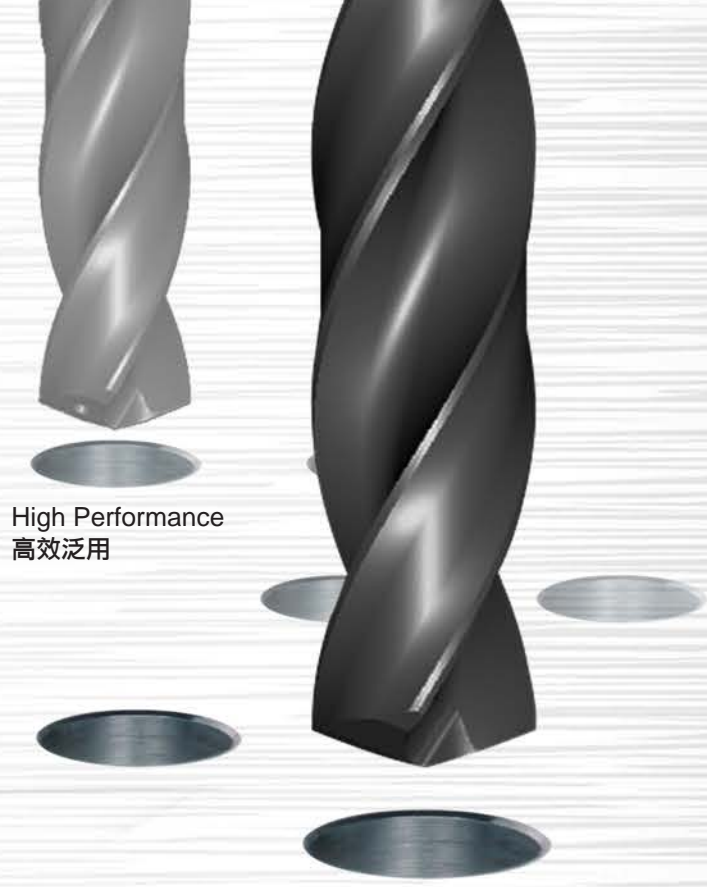


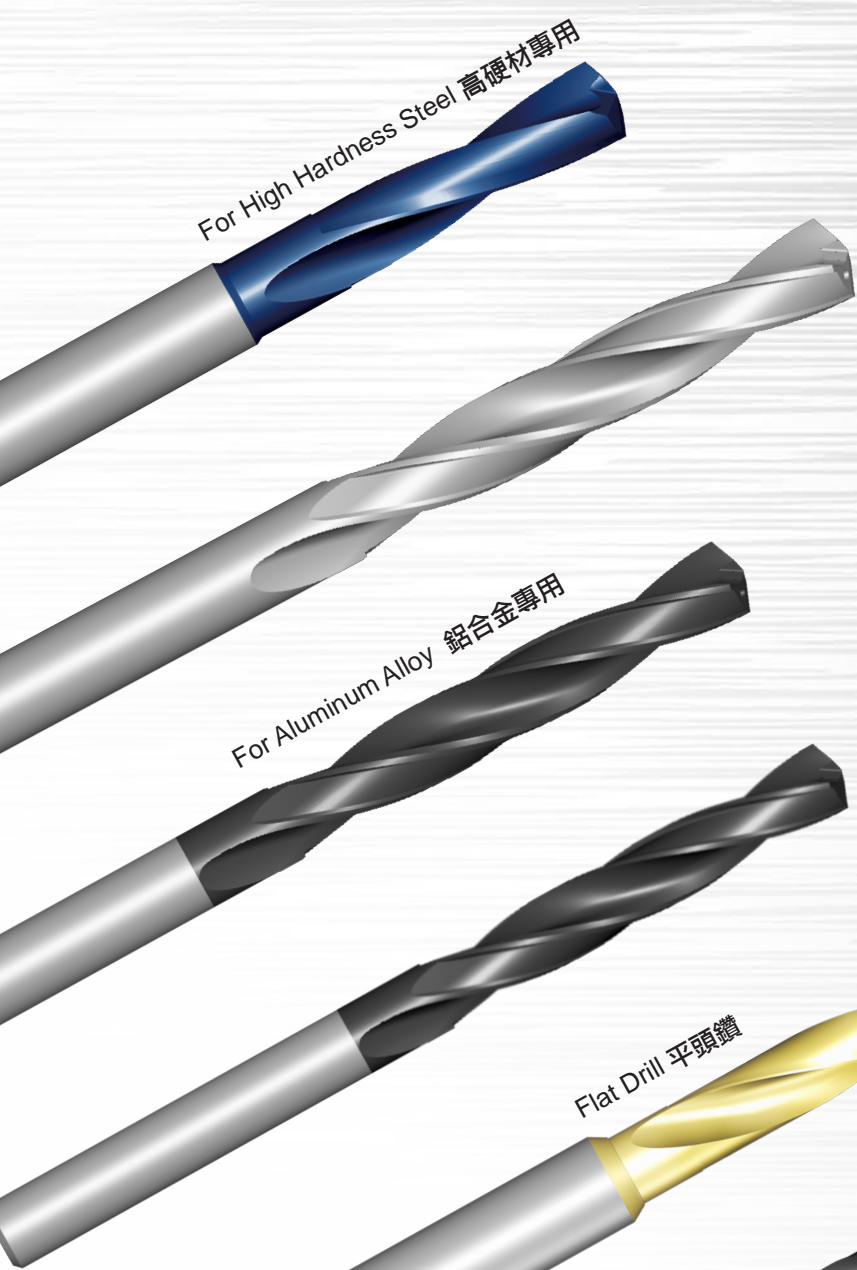


# CARBIDE DRILLS SERIES

鎢鋼鑽頭系列



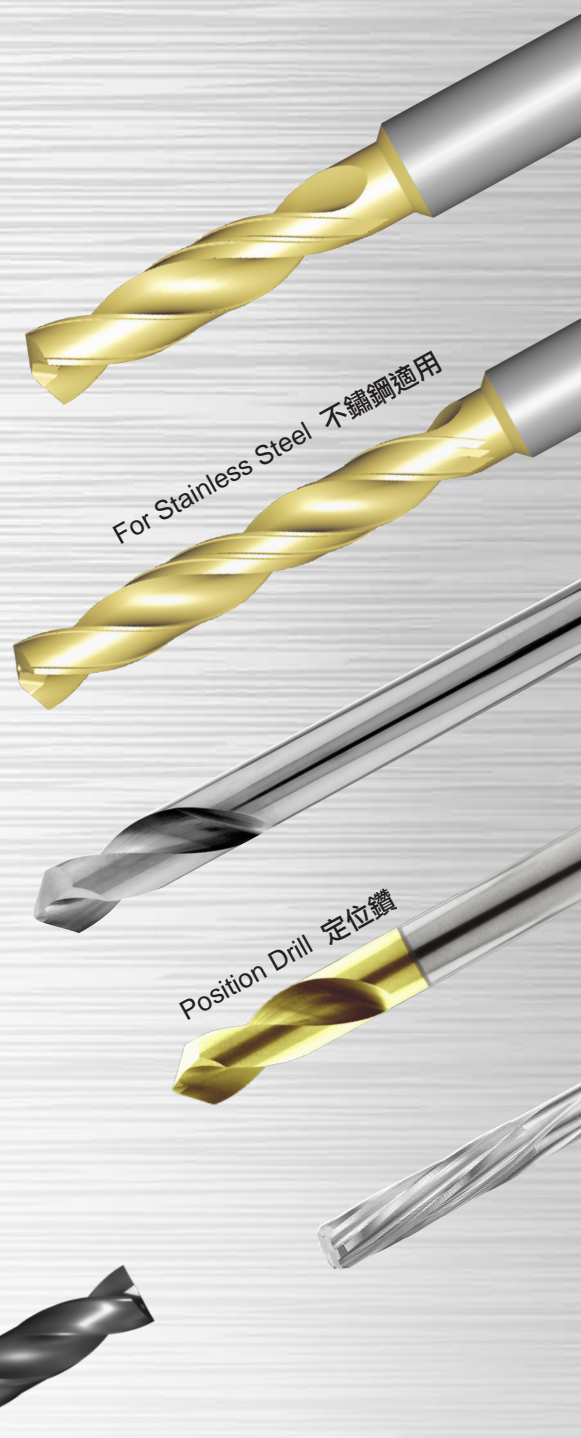
High Performance  
高效泛用



For High Hardness Steel 高硬材專用

For Aluminum Alloy 鋁合金專用

Flat Drill 平頭鑽



For Stainless Steel 不鏽鋼適用

Position Drill 定位鑽

# Spot Drill / Chamfer Mill + Inserts SET 定點鑽 / 倒角刀 刀具組



## ● Characteristic 特點：

1. For general chamfering and NC spot drilling.  
可廣泛應用於倒角加工及 NC 定點鑽。
2. The multi-edge design make it a cost-efficient solution- 4 times use.  
刀片可轉位四個角，減少刀具成本。
3. New spotting way, stable center spotting, improve tool life effectively.  
新型刀片定位方式 - 刀片自我定中心、結合穩定，大幅延長刀具壽命。
4. Newly developed SH + ZrN coating increases the lubrication, lowers the friction, and improves tool performance effectively.  
新表面塗層 SH+ZrN 有效地增加了潤滑性並降低了摩擦，從而提高了刀具性能。
5. Patent of Taiwan No. : M560955  
專利號：M560955



Patent of Taiwan: M 560955  
本產品已獲台灣新型專利 字號：M 560955



## ■ 索引 INDEX

■ Products Index / Icon Guide 產品索引 / 圖標說明	01
■ Products Specifications 產品規格	02
High Performance 高效泛用	04
Stainless Steel 不鏽鋼適用	22
Aluminum Alloy 鋁合金專用	40
High Hardness Steel 高硬材專用	54
Flat Drill 平頭鑽	58
Position Drill 定位鑽	80
Reamer 銼刀	82
■ Coating Advantage 塗層特色	86
■ Appendix 附件	
Hole Dia. Before Threading 螺紋下孔徑參考表	88
Customized Drill Inquiry Form 鑽頭訂製表格	92

## ■ Icon Guide 圖標說明



Helix Angle  $\theta$   
螺旋角度  $\theta$



Point Angle  $\theta$   
鑽尖角  $\theta$



Double Margin  
雙刃帶



Unequal Flute Spacing  
不等分割



nACRo Coating  
nACRo 鍍層



ZrN-A Coating  
ZrN-A 鍍層



nACo Coating  
nACo 鍍層





























TB Coating  
TB 鍍層



Tolerance of Drill Diameter  
刃徑公差



Tolerance of Shank Diameter  
柄徑公差

Product Line 產品別	Mode 型號	Shape 圖樣	Coolant Hole 冷卻孔	Helix Angle 螺旋角	Point Angle 鑽尖角度	Coating 塗層	Size Range 尺寸範圍
High Performance 高效泛用	5PK		-	30°	135°	nACRo	ø3-14mm
	5PKC		O	28-30°	140°	nACRo	ø3-14mm
	8PKC		O	28-30°	140°	nACRo	ø3-12mm
Stainless Steel 不鏽鋼適用	3SN		-	30°	135°	ZrN-A	ø3-16mm
	5SN		-	30°	135°	ZrN-A	ø3-14mm
	5SNC		O	28-30°	140°	ZrN-A	ø3-14mm
	8SNC		O	28-30°	140°	ZrN-A	ø3-12mm
Aluminum Alloy 鋁合金專用	5AL		-	20°	130°		ø3-12mm
			-	20°	130°	TB	ø3-12mm
	5ALC		O	15-20°	130°		ø3-12mm
			O	15-20°	130°	TB	ø3-12mm
	8ALC		O	15-20°	130°		ø3-12mm
			O	15-20°	130°	TB	ø3-12mm
High Hardness Steel 高硬材專用	3HD		-	15°	140°	nACo	ø3-14mm
Flat Drill 平頭鑽	2FD		-	20°	180°	nACRo	ø3-16mm
			-	20°	180°	ZrN-A	ø3-16mm
	4FD		-	22°	180°	nACRo	ø3-14mm
			-	22°	180°	ZrN-A	ø3-14mm
	3FDC		O	28-30°	180°	nACRo	ø3-16mm
			O	28-30°	180°	ZrN-A	ø3-16mm
	5FDC		O	28-30°	180°	nACRo	ø3-14mm
			O	28-30°	180°	ZrN-A	ø3-14mm
Position Drill 定位鑽	PDST		-		90°/120°		ø3-20mm
			-		90°/120°	ZrN-A	ø3-20mm
Position Drill - Long Shank 長柄定位鑽	PDST		-		90°/120°		ø4-20mm
			-		90°/120°	ZrN-A	ø4-20mm
Carbide Reamer 鉸刀	RE		-	7-12°	180°		ø1.5-12mm
Carbide Edge Reamer 刃部鑄鋼鉸刀	REC		-	7-12°	180°		ø8.5-16mm

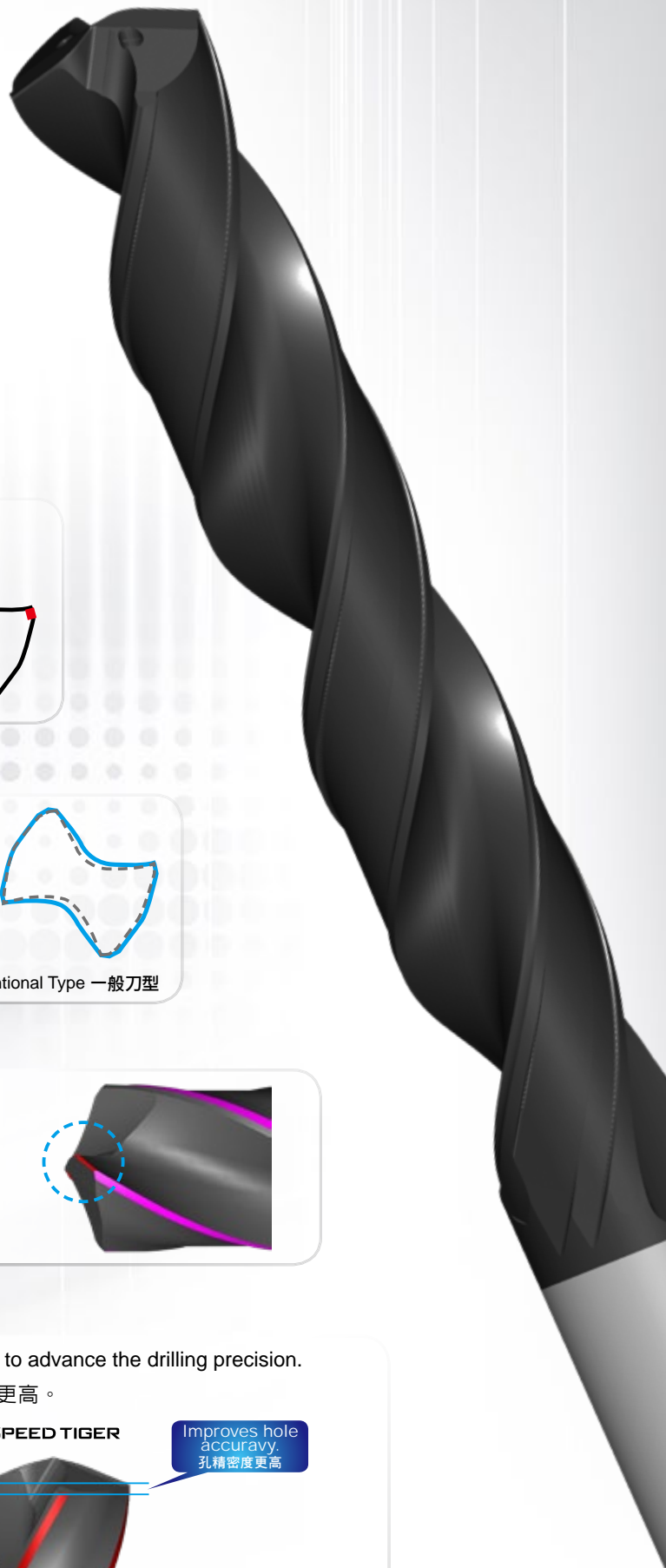
	Drill Depth 加工深度			Work piece 被切削材						Spec. 規格表	Cutting Condition 切削條件
	3xD	5xD	8xD	P	M	K	N	S	H		
				⊙	○	⊙		○	○	5	20
				⊙	○	⊙		○	○	10	
				⊙	○	⊙		○	○	15	
				○	⊙	○		○		23	38
				○	⊙	○		○		27	
				○	⊙	○		○		31	
				○	⊙	○		○		35	
							⊙			41	52
							⊙			45	
							⊙			45	
							⊙			49	
							⊙			49	
									⊙	55	56
				⊙	○	○				60	76
				○	⊙	○	○	○		60	
				⊙	○	○				64	
				○	⊙	○	○	○		64	78
				⊙	○	○				68	
				○	⊙	○	○	○		68	
				⊙	○	○				72	
				○	⊙	○	○	○		72	84
				○		○	○			80	
				⊙	○	○	○	○		80	
				○		○	○			81	
				⊙	○	○	○	○		81	
				○	○	○				82	85
				○	○	○				83	





## High Performance 高效泛用鎢鋼鑽頭

**5PK**  
**5PKC**  
**8PKC**



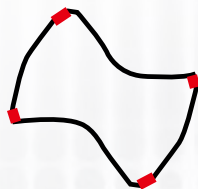
1

Double margin -

- ✓ Achieves smooth surface of drilling.
- ✓ Allow high precision straight cutting.

雙刃帶設計 -

- ✓ 使孔壁更光潔
- ✓ 讓孔的精密度更高



2

Special geometry design makes the room of chip removals greatly improved and with high rigidity.

特殊溝型設計 - 良好的剛性及優異的排屑空間。

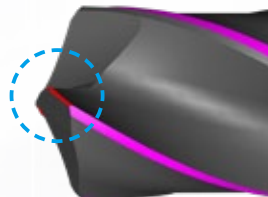


— SPEED TIGER    - - - - Conventional Type 一般刀型

3

Reinforced design in cutting edge improves tool life effectively.

強化刃口使刀具壽命有效提高。



4

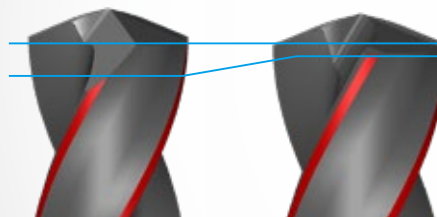
Improved the margin top position, to advance the drilling precision.

刃帶頂端位置改善，使孔精密度更高。

Conventional Type 一般刀型

SPEED TIGER

Improves hole accuracy.  
孔精密度更高

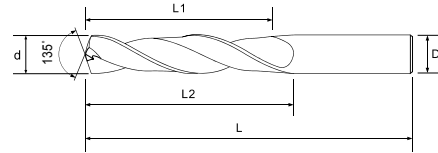


切削條件表 **P20**  
Cutting Condition

## 5xD High Performance ■ 5PK 高效泛用鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PK0302		3	27	6	70
5PK0312		3.1	27	6	70
5PK03152		3.15	27	6	70
5PK031752	1/8"	3.175	27	6	70
5PK0322		3.2	27	6	70
5PK03252		3.25	27	6	70
5PK0332		3.3	27	6	70
5PK03382		3.38	27	6	70
5PK0342		3.4	27	6	70
5PK0352		3.5	27	6	70
5PK035712	9/64" (#28)	3.571	30	6	75
5PK0362		3.6	30	6	75
5PK0372		3.7	30	6	75
5PK0382	(#25)	3.8	30	6	75
5PK03852		3.85	30	6	75
5PK0392		3.9	30	6	75
5PK03972	5/32"	3.97	30	6	75
5PK0402		4	30	6	75
5PK040382	(#21)	4.038	34	6	80
5PK0412		4.1	34	6	80
5PK0422		4.2	34	6	80
5PK0432	(#18)	4.3	34	6	80
5PK04352		4.35	34	6	80
5PK043662	11/64"	4.366	34	6	80
5PK0442		4.4	34	6	80
5PK04452		4.45	34	6	80
5PK0452		4.5	34	6	80
5PK0462		4.6	36	6	80
5PK04652		4.65	36	6	80
5PK0472	(#13)	4.7	36	6	80
5PK047632	3/16"	4.763	36	6	80
5PK0482	(#12)	4.8	36	6	80

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎			○	○	

Unit/單位: mm

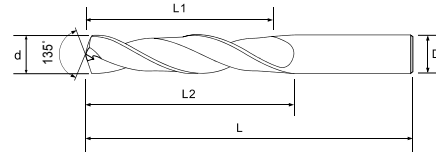
切削條件表 **P20**  
Cutting Condition

5xD High Performance

## 5PK 高效泛用鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PK0492		4.9	36	6	80
5PK0502		5	36	6	80
5PK0512		5.1	40	6	85
5PK051062	(#7)	5.106	40	6	85
5PK051592	13/64"	5.159	40	6	85
5PK0522		5.2	40	6	85
5PK0532		5.3	40	6	85
5PK0542		5.4	40	6	85
5PK05412	(#3)	5.41	40	6	85
5PK0552		5.5	40	6	85
5PK055562	7/32"	5.556	42	6	85
5PK0562		5.6	42	6	85
5PK0572		5.7	42	6	85
5PK05752		5.75	42	6	85
5PK0582		5.8	42	6	85
5PK0592		5.9	42	6	85
5PK059542	15/64"	5.954	42	6	85
5PK0602		6	42	6	85
5PK0612		6.1	46	8	90
5PK0622		6.2	46	8	90
5PK0632		6.3	46	8	90
5PK06352	1/4" (E)	6.35	46	8	90
5PK0642		6.4	46	8	90
5PK0652		6.5	46	8	90
5PK065282	(F)	6.528	49	8	95
5PK0662		6.6	49	8	95
5PK0672		6.7	49	8	95
5PK067462	17/64"	6.746	49	8	95
5PK0682		6.8	49	8	95
5PK0692		6.9	49	8	95
5PK0702		7	49	8	95
5PK0712		7.1	54	8	100

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎			○	○	

Unit/單位: mm



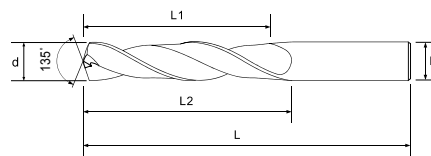
切削條件表 **P20**  
Cutting Condition

### 5xD High Performance

## 5PK 高效泛用鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PK071452	9/32" (K)	7.145	54	8	100
5PK0722		7.2	54	8	100
5PK07252		7.25	54	8	100
5PK0732		7.3	54	8	100
5PK0742		7.4	54	8	100
5PK07452		7.45	54	8	100
5PK0752		7.5	54	8	100
5PK075412	19/64"	7.541	56	8	100
5PK0762		7.6	56	8	100
5PK0772		7.7	56	8	100
5PK0782		7.8	56	8	100
5PK0792		7.9	56	8	100
5PK079382	5/16"	7.938	56	8	100
5PK0802		8	56	8	100
5PK0812		8.1	62	10	115
5PK0822		8.2	62	10	115
5PK0832		8.3	62	10	115
5PK083342	21/64"	8.334	62	10	115
5PK0842		8.4	62	10	115
5PK0852		8.5	62	10	115
5PK0862		8.6	64	10	115
5PK0872		8.7	64	10	115
5PK087332	11/32"	8.733	64	10	115
5PK0882		8.8	64	10	115
5PK0892		8.9	64	10	115
5PK0902		9	64	10	115
5PK09052		9.05	68	10	120
5PK0912		9.1	68	10	120
5PK091292	23/64"	9.129	68	10	120
5PK0922		9.2	68	10	120
5PK09252		9.25	68	10	120
5PK0932		9.3	68	10	120

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
◎	◎	○				○	◎			○	○

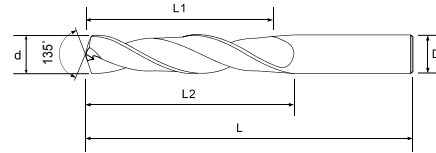
Unit/單位: mm

切削條件表 **P20**  
Cutting Condition

## 5xD High Performance ■ 5PK 高效泛用鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PK09352		9.35	68	10	120
5PK0942		9.4	68	10	120
5PK0952		9.5	68	10	120
5PK095252	3/8"	9.525	70	10	120
5PK0962		9.6	70	10	120
5PK0972		9.7	70	10	120
5PK0982		9.8	70	10	120
5PK0992		9.9	70	10	120
5PK099212	25/64"	9.921	70	10	120
5PK1002		10	70	10	120
5PK1012		10.1	74	12	130
5PK1022		10.2	74	12	130
5PK10252		10.25	74	12	130
5PK1032		10.3	74	12	130
5PK10322	13/32"	10.32	74	12	130
5PK1042		10.4	74	12	130
5PK1052		10.5	74	12	130
5PK10552		10.55	78	12	135
5PK1062		10.6	78	12	135
5PK1072		10.7	78	12	135
5PK107162	27/64"	10.716	78	12	135
5PK1082		10.8	78	12	135
5PK1092		10.9	78	12	135
5PK1102		11	78	12	135
5PK1112		11.1	82	12	140
5PK111132	7/16"	11.113	82	12	140
5PK1122		11.2	82	12	140
5PK11252		11.25	82	12	140
5PK1132		11.3	82	12	140
5PK11352		11.35	82	12	140
5PK1142		11.4	82	12	140
5PK11452		11.45	82	12	140

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎				○	○

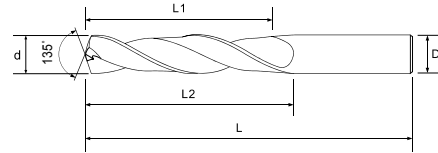
Unit/單位: mm

切削條件表 **P20**  
Cutting Condition

## 5xD High Performance 5PK 高效泛用鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PK1152		11.5	82	12	140
5PK115092	29/64"	11.509	84	12	140
5PK1162		11.6	84	12	140
5PK1172		11.7	84	12	140
5PK1182		11.8	84	12	140
5PK1192		11.9	84	12	140
5PK119082	15/32"	11.908	84	12	140
5PK1202		12	84	12	140
5PK12152		12.15	90	14	150
5PK1222		12.2	90	14	150
5PK1232		12.3	90	14	150
5PK1242		12.4	90	14	150
5PK123042	31/64"	12.304	90	14	150
5PK1252		12.5	90	14	150
5PK12552		12.55	92	14	150
5PK1262		12.6	92	14	150
5PK1272	1/2"	12.7	92	14	150
5PK1282		12.8	92	14	150
5PK1292		12.9	92	14	150
5PK1302		13	92	14	150
5PK1312		13.1	96	14	155
5PK1322		13.2	96	14	155
5PK1332		13.3	96	14	155
5PK13352		13.35	96	14	155
5PK13452		13.45	96	14	155
5PK134952	17/32"	13.495	96	14	155
5PK1352		13.5	96	14	155
5PK1362		13.6	98	14	155
5PK13652		13.65	98	14	155
5PK1372		13.7	98	14	155
5PK1382		13.8	98	14	155
5PK138912	35/64"	13.891	98	14	155
5PK1402		14	98	14	155

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎				○	○

Unit/單位: mm

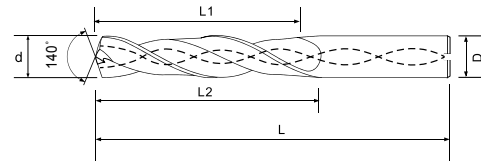
切削條件表 **P20**  
Cutting Condition

5xD High Performance with Coolant Hole

## 5PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PKC0302		3	27	6	70
5PKC0312		3.1	27	6	70
5PKC03152		3.15	27	6	70
5PKC031752	1/8"	3.175	27	6	70
5PKC0322		3.2	27	6	70
5PKC03252		3.25	27	6	70
5PKC0332		3.3	27	6	70
5PKC03382		3.38	27	6	70
5PKC0342		3.4	27	6	70
5PKC0352		3.5	27	6	70
5PKC035712	9/64" (#28)	3.571	30	6	75
5PKC0362		3.6	30	6	75
5PKC0372		3.7	30	6	75
5PKC0382	(#25)	3.8	30	6	75
5PKC03852		3.85	30	6	75
5PKC0392		3.9	30	6	75
5PKC03972	5/32"	3.97	30	6	75
5PKC0402		4	30	6	75
5PKC040382	(#21)	4.038	34	6	80
5PKC0412		4.1	34	6	80
5PKC0422		4.2	34	6	80
5PKC0432	(#18)	4.3	34	6	80
5PKC04352		4.35	34	6	80
5PKC043662	11/64"	4.366	34	6	80
5PKC0442		4.4	34	6	80
5PKC04452		4.45	34	6	80
5PKC0452		4.5	34	6	80
5PKC0462		4.6	36	6	80
5PKC04652		4.65	36	6	80
5PKC0472	(#13)	4.7	36	6	80
5PKC047632	3/16"	4.763	36	6	80
5PKC0482	(#12)	4.8	36	6	80

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎			○	○	

Unit/單位: mm

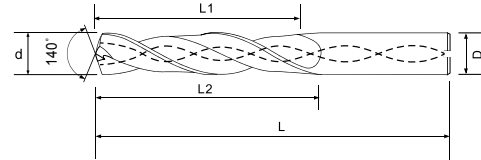
切削條件表 **P20**  
Cutting Condition

5xD High Performance with Coolant Hole

## 5PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PKC0492		4.9	36	6	80
5PKC0502		5	36	6	80
5PKC0512		5.1	40	6	85
5PKC051062	(#7)	5.106	40	6	85
5PKC051592	13/64"	5.159	40	6	85
5PKC0522		5.2	40	6	85
5PKC0532		5.3	40	6	85
5PKC0542		5.4	40	6	85
5PKC05412	(#3)	5.41	40	6	85
5PKC0552		5.5	40	6	85
5PKC055562	7/32"	5.556	42	6	85
5PKC0562		5.6	42	6	85
5PKC0572		5.7	42	6	85
5PKC05752		5.75	42	6	85
5PKC0582		5.8	42	6	85
5PKC0592		5.9	42	6	85
5PKC059542	15/64"	5.954	42	6	85
5PKC0602		6	42	6	85
5PKC0612		6.1	46	8	90
5PKC0622		6.2	46	8	90
5PKC0632		6.3	46	8	90
5PKC06352	1/4" (E)	6.35	46	8	90
5PKC0642		6.4	46	8	90
5PKC0652		6.5	46	8	90
5PKC065282	(F)	6.528	49	8	95
5PKC0662		6.6	49	8	95
5PKC0672		6.7	49	8	95
5PKC067462	17/64"	6.746	49	8	95
5PKC0682		6.8	49	8	95
5PKC0692		6.9	49	8	95
5PKC0702		7	49	8	95
5PKC0712		7.1	54	8	100

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎				○	○

Unit/單位: mm



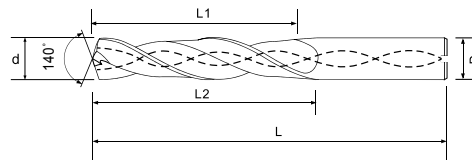
切削條件表 **P20**  
Cutting Condition

5xD High Performance with Coolant Hole

## 5PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PKC071452	9/32" (K)	7.145	54	8	100
5PKC0722		7.2	54	8	100
5PKC07252		7.25	54	8	100
5PKC0732		7.3	54	8	100
5PKC0742		7.4	54	8	100
5PKC07452		7.45	54	8	100
5PKC0752		7.5	54	8	100
5PKC075412	19/64"	7.541	56	8	100
5PKC0762		7.6	56	8	100
5PKC0772		7.7	56	8	100
5PKC0782		7.8	56	8	100
5PKC0792		7.9	56	8	100
5PKC079382	5/16"	7.938	56	8	100
5PKC0802		8	56	8	100
5PKC0812		8.1	62	10	115
5PKC0822		8.2	62	10	115
5PKC0832		8.3	62	10	115
5PKC083342	21/64"	8.334	62	10	115
5PKC0842		8.4	62	10	115
5PKC0852		8.5	62	10	115
5PKC0862		8.6	64	10	115
5PKC0872		8.7	64	10	115
5PKC087332	11/32"	8.733	64	10	115
5PKC0882		8.8	64	10	115
5PKC0892		8.9	64	10	115
5PKC0902		9	64	10	115
5PKC09052		9.05	68	10	120
5PKC0912		9.1	68	10	120
5PKC091292	23/64"	9.129	68	10	120
5PKC0922		9.2	68	10	120
5PKC09252		9.25	68	10	120
5PKC0932		9.3	68	10	120

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎				○	○

Unit/單位: mm

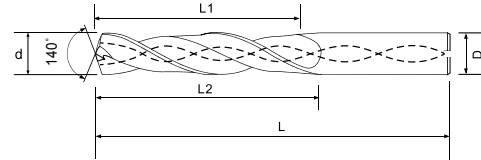
切削條件表 **P20**  
Cutting Condition

5xD High Performance with Coolant Hole

## 5PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PKC09352		9.35	68	10	120
5PKC0942		9.4	68	10	120
5PKC0952		9.5	68	10	120
5PKC095252	3/8"	9.525	70	10	120
5PKC0962		9.6	70	10	120
5PKC0972		9.7	70	10	120
5PKC0982		9.8	70	10	120
5PKC0992		9.9	70	10	120
5PKC099212	25/64"	9.921	70	10	120
5PKC1002		10	70	10	120
5PKC1012		10.1	74	12	130
5PKC1022		10.2	74	12	130
5PKC10252		10.25	74	12	130
5PKC1032		10.3	74	12	130
5PKC10322	13/32"	10.32	74	12	130
5PKC1042		10.4	74	12	130
5PKC1052		10.5	74	12	130
5PKC10552		10.55	78	12	135
5PKC1062		10.6	78	12	135
5PKC1072		10.7	78	12	135
5PKC107162	27/64"	10.716	78	12	135
5PKC1082		10.8	78	12	135
5PKC1092		10.9	78	12	135
5PKC1102		11	78	12	135
5PKC1112		11.1	82	12	140
5PKC111132	7/16"	11.113	82	12	140
5PKC1122		11.2	82	12	140
5PKC11252		11.25	82	12	140
5PKC1132		11.3	82	12	140
5PKC11352		11.35	82	12	140
5PKC1142		11.4	82	12	140
5PKC11452		11.45	82	12	140



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎			○	○	

Unit/單位: mm

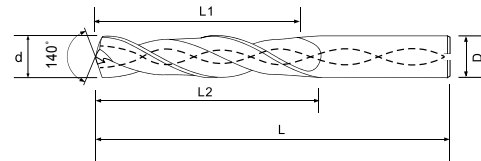
切削條件表 **P20**  
Cutting Condition

5xD High Performance with Coolant Hole

## 5PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
5PKC1152		11.5	82	12	140
5PKC115092	29/64"	11.509	84	12	140
5PKC1162		11.6	84	12	140
5PKC1172		11.7	84	12	140
5PKC1182		11.8	84	12	140
5PKC1192		11.9	84	12	140
5PKC119082	15/32"	11.908	84	12	140
5PKC1202		12	84	12	140
5PKC12152		12.15	90	14	150
5PKC1222		12.2	90	14	150
5PKC1232		12.3	90	14	150
5PKC123042	31/64"	12.304	90	14	150
5PKC1242		12.4	90	14	150
5PKC1252		12.5	90	14	150
5PKC12552		12.55	92	14	150
5PKC1262		12.6	92	14	150
5PKC1272	1/2"	12.7	92	14	150
5PKC1282		12.8	92	14	150
5PKC1292		12.9	92	14	150
5PKC1302		13	92	14	150
5PKC1312		13.1	96	14	155
5PK1322		13.2	96	14	155
5PKC1332		13.3	96	14	155
5PKC13352		13.35	96	14	155
5PKC13452		13.45	96	14	155
5PKC134952	17/32"	13.495	96	14	155
5PKC1352		13.5	96	14	155
5PK1362		13.6	98	14	155
5PKC13652		13.65	98	14	155
5PKC1372		13.7	98	14	155
5PKC1382		13.8	98	14	155
5PKC138912	35/64"	13.891	98	14	155
5PKC1402		14	98	14	155

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎				○	○

Unit/單位: mm

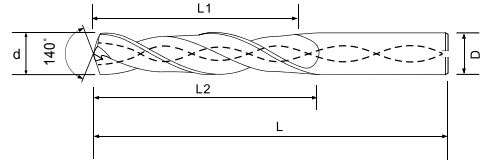
切削條件表 **P20**  
Cutting Condition

8xD High Performance with Coolant Hole

## 8PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
8PKC0302		3	35	6	80
8PKC0312		3.1	35	6	80
8PKC03152		3.15	35	6	80
8PKC031752	1/8"	3.175	35	6	80
8PKC0322		3.2	35	6	80
8PKC03252		3.25	35	6	80
8PKC0332		3.3	35	6	80
8PKC03382		3.38	35	6	80
8PKC0342		3.4	35	6	80
8PKC0352		3.5	35	6	80
8PKC035712	9/64" (#28)	3.571	40	6	85
8PKC0362		3.6	40	6	85
8PKC0372		3.7	40	6	85
8PKC0382	(#25)	3.8	40	6	85
8PKC03852		3.85	40	6	85
8PKC0392		3.9	40	6	85
8PKC03972	5/32"	3.97	40	6	85
8PKC0402		4	40	6	85
8PKC040382	(#21)	4.038	45	6	90
8PKC0412		4.1	45	6	90
8PKC0422		4.2	45	6	90
8PKC0432	(#18)	4.3	45	6	90
8PKC04352		4.35	45	6	90
8PKC043662	11/64"	4.366	45	6	90
8PKC0442		4.4	45	6	90
8PKC04452		4.45	45	6	90
8PKC0452		4.5	45	6	90

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎				○	○

Unit/單位: mm

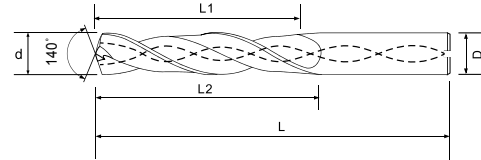
切削條件表 **P20**  
Cutting Condition

8xD High Performance with Coolant Hole

## ■ 8PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
8PKC0462		4.6	50	6	95
8PKC04652		4.65	50	6	95
8PKC0472	(#13)	4.7	50	6	95
8PKC047632	3/16"	4.763	50	6	95
8PKC0482	(#12)	4.8	50	6	95
8PKC0492		4.9	50	6	95
8PKC0502		5	50	6	95
8PKC0512		5.1	55	6	100
8PKC051062	(#7)	5.106	55	6	100
8PKC051592	13/64"	5.159	55	6	100
8PKC0522		5.2	55	6	100
8PKC0532		5.3	55	6	100
8PKC0542		5.4	55	6	100
8PKC05412	(#3)	5.41	55	6	100
8PKC0552		5.5	55	6	100
8PKC055562	7/32"	5.556	60	6	105
8PKC0562		5.6	60	6	105
8PKC0572		5.7	60	6	105
8PKC05752		5.75	60	6	105
8PKC0582		5.8	60	6	105
8PKC0592		5.9	60	6	105
8PKC059542	15/64"	5.954	60	6	105
8PKC0602		6	60	6	105
8PKC0612		6.1	65	8	110
8PKC0622		6.2	65	8	110
8PKC0632		6.3	65	8	110
8PKC06352	1/4" (E)	6.35	65	8	110

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎			○	○	

Unit/單位: mm



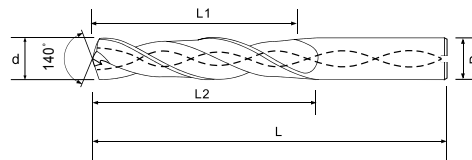
切削條件表 **P20**  
Cutting Condition

8xD High Performance with Coolant Hole

## 8PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
8PKC0642		6.4	65	8	110
8PKC0652		6.5	65	8	110
8PKC065282	(F)	6.528	70	8	115
8PKC0662		6.6	70	8	115
8PKC0672		6.7	70	8	115
8PKC067462	17/64"	6.746	70	8	115
8PKC0682		6.8	70	8	115
8PKC0692		6.9	70	8	115
8PKC0702		7	70	8	115
8PKC0712		7.1	75	8	120
8PKC071452	9/32" (K)	7.145	75	8	120
8PKC0722		7.2	75	8	120
8PKC07252		7.25	75	8	120
8PKC0732		7.3	75	8	120
8PKC0742		7.4	75	8	120
8PKC07452		7.45	75	8	120
8PKC0752		7.5	75	8	120
8PKC075412		7.541	80	8	125
8PKC0762		7.6	80	8	125
8PKC0772		7.7	80	8	125
8PKC0782		7.8	80	8	125
8PKC0792		7.9	80	8	125
8PKC079382	5/16"	7.938	80	8	125
8PKC0802		8	80	8	125
8PKC0812		8.1	85	10	135
8PKC0822		8.2	85	10	135
8PKC0832		8.3	85	10	135



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎				○	○

Unit/單位: mm

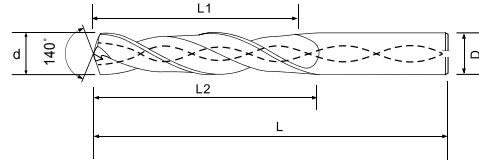
切削條件表 **P20**  
Cutting Condition

8xD High Performance with Coolant Hole

## 8PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
8PKC083342	21/64"	8.334	85	10	135
8PKC0842		8.4	85	10	135
8PKC0852		8.5	85	10	135
8PKC0862		8.6	90	10	140
8PKC0872		8.7	90	10	140
8PKC087332	11/32"	8.733	90	10	140
8PKC0882		8.8	90	10	140
8PKC0892		8.9	90	10	140
8PKC0902		9	90	10	140
8PKC09052		9.05	95	10	145
8PKC0912		9.1	95	10	145
8PKC091292	23/64"	9.129	95	10	145
8PKC0922		9.2	95	10	145
8PKC09252		9.25	95	10	145
8PKC0932		9.3	95	10	145
8PKC09352		9.35	95	10	145
8PKC0942		9.4	95	10	145
8PKC0952		9.5	95	10	145
8PKC095252	3/8"	9.525	100	10	150
8PKC0962		9.6	100	10	150
8PKC0972		9.7	100	10	150
8PKC0982		9.8	100	10	150
8PKC0992		9.9	100	10	150
8PKC099212	25/64"	9.921	100	10	150
8PKC1002		10	100	10	150
8PKC1012		10.1	105	12	160
8PKC1022		10.2	105	12	160

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎			○	○	

Unit/單位: mm

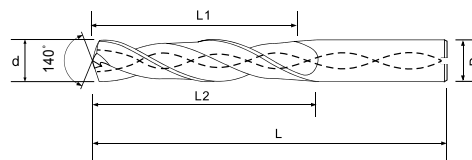
切削條件表 **P20**  
Cutting Condition

8xD High Performance with Coolant Hole

## 8PKC 高效泛用內冷鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Fraction (letter)	Diameter	Flute Length	Shank Diameter	Full Length
型號	英吋(代號)	d 刃徑	L2 溝長	D 直徑	L 全長
8PKC10252		10.25	105	12	160
8PKC1032		10.3	105	12	160
8PKC10322	13/32"	10.32	105	12	160
8PKC1042		10.4	105	12	160
8PKC1052		10.5	105	12	160
8PKC10552		10.55	110	12	165
8PKC1062		10.6	110	12	165
8PKC1072		10.7	110	12	165
8PKC107162	27/64"	10.716	110	12	165
8PKC1082		10.8	110	12	165
8PKC1092		10.9	110	12	165
8PKC1102		11	110	12	165
8PKC1112		11.1	115	12	170
8PKC111132	7/16"	11.113	115	12	170
8PKC1122		11.2	115	12	170
8PKC11252		11.25	115	12	170
8PKC1132		11.3	115	12	170
8PKC11352		11.35	115	12	170
8PKC1142		11.4	115	12	170
8PKC11452		11.45	115	12	170
8PKC1152		11.5	115	12	170
8PKC115092	29/64"	11.509	120	12	175
8PKC1162		11.6	120	12	175
8PKC1172		11.7	120	12	175
8PKC1182		11.8	120	12	175
8PKC1192		11.9	120	12	175
8PKC119082	15/32"	11.908	120	12	175
8PKC1202		12	120	12	175



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
◎	◎	○				○	◎				○	○

Unit/單位: mm

5PK

產品規格表 **P5**

Specification page

5PKC

產品規格表 **P10**

Specification page

8PKC

產品規格表 **P15**

Specification page

● PK / PKC High Performance Carbide Drill Cutting Condition  
PK / PKC 高效泛用鎢鋼鑽頭切削條件表

Work Material 被切削材	Carbon Steel 碳素鋼				Steel Alloy 合金鋼				Cast Iron 鑄鐵			
	External Coolant 無油孔		Internal Oil-hole 油孔		External Coolant 無油孔		Internal Oil-hole 油孔		External Coolant 無油孔		Internal Oil-hole 油孔	
	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給
3	60-130	0.08-0.2	70-160	0.1-0.2	60-130	0.08-0.2	70-160	0.1-0.2	60-130	0.08-0.25	60-150	0.1-0.25
4												
5												
6												
7	70-140	0.15-0.25	80-170	0.15-0.25	60-130	0.15-0.25	80-170	0.15-0.25	60-140	0.15-0.5	70-160	0.15-0.3
8												
9												
10	80-140	0.2-0.3	90-170	0.2-0.3	80-140	0.2-0.3	90-170	0.2-0.3	60-140	0.2-0.35	60-160	0.2-0.35
11												
12												
13												
14												
15	90-150	0.2-0.35	100-180	0.2-0.35	90-150	0.2-0.35	100-180	0.2-0.35	70-140	0.2-0.35	90-160	0.2-0.35
16												

■ Vc 切削速度 (線速度)

Calculation Vc

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$V = \frac{\pi \times D \times N}{1000}$$

V = Cutting speed 切削速度 (m/min)

$\pi = 3.14$  (圓周率)

D = Diameter 鑽頭直徑 (mm)

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

■ Rotation speed 轉速

Calculation of Rotation speed

裝夾立銑刀的機械主軸在每一分鐘內旋轉的轉數，可通過下述公式求出。

$$N = \frac{1000 \times V}{\pi \times D}$$

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

V = Cutting speed 切削速度 (m/min)

$\pi = 3.14$  (圓周率)

D = Diameter 鑽頭直徑 (mm)

Unit/單位: mm

	Ductile Cast Iron 球墨鑄鐵				Stainless Steel 不鏽鋼				Nickel / Inconel Alloy 鎳基合金				Work Material 被切削材
	External Coolant 無油孔		Internal Oil-hole 油孔		External Coolant 無油孔		Internal Oil-hole 油孔		External Coolant 無油孔		Internal Oil-hole 油孔		Type 型式
	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	Drilling Condition 切削條件
	45-100	0.08-0.25	50-130	0.1-0.25	30-60	0.05-0.1	45-80	0.05-0.1	10-15	0.05-0.07	16-22	0.05-0.08	3
4													
5													
6													
	50-120	0.15-0.25	60-140	0.15-0.25	35-75	0.08-0.15	50-80	0.08-0.15		0.05-0.1		0.05-0.12	7
8													
9													
	60-120	0.2-0.35	70-140	0.2-0.35	35-75	0.1-0.2	50-90	0.1-0.2	11-16	0.1-0.14	18-24	0.1-0.16	10
11													
12													
13													
14													
15													
	60-120	0.2-0.35	70-140	0.2-0.35	40-80	0.1-0.2	60-90	0.1-0.2		0.12-0.16		0.12-0.18	16

- Adjust cutting condition according to the rigidity of machine or clamp state.  
請依據機台剛性或夾持來調整切削條件。
- Adjust cutting condition when different sound, unusual vibration occur by cutting.  
當切削時發生異常聲音或震動時，請調整切削條件。
- The middle value is for 3xD drilling condition. When for hole depth more then 3xD, according to your cutting state to reduce the Vc and f.  
此切削條件表的中間值為3倍長的建議參數。當孔深大於3倍長時，請根據切削狀況降低參數。

### Feed rate 進給速度

Calculation of Feed rate

每一分鐘內工作台進給的速度，可通過下述公式求出。

$$F = N \times Z \times f$$

F = Feed rate 進給速度 (mm/min)

N = Rotating speed 轉速 (min<sup>-1</sup>)

Z = Number of flute 鑽頭刃數

(The flute number of drill is 1. 鑽頭刃數為單刃)

f = Feed rate of the flute 每刃進給量 (mm/1 刃)

### Feed for teeth 每刃進給量

Calculation of the Feed of teeth

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$f = \frac{F}{N \times Z}$$

f = Feed rate of the flute 每刃進給量 (mm/1 刃)

F = Feed rate 進給速度 (mm/min)

N = Rotating speed 轉速 (min<sup>-1</sup>)

Z = Number of flute 鑽頭刃數

(The flute number of drill is 1. 鑽頭刃數為單刃)





# Stainless Steel 不鏽鋼專用鎢鋼鑽頭

**3SN**  
**5SN**  
**5SNC**  
**8SNC**

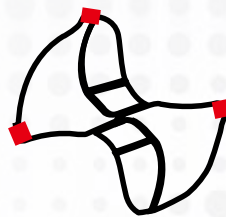
1

Dissymmetrical irregular margins -

- ✓ Achieves smooth surface of drilling.
- ✓ Allow high precision straight cutting.
- ✓ Anti-vibration

三刃帶 -

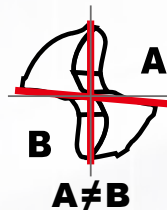
- ✓ 使孔壁更光潔
- ✓ 讓孔的精密度更高
- ✓ 不對稱設計，有效抗震



2

Unequal Flute Spacing - Anti-vibration and the chip removals are improved.

特殊刀具幾何設計-不等分割：  
擁有抗震及優異的排屑能力。



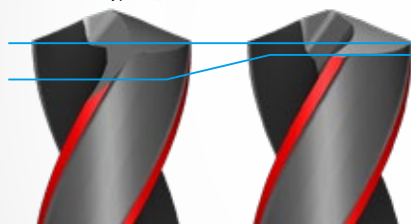
3

Improved the margin top position, to advance the drilling precision.  
刃帶頂端位置改善，使孔精密度更高。

Conventional Type一般刀型

SPEED TIGER

Improves hole accuracy.  
孔精密度更高



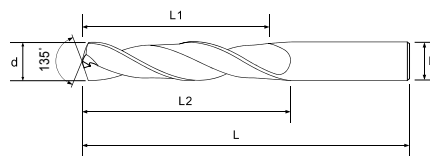
切削條件表 **P38**  
Cutting Condition

3xD for Stainless Steel

## ■ 3SN 不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
3SN0302	3	17	6	60
3SN0312	3.1	17	6	60
3SN0322	3.2	17	6	60
3SN0332	3.3	17	6	60
3SN0342	3.4	17	6	60
3SN0352	3.5	17	6	60
3SN0362	3.6	20	6	65
3SN0372	3.7	20	6	65
3SN0382	3.8	20	6	65
3SN0392	3.9	20	6	65
3SN0402	4	20	6	65
3SN0412	4.1	23	6	70
3SN0422	4.2	23	6	70
3SN0432	4.3	23	6	70
3SN0442	4.4	23	6	70
3SN0452	4.5	23	6	70
3SN0462	4.6	25	6	70
3SN0472	4.7	25	6	70
3SN0482	4.8	25	6	70
3SN0492	4.9	25	6	70
3SN0502	5	25	6	70
3SN0512	5.1	28	6	75
3SN0522	5.2	28	6	75
3SN0532	5.3	28	6	75
3SN0542	5.4	28	6	75
3SN0552	5.5	28	6	75



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC							
○	○					◎			○	○	○	

Unit/單位: mm

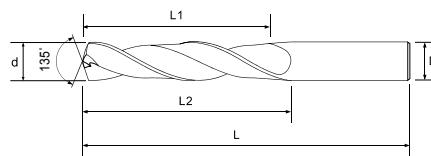
切削條件表 **P38**  
Cutting Condition

3xD for Stainless Steel

### ■ 3SN 不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
3SN0562	5.6	30	6	75
3SN0572	5.7	30	6	75
3SN0582	5.8	30	6	75
3SN0592	5.9	30	6	75
3SN0602	6	30	6	75
3SN0612	6.1	33	8	80
3SN0622	6.2	33	8	80
3SN0632	6.3	33	8	80
3SN0642	6.4	33	8	80
3SN0652	6.5	33	8	80
3SN0662	6.6	35	8	80
3SN0672	6.7	35	8	80
3SN0682	6.8	35	8	80
3SN0692	6.9	35	8	80
3SN0702	7	35	8	80
3SN0712	7.1	38	8	85
3SN0722	7.2	38	8	85
3SN0732	7.3	38	8	85
3SN0742	7.4	38	8	85
3SN0752	7.5	38	8	85
3SN0762	7.6	40	8	85
3SN0772	7.7	40	8	85
3SN0782	7.8	40	8	85
3SN0792	7.9	40	8	85
3SN0802	8	40	8	85
3SN0812	8.1	43	10	95
3SN0822	8.2	43	10	95

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC						
○	○					◎			○	○	○

Unit/單位: mm

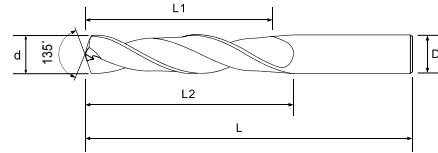
切削條件表 **P38**  
Cutting Condition

### 3xD for Stainless Steel

## ■ 3SN 不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
3SN0832	8.3	43	10	95
3SN0842	8.4	43	10	95
3SN0852	8.5	43	10	95
3SN0862	8.6	45	10	95
3SN0872	8.7	45	10	95
3SN0882	8.8	45	10	95
3SN0892	8.9	45	10	95
3SN0902	9	45	10	95
3SN0912	9.1	48	10	100
3SN0922	9.2	48	10	100
3SN0932	9.3	48	10	100
3SN0942	9.4	48	10	100
3SN0952	9.5	48	10	100
3SN0962	9.6	50	10	100
3SN0972	9.7	50	10	100
3SN0982	9.8	50	10	100
3SN0992	9.9	50	10	100
3SN1002	10	50	10	100
3SN1012	10.1	53	12	110
3SN1022	10.2	53	12	110
3SN1032	10.3	53	12	110
3SN1042	10.4	53	12	110
3SN1052	10.5	53	12	110
3SN1062	10.6	55	12	110
3SN1072	10.7	55	12	110
3SN1082	10.8	55	12	110
3SN1092	10.9	55	12	110

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
○	○					◎			○	○	○	

Unit/單位: mm

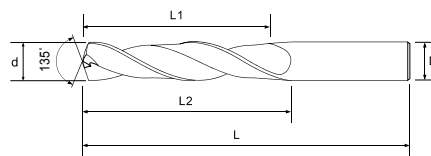
切削條件表 **P38**  
Cutting Condition

3xD for Stainless Steel

### ■ 3SN 不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
3SN1102	11	55	12	110
3SN1112	11.1	58	12	115
3SN1122	11.2	58	12	115
3SN1132	11.3	58	12	115
3SN1142	11.4	58	12	115
3SN1152	11.5	58	12	115
3SN1162	11.6	60	12	115
3SN1172	11.7	60	12	115
3SN1182	11.8	60	12	115
3SN1192	11.9	60	12	115
3SN1202	12	60	12	115
3SN1232	12.3	63	14	125
3SN1252	12.5	63	14	125
3SN1282	12.8	65	14	125
3SN1302	13	65	14	125
3SN1352	13.5	68	14	125
3SN1382	13.8	70	14	130
3SN1402	14	70	14	130
3SN1452	14.5	73	16	140
3SN1482	14.8	75	16	140
3SN1502	15	75	16	140
3SN1552	15.5	78	16	145
3SN1582	15.8	80	16	145
3SN1602	16	80	16	145

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC						
○	○					◎			○	○	○

Unit/單位: mm

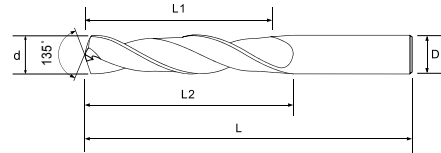
切削條件表 **P38**  
Cutting Condition

### 5xD for Stainless Steel

## ■ 5SN 不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
5SN0302	3	27	6	70
5SN0312	3.1	27	6	70
5SN0322	3.2	27	6	70
5SN0332	3.3	27	6	70
5SN0342	3.4	27	6	70
5SN0352	3.5	27	6	70
5SN0362	3.6	30	6	75
5SN0372	3.7	30	6	75
5SN0382	3.8	30	6	75
5SN0392	3.9	30	6	75
5SN0402	4	30	6	75
5SN0412	4.1	34	6	80
5SN0422	4.2	34	6	80
5SN0432	4.3	34	6	80
5SN0442	4.4	34	6	80
5SN0452	4.5	34	6	80
5SN0462	4.6	36	6	80
5SN0472	4.7	36	6	80
5SN0482	4.8	36	6	80
5SN0492	4.9	36	6	80
5SN0502	5	36	6	80
5SN0512	5.1	40	6	85
5SN0522	5.2	40	6	85
5SN0532	5.3	40	6	85
5SN0542	5.4	40	6	85

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC						
○	○					◎			○	○	○

Unit/單位: mm

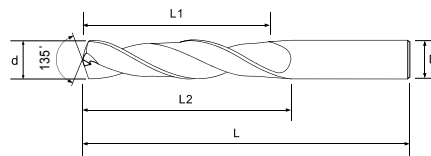
切削條件表 **P38**  
Cutting Condition

5xD for Stainless Steel

### ■ 5SN 不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
5SN0552	5.5	40	6	85
5SN0562	5.6	42	6	85
5SN0572	5.7	42	6	85
5SN0582	5.8	42	6	85
5SN0592	5.9	42	6	85
5SN0602	6	42	6	85
5SN0612	6.1	46	8	95
5SN0622	6.2	46	8	95
5SN0632	6.3	46	8	95
5SN0642	6.4	46	8	95
5SN0652	6.5	46	8	95
5SN0662	6.6	49	8	95
5SN0672	6.7	49	8	95
5SN0682	6.8	49	8	95
5SN0692	6.9	49	8	95
5SN0702	7	49	8	95
5SN0712	7.1	54	8	100
5SN0722	7.2	54	8	100
5SN0732	7.3	54	8	100
5SN0742	7.4	54	8	100
5SN0752	7.5	54	8	100
5SN0762	7.6	56	8	100
5SN0772	7.7	56	8	100
5SN0782	7.8	56	8	100
5SN0792	7.9	56	8	100

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC							
○	○					◎			○	○	○	

Unit/單位: mm



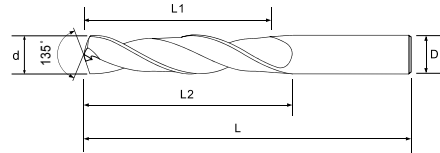
切削條件表 **P38**  
Cutting Condition

### 5xD for Stainless Steel

## ■ 5SN 不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
5SN0802	8	56	8	100
5SN0812	8.1	62	10	115
5SN0822	8.2	62	10	115
5SN0832	8.3	62	10	115
5SN0842	8.4	62	10	115
5SN0852	8.5	62	10	115
5SN0862	8.6	64	10	115
5SN0872	8.7	64	10	115
5SN0882	8.8	64	10	115
5SN0892	8.9	64	10	115
5SN0902	9	64	10	115
5SN0912	9.1	68	10	120
5SN0922	9.2	68	10	120
5SN0932	9.3	68	10	120
5SN0942	9.4	68	10	120
5SN0952	9.5	68	10	120
5SN0962	9.6	70	10	120
5SN0972	9.7	70	10	120
5SN0982	9.8	70	10	120
5SN0992	9.9	70	10	120
5SN1002	10	70	10	120
5SN1012	10.1	74	12	135
5SN1022	10.2	74	12	135
5SN1032	10.3	74	12	135
5SN1042	10.4	74	12	135
5SN1052	10.5	74	12	135

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
○	○					◎			○	○	○	

Unit/單位: mm

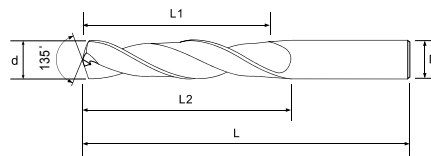
切削條件表 **P38**  
Cutting Condition

5xD for Stainless Steel

### ■ 5SN 不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
5SN1062	10.6	78	12	135
5SN1072	10.7	78	12	135
5SN1082	10.8	78	12	135
5SN1092	10.9	78	12	135
5SN1102	11	78	12	135
5SN1112	11.1	82	12	140
5SN1122	11.2	82	12	140
5SN1132	11.3	82	12	140
5SN1142	11.4	82	12	140
5SN1152	11.5	82	12	140
5SN1162	11.6	84	12	140
5SN1172	11.7	84	12	140
5SN1182	11.8	84	12	140
5SN1192	11.9	84	12	140
5SN1202	12	84	12	140
5SN1222	12.2	90	14	150
5SN1232	12.3	90	14	150
5SN1252	12.5	90	14	150
5SN1282	12.8	92	14	150
5SN1302	13	92	14	150
5SN1352	13.5	96	14	155
5SN1382	13.8	98	14	155
5SN1402	14	98	14	155

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC						
○	○					◎			○	○	○

Unit/單位: mm

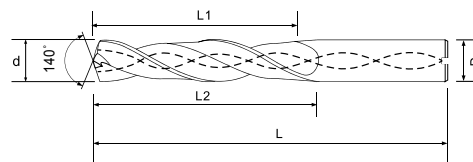
切削條件表 **P38**  
Cutting Condition

5xD with Coolant Hole for Stainless Steel

## 5SNC 內冷不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
5SNC0302	3	27	6	70
5SNC0312	3.1	27	6	70
5SNC0322	3.2	27	6	70
5SNC0332	3.3	27	6	70
5SNC0342	3.4	27	6	70
5SNC0352	3.5	27	6	70
5SNC0362	3.6	30	6	75
5SNC0372	3.7	30	6	75
5SNC0382	3.8	30	6	75
5SNC0392	3.9	30	6	75
5SNC0402	4	30	6	75
5SNC0412	4.1	34	6	80
5SNC0422	4.2	34	6	80
5SNC0432	4.3	34	6	80
5SNC0442	4.4	34	6	80
5SNC0452	4.5	34	6	80
5SNC0462	4.6	36	6	80
5SNC0472	4.7	36	6	80
5SNC0482	4.8	36	6	80
5SNC0492	4.9	36	6	80
5SNC0502	5	36	6	80
5SNC0512	5.1	40	6	85
5SNC0522	5.2	40	6	85
5SNC0532	5.3	40	6	85
5SNC0542	5.4	40	6	85



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
○	○					◎			○	○	○	

Unit/單位: mm

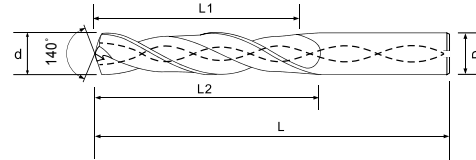
切削條件表 **P38**  
Cutting Condition

5xD with Coolant Hole for Stainless Steel

## ■ 5SNC 內冷不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
5SNC0552	5.5	40	6	85
5SNC0562	5.6	42	6	85
5SNC0572	5.7	42	6	85
5SNC0582	5.8	42	6	85
5SNC0592	5.9	42	6	85
5SNC0602	6	42	6	85
5SNC0612	6.1	46	8	95
5SNC0622	6.2	46	8	95
5SNC0632	6.3	46	8	95
5SNC0642	6.4	46	8	95
5SNC0652	6.5	46	8	95
5SNC0662	6.6	49	8	95
5SNC0672	6.7	49	8	95
5SNC0682	6.8	49	8	95
5SNC0692	6.9	49	8	95
5SNC0702	7	49	8	95
5SNC0712	7.1	54	8	100
5SNC0722	7.2	54	8	100
5SNC0732	7.3	54	8	100
5SNC0742	7.4	54	8	100
5SNC0752	7.5	54	8	100
5SNC0762	7.6	56	8	100
5SNC0772	7.7	56	8	100
5SNC0782	7.8	56	8	100
5SNC0792	7.9	56	8	100
5SNC0802	8	56	8	100

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
○	○					◎			○	○	○

Unit/單位: mm

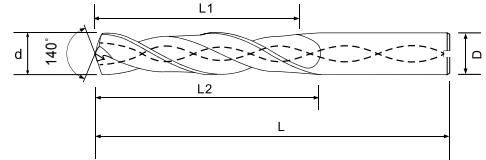
切削條件表 **P38**  
Cutting Condition

5xD with Coolant Hole for Stainless Steel

## 5SNC 內冷不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
5SNC0812	8.1	62	10	115
5SNC0822	8.2	62	10	115
5SNC0832	8.3	62	10	115
5SNC0842	8.4	62	10	115
5SNC0852	8.5	62	10	115
5SNC0862	8.6	64	10	115
5SNC0872	8.7	64	10	115
5SNC0882	8.8	64	10	115
5SNC0892	8.9	64	10	115
5SNC0902	9	64	10	115
5SNC0912	9.1	68	10	120
5SNC0922	9.2	68	10	120
5SNC0932	9.3	68	10	120
5SNC0942	9.4	68	10	120
5SNC0952	9.5	68	10	120
5SNC0962	9.6	70	10	120
5SNC0972	9.7	70	10	120
5SNC0982	9.8	70	10	120
5SNC0992	9.9	70	10	120
5SNC1002	10	70	10	120
5SNC1012	10.1	74	12	135
5SNC1022	10.2	74	12	135
5SNC1032	10.3	74	12	135
5SNC1042	10.4	74	12	135
5SNC1052	10.5	74	12	135
5SNC1062	10.6	78	12	135

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
○	○					◎			○	○	○	

Unit/單位: mm

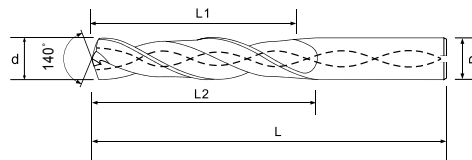
切削條件表 **P38**  
Cutting Condition

5xD with Coolant Hole for Stainless Steel

## ■ 5SNC 內冷不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
5SNC1072	10.7	78	12	135
5SNC1082	10.8	78	12	135
5SNC1092	10.9	78	12	135
5SNC1102	11	78	12	135
5SNC1112	11.1	82	12	140
5SNC1122	11.2	82	12	140
5SNC1132	11.3	82	12	140
5SNC1142	11.4	82	12	140
5SNC1152	11.5	82	12	140
5SNC1162	11.6	84	12	140
5SNC1172	11.7	84	12	140
5SNC1182	11.8	84	12	140
5SNC1192	11.9	84	12	140
5SNC1202	12	84	12	140
5SNC1222	12.2	90	14	150
5SNC1232	12.3	90	14	150
5SNC1252	12.5	90	14	150
5SNC1282	12.8	92	14	150
5SNC1302	13	92	14	150
5SNC1352	13.5	96	14	155
5SNC1382	13.8	98	14	155
5SNC1402	14	98	14	155

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
○	○					◎			○	○	○

Unit/單位: mm

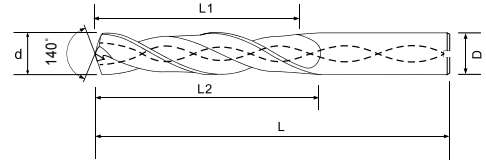
切削條件表 **P38**  
Cutting Condition

8xD with Coolant Hole for Stainless Steel

## 8SNC 內冷不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
8SNC0302	3	35	6	80
8SNC0312	3.1	35	6	80
8SNC0322	3.2	35	6	80
8SNC0332	3.3	35	6	80
8SNC0342	3.4	35	6	80
8SNC0352	3.5	35	6	80
8SNC0362	3.6	40	6	85
8SNC0372	3.7	40	6	85
8SNC0382	3.8	40	6	85
8SNC0392	3.9	40	6	85
8SNC0402	4	40	6	85
8SNC0412	4.1	45	6	90
8SNC0422	4.2	45	6	90
8SNC0432	4.3	45	6	90
8SNC0442	4.4	45	6	90
8SNC0452	4.5	45	6	90
8SNC0462	4.6	50	6	95
8SNC0472	4.7	50	6	95
8SNC0482	4.8	50	6	95
8SNC0492	4.9	50	6	95
8SNC0502	5	50	6	95
8SNC0512	5.1	55	6	100
8SNC0522	5.2	55	6	100
8SNC0532	5.3	55	6	100
8SNC0542	5.4	55	6	100
8SNC0552	5.5	55	6	100
8SNC0562	5.6	60	6	105
8SNC0572	5.7	60	6	105
8SNC0582	5.8	60	6	105
8SNC0592	5.9	60	6	105

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
○	○					◎			○	○	○	

Unit/單位: mm



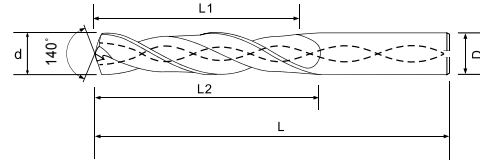
切削條件表 **P38**  
Cutting Condition

8xD with Coolant Hole for Stainless Steel

## ■ 8SNC 內冷不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
8SNC0602	6	60	6	105
8SNC0612	6.1	65	8	110
8SNC0622	6.2	65	8	110
8SNC0632	6.3	65	8	110
8SNC0642	6.4	65	8	110
8SNC0652	6.5	65	8	110
8SNC0662	6.6	70	8	115
8SNC0672	6.7	70	8	115
8SNC0682	6.8	70	8	115
8SNC0692	6.9	70	8	115
8SNC0702	7	70	8	115
8SNC0712	7.1	75	8	120
8SNC0722	7.2	75	8	120
8SNC0732	7.3	75	8	120
8SNC0742	7.4	75	8	120
8SNC0752	7.5	75	8	120
8SNC0762	7.6	80	8	125
8SNC0772	7.7	80	8	125
8SNC0782	7.8	80	8	125
8SNC0792	7.9	80	8	125
8SNC0802	8	80	8	125
8SNC0812	8.1	85	10	135
8SNC0822	8.2	85	10	135
8SNC0832	8.3	85	10	135
8SNC0842	8.4	85	10	135
8SNC0852	8.5	85	10	135
8SNC0862	8.6	90	10	140
8SNC0872	8.7	90	10	140
8SNC0882	8.8	90	10	140
8SNC0892	8.9	90	10	140
8SNC0902	9	90	10	140

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
○	○					◎			○	○	○	

Unit/單位: mm

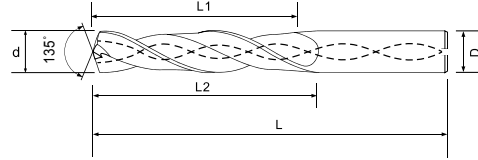
切削條件表 **P38**  
Cutting Condition

8xD with Coolant Hole for Stainless Steel

## 8SNC 內冷不鏽鋼專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
8SNC0912	9.1	95	10	145
8SNC0922	9.2	95	10	145
8SNC0932	9.3	95	10	145
8SNC0942	9.4	95	10	145
8SNC0952	9.5	95	10	145
8SNC0962	9.6	100	10	150
8SNC0972	9.7	100	10	150
8SNC0982	9.8	100	10	150
8SNC0992	9.9	100	10	150
8SNC1002	10	100	10	150
8SNC1012	10.1	105	12	160
8SNC1022	10.2	105	12	160
8SNC1032	10.3	105	12	160
8SNC1042	10.4	105	12	160
8SNC1052	10.5	105	12	160
8SNC1062	10.6	110	12	165
8SNC1072	10.7	110	12	165
8SNC1082	10.8	110	12	165
8SNC1092	10.9	110	12	165
8SNC1102	11	110	12	165
8SNC1112	11.1	115	12	170
8SNC1122	11.2	115	12	170
8SNC1132	11.3	115	12	170
8SNC1142	11.4	115	12	170
8SNC1152	11.5	115	12	170
8SNC1162	11.6	120	12	175
8SNC1172	11.7	120	12	175
8SNC1182	11.8	120	12	175
8SNC1192	11.9	120	12	175
8SNC1202	12	120	12	175

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel 合金 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
○	○					◎			○	○	○	

Unit/單位: mm

3SN

產品規格表 **P23**

Specification page

5SN

產品規格表 **P27**

Specification page

5SNC

產品規格表 **P31**

Specification page

8SNC

產品規格表 **P35**

Specification page

● SN / SNC Carbide Drill for Stainless Steel Cutting Condition  
SN / SNC 不鏽鋼專用鎢鋼鑽頭切削條件表

Work Material 被切削材	Carbon Steel 碳素鋼				Steel Alloy 合金鋼			
	External Coolant 無油孔		Internal Oil-hole 油孔		External Coolant 無油孔		Internal Oil-hole 油孔	
	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給
	Type 型式		Type 型式		Type 型式		Type 型式	
3	50-100	0.08-0.2	60-120	0.1-0.2	30-80	0.08-0.18	40-100	0.08-0.18
4								
5								
6								
7	60-120	0.15-0.25	70-130	0.15-0.25	50-90	0.15-0.23	60-110	0.15-0.23
8								
9								
10	70-125	0.2-0.3	80-140	0.2-0.3	60-100	0.2-0.28	70-120	0.2-0.28
11								
12								
13								
14	80-140	0.2-0.35	90-150	0.2-0.35	70-110	0.2-0.32	80-130	0.2-0.32
15								
16								

■ Vc 切削速度 (線速度)

Calculation Vc

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$V = \frac{\pi \times D \times N}{1000}$$

V = Cutting speed 切削速度 (m/min)

$\pi = 3.14$  (圓周率)

D = Diameter 鑽頭直徑 (mm)

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

■ Rotation speed 轉速

Calculation of Rotation speed

裝夾立銑刀的機械主軸在每一分鐘內旋轉的轉數，可通過下述公式求出。

$$N = \frac{1000 \times V}{\pi \times D}$$

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

V = Cutting speed 切削速度 (m/min)

$\pi = 3.14$  (圓周率)

D = Diameter 鑽頭直徑 (mm)

	Stainless Steel 不鏽鋼				Titanium Alloy 鈦合金				Nickel / Inconel Alloy 鎳基合金				Work Material 被切削材
	External Coolant 無油孔		Internal Oil-hole 油孔		External Coolant 無油孔		Internal Oil-hole 油孔		External Coolant 無油孔		Internal Oil-hole 油孔		Type 型式
	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	Drilling Condition 切削條件
	45-65	0.07-0.11	50-75	0.05-0.1	20-30	0.03-0.07	30-40	0.04-0.7	8-10	0.02-0.06	14-20	0.02-0.06	3
	45-70	0.09-0.16	55-85	0.08-0.15	0.06-0.14	0.07-0.14	0.04-0.08	0.04-0.08	0.04-0.08	0.04-0.08	0.04-0.08	0.04-0.08	4
		0.12-0.2		0.1-0.2	0.12-0.18	0.13-0.18	0.06-0.12	0.06-0.12	0.06-0.12	0.06-0.12	0.06-0.12	0.06-0.12	5
	50-75	0.13-0.21	60-90	0.1-0.2	25-38	0.14-0.22	35-50	0.15-0.22	9-13	0.1-0.14	15-22	0.1-0.14	6
													7
													8
													9
													10
													11
													12
													13
													14
													15
													16

- Adjust cutting condition according to the rigidity of machine or clamp state.  
請依據機台剛性或夾持來調整切削條件。
- Adjust cutting condition when different sound, unusual vibration occur by cutting.  
當切削時發生異常聲音或震動時，請調整切削條件。
- The middle value is for 3xD drilling condition. When for hole depth more then 3xD, according to your cutting state to reduce the Vc and f.  
此切削條件表的中間值為3倍長的建議參數。當孔深大於3倍長時，請根據切削狀況降低參數。

### Feed rate 進給速度

Calculation of Feed rate

每一分鐘內工作台進給的速度，可通過下述公式求出。

$$F = N \times Z \times f$$

F = Feed rate 進給速度 (mm/min)

N = Rotating speed 轉速 (min<sup>-1</sup>)

Z = Number of flute 鑽頭刃數

(The flute number of drill is 1. 鑽頭刃數為單刃)

f = Feed rate of the flute 每刃進給量 (mm/1 刃)

### Feed for teeth 每刃進給量

Calculation of the Feed of teeth

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$f = \frac{F}{N \times Z}$$

f = Feed rate of the flute 每刃進給量 (mm/1 刃)

F = Feed rate 進給速度 (mm/min)

N = Rotating speed 轉速 (min<sup>-1</sup>)

Z = Number of flute 鑽頭刃數

(The flute number of drill is 1. 鑽頭刃數為單刃)



## Aluminum Application 鋁合金專用鎢鋼鑽頭

**5AL**  
**5ALC**  
**8ALC**



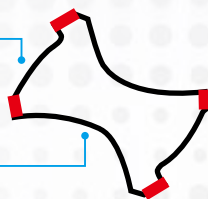
1

Double margin - the second margin also has cutting edge.

- ✓ Achieves smooth surface of drilling.
- ✓ Allow high precision straight cutting.

雙刃帶設計，第二刃帶有切削角

- ✓ 使孔壁更光潔
- ✓ 讓孔的精密度更高



2

High rigidity design, and the room of chip removals greatly improved.

高剛性設計，優異的排屑空間

3

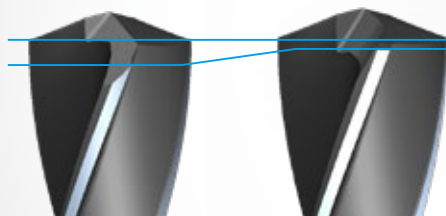
Improved the margin top position, to advance the drilling precision.

刃帶頂端位置改善，使孔精密度更高

Conventional Type一般刀型

SPEED TIGER

Improves hole accuracy.  
孔精密度更高



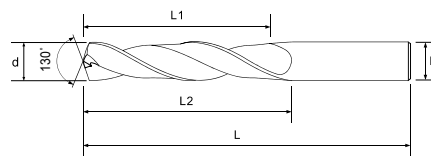
切削條件表 **P52**  
Cutting Condition

## 5xD for Aluminum Application

### ■ 5AL 鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	TB	d 刃徑	L2 溝長	D 直徑	L 全長
5AL0302	5AL0302 TB	3	22	4	70
5AL0312	5AL0312 TB	3.1	26	4	80
5AL0322	5AL0322 TB	3.2	26	4	80
5AL0332	5AL0332 TB	3.3	26	4	80
5AL0342	5AL0342 TB	3.4	26	4	80
5AL0352	5AL0352 TB	3.5	26	4	80
5AL0362	5AL0362 TB	3.6	30	4	80
5AL0372	5AL0372 TB	3.7	30	4	80
5AL0382	5AL0382 TB	3.8	30	4	80
5AL0392	5AL0392 TB	3.9	30	4	80
5AL0402	5AL0402 TB	4	30	4	80
5AL0412	5AL0412 TB	4.1	34	5	85
5AL0422	5AL0422 TB	4.2	34	5	85
5AL0432	5AL0432 TB	4.3	34	5	85
5AL0442	5AL0442 TB	4.4	34	5	85
5AL0452	5AL0452 TB	4.5	34	5	85
5AL0462	5AL0462 TB	4.6	38	5	85
5AL0472	5AL0472 TB	4.7	38	5	85
5AL0482	5AL0482 TB	4.8	38	5	85
5AL0492	5AL0492 TB	4.9	38	5	85
5AL0502	5AL0502 TB	5	38	5	85
5AL0512	5AL0512 TB	5.1	42	6	90
5AL0522	5AL0522 TB	5.2	42	6	90



Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
									◎	◎		

Unit/單位: mm

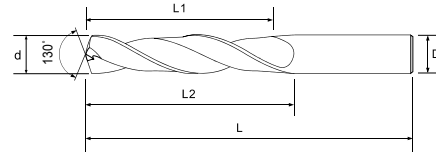
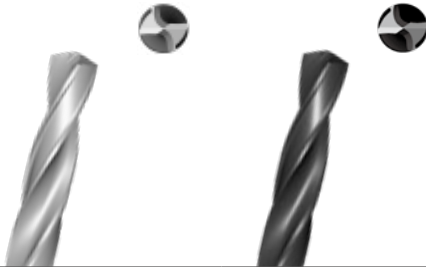
切削條件表 **P52**  
Cutting Condition

### 5xD for Aluminum Application

## ■ 5AL 鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



- 
- 
- 
- 
- 

MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	<b>TB</b>	d 刃徑	L2 溝長	D 直徑	L 全長
5AL0532	5AL0532 TB	5.3	42	6	90
5AL0542	5AL0542 TB	5.4	42	6	90
5AL0552	5AL0552 TB	5.5	42	6	90
5AL0562	5AL0562 TB	5.6	45	6	90
5AL0572	5AL0572 TB	5.7	45	6	90
5AL0582	5AL0582 TB	5.8	45	6	90
5AL0592	5AL0592 TB	5.9	45	6	90
5AL0602	5AL0602 TB	6	45	6	90
5AL0612	5AL0612 TB	6.1	49	7	95
5AL0622	5AL0622 TB	6.2	49	7	95
5AL0632	5AL0632 TB	6.3	49	7	95
5AL0642	5AL0642 TB	6.4	49	7	95
5AL0652	5AL0652 TB	6.5	49	7	95
5AL0662	5AL0662 TB	6.6	53	7	95
5AL0672	5AL0672 TB	6.7	53	7	95
5AL0682	5AL0682 TB	6.8	53	7	95
5AL0692	5AL0692 TB	6.9	53	7	95
5AL0702	5AL0702 TB	7	53	7	95
5AL0712	5AL0712 TB	7.1	57	8	100
5AL0722	5AL0722 TB	7.2	57	8	100
5AL0732	5AL0732 TB	7.3	57	8	100
5AL0742	5AL0742 TB	7.4	57	8	100
5AL0752	5AL0752 TB	7.5	57	8	100

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
									◎	◎		

Unit/單位: mm



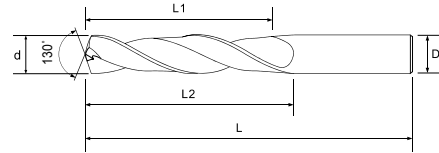
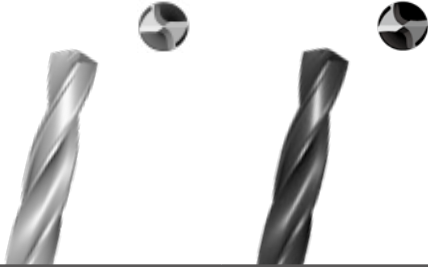
切削條件表 **P52**  
Cutting Condition

## 5xD for Aluminum Application

### ■ 5AL 鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	TB	d 刃徑	L2 溝長	D 直徑	L 全長
5AL0762	5AL0762 TB	7.6	60	8	100
5AL0772	5AL0772 TB	7.7	60	8	100
5AL0782	5AL0782 TB	7.8	60	8	100
5AL0792	5AL0792 TB	7.9	60	8	100
5AL0802	5AL0802 TB	8	60	8	100
5AL0812	5AL0812 TB	8.1	64	9	115
5AL0822	5AL0822 TB	8.2	64	9	115
5AL0832	5AL0832 TB	8.3	64	9	115
5AL0842	5AL0842 TB	8.4	64	9	115
5AL0852	5AL0852 TB	8.5	64	9	115
5AL0862	5AL0862 TB	8.6	68	9	115
5AL0872	5AL0872 TB	8.7	68	9	115
5AL0882	5AL0882 TB	8.8	68	9	115
5AL0892	5AL0892 TB	8.9	68	9	115
5AL0902	5AL0902 TB	9	68	9	115
5AL0912	5AL0912 TB	9.1	72	10	120
5AL0922	5AL0922 TB	9.2	72	10	120
5AL0932	5AL0932 TB	9.3	72	10	120
5AL0942	5AL0942 TB	9.4	72	10	120
5AL0952	5AL0952 TB	9.5	72	10	120
5AL0962	5AL0962 TB	9.6	75	10	120
5AL0972	5AL0972 TB	9.7	75	10	120
5AL0982	5AL0982 TB	9.8	75	10	120



Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
									◎	◎		

Unit/單位: mm

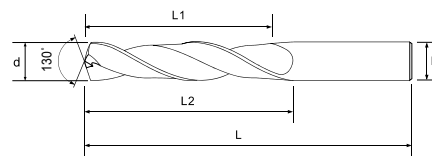
切削條件表 **P52**  
Cutting Condition

### 5xD for Aluminum Application

## 5AL 鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	TB	d 刃徑	L2 溝長	D 直徑	L 全長
5AL0992	5AL0992 TB	9.9	75	10	120
5AL1002	5AL1002 TB	10	75	10	120
5AL1012	5AL1012 TB	10.1	79	11	140
5AL1022	5AL1022 TB	10.2	79	11	140
5AL1032	5AL1032 TB	10.3	79	11	140
5AL1042	5AL1042 TB	10.4	79	11	140
5AL1052	5AL1052 TB	10.5	79	11	140
5AL1062	5AL1062 TB	10.6	83	11	140
5AL1072	5AL1072 TB	10.7	83	11	140
5AL1082	5AL1082 TB	10.8	83	11	140
5AL1092	5AL1092 TB	10.9	83	11	140
5AL1102	5AL1102 TB	11	83	11	140
5AL1112	5AL1112 TB	11.1	87	12	145
5AL1122	5AL1122 TB	11.2	87	12	145
5AL1132	5AL1132 TB	11.3	87	12	145
5AL1142	5AL1142 TB	11.4	87	12	145
5AL1152	5AL1152 TB	11.5	87	12	145
5AL1162	5AL1162 TB	11.6	90	12	145
5AL1172	5AL1172 TB	11.7	90	12	145
5AL1182	5AL1182 TB	11.8	90	12	145
5AL1192	5AL1192 TB	11.9	90	12	145
5AL1202	5AL1202 TB	12	90	12	145

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
								◎	◎		

Unit/單位: mm

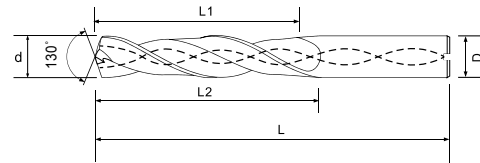
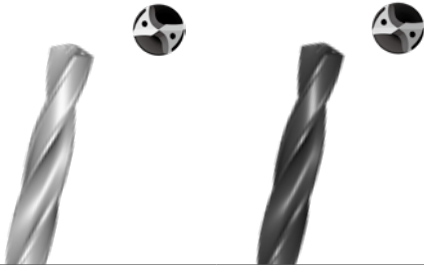
切削條件表 **P52**  
Cutting Condition

5xD with Coolant Hole for Aluminum Application

## ■ 5ALC 內冷鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	TB	d 刃徑	L2 溝長	D 直徑	L 全長
5ALC0302	5ALC0302 TB	3	22	4	70
5ALC0312	5ALC0312 TB	3.1	26	4	80
5ALC0322	5ALC0322 TB	3.2	26	4	80
5ALC0332	5ALC0332 TB	3.3	26	4	80
5ALC0342	5ALC0342 TB	3.4	26	4	80
5ALC0352	5ALC0352 TB	3.5	26	4	80
5ALC0362	5ALC0362 TB	3.6	30	4	80
5ALC0372	5ALC0372 TB	3.7	30	4	80
5ALC0382	5ALC0382 TB	3.8	30	4	80
5ALC0392	5ALC0392 TB	3.9	30	4	80
5ALC0402	5ALC0402 TB	4	30	4	80
5ALC0412	5ALC0412 TB	4.1	34	5	85
5ALC0422	5ALC0422 TB	4.2	34	5	85
5ALC0432	5ALC0432 TB	4.3	34	5	85
5ALC0442	5ALC0442 TB	4.4	34	5	85
5ALC0452	5ALC0452 TB	4.5	34	5	85
5ALC0462	5ALC0462 TB	4.6	38	5	85
5ALC0472	5ALC0472 TB	4.7	38	5	85
5ALC0482	5ALC0482 TB	4.8	38	5	85
5ALC0492	5ALC0492 TB	4.9	38	5	85
5ALC0502	5ALC0502 TB	5	38	5	85
5ALC0512	5ALC0512 TB	5.1	42	6	90
5ALC0522	5ALC0522 TB	5.2	42	6	90

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
									◎	◎		

Unit/單位: mm

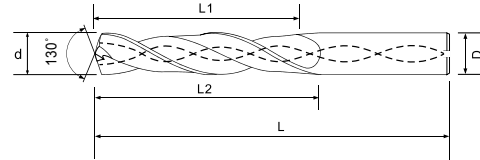
切削條件表 **P52**  
Cutting Condition

5xD with Coolant Hole for Aluminum Application

## ■ 5ALC 內冷鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



- 2XD
- 3XD
- 4XD
- 5XD**
- 8XD

MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	<b>TB</b>	d 刃徑	L2 溝長	D 直徑	L 全長
5ALC0532	5ALC0532 TB	5.3	42	6	90
5ALC0542	5ALC0542 TB	5.4	42	6	90
5ALC0552	5ALC0552 TB	5.5	42	6	90
5ALC0562	5ALC0562 TB	5.6	45	6	90
5ALC0572	5ALC0572 TB	5.7	45	6	90
5ALC0582	5ALC0582 TB	5.8	45	6	90
5ALC0592	5ALC0592 TB	5.9	45	6	90
5ALC0602	5ALC0602 TB	6	45	6	90
5ALC0612	5ALC0612 TB	6.1	49	7	95
5ALC0622	5ALC0622 TB	6.2	49	7	95
5ALC0632	5ALC0632 TB	6.3	49	7	95
5ALC0642	5ALC0642 TB	6.4	49	7	95
5ALC0652	5ALC0652 TB	6.5	49	7	95
5ALC0662	5ALC0662 TB	6.6	53	7	95
5ALC0672	5ALC0672 TB	6.7	53	7	95
5ALC0682	5ALC0682 TB	6.8	53	7	95
5ALC0692	5ALC0692 TB	6.9	53	7	95
5ALC0702	5ALC0702 TB	7	53	7	95
5ALC0712	5ALC0712 TB	7.1	57	8	100
5ALC0722	5ALC0722 TB	7.2	57	8	100
5ALC0732	5ALC0732 TB	7.3	57	8	100
5ALC0742	5ALC0742 TB	7.4	57	8	100
5ALC0752	5ALC0752 TB	7.5	57	8	100

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
								◎	◎		

Unit/單位: mm

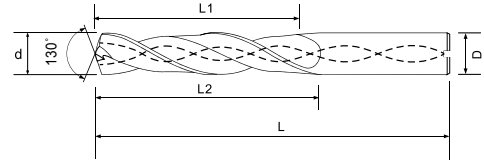
切削條件表 **P52**  
Cutting Condition

5xD with Coolant Hole for Aluminum Application

## ■ 5ALC 內冷鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	TB	d 刃徑	L2 溝長	D 直徑	L 全長
5ALC0762	5ALC0762 TB	7.6	60	8	100
5ALC0772	5ALC0772 TB	7.7	60	8	100
5ALC0782	5ALC0782 TB	7.8	60	8	100
5ALC0792	5ALC0792 TB	7.9	60	8	100
5ALC0802	5ALC0802 TB	8	60	8	100
5ALC0812	5ALC0812 TB	8.1	64	9	115
5ALC0822	5ALC0822 TB	8.2	64	9	115
5ALC0832	5ALC0832 TB	8.3	64	9	115
5ALC0842	5ALC0842 TB	8.4	64	9	115
5ALC0852	5ALC0852 TB	8.5	64	9	115
5ALC0862	5ALC0862 TB	8.6	68	9	115
5ALC0872	5ALC0872 TB	8.7	68	9	115
5ALC0882	5ALC0882 TB	8.8	68	9	115
5ALC0892	5ALC0892 TB	8.9	68	9	115
5ALC0902	5ALC0902 TB	9	68	9	115
5ALC0912	5ALC0912 TB	9.1	72	10	120
5ALC0922	5ALC0922 TB	9.2	72	10	120
5ALC0932	5ALC0932 TB	9.3	72	10	120
5ALC0942	5ALC0942 TB	9.4	72	10	120
5ALC0952	5ALC0952 TB	9.5	72	10	120
5ALC0962	5ALC0962 TB	9.6	75	10	120
5ALC0972	5ALC0972 TB	9.7	75	10	120
5ALC0982	5ALC0982 TB	9.8	75	10	120

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
									◎	◎		

Unit/單位: mm

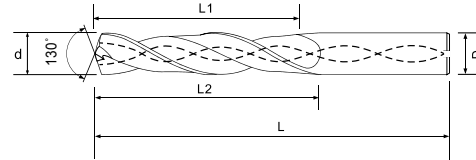
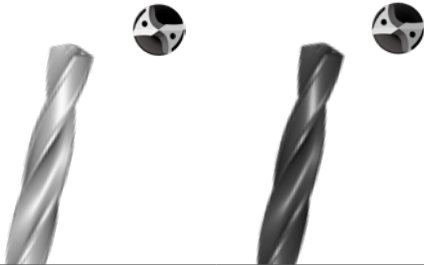
切削條件表 **P52**  
Cutting Condition

5xD with Coolant Hole for Aluminum Application

## ■ 5ALC 內冷鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	TB	d 刃徑	L2 溝長	D 直徑	L 全長
5ALC0992	5ALC0992 TB	9.9	75	10	120
5ALC1002	5ALC1002 TB	10	75	10	120
5ALC1012	5ALC1012 TB	10.1	79	11	140
5ALC1022	5ALC1022 TB	10.2	79	11	140
5ALC1032	5ALC1032 TB	10.3	79	11	140
5ALC1042	5ALC1042 TB	10.4	79	11	140
5ALC1052	5ALC1052 TB	10.5	79	11	140
5ALC1062	5ALC1062 TB	10.6	83	11	140
5ALC1072	5ALC1072 TB	10.7	83	11	140
5ALC1082	5ALC1082 TB	10.8	83	11	140
5ALC1092	5ALC1092 TB	10.9	83	11	140
5ALC1102	5ALC1102 TB	11	83	11	140
5ALC1112	5ALC1112 TB	11.1	87	12	145
5ALC1122	5ALC1122 TB	11.2	87	12	145
5ALC1132	5ALC1132 TB	11.3	87	12	145
5ALC1142	5ALC1142 TB	11.4	87	12	145
5ALC1152	5ALC1152 TB	11.5	87	12	145
5ALC1162	5ALC1162 TB	11.6	90	12	145
5ALC1172	5ALC1172 TB	11.7	90	12	145
5ALC1182	5ALC1182 TB	11.8	90	12	145
5ALC1192	5ALC1192 TB	11.9	90	12	145
5ALC1202	5ALC1202 TB	12	90	12	145

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
								◎	◎		

Unit/單位: mm

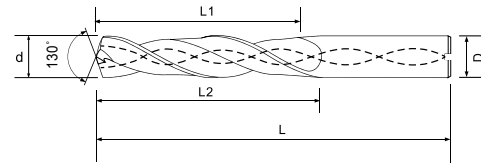
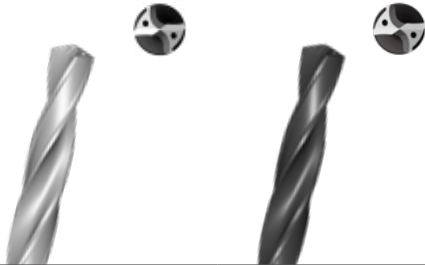
切削條件表 **P52**  
Cutting Condition

8xD with Coolant Hole for Aluminum Application

## 8ALC 內冷鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	TB	d 刃徑	L2 溝長	D 直徑	L 全長
8ALC0302	8ALC0302 TB	3	32	4	80
8ALC0312	8ALC0312 TB	3.1	37	4	90
8ALC0322	8ALC0322 TB	3.2	37	4	90
8ALC0332	8ALC0332 TB	3.3	37	4	90
8ALC0342	8ALC0342 TB	3.4	37	4	90
8ALC0352	8ALC0352 TB	3.5	37	4	90
8ALC0362	8ALC0362 TB	3.6	42	4	90
8ALC0372	8ALC0372 TB	3.7	42	4	90
8ALC0382	8ALC0382 TB	3.8	42	4	90
8ALC0392	8ALC0392 TB	3.9	42	4	90
8ALC0402	8ALC0402 TB	4	42	4	90
8ALC0412	8ALC0412 TB	4.1	48	5	100
8ALC0422	8ALC0422 TB	4.2	48	5	100
8ALC0432	8ALC0432 TB	4.3	48	5	100
8ALC0442	8ALC0442 TB	4.4	48	5	100
8ALC0452	8ALC0452 TB	4.5	48	5	100
8ALC0462	8ALC0462 TB	4.6	53	5	100
8ALC0472	8ALC0472 TB	4.7	53	5	100
8ALC0482	8ALC0482 TB	4.8	53	5	100
8ALC0492	8ALC0492 TB	4.9	53	5	100
8ALC0502	8ALC0502 TB	5	53	5	100
8ALC0512	8ALC0512 TB	5.1	58	6	110
8ALC0522	8ALC0522 TB	5.2	58	6	110
8ALC0532	8ALC0532 TB	5.3	58	6	110
8ALC0542	8ALC0542 TB	5.4	58	6	110
8ALC0552	8ALC0552 TB	5.5	58	6	110
8ALC0562	8ALC0562 TB	5.6	63	6	110
8ALC0572	8ALC0572 TB	5.7	63	6	110
8ALC0582	8ALC0582 TB	5.8	63	6	110
8ALC0592	8ALC0592 TB	5.9	63	6	110
8ALC0602	8ALC0602 TB	6	63	6	110

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
									◎	◎		

Unit/單位: mm



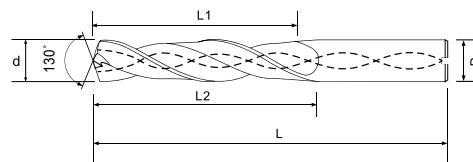
切削條件表 **P52**  
Cutting Condition

8xD with Coolant Hole for Aluminum Application

## 8ALC 內冷鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



- 
- 
- 
- 
- 

MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	TB	d 刃徑	L2 溝長	D 直徑	L 全長
8ALC0612	8ALC0612 TB	6.1	68	7	125
8ALC0622	8ALC0622 TB	6.2	68	7	125
8ALC0632	8ALC0632 TB	6.3	68	7	125
8ALC0642	8ALC0642 TB	6.4	68	7	125
8ALC0652	8ALC0652 TB	6.5	68	7	125
8ALC0662	8ALC0662 TB	6.6	73	7	125
8ALC0672	8ALC0672 TB	6.7	73	7	125
8ALC0682	8ALC0682 TB	6.8	73	7	125
8ALC0692	8ALC0692 TB	6.9	73	7	125
8ALC0702	8ALC0702 TB	7	73	7	125
8ALC0712	8ALC0712 TB	7.1	78	8	140
8ALC0722	8ALC0722 TB	7.2	78	8	140
8ALC0732	8ALC0732 TB	7.3	78	8	140
8ALC0742	8ALC0742 TB	7.4	78	8	140
8ALC0752	8ALC0752 TB	7.5	78	8	140
8ALC0762	8ALC0762 TB	7.6	84	8	140
8ALC0772	8ALC0772 TB	7.7	84	8	140
8ALC0782	8ALC0782 TB	7.8	84	8	140
8ALC0792	8ALC0792 TB	7.9	84	8	140
8ALC0802	8ALC0802 TB	8	84	8	140
8ALC0812	8ALC0812 TB	8.1	89	9	150
8ALC0822	8ALC0822 TB	8.2	89	9	150
8ALC0832	8ALC0832 TB	8.3	89	9	150
8ALC0842	8ALC0842 TB	8.4	89	9	150
8ALC0852	8ALC0852 TB	8.5	89	9	150
8ALC0862	8ALC0862 TB	8.6	94	9	150
8ALC0872	8ALC0872 TB	8.7	94	9	150
8ALC0882	8ALC0882 TB	8.8	94	9	150
8ALC0892	8ALC0892 TB	8.9	94	9	150
8ALC0902	8ALC0902 TB	9	94	9	150
8ALC0912	8ALC0912 TB	9.1	99	10	160

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
									◎	◎		

Unit/單位: mm

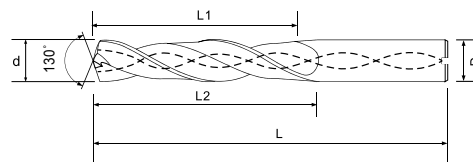
切削條件表 **P52**  
Cutting Condition

8xD with Coolant Hole for Aluminum Application

## 8ALC 內冷鋁合金專用



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.8  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.8



MODE 型號		Dimension 規格			
Coating 塗層		Diameter	Flute Length	Shank Diameter	Full Length
Uncoated 無塗層	<b>TB</b>	d 刃徑	L2 溝長	D 直徑	L 全長
8ALC0922	8ALC0922 TB	9.2	99	10	160
8ALC0932	8ALC0932 TB	9.3	99	10	160
8ALC0942	8ALC0942 TB	9.4	99	10	160
8ALC0952	8ALC0952 TB	9.5	99	10	160
8ALC0962	8ALC0962 TB	9.6	105	10	160
8ALC0972	8ALC0972 TB	9.7	105	10	160
8ALC0982	8ALC0982 TB	9.8	105	10	160
8ALC0992	8ALC0992 TB	9.9	105	10	160
8ALC1002	8ALC1002 TB	10	105	10	160
8ALC1012	8ALC1012 TB	10.1	110	11	170
8ALC1022	8ALC1022 TB	10.2	110	11	170
8ALC1032	8ALC1032 TB	10.3	110	11	170
8ALC1042	8ALC1042 TB	10.4	110	11	170
8ALC1052	8ALC1052 TB	10.5	110	11	170
8ALC1062	8ALC1062 TB	10.6	115	11	170
8ALC1072	8ALC1072 TB	10.7	115	11	170
8ALC1082	8ALC1082 TB	10.8	115	11	170
8ALC1092	8ALC1092 TB	10.9	115	11	170
8ALC1102	8ALC1102 TB	11	115	11	170
8ALC1112	8ALC1112 TB	11.1	120	12	180
8ALC1122	8ALC1122 TB	11.2	120	12	180
8ALC1132	8ALC1132 TB	11.3	120	12	180
8ALC1142	8ALC1142 TB	11.4	120	12	180
8ALC1152	8ALC1152 TB	11.5	120	12	180
8ALC1162	8ALC1162 TB	11.6	126	12	180
8ALC1172	8ALC1172 TB	11.7	126	12	180
8ALC1182	8ALC1182 TB	11.8	126	12	180
8ALC1192	8ALC1192 TB	11.9	126	12	180
8ALC1202	8ALC1202 TB	12	126	12	180



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
								◎	◎		

Unit/單位: mm

5AL

產品規格表 **P41**  
Specification page

5ALC

產品規格表 **P45**  
Specification page

8ALC

產品規格表 **P49**  
Specification page

● AL / ALC Carbide Drill for Aluminum Cutting Condition  
AL / ALC 鋁合金專用鎢鋼鑽頭切削條件表

Work Material 被切削材	Aluminium A1070 鋁					Aluminium Alloy A4032 A6061 鋁合金				
	External Coolant 無油孔		Internal Oil-hole 油孔			External Coolant 無油孔		Internal Oil-hole 油孔		
	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	5xD	8xD	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	5xD	8xD
				f(mm/rev) 進給	f(mm/rev) 進給				f(mm/rev) 進給	f(mm/rev) 進給
Drill Dia (mm)直徑										
3	100-160	0.07-0.12	120-180	0.07-0.13	0.06-0.1	100-160	0.07-0.12	120-180	0.07-0.13	0.06-0.1
4										
5										
6										
7										
8										
9										
10										
11										
12										
		0.12-0.18		0.13-0.2	0.1-0.16		0.12-0.18		0.13-0.2	0.1-0.16
		0.18-0.3		0.2-0.35	0.16-0.3		0.18-0.3		0.2-0.35	0.16-0.3

■ Vc 切削速度 (線速度)

Calculation Vc

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$V = \frac{\pi \times D \times N}{1000}$$

V = Cutting speed 切削速度 (m/min)

π = 3.14 (圓周率)

D = Diameter 鑽頭直徑 (mm)

N = Rotating speed 轉速 (min<sup>-1</sup>)

■ Rotation speed 轉速

Calculation of Rotation speed

裝夾立銑刀的機械主軸在每一分鐘內旋轉的轉數，可通過下述公式求出。

$$N = \frac{1000 \times V}{\pi \times D}$$

N = Rotating speed 轉速 (min<sup>-1</sup>)

V = Cutting speed 切削速度 (m/min)

π = 3.14 (圓周率)

D = Diameter 鑽頭直徑 (mm)

		Aluminium Alloy A5052 A7075 鋁合金					Aluminum Alloy Casting AC, ADC 鑄鋁					Copper Alloy 銅合金					Work Material 被切削材
		External Coolant 無油孔		Internal Oil-hole 油孔			External Coolant 無油孔		Internal Oil-hole 油孔			External Coolant 無油孔		Internal Oil-hole 油孔			Type 型式
	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	5xD f(mm/rev) 進給	8xD f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	5xD f(mm/rev) 進給	8xD f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	5xD f(mm/rev) 進給	8xD f(mm/rev) 進給	Drilling Condition 切削條件	
																Drill Dia (mm)直徑	
																3	
		0.07-0.16		0.09-0.18	0.07-0.14		0.07-0.16		0.09-0.18	0.1-0.2		0.05-0.12		0.05-0.12	0.04-0.1	4	
																5	
																6	
	140-200		160-220			140-200		160-220			90-150		100-160			7	
		0.14-0.22		0.14-0.23	0.11-0.18		0.16-0.2		0.16-0.23	0.18-0.26		0.12-0.18		0.12-0.2	0.1-0.16	8	
																9	
		0.22-0.36		0.22-0.38	0.18-0.3		0.18-0.32		0.23-0.38	0.26-0.34		0.18-0.23		0.18-0.25	0.14-0.2	10	
																11	
																12	

- Adjust cutting condition according to the rigidity of machine or clamp state.  
請依據機台剛性或夾持來調整切削條件。
- Adjust cutting condition when different sound, unusual vibration occur by cutting.  
當切削時發生異常聲音或震動時，請調整切削條件。
- The middle value is for 3xD drilling condition. When for hole depth more then 3xD, according to your cutting state to reduce the Vc and f.  
此切削條件表的中間值為3倍長的建議參數。當孔深大於3倍長時，請根據切削狀況降低參數。

### Feed rate 進給速度

Calculation of Feed rate

每一分鐘內工作台進給的速度，可通過下述公式求出。

$$F = N \times Z \times f$$

F = Feed rate 進給速度 (mm/min)

N = Rotating speed 轉速 (min<sup>-1</sup>)

Z = Number of flute 鑽頭刃數

(The flute number of drill is 1. 鑽頭刃數為單刃)

f = Feed rate of the flute 每刃進給量 (mm/1 刃)

### Feed for teeth 每刃進給量

Calculation of the Feed of teeth

鑽頭刀圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$f = \frac{F}{N \times Z}$$

f = Feed rate of the flute 每刃進給量 (mm/1 刃)

F = Feed rate 進給速度 (mm/min)

N = Rotating speed 轉速 (min<sup>-1</sup>)

Z = Number of flute 鑽頭刃數

(The flute number of drill is 1. 鑽頭刃數為單刃)



# High Hardness Steel 高硬鎢鋼鑽頭 HD



Small helix angle  
低螺旋高剛性

Special geometry  
特殊溝型設計

Large core thickness  
心厚加大設計

✓ Superior drilling performance for  
above HRC45 steel.  
針對HRC45以上擁有優異的切削性能

✓ High rigidity.  
強化本體

— SPEED TIGER

- - - Conventional Type 一般刀型





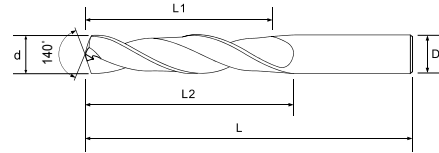
切削條件表 **P56**  
Cutting Condition

### High Hardness Steel

## HD 高硬鎢鋼鑽頭



Max Effective Drill Depth(L1)= Flute Length(L2)-Diameter(d)\*1.5  
最長有效深度(L1)=溝長(L2)-刃徑(d)\*1.5



MODE	Diameter	Flute Length	Shank Diameter	Full Length
型號	d 刃徑	L2 溝長	D 直徑	L 全長
HD0262	2.6	14	4	44
HD0282	2.8	16	4	46
HD0302	3.0	16	4	46
HD0332	3.3	18	4	48
HD0342	3.4	20	4	50
HD0352	3.5	20	4	50
HD0382	3.8	22	4	52
HD0402	4.0	22	4	52
HD0422	4.2	25	6	68
HD0432	4.3	25	6	68
HD0442	4.4	25	6	68
HD0452	4.5	25	6	68
HD0502	5.0	32	6	72
HD0512	5.1	32	6	72
HD0522	5.2	32	6	72
HD0552	5.5	35	6	75
HD0602	6.0	35	6	75
HD0652	6.5	40	8	80
HD0682	6.8	45	8	85
HD0692	6.9	45	8	85
HD0702	7.0	45	8	85
HD0752	7.5	45	8	85
HD0802	8.0	50	8	90
HD0852	8.5	50	10	95
HD0862	8.6	57	10	102
HD0882	8.8	57	10	102
HD0902	9.0	57	10	102
HD0952	9.5	57	10	102
HD1002	10.0	63	10	107
HD1022	10.2	63	12	110
HD1032	10.3	63	12	110
HD1052	10.5	63	12	110
HD1082	10.8	71	12	118
HD1102	11.0	71	12	118
HD1152	11.5	71	12	118
HD1202	12.0	71	12	118

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC							
	◎	◎	◎	◎	○							

Unit/單位: mm

產品規格表 **P55**  
Specification page

● Carbide Drill for High Hardness Steel Cutting Condition 高硬鎢鋼鑽頭切削條件表						
HRC of Work Material 被切削材硬度	45HRC~55HRC		55HRC~60HRC		60HRC~	
Drilling Condition 切削條件	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給	vc (m/min) 切削速度	f (mm/rev) 進給
Drill Dia (mm)直徑						
2	20 - 25	0.02 - 0.06	14 - 22	0.01 - 0.04	11 - 16	0.01 - 0.03
3		0.02 - 0.06		0.01 - 0.04		0.01 - 0.03
4		0.03 - 0.07		0.02 - 0.05		0.015 - 0.04
5		0.03 - 0.07		0.02 - 0.05		0.015 - 0.04
6		0.05 - 0.09		0.02 - 0.06		0.02 - 0.05
7		0.06 - 0.1		0.02 - 0.06		0.02 - 0.05
8		0.08 - 0.12		0.03 - 0.07		0.025 - 0.055
9		0.08 - 0.12		0.03 - 0.07		0.025 - 0.055
10		0.09 - 0.14		0.035 - 0.08		0.03 - 0.06
11		0.09 - 0.14		0.035 - 0.08		0.03 - 0.06
12		0.1 - 0.16		0.035 - 0.08		0.03 - 0.06

- Adjust cutting condition according to the rigidity of machine or clamp state.  
請依據機台剛性或夾持來調整切削條件。
- Adjust cutting condition when different sound, unusual vibration occur by cutting.  
當切削時發生異常聲音或震動時，請調整切削條件。
- The middle value is for 3xD drilling condition. When for hole depth more then 3xD, according to your cutting state to reduce the Vc and f.  
此切削條件表的中間值為3倍長的建議參數。當孔深大於3倍長時，請根據切削狀況降低參數。

### ● Vc 切削速度 (線速度)

Calculation Vc

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$V = \frac{\pi \times D \times N}{1000}$$

V = Cutting speed 切削速度 (m/min)  
π = 3.14 (圓周率)  
D = Diameter 鑽頭直徑 (mm)  
N = Rotating speed 轉速 (min<sup>-1</sup>)

### ● Feed rate 進給速度

Calculation of Feed rate

每一分鐘內工作台進給的速度，可通過下述公式求出。

$$F = N \times Z \times f$$

F = Feed rate 進給速度 (mm/min)  
N = Rotating speed 轉速 (min<sup>-1</sup>)  
Z = Number of flute 鑽頭刃數  
(The flute number of drill is 1. 鑽頭刃數為單刃)  
f = Feed rate of the flute 每刃進給量 (mm/1 刃)

### ● Rotation speed 轉速

Calculation of Rotation speed

裝夾立銼刀的機械主軸在每一分鐘內旋轉的轉數，可通過下述公式求出。

$$N = \frac{1000 \times V}{\pi \times D}$$

N = Rotating speed 轉速 (min<sup>-1</sup>)  
V = Cutting speed 切削速度 (m/min)  
π = 3.14 (圓周率)  
D = Diameter 鑽頭直徑 (mm)

### ● Feed for teeth 每刃進給量

Calculation of the Feed of teeth

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$f = \frac{F}{N \times Z}$$

f = Feed rate of the flute 每刃進給量 (mm/1 刃)  
F = Feed rate 進給速度 (mm/min)  
N = Rotating speed 轉速 (min<sup>-1</sup>)  
Z = Number of flute 鑽頭刃數  
(The flute number of drill is 1. 鑽頭刃數為單刃)

## Note

Any interesting items for you?  
Turn on your laptop - computer and send an inquiry to  
[sale@speedtiger.com.tw](mailto:sale@speedtiger.com.tw)  
or pick up the phone and dial 886-4-23503022.  
Speed Tiger looks forward to hearing from you :)





## Flat Drill

### 平頭鑽 鎢鋼鑽頭

**2FD**

**4FD**

**3FDC**

**5FDC**

1

Special geometry design

- ✓ Provides superior chip evacuation;
- ✓ Allows break-chips effectively;
- ✓ Enhance the cutting edge.

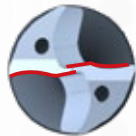
特殊溝型設計 - 優異的排屑能力，有效斷屑及強化的刃口。

2FD 4FD



Small helix angle  
with high rigidity.  
低螺旋高剛性

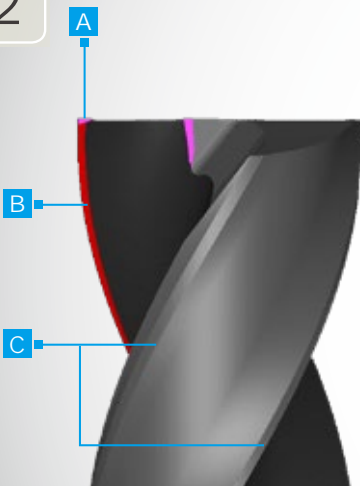
3FDC



5FDC



2



**A** Tip protection for Stronger Corner -  
Protect the edge and with excellent  
chipping resistance.

防崩角使其剛性更好 -  
保護尖角並具有出色的抗崩性。

**B** Smooth surface of the helix cutting edge.  
光滑的螺旋切削刃口。

**C** Double margin for 4FD /3FDC / 5FDC -  
Allows high precision straight cutting.

雙刃帶設計4FD /3FDC / 5FDC -  
光潔的孔壁，讓孔的精密度更高。

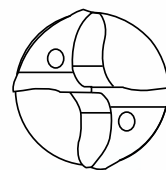
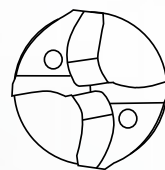
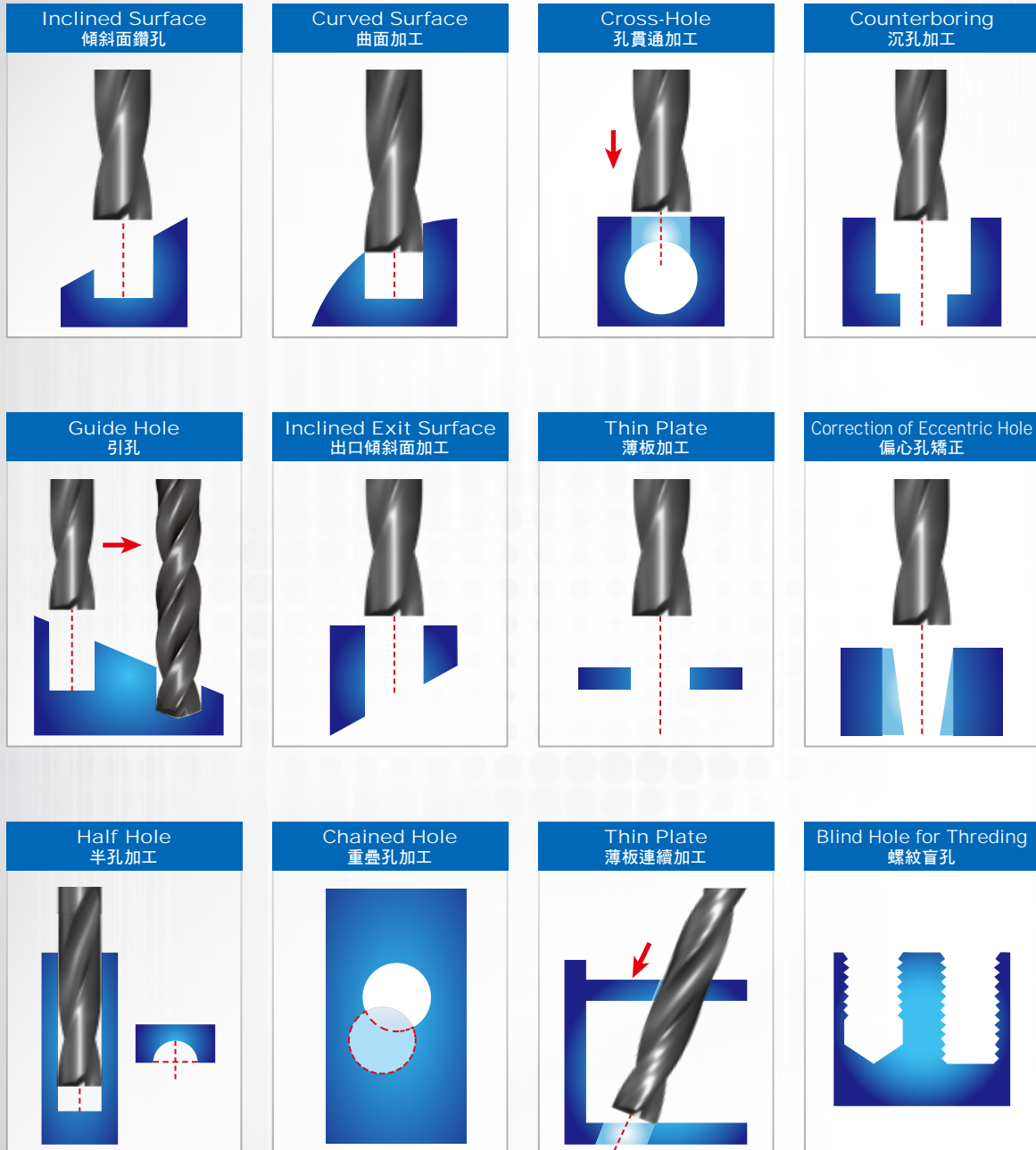


## High Efficiency Drilling in Various Type of Machining

### 多功能高效能用途

Applicable for a multitude of drilling applications such as inclined surface, curved surface, flat-bottom hole, eccentric hole, and more.

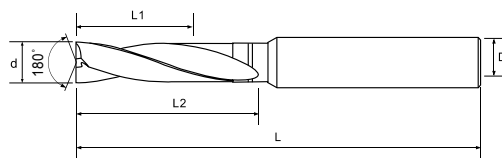
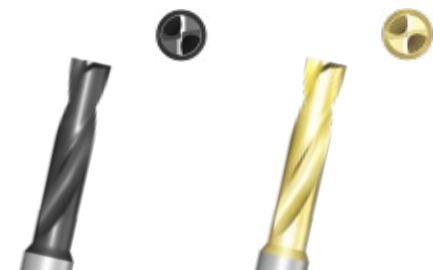
適用於多種鑽孔應用，如傾斜表面、曲面、平底孔、偏心孔等。



切削條件表 **P76**  
Cutting Condition

## 2xD Flat Drill

### ■ 2FD 平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
2FD0302 nACRo	2FD0302 ZrN-A	3.0	10.5	13.5	6	50
2FD0312 nACRo	2FD0312 ZrN-A	3.1	10.9	14.0	6	50
2FD0322 nACRo	2FD0322 ZrN-A	3.2	11.2	14.4	6	50
2FD0332 nACRo	2FD0332 ZrN-A	3.3	11.6	14.9	6	50
2FD0342 nACRo	2FD0342 ZrN-A	3.4	11.9	15.3	6	50
2FD0352 nACRo	2FD0352 ZrN-A	3.5	12.3	15.8	6	50
2FD0362 nACRo	2FD0362 ZrN-A	3.6	12.6	16.2	6	50
2FD0372 nACRo	2FD0372 ZrN-A	3.7	13.0	16.7	6	50
2FD0382 nACRo	2FD0382 ZrN-A	3.8	13.3	17.1	6	50
2FD0392 nACRo	2FD0392 ZrN-A	3.9	13.7	17.6	6	50
2FD0402 nACRo	2FD0402 ZrN-A	4.0	14.0	18.0	6	50
2FD0412 nACRo	2FD0412 ZrN-A	4.1	14.4	18.5	6	55
2FD0422 nACRo	2FD0422 ZrN-A	4.2	14.7	18.9	6	55
2FD0432 nACRo	2FD0432 ZrN-A	4.3	15.1	19.4	6	55
2FD0442 nACRo	2FD0442 ZrN-A	4.4	15.4	19.8	6	55
2FD0452 nACRo	2FD0452 ZrN-A	4.5	15.8	20.3	6	55
2FD0462 nACRo	2FD0462 ZrN-A	4.6	16.1	20.7	6	55
2FD0472 nACRo	2FD0472 ZrN-A	4.7	16.5	21.2	6	55
2FD0482 nACRo	2FD0482 ZrN-A	4.8	16.8	21.6	6	55
2FD0492 nACRo	2FD0492 ZrN-A	4.9	17.2	22.1	6	55
2FD0502 nACRo	2FD0502 ZrN-A	5.0	17.5	22.5	6	55
2FD0512 nACRo	2FD0512 ZrN-A	5.1	17.9	23.0	6	60
2FD0522 nACRo	2FD0522 ZrN-A	5.2	18.2	23.4	6	60
2FD0532 nACRo	2FD0532 ZrN-A	5.3	18.6	23.9	6	60
2FD0542 nACRo	2FD0542 ZrN-A	5.4	18.9	24.3	6	60

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

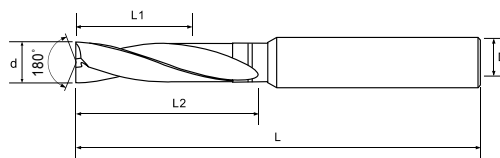
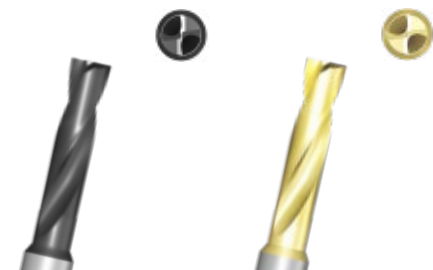
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○		

Unit/單位: mm

切削條件表 **P76**  
Cutting Condition

## 2xD Flat Drill

### ■ 2FD 平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
2FD0552 nACRo	2FD0552 ZrN-A	5.5	19.3	24.8	6	60
2FD0562 nACRo	2FD0562 ZrN-A	5.6	19.6	25.2	6	60
2FD0572 nACRo	2FD0572 ZrN-A	5.7	20.0	25.7	6	60
2FD0582 nACRo	2FD0582 ZrN-A	5.8	20.3	26.1	6	60
2FD0592 nACRo	2FD0592 ZrN-A	5.9	20.7	26.6	6	60
2FD0602 nACRo	2FD0602 ZrN-A	6.0	21.0	27.0	6	60
2FD0612 nACRo	2FD0612 ZrN-A	6.1	21.4	27.5	8	70
2FD0622 nACRo	2FD0622 ZrN-A	6.2	21.7	27.9	8	70
2FD0632 nACRo	2FD0632 ZrN-A	6.3	22.1	28.4	8	70
2FD0642 nACRo	2FD0642 ZrN-A	6.4	22.4	28.8	8	70
2FD0652 nACRo	2FD0652 ZrN-A	6.5	22.8	29.3	8	70
2FD0662 nACRo	2FD0662 ZrN-A	6.6	23.1	29.7	8	70
2FD0672 nACRo	2FD0672 ZrN-A	6.7	23.5	30.2	8	70
2FD0682 nACRo	2FD0682 ZrN-A	6.8	23.8	30.6	8	70
2FD0692 nACRo	2FD0692 ZrN-A	6.9	24.2	31.1	8	70
2FD0702 nACRo	2FD0702 ZrN-A	7.0	24.5	31.5	8	70
2FD0712 nACRo	2FD0712 ZrN-A	7.1	24.9	32.0	8	75
2FD0722 nACRo	2FD0722 ZrN-A	7.2	25.2	32.4	8	75
2FD0732 nACRo	2FD0732 ZrN-A	7.3	25.6	32.9	8	75
2FD0742 nACRo	2FD0742 ZrN-A	7.4	25.9	33.3	8	75
2FD0752 nACRo	2FD0752 ZrN-A	7.5	26.3	33.8	8	75
2FD0762 nACRo	2FD0762 ZrN-A	7.6	26.6	34.2	8	75
2FD0772 nACRo	2FD0772 ZrN-A	7.7	27.0	34.7	8	75
2FD0782 nACRo	2FD0782 ZrN-A	7.8	27.3	35.1	8	75
2FD0792 nACRo	2FD0792 ZrN-A	7.9	27.7	35.6	8	75



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○		

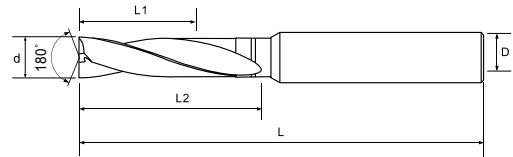
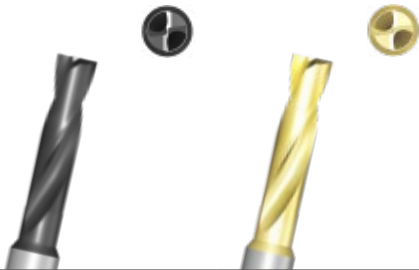
Unit/單位: mm



切削條件表 **P76**  
Cutting Condition

### 2xD Flat Drill

## 2FD 平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
2FD0802 nACRo	2FD0802 ZrN-A	8.0	28.0	36.0	8	75
2FD0812 nACRo	2FD0812 ZrN-A	8.1	28.4	36.5	10	85
2FD0822 nACRo	2FD0822 ZrN-A	8.2	28.7	36.9	10	85
2FD0832 nACRo	2FD0832 ZrN-A	8.3	29.1	37.4	10	85
2FD0842 nACRo	2FD0842 ZrN-A	8.4	29.4	37.8	10	85
2FD0852 nACRo	2FD0852 ZrN-A	8.5	29.8	38.3	10	85
2FD0862 nACRo	2FD0862 ZrN-A	8.6	30.1	38.7	10	85
2FD0872 nACRo	2FD0872 ZrN-A	8.7	30.5	39.2	10	85
2FD0882 nACRo	2FD0882 ZrN-A	8.8	30.8	39.6	10	85
2FD0892 nACRo	2FD0892 ZrN-A	8.9	31.2	40.1	10	85
2FD0902 nACRo	2FD0902 ZrN-A	9.0	31.5	40.5	10	85
2FD0912 nACRo	2FD0912 ZrN-A	9.1	31.9	41.0	10	90
2FD0922 nACRo	2FD0922 ZrN-A	9.2	32.2	41.4	10	90
2FD0932 nACRo	2FD0932 ZrN-A	9.3	32.6	41.9	10	90
2FD0942 nACRo	2FD0942 ZrN-A	9.4	32.9	42.3	10	90
2FD0952 nACRo	2FD0952 ZrN-A	9.5	33.3	42.8	10	90
2FD0962 nACRo	2FD0962 ZrN-A	9.6	33.6	43.2	10	90
2FD0972 nACRo	2FD0972 ZrN-A	9.7	34.0	43.7	10	90
2FD0982 nACRo	2FD0982 ZrN-A	9.8	34.3	44.1	10	90
2FD0992 nACRo	2FD0992 ZrN-A	9.9	34.7	44.6	10	90
2FD1002 nACRo	2FD1002 ZrN-A	10.0	35.0	45.0	10	90
2FD1012 nACRo	2FD1012 ZrN-A	10.1	35.4	45.5	12	100
2FD1022 nACRo	2FD1022 ZrN-A	10.2	35.7	45.9	12	95
2FD1032 nACRo	2FD1032 ZrN-A	10.3	36.1	46.4	12	95
2FD1042 nACRo	2FD1042 ZrN-A	10.4	36.4	46.8	12	95

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

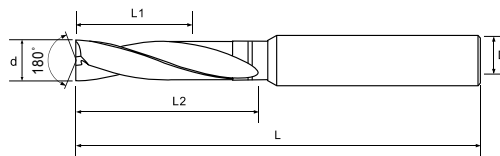
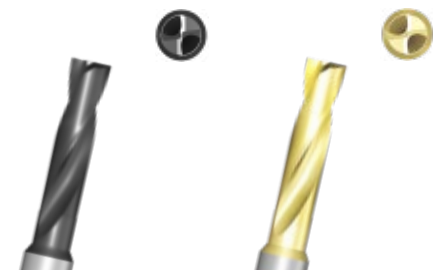
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○		

Unit/單位: mm

切削條件表 **P76**  
Cutting Condition

## 2xD Flat Drill

### ■ 2FD 平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
2FD1052 nACRo	2FD1052 ZrN-A	10.5	36.8	47.3	12	95
2FD1062 nACRo	2FD1062 ZrN-A	10.6	37.1	47.7	12	95
2FD1072 nACRo	2FD1072 ZrN-A	10.7	37.5	48.2	12	95
2FD1082 nACRo	2FD1082 ZrN-A	10.8	37.8	48.6	12	95
2FD1092 nACRo	2FD1092 ZrN-A	10.9	38.2	49.1	12	95
2FD1102 nACRo	2FD1102 ZrN-A	11.0	38.5	49.5	12	95
2FD1112 nACRo	2FD1112 ZrN-A	11.1	38.9	50.0	12	105
2FD1122 nACRo	2FD1122 ZrN-A	11.2	39.2	50.4	12	105
2FD1132 nACRo	2FD1132 ZrN-A	11.3	39.6	50.9	12	105
2FD1142 nACRo	2FD1142 ZrN-A	11.4	39.9	51.3	12	105
2FD1152 nACRo	2FD1152 ZrN-A	11.5	40.3	51.8	12	105
2FD1162 nACRo	2FD1162 ZrN-A	11.6	40.6	52.2	12	105
2FD1172 nACRo	2FD1172 ZrN-A	11.7	41.0	52.7	12	105
2FD1182 nACRo	2FD1182 ZrN-A	11.8	41.3	53.1	12	105
2FD1192 nACRo	2FD1192 ZrN-A	11.9	41.7	53.6	12	105
2FD1202 nACRo	2FD1202 ZrN-A	12.0	42.0	54.0	12	105
2FD1252 nACRo	2FD1252 ZrN-A	12.5	43.8	56.3	14	120
2FD1302 nACRo	2FD1302 ZrN-A	13.0	45.5	58.5	14	120
2FD1352 nACRo	2FD1352 ZrN-A	13.5	47.3	60.8	14	120
2FD1402 nACRo	2FD1402 ZrN-A	14.0	49.0	63.0	14	120
2FD1452 nACRo	2FD1452 ZrN-A	14.5	50.8	65.3	16	130
2FD1502 nACRo	2FD1502 ZrN-A	15.0	52.5	67.5	16	130
2FD1552 nACRo	2FD1552 ZrN-A	15.5	54.3	69.8	16	130
2FD1602 nACRo	2FD1602 ZrN-A	16.0	56.0	72.0	16	130



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○	○	

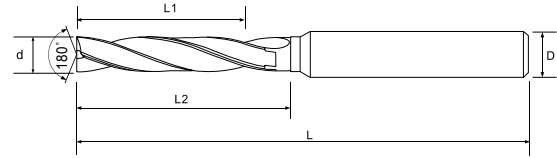
Unit/單位: mm



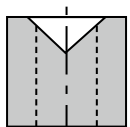
切削條件表 **P76**  
Cutting Condition

## 4xD Flat Drill

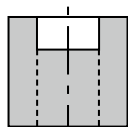
### 4FD 平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
4FD0302 nACRo	4FD0302 ZrN-A	3.0	16.5	19.5	6	60
4FD0312 nACRo	4FD0312 ZrN-A	3.1	17.1	20.2	6	60
4FD0322 nACRo	4FD0322 ZrN-A	3.2	17.6	20.8	6	60
4FD0332 nACRo	4FD0332 ZrN-A	3.3	18.2	21.5	6	60
4FD0342 nACRo	4FD0342 ZrN-A	3.4	18.7	22.1	6	60
4FD0352 nACRo	4FD0352 ZrN-A	3.5	19.3	22.8	6	60
4FD0362 nACRo	4FD0362 ZrN-A	3.6	19.8	23.4	6	60
4FD0372 nACRo	4FD0372 ZrN-A	3.7	20.4	24.1	6	60
4FD0382 nACRo	4FD0382 ZrN-A	3.8	20.9	24.7	6	60
4FD0392 nACRo	4FD0392 ZrN-A	3.9	21.5	25.4	6	60
4FD0402 nACRo	4FD0402 ZrN-A	4.0	22.0	26.0	6	60
4FD0412 nACRo	4FD0412 ZrN-A	4.1	22.6	26.7	6	70
4FD0422 nACRo	4FD0422 ZrN-A	4.2	23.1	27.3	6	70
4FD0432 nACRo	4FD0432 ZrN-A	4.3	23.7	28.0	6	70
4FD0442 nACRo	4FD0442 ZrN-A	4.4	24.2	28.6	6	70
4FD0452 nACRo	4FD0452 ZrN-A	4.5	24.8	29.3	6	70
4FD0462 nACRo	4FD0462 ZrN-A	4.6	25.3	29.9	6	70
4FD0472 nACRo	4FD0472 ZrN-A	4.7	25.9	30.6	6	70
4FD0482 nACRo	4FD0482 ZrN-A	4.8	26.4	31.2	6	70
4FD0492 nACRo	4FD0492 ZrN-A	4.9	27.0	31.9	6	70
4FD0502 nACRo	4FD0502 ZrN-A	5.0	27.5	32.5	6	70
4FD0512 nACRo	4FD0512 ZrN-A	5.1	28.1	33.2	6	80
4FD0522 nACRo	4FD0522 ZrN-A	5.2	28.6	33.8	6	80
4FD0532 nACRo	4FD0532 ZrN-A	5.3	29.2	34.5	6	80
4FD0542 nACRo	4FD0542 ZrN-A	5.4	29.7	35.1	6	80



Position Hole 定位孔



Guide Holes 引導孔

Recommend: Use a position hole or a guide hole in advance. 建議: 使用定位孔或引導孔

- Position Hole: 1xD to 3xD deep drilled to assure consistent and precise holes with long drill, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
定位孔: 鑽孔1xD和3xD深孔, 以確保長鑽孔的一致和精確孔, 且定位孔應比鑽頭直徑大0.5mm左右。
- Guide Holes: In order to assure precise hole position, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
引導孔: 確保孔位置精度, 且引導孔應比鑽頭直徑大0.1mm左右。

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

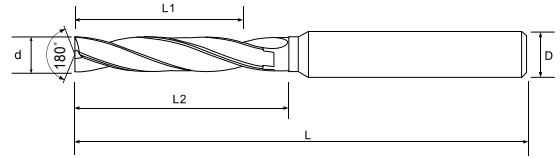
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
		-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○	○	

Unit/單位: mm

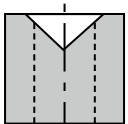
切削條件表 **P76**  
Cutting Condition

## 4xD Flat Drill

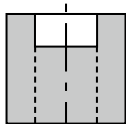
### 4FD 平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
4FD0552 nACRo	4FD0552 ZrN-A	5.5	30.3	35.8	6	80
4FD0562 nACRo	4FD0562 ZrN-A	5.6	30.8	36.4	6	80
4FD0572 nACRo	4FD0572 ZrN-A	5.7	31.4	37.1	6	80
4FD0582 nACRo	4FD0582 ZrN-A	5.8	31.9	37.7	6	80
4FD0592 nACRo	4FD0592 ZrN-A	5.9	32.5	38.4	6	80
4FD0602 nACRo	4FD0602 ZrN-A	6.0	33.0	39.0	6	80
4FD0612 nACRo	4FD0612 ZrN-A	6.1	33.6	39.7	8	85
4FD0622 nACRo	4FD0622 ZrN-A	6.2	34.1	40.3	8	85
4FD0632 nACRo	4FD0632 ZrN-A	6.3	34.7	41.0	8	85
4FD0642 nACRo	4FD0642 ZrN-A	6.4	35.2	41.6	8	85
4FD0652 nACRo	4FD0652 ZrN-A	6.5	35.8	42.3	8	85
4FD0662 nACRo	4FD0662 ZrN-A	6.6	36.3	42.9	8	85
4FD0672 nACRo	4FD0672 ZrN-A	6.7	36.9	43.6	8	85
4FD0682 nACRo	4FD0682 ZrN-A	6.8	37.4	44.2	8	85
4FD0692 nACRo	4FD0692 ZrN-A	6.9	38.0	44.9	8	85
4FD0702 nACRo	4FD0702 ZrN-A	7.0	38.5	45.5	8	85
4FD0712 nACRo	4FD0712 ZrN-A	7.1	39.1	46.2	8	90
4FD0722 nACRo	4FD0722 ZrN-A	7.2	39.6	46.8	8	90
4FD0732 nACRo	4FD0732 ZrN-A	7.3	40.2	47.5	8	90
4FD0742 nACRo	4FD0742 ZrN-A	7.4	40.7	48.1	8	90
4FD0752 nACRo	4FD0752 ZrN-A	7.5	41.3	48.8	8	90
4FD0762 nACRo	4FD0762 ZrN-A	7.6	41.8	49.4	8	90
4FD0772 nACRo	4FD0772 ZrN-A	7.7	42.4	50.1	8	90
4FD0782 nACRo	4FD0782 ZrN-A	7.8	42.9	50.7	8	90
4FD0792 nACRo	4FD0792 ZrN-A	7.9	43.5	51.4	8	90



Position Hole 定位孔



Guide Holes 引導孔

Recommend: Use a position hole or a guide hole in advance. 建議: 使用定位孔或引導孔

- Position Hole: 1xD to 3xD deep drilled to assure consistent and precise holes with long drill, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
定位孔: 鑽孔1xD和3xD深孔, 以確保長鑽孔的一致和精確孔, 且定位孔應比鑽頭直徑大0.5mm左右。
- Guide Holes: In order to assure precise hole position, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
引導孔: 確保孔位置精度, 且引導孔應比鑽頭直徑大0.1mm左右。

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~45HRC	~50HRC	~55HRC	~60HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○	○	

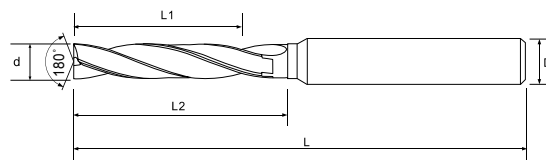
Unit/單位: mm



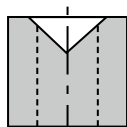
切削條件表 **P76**  
Cutting Condition

### 4xD Flat Drill

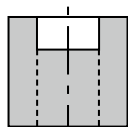
## 4FD 平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
4FD0802 nACRo	4FD0802 ZrN-A	8.0	44.0	52.0	8	90
4FD0812 nACRo	4FD0812 ZrN-A	8.1	44.6	52.7	10	100
4FD0822 nACRo	4FD0822 ZrN-A	8.2	45.1	53.3	10	100
4FD0832 nACRo	4FD0832 ZrN-A	8.3	45.7	54.0	10	100
4FD0842 nACRo	4FD0842 ZrN-A	8.4	46.2	54.6	10	100
4FD0852 nACRo	4FD0852 ZrN-A	8.5	46.8	55.3	10	100
4FD0862 nACRo	4FD0862 ZrN-A	8.6	47.3	55.9	10	100
4FD0872 nACRo	4FD0872 ZrN-A	8.7	47.9	56.6	10	100
4FD0882 nACRo	4FD0882 ZrN-A	8.8	48.4	57.2	10	100
4FD0892 nACRo	4FD0892 ZrN-A	8.9	49.0	57.9	10	100
4FD0902 nACRo	4FD0902 ZrN-A	9.0	49.5	58.5	10	100
4FD0912 nACRo	4FD0912 ZrN-A	9.1	50.1	59.2	10	105
4FD0922 nACRo	4FD0922 ZrN-A	9.2	50.6	59.8	10	105
4FD0932 nACRo	4FD0932 ZrN-A	9.3	51.2	60.5	10	105
4FD0942 nACRo	4FD0942 ZrN-A	9.4	51.7	61.1	10	105
4FD0952 nACRo	4FD0952 ZrN-A	9.5	52.3	61.8	10	105
4FD0962 nACRo	4FD0962 ZrN-A	9.6	52.8	62.4	10	105
4FD0972 nACRo	4FD0972 ZrN-A	9.7	53.4	63.1	10	105
4FD0982 nACRo	4FD0982 ZrN-A	9.8	53.9	63.7	10	105
4FD0992 nACRo	4FD0992 ZrN-A	9.9	54.5	64.4	10	105
4FD1002 nACRo	4FD1002 ZrN-A	10.0	55.0	65.0	10	105
4FD1012 nACRo	4FD1012 ZrN-A	10.1	55.6	65.7	12	120
4FD1022 nACRo	4FD1022 ZrN-A	10.2	56.1	66.3	12	120
4FD1032 nACRo	4FD1032 ZrN-A	10.3	56.7	67.0	12	120
4FD1042 nACRo	4FD1042 ZrN-A	10.4	57.2	67.6	12	120



Position Hole 定位孔



Guide Holes 引導孔

Recommend: Use a position hole or a guide hole in advance. 建議: 使用定位孔或引導孔

- Position Hole: 1xD to 3xD deep drilled to assure consistent and precise holes with long drill, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
定位孔: 鑽孔1xD和3xD深孔, 以確保長鑽孔的一致和精確孔, 且定位孔應比鑽頭直徑大0.5mm左右。
- Guide Holes: In order to assure precise hole position, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
引導孔: 確保孔位置精度, 且引導孔應比鑽頭直徑大0.1mm左右。

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

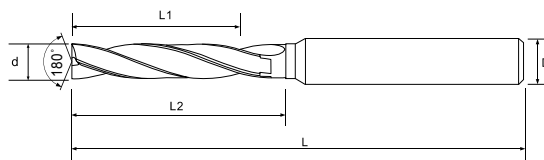
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
		-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○	○	

Unit/單位: mm

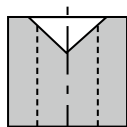
切削條件表 **P76**  
Cutting Condition

## 4xD Flat Drill

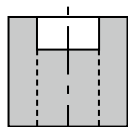
### 4FD 平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
4FD1052 nACRo	4FD1052 ZrN-A	10.5	57.8	68.3	12	120
4FD1062 nACRo	4FD1062 ZrN-A	10.6	58.3	68.9	12	120
4FD1072 nACRo	4FD1072 ZrN-A	10.7	58.9	69.6	12	120
4FD1082 nACRo	4FD1082 ZrN-A	10.8	59.4	70.2	12	120
4FD1092 nACRo	4FD1092 ZrN-A	10.9	60.0	70.9	12	120
4FD1102 nACRo	4FD1102 ZrN-A	11.0	60.5	71.5	12	120
4FD1112 nACRo	4FD1112 ZrN-A	11.1	61.1	72.2	12	125
4FD1122 nACRo	4FD1122 ZrN-A	11.2	61.6	72.8	12	125
4FD1132 nACRo	4FD1132 ZrN-A	11.3	62.2	73.5	12	125
4FD1142 nACRo	4FD1142 ZrN-A	11.4	62.7	74.1	12	125
4FD1152 nACRo	4FD1152 ZrN-A	11.5	63.3	74.8	12	125
4FD1162 nACRo	4FD1162 ZrN-A	11.6	63.8	75.4	12	125
4FD1172 nACRo	4FD1172 ZrN-A	11.7	64.4	76.1	12	125
4FD1182 nACRo	4FD1182 ZrN-A	11.8	64.9	76.7	12	125
4FD1192 nACRo	4FD1192 ZrN-A	11.9	65.5	77.4	12	125
4FD1202 nACRo	4FD1202 ZrN-A	12.0	66.0	78.0	12	125
4FD1252 nACRo	4FD1252 ZrN-A	12.5	68.8	81.3	14	135
4FD1302 nACRo	4FD1302 ZrN-A	13.0	71.5	84.5	14	135
4FD1352 nACRo	4FD1352 ZrN-A	13.5	74.3	87.8	14	140
4FD1402 nACRo	4FD1402 ZrN-A	14.0	77.0	91.0	14	140
4FD1452 nACRo	4FD1452 ZrN-A	14.5	79.8	94.3	16	150
4FD1502 nACRo	4FD1502 ZrN-A	15.0	82.5	97.5	16	150
4FD1552 nACRo	4FD1552 ZrN-A	15.5	85.3	100.8	16	155
4FD1602 nACRo	4FD1602 ZrN-A	16.0	88.0	104.0	16	155



Position Hole 定位孔



Guide Holes 引導孔

Recommend: Use a position hole or a guide hole in advance. 建議: 使用定位孔或引導孔

- Position Hole: 1xD to 3xD deep drilled to assure consistent and precise holes with long drill, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
定位孔: 鑽孔1xD和3xD深孔, 以確保長鑽孔的一致和精確孔, 且定位孔應比鑽頭直徑大0.5mm左右。
- Guide Holes: In order to assure precise hole position, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
引導孔: 確保孔位置精度, 且引導孔應比鑽頭直徑大0.1mm左右。

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

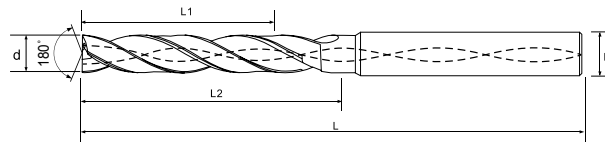
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○		

Unit/單位: mm

切削條件表 **P78**  
Cutting Condition

## 3xD Flat Drill with Coolant Hole

### ■ 3FDC 內冷平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
3FDC0302 nACRo	3FDC0302 ZrN-A	3.0	13.5	15.0	6.0	50
3FDC0312 nACRo	3FDC0312 ZrN-A	3.1	14.0	15.5	6.0	50
3FDC0322 nACRo	3FDC0322 ZrN-A	3.2	14.4	16.0	6.0	50
3FDC0332 nACRo	3FDC0332 ZrN-A	3.3	14.9	16.5	6.0	50
3FDC0342 nACRo	3FDC0342 ZrN-A	3.4	15.3	17.0	6.0	50
3FDC0352 nACRo	3FDC0352 ZrN-A	3.5	15.8	17.5	6.0	50
3FDC0362 nACRo	3FDC0362 ZrN-A	3.6	16.2	18.0	6.0	55
3FDC0372 nACRo	3FDC0372 ZrN-A	3.7	16.7	18.5	6.0	55
3FDC0382 nACRo	3FDC0382 ZrN-A	3.8	17.1	19.0	6.0	55
3FDC0392 nACRo	3FDC0392 ZrN-A	3.9	17.6	19.5	6.0	55
3FDC0402 nACRo	3FDC0402 ZrN-A	4.0	18.0	20.0	6.0	55
3FDC0412 nACRo	3FDC0412 ZrN-A	4.1	18.5	20.5	6.0	60
3FDC0422 nACRo	3FDC0422 ZrN-A	4.2	18.9	21.0	6.0	60
3FDC0432 nACRo	3FDC0432 ZrN-A	4.3	19.4	21.5	6.0	60
3FDC0442 nACRo	3FDC0442 ZrN-A	4.4	19.8	22.0	6.0	60
3FDC0452 nACRo	3FDC0452 ZrN-A	4.5	20.3	22.5	6.0	60
3FDC0462 nACRo	3FDC0462 ZrN-A	4.6	20.7	23.0	6.0	60
3FDC0472 nACRo	3FDC0472 ZrN-A	4.7	21.2	23.5	6.0	60
3FDC0482 nACRo	3FDC0482 ZrN-A	4.8	21.6	24.0	6.0	60
3FDC0492 nACRo	3FDC0492 ZrN-A	4.9	22.1	24.5	6.0	60
3FDC0502 nACRo	3FDC0502 ZrN-A	5.0	22.5	25.0	6.0	60
3FDC0512 nACRo	3FDC0512 ZrN-A	5.1	23.0	25.5	6.0	65
3FDC0522 nACRo	3FDC0522 ZrN-A	5.2	23.4	26.0	6.0	65
3FDC0532 nACRo	3FDC0532 ZrN-A	5.3	23.9	26.5	6.0	65
3FDC0542 nACRo	3FDC0542 ZrN-A	5.4	24.3	27.0	6.0	65

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

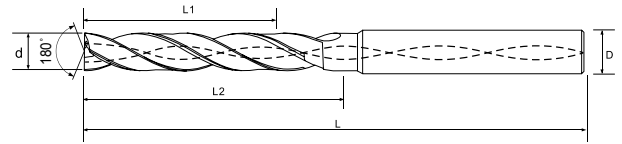
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			-50HRC	-55HRC	-60HRC	-65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○		

Unit/單位: mm

切削條件表 **P78**  
Cutting Condition

## 3xD Flat Drill with Coolant Hole

### ■ 3FDC 內冷平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
3FDC0552 nACRo	3FDC0552 ZrN-A	5.5	24.8	27.5	6.0	65
3FDC0562 nACRo	3FDC0562 ZrN-A	5.6	25.2	28.0	6.0	65
3FDC0572 nACRo	3FDC0572 ZrN-A	5.7	25.7	28.5	6.0	65
3FDC0582 nACRo	3FDC0582 ZrN-A	5.8	26.1	29.0	6.0	65
3FDC0592 nACRo	3FDC0592 ZrN-A	5.9	26.6	29.5	6.0	65
3FDC0602 nACRo	3FDC0602 ZrN-A	6.0	27.0	30.0	6.0	65
3FDC0612 nACRo	3FDC0612 ZrN-A	6.1	27.5	30.5	8.0	70
3FDC0622 nACRo	3FDC0622 ZrN-A	6.2	27.9	31.0	8.0	70
3FDC0632 nACRo	3FDC0632 ZrN-A	6.3	28.4	31.5	8.0	70
3FDC0642 nACRo	3FDC0642 ZrN-A	6.4	28.8	32.0	8.0	70
3FDC0652 nACRo	3FDC0652 ZrN-A	6.5	29.3	32.5	8.0	70
3FDC0662 nACRo	3FDC0662 ZrN-A	6.6	29.7	33.0	8.0	75
3FDC0672 nACRo	3FDC0672 ZrN-A	6.7	30.2	33.5	8.0	75
3FDC0682 nACRo	3FDC0682 ZrN-A	6.8	30.6	34.0	8.0	75
3FDC0692 nACRo	3FDC0692 ZrN-A	6.9	31.1	34.5	8.0	75
3FDC0702 nACRo	3FDC0702 ZrN-A	7.0	31.5	35.0	8.0	75
3FDC0712 nACRo	3FDC0712 ZrN-A	7.1	32.0	35.5	8.0	80
3FDC0722 nACRo	3FDC0722 ZrN-A	7.2	32.4	36.0	8.0	80
3FDC0732 nACRo	3FDC0732 ZrN-A	7.3	32.9	36.5	8.0	80
3FDC0742 nACRo	3FDC0742 ZrN-A	7.4	33.3	37.0	8.0	80
3FDC0752 nACRo	3FDC0752 ZrN-A	7.5	33.8	37.5	8.0	80
3FDC0762 nACRo	3FDC0762 ZrN-A	7.6	34.2	38.0	8.0	80
3FDC0772 nACRo	3FDC0772 ZrN-A	7.7	34.7	38.5	8.0	80
3FDC0782 nACRo	3FDC0782 ZrN-A	7.8	35.1	39.0	8.0	80
3FDC0792 nACRo	3FDC0792 ZrN-A	7.9	35.6	39.5	8.0	80

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

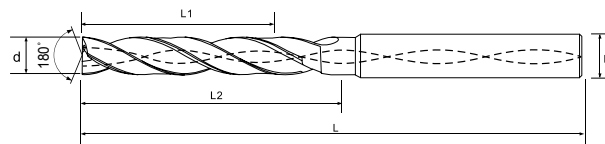
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○		

Unit/單位: mm

切削條件表 **P78**  
Cutting Condition

## 3xD Flat Drill with Coolant Hole

### 3FDC 內冷平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
3FDC0802 nACRo	3FDC0802 ZrN-A	8.0	36.0	40.0	8.0	80
3FDC0812 nACRo	3FDC0812 ZrN-A	8.1	36.5	40.5	10	85
3FDC0822 nACRo	3FDC0822 ZrN-A	8.2	36.9	41.0	10	85
3FDC0832 nACRo	3FDC0832 ZrN-A	8.3	37.4	41.5	10	85
3FDC0842 nACRo	3FDC0842 ZrN-A	8.4	37.8	42.0	10	85
3FDC0852 nACRo	3FDC0852 ZrN-A	8.5	38.3	42.5	10	85
3FDC0862 nACRo	3FDC0862 ZrN-A	8.6	38.7	43.0	10	90
3FDC0872 nACRo	3FDC0872 ZrN-A	8.7	39.2	43.5	10	90
3FDC0882 nACRo	3FDC0882 ZrN-A	8.8	39.6	44.0	10	90
3FDC0892 nACRo	3FDC0892 ZrN-A	8.9	40.1	44.5	10	90
3FDC0902 nACRo	3FDC0902 ZrN-A	9.0	40.5	45.0	10	90
3FDC0912 nACRo	3FDC0912 ZrN-A	9.1	41.0	45.5	10	95
3FDC0922 nACRo	3FDC0922 ZrN-A	9.2	41.4	46.0	10	95
3FDC0932 nACRo	3FDC0932 ZrN-A	9.3	41.9	46.5	10	95
3FDC0942 nACRo	3FDC0942 ZrN-A	9.4	42.3	47.0	10	95
3FDC0952 nACRo	3FDC0952 ZrN-A	9.5	42.8	47.5	10	95
3FDC0962 nACRo	3FDC0962 ZrN-A	9.6	43.2	48.0	10	95
3FDC0972 nACRo	3FDC0972 ZrN-A	9.7	43.7	48.5	10	95
3FDC0982 nACRo	3FDC0982 ZrN-A	9.8	44.1	49.0	10	95
3FDC0992 nACRo	3FDC0992 ZrN-A	9.9	44.6	49.5	10	95
3FDC1002 nACRo	3FDC1002 ZrN-A	10.0	45.0	50.0	10	95
3FDC1012 nACRo	3FDC1012 ZrN-A	10.1	45.5	50.5	12	100
3FDC1022 nACRo	3FDC1022 ZrN-A	10.2	45.9	51.0	12	100
3FDC1032 nACRo	3FDC1032 ZrN-A	10.3	46.4	51.5	12	100
3FDC1042 nACRo	3FDC1042 ZrN-A	10.4	46.8	52.0	12	100

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

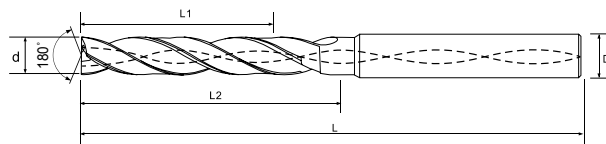
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			-50HRC	-55HRC	-60HRC	-65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○		

Unit/單位: mm

切削條件表 **P78**  
Cutting Condition

## 3xD Flat Drill with Coolant Hole

### 3FDC 內冷平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
3FDC1052 nACRo	3FDC1052 ZrN-A	10.5	47.3	52.5	12	100
3FDC1062 nACRo	3FDC1062 ZrN-A	10.6	47.7	53.0	12	105
3FDC1072 nACRo	3FDC1072 ZrN-A	10.7	48.2	53.5	12	105
3FDC1082 nACRo	3FDC1082 ZrN-A	10.8	48.6	54.0	12	105
3FDC1092 nACRo	3FDC1092 ZrN-A	10.9	49.1	54.5	12	105
3FDC1102 nACRo	3FDC1102 ZrN-A	11.0	49.5	55.0	12	105
3FDC1112 nACRo	3FDC1112 ZrN-A	11.1	50.0	55.5	12	110
3FDC1122 nACRo	3FDC1122 ZrN-A	11.2	50.4	56.0	12	110
3FDC1132 nACRo	3FDC1132 ZrN-A	11.3	50.9	56.5	12	110
3FDC1142 nACRo	3FDC1142 ZrN-A	11.4	51.3	57.0	12	110
3FDC1152 nACRo	3FDC1152 ZrN-A	11.5	51.8	57.5	12	110
3FDC1162 nACRo	3FDC1162 ZrN-A	11.6	52.2	58.0	12	110
3FDC1172 nACRo	3FDC1172 ZrN-A	11.7	52.7	58.5	12	110
3FDC1182 nACRo	3FDC1182 ZrN-A	11.8	53.1	59.0	12	110
3FDC1192 nACRo	3FDC1192 ZrN-A	11.9	53.6	59.5	12	110
3FDC1202 nACRo	3FDC1202 ZrN-A	12.0	54.0	60.0	12	115
3FDC1252 nACRo	3FDC1252 ZrN-A	12.5	56.3	62.5	14	120
3FDC1302 nACRo	3FDC1302 ZrN-A	13.0	58.5	65.0	14	120
3FDC1352 nACRo	3FDC1352 ZrN-A	13.5	60.8	67.5	14	125
3FDC1402 nACRo	3FDC1402 ZrN-A	14.0	63.0	70.0	14	125
3FDC1452 nACRo	3FDC1452 ZrN-A	14.5	65.3	72.5	16	135
3FDC1502 nACRo	3FDC1502 ZrN-A	15.0	67.5	75.0	16	135
3FDC1552 nACRo	3FDC1552 ZrN-A	15.5	69.8	77.5	16	140
3FDC1602 nACRo	3FDC1602 ZrN-A	16.0	72.0	80.0	16	140



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

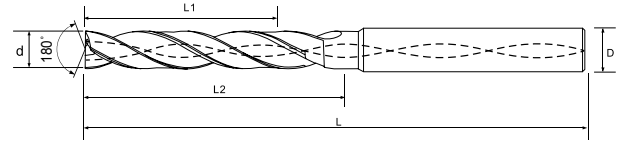
Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
		~45HRC	~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○	○	

Unit/單位: mm

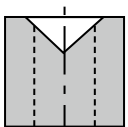
切削條件表 **P78**  
Cutting Condition

## 5xD Flat Drill with Coolant Hole

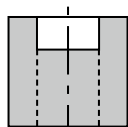
### 5FDC 內冷平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
5FDC0302 nACRo	5FDC0302 ZrN-A	3.0	19.5	21.0	6.0	60
5FDC0312 nACRo	5FDC0312 ZrN-A	3.1	20.2	21.7	6.0	60
5FDC0322 nACRo	5FDC0322 ZrN-A	3.2	20.8	22.4	6.0	60
5FDC0332 nACRo	5FDC0332 ZrN-A	3.3	21.5	23.1	6.0	60
5FDC0342 nACRo	5FDC0342 ZrN-A	3.4	22.1	23.8	6.0	60
5FDC0352 nACRo	5FDC0352 ZrN-A	3.5	22.8	24.5	6.0	60
5FDC0362 nACRo	5FDC0362 ZrN-A	3.6	23.4	25.2	6.0	65
5FDC0372 nACRo	5FDC0372 ZrN-A	3.7	24.1	25.9	6.0	65
5FDC0382 nACRo	5FDC0382 ZrN-A	3.8	24.7	26.6	6.0	65
5FDC0392 nACRo	5FDC0392 ZrN-A	3.9	25.4	27.3	6.0	65
5FDC0402 nACRo	5FDC0402 ZrN-A	4.0	26.0	28.0	6.0	65
5FDC0412 nACRo	5FDC0412 ZrN-A	4.1	26.7	28.7	6.0	70
5FDC0422 nACRo	5FDC0422 ZrN-A	4.2	27.3	29.4	6.0	70
5FDC0432 nACRo	5FDC0432 ZrN-A	4.3	28.0	30.1	6.0	70
5FDC0442 nACRo	5FDC0442 ZrN-A	4.4	28.6	30.8	6.0	70
5FDC0452 nACRo	5FDC0452 ZrN-A	4.5	29.3	31.5	6.0	70
5FDC0462 nACRo	5FDC0462 ZrN-A	4.6	29.9	32.2	6.0	70
5FDC0472 nACRo	5FDC0472 ZrN-A	4.7	30.6	32.9	6.0	70
5FDC0482 nACRo	5FDC0482 ZrN-A	4.8	31.2	33.6	6.0	70
5FDC0492 nACRo	5FDC0492 ZrN-A	4.9	31.9	34.3	6.0	70
5FDC0502 nACRo	5FDC0502 ZrN-A	5.0	32.5	35.0	6.0	70
5FDC0512 nACRo	5FDC0512 ZrN-A	5.1	33.2	35.7	6.0	75
5FDC0522 nACRo	5FDC0522 ZrN-A	5.2	33.8	36.4	6.0	75
5FDC0532 nACRo	5FDC0532 ZrN-A	5.3	34.5	37.1	6.0	75



Position Hole 定位孔



Guide Holes 引導孔

Recommend: Use a position hole or a guide hole in advance. 建議: 使用定位孔或引導孔

- Position Hole: 1xD to 3xD deep drilled to assure consistent and precise holes with long drill, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
定位孔: 鑽孔1xD和3xD深孔, 以確保長鑽孔的一致和精確孔, 且定位孔應比鑽頭直徑大0.5mm左右。
- Guide Holes: In order to assure precise hole position, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
引導孔: 確保孔位置精度, 且引導孔應比鑽頭直徑大0.1mm左右。

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
		~45HRC	~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○	○	

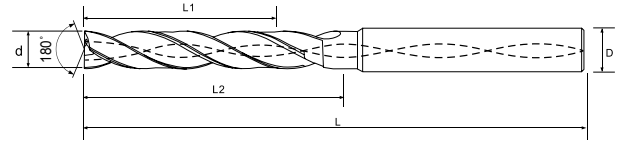
Unit/單位: mm



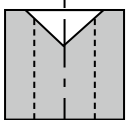
切削條件表 **P78**  
Cutting Condition

## 5xD Flat Drill with Coolant Hole

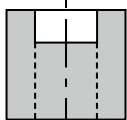
### 5FDC 內冷平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
5FDC0542 nACRo	5FDC0542 ZrN-A	5.4	35.1	37.8	6.0	75
5FDC0552 nACRo	5FDC0552 ZrN-A	5.5	35.8	38.5	6.0	75
5FDC0562 nACRo	5FDC0562 ZrN-A	5.6	36.4	39.2	6.0	75
5FDC0572 nACRo	5FDC0572 ZrN-A	5.7	37.1	39.9	6.0	75
5FDC0582 nACRo	5FDC0582 ZrN-A	5.8	37.7	40.6	6.0	75
5FDC0592 nACRo	5FDC0592 ZrN-A	5.9	38.4	41.3	6.0	75
5FDC0602 nACRo	5FDC0602 ZrN-A	6.0	39.0	42.0	6.0	75
5FDC0612 nACRo	5FDC0612 ZrN-A	6.1	39.7	42.7	8.0	85
5FDC0622 nACRo	5FDC0622 ZrN-A	6.2	40.3	43.4	8.0	85
5FDC0632 nACRo	5FDC0632 ZrN-A	6.3	41.0	44.1	8.0	85
5FDC0642 nACRo	5FDC0642 ZrN-A	6.4	41.6	44.8	8.0	85
5FDC0652 nACRo	5FDC0652 ZrN-A	6.5	42.3	45.5	8.0	85
5FDC0662 nACRo	5FDC0662 ZrN-A	6.6	42.9	46.2	8.0	90
5FDC0672 nACRo	5FDC0672 ZrN-A	6.7	43.6	46.9	8.0	90
5FDC0682 nACRo	5FDC0682 ZrN-A	6.8	44.2	47.6	8.0	90
5FDC0692 nACRo	5FDC0692 ZrN-A	6.9	44.9	48.3	8.0	90
5FDC0702 nACRo	5FDC0702 ZrN-A	7.0	45.5	49.0	8.0	90
5FDC0712 nACRo	5FDC0712 ZrN-A	7.1	46.2	49.7	8	95
5FDC0722 nACRo	5FDC0722 ZrN-A	7.2	46.8	50.4	8	95
5FDC0732 nACRo	5FDC0732 ZrN-A	7.3	47.5	51.1	8	95
5FDC0742 nACRo	5FDC0742 ZrN-A	7.4	48.1	51.8	8	95
5FDC0752 nACRo	5FDC0752 ZrN-A	7.5	48.8	52.5	8	95
5FDC0762 nACRo	5FDC0762 ZrN-A	7.6	49.4	53.2	8	95
5FDC0772 nACRo	5FDC0772 ZrN-A	7.7	50.1	53.9	8	95



Position Hole 定位孔



Guide Holes 引導孔

Recommend: Use a position hole or a guide hole in advance. 建議: 使用定位孔或引導孔

- Position Hole: 1xD to 3xD deep drilled to assure consistent and precise holes with long drill, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
定位孔: 鑽孔1xD和3xD深孔, 以確保長鑽孔的一致和精確孔, 且定位孔應比鑽頭直徑大0.5mm左右。
- Guide Holes: In order to assure precise hole position, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
引導孔: 確保孔位置精度, 且引導孔應比鑽頭直徑大0.1mm左右。

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~45HRC	~50HRC	~55HRC	~60HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○	○	

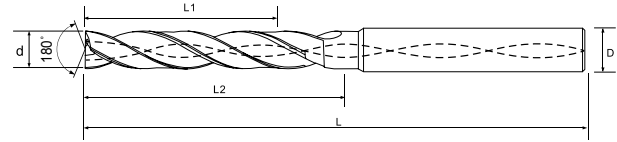
Unit/單位: mm



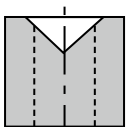
切削條件表 **P78**  
Cutting Condition

## 5xD Flat Drill with Coolant Hole

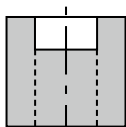
### 5FDC 內冷平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
5FDC0782 nACRo	5FDC0782 ZrN-A	7.8	50.7	54.6	8	95
5FDC0792 nACRo	5FDC0792 ZrN-A	7.9	51.4	55.3	8	95
5FDC0802 nACRo	5FDC0802 ZrN-A	8.0	52.0	56.0	8	95
5FDC0812 nACRo	5FDC0812 ZrN-A	8.1	52.7	56.7	10	100
5FDC0822 nACRo	5FDC0822 ZrN-A	8.2	53.3	57.4	10	100
5FDC0832 nACRo	5FDC0832 ZrN-A	8.3	54.0	58.1	10	100
5FDC0842 nACRo	5FDC0842 ZrN-A	8.4	54.6	58.8	10	100
5FDC0852 nACRo	5FDC0852 ZrN-A	8.5	55.3	59.5	10	100
5FDC0862 nACRo	5FDC0862 ZrN-A	8.6	55.9	60.2	10	105
5FDC0872 nACRo	5FDC0872 ZrN-A	8.7	56.6	60.9	10	105
5FDC0882 nACRo	5FDC0882 ZrN-A	8.8	57.2	61.6	10	105
5FDC0892 nACRo	5FDC0892 ZrN-A	8.9	57.9	62.3	10	105
5FDC0902 nACRo	5FDC0902 ZrN-A	9.0	58.5	63.0	10	105
5FDC0912 nACRo	5FDC0912 ZrN-A	9.1	59.2	63.7	10	110
5FDC0922 nACRo	5FDC0922 ZrN-A	9.2	59.8	64.4	10	110
5FDC0932 nACRo	5FDC0932 ZrN-A	9.3	60.5	65.1	10	110
5FDC0942 nACRo	5FDC0942 ZrN-A	9.4	61.1	65.8	10	110
5FDC0952 nACRo	5FDC0952 ZrN-A	9.5	61.8	66.5	10	110
5FDC0962 nACRo	5FDC0962 ZrN-A	9.6	62.4	67.2	10	110
5FDC0972 nACRo	5FDC0972 ZrN-A	9.7	63.1	67.9	10	110
5FDC0982 nACRo	5FDC0982 ZrN-A	9.8	63.7	68.6	10	110
5FDC0992 nACRo	5FDC0992 ZrN-A	9.9	64.4	69.3	10	110
5FDC1002 nACRo	5FDC1002 ZrN-A	10.0	65.0	70.0	10	110
5FDC1012 nACRo	5FDC1012 ZrN-A	10.1	65.7	70.7	12	120



Position Hole 定位孔



Guide Holes 引導孔

Recommend: Use a position hole or a guide hole in advance. 建議: 使用定位孔或引導孔

- Position Hole: 1xD to 3xD deep drilled to assure consistent and precise holes with long drill, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
定位孔: 鑽孔1xD和3xD深孔, 以確保長鑽孔的一致和精確孔, 且定位孔應比鑽頭直徑大0.5mm左右。
- Guide Holes: In order to assure precise hole position, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
引導孔: 確保孔位置精度, 且引導孔應比鑽頭直徑大0.1mm左右。

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

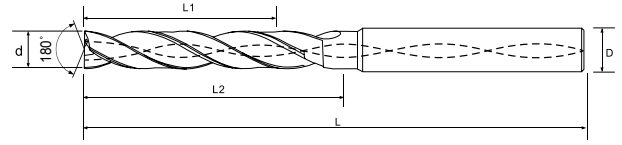
Coating 塗層	Carbon steel, Alloy steel 碳素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
		~45HRC	~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○	○	

Unit/單位: mm

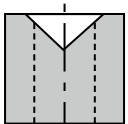
切削條件表 **P78**  
Cutting Condition

## 5xD Flat Drill with Coolant Hole

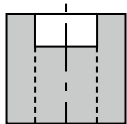
### 5FDC 內冷平頭鑽



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Effective Drill Depth	Flute Length	Shank Diameter	Full Length
nACRo	ZrN-A	d 刀徑	L1 有效深度	L2 溝長	D 直徑	L 全長
5FDC1022 nACRo	5FDC1022 ZrN-A	10.2	66.3	71.4	12	120
5FDC1032 nACRo	5FDC1032 ZrN-A	10.3	67.0	72.1	12	120
5FDC1042 nACRo	5FDC1042 ZrN-A	10.4	67.6	72.8	12	120
5FDC1052 nACRo	5FDC1052 ZrN-A	10.5	68.3	73.5	12	120
5FDC1062 nACRo	5FDC1062 ZrN-A	10.6	68.9	74.2	12	125
5FDC1072 nACRo	5FDC1072 ZrN-A	10.7	69.6	74.9	12	125
5FDC1082 nACRo	5FDC1082 ZrN-A	10.8	70.2	75.6	12	125
5FDC1092 nACRo	5FDC1092 ZrN-A	10.9	70.9	76.3	12	125
5FDC1102 nACRo	5FDC1102 ZrN-A	11.0	71.5	77.0	12	125
5FDC1112 nACRo	5FDC1112 ZrN-A	11.1	72.2	77.7	12	125
5FDC1122 nACRo	5FDC1122 ZrN-A	11.2	72.8	78.4	12	125
5FDC1132 nACRo	5FDC1132 ZrN-A	11.3	73.5	79.1	12	125
5FDC1142 nACRo	5FDC1142 ZrN-A	11.4	74.1	79.8	12	125
5FDC1152 nACRo	5FDC1152 ZrN-A	11.5	74.8	80.5	12	125
5FDC1162 nACRo	5FDC1162 ZrN-A	11.6	75.4	81.2	12	130
5FDC1172 nACRo	5FDC1172 ZrN-A	11.7	76.1	81.9	12	130
5FDC1182 nACRo	5FDC1182 ZrN-A	11.8	76.7	82.6	12	130
5FDC1192 nACRo	5FDC1192 ZrN-A	11.9	77.4	83.3	12	130
5FDC1202 nACRo	5FDC1202 ZrN-A	12.0	78.0	84.0	12	130
5FDC1252 nACRo	5FDC1252 ZrN-A	12.5	81.3	87.5	14	145
5FDC1302 nACRo	5FDC1302 ZrN-A	13.0	84.5	91.0	14	145
5FDC1352 nACRo	5FDC1352 ZrN-A	13.5	87.8	94.5	14	150
5FDC1402 nACRo	5FDC1402 ZrN-A	14.0	91.0	98.0	14	150



Position Hole 定位孔



Guide Holes 引導孔

Recommend: Use a position hole or a guide hole in advance. 建議: 使用定位孔或引導孔

- Position Hole: 1xD to 3xD deep drilled to assure consistent and precise holes with long drill, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
定位孔: 鑽孔1xD和3xD深孔, 以確保長鑽孔的一致和精確孔, 且定位孔應比鑽頭直徑大0.5mm左右。
- Guide Holes: In order to assure precise hole position, and the guide hole should be bigger around 0.1mm than the diameter of drill.  
引導孔: 確保孔位置精度, 且引導孔應比鑽頭直徑大0.1mm左右。

Application 適用材質:

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Coating 塗層	Carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼 ~45HRC	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Cast iron 鑄鐵	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金	Titanium alloy 鈦合金	Nickel/Inconel alloy 鎳基合金
			~50HRC	~55HRC	~60HRC	~65HRC						
nACRo	◎	○					○	○				
ZrN-A	○						◎	○	○	○		

Unit/單位: mm

2FD

產品規格表 **P60**  
Specification page

4FD

產品規格表 **P64**  
Specification page

### • FD Carbide Flat Drill Cutting Condition FD 平頭鑽切削條件表

Work Material 被切削材	Carbon Steel ~250HB 碳素鋼		Steel Alloy 20~30HRC 合金鋼		Mold Alloy 30~40HRC 合金鋼		Hardened Steel 40~50HRC 高硬度鋼	
	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給
3	60-90	0.04-0.08	60-80	0.04-0.07	40-60	0.04-0.07	10-40	0.01-0.04
4		0.06-0.1		0.06-0.1		0.06-0.1		0.02-0.06
6		0.1-0.14		0.09-0.14		0.09-0.14		0.03-0.07
8		0.12-0.16		0.12-0.18		0.12-0.18		0.06-0.1
10		0.14-0.2		0.14-0.2		0.14-0.2		0.08-0.12
12		0.16-0.24		0.16-0.24		0.16-0.24		0.1-0.14
14		0.22-0.28		0.18-0.26		0.18-0.26		0.12-0.16
16		0.24-0.3		0.2-0.3		0.2-0.3		0.14-0.18

#### ■ Vc 切削速度 (線速度)

Calculation Vc

鑽頭刀圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$V = \frac{\pi \times D \times N}{1000}$$

V = Cutting speed 切削速度 (m/min)

$\pi = 3.14$  (圓周率)

D = Diameter 鑽頭直徑 (mm)

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

#### ■ Rotation speed 轉速

Calculation of Rotation speed

裝夾立銑刀的機械主軸在每一分鐘內旋轉的轉數，可通過下述公式求出。

$$N = \frac{1000 \times V}{\pi \times D}$$

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

V = Cutting speed 切削速度 (m/min)

$\pi = 3.14$  (圓周率)

D = Diameter 鑽頭直徑 (mm)

#### ■ Feed rate 進給速度

Calculation of Feed rate

每一分鐘內工作台進給的速度，可通過下述公式求出。

$$F = N \times Z \times f$$

F = Feed rate 進給速度 (mm/min)

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

Z = Number of flute 鑽頭刃數

(The flute number of drill is 1. 鑽頭刃數為單刃)

f = Feed rate of the flute 每刃進給量 (mm/1 刃)

#### ■ Feed for teeth 每刃進給量

Calculation of the Feed of teeth

鑽頭刀圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$f = \frac{F}{N \times Z}$$

f = Feed rate of the flute 每刃進給量 (mm/1 刃)

F = Feed rate 進給速度 (mm/min)

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

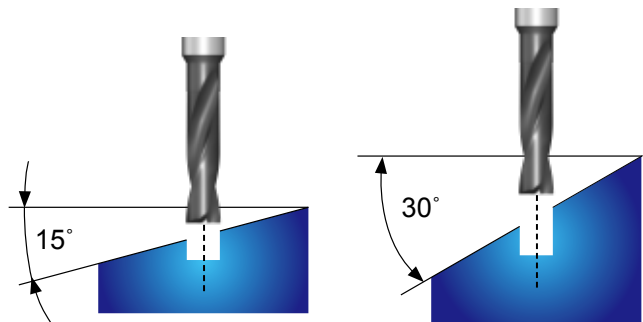
Z = Number of flute 鑽頭刃數

(The flute number of drill is 1. 鑽頭刃數為單刃)

	Stainless Steel 不鏽鋼		Gray Cast Iron FC250 鑄鐵		Ductile Cast Iron FCD450 球墨鑄鐵		Aluminum Alloy 鋁合金		Work Material 被切削材
	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	Drilling Condition 切削條件 Drill Dia (mm)直徑
20-40		0.01-0.03	60-90	0.04-0.08	60-80	0.04-0.06	100-120	0.04-0.08	3
		0.02-0.04		0.06-0.1		0.05-0.08		0.06-0.1	4
		0.04-0.06		0.08-0.12		0.08-0.11		0.1-0.14	6
		0.05-0.08		0.1-0.14		0.09-0.13		0.14-0.18	8
		0.06-0.1		0.12-0.16		0.11-0.15		0.18-0.22	10
		0.08-0.12		0.16-0.2		0.15-0.19		0.22-0.26	12
		0.09-0.13		0.17-0.22		0.16-0.21		0.25-0.3	14
		0.1-0.15		0.18-0.24		0.17-0.23		0.3-0.34	16

- Adjust cutting condition according to the rigidity of machine or clamp state.  
請依據機台剛性或夾持來調整切削條件。
- Adjust cutting condition when different sound, unusual vibration occur by cutting.  
當切削時發生異常聲音或震動時，請調整切削條件。
- The middle value is for 3xD drilling condition. When for hole depth more then 3xD, according to your cutting state to reduce the Vc and f.  
此切削條件表的中間值為3倍長的建議參數。當孔深大於3倍長時，請根據切削狀況降低參數。

Surface Angle 斜面角度	Cutting Conditions 切削條件	
	RPM	FEED
0°~15°	100%	100%
15°~30°	100%	50%
30°~	70%	30%



3FDC

產品規格表 **P68**  
Specification page

5FDC

產品規格表 **P72**  
Specification page

### • FDC Carbide Flat Drill with Coolant Hole Cutting Condition FDC 平頭鑽切削條件表

Work Material 被切削材	Carbon Steel 碳素鋼 ~250HB		Steel Alloy 合金鋼 20~30HRC		Mold Alloy 合金鋼 30~40HRC		Hardened Steel 高硬度鋼40~50HRC	
	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給
Drilling Condition 切削條件 Drill Dia (mm)直徑								
3	80-110	0.06-0.1	70-100	0.06-0.09	60-80	0.04-0.07	40-70	0.01-0.04
4		0.08-0.12		0.08-0.1		0.06-0.1		0.02-0.06
6		0.12-0.16		0.09-0.14		0.09-0.14		0.03-0.07
8		0.14-0.18		0.12-0.18		0.12-0.18		0.06-0.1
10		0.16-0.22		0.14-0.2		0.14-0.2		0.08-0.12
12		0.18-0.26		0.16-0.24		0.16-0.24		0.1-0.14
14		0.24-0.3		0.18-0.26		0.18-0.26		0.12-0.16
16		0.26-0.32		0.2-0.3		0.2-0.3		0.14-0.18

#### ■ Vc 切削速度 (線速度)

Calculation Vc

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

$$V = \frac{\pi \times D \times N}{1000}$$

V = Cutting speed 切削速度 (m/min)  
 $\pi = 3.14$  (圓周率)  
 D = Diameter 鑽頭直徑 (mm)  
 N = Rotating speed 轉速 ( $\text{min}^{-1}$ )

#### ■ Rotation speed 轉速

Calculation of Rotation speed

裝夾立銑刀的機械主軸在每一分鐘內旋轉的轉數，可通過下述公式求出。

$$N = \frac{1000 \times V}{\pi \times D}$$

N = Rotating speed 轉速 ( $\text{min}^{-1}$ )  
 V = Cutting speed 切削速度 (m/min)  
 $\pi = 3.14$  (圓周率)  
 D = Diameter 鑽頭直徑 (mm)

#### ■ Feed rate 進給速度

Calculation of Feed rate

每一分鐘內工作台進給的速度，可通過下述公式求出。

$$F = N \times Z \times f$$

F = Feed rate 進給速度 (mm/min)  
 N = Rotating speed 轉速 ( $\text{min}^{-1}$ )  
 Z = Number of flute 鑽頭刃數  
 (The flute number of drill is 1. 鑽頭刃數為單刃)  
 f = Feed rate of the flute 每刃進給量 (mm/1 刃)

#### ■ Feed for teeth 每刃進給量

Calculation of the Feed of teeth

鑽頭刀刃圓周面上的某 1 點在每一分鐘內移動的距離，可通過下述公式求出。

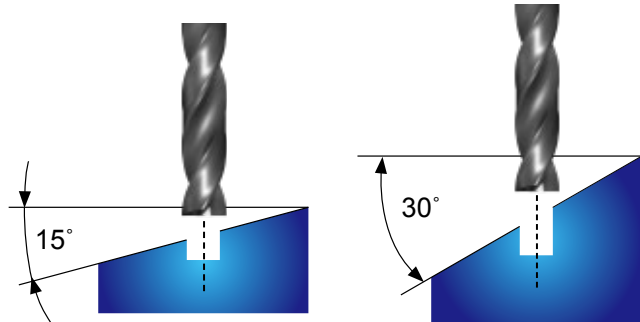
$$f = \frac{F}{N \times Z}$$

f = Feed rate of the flute 每刃進給量 (mm/1 刃)  
 F = Feed rate 進給速度 (mm/min)  
 N = Rotating speed 轉速 ( $\text{min}^{-1}$ )  
 Z = Number of flute 鑽頭刃數  
 (The flute number of drill is 1. 鑽頭刃數為單刃)

	Stainless Steel 不鏽鋼		Gray Cast Iron 鑄鐵FC250		Ductile Cast Iron 球墨鑄鐵 FCD450		鋁合金 Aluminum Alloy		Work Material 被切削材
	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	vc (m/min) 切削速度	f(mm/rev) 進給	Drilling Condition 切削條件 Drill Dia (mm)直徑
40-60		0.01-0.03	80-100	0.04-0.08	70-90	0.04-0.06	120-140	0.06-0.1	3
		0.02-0.04		0.06-0.1		0.05-0.08		0.08-0.12	4
		0.04-0.06		0.08-0.12		0.08-0.11		0.12-0.16	6
		0.05-0.08		0.1-0.14		0.09-0.13		0.16-0.2	8
		0.06-0.1		0.12-0.16		0.11-0.15		0.2-0.24	10
		0.08-0.12		0.16-0.2		0.15-0.19		0.24-0.28	12
		0.09-0.13		0.17-0.22		0.16-0.21		0.28-0.32	14
		0.1-0.15		0.18-0.24		0.17-0.23		0.32-0.36	16

- Adjust cutting condition according to the rigidity of machine or clamp state.  
請依據機台剛性或夾持來調整切削條件。
- Adjust cutting condition when different sound, unusual vibration occur by cutting.  
當切削時發生異常聲音或震動時，請調整切削條件。
- The middle value is for 3xD drilling condition. When for hole depth more then 3xD, according to your cutting state to reduce the Vc and f.  
此切削條件表的中間值為3倍長的建議參數。當孔深大於3倍長時，請根據切削狀況降低參數。

Surface Angle 斜面角度	Cutting Conditions 切削條件	
	RPM	FEED
0°~15°	100%	100%
15°~30°	100%	50%
30°~	70%	30%



切削條件表 **P84**  
Cutting Condition

## Position Drill

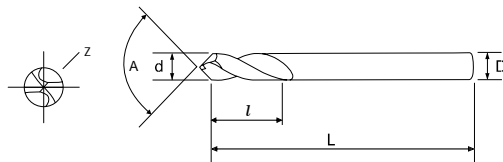
### ■ 定位鑽

**600**  
Nano

**HRC**  
▶ 45

● Micro Grain Carbide

● WC=90 Co=10 HV30=1571 Rupture=3750N/mm<sup>2</sup> Grain Size=0.6μm



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Flute Length	Full Length	Shank Diameter	Tip Angle
Uncoated 無塗層	ZrN-A	d 刃徑	l 刃長	L 全長	D 柄徑	A 前端角
PDST030900	PDST030900T	3	10	50	3	90°
PDST030120	PDST030120T	3	10	50	3	120°
PDST040900	PDST040900T	4	12	50	4	90°
PDST040120	PDST040120T	4	12	50	4	120°
PDST050900	PDST050900T	5	15	50	5	90°
PDST050120	PDST050120T	5	15	50	5	120°
PDST060900	PDST060900T	6	20	60	6	90°
PDST060120	PDST060120T	6	20	60	6	120°
PDST080900	PDST080900T	8	25	60	8	90°
PDST080120	PDST080120T	8	25	60	8	120°
PDST100900	PDST100900T	10	25	75	10	90°
PDST100120	PDST100120T	10	25	75	10	120°
PDST120900	PDST120900T	12	30	75	12	90°
PDST120120	PDST120120T	12	30	75	12	120°
PDST160900	PDST160900T	16	35	100	16	90°
PDST160120	PDST160120T	16	35	100	16	120°
PDST200900	PDST200900T	20	40	100	20	90°
PDST200120	PDST200120T	20	40	100	20	120°



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Coating 塗層	carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Titanium ally 鈦合金	Nickel/ Inconel ally 鎳基合金	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金
		-45HRC	-50HRC	-55HRC	-60HRC	-65HRC						
	○	◎	○							○	○	
ZrN-A	○	◎	◎	○			○	○	○	○	○	

Unit/單位: mm

切削條件表 **P84**  
Cutting Condition

## Position Drill - Long Shank

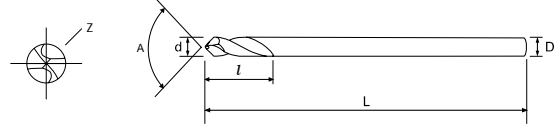
### 長柄定位鑽

**600**  
Nano

**HRC**  
▶ 45

● Micro Grain Carbide

● WC=90 Co=10 HV30=1571 Rupture=3750N/mm<sup>2</sup> Grain Size=0.6μm



MODE 型號		Dimension 規格				
Coating 塗層		Diameter	Flute Length	Full Length	Shank Diameter	Tip Angle
Uncoated 無塗層	ZrN-A	d 刃徑	l 刃長	L 全長	D 柄徑	A 前端角
PDST040901	PDST040901T	4	12	100	4	90°
PDST040121	PDST040121T	4	12	100	4	120°
PDST060901	PDST060901T	6	20	100	6	90°
PDST060121	PDST060121T	6	20	100	6	120°
PDST080901	PDST080901T	8	25	100	8	90°
PDST080121	PDST080121T	8	25	100	8	120°
PDST100901	PDST100901T	10	25	150	10	90°
PDST100121	PDST100121T	10	25	150	10	120°
PDST120901	PDST120901T	12	30	150	12	90°
PDST120121	PDST120121T	12	30	150	12	120°
PDST160901	PDST160901T	16	35	150	16	90°
PDST160121	PDST160121T	16	35	150	16	120°
PDST200901	PDST200901T	20	40	150	20	90°
PDST200121	PDST200121T	20	40	150	20	120°

Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

Coating 塗層	carbon steel, Alloy steel 碳素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Titanium ally 鈦合金	Nickel/ Inconel ally 鎳基合金	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金
		~45HRC	~50HRC	~55HRC	~60HRC	~65HRC						
	○	◎	○							○	○	
ZrN-A	○	◎	◎	○			○	○	○	○	○	

Unit/單位: mm





切削條件表 **P85**  
Cutting Condition

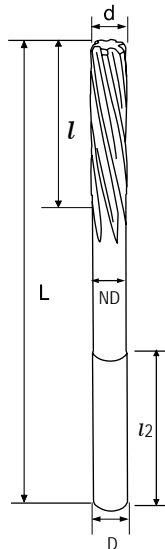
Reamer series

## ■ 鎢鋼絞刀

**600** Nano **HRC** ▶ 65

● Micro Grain Carbide

● WC=90 Co=10 HV30=1571 Rupture=3750N/mm<sup>2</sup> Grain Size=0.6μm



MODE	Diameter	Flute Length	Neck Diameter	Shank Length	Full Length	Flutes
型號	直徑d	l 刃長	ND頸部直徑	l2 柄長	L全長	刃數Z
RE015	1.5	8	1.35		40	4
RE016	1.6	9	1.4		43	
RE017	1.7	9	1.5		43	
RE018	1.8	10	1.6		46	
RE020	2.0	11	1.8	18	49	
RE022	2.2	12	2.0	18	53	
RE025	2.5	14	2.6	20	57	
RE028	2.8	15	2.6	20	61	
RE030	3.0	16	2.8	20	65	
RE035	3.5	18	3.3	23	70	
RE040	4.0	19	3.7	25	75	
RE045	4.5	21	4.2	26	80	
RE050	5.0	23	4.7	35	86	6
RE055	5.5	26	5.1	35	93	
RE060	6.0	26	5.6	35	93	
RE065	6.5	28	6.1	32	101	
RE070	7.0	31	6.5	36	109	
RE075	7.5	31	6.5	36	109	
RE080	8.0	33	7.5	42	117	
RE085	8.5	33	7	42	117	
RE090	9.0	36	8.0	42	125	
RE095	9.5	36	8.0	42	125	
RE100	10.0	38	9.0	45	133	
RE105	10.5	38	9.0	45	133	
RE110	11.0	41	9.0	50	142	
RE115	11.5	41	9.0	50	142	
RE120	12.0	44	9.0	50	151	

HRC ▶ 40

HRC ▶ 45

HRC ▶ 50

HRC ▶ 55

HRC ▶ 60

HRC ▶ 65



Application 適用材質：

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-harden steel 預硬鋼	High-hardened 高硬度鋼					Stainless steel 不鏽鋼	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金
	~45HRC	~50HRC	~55HRC	~60HRC	~65HRC				
○	○	○	○	○	○	○	○	○	

切削條件表  
Cutting Condition

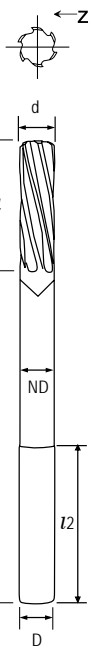
**P85**

## Carbide Edge Reamer

### 刃部鎢鋼頭絞刀

● Micro Grain Carbide

● WC=90 Co=10 HV30=1571 Rupture=3750N/mm<sup>2</sup> Grain Size=0.6μm



MODE	Diameter	Flute Length	Neck Diameter	Shank Length	Full Length	Shank Diameter	Flutes
型號	直徑d	l 刃長	ND 頸部直徑	l2 柄長	L 全長	D 柄徑	Z 刃數
REC085	8.5	33	7.0	42	117	8	6
REC090	9.0	36	8.0	42	125	10	6
REC095	9.5	36	8.0	42	125	10	6
REC100	10.0	38	9.0	42	135	10	6
REC105	10.5	38	9.0	45	133	10	6
REC110	11.0	41	9.0	50	142	10	6
REC115	11.5	41	9.0	50	142	10	6
REC120	12.0	44	9.0	50	151	12	6
REC125	12.5	44	9.0	50	151	12	6
REC130	13.0	44	11.0	50	151	12	6
REC135	13.5	47	11.0	58	160	12	8
REC140	14.0	47	11.0	58	160	12	8
REC145	14.5	50	11.0	58	162	12	8
REC150	15.0	50	11.0	58	162	12	8
REC155	15.5	52	11.0	58	170	12	8
REC160	16.0	52	11.0	58	170	12	8

Helix Angle : Tolerance for outer diameter Application : Mold steel and nonmetal material  
Main character : Specialized in ream process of mold, could reach perfect tolerance for outer diameter, the helix angle more larger, the surface more smooth.

螺旋角 : 7° ~ 12° 公差 : H7  
適用材質 : 模具鋼鐵材料及非鐵金屬材質切削用。特別在製造模具時絞孔作業，可達到非常好的孔徑公差，螺旋角越大，孔的加工面越光滑。

Application 適用材質 :

★ Perfect 最推薦    ◎ Excellent 適合    ○ Good 佳

carbon steel, Alloy steel 炭素鋼, 合金鋼	Pre-hardened steel 預硬鋼	High-hardened 高硬度鋼				Stainless steel 不鏽鋼	Copper alloy 銅合金, 銅	Aluminum alloy 鋁合金
	-45HRC	-50HRC	-55HRC	-60HRC	-65HRC			
○	○	○	○	○	○	○	○	

Unit/單位: mm

產品規格表 **P80-81**

Specification page

### • PDST Series Cutting Conditions 標準切削

Work Material 被削材	Mild steels, Carbon steels, cast iron		Alloy steels, Tool steels, SCM, SKT, SKS, SKD ~HRC30		鑄鐵 FC250等 一般構造鋼, 碳素鋼		Aluminum alloy, expanding material	
Diameter 直徑 (mm)	Speed 迴轉速 (min <sup>-1</sup> )	Feed Rate 進給速度 (mm/min)	Speed 迴轉速 (min <sup>-1</sup> )	Feed Rate 進給速度 (mm/min)	Speed 迴轉速 (min <sup>-1</sup> )	Feed Rate 進給速度 (mm/min)	Speed 迴轉速 (min <sup>-1</sup> )	Feed Rate 進給速度 (mm/min)
3	5300	160	3200	95	5300	160	8000	300
4	4000	160	2400	90	4000	160	6000	300
5	3200	160	1900	90	3200	160	4800	300
6	2600	160	1600	85	2700	160	4000	300
8	2000	150	1200	75	2000	150	3000	300
10	1600	145	960	65	1600	145	2400	300
12	1300	130	800	60	1300	130	2000	300
16	1000	120	600	60	1000	120	1500	300
20	800	110	480	55	800	110	1200	300

RE

產品規格表 **P82**

Specification page

REC

產品規格表 **P83**

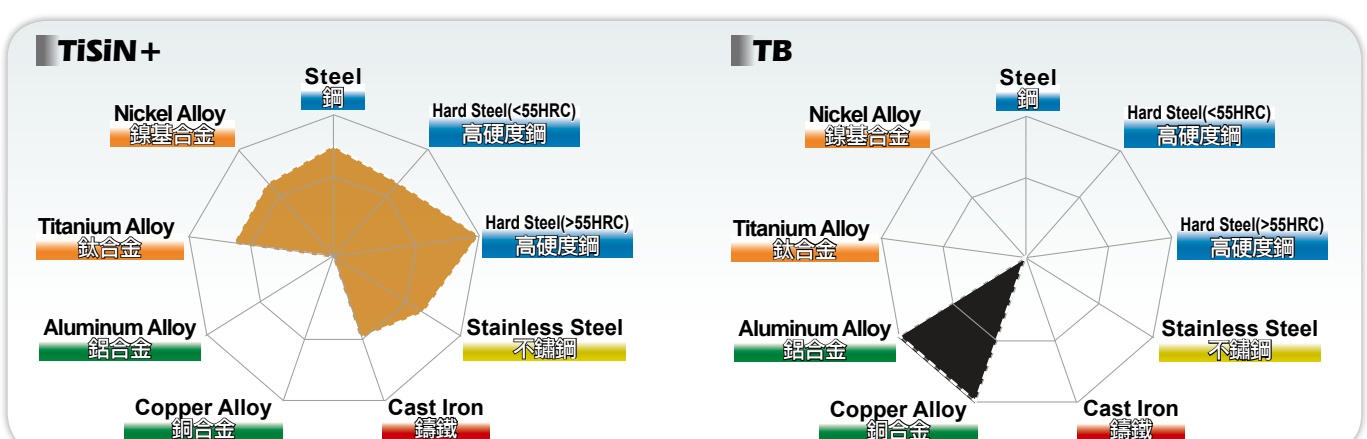
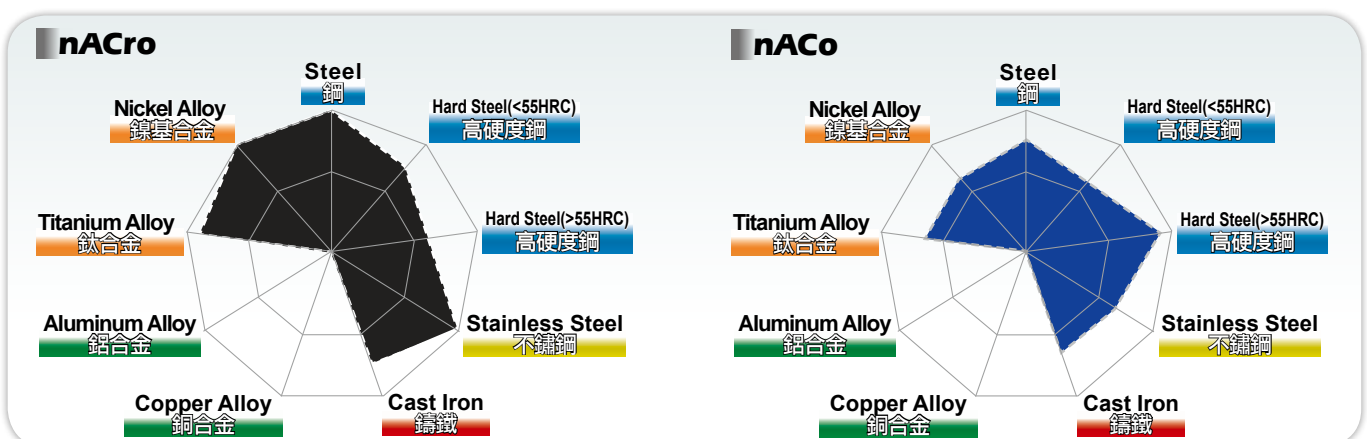
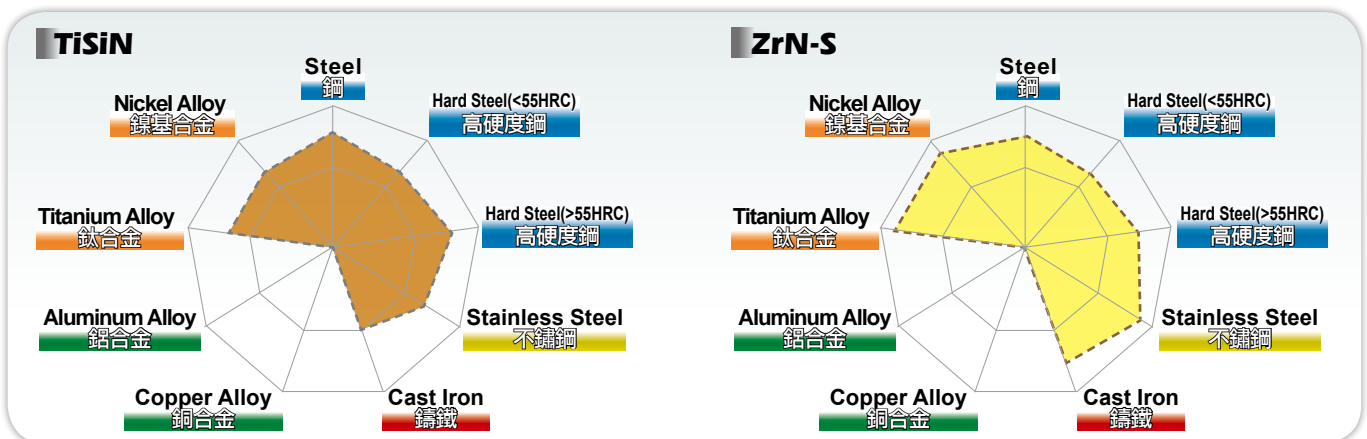
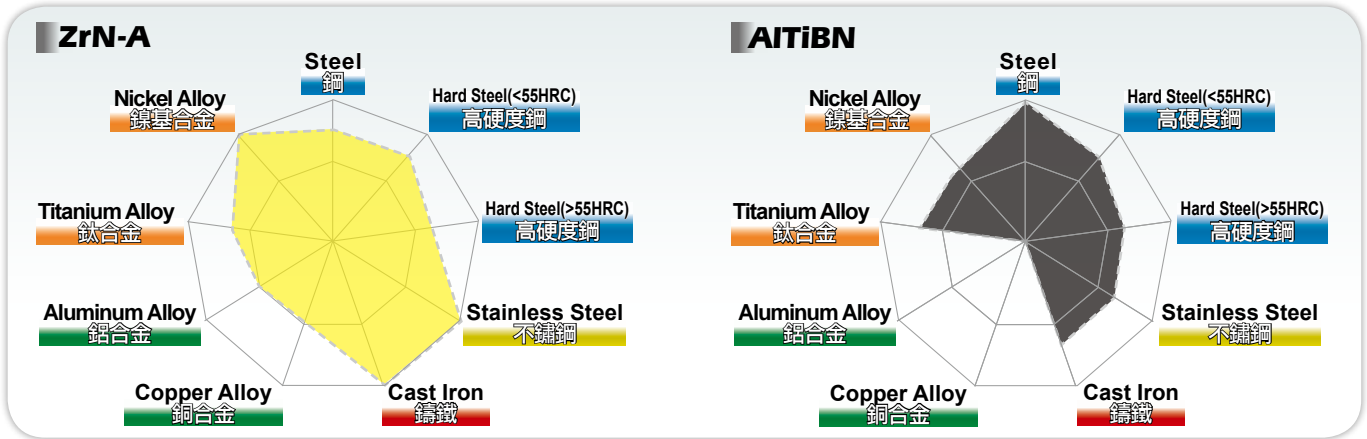
Specification page

### • RE/REC Series Cutting Condition 標準切削

被切削材 Work Material	一般構造用鋼 Structural Steels SS400	炭素鋼 Carbon Steels S45C, S50C	鑄鐵、合金鋼 Cast Iron, Alloy Steels FC, FCD, SCM, SKD	調質鋼 Hardened Steels		不鏽鋼 Stainless Steels SUS304
				HRC30~40	~HRC50	
切削速度 Cutting Speed	8~20 m/min	9~15 m/min	8~15 m/min	5~12 m/min	5~10 m/min	5~10m/min
刃徑 Dia. (mm)	Removal Amount (mm/Dia.)	Feed (mm/rev)	Feed (mm/rev)	Feed (mm/rev)	Feed (mm/rev)	Feed (mm/rev)
5	0.1~0.2	0.05~0.1	0.08~0.15	0.05~0.1	0.05~0.1	0.05~0.1
10	0.2~0.3	0.1~0.3	0.1~0.3	0.1~0.3	0.1~0.2	0.1~0.2
15	0.3~0.5	0.2~0.4	0.3~0.5	0.15~0.35	0.1~0.3	0.15~0.35
20	0.3~0.5	0.3~0.5	0.3~0.5	0.2~0.4	0.15~0.35	0.2~0.4

■ Coating Classifying and advantage 立銑刀的塗層種類及特點 <i>end mill expert</i>													
項目 Item	塗層種類 Coating type	ALTIBN	TiSiN	ZrN-A	ZrN-S	nACo	TiSiN+	P-nACo	nACro	SH (AlTiSiN)	SS (AlTiCrN)	RS (CrSiSiN)	TB
特性 Characteristic	表面硬度 (HV) Hardness(HV)	~3400	~3600	~3400	~3600	45(Gpa)	~3600	47(Gpa)	42(Gpa)	3600	3300	~2800	>6000
	塗層厚度 (μm) Thickness(μm)	2~4	2~4	2~4	2~4	2~4	2~4	2~4	2~4	2~4	2~4	2~4	<1
	耐氧化溫度 (°C) Oxidation Temp.(°C)	900	1100	900	1100	1200	1100	1200	1100	1200	900	1000	500
	摩擦係數 Friction Coefficient	0.4	0.5	0.3	0.3	0.35	0.4	0.35	0.35	0.34	0.3	0.3	<0.1
	顏色 Color	黑 Black	棕 Copper	金 Golden	金 Golden	藍 Blue	棕 Copper	藍 Blue	銀灰 Gray	金 Golden	銀 Sliver	銀 Sliver	金屬黑 Black
適用材質 Application	碳鋼 Carbon Steel	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	X
	工具高速鋼 High Speed Steel	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	X
	不鏽鋼 Stainless Steel	○	○	◎	◎	○	○	○	◎	○	◎	◎	X
	合金 Alloy	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	X
	銅 / 鋁 Copper / Aluminum	X	X	X	X	X	X	X	○	X	X	○	◎
	高溫合金 Inconel	◎	◎	◎	◎	◎	◎	◎	○	◎	○	○	X
	鈦合金 Titanium	○	○	◎	◎	○	○	○	○	○	○	○	◎
	塑膠 / 複合材料 / 木材 / 紙 Plastic / Composites / Wood / Paper	X	X	X	X	X	X	X	X	X	X	X	X
切削方式 Cutting Way	乾式 Dry Cutting	◎	◎	◎	◎	○	◎	○	◎	○	○	◎	○
	濕式 Wet Cutting	○	○	○	○	○	○	○	◎	○	◎	◎	◎
	油霧 Oil Spray	○	○	○	○	◎	○	◎	◎	◎	○	◎	○

符號說明 Icon: ◎最適合 Recommend ○適合 Suitable X 不建議 Not Recommend  
 如需代鍍服務，請洽 coating@speedtiger.com.tw



## Hole Dia. Before Threading 螺紋下孔徑參考表

Diameter (mm)	Tap Thread 牙攻					Forming Tap 無屑	
	for Metric Threads	for Unified Threads	for Helical Coil Thread Insert	for Whitworth Threads	for Pipe Threads (RP PS,G PF)	for Metric Threads	for Unified Threads
d 刀徑	公制螺紋	美制螺紋	螺紋護套	英制牙	管用平行螺紋	公制螺紋	美制螺紋
3			#4-40				
3.1							
3.15	M3.5*0.35		M3*0.5				#6-32 UNC
3.175							
3.2				W 5/32 -32			#6-40 UNF
3.25						M3.5*0.6	
3.3	M4.0*0.7		#5-40				
3.38						M3.5*0.35	
3.4	MJ 4x0.7	#8 -32(4.166)UNC					
3.5	M4.0*0.5	#8-36(4.166)UNF					
3.571							
3.6							
3.7			#6-32	W 3/16 -24		M4*0.7	
3.8	M4.5*0.75					M4*0.5	#8-32 UNC
3.85		#10-24(4.826)UNC					
3.9							#8-36 UNF
3.97							
4	M4.5*0.5						
4.038							
4.1		#10-32(4.826)UNF					
4.2	M5.0*0.8		M4*0.7			M4.5*0.75	
4.3	MJ 5x0.8						
4.35							#10-24 UNC
4.366							
4.4			#8-32				
4.45							#10-32 UNF
4.5	M5.0*0.5	#12-24(5.486)UNC					
4.6		#12-28(5.486)UNF					
4.65						M5*0.8	
4.7		#12-32(5.486)UNEF					
4.763						M5x0.5	
4.8							
4.9							
5	M6.0*1.0		#10-32				#12-24 UNC
5.1	MJ 6x1	1/4 -20UNC	#10-24	W 1/4 -20			#12-28 UNF
5.106							
5.159							
5.2			M5*0.8				
5.3	M6.0*0.75						
5.4							
5.41							
5.5	M6.0*0.5	1/4 -28UNF					

## Hole Dia. Before Threading 螺紋下孔徑參考表

Diameter (mm)	Tap Thread 牙攻					Forming Tap 無屑	
	for Metric Threads	for Unified Threads	for Helical Coil Thread Insert	for Whitworth Threads	for Pipe Threads (RP PS,G PF)	for Metric Threads	for Unified Threads
d 刃徑	公制螺紋	美制螺紋	螺紋護套	英制牙	管用平行螺紋	公制螺紋	美式螺紋
5.556						M6*1	
5.6		1/4 -32UNEF					
5.7			#12-24			M6*0.75	
5.75							1/4 -20 UNC
5.8							
5.9							
5.954							1/4 -28 UNF
6	M7.0*1.0						
6.1	MJ 7x1						
6.2							
6.3	M7.0*0.75		M6*1				
6.35							
6.4							
6.5	M7.0*0.5				Rp 1/16 - 28		
6.528				W 5/16 -18		M7*1	
6.6		5/16 -18UNC	1/4 - 28				
6.7			1/4 - 20		G 1/18 - 28	M7*0.75	
6.746							
6.8	M8.0*1.25						
6.9		5/16 -24UNF					
7	M8.0*1.0						
7.1	MJ 8x1	5/16 -32UNEF					
7.145							
7.2							
7.25							5/16 -18 UNC
7.3	M8.0*0.75						
7.4							
7.45						M8*1.25	5/16 -24 UNF
7.5	M8.0*0.5						
7.541						M8*1	
7.6							
7.7							
7.8	M9.0*1.25						
7.9							
7.938				W 3/8 -16			
8	M9.0*1.0	3/8 -16UNC					
8.1							
8.2							
8.3	M9.0*0.75		M8*1.0 , 5/16-24				
8.334							
8.4			M8*1.25 , 5/16-18				
8.5	M10*1.5	3/8 -24UNF			Rp 1/8 - 28		



## Hole Dia. Before Threading 螺紋下孔徑參考表

Diameter (mm)	Tap Thread 牙攻					Forming Tap 無屑	
	for Metric Threads	for Unified Threads	for Helical Coil Thread Insert	for Whitworth Threads	for Pipe Threads (RP PS,G PF)	for Metric Threads	for Unified Threads
d 刃徑	公制螺紋	美制螺紋	螺紋護套	英制牙	管用平行螺紋	公制螺紋	美式螺紋
8.6						M9*1	
8.7		3/8 -32UNEF			G 1/8 - 28	M9*0.75	
8.733							
8.8	M10*1.25						3/8 -16 UNC
8.9	MJ 10x1.25						
9	M10*1						
9.05							3/8 -24 UNF
9.1							
9.129							
9.2							
9.25							
9.3	M10*0.75			W 7/16 -14		M10*1.5	
9.35							
9.4		7/16 -14UNC					
9.5	M10*0.5 M11*1.5					M10*1.25	
9.525						M10x1	
9.6							
9.7							
9.8			3/8-24				
9.9		7/16 -20UNF					
9.921							
10	M11*1.0		3/8-16				
10.1							
10.2		7/16 -28UNEF					
10.25							7/16 -14 UNC
10.3	M11*0.75 M12*1.75		M10*1.0				
10.32							
10.4			M10*1.25				
10.5	M11*0.5 M12*1.5		M10*1.5				
10.55							7/16 -20 UNF
10.6				W 1/2 -12			
10.7							
10.716							
10.8	M12*1.25	1/2 -13UNC					
10.9							
11	M12*1.0						
11.1							
11.113						M12*1.75	
11.2							
11.25							
11.3						M12*1.5	
11.35							

## Hole Dia. Before Threading 螺紋下孔徑參考表

Diameter (mm)	Tap Thread 牙攻					Forming Tap 無屑	
	for Metric Threads	for Unified Threads	for Helical Coil Thread Insert	for Whitworth Threads	for Pipe Threads (RP PS,G PF)	for Metric Threads	for Unified Threads
d 刃徑	公制螺紋	美制螺紋	螺紋護套	英制牙	管用平行螺紋	公制螺紋	美式螺紋
11.4					Rp 1/4 - 19		
11.45						M12*1.25	
11.5	M12*0.5	1/2 -20UNF	7/16 - 20				
11.509						M12*1	
11.6			7/16 - 14				
11.7					G 1/4 - 19		
11.8		1/2 -28UNEF					1/2 -13 UNC
11.9							
11.908							
12	M14*2.0						
12.15							1/2 -20 UNF
12.2		9/16 -12UNC					
12.3				W 9/16 -12			
12.304							
12.4			M12*1.25				
12.5	M14*1.5		M12*1.5				
12.55							
12.6			M12*1.75				
12.7							
12.8							
12.9		9/16 -18UNF					
13	M14*1.0					M14*2	
13.1			STI-1/2-20				
13.2		9/16 -24UNEF	STI-1/2-13				
13.3						M14*1.5	9/16 -12 UNC
13.35							
13.45							
13.495							
13.5	M15*1.5					M14*1	
13.6		5/8 -11UNC		W 5/8 -11			
13.65							9/16 -18 UNF
13.7							
13.8							
13.891							
14	M15*1 M16*2						
14.5	M16*1.5	5/8 -18UNF	M14*1.5 , M14*2.0				
14.8		5/8 -24UNEF	9/16 - 12				5/8 -11 UNC
14.9					Rp 3/8 - 19		
15	M16*1.0					M16*2	
15.2	#N/A				G 3/8 - 19		
15.5	M18*2.5					M16*1	
15.8							
16	M17*1 M18*2						

## Customized Drill Inquiry Form 鎢鋼鑽頭訂製表格

Tool's Material : Solid Carbide / VHM  
 刀具材質：鎢鋼

Without coolant hole  
無冷卻孔

With coolant hole  
有冷卻孔

Company's name 公司寶號	Contact Person 聯絡人員	<input type="checkbox"/> Mr. <input type="checkbox"/> Ms.
Workpiece Material 被切削材	Hardness 被切削材硬度	<input type="checkbox"/> HRC _____ <input type="checkbox"/> Other _____
Coating 塗層需求	<input type="checkbox"/> ST Coating (refer to our catalogue P.90) 震虎塗層請參閱 90 頁 _____ <input type="checkbox"/> Uncoated 無塗層	
Cutting Condition 加工條件	Vc :	Vf :
Coolant Type 冷卻方式	<input type="checkbox"/> Dry 乾式 <input type="checkbox"/> Wet 濕式 <input type="checkbox"/> Other 其他 _____	
Enquiry Quantity 詢價數量	Remark 備註	

## Customized Step Drill Inquiry Form 階梯鑽訂製表格

Tool's Material : Solid Carbide / VHM  
 刀具材質：鎢鋼

Without coolant hole  
無冷卻孔

With coolant hole  
有冷卻孔

Company's name 公司寶號	Contact Person 聯絡人員	<input type="checkbox"/> Mr. <input type="checkbox"/> Ms.
Workpiece Material 被切削材	Hardness 被切削材硬度	<input type="checkbox"/> HRC _____ <input type="checkbox"/> Other _____
Coating 塗層需求	<input type="checkbox"/> ST Coating (refer to our catalogue P.90) 震虎塗層請參閱 90 頁 _____ <input type="checkbox"/> Uncoated 無塗層	
Cutting Condition 加工條件	Vc :	Vf :
Coolant Type 冷卻方式	<input type="checkbox"/> Dry 乾式 <input type="checkbox"/> Wet 濕式 <input type="checkbox"/> Other 其他 _____	
Enquiry Quantity 詢價數量	Remark 備註	

For more special requests please write your requests to [sale@speedtiger.com.tw](mailto:sale@speedtiger.com.tw)  
 更多訂製需求請來信至 [sale@speedtiger.com.tw](mailto:sale@speedtiger.com.tw)



Speedtiger\_global



YouTube SpeedTigerTaiwan



SPEED TIGER Global



@SPEEDTIGER\_1998



Taiwan FanPage  
台灣粉絲專頁  
SPEED TIGER



Taiwan Group  
台灣社團  
Speedtiger好康報報





SPEED TIGER PRECISION TECHNOLOGY Co.,Ltd.  
震虎精密科技股份有限公司  
No.10, Jingke 2nd Rd., Nantun Dist., Taichung  
City 408, Taiwan  
台中市南屯區精科二路10號  
TEL:+886-4-2350-3022 FAX:+886-4-2350-3083

