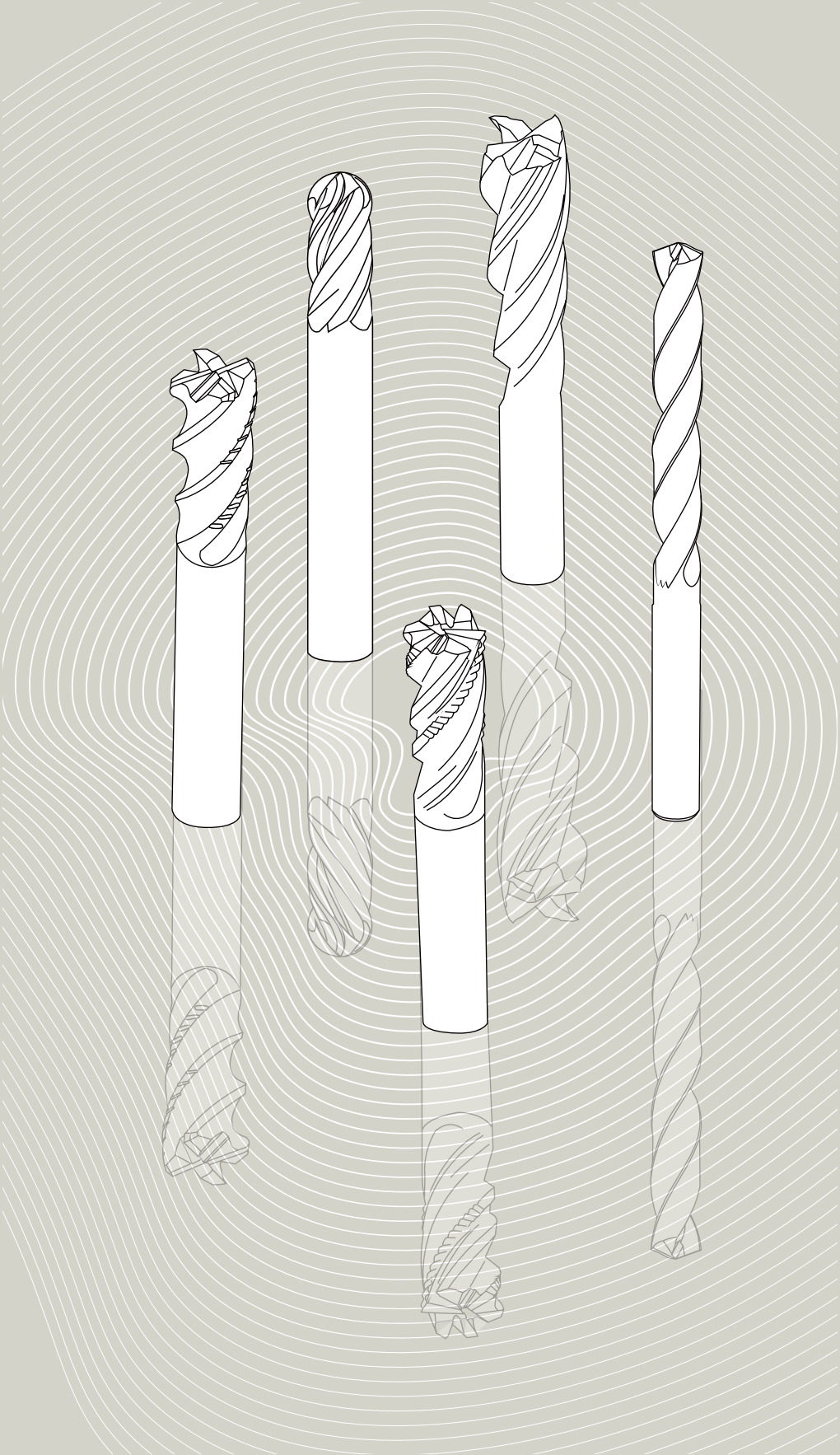
SPEED TIGER

# 新價值宣言

Declarationof New Value



2025-2026

www.speedtiger.com.tw



台灣精品 2020
TAIWAN EXCELLENCE

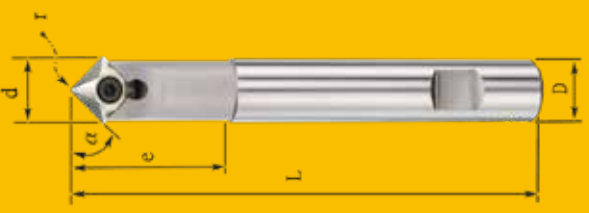
# SE12

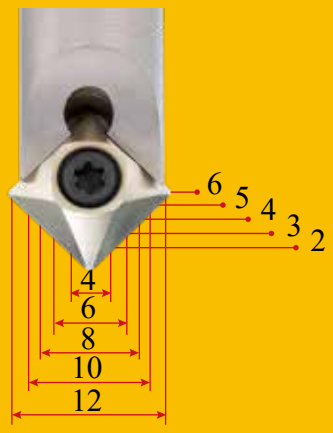
# 定點鑽 / 倒角刀 刀具組

## Spot Drill / Chamfer Mill+Inserts SET

| MODE 型號 | D | L | α | d | e | r | Insert 刀片 | Screw 螺絲 | Wrench 扳手 | List Price 最低售價 |
|---|---|---|---|---|---|---|---|---|---|---|
| HSE1245-S16-120 | 16 | 120 | 45° | 16.9 | 40 | 0.8 | SE12T4(5pcs) | TS4006 | T15 | 2070 元 / 組 |
| HSE1230-S16-120 | 16 | 120 | 30° | 20.8 | 40 | 0.8 | | | | |

● Recommend Cutting Condition:
建議加工條件 :




※ WARNING 注意 :

1. Please use high rigidity machine and tool holder.
請使用較具剛性之機械設備及夾頭。
2. Please adjust the Speed and Feed Rate if tool vibration happened on the low rigidity machine.
機械設備或工件的夾持鋼性不足、出現震動時，請以相同比例按右表降低回轉數及進給速度。
3. Recommend the maximum tool over length is 5D. Please adjust the parameters according to the actual situation.
刀具夾持突出量以 5D 為基準，超出上述場合時，請將切削條件做適度調整。

## Spotting Drill

| Work Material 被切削材 | Vc (m/min) 切削速度 | fn | Diameter 直徑 | Speed 轉速 | Feed Rate 進給 |
|---|---|---|---|---|---|
| General steel 一般鋼 | 100 | 0.06 | 4 | 8000 | 480 |
| | | 0.04 | 6 | 5300 | 210 |
| | 80 | 0.03 | 8 | 3200 | 95 |
| | | 0.03 | 10 | 2500 | 75 |
| | | 0.02 | 12 | 2100 | 40 |
| Carbon steel 碳素鋼 | 40 | 0.05 | 4 | 3200 | 160 |
| | | 0.04 | 6 | 2100 | 85 |
| | 35 | 0.03 | 8 | 1400 | 40 |
| | | 0.03 | 10 | 1100 | 30 |
| Non-ferrous alloy 非鐵合金 | 150 | 0.06 | 4 | 12000 | 700 |
| | | 0.06 | 6 | 8000 | 480 |
| | | 0.06 | 8 | 6000 | 360 |
| | | 0.06 | 10 | 4800 | 280 |
| | | 0.06 | 12 | 4000 | 240 |

mm

## Chamfering

| Work Material 被切削材 | Vc (m/min) 切削速度 | Ap 使用深度範圍 | Chamfer 倒 C 角 | Speed 轉速 | Feed Rate 進給 | fn |
|---|---|---|---|---|---|---|
| General steel 一般鋼 | 120 | 2 ↓ | 0.5C | 9500 | 2600 | 0.25 |
| | | | 1.C | | 2100 | 0.22 |
| | | 2 ~ 4 | 0.5C | 4800 | 1200 | 0.25 |
| | | | 1.C | | 1100 | 0.22 |
| | | | 2.C | | 820 | 0.17 |
| | | 4 ~ 6 | 0.5C | 3200 | 800 | 0.25 |
| | | | 1.C | | 700 | 0.22 |
| | | | 2.C | | 550 | 0.17 |
| | | | 3.C | | 385 | 0.12 |
| Carbon steel 碳素鋼 | 40 | 2 ↓ | 0.5C | 3200 | 150 | 0.05 |
| | | | 1.C | | 130 | 0.04 |
| | | 2 ~ 4 | 0.5 | 1600 | 80 | 0.05 |
| | | | 1.C | | 65 | 0.04 |
| | | | 2.C | | 50 | 0.03 |
| | | 4 ~ 6 | 0.5C | 1100 | 65 | 0.06 |
| | | | 1.C | | 55 | 0.05 |
| | | | 2.C | | 45 | 0.04 |
| | | | 3.C | | 35 | 0.03 |
| Non-ferrous alloy 非鐵合金 | 150 | 2 ↓ | 0.5C | 12000 | 3000 | 0.25 |
| | | | 1.C | | 2750 | 0.23 |
| | | 2 ~ 4 | 0.5C | 6000 | 1500 | 0.25 |
| | | | 1.C | | 1400 | 0.23 |
| | | | 2.C | | 1250 | 0.21 |
| | | 4 ~ 6 | 0.5C | 4000 | 1000 | 0.25 |
| | | | 1.C | | 920 | 0.23 |
| | | | 2.C | | 850 | 0.21 |
| | | | 3.C | | 600 | 0.15 |

mm

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## Tool Materials 鎢鋼材質

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400 Nano — Tungsten Carbide 400 Nano 鎢鋼400奈米

200 Nano — Tungsten Carbide 200 Nano 鎢鋼200奈米

600 PLUS — Tungsten Carbide 600 PLUS 鎢鋼600奈米PLUS

400 PLUS — Tungsten Carbide 400 PLUS 鎢鋼400奈米PLUS

200 PLUS — Tungsten Carbide 200 PLUS 鎢鋼200奈米PLUS

## Coating 塗層

ZrN-A — ZrN-A Coating ZrN-A 鍍層

ZrN-S — ZrN-S Coating ZrN-S 鍍層

ALTIBN — ALTIBN Coating ALTIBN 鍍層

nACRo — nACRo Coating nACRo 鍍層

TB — TB Coating TB 鍍層

TiSiN — TiSiN Coating TiSiN 鍍層

nACo — nACo Coating nACo 鍍層

Uncoated 無鍍層

## Helix Angle 螺旋角度

Helix Angle θ 切削刃角度 θ

Unequal leads 不等導程

Unequal Helix Angle 不等螺旋

Unequal Helix Angle 不等螺旋

## ADDITIONAL GEOMETRY 幾何設計

Taper Core 不等心厚

Unequal Flute Spacing 不等分割

Unequal Flute Spacing 不等分割

Unequal Flute Spacing 不等分割

## Tolerance 公差

h6 — Tolerance of Diameter 柄徑公差

h7 — Tolerance of Diameter 刃徑公差

## Tools Specification 加工硬度

HRC 40 — Working Hardness 40° 加工硬度 40°

HRC 45 — Working Hardness 45° 加工硬度 45°

HRC 50 — Working Hardness 50° 加工硬度 50°

HRC 55 — Working Hardness 55° 加工硬度 55°

HRC 60 — Working Hardness 60° 加工硬度 60°

HRC 65 — Working Hardness 65° 加工硬度 65°

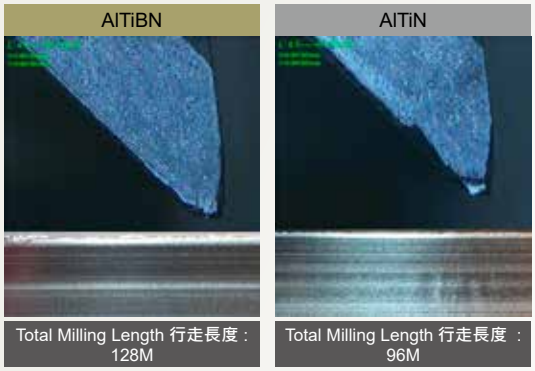
# 塗層特色

## *Introduction of ALTIBN Coating*
## *ALTIBN* 塗層介紹

### Tool Life Comparison 壽命比較




### Cutting Edges刃部比較

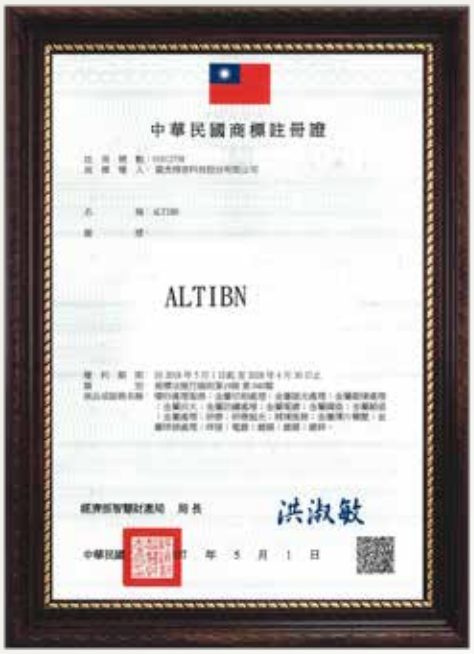



### Cutting Conditions 切削條件

| | | | |
|---|---|---|---|
| Milling Type 銑削方式 | Side Milling 側銑 | Feed Rate 進給速度 | 1082mm/min |
| Work Piece 工件材料 | S45C | Depth of Cut 切深 | ap=20 ae=1.2 |
| Tool Size 刀具尺寸 | 10mm x 30 x 75L | Coolant Way 冷卻方式 | Air 空冷 |
| Rotation Speed 轉速 | 3183 rpm | CNC Machine CNC 機台 | YCM 永進 FV102A |



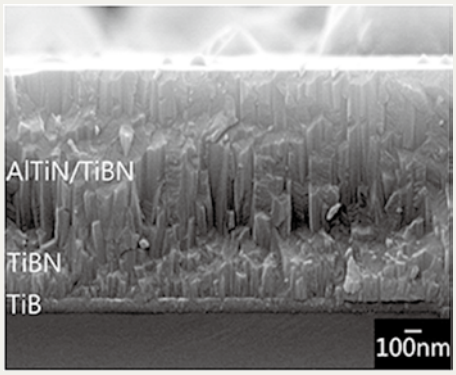

本產品已註冊台灣商標註冊號：01911574
Taiwan trademark No. 01911574

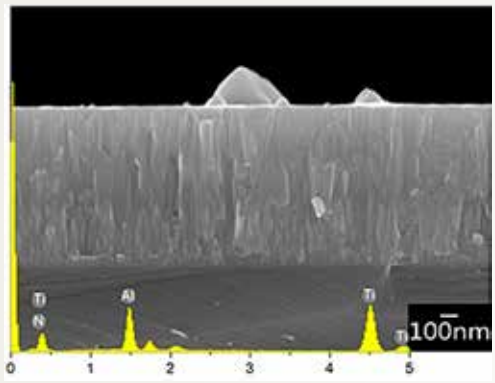



本產品已註冊台灣商標註冊號：01912738
Taiwan trademark No. 01912738

# Introduction of ALTIBN Coating
# ALTIBN 塗層介紹

## Coating Structural Analysis-SEM 薄膜結構分析-SEM



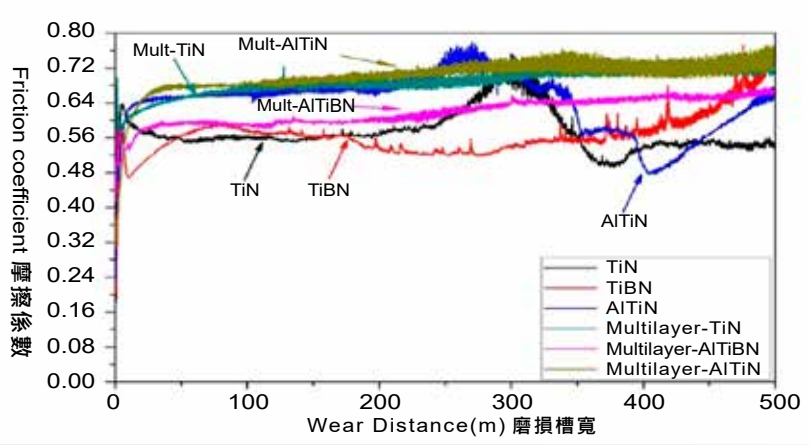




## Normal Temperature - Mechanical Analysis 常溫-機械分析

| Coating | Hardness(Hv) | Impact of Diameter | Lc2-Lc1 | Wear Rate | Roughness (μm) |
|---|---|---|---|---|---|
| AlTiN | 3672 | 305(um) | 8.28N | 6.49x10-6 | 0.233 |
| AlTiBN | 4088 | 280.9(um) | 17.6N | 5.11x10-6 | 0.166 |

In normal temperature mechanical analysis, the performance of AlTiBN is superior to AlTiN in hardness, wear rate and coating roughness.
在常溫機械分析中，AlTiBN 在硬度、磨損率及薄膜粗糙度皆優於 AlTiN

## The Oxidation Wear of 700℃ 700℃的氧化磨耗




| Coating 塗層 | Friction Coefficient 摩擦係數 | Wear Distance 磨損槽寬 | Wear rate 磨損率 |
|---|---|---|---|
| TiN | 0.5662 | 316.3 | 6.4x10-6 |
| TiBN | 0.5664 | 281.2 | 5.69x10-6 |
| AlTiN | 0.6402 | 281.4 | 4.97x10-6 |
| Mult-TiN | 0.686 | 277.4 | 4.82x10-6 |
| AlTiBN | 0.618 | 281.8 | 4.66x10-6 |
| Mult-AlTiN | 0.7014 | 290.1 | 5.5x10-6 |

The wear rate of AlTiBN at high temperatures is also superior to the above coatings.
AlTiBN 在高溫下的磨損率優於上述其它塗層

# 塗層特色

## Introduction of ZrN-A Coating
## ZrN-A 塗層介紹

### Block resistance抗沾黏

- Suitable for High Speed machining with both dry and wet cutting way.
  用於乾濕式高速機加工



### Good for Stainless steel cutting
### 不鏽鋼切削

- Hardness 2800~3000 HV硬度
- Coefficient of friction: 0.3磨擦係數
- Oxidation Temp抗氧化溫度: 800~900°C
- High performance coating(Light golden)高性能薄膜(淡金色 )

### 實測比較 – SUS316開槽

| PVE1004(AlTiBN) 塗層優化加 ZrN 測試比較 | | |
|---|---|---|
| 刀具使用前 | PVE1004T ( AlTiBN ) |  |
| | PVE1004T ( ZrN-A ) |  |

| Parameter 綜合參數 | |
|---|---|
| Tool (Coating) 測試刀款 | PVE1004 ZrN-A |
| Cutting Material 切削材質 | SUS316 |
| Rotation Speed (S) 轉速 | 2644 rpm |
| Milling Speed (Vc) 切削速度 | 100 m/min |
| Feed Rate (F) 進給速度 | 646 mm/min |
| Depth of cut 切深 | ap=10mm / ae=10mm |
| (Fz) Feed of teeth 每刃進給量 | 0.062 |
| Machine 使用機台 | YCM FV102A 永進 |
| Holder 刀桿 | BT40 Shrink fit holder 燒結刀桿 |
| "The length of Tool Extend 刀具伸出長度 | 37mm |
| Cooling Way 冷卻方式 | Water 水冷 |

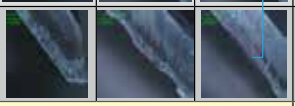
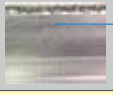
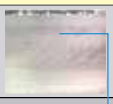
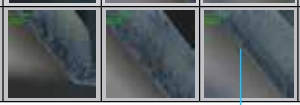
## Introduction of ZrN-A Coating
## ZrN-A 塗層介紹

### Cutting Performance - SUS316 Slotting 開槽實測比較

Serious broken cutting edge 刀具多處崩裂

Some Burr 中度毛刺

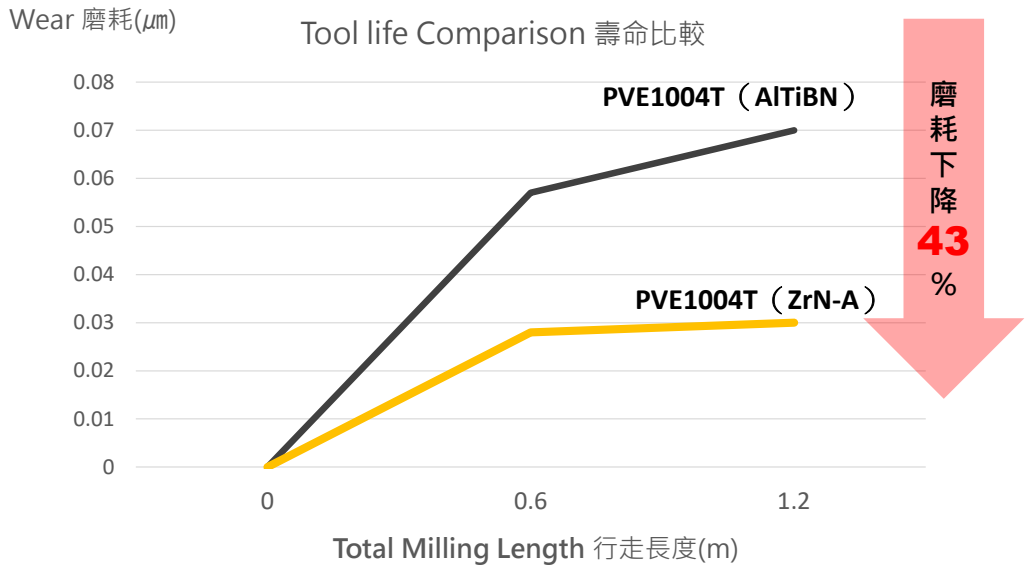
Serious jagged iron chips 鐵屑多處鋸齒狀

| Item 項目 | | PVE1004T ( AlTiBN ) | Work Surface 切面 | Iron Chip 鐵屑 | Load 負載值 |
|---|---|---|---|---|---|
| Total Milling Length 切削總長度 | 0.6m 米 |  |  |  | Load of Spindle 主軸負載 40% |
| | 1.2m 米 |  |  |  | Load of Spindle 主軸負載 42% |
| Item 項目 | | PVE1004T( ZrN+A ) | Work Surface 切面 | Iron Chip 鐵屑 | Load 負載值 |
| Total Milling Length 切削總長度 | 0.6m 米 |  |  |  | Load of Spindle 主軸負載 41% |
| | 1.2m 米 |  |  |  | Load of Spindle 主軸負載 41% |

Slight broken cutting edge 刀具輕微崩裂

Slight Burr 輕微毛刺

Slight jagged iron chips 鐵屑輕微鋸齒狀




| Parameter 綜合參數 | |
|---|---|
| Tool (Coating) 測試刀款 | PVE1004 ZrN-A |
| Cutting Material 切削材質 | SUS316 |
| Rotation Speed (S) 轉速 | 2644 rpm |
| Milling Speed (Vc) 切削速度 | 100 m/min |
| Feed Rate (F) 進給速度 | 646 mm/min |
| Depth of cut 切深 | ap=10mm / ae=10mm |
| (Fz) Feed of teeth 每刃進給量 | 0.062 |
| Machine 使用機台 | YCM FV102A 永進 |
| Holder 刀桿 | BT40 Shrink fit holder 燒結刀桿 |
| "The length of Tool Extend 刀具伸出長度 | 37mm |
| Cooling Way 冷卻方式 | Water 水冷 |

| Coating 塗層 Total Milling Length 行走長度 (m) | 0.6m | 1.2m |
|---|---|---|
| ALTIBN | 0.057 μ m | 0.07 μ m |
| ZrN-A | 0.028 μ m | 0.03 μ m |

# 塗層特色

## Introduction of TiSiN Coating
## TiSiN 塗層介紹

New Nano-composite coating material achieves extraordinary heat resistance and hardness. This is attained due to the new composite layer, consisting of nano-crystal material (Oxidizing temperature：1100℃, Layer hardness：HV 3600).
Achieves extraordinary performance in high-speed cutting, and high efficient machining of hardened steel, machining efficiency is more than twice as effective as other manufacturers solid carbide end mills.
Ensuring long life and reliability in hardened steel applications HRC45~55 material examples：1.2080, 1.2344, and 1.2379, ASP Power Steels, High Speed Steels.
The coating generates less heat during cutting; therefore it is well suited to dry machining conditions.

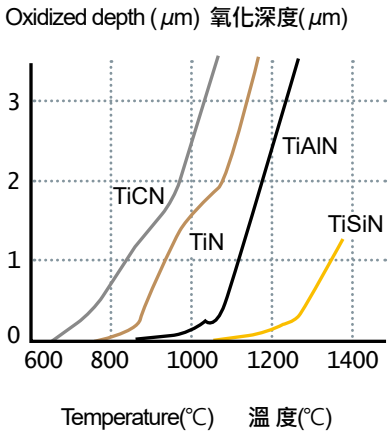
Newly developed TiSiN Coating has excellent oxidation-resistant properties, this achieves：
High speed cutting of hard steels = High Efficiency
Improvement in tool life = Lower tooling costs The newly designed flute geometry increases rigidity, with the improved high radius accuracy producing higher tolerance, and smoother surface finish.
Direct Milling of hardened steel is now possible = Faster production times.



Patent of Taiwan No: I 280288
(the method of tool surface hardening)
本產品已獲台灣一種刀具表面硬化方法之專利證書字號：I 280288

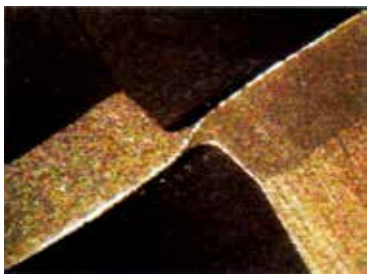
### 塗層介紹

新式的TiSiN 塗層 適合於各種的切削環境。
更高的薄膜硬度，更細緻的表面，提高刀具的壽命。
加入了矽原子，使表面更加的平滑，更提高了薄膜的抗氧化溫度（≧1100℃）
特殊的鍍膜製程，使層積的表面更加緊實，表面硬度更高達≧3600HV
特殊的刀形設計，加上 TiSiN 塗層，更提高了刀具的耐磨耗性，和優秀的續航能力






market standard High performance
市售高性能刀具



SI hard coating
SI 硬質塗層刀具

## Introduction of nACRo Coating
## nACRo 塗層介紹

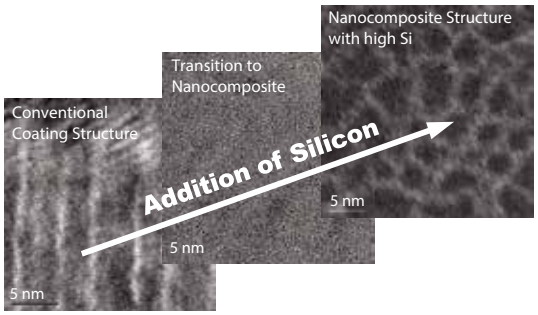
# nACRo Nanocomposite coating process. nACRo 奈米制程

1. contain Si membrane, oxidation start temperature : 1,100℃.
2. nano grade coating, better surface finish.
3. extremely high nano hardness, extremely high adhesion.
4. better protection for tools, reduction of production. cost, economical environmentally manufacturing.

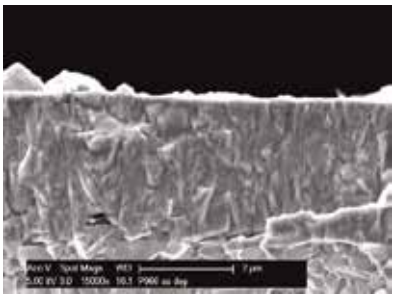
含矽薄膜，切削氧化溫度高達1100℃。
奈米級塗層，表面更加細緻。
超高硬度，超高附著力。
多層陶瓷結構，保護性更佳性，切削更環保，更節省成本。

By deposition very different kinds of materials,the components (like Ti, Cr, Al in the first group,and Si in the other) are not mixed completely,and 2 phases are created. The nanocrystallineTiAlN- or AlCrN-grains become embedded in theamorphous SiN-matrix and the nano-composite structure develops.

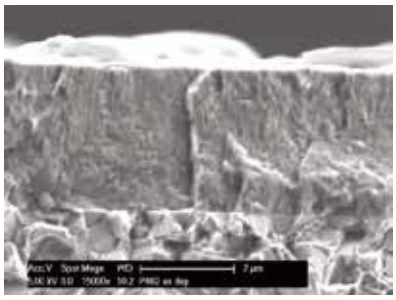
Silicon increases the thoughness and decreases the internal residual stress of the coating.
The increasing of the hardness is generated by the structure only, the SiN matrix enwraps the hard grains and avoids growing of their size.



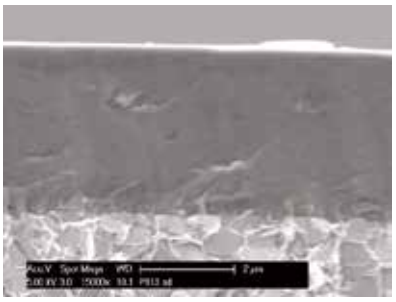

不含矽: AlCrN
No Silicon: AlCrN



低含矽: AlCrN / SiN
Low Silicon: AlCrN / SiN

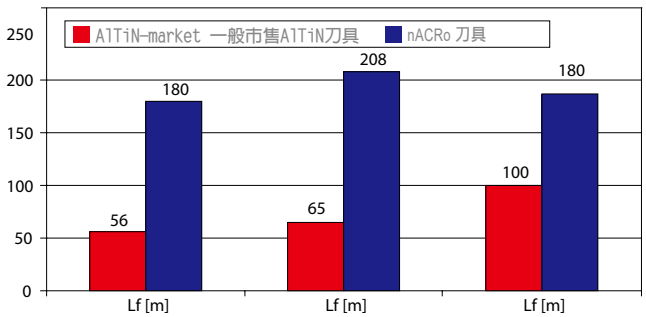


高含矽: nACRo
High Silicon: nACRo





Tool Life Comparison 刀具使用壽命比較




Carbide End Mills Ø10mm, z=4, steel 34CrNiMo6 (30 HRC), Coolant: Air; Minimum lubrication - Tested tools: 2x4
Source: Carmex, Maalot, ISR

# 塗層特色

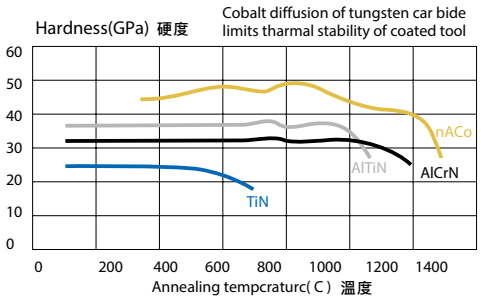
## Introduction of nACo Coating
## nACo 塗層介紹

## nACo Nanocomposite coating process. nACo奈米制程

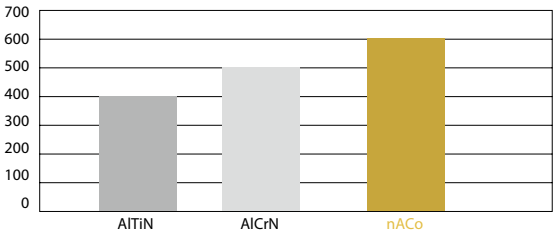
1. Perfect coating structure.
2. High hardness.
3. High adhesion.
4. Adding Si into nACo structure makes atom structuremore completed with high hard-wearing and tools with more longer life.

1. 更完整的薄膜結構。
2. 超高硬度。
3. 高附著力。
4. nACo的結構中加入Si，使其原子結構更加完整，更具耐磨耗性，使工具有更長的壽命。

### Heat Resistance Comparison 熱阻抗比較



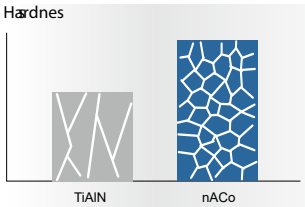

### Tool Life Comparison 刀具壽命比較

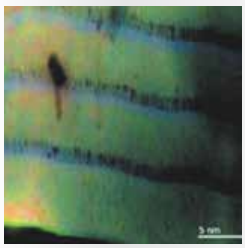



### AlTiN v.s nACo 的比較

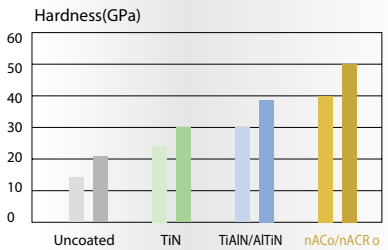
| S.T Coating | Typical Thickness(£g) 膜厚 | Nanohardness up to (GPa) 硬度 | Max Service Temp(¢J) 氧化溫度 | Friction coefficient 摩擦係數 |
|---|---|---|---|---|
| AlTiN | 2~4 | 35 | 800 | 0.6 |
| nACo | 2~4 | 45 | 1200 | 0.35 |

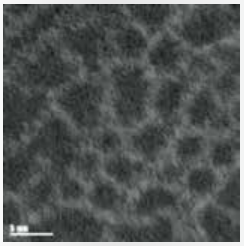
### Hardness Increase through Nanocomposites



Conbentional Nanolayer-Structure : (TiAlN)(TiN)
一般(TiAlN)(TiN)的微視組織



Nanocomposite structure: (nc- TiAlN)/(a-Si3N4)
nACo 的微視組織

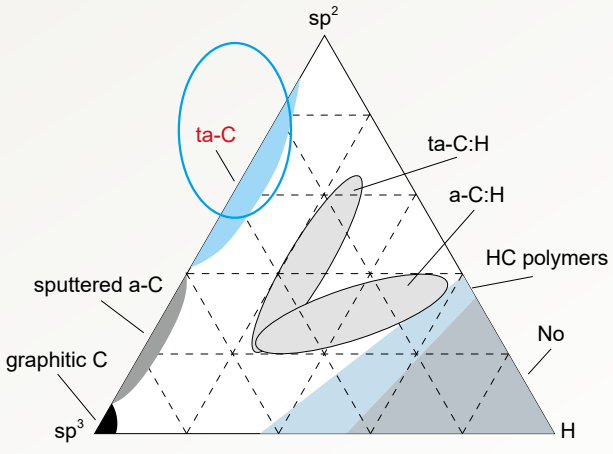
# Tetrabond Diamond Coating　TB超硬類鑽膜

## A different type of DLC 並不是一般的類鑽膜

Super high lubrication & Super low friction coefficient
New PVD Nano Technology
The tool is long life to be surprised because TB hardness to near the the nature diamond coating
Swiss & Speed Tiger Technological Cooperation.

**超高潤滑性·超低摩擦係數**
**最新奈米物理氣相沉積科技**
**超高硬度·超長壽命·惟有CVD鑽石薄膜可相比擬**
**泛虎與瑞士 Ionbond 技術合作開發**

- Nano-composite coating which is improved the lubricative property without making the abrasive property lower by new coating material of nano-crystal.
- Excellent cutting is reached in machining non-ferrous materials, especially in aluminum with over six multiple in machining efficiency. Long tool life and precision machining in PCB boards, Brass, Titanium, Ceramics, Fiberglass etc.
- Dry cutting applicable, because of less cutting heat by improving friction property very much and wet cutting applicable.
- **奈米複合塗層採用奈米晶格靶材，大幅改善潤滑效果，有效的降低摩擦系數並且維持更好的耐摩耗性。**
- **出色地應用在非鐵金屬加工，尤其是在鋁合金加工效率在6倍以上，並且在PCB板、銅、鈦合金、陶瓷形成超長刀具壽命和高品質加工。**
- **摩擦係數大幅改善，形成較低的切削溫度，所以乾式切削可行，濕式切削亦可行。**



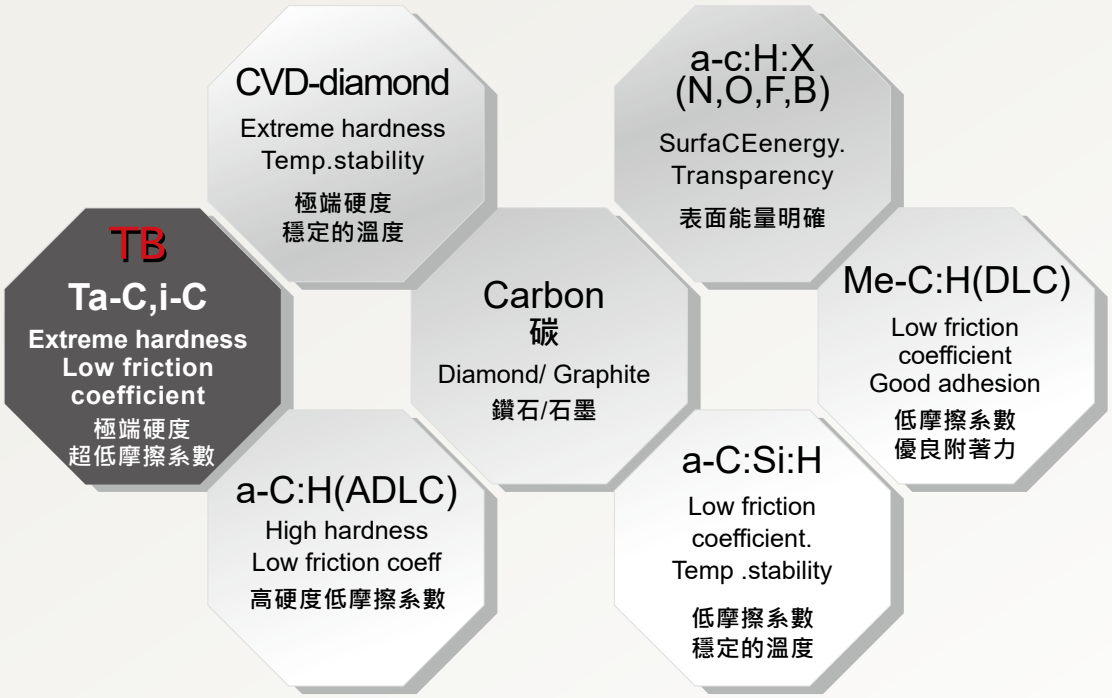
# 塗層特色

## Introduction of TB Coating
## TB 塗層介紹

DLC coatings are generally deposited by five methods, each having different properties :
DLC 薄膜有5種不同的沉積方法，而每一個各有不同的特性：

| | | TB Ta:C | PVD a:CH | PVD Me:CH | CVD | PaCVD |
|---|---|---|---|---|---|---|
| Deposition temp | 沈積溫度 | under 150 C | under 200 C | under 200 C | over 900 C | under 200 C |
| Range of substrates | 基材限制 | Broad | Broad | Broad | Limited | Broad |
| | | | | | | |
| Oxidation temp | 氧化溫度 | 500-1000 C | 350 C | 300 C | 700 C | 300 C |
| Adhesion | 附著力 | Very good | Good | Very Good | Excellent | Good |
| Smoothness | 平滑度 | Good | Very good | Good | Good | Excellent |
| Hardness (GPA) | 硬度 | 60-95 | 25 | 10–15 | 40-90 | 20-40 |
| Coefficient of friction | 摩擦係數 | <0.1 | <0.1 | 0.15 | <0.4 | <0.1 |
| Hydrogenated | 氫化 | No | Yes or No | Yes | No | Yes |
| Metal content | 金屬親和性 | No | Yes | Yes | No | No |

All DLC coatings are not equal：especially on Hardness and Oxidation
各種類鑽膜都有不同的特性，尤其是硬度和氧化溫度

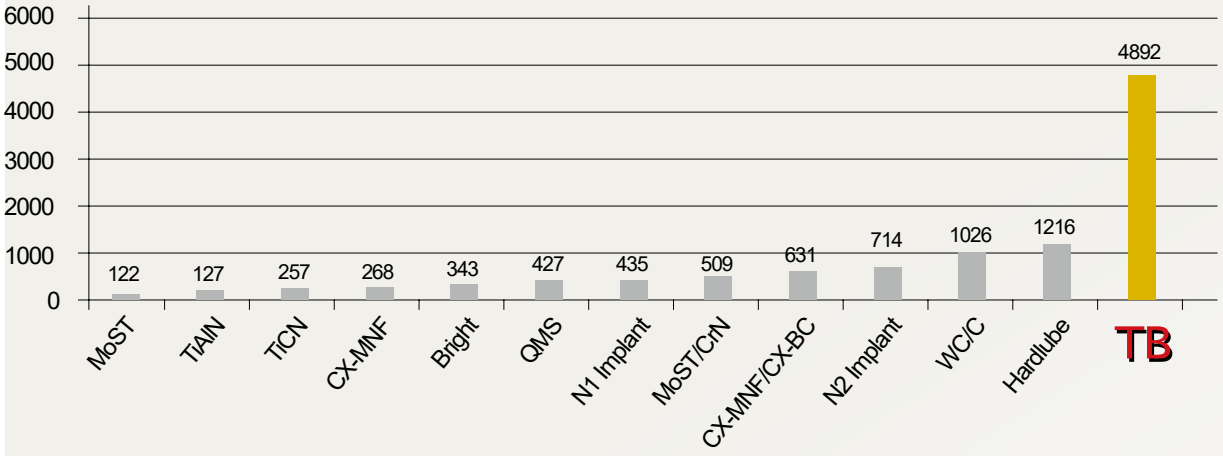


## Introduction of TB Coating
## TB 塗層介紹

### Performance and cost savings - Dry Drilling
### 節省成本和高性能－乾式鑽孔

TB exhibits
outstanding performance
in machining aluminum!*
TB塗層在加工鋁件有著優異的表現

Dry Drilling in A-319 Aluminum - pilot holes with cold-air 3500 rpm and 15 ipm / D13227A drills - Average number of holes.
鋁合金（A-319）乾式鑽孔－氣冷－3500rpm－15ipm/D13227A－平均鑽孔數




### TetraBond Performance
### TB 類鑽石完美的表現在非鐵材質的加工

**TETRABOND** is an excellent choice for machining non-ferrous materials such as:
TB 類鑽石薄膜非常出色的表現在機器加工非鐵金屬材質上

- High silicon content aluminum alloys 高矽鋁合金
- Aluminum magnesium matrix materials 鋁合金
- Titanium 6Al4V 鈦金屬
- Epoxy resins 環氧樹脂
- Fiberglass and composites 玻璃纖維和合成
- Plastic 塑膠
- Graphite 石墨
- Brass and bronze 黃銅和青銅
- Ceramics 陶瓷

# 塗層特色

## Introduction of TB Coating
## TB 塗層介紹

### TETRABOND Advantages.
### TB 薄膜的優勢

- No substrate preparation required 不必特別選擇基材
- Suitable for HSS and carbide cutter 適合高速鋼和碳化鎢工具
- Able to strip and recoat without damaging the substrate 沒有任何有害物質，非常環保，且容易再塗層
- Thin coating maintains sharp edges 非常薄的膜厚可以保持工具銳利

### TETRABOND reduces manufacturing cost through:
### TB類鑽石薄膜可以大幅降低製造業成本

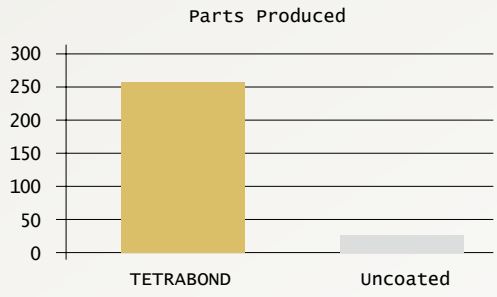
| | | |
|---|---|---|
| Higher Speeds & Feeds 高轉速和高進給 | → | Improve productivity 增加生產效率 |
| Reduced Tool Inventory 減少庫存工具 | → | Tool cost savings 降低工具成本 |
| Longer Tool Life 較長的工具壽命 | → | Reduced downtime 減少停機時間 |
| Improved Part Quality 精良的工件品質 | → | Less scrap 較少的毛邊 |

### Performance and cost savings Rough turning Titanium 6AL 4V
### 性能和節省成本：鈦合金 6AL 4V的車削



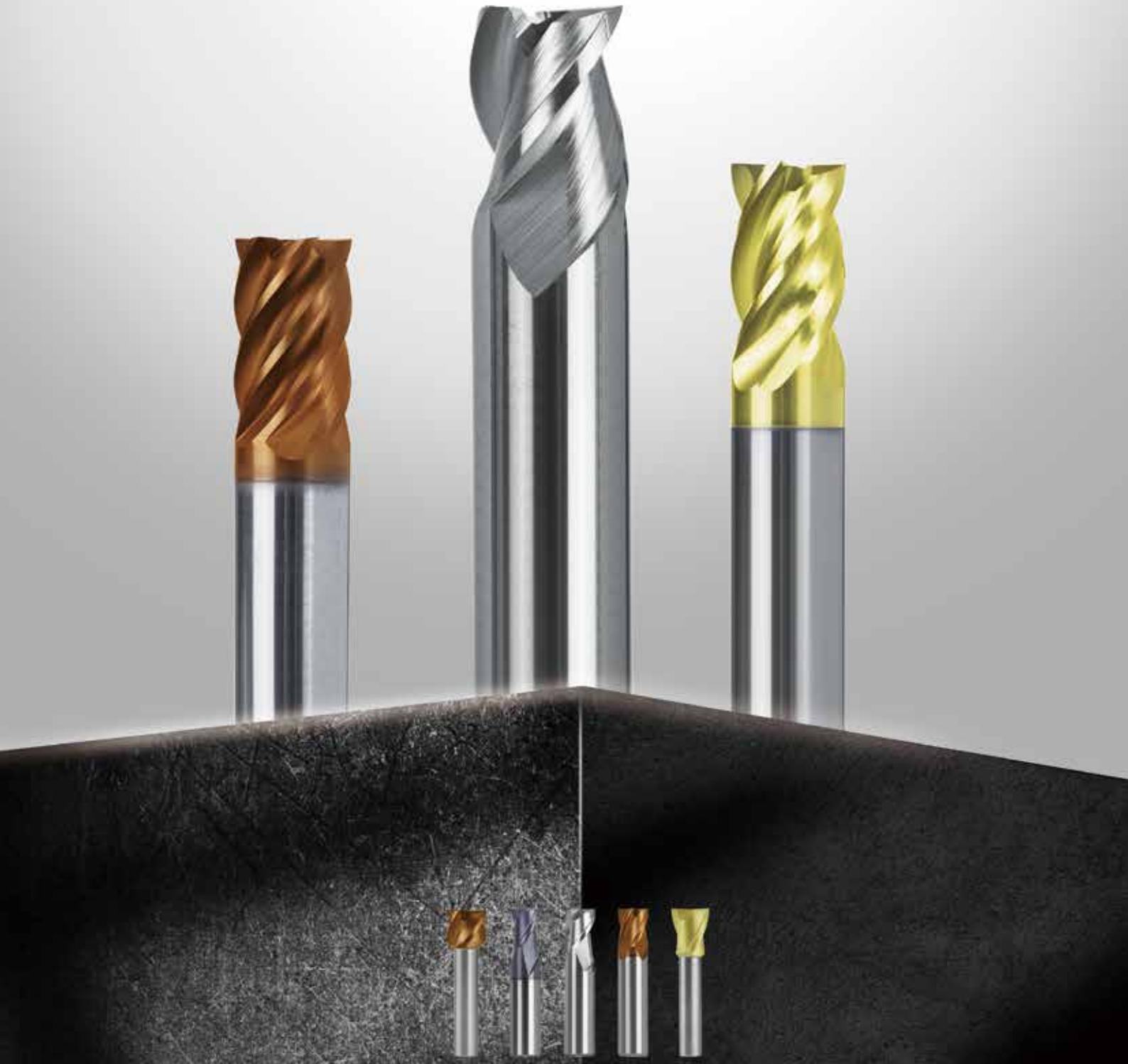
Insert WNMG 431 T-F IC20 Work material：Titanium 6AL 4V
刀片WNHG431 T-F IC20、被切削材質：Titanium 6AL 4V

Speed：800 rpm → 轉速：800 rpm
- Feed：0.011 fpr → 進給：0.011 fpr
- Depth of cut：0.080 inches → 深度：0.080 英吋
-




TETRABOND coated tools achieved over eight multiple tool life over uncoated tools
相較其它無鍍層的刀具，TB塗層刀具效能多了8倍

銑床、車銑複合機使用
For Turning & Milling



# 短小卻精湛

## Short -Flute End Mill Series

# Short-Flute End Mill Series - For Turning & Milling

# INDEX索引

短刃銑刀 - 銑床、車銑複合機使用

| Shape<br>刃部形狀 | Flute<br>刃數 | Helix Angle<br>螺旋角 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 2 | 30° | TSTE |  | | 18 | 178 |
| | | | TTE |  | | | |
| Square<br>平刀 | 3 | 30° | TSTE |  | | 19 | 180 |
| | | | TTE |  | | | |
| Square<br>平刀 | 4 | 30° | TSTE |  | | 20 | 179 |
| | | | TTE |  | ZrN-A | | |
| Square<br>平刀 | 3 | 38°-40°-42° | TSEE |  | ALTiBN | 21 | 181-182 |
| | | | TEE |  | TiSiN | | |
| Square<br>平刀 | 4 | 37°-40° | TSUE |  | | 22 | 183 |
| | | | TUE |  | | | |
| Square<br>平刀 | 5 | 38° | TSEE |  | | 23 | 183 |
| | | | TEE |  | | | |
| Square<br>平刀 | 6 | 40°-42° | TVE |  | | 24 | 183 |

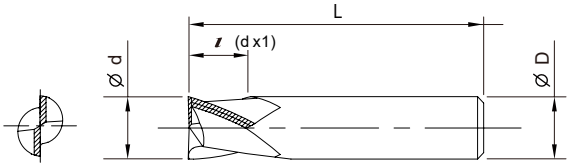
# Short-Flute End Mill Series - For Turning & Milling INDEX索引

短刃銑刀 - 銑床、車銑複合機使用

| Shape<br>刃部形狀 | Flute<br>刃數 | Helix Angle<br>螺旋角 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 2 | 45° | TSAE |  | | 25 | 184 |
| | | | TAE |  | | | |
| Square<br>平刀 | 3 | 45° | TSAE |  | TB | 26 | 185 |
| | | | TAE |  | | | |

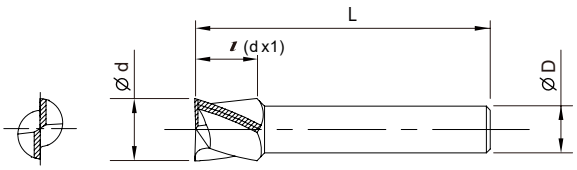
# General for Turning & Machine Center - 2 Flutes
# 車銑複合機用泛用立銑刀 – 2刃

30° 切削條件表 P178 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TSTE0102 | 1 | 1 | 40 | 6 | 2 | .01 | .02 | .03 | 100 |
| TSTE0152 | 1.5 | 1.5 | 40 | 6 | 2 | .01 | .02 | .03 | 100 |
| TSTE0202 | 2 | 2 | 40 | 6 | 2 | .01 | .02 | .03 | 100 |
| TSTE0252 | 2.5 | 2.5 | 40 | 6 | 2 | .01 | .02 | .03 | 100 |
| TSTE0302 | 3 | 3 | 40 | 6 | 2 | .01 | .02 | .03 | 100 |
| TSTE0352 | 3.5 | 3.5 | 40 | 6 | 2 | .01 | .02 | .03 | 100 |
| TSTE0402 | 4 | 4 | 40 | 6 | 2 | .01 | .02 | .03 | 100 |
| TSTE0502 | 5 | 5 | 40 | 6 | 2 | .01 | .02 | .03 | 150 |
| TSTE0602 | 6 | 6 | 40 | 6 | 2 | .01 | .02 | .03 | 150 |
| TSTE0802 | 8 | 8 | 40 | 8 | 2 | .01 | .02 | .03 | 250 |
| TSTE1002 | 10 | 10 | 45 | 10 | 2 | .01 | .02 | .03 | 400 |






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TTE0702 | 7 | 7 | 40 | 6 | 2 | .01 | .02 | .03 | 380 |
| TTE0802 | 8 | 8 | 40 | 6 | 2 | .01 | .02 | .03 | 380 |
| TTE1002 | 10 | 10 | 45 | 6 | 2 | .01 | .02 | .03 | 500 |
| TTE1202 | 12 | 12 | 50 | 10 | 2 | .01 | .02 | .03 | 650 |
| TTE1602 | 16 | 16 | 60 | 10 | 2 | .01 | .02 | .03 | 1300 |

Application 適用材質：　★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

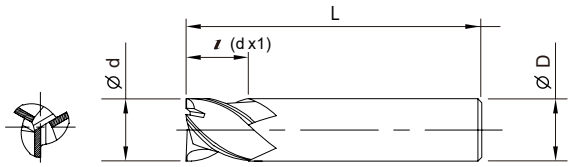
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC |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



www.speedtiger.com.tw

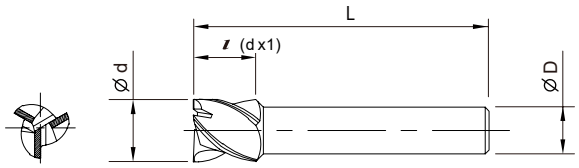
## General for Turning & Machine Center - 3 Flutes
## 車銑複合機用泛用立銑刀 – 3刃

30° 切削條件表 P180 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TSTE0103 | 1 | 1 | 40 | 6 | 3 | .01 | .02 | .03 | 100 |
| TSTE0153 | 1.5 | 1.5 | 40 | 6 | 3 | .01 | .02 | .03 | 100 |
| TSTE0203 | 2 | 2 | 40 | 6 | 3 | .01 | .02 | .03 | 100 |
| TSTE0253 | 2.5 | 2.5 | 40 | 6 | 3 | .01 | .02 | .03 | 100 |
| TSTE0303 | 3 | 3 | 40 | 6 | 3 | .01 | .02 | .03 | 100 |
| TSTE0353 | 3.5 | 3.5 | 40 | 6 | 3 | .01 | .02 | .03 | 100 |
| TSTE0403 | 4 | 4 | 40 | 6 | 3 | .01 | .02 | .03 | 100 |
| TSTE0503 | 5 | 5 | 40 | 6 | 3 | .01 | .02 | .03 | 150 |
| TSTE0603 | 6 | 6 | 40 | 6 | 3 | .01 | .02 | .03 | 150 |
| TSTE0803 | 8 | 8 | 40 | 8 | 3 | .01 | .02 | .03 | 250 |
| TSTE1003 | 10 | 10 | 45 | 10 | 3 | .01 | .02 | .03 | 400 |






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TTE0703 | 7 | 7 | 40 | 6 | 3 | .01 | .02 | .03 | 380 |
| TTE0803 | 8 | 8 | 40 | 6 | 3 | .01 | .02 | .03 | 380 |
| TTE1003 | 10 | 10 | 45 | 6 | 3 | .01 | .02 | .03 | 500 |
| TTE1203 | 12 | 12 | 50 | 10 | 3 | .01 | .02 | .03 | 650 |
| TTE1603 | 16 | 16 | 60 | 10 | 3 | .01 | .02 | .03 | 1300 |

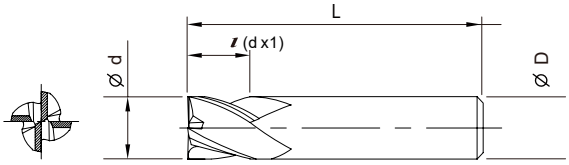
Application 適用材質：

★ 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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| AlTiBN | ◎ | ◎ | ◎ | ○ | | | ○ | | | | |
| TiSiN | ○ | ○ | ○ | ◎ | | | | | | | |
| ZrN-A | ◎ | ◎ | ◎ | ○ | | | ◎ | ○ | ○ | | |

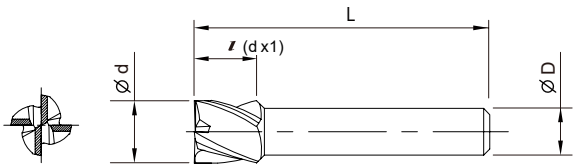
# General for Turning & Machine Center - 4 Flutes
# 車銑複合機用泛用立銑刀 – 4刃

切削條件表 P179 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TSTE0104 | 1 | 1 | 40 | 6 | 4 | .01 | .02 | .03 | 100 |
| TSTE0154 | 1.5 | 1.5 | 40 | 6 | 4 | .01 | .02 | .03 | 100 |
| TSTE0204 | 2 | 2 | 40 | 6 | 4 | .01 | .02 | .03 | 100 |
| TSTE0254 | 2.5 | 2.5 | 40 | 6 | 4 | .01 | .02 | .03 | 100 |
| TSTE0304 | 3 | 3 | 40 | 6 | 4 | .01 | .02 | .03 | 100 |
| TSTE0354 | 3.5 | 3.5 | 40 | 6 | 4 | .01 | .02 | .03 | 100 |
| TSTE0404 | 4 | 4 | 40 | 6 | 4 | .01 | .02 | .03 | 100 |
| TSTE0504 | 5 | 5 | 40 | 6 | 4 | .01 | .02 | .03 | 150 |
| TSTE0604 | 6 | 6 | 40 | 6 | 4 | .01 | .02 | .03 | 150 |
| TSTE0804 | 8 | 8 | 40 | 8 | 4 | .01 | .02 | .03 | 250 |
| TSTE1004 | 10 | 10 | 45 | 10 | 4 | .01 | .02 | .03 | 400 |






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TTE0704 | 7 | 7 | 40 | 6 | 4 | .01 | .02 | .03 | 380 |
| TTE0804 | 8 | 8 | 40 | 6 | 4 | .01 | .02 | .03 | 380 |
| TTE1004 | 10 | 10 | 45 | 6 | 4 | .01 | .02 | .03 | 500 |
| TTE1204 | 12 | 12 | 50 | 10 | 4 | .01 | .02 | .03 | 650 |
| TTE1604 | 16 | 16 | 60 | 10 | 4 | .01 | .02 | .03 | 1300 |

Application 適用材質：　★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

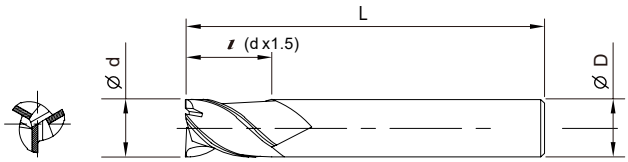
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC |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

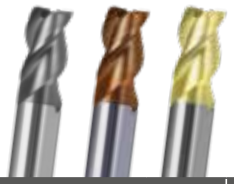


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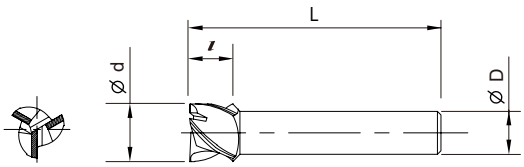
## High Efficiency for Turning & Machine Center - 3 Flutes
## 車銑複合機用高效率立銑刀 – 3刃

切削條件表 P181-182 Cutting Condition



| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TSEE0503 | 5 | 7.5 | 40 | 6 | 3 | .01 | .02 | .03 | 230 |
| TSEE0603 | 6 | 9 | 40 | 6 | 3 | .01 | .02 | .03 | 230 |
| TSEE0703 | 7 | 10.5 | 50 | 8 | 3 | .01 | .02 | .03 | 420 |
| TSEE0803 | 8 | 12 | 50 | 8 | 3 | .01 | .02 | .03 | 420 |
| TSEE1003 | 10 | 15 | 50 | 10 | 3 | .01 | .02 | .03 | 610 |





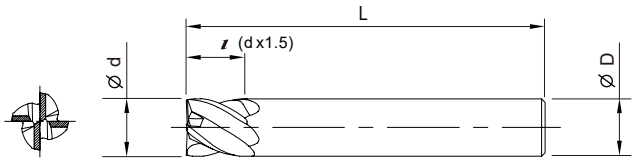

| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TEE0803 | 8 | 6 | 38 | 6 | 3 | .01 | .02 | .03 | 420 |
| TEE1003 | 10 | 6 | 40 | 6 | 3 | .01 | .02 | .03 | 610 |

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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| AlTiBN | ◎ | ◎ | ◎ | ○ | | | ○ | | | | |
| TiSiN | ○ | ○ | ○ | ◎ | | | | | | | |
| ZrN-A | ◎ | ◎ | ◎ | ○ | | | ◎ | ○ | ○ | | |

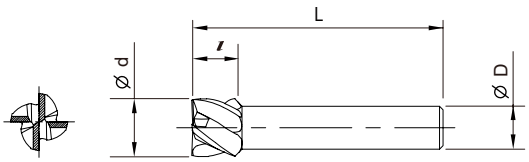
## High Efficiency for Turning & Machine Center - 4 Flutes
## 車銑複合機用高效率立銑刀 – 4刃

切削條件表 P183 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TSUE0504 | 5 | 7.5 | 40 | 6 | 4 | .01 | .02 | .03 | 250 |
| TSUE0604 | 6 | 9 | 40 | 6 | 4 | .01 | .02 | .03 | 250 |
| TSUE0704 | 7 | 10.5 | 50 | 8 | 4 | .01 | .02 | .03 | 450 |
| TSUE0804 | 8 | 12 | 50 | 8 | 4 | .01 | .02 | .03 | 450 |
| TSUE1004 | 10 | 15 | 50 | 10 | 4 | .01 | .02 | .03 | 650 |






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TUE0804 | 8 | 6 | 38 | 6 | 4 | .01 | .02 | .03 | 450 |
| TUE1004 | 10 | 6 | 40 | 6 | 4 | .01 | .02 | .03 | 650 |

Application 適用材質：　★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

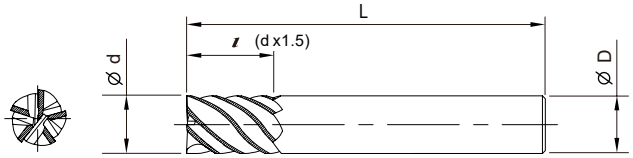
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC |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



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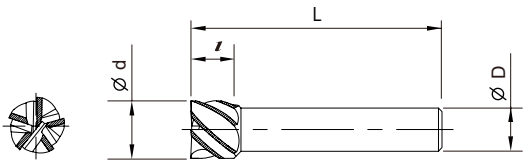
## High Efficiency for Turning & Machine Center - 5 Flutes
## 車銑複合機用高效率立銑刀 – 5刃

切削條件表 P183 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TSEE0505 | 5 | 7.5 | 40 | 6 | 5 | .01 | .02 | .03 | 250 |
| TSEE0605 | 6 | 9 | 40 | 6 | 5 | .01 | .02 | .03 | 250 |
| TSEE0705 | 7 | 10.5 | 50 | 8 | 5 | .01 | .02 | .03 | 450 |
| TSEE0805 | 8 | 12 | 50 | 8 | 5 | .01 | .02 | .03 | 450 |
| TSEE1005 | 10 | 15 | 50 | 10 | 5 | .01 | .02 | .03 | 650 |





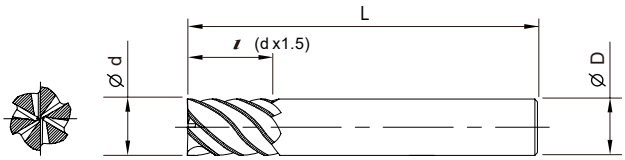

| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TEE0805 | 8 | 6 | 38 | 6 | 5 | .01 | .02 | .03 | 450 |
| TEE1005 | 10 | 6 | 40 | 6 | 5 | .01 | .02 | .03 | 650 |

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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| AlTiBN | ◎ | ◎ | ◎ | ○ | | | ○ | | | | |
| TiSiN | ○ | ○ | ○ | ◎ | | | | | | | |
| ZrN-A | ◎ | ◎ | ◎ | ○ | | | ◎ | ○ | ○ | | |

# High Efficiency for Turning & Machine Center - 6 Flutes
# 車銑複合機用高效率立銑刀 – 6刃

切 削 條件表 P183 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| TVE0606 | 6 | 9 | 40 | 6 | 6 | .01 | .02 | .03 | 250 |
| TVE0806 | 8 | 12 | 50 | 8 | 6 | .01 | .02 | .03 | 450 |
| TVE1006 | 10 | 15 | 60 | 10 | 6 | .01 | .02 | .03 | 650 |
| TVE1206 | 12 | 18 | 60 | 12 | 6 | .01 | .02 | .03 | 800 |

Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

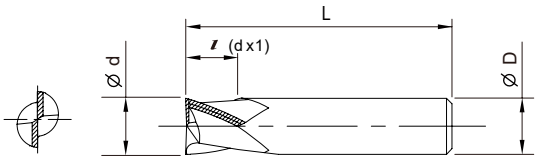
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC |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



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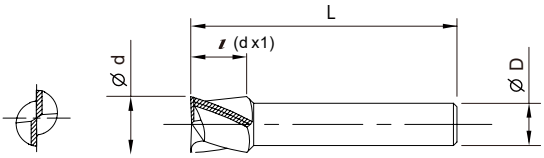
## Aluminum Application for Turning & Machine Center - 2 Flutes
## 車銑複合機用鋁用立銑刀 – 2刃

切削條件表 P184 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | List Price | |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | | TB | 最低售價 | |
| | | | | | | | | | TB |
| TSAE0202 | 2 | 2 | 40 | 6 | 2 | .00 | TB | 140 | 260 |
| TSAE0252 | 2.5 | 2.5 | 40 | 6 | 2 | .00 | TB | 140 | 260 |
| TSAE0302 | 3 | 3 | 40 | 6 | 2 | .00 | TB | 140 | 260 |
| TSAE0402 | 4 | 4 | 40 | 6 | 2 | .00 | TB | 140 | 260 |
| TSAE0502 | 5 | 5 | 40 | 6 | 2 | .00 | TB | 210 | 340 |
| TSAE0602 | 6 | 6 | 40 | 6 | 2 | .00 | TB | 210 | 340 |
| TSAE0802 | 8 | 8 | 40 | 8 | 2 | .00 | TB | 340 | 540 |
| TSAE1002 | 10 | 10 | 45 | 10 | 2 | .00 | TB | 540 | 770 |






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | List Price | |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | | TB | 最低售價 | |
| | | | | | | | | | TB |
| TAE0702 | 7 | 7 | 40 | 6 | 2 | .00 | TB | 520 | 710 |
| TAE0802 | 8 | 8 | 40 | 6 | 2 | .00 | TB | 520 | 710 |
| TAE1002 | 10 | 10 | 45 | 6 | 2 | .00 | TB | 680 | 940 |
| TAE1202 | 12 | 12 | 50 | 10 | 2 | .00 | TB | 880 | 1280 |
| TAE1602 | 16 | 16 | 60 | 10 | 2 | .00 | TB | 1760 | 2460 |

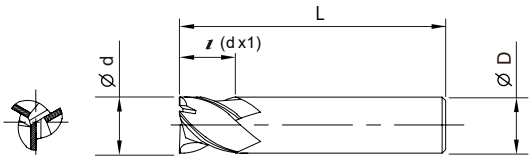
Application 適用材質：

★ 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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| | | | | | | | | | | ○ | ◎ |
| TB | | | | | | | | | | ○ | ◎ |

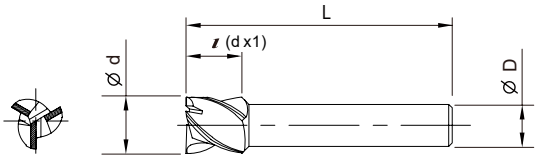
## Aluminum Application for Turning & Machine Center - 3 Flutes
## 車銑複合機用鋁用立銑刀 – 3刃

切削條件表 P185 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | List Price | |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | | TB | 最低售價 | |
| | | | | | | | | | TB |
| TSAE0203 | 2 | 2 | 40 | 6 | 3 | .00 | TB | 140 | 260 |
| TSAE0253 | 2.5 | 2.5 | 40 | 6 | 3 | .00 | TB | 140 | 260 |
| TSAE0303 | 3 | 3 | 40 | 6 | 3 | .00 | TB | 140 | 260 |
| TSAE0403 | 4 | 4 | 40 | 6 | 3 | .00 | TB | 140 | 260 |
| TSAE0503 | 5 | 5 | 40 | 6 | 3 | .00 | TB | 210 | 340 |
| TSAE0603 | 6 | 6 | 40 | 6 | 3 | .00 | TB | 210 | 340 |
| TSAE0803 | 8 | 8 | 40 | 8 | 3 | .00 | TB | 340 | 540 |
| TSAE1003 | 10 | 10 | 45 | 10 | 3 | .00 | TB | 540 | 770 |






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flute | Coating | | List Price | |
|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | z 刃數 | | TB | 最低售價 | |
| | | | | | | | | | TB |
| TAE0703 | 7 | 7 | 40 | 6 | 3 | .00 | TB | 520 | 710 |
| TAE0803 | 8 | 8 | 40 | 6 | 3 | .00 | TB | 520 | 710 |
| TAE1003 | 10 | 10 | 45 | 6 | 3 | .00 | TB | 680 | 940 |
| TAE1203 | 12 | 12 | 50 | 10 | 3 | .00 | TB | 880 | 1280 |
| TAE1603 | 16 | 16 | 60 | 10 | 3 | .00 | TB | 1760 | 2460 |

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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| | | | | | | | | | | ○ | ◎ |
| TB | | | | | | | | | | ○ | ◎ |



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## S Type High Performance Chamfer End Mill
## S 型90°高效倒角銑刀

3/5 Flutes 刃

提升倒角加工效率。**3刃**適用於泛用材質，**5刃**適用於特殊材質。
Enhance the efficiency of processing.
**3 flutes** are suitable for general materials.
**5 flutes** are suitable for exotic materials.

SSM

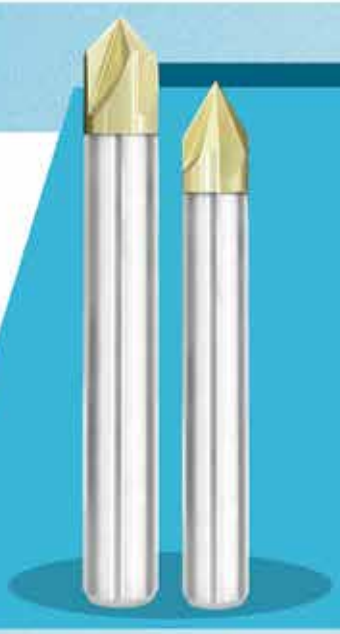


## Multi-funtional Chamfer End Mill
## 定位、雕刻、側銑 120-90°多功能倒角刀

2/4 Flutes 刃

適用於定位、雕刻、側銑。
Excel for Centering, Engraving, Side Milling.

SCDM



## Straight Flute Chamfer End Mill
## 直刃倒角銑刀

4 Flutes 刃

適用於雕刻、深V銑削、定點。
Excel for Chamfer, Carving V Groove, Centering.

CSM

# Chamfer End Mill

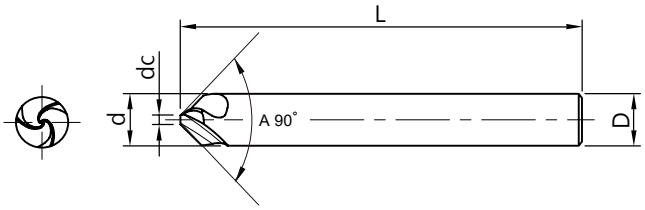
# INDEX索引

高效率·多功能倒角銑刀

| Shape<br>刃部形狀 | Flute<br>刃數 | Helix Angle<br>螺旋角 | Chamfer Angle<br>倒角角度 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|---|
| Chamfer<br>倒角刀 | 3 | 45° | 90° | SSM |  | | 30 | 186 |
| Chamfer<br>倒角刀 | 5 | 40° | 90° | SSM |  | AlTiBN | 30 | 186 |
| Chamfer<br>倒角刀 | 2 | 30° | 120°-90° | SCDM |  | TiSiN | 31 | 186 |
| Chamfer<br>倒角刀 | 4 | 27-30° | 120°-90° | SCDM |  | ZrN-A | 32 | 186 |
| Chamfer<br>倒角刀 | 4 | 0° | 60° | CSM |  | ZrN-A | 33 | 187 |
| Chamfer<br>倒角刀 | 4 | 0° | 90° | CSM |  | | 33 | 187 |

## S Type High Performance Chamfer End Mill - 3 Flutes
## S 型 90° 高效倒角銑刀 – 3 刃

45° 切削條件表 P186 Cutting Condition

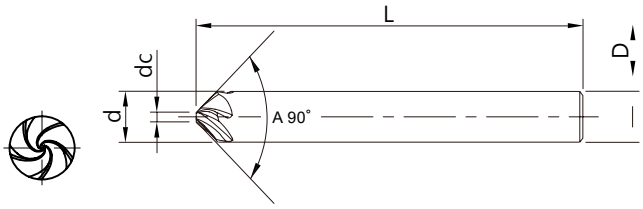


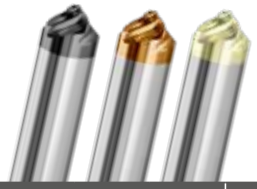



| MODE | Diameter | A Angle | dc | Shank Diameter | Full Length | Flute | Coating | | | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | A 角度 | | D 柄徑 | L全長 | Z刃數 | | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| SSM0603-90 | 6 | 90° | 0.9 | 6 | 50 | 3 | .00 | .01 | .02 | .03 | 290 |
| SSM0803-90 | 8 | | 1.2 | 8 | 60 | 3 | .00 | .01 | .02 | .03 | 560 |
| SSM1003-90 | 10 | | 1.5 | 10 | 75 | 3 | .00 | .01 | .02 | .03 | 780 |
| SSM1203-90 | 12 | | 1.8 | 12 | 75 | 3 | .00 | .01 | .02 | .03 | 980 |

## S Type High Performance Chamfer End Mill - 5 Flutes
## S 型 90° 高效倒角銑刀 – 5 刃

40° 切削條件表 P186 Cutting Condition



| MODE | Diameter | A Angle | dc | Shank Diameter | Full Length | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | A 角度 | | D 柄徑 | L全長 | Z刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| SSM0605-90 | 6 | 90° | 1.5 | 6 | 50 | 5 | .01 | .02 | .03 | 300 |
| SSM0805-90 | 8 | | 2 | 8 | 60 | 5 | .01 | .02 | .03 | 600 |
| SSM1005-90 | 10 | | 2.5 | 10 | 75 | 5 | .01 | .02 | .03 | 820 |
| SSM1205-90 | 12 | | 3 | 12 | 75 | 5 | .01 | .02 | .03 | 1100 |

Application 適用材質：　★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

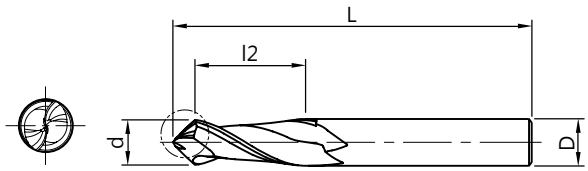
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC |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

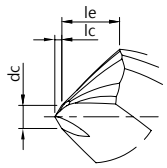


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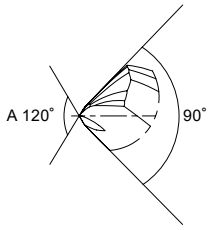
# Positioning / Side Milling Chamfer End Mill - 2 Flutes
# 定位、雕刻、側銑 120–90 度多功能 S 型倒角刀 –2 刃

30° 切削條件表 P186 Cutting Condition




4:1 放大圖






| MODE | Diameter | A Angle | 120° | | 90° | | Full Length | Flute | Coating | | | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | A 角度 | dc | lc | le | L2 | L全長 | Z刃數 | | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| SCDM0602-90 | 6 | 120°-90° | 1.04 | 0.3 | 2.48 | 12 | 50 | 2 | .00 | .01 | .02 | .03 | 360 |
| SCDM0802-90 | 8 | | 1.39 | 0.4 | 3.31 | 16 | 60 | 2 | .00 | .01 | .02 | .03 | 650 |
| SCDM1002-90 | 10 | | 1.73 | 0.5 | 4.13 | 20 | 75 | 2 | .00 | .01 | .02 | .03 | 800 |
| SCDM1202-90 | 12 | | 2.08 | 0.6 | 4.96 | 24 | 75 | 2 | .00 | .01 | .02 | .03 | 950 |

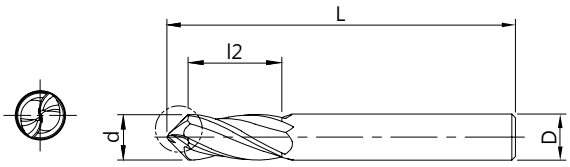
Application 適用材質：

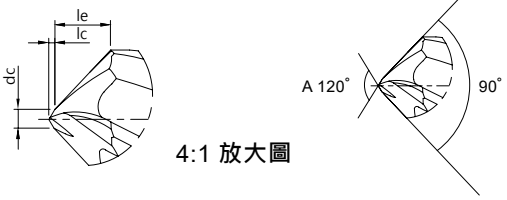
★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

| 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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| | ○ | ○ | | | | | | | | ○ | ○ |
| AlTiBN | ◎ | ◎ | ○ | ○ | | | ○ | | | | |
| SI | ○ | ○ | ○ | ◎ | | | | | | | |
| ZrN-A | ◎ | ◎ | ○ | ○ | | | ○ | ○ | | | |

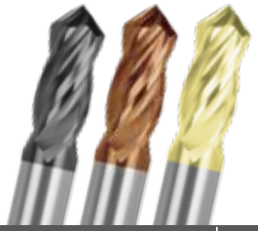
# Positioning / Side Milling Chamfer End Mill - 4 Flutes
# 定位、雕刻、側銑 120–90 度多功能 S 型倒角刀 – 4 刃

切削條件表 P186
Cutting Condition




4:1 放大圖



| MODE | Diameter | A Angle | 120° | | 90° | | Full Length | Flute | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | A 角度 | dc | lc | le | L2 | L全長 | Z刃數 | AlTiBN | TiSiN | ZrN-A | 最低售價 |
| SCDM0604-90 | 6 | 120°-90° | 1.04 | 0.3 | 2.48 | 12 | 50 | 4 | .01 | .02 | .03 | 360 |
| SCDM0804-90 | 8 | | 1.39 | 0.4 | 3.31 | 16 | 60 | 4 | .01 | .02 | .03 | 650 |
| SCDM1004-90 | 10 | | 1.73 | 0.5 | 4.13 | 20 | 75 | 4 | .01 | .02 | .03 | 800 |
| SCDM1204-90 | 12 | | 2.08 | 0.6 | 4.96 | 24 | 75 | 4 | .01 | .02 | .03 | 950 |

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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| AlTiBN | ◎ | ◎ | ○ | ○ | | | ○ | | | | |
| SI | ○ | ○ | ○ | ◎ | | | | | | | |
| ZrN-A | ◎ | ◎ | ○ | ○ | | | ○ | ○ | | | |

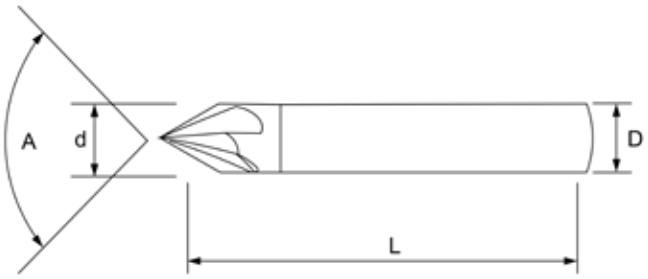


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# Straight Flute Chamfer End Mill
# 直刃倒角銑刀

切削條件表 P187
Cutting Condition






| MODE | Diameter | Angle | Shank Diameter | Full Length | Flute | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | A 角度 | D 柄徑 | L 全長 | z 刃數 | 最低售價 |
| CSM0600404 ZrN-A | 4 | 60° | 4 | 50 | 4 | 225 |
| CSM0600604 ZrN-A | 6 | 60° | 6 | 50 | 4 | 275 |
| CSM0600804 ZrN-A | 8 | 60° | 8 | 60 | 4 | 450 |
| CSM0601004 ZrN-A | 10 | 60° | 10 | 75 | 4 | 740 |

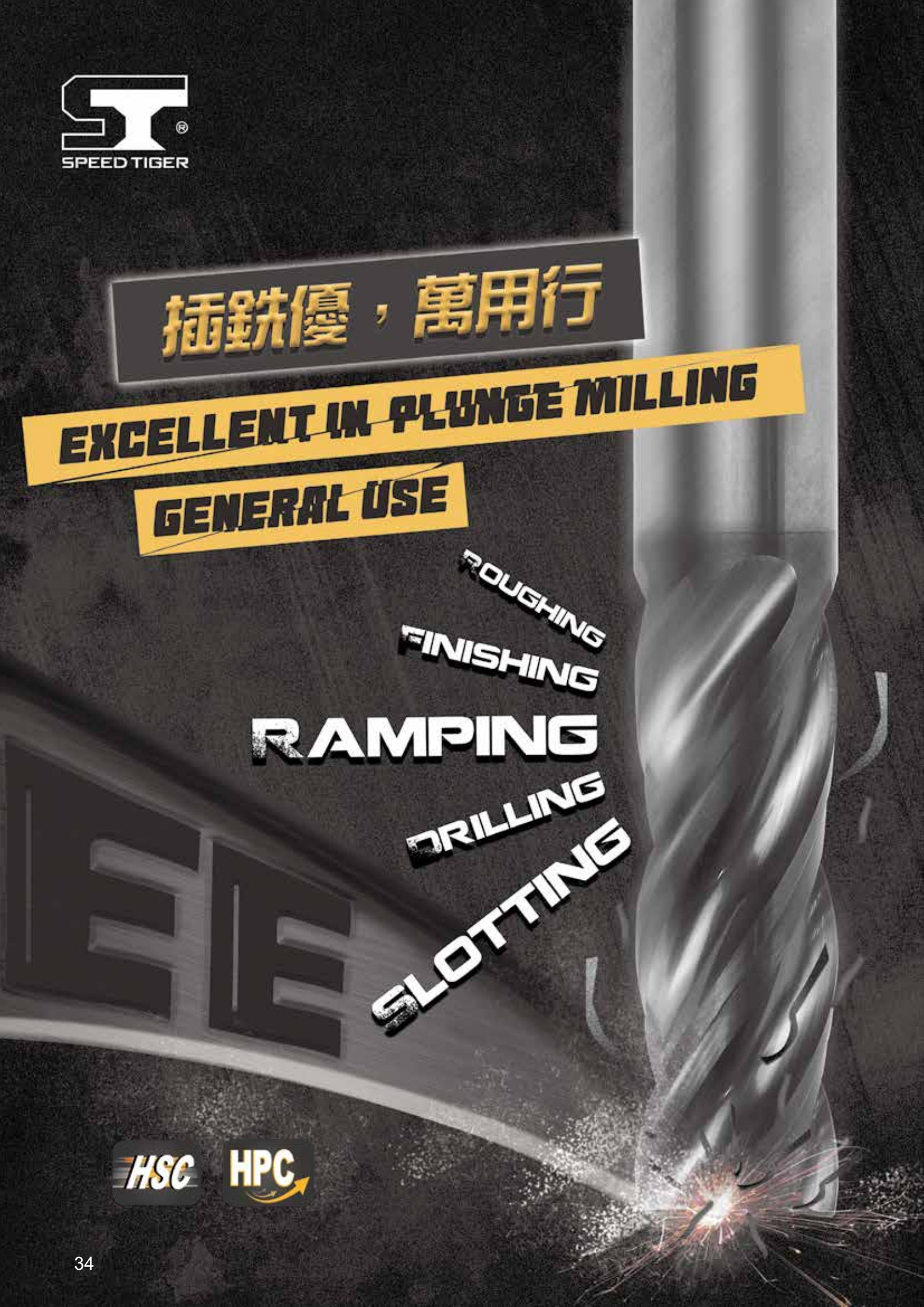


| MODE | Diameter | Angle | Shank Diameter | Full Length | Flute | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | A 角度 | D 柄徑 | L 全長 | z 刃數 | 最低售價 |
| CSM0900404 ZrN-A | 4 | 90° | 4 | 50 | 4 | 225 |
| CSM0900604 ZrN-A | 6 | 90° | 6 | 50 | 4 | 275 |
| CSM0900804 ZrN-A | 8 | 90° | 8 | 60 | 4 | 450 |
| CSM0901004 ZrN-A | 10 | 90° | 10 | 75 | 4 | 740 |

Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

| Coating 塗層 | Carbon steel, 炭素鋼 ~HB225 | Alloy steel 合金鋼 HB225~325 | Pre-harden steel 預硬鋼 HRC30~ | Hardened steel 硬化鋼 HRC40~45 | High-hardened 高硬度鋼 HRC55~70 | Stainless steel 不鏽鋼 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 | Wood 木 | Plastic 塑料 |
|---|---|---|---|---|---|---|---|---|---|---|
| ZrN-A | ○ | ◎ | ◎ | ◎ | ○ | | ◎ | ◎ | ◎ | ◎ |


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ROUGHING
FINISHING
RAMPING
DRILLING
SLOTTING
HSC
HPC

# EE SERIES INDEX索引

## EE 立銑刀

| Shape<br>刃部形狀 | Flute<br>刃數 | Type<br>刀型 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 4 | d x 1.5<br>1.5倍刃長<br>立銑刀 | EES |  | nACRo | 37 | 181-182 |
| Square<br>平刀 | 4 | d x 2~2.5<br>2倍刃長<br>立銑刀 | EE |  | nACRo | 38 | 181-182 |

# What's special?



## 鑽頭式溝槽不等螺旋角
## Drill-type Groove And Unequal Helix Angle

鑽頭式溝槽及不等螺旋角設計，對於高速高效率加工能有極優的排屑與抗震效果。
Drill-type groove and unequal helix angle design have excellent chip removal and anti-vibration effects for high-speed and high-efficiency machining.

## 偏心式離隙角 Eccentric Relief Angle

偏心式離隙角可提高刀刃强度，切削刃口的表面優化能穩定高效率的進給及壽命。
The eccentric relief angle improves the strength of the cutting edge , the surface optimization of the cutting edge can stabilize high-efficiency feed and life.

## 良好的幾何設計 Geometric Design

端面中心及端齒排屑空間大。良好的幾何設計可用於鑽孔與銑削。
Large space for chip removal in the center of the end face and end teeth. Good geometric design can be used for drilling and milling.

## 不等分割設計 Unequal Flute Spacing Design

不等分割的設計可減少刀具震動並延長壽命。
Unequal flute spacing design can reduce the vibration and prolong life.

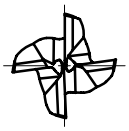


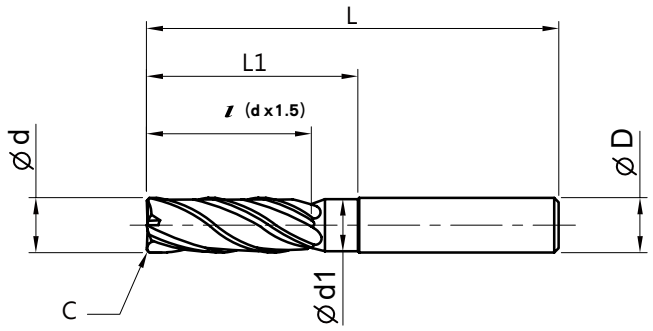
切削影片觀賞
**Cutting video**

掃描我！
**Scan me to discover more**

## EES - d x 1.5
## EES立銑刀（1.5倍刃長）

切削條件表 P181-182 Cutting Condition







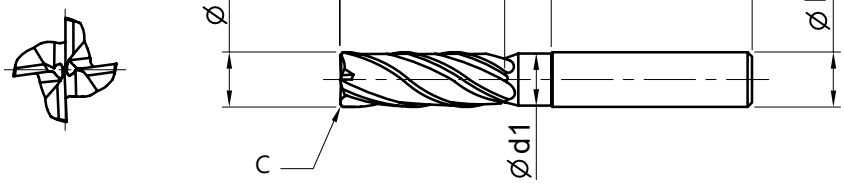

| MODE | Diameter | Flute Length | Efficient Length | Neck Diameter | Shank Diameter | Chamfer | Full Length | List Price |
|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L1 有效長 | d1 頸部直徑 | D 柄徑 | C 角 | L 全長 | 最低售價 |
| EES0304 | 3 | 4.5 | 7.5 | 2.8 | 6 | 0.05 | 50 | 260 |
| EES0354 | 3.5 | 5.3 | 8.8 | 3.3 | 6 | 0.05 | 50 | 260 |
| EES0404 | 4 | 6.0 | 10.0 | 3.7 | 6 | 0.06 | 50 | 260 |
| EES0454 | 4.5 | 6.8 | 11.3 | 4.2 | 6 | 0.07 | 50 | 260 |
| EES0504 | 5 | 7.5 | 12.5 | 4.6 | 6 | 0.08 | 50 | 260 |
| EES0554 | 5.5 | 8.3 | 13.8 | 5.1 | 6 | 0.08 | 50 | 260 |
| EES0604 | 6 | 9.0 | 15.0 | 5.5 | 6 | 0.09 | 50 | 260 |
| EES0654 | 6.5 | 9.8 | 16.3 | 6 | 8 | 0.10 | 60 | 470 |
| EES0704 | 7 | 10.5 | 17.5 | 6.4 | 8 | 0.11 | 60 | 470 |
| EES0754 | 7.5 | 11.3 | 18.8 | 6.9 | 8 | 0.11 | 60 | 470 |
| EES0804 | 8 | 12.0 | 20.0 | 7.4 | 8 | 0.12 | 60 | 470 |
| EES0854 | 8.5 | 12.8 | 21.3 | 7.9 | 10 | 0.13 | 75 | 680 |
| EES0904 | 9 | 12.2 | 22.5 | 8.3 | 10 | 0.14 | 75 | 680 |
| EES0954 | 9.5 | 14.3 | 23.8 | 8.8 | 10 | 0.14 | 75 | 680 |
| EES1004 | 10 | 15.0 | 25.0 | 9.2 | 10 | 0.15 | 75 | 680 |
| EES1204 | 12 | 18.0 | 30.0 | 11.2 | 12 | 0.18 | 75 | 830 |

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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| nACRo | ◎ | ◎ | ○ | | | | ○ | | | | |

## EE - d x 2~2.5
## EE立銑刀 (2~2.5倍刃長)

切削條件表 P181-182 Cutting Condition






| MODE | Diameter | Flute Length | Efficient Length | Neck Diameter | Shank Diameter | Chamfer | Full Length | List Price |
|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L1 有效長 | d1 頸部直徑 | D 柄徑 | C 角 | L 全長 | 最低售價 |
| EE0304 | 3 | 7.0 | 10 | 2.8 | 6 | 0.05 | 50 | 280 |
| EE0404 | 4 | 10.0 | 14 | 3.7 | 6 | 0.06 | 50 | 280 |
| EE0504 | 5 | 12.0 | 17 | 4.6 | 6 | 0.08 | 50 | 280 |
| EE0554 | 5.5 | 12.0 | 17 | 5.1 | 6 | 0.08 | 50 | 280 |
| EE0604 | 6 | 13.0 | 20 | 5.5 | 6 | 0.09 | 50 | 280 |
| EE0654 | 6.5 | 13.0 | 20 | 6 | 8 | 0.10 | 60 | 500 |
| EE0704 | 7 | 16.0 | 23 | 6.4 | 8 | 0.11 | 60 | 500 |
| EE0754 | 7.5 | 16.0 | 23 | 6.9 | 8 | 0.11 | 60 | 500 |
| EE0804 | 8 | 19.0 | 25 | 7.4 | 8 | 0.12 | 60 | 500 |
| EE0854 | 8.5 | 19.0 | 25 | 7.9 | 10 | 0.13 | 75 | 720 |
| EE0904 | 9 | 21.0 | 28 | 8.3 | 10 | 0.14 | 75 | 720 |
| EE0954 | 9.5 | 21.0 | 28 | 8.8 | 10 | 0.14 | 75 | 720 |
| EE1004 | 10 | 22.0 | 30 | 9.2 | 10 | 0.15 | 75 | 720 |
| EE1204 | 12 | 26.0 | 32 | 11.2 | 12 | 0.18 | 75 | 880 |

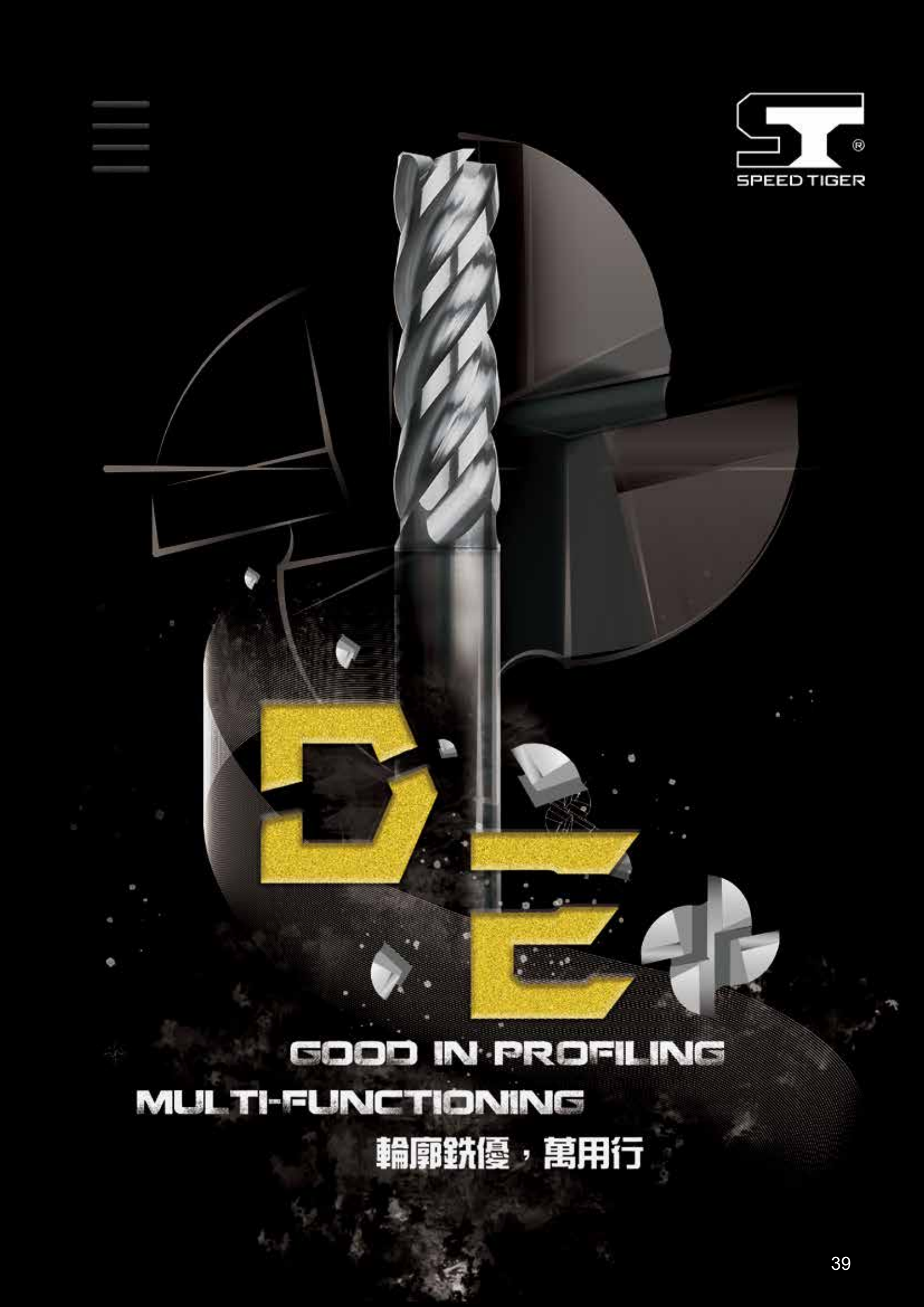
Application 適用材質：

★ 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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金, 銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| nACRo | ◎ | ◎ | ○ | | | | ○ | | | | |



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輪廓銑優，萬用行

# DE SERIES

# INDEX索引

## DE 立銑刀

| Shape<br>刃部形狀 | Flute<br>刃數 | Type<br>刀型 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 4 | d x 2.5<br>2.5倍刃長<br>立銑刀 | DE |  | nACRo | 42 | 179 |
| Square<br>平刀 | 4 | d x 3<br>3倍刃長<br>立銑刀 | DEL |  | TiSiN | 43 | 179 |
| Square<br>平刀 | 4 | d x 4.5<br>4.5倍刃長<br>立銑刀 | DEVL |  | ZrN-A | 44 | 179 |

# DE SERIES

## Characteristics 特色

不等分割的設計可減少刀具震動並延長壽命。
**Unequal flute spacing design can reduce the vibration and prolong life.**



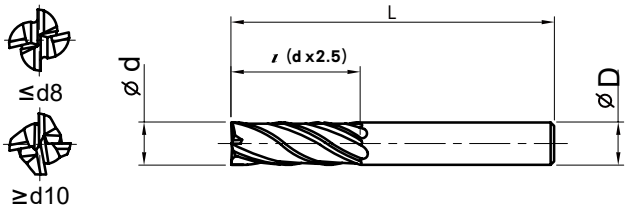
獨特的螺旋槽幾何形狀設計，改善傳統刀具切削處理不良的狀況。
**An unique helical geometry design. Improve the traditional on tools which have poor cutting.**

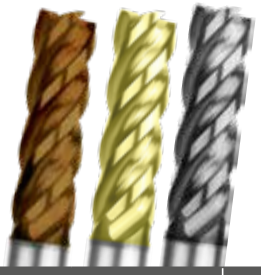
40°螺旋角可用於中粗加工與精加工，表現出優異的加工表現。
**40 degree of helix angle can be used as rough machining and finish machining as well as performed excellent on processing.**

偏心式離隙角可提高刀刃強度，穩定高效率的進給及壽命。
**The eccentric type relief angle can increase the strength of the blade and stabilize the high efficiency feed and life.**

# DE - d x 2.5
# DE立銑刀（2.5倍刃長）

切削條件表 P179
Cutting Condition



| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | TiSiN | ZrN-A | nACRo | 最低售價 |
| DE0104 | 1 | 2.5 | 50 | 4 | .02 | .03 | .08 | 190 |
| DE0154 | 1.5 | 3.8 | 50 | 4 | .02 | .03 | .08 | 190 |
| DE0204 | 2 | 5 | 50 | 4 | .02 | .03 | .08 | 190 |
| DE0304 | 3 | 7.5 | 50 | 4 | .02 | .03 | .08 | 190 |
| DE0404 | 4 | 10 | 50 | 4 | .02 | .03 | .08 | 190 |
| DE0504 | 5 | 12.5 | 50 | 6 | .02 | .03 | .08 | 250 |
| DE0604 | 6 | 15 | 50 | 6 | .02 | .03 | .08 | 250 |
| DE0804 | 8 | 20 | 60 | 8 | .02 | .03 | .08 | 500 |
| DE1004 | 10 | 25 | 75 | 10 | .02 | .03 | .08 | 720 |
| DE1204 | 12 | 30 | 75 | 12 | .02 | .03 | .08 | 880 |
| DE1604 | 16 | 40 | 100 | 16 | .02 | .03 | .08 | 2200 |
| DE2004 | 20 | 50 | 100 | 20 | .02 | .03 | .08 | 3080 |

Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

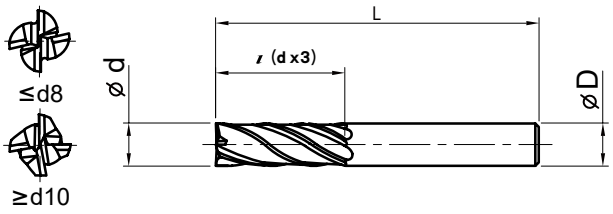
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC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



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## DEL - d x 3
## DEL立銑刀（3倍刃長）

切 削 條件表 P179 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | TiSiN | ZrN-A | nACRo | 最低售價 |
| DEL0404 | 4 | 12 | 50 | 4 | .02 | .03 | .08 | 220 |
| DEL0604 | 6 | 18 | 60 | 6 | .02 | .03 | .08 | 280 |
| DEL0804 | 8 | 24 | 75 | 8 | .02 | .03 | .08 | 500 |
| DEL1004 | 10 | 30 | 75 | 10 | .02 | .03 | .08 | 720 |
| DEL1204 | 12 | 36 | 100 | 12 | .02 | .03 | .08 | 880 |
| DEL1604 | 16 | 48 | 100 | 16 | .02 | .03 | .08 | 2200 |
| DEL2004 | 20 | 60 | 150 | 20 | .02 | .03 | .08 | 3080 |

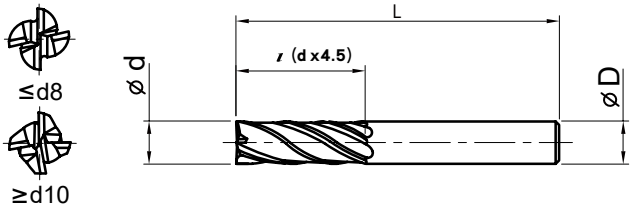
Application 適用材質：

★ 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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| nACRo | ◎ | ◎ | ◎ | ○ | | | ◎ | | | | |
| TiSiN | ○ | ○ | ◎ | ◎ | | | | | | | |
| ZrN-A | ◎ | ◎ | ○ | ○ | | | ◎ | | | | |

# DEVL - d x 4.5
# DEVL立銑刀（4.5倍刃長）

切削條件表 P179 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Coating | | | List Price |
|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | TiSiN | ZrN-A | nACRo | 最低售價 |
| DEVL0604 | 6 | 27 | 75 | 6 | .02 | .03 | .08 | 490 |
| DEVL0804 | 8 | 36 | 100 | 8 | .02 | .03 | .08 | 840 |
| DEVL1004 | 10 | 45 | 100 | 10 | .02 | .03 | .08 | 1150 |
| DEVL1204 | 12 | 54 | 115 | 12 | .02 | .03 | .08 | 1490 |
| DEVL1604 | 16 | 72 | 150 | 16 | .02 | .03 | .08 | 4240 |
| DEVL2004 | 20 | 90 | 150 | 20 | .02 | .03 | .08 | 5320 |

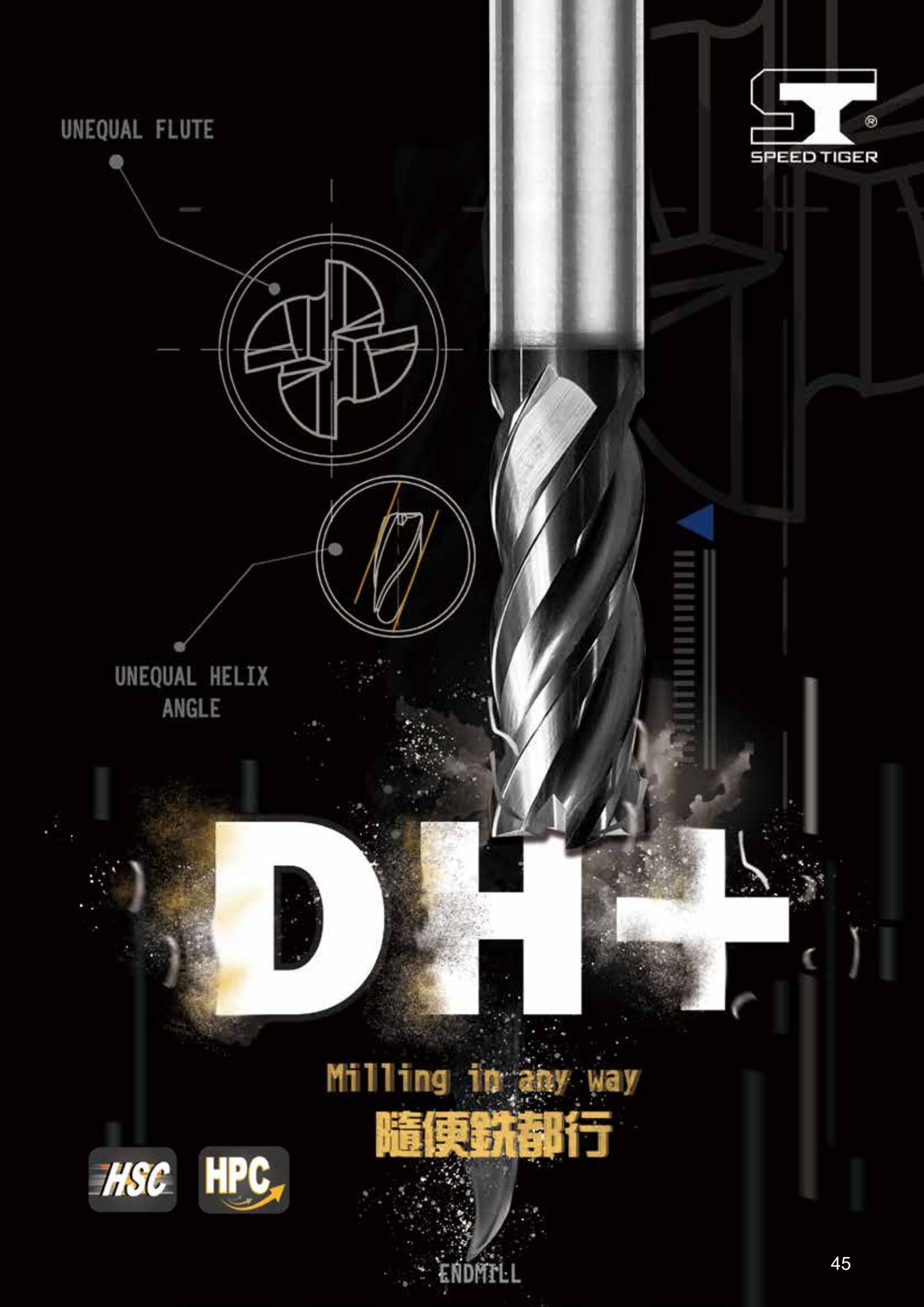
Application 適用材質：

★ 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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| nACRo | ◎ | ◎ | ◎ | ○ | | | ◎ | | | | |
| TiSiN | ○ | ○ | ◎ | ◎ | | | | | | | |
| ZrN-A | ◎ | ◎ | ○ | ○ | | | ◎ | | | | |



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UNEQUAL FLUTE
UNEQUAL HELIX ANGLE
SPEED TIGER
DH+
Milling in any way
隨便銑都行
HSC
HPC
ENDMILL

# DH+ SERIES

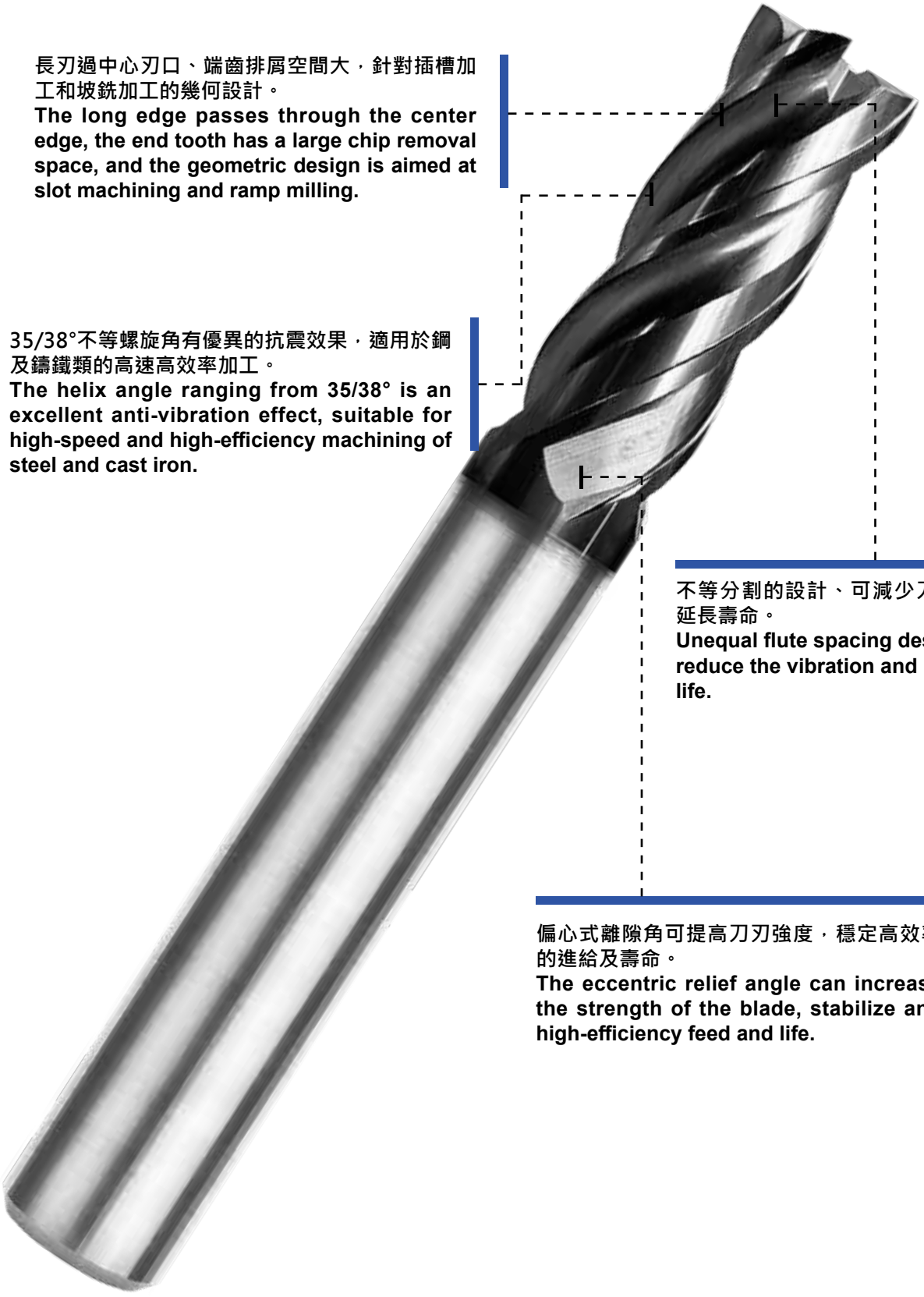
# INDEX索引

## DH+ 立銑刀

| Shape<br>刃部形狀 | Flute<br>刃數 | Type<br>刀型 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 4 | d x 1.5<br>1.5倍刃長<br>立銑刀 | DHS+ |  | nACRo | 48 | 179 |
| Square<br>平刀 | 4 | d x 2~2.5<br>2~2.5倍刃長<br>立銑刀 | DH+ |  | ZrN-A | 49 | 179 |

# DH+ SERIES

## CHARACTERISTICS 特色



長刃過中心刃口、端齒排屑空間大，針對插槽加工和坡銑加工的幾何設計。
**The long edge passes through the center edge, the end tooth has a large chip removal space, and the geometric design is aimed at slot machining and ramp milling.**

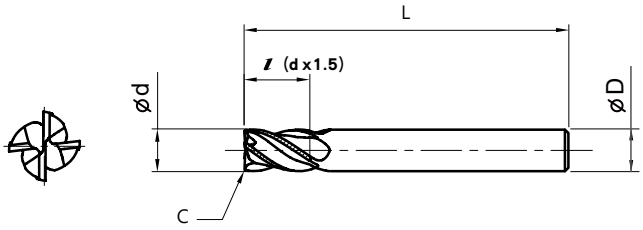
35/38°不等螺旋角有優異的抗震效果，適用於鋼及鑄鐵類的高速高效率加工。
**The helix angle ranging from 35/38° is an excellent anti-vibration effect, suitable for high-speed and high-efficiency machining of steel and cast iron.**

不等分割的設計、可減少刀具震動並延長壽命。
**Unequal flute spacing design can reduce the vibration and prolong life.**

偏心式離隙角可提高刀刃強度，穩定高效率的進給及壽命。
**The eccentric relief angle can increase the strength of the blade, stabilize and high-efficiency feed and life.**

## DHS+ d x 1.5
## DHS+立銑刀（1.5倍刃長）

切削條件表 P178-179
Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Chamfer | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | C 角 | ZrN-A | nACRo | 最低售價 |
| DHS+0304 | 3 | 4.5 | 50 | 4 | 0.05 | .03 | .08 | 110 |
| DHS+0404 | 4 | 6.0 | 50 | 4 | 0.06 | .03 | .08 | 110 |
| DHS+0504 | 5 | 7.5 | 50 | 6 | 0.08 | .03 | .08 | 170 |
| DHS+0604 | 6 | 9.0 | 50 | 6 | 0.09 | .03 | .08 | 170 |
| DHS+0804 | 8 | 12.0 | 60 | 8 | 0.12 | .03 | .08 | 330 |
| DHS+1004 | 10 | 15.0 | 75 | 10 | 0.15 | .03 | .08 | 520 |
| DHS+1204 | 12 | 18.0 | 75 | 12 | 0.18 | .03 | .08 | 660 |
| DHS+1604 | 16 | 24.0 | 100 | 16 | 0.24 | .03 | .08 | 1650 |
| DHS+2004 | 20 | 30.0 | 100 | 20 | 0.30 | .03 | .08 | 2530 |

Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

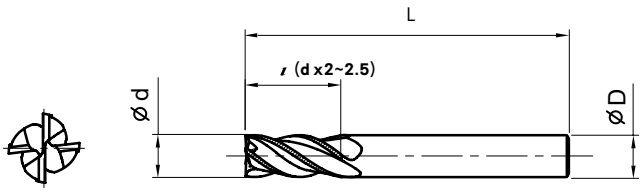
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Cast iron 鑄鐵 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC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



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## DH+ d x 2~2.5
## DH+立銑刀（2~2.5倍刃長）

切削條件表 P178-179 Cutting Condition






| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Coating | | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 TiSiN | ZrN-A | nACRo | 最低售價 |
| DH+0404 | 4 | 10.0 | 50 | 4 | .03 | .08 | 110 |
| DH+0604 | 6 | 13.0 | 50 | 6 | .03 | .08 | 170 |
| DH+0804 | 8 | 19.0 | 60 | 8 | .03 | .08 | 330 |
| DH+1004 | 10 | 22.0 | 75 | 10 | .03 | .08 | 520 |
| DH+1204 | 12 | 26.0 | 75 | 12 | .03 | .08 | 660 |
| DH+1604 | 16 | 32.0 | 100 | 16 | .03 | .08 | 1650 |
| DH+2004 | 20 | 40.0 | 100 | 20 | .03 | .08 | 2530 |

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 alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Cast iron 鑄鐵 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | | |
| nACRo | ◎ | ◎ | ◎ | ○ | | | ○ | | ○ | | | ◎ |
| ZrN-A | ◎ | ◎ | ○ | ○ | | | ○ | | | | | ◎ |


SUS+
Excellent
wear
resistance
高速
高效率
不鏽鋼
專用
絕佳
耐磨性
HSC
HPC

# SUS+ SERIES INDEX索引

## SUS+ 立銑刀

| Shape<br>刃部形狀 | Flute<br>刃數 | Type<br>刀型 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 4 | d x 2~2.5倍刃長<br>立銑刀 | SUS+ |  | nACRo | 53 | 183 |
| Square<br>平刀 | 4 | d x 4倍刃長<br>立銑刀 | SUSL+ |  | ZrN-A | 53 | 183 |

# SUS+

HPC HSC

## Unceasing transcend self
## Appear perfect limit

結合材料、研磨、塗層三要素而成的SUS+系列銑刀提供了絕佳的耐磨性，不局限於不鏽鋼加工，在一般加工上使用壽命更加優異。

搭配ZrN-A薄膜提供了高氧化溫度、高硬度及抗沾粘特性，可得到切削壽命穩定，使用這款新刀具肯定可以為刀具壽命短且不穩定而煩惱的衆多不鏽鋼加工用戶解決困難，以及在難切削材料加工中追求高速高效用戶降低成本。

The SUS+ series, which combines the three elements of material, grinding and coating, provides excellent wear resistance. It is not limited to stainless steel processing, and has an even better service life in general processing.

With ZrN-A coating, it provides high oxidation temperature, high hardness and anti-sticking characteristics, and can obtain stable tool life. Using this new tool can not only solve the difficulties of many stainless steel processing users who are troubled by the short and unstable tool life, but also help users who for pursuing high-speed and high-efficiency to reduce costs in difficult-to-cut materials processing.

長刃過中心刃口、端齒排屑空間大，針對插槽加工和坡銑加工的幾何設計。

The long edge passes through the center edge, the end tooth has a large chip removal space, and the geometric design is aimed at slot machining and ramp milling.

特殊圓形溝槽設計，可提升排屑效果，減少應力產生，提高刀具強度。

Special flute geometry to improve chip disposal.

刀刃分割角採用A≠B，刀刃螺角採用 α ≠ β ，於刀刃採用不等分割角搭配其不等螺旋的設計，能有效的降低刀具加工時所產生的共振。

Unequal Flute Spacing , A≠B Irregular Helix Flutes, α ≠ β Ensures stable machining of difficult-to-cut materials, and achieve high efficient performance.

ZrN-A塗層通過特殊的塗層工藝可提高硬度及耐磨性，並可以有效隔離工件材料和刀具材料粘著。

ZrN-A coating passed through the NANO level,can increase the hardness and wear-resisting,also effective segregate the stick between the work piece and cutting tool.



## SUS+ Stainless Steel Expert
## 不鏽鋼專用立銑刀

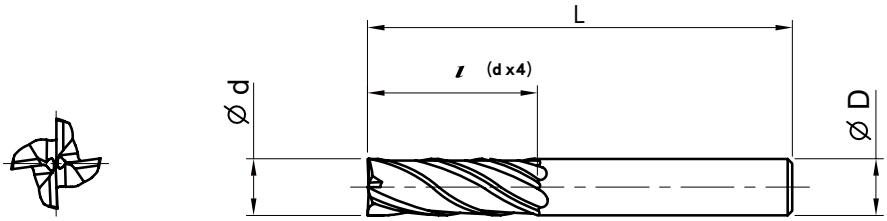
切削條件表 P183 Cutting Condition






| SUS+ MODE 型號 | Diameter d 刃徑 | Flute Length ℓ 刃長 | Full Length L 全長 | Shank Diameter D 柄徑 | Flutes Z 刃數 | List Price 最低售價 |
|---|---|---|---|---|---|---|
| SUS+0304 | 3 | 7 | 50 | 6 | 4 | 280 |
| SUS+0404 | 4 | 10 | 50 | 6 | 4 | 280 |
| SUS+0504 | 5 | 12 | 50 | 6 | 4 | 280 |
| SUS+0604 | 6 | 13 | 50 | 6 | 4 | 280 |
| SUS+0804 | 8 | 19 | 60 | 8 | 4 | 500 |
| SUS+1004 | 10 | 22 | 75 | 10 | 4 | 720 |
| SUS+1204 | 12 | 26 | 75 | 12 | 4 | 880 |
| SUS+1604 | 16 | 32 | 100 | 16 | 4 | 2200 |

切削條件表 P173 Cutting Condition




| SUSL+ MODE 型號 | Diameter d 刃徑 | Flute Length ℓ 刃長 | Full Length L 全長 | Shank Diameter D 柄徑 | Flutes Z 刃數 | List Price 最低售價 |
|---|---|---|---|---|---|---|
| SUSL+0604 | 6 | 24 | 75 | 6 | 4 | 490 |
| SUSL+0804 | 8 | 32 | 100 | 8 | 4 | 840 |
| SUSL+1004 | 10 | 40 | 100 | 10 | 4 | 1200 |
| SUSL+1204 | 12 | 48 | 115 | 12 | 4 | 1490 |
| SUSL+1604 | 16 | 64 | 150 | 16 | 4 | 4250 |

Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

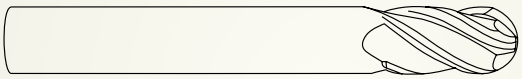
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | |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

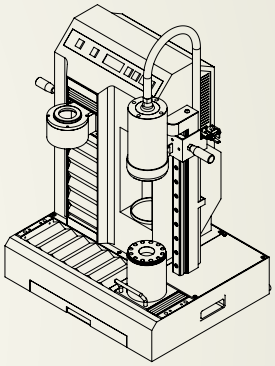
# 經濟型 ECONOMY LINE GENERAL APPLICATION

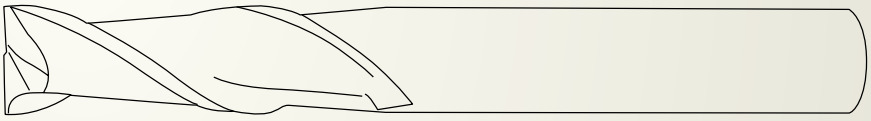
## 600 Nano SERIES 90元UP

## 200 Nano SERIES 130元UP

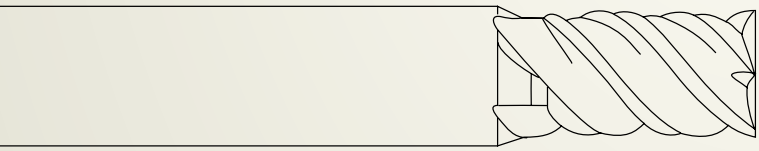


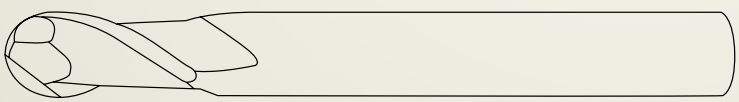
















# 600Nano ECONOMY LINE INDEX索引

## 600Nano 經濟型

| Shape<br>刃部形狀 | Flute<br>刃數 | Type<br>刀型 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Helix angle<br>螺旋角 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 2 | Square Type<br>立銑刀 | MSE<br>SE |  | ALTIBN | 35° | 56 | 178 |
| | 4 | Square Type<br>立銑刀 | DH |  | ALTIBN | 35° /38° | 56 | 179 |
| Ball Nose<br>球刀 | 2 | Ball Nose Type<br>球型立銑刀 | MSB<br>SB |  | ALTIBN | 35° | 57 | 188 |
| Corner Radius<br>圓鼻刀 | 4 | Corner Radius Type<br>圓鼻立銑刀 | RDH |  | ALTIBN | 35° /38° | 57 | 189 |

35°/38° Double Helix 雙螺旋

| | 平 刀 | 球 刀 | 圓 鼻 刀 |
|---|---|---|---|
| 4柄標準長 | $90 | $110 | $120 |
| 6柄標準長 | $140 | $160 | $180 |
| 8柄標準長 | $280 | $310 | $350 |
| 10柄標準長 | $440 | $490 | $530 |
| 12柄標準長 | $550 | $610 | $710 |
| 16柄標準長 | $1,320 | $1,540 | |
| 20柄標準長 | $2,200 | $2,420 | |

HRC50 ↓

## Square series - 2 flutes
## 2刃立銑刀

600 Nano ALTIBN 切削條件表 P178 Cutting Condition



ALTIBN®

35°

| MODE | Diameter | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| MSE0102T | 1 | 3 | 4 | 2 | 50 | 90 |
| MSE0152T | 1.5 | 4 | 4 | 2 | 50 | 90 |
| MSE0202T | 2 | 6 | 4 | 2 | 50 | 90 |
| MSE0302T | 3 | 8 | 4 | 2 | 50 | 90 |
| MSE0402T | 4 | 11 | 4 | 2 | 50 | 90 |

## Square series - 2 flutes
## 2刃立銑刀

600 Nano ALTIBN



ALTIBN®

35°

| MODE | Diameter | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| SE0602T | 6 | 16 | 6 | 2 | 50 | 140 |
| SE0802T | 8 | 20 | 8 | 2 | 60 | 280 |
| SE1002T | 10 | 25 | 10 | 2 | 75 | 440 |
| SE1202T | 12 | 32 | 12 | 2 | 75 | 550 |
| SE1602T | 16 | 40 | 16 | 2 | 100 | 1320 |
| SE2002T | 20 | 45 | 20 | 2 | 100 | 2200 |

## Square series - 4 flutes
## 4刃立銑刀

600 Nano ALTIBN 切削條件表 P179 Cutting Condition



ALTIBN®

35° / 38°

| MODE | Diameter | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| DH0104T | 1 | 3 | 4 | 4 | 50 | 90 |
| DH0154T | 1.5 | 4 | 4 | 4 | 50 | 90 |
| DH0204T | 2 | 6 | 4 | 4 | 50 | 90 |
| DH0304T | 3 | 8 | 4 | 4 | 50 | 90 |
| DH0404T | 4 | 11 | 4 | 4 | 50 | 90 |

## Square series - 4 flutes
## 4刃立銑刀

600 Nano ALTIBN



ALTIBN®

35° / 38°

| MODE | Diameter | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| DH0604T | 6 | 16 | 6 | 4 | 50 | 140 |
| DH0804T | 8 | 20 | 8 | 4 | 60 | 280 |
| DH1004T | 10 | 30 | 10 | 4 | 75 | 440 |
| DH1204T | 12 | 32 | 12 | 4 | 75 | 550 |
| DH1604T | 16 | 40 | 16 | 4 | 100 | 1320 |
| DH2004T | 20 | 45 | 20 | 4 | 100 | 2200 |

## Ball Nose - 2 flutes
## 2刃球型立銑刀

600 Nano ALTIBN 切削條件表 P188 Cutting Condition




| MODE | Diameter | Radius | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | ℓ 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| MSB0102T | 1 | 0.5 | 2 | 4 | 2 | 50 | 110 |
| MSB0152T | 1.5 | 0.75 | 3 | 4 | 2 | 50 | 110 |
| MSB0202T | 2 | 1 | 4 | 4 | 2 | 50 | 110 |
| MSB0302T | 3 | 1.5 | 6 | 4 | 2 | 50 | 110 |
| MSB0402T | 4 | 2 | 8 | 4 | 2 | 50 | 110 |

## Ball Nose - 2 flutes
## 2刃球型立銑刀

600 Nano ALTIBN




| MODE | Diameter | Radius | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | ℓ 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| SB0602T | 6 | 3 | 12 | 6 | 2 | 50 | 160 |
| SB0802T | 8 | 4 | 16 | 8 | 2 | 60 | 310 |
| SB1002T | 10 | 5 | 20 | 10 | 2 | 75 | 490 |
| SB1202T | 12 | 6 | 24 | 12 | 2 | 75 | 610 |
| SB1602T | 16 | 8 | 32 | 16 | 2 | 100 | 1540 |
| SB2002T | 20 | 10 | 20 | 20 | 2 | 100 | 2420 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

600 Nano ALTIBN 切削條件表 P189 Cutting Condition




| MODE | Diameter | Corner Radius | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | ℓ 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| RDH040054T | 4 | 0.5 | 10 | 4 | 4 | 50 | 120 |
| RDH040104T | 4 | 1 | 10 | 4 | 4 | 50 | 120 |
| RDH060054T | 6 | 0.5 | 15 | 6 | 4 | 50 | 180 |
| RDH060104T | 6 | 1 | 15 | 6 | 4 | 50 | 180 |
| RDH080054T | 8 | 0.5 | 20 | 8 | 4 | 60 | 350 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

600 Nano ALTIBN




| MODE | Diameter | Corner Radius | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | ℓ 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| RDH080104T | 8 | 1 | 20 | 8 | 4 | 60 | 350 |
| RDH100054T | 10 | 0.5 | 25 | 10 | 4 | 75 | 530 |
| RDH100054T | 10 | 1 | 25 | 10 | 4 | 75 | 530 |
| RDH120054T | 12 | 0.5 | 30 | 12 | 4 | 75 | 710 |
| RDH120104T | 12 | 1 | 30 | 12 | 4 | 75 | 710 |

# 200Nano ECONOMY LINE INDEX索引

## 200Nano 經濟型

| Shape<br>刃部形狀 | Flute<br>刃數 | Type<br>刀型 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Helix angle<br>螺旋角 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 2 | Square Type<br>立銑刀 | SFUET |  | TiSiN | 35° | 59 | 189 |
| | 4 | Square Type<br>立銑刀 | SFDH |  | TiSiN | 35° /38° | 59 | 190 |
| Ball Nose<br>球刀 | 2 | Ball Nose Type<br>球型立銑刀 | SFUBT |  | TiSiN | 35° | 59 | 190 |
| Corner Radius<br>圓鼻刀 | 4 | Corner Radius Type<br>圓鼻立銑刀 | SFRDH |  | TiSiN | 35° /38° | 60 | 191 |

## 35°/38° Double Helix 雙螺旋

| | Square<br>平 刀 | Ball Nose<br>球 刀 | Corner Radius<br>圓 鼻 刀 |
|---|---|---|---|
| 4柄標準長 | $130 | $160 | $170 |
| 6柄標準長 | $200 | $240 | $250 |
| 8柄標準長 | $400 | $440 | $500 |
| 10柄標準長 | $640 | $700 | $760 |
| 12柄標準長 | $800 | $870 | $1,030 |
| 16柄標準長 | $1,910 | $2,230 | |
| 20柄標準長 | $3,170 | $3,490 | |

HRC65 ↓

## Square series - 2 flutes
## 2刃立銑刀

200 Nano TiSiN 切削條件表 P189 Cutting Condition



35°

| MODE | Diameter | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| SFUET0102 | 1 | 2.5 | 4 | 2 | 50 | 130 |
| SFUET0152 | 1.5 | 3 | 4 | 2 | 50 | 130 |
| SFUET0202 | 2 | 5 | 4 | 2 | 50 | 130 |
| SFUET0302 | 3 | 7.5 | 4 | 2 | 50 | 130 |
| SFUET0402 | 4 | 9 | 4 | 2 | 50 | 130 |
| SFUET0602(50L) | 6 | 13 | 6 | 2 | 50 | 200 |
| SFUET0802 | 8 | 16 | 8 | 2 | 60 | 400 |
| SFUET1002 | 10 | 22 | 10 | 2 | 75 | 640 |
| SFUET1202 | 12 | 26 | 12 | 2 | 75 | 800 |
| SFUET1602(100L) | 16 | 33 | 16 | 2 | 100 | 1910 |
| SFUET2002 | 20 | 45 | 20 | 2 | 100 | 3170 |

## Square series - 4 flutes
## 4刃立銑刀

200 Nano TiSiN 切削條件表 P190 Cutting Condition



35° / 38°

| MODE | Diameter | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| SFDH0104 | 1 | 2.5 | 4 | 4 | 50 | 130 |
| SFDH0154 | 1.5 | 3 | 4 | 4 | 50 | 130 |
| SFDH0204 | 2 | 5 | 4 | 4 | 50 | 130 |
| SFDH0304 | 3 | 7.5 | 4 | 4 | 50 | 130 |
| SFDH0404 | 4 | 10 | 4 | 4 | 50 | 130 |
| SFDH0604(50L) | 6 | 15 | 6 | 4 | 50 | 200 |
| SFDH0804 | 8 | 20 | 8 | 4 | 60 | 400 |
| SFDH1004 | 10 | 25 | 10 | 4 | 75 | 640 |
| SFDH1204 | 12 | 30 | 12 | 4 | 75 | 800 |
| SFDH1604 | 16 | 45 | 16 | 4 | 100 | 1910 |
| SFDH2004 | 20 | 50 | 20 | 4 | 100 | 3200 |

## Ball Nose - 2 flutes
## 2刃球型立銑刀

200 Nano TiSiN 切削條件表 P190 Cutting Condition



35°

| Mode | Diameter | Radius | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| SFUBT0102 | 1 | 0.5 | 1.5 | 4 | 2 | 50 | 160 |
| SFUBT0152 | 1.5 | 0.75 | 2.5 | 4 | 2 | 50 | 160 |
| SFUBT0202 | 2 | 1 | 3 | 4 | 2 | 50 | 160 |
| SFUBT0302 | 3 | 1.5 | 5 | 4 | 2 | 50 | 160 |
| SFUBT0402 | 4 | 2 | 6 | 4 | 2 | 50 | 160 |

## Ball Nose - 2 flutes
## 2刃球型立銑刀

200 Nano TiSiN



35°

| Mode | Diameter | Radius | Flute Length | Shank Diameter | Flutes | Full Length | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | 刃長 | D 柄徑 | Z 刃數 | L 全長 | 最低售價 |
| SFUBTS0602(50L) | 6 | 3 | 9 | 6 | 2 | 50 | 240 |
| SFUBT0802 | 8 | 4 | 16 | 8 | 2 | 60 | 440 |
| SFUBT1002 | 10 | 5 | 20 | 10 | 2 | 75 | 700 |
| SFUBT1202 | 12 | 6 | 24 | 12 | 2 | 75 | 870 |
| SFUBT1602 | 16 | 8 | 24 | 16 | 2 | 100 | 2230 |
| SFUBT2002(100L) | 20 | 10 | 30 | 20 | 2 | 100 | 3490 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

200 Nano TiSiN 切削條件表 P191 Cutting Condition



35° / 38°

| Mode 型號 | Diameter d 刃徑 | Flute Length 刃長 | Shank Diameter D 柄徑 | Flutes Z 刃數 | Full Length L 全長 | Corner Radius R 角 | List Price 最低售價 |
|---|---|---|---|---|---|---|---|
| SFRDH040054 | 4 | 10 | 4 | 4 | 50 | 0.5 | 170 |
| SFRDH040104 | 4 | 10 | 4 | 4 | 50 | 1 | 170 |
| SFRDH06054(50L) | 6 | 16 | 6 | 4 | 50 | 0.5 | 250 |
| SFRDH06104(CL16X50L) | 6 | 16 | 6 | 4 | 50 | 1 | 250 |
| SFRDH08054(60L) | 8 | 20 | 8 | 4 | 60 | 0.5 | 500 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

200 Nano TiSiN



35° / 38°

| Mode 型號 | Diameter d 刃徑 | Flute Length 刃長 | Shank Diameter D 柄徑 | Flutes Z 刃數 | Full Length L 全長 | Corner Radius R 角 | List Price 最低售價 |
|---|---|---|---|---|---|---|---|
| SFRDH08104(60L) | 8 | 20 | 8 | 4 | 60 | 1 | 500 |
| SFRDH10054 | 10 | 25 | 10 | 4 | 75 | 0.5 | 760 |
| SFRDH10104 | 10 | 25 | 10 | 4 | 75 | 1 | 760 |
| SFRDH12054 | 12 | 30 | 12 | 4 | 75 | 0.5 | 1030 |
| SFRDH12104 | 12 | 30 | 12 | 4 | 75 | 1 | 1030 |

# Patent




Patent of Taiwan No: I 280288
(the method of tool surface hardening)
本產品已獲台灣一種刀具表面硬化方法之專利證書字號：I 280288


600 PLUS
SERIES

## 600PLUS High Performance Series for General Application

# INDEX索引

## 600PLUS 高效泛用系列

| Shape 刃部形狀 | Flute 刃數 | Type 刀型 | Mode 品名 | Photo 照片 | Coating 塗層 | Spec. 規格表 | Cutting Condition 切削條件 |
|---|---|---|---|---|---|---|---|
| Square 平刀 | 2 | Square Type 立銑刀 | P-SSE / P-MSE / P-SE |  | ZrN-A | 65 | 178 |
| | 4 | Square Type 立銑刀 | P-SSE / P-MSE / P-SE |  | ZrN-A | 66 | 179 |
| Ball Nose 球刀 | 2 | Ball Nose Type 球型立銑刀 | P-SSB / P-MSB / P-SB |  | ZrN-A | 67 | 188 |
| Corner Radius 圓鼻刀 | 4 | Corner Radius Type 圓鼻立銑刀 | P-RTA |  | ZrN-A | 67-69 | 189 |

# Patent



Enhanced geometry of end mills
Patent of Taiwan: M 476013 Patent product
本產品已獲台灣新型專利 字號：M 476013

## High Efficient End Mill
## 高效率泛用型銑刀

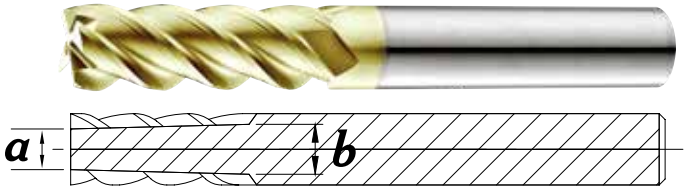


**1** Maximized rigidity, and chip removals are greatly improved due to special geometric design and reinforced design in cutting edges against chipping at corners.
特殊刀型設計 + 強化刃口崩角設計，使刀具有最大的鋼性，同時擁有最大的有效排屑空間

**2** Excellent performance of anti-vibration and noise.
抑制顫振及噪音的效果更加明顯

**3** High hardness-used coating,effectively improves tool life and finishes.
刀具塗層：震虎獨家高硬度專用塗層，有效提高刀具壽命跟加工表面精度

This shape makes more efficient
此刀型設計可提升加工效率



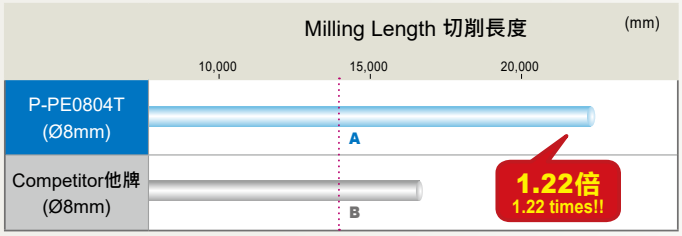

$b > a$

Taper Core 錐型心厚

Enhanced geometry of end mills Patent of Taiwan: M 476013 Patent product, all rights reserved
本設計獲得台灣銑刀改良結構專利：M 476013 專利產品 仿冒必究

New geometry for 600 PLUS can prolong tool life by 22%!
長壽命! 600 PLUS新刀型使壽命增加22%

| | |
|---|---|
| Tool 工具 | P-PE0804T |
| Work Material 工件 | S45C 中碳鋼 |
| Milling Type 加工方式 | Side milling 側銑 |
| Milling Speed 切削速度 | 100m/min |
| Speed ($min^{-1}$) 進給速度 | 1400mm/min |
| Depth of cut 切深 | ap=15.00mm<br>ae=1.00mm |
| Coolant 冷卻方式 | Air Blow 空冷 |
| Machine 使用機台 | Vertical Machining Center 立式綜合加工機 |




A

P-PE0804T：Picture of wear after milling 140m
P-PE0804T：加工140M的損耗照片



B

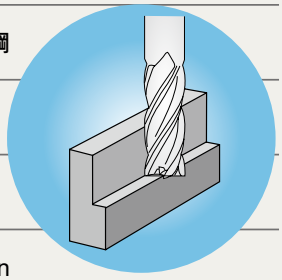
Competitor：Picture of wear after milling 140m
他牌：加工140M的損耗照片



## High Efficient End Mill
## 高效率泛用型銑刀

The new developed 600 PLUS enable to operate stable without chipping and produce a superb surface finish.
600 PLUS新刀型能夠減少加工時產生的震顫，銑出良好的加工表面

| | |
|---|---|
| Tool<br>工具 | P-PE0804T |
| Work Material<br>工件 | S45C 中碳鋼 |
| Milling Type<br>加工方式 | Side milling<br>側銑 |
| Milling Speed<br>切削速度 | 100m/min |
| Speed ($min^{-1}$)<br>進給速度 | 1400mm/min |
| Depth of cut<br>切深 | ap=15.00mm<br>ae=1.00mm |
| Coolant<br>冷卻方式 | Air Blow<br>空冷 |
| Machine<br>使用機台 | Vertical Machining Center<br>立式綜合加工機 |



Favorable Machined Surface
P-PE0804T：加工表面良好



Competitor：General Machined Surface
他　　牌：一般加工表面



Achieving efficient maching by 600 PLUS ; Milling time reduced by more than 25%!
效率UP! 600 PLUS實現高速加工，節省加工時間25%↑

| Tool<br>工具 | Competitor 他牌<br>Ø8mm | SPEED TIGER 600 PLUS<br>P-PE0804T |
|---|---|---|
| Work Material<br>工件 | S50C 中碳鋼 | |
| Milling Type<br>加工方式 | Side milling<br>側銑 | |
| Milling Speed<br>切削速度 | 100m/min | 100m/min |
| Speed ($min^{-1}$)<br>進給速度 | 2200mm/min | 2800mm/min |
| Depth of cut<br>切深 | ap=15.00mm<br>ae=1.00mm | |
| Working Length<br>加工長度 | 110m | |
| Working Time<br>加工時間 | 500min | 392min |
| Coolant<br>冷卻方式 | Air Blow<br>空冷 | |
| Machine<br>使用機台 | Vertical Machining Center<br>立式綜合加工機 | |

Competitor 他牌

Cutting Time
8hr 20min
加工時間
8小時20分鐘

**SAVE your time 25%↑**
**為您省下25%加工時間**

SPEED TIGER
600 PLUS

Cutting Time
6hr 32min
加工時間
6小時32分鐘

## Square series - 2 flutes
## 2刃立銑刀

600 PLUS ZrN-A 切削條件表 P178 Cutting Condition




| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SSE0102ZrN-A | 1 | 3 | 50 | 3 | 2 | 180 |
| P-MSE0102ZrN-A | 1 | 3 | 50 | 4 | 2 | 180 |
| P-SSE0152ZrN-A | 1.5 | 4 | 50 | 3 | 2 | 180 |
| P-MSE0152ZrN-A | 1.5 | 4 | 50 | 4 | 2 | 180 |
| P-SSE0202ZrN-A | 2 | 6 | 50 | 3 | 2 | 180 |
| P-MSE0202ZrN-A | 2 | 6 | 50 | 4 | 2 | 180 |
| P-SSE0252ZrN-A | 2.5 | 8 | 50 | 3 | 2 | 180 |
| P-MSE0252ZrN-A | 2.5 | 8 | 50 | 4 | 2 | 180 |
| P-SSE0302ZrN-A | 3 | 8 | 50 | 3 | 2 | 180 |
| P-MSE0302ZrN-A | 3 | 8 | 50 | 4 | 2 | 180 |

## Square series - 2 flutes
## 2刃立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-MSE0352ZrN-A | 3.5 | 10 | 50 | 4 | 2 | 180 |
| P-MSE0402ZrN-A | 4 | 11 | 50 | 4 | 2 | 180 |
| P-SE0102ZrN-A | 1 | 3 | 50 | 6 | 2 | 220 |
| P-SE0152ZrN-A | 1.5 | 4 | 50 | 6 | 2 | 220 |
| P-SE0202ZrN-A | 2 | 6 | 50 | 6 | 2 | 220 |
| P-SE0252ZrN-A | 2.5 | 8 | 50 | 6 | 2 | 220 |
| P-SE0302ZrN-A | 3 | 8 | 50 | 6 | 2 | 220 |
| P-SE0352ZrN-A | 3.5 | 10 | 50 | 6 | 2 | 220 |
| P-SE0402ZrN-A | 4 | 11 | 50 | 6 | 2 | 220 |
| P-SE0452ZrN-A | 4.5 | 13 | 50 | 6 | 2 | 220 |

## Square series - 2 flutes
## 2刃立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SE0502ZrN-A | 5 | 13 | 50 | 6 | 2 | 220 |
| P-SE0552ZrN-A | 5.5 | 13 | 50 | 6 | 2 | 220 |
| P-SE0602ZrN-A | 6 | 16 | 50 | 6 | 2 | 220 |
| P-SE0652ZrN-A | 6.5 | 16 | 60 | 8 | 2 | 440 |
| P-SE0702ZrN-A | 7 | 16 | 60 | 8 | 2 | 440 |
| P-SE0752ZrN-A | 7.5 | 19 | 60 | 8 | 2 | 440 |
| P-SE0802ZrN-A | 8 | 20 | 60 | 8 | 2 | 440 |
| P-SE0852ZrN-A | 8.5 | 20 | 75 | 10 | 2 | 630 |
| P-SE0902ZrN-A | 9 | 20 | 75 | 10 | 2 | 630 |
| P-SE0952ZrN-A | 9.5 | 25 | 75 | 10 | 2 | 630 |

## Square series - 2 flutes
## 2刃立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SE1002ZrN-A | 10 | 25 | 75 | 10 | 2 | 630 |
| P-SE1052ZrN-A | 10.5 | 25 | 75 | 12 | 2 | 830 |
| P-SE1102ZrN-A | 11 | 30 | 75 | 12 | 2 | 830 |
| P-SE1152ZrN-A | 11.5 | 30 | 75 | 12 | 2 | 830 |
| P-SE1202ZrN-A | 12 | 32 | 75 | 12 | 2 | 830 |
| P-SE1402ZrN-A | 14 | 40 | 100 | 16 | 2 | 2180 |
| P-SE1602ZrN-A | 16 | 40 | 100 | 16 | 2 | 2180 |
| P-SE1802ZrN-A | 18 | 45 | 100 | 20 | 2 | 3080 |
| P-SE2002ZrN-A | 20 | 45 | 100 | 20 | 2 | 3080 |

## Square series - 4 flutes
## 4刃立銑刀

600 PLUS ZrN-A 切削條件表 P179 Cutting Condition




| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SSE0104ZrN-A | 1 | 3 | 50 | 3 | 4 | 180 |
| P-MSE0104ZrN-A | 1 | 3 | 50 | 4 | 4 | 180 |
| P-SSE0154ZrN-A | 1.5 | 4 | 50 | 3 | 4 | 180 |
| P-MSE0154ZrN-A | 1.5 | 4 | 50 | 4 | 4 | 180 |
| P-SSE0204ZrN-A | 2 | 6 | 50 | 3 | 4 | 180 |
| P-MSE0204ZrN-A | 2 | 6 | 50 | 4 | 4 | 180 |
| P-SSE0254ZrN-A | 2.5 | 8 | 50 | 3 | 4 | 180 |
| P-MSE0254ZrN-A | 2.5 | 8 | 50 | 4 | 4 | 180 |
| P-SSE0304ZrN-A | 3 | 8 | 50 | 3 | 4 | 180 |
| P-MSE0304ZrN-A | 3 | 8 | 50 | 4 | 4 | 180 |

## Square series - 4 flutes
## 4刃立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-MSE0354ZrN-A | 3.5 | 10 | 50 | 4 | 4 | 180 |
| P-MSE0404ZrN-A | 4 | 11 | 50 | 4 | 4 | 180 |
| P-SE0104ZrN-A | 1 | 3 | 50 | 6 | 4 | 220 |
| P-SE0154ZrN-A | 1.5 | 4 | 50 | 6 | 4 | 220 |
| P-SE0204ZrN-A | 2 | 6 | 50 | 6 | 4 | 220 |
| P-SE0254ZrN-A | 2.5 | 8 | 50 | 6 | 4 | 220 |
| P-SE0304ZrN-A | 3 | 8 | 50 | 6 | 4 | 220 |
| P-SE0354ZrN-A | 3.5 | 10 | 50 | 6 | 4 | 220 |
| P-SE0404ZrN-A | 4 | 11 | 50 | 6 | 4 | 220 |
| P-SE0454ZrN-A | 4.5 | 13 | 50 | 6 | 4 | 220 |

## Square series - 4 flutes
## 4刃立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SE0504ZrN-A | 5 | 13 | 50 | 6 | 4 | 220 |
| P-SE0554ZrN-A | 5.5 | 13 | 50 | 6 | 4 | 220 |
| P-SE0604ZrN-A | 6 | 16 | 50 | 6 | 4 | 220 |
| P-SE0654ZrN-A | 6.5 | 16 | 60 | 8 | 4 | 440 |
| P-SE0704ZrN-A | 7 | 16 | 60 | 8 | 4 | 440 |
| P-SE0754ZrN-A | 7.5 | 19 | 60 | 8 | 4 | 440 |
| P-SE0804ZrN-A | 8 | 20 | 60 | 8 | 4 | 440 |
| P-SE0854ZrN-A | 8.5 | 20 | 75 | 10 | 4 | 630 |
| P-SE0904ZrN-A | 9 | 20 | 75 | 10 | 4 | 630 |
| P-SE0954ZrN-A | 9.5 | 25 | 75 | 10 | 4 | 630 |

## Square series - 4 flutes
## 4刃立銑刀

600 PLUS ZrN-A

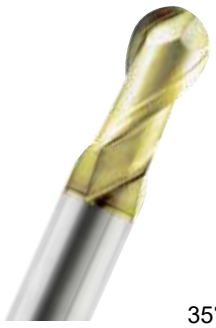



| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SE1004ZrN-A | 10 | 30 | 75 | 10 | 4 | 630 |
| P-SE1054ZrN-A | 10.5 | 30 | 75 | 12 | 4 | 830 |
| P-SE1104ZrN-A | 11 | 30 | 75 | 12 | 4 | 830 |
| P-SE1154ZrN-A | 11.5 | 30 | 75 | 12 | 4 | 830 |
| P-SE1204ZrN-A | 12 | 32 | 75 | 12 | 4 | 830 |
| P-SE1404ZrN-A | 14 | 40 | 100 | 16 | 4 | 2180 |
| P-SE1604ZrN-A | 16 | 40 | 100 | 16 | 4 | 2180 |
| P-SE1804ZrN-A | 18 | 45 | 100 | 20 | 4 | 3080 |
| P-SE2004ZrN-A | 20 | 45 | 100 | 20 | 4 | 3080 |


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## Ball Nose - 2 flutes
## 2刃球型立銑刀

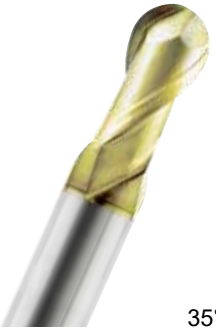
600 PLUS ZrN-A 切削條件表 P188 Cutting Condition




| MODE | Diameter | Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SSB0102ZrN-A | 1 | 0.5 | 2 | 50 | 3 | 2 | 210 |
| P-MSB0102ZrN-A | 1 | 0.5 | 2 | 50 | 4 | 2 | 210 |
| P-SSB0152ZrN-A | 1.5 | 0.75 | 3 | 50 | 3 | 2 | 210 |
| P-MSB0152ZrN-A | 1.5 | 0.75 | 3 | 50 | 4 | 2 | 210 |
| P-SSB0202ZrN-A | 2 | 1 | 4 | 50 | 3 | 2 | 210 |
| P-MSB0202ZrN-A | 2 | 1 | 4 | 50 | 4 | 2 | 210 |
| P-SSB0252ZrN-A | 2.5 | 1.25 | 5 | 50 | 3 | 2 | 210 |
| P-MSB0252ZrN-A | 2.5 | 1.25 | 5 | 50 | 4 | 2 | 210 |
| P-SSB0302ZrN-A | 3 | 1.5 | 6 | 50 | 3 | 2 | 210 |
| P-MSB0302ZrN-A | 3 | 1.5 | 6 | 50 | 4 | 2 | 210 |
| P-MSB0352ZrN-A | 3.5 | 1.75 | 7 | 50 | 4 | 2 | 210 |

## Ball Nose - 2 flutes
## 2刃球型立銑刀

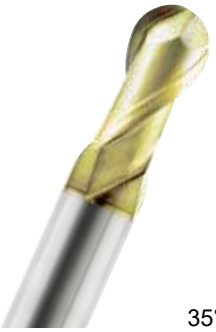
600 PLUS ZrN-A




| MODE | Diameter | Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-MSB0402ZrN-A | 4 | 2 | 8 | 50 | 4 | 2 | 210 |
| P-SB0102ZrN-A | 1 | 0.5 | 2 | 50 | 6 | 2 | 260 |
| P-SB0152ZrN-A | 1.5 | 0.75 | 3 | 50 | 6 | 2 | 260 |
| P-SB0202ZrN-A | 2 | 1 | 4 | 50 | 6 | 2 | 260 |
| P-SB0252ZrN-A | 2.5 | 1.25 | 5 | 50 | 6 | 2 | 260 |
| P-SB0302ZrN-A | 3 | 1.5 | 6 | 50 | 6 | 2 | 260 |
| P-SB0352ZrN-A | 3.5 | 1.75 | 7 | 50 | 6 | 2 | 260 |
| P-SB0402ZrN-A | 4 | 2 | 8 | 50 | 6 | 2 | 260 |
| P-SB0452ZrN-A | 4.5 | 2.25 | 9 | 50 | 6 | 2 | 260 |
| P-SB0502ZrN-A | 5 | 2.5 | 10 | 50 | 6 | 2 | 260 |
| P-SB0552ZrN-A | 5.5 | 2.75 | 11 | 50 | 6 | 2 | 260 |

## Ball Nose - 2 flutes
## 2刃球型立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SB0602ZrN-A | 6 | 3 | 12 | 50 | 6 | 2 | 260 |
| P-SB0702ZrN-A | 7 | 3.5 | 14 | 60 | 8 | 2 | 510 |
| P-SB0802ZrN-A | 8 | 4 | 16 | 60 | 8 | 2 | 510 |
| P-SB0902ZrN-A | 9 | 4.5 | 18 | 75 | 10 | 2 | 720 |
| P-SB1002ZrN-A | 10 | 5 | 20 | 75 | 10 | 2 | 720 |
| P-SB1102ZrN-A | 11 | 5.5 | 22 | 75 | 12 | 2 | 950 |
| P-SB1202ZrN-A | 12 | 6 | 24 | 75 | 12 | 2 | 950 |
| P-SB1402ZrN-A | 14 | 7 | 28 | 100 | 16 | 2 | 2420 |
| P-SB1602ZrN-A | 16 | 8 | 32 | 100 | 16 | 2 | 2420 |
| P-SB1802ZrN-A | 18 | 9 | 36 | 100 | 20 | 2 | 3410 |
| P-SB2002ZrN-A | 20 | 10 | 40 | 100 | 20 | 2 | 3410 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

600 PLUS ZrN-A 切削條件表 P189 Cutting Condition




| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-RTA020024ZrN-A | 2 | 0.2 | 6 | 50 | 4 | 4 | 240 |
| P-RTA020034ZrN-A | 2 | 0.3 | 6 | 50 | 4 | 4 | 240 |
| P-RTA020054ZrN-A | 2 | 0.5 | 6 | 50 | 4 | 4 | 240 |
| P-RTA025024ZrN-A | 2.5 | 0.2 | 8 | 50 | 4 | 4 | 240 |
| P-RTA030024ZrN-A | 3 | 0.2 | 8 | 50 | 3 | 4 | 240 |
| P-RTA030034ZrN-A | 3 | 0.3 | 8 | 50 | 3 | 4 | 240 |
| P-RTA030054ZrN-A | 3 | 0.5 | 8 | 50 | 3 | 4 | 240 |
| P-RTA030104ZrN-A | 3 | 1 | 8 | 50 | 3 | 4 | 240 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

600 PLUS ZrN-A 切削條件表 P189 Cutting Condition




| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-RTA430024ZrN-A | 3 | 0.2 | 8 | 50 | 4 | 4 | 240 |
| P-RTA430034ZrN-A | 3 | 0.3 | 8 | 50 | 4 | 4 | 240 |
| P-RTA430054ZrN-A | 3 | 0.5 | 8 | 50 | 4 | 4 | 240 |
| P-RTA430104ZrN-A | 3 | 1 | 8 | 50 | 4 | 4 | 240 |
| P-RTA040024ZrN-A | 4 | 0.2 | 10 | 50 | 4 | 4 | 240 |
| P-RTA040034ZrN-A | 4 | 0.3 | 10 | 50 | 4 | 4 | 240 |
| P-RTA040054ZrN-A | 4 | 0.5 | 10 | 50 | 4 | 4 | 240 |
| P-RTA040104ZrN-A | 4 | 1 | 10 | 50 | 4 | 4 | 240 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-RTA040154ZrN-A | 4 | 1.5 | 10 | 50 | 4 | 4 | 240 |
| P-RTA050024ZrN-A | 5 | 0.2 | 13 | 50 | 6 | 4 | 280 |
| P-RTA050034ZrN-A | 5 | 0.3 | 13 | 50 | 6 | 4 | 280 |
| P-RTA050054ZrN-A | 5 | 0.5 | 13 | 50 | 6 | 4 | 280 |
| P-RTA050104ZrN-A | 5 | 1 | 13 | 50 | 6 | 4 | 280 |
| P-RTA060024ZrN-A | 6 | 0.2 | 15 | 50 | 6 | 4 | 280 |
| P-RTA060034ZrN-A | 6 | 0.3 | 15 | 50 | 6 | 4 | 280 |
| P-RTA060054ZrN-A | 6 | 0.5 | 15 | 50 | 6 | 4 | 280 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-RTA060104ZrN-A | 6 | 1 | 15 | 50 | 6 | 4 | 280 |
| P-RTA060154ZrN-A | 6 | 1.5 | 15 | 50 | 6 | 4 | 280 |
| P-RTA060204ZrN-A | 6 | 2 | 15 | 50 | 6 | 4 | 280 |
| P-RTA080034ZrN-A | 8 | 0.3 | 20 | 60 | 8 | 4 | 550 |
| P-RTA080054ZrN-A | 8 | 0.5 | 20 | 60 | 8 | 4 | 550 |
| P-RTA080104ZrN-A | 8 | 1 | 20 | 60 | 8 | 4 | 550 |
| P-RTA080154ZrN-A | 8 | 1.5 | 20 | 60 | 8 | 4 | 550 |
| P-RTA080204ZrN-A | 8 | 2 | 20 | 60 | 8 | 4 | 550 |

## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

600 PLUS ZrN-A




| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-RTA080254ZrN-A | 8 | 2.5 | 20 | 60 | 8 | 4 | 550 |
| P-RTA080304ZrN-A | 8 | 3 | 20 | 60 | 8 | 4 | 550 |
| P-RTA100034ZrN-A | 10 | 0.3 | 25 | 75 | 10 | 4 | 800 |
| P-RTA100054ZrN-A | 10 | 0.5 | 25 | 75 | 10 | 4 | 800 |
| P-RTA100104ZrN-A | 10 | 1 | 25 | 75 | 10 | 4 | 800 |
| P-RTA100154ZrN-A | 10 | 1.5 | 25 | 75 | 10 | 4 | 800 |
| P-RTA100204ZrN-A | 10 | 2 | 25 | 75 | 10 | 4 | 800 |
| P-RTA100254ZrN-A | 10 | 2.5 | 25 | 75 | 10 | 4 | 800 |


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## Corner Radius series - 4 flutes
## 4刃圓鼻立銑刀

600 PLUS | ZrN-A | 切削條件表 P189 Cutting Condition



35°




| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-RTA100304ZrN-A | 10 | 3 | 25 | 75 | 10 | 4 | 800 |
| P-RTA120034ZrN-A | 12 | 0.3 | 30 | 75 | 12 | 4 | 1040 |
| P-RTA120054ZrN-A | 12 | 0.5 | 30 | 75 | 12 | 4 | 1040 |
| P-RTA120104ZrN-A | 12 | 1 | 30 | 75 | 12 | 4 | 1040 |
| P-RTA120154ZrN-A | 12 | 1.5 | 30 | 75 | 12 | 4 | 1040 |
| P-RTA120204ZrN-A | 12 | 2 | 30 | 75 | 12 | 4 | 1040 |
| P-RTA120254ZrN-A | 12 | 2.5 | 30 | 75 | 12 | 4 | 1040 |
| P-RTA120304ZrN-A | 12 | 3 | 30 | 75 | 12 | 4 | 1040 |

# Tools Storage & Display
# 積木式 – 刀具收納模塊

Storage 收納
Management 管理
Save Time 省時
Fun 樂趣






**單價$250元/組**
**買10送2**

# 400 PLUS
SERIES



## Unequal Flute Spacing & Helix
## 不等分割 & 不等螺旋

- Excellent vibration absorption provides stability.
  降低刀具加工時產生的震動頻率
- Less chatter and high efficiency finishing.
  減少工件側壁的切削震紋
- Reduce metal burr when machining.
  減少刀具加工產生的端口毛刺

# INDEX索引

## 400PLUS High Performance Series

## 400PLUS 高效泛用系列

| Shape<br>刃部形狀 | Flute刃數 | Type<br>刀型 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 4 | Square Type<br>立銑刀 | PVEC |  | ZrN-A | 75 | 194-196 |
| | | | PVE1T |  | ZrN-A | 75 | 193 |
| | | | PVE |  | ALTiBN | 75 | 194-196 |
| Corner Radius<br>圓鼻刀 | 4 | Corner Radius Type<br>圓鼻立銑刀 | PVR |  | ALTiBN | 75-76 | 194-196 |

# Patent

Patent of Japan No:Nr.3145277
本產品已獲日本專利 字號：Nr.3145277



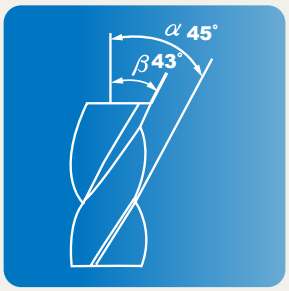
Patent of Germany No:Nr.20 2007 008 896.5
本產品已獲德國專利 字號：Nr.20 2007 008 896.5

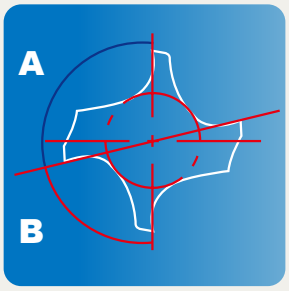


## High Efficient End Mill
## 高效率泛用型銑刀

Unequal Flute Spacing & Helix 不等分割 / 不等螺旋








Strong edge to prevent chipping at corners.
厚實端角設計防止刀具崩裂。

Unequal Flute Spacing , A≠B Irregular Helix Flutes, α ≠ β Ensures stable machining of difficult-to-cut materials, and achieve high efficient performance.
刀刃分割角採用A≠B，刀刃螺角採用α ≠ β ，於刀刃採用不等分割角搭配其不等螺旋的設計，能有效的降低刀具加工時所產生的共振；因此400PLUS能執行高效能切削及難切削材應用。

Tool diameter tolerance 0~-0.02mm.
刃徑容許公差0~-0.02mm

Special flute geometry to improve chip disposal.
特殊圓形溝槽設計，可提升排屑效果，減少應力產生，提高刀具強度。

Superior wear and chipping resistance due to optimally matched coating and carbide material.
奈米超硬底材，驚異高抗損性、優異耐磨耗性。

1. Excellent vibration absorption provides stability.
   降低刀具加工時產生的震動頻率
2. Less chatter and high efficiency finishing.
   減少工件側壁的切削震紋
3. Reduce metal burr when machining.
   減少刀具加工產生的端口毛刺

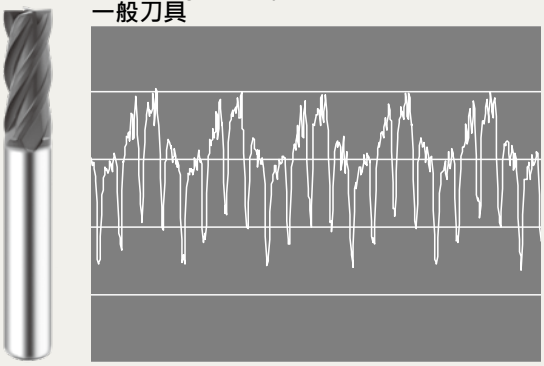
# High Efficient End Mill
# 高效率泛用型銑刀

## Cutting Performance 實測比較

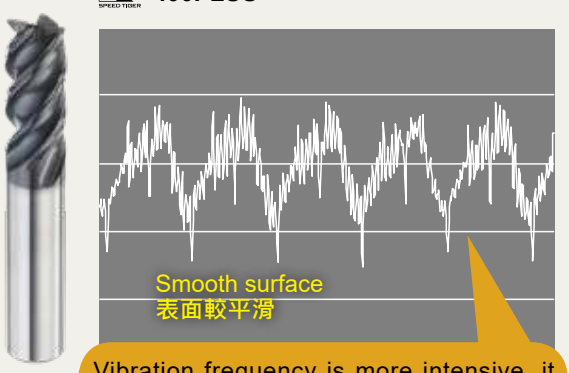
### Cutting Analysis 切削比較

Use Dynamometer Measure System to inspect the vibration of general end mills and 400PLUS during milling.
在相同的切削時間 (X 軸 ) 跟切削條件 (Y 軸 ) 下，使用動力測量儀測量一般刀具與 400PLUS 抗震刀具的振動頻率。

General geometry end mill
一般刀具



**400PLUS**




Vibration frequency is more intensive, it means that the force of the workpiece is more even.
圖面震動頻率較密集，表示工件受力較平均。

### Equal V.S Unequal - Performance of Slotting SUS316
### 一般刀具 VS 400PLUS - SUS316 開溝實測

General geometry end mill
一般刀具



Metal Burr: A lot
毛刺 : 很多
Surface: Not smooth
表面 : 不平滑

PVE1004 (ø10mm)



Metal Burr: Less
毛刺 : 極少
Surface : Excellent
表面 : 光滑

**Unequal Design**
**不等設計**

+

**Special Flute Geometry**
**特殊刃部設計**

- ✓ Prevent Burr 減少毛刺
- ✓ Excellent Surface 光滑表面
- ✓ Improve Chip Disposal 不易積屑
- ✓ Longer Tool Life 延長壽命

### Equal vs. Unequal - Shouldering and Corner Part
### 一般刀具 VS 400PLUS - 肩銑與轉角處比較

General geometry end mill
一般刀具



Surface: Chattering
波紋表面

**PVE0804 (ø8mm)**
**400PLUS**



Excellent Surface
精緻表面 !!

Smooth cutting at shouldering and corner part.
不等設計抑制高頻顫震，使表面光滑。

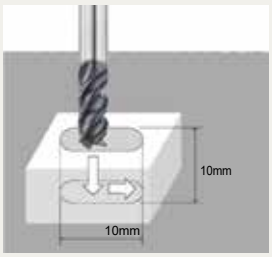


# High Efficient End Mill
# 高效率泛用型銑刀

## Cutting Performance 實測比較

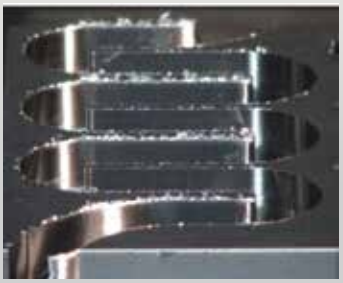
### Unequal V.S Unequal - Surface and Tool Life Comparison
### 他牌抗震刀具 V.S 震虎抗震刀具 - 表面及壽命比較

| | |
|---|---|
| End mill 刀具 | PVE1004 (Ø10mm) |
| Workpiece Material 工件 | SUS316 |
| Milling Type 加工方式 | Slotting 溝銑 |
| Rotation Speed (S) 轉速 | 2644rpm |
| Milling Speed (Vc) 切削速度 | 83m/min |
| Feed Rate (min-1) (F) 進給速度 | 646 mm/min |
| Depth of cut 切深 | ap=10mm |
| | ae: 10mm |
| Feed of teeth (Fz) 每刃進給量 | 0.062 |
| Machine 使用機台 | Vertical Machining Center 立式綜合加工機 |

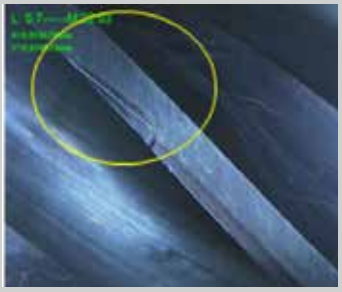



400PLUS video 切削影片

**Competitor A 他牌 A**

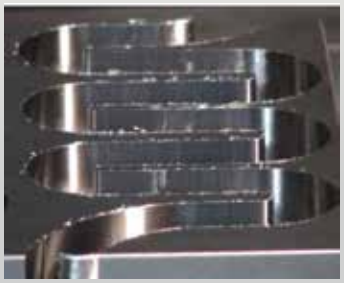


Metal Burr: Heavy 毛刺 : 較厚
Surface: Fine 切壁 : 尚可



The cutting edge broke.
刃部破損

**Competitor B 他牌 B**



Metal Burr: Some 毛刺 : 較少
Surface: Chattering 切壁 : 震紋明顯



The cutting edge got chipping.
刃部缺角

**PVE1004 (ø10mm)**



Metal Burr: Less 毛刺 : 極少
Surface : Excellent 切壁 : 光亮




The cutting edge is fine!
刃部良好

### Different Cutting Conditions on milling Carbon Steel (S45C)
### 加工於碳素鋼 S45C 的各式切削數據



## Square series
## 4刃不等立銑刀

Heavy Duty 高速重切

400 PLUS | ZrN-A | 切削條件表 P194-196 Cutting Condition



43° / 45°

| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| PVEC0604ZrN-A | 6 | 13 | 50 | 6 | 4 | 470 |
| PVEC0804ZrN-A | 8 | 17 | 60 | 8 | 4 | 660 |
| PVEC1004ZrN-A | 10 | 22 | 75 | 10 | 4 | 1040 |
| PVEC1204ZrN-A | 12 | 26 | 75 | 12 | 4 | 1380 |
| PVEC1604ZrN-A | 16 | 35 | 100 | 16 | 4 | 3270 |
| PVEC2004ZrN-A | 20 | 40 | 100 | 20 | 4 | 5010 |

## Square series - 4 flutes
## 4刃不等立銑刀

For Titanium 鈦合金專用

400 PLUS | ZrN-A | 切削條件表 P193 Cutting Condition



43° / 45°

| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| PVE1T0404ZrN-A | 4 | 8 | 50 | 6 | 4 | 420 |
| PVE1T0504ZrN-A | 5 | 10 | 50 | 6 | 4 | 420 |
| PVE1T0604ZrN-A | 6 | 12 | 50 | 6 | 4 | 420 |
| PVE1T0804ZrN-A | 8 | 19 | 60 | 8 | 4 | 600 |
| PVE1T1004ZrN-A | 10 | 23 | 75 | 10 | 4 | 940 |
| PVE1T1204ZrN-A | 12 | 27 | 75 | 12 | 4 | 1250 |
| PVE1T1604ZrN-A | 16 | 32 | 100 | 16 | 4 | 2970 |
| PVE1T2004ZrN-A | 20 | 39 | 100 | 20 | 4 | 4540 |

## Square series - 4 flutes
## 4刃不等立銑刀

400 PLUS | ALTIBN | 切削條件表 P194-196 Cutting Condition

ALTIBN®



43° / 45°

| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| PVE0304 | 3 | 7 | 50 | 6 | 4 | 330 |
| PVE0404 | 4 | 9 | 50 | 6 | 4 | 330 |
| PVE0504 | 5 | 11 | 50 | 6 | 4 | 330 |
| PVE0604 | 6 | 13 | 50 | 6 | 4 | 330 |
| PVE0804 | 8 | 17 | 60 | 8 | 4 | 540 |
| PVE1004 | 10 | 22 | 75 | 10 | 4 | 790 |
| PVE1204 | 12 | 26 | 75 | 12 | 4 | 1040 |
| PVE1604 | 16 | 35 | 100 | 16 | 4 | 2730 |
| PVE2004 | 20 | 40 | 100 | 20 | 4 | 4340 |

## Corner Radius series - 4 flutes
## 4刃不等圓鼻立銑刀

400 PLUS | ALTIBN | 切削條件表 P194-196 Cutting Condition

ALTIBN®



43° / 45°

| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| PVR0600104 | 6 | 0.1 | 13 | 50 | 6 | 4 | 420 |
| PVR0600304 | 6 | 0.3 | 13 | 50 | 6 | 4 | 420 |
| PVR0600504 | 6 | 0.5 | 13 | 50 | 6 | 4 | 420 |
| PVR0601004 | 6 | 1 | 13 | 50 | 6 | 4 | 420 |
| PVR0800104 | 8 | 0.1 | 17 | 60 | 8 | 4 | 690 |
| PVR0800504 | 8 | 0.5 | 17 | 60 | 8 | 4 | 690 |
| PVR0801004 | 8 | 1 | 17 | 60 | 8 | 4 | 690 |
| PVR0802004 | 8 | 2 | 17 | 60 | 8 | 4 | 690 |

## Corner Radius series - 4 flutes
## 4刃不等圓鼻立銑刀

400 PLUS ALTIBN 切削條件表 P194-196 Cutting Condition




| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| PVR1000104 | 10 | 0.1 | 22 | 75 | 10 | 4 | 980 |
| PVR1000504 | 10 | 0.5 | 22 | 75 | 10 | 4 | 980 |
| PVR1001004 | 10 | 1 | 22 | 75 | 10 | 4 | 980 |
| PVR1002004 | 10 | 2 | 22 | 75 | 10 | 4 | 980 |
| PVR1200104 | 12 | 0.1 | 26 | 75 | 12 | 4 | 1300 |
| PVR1200504 | 12 | 0.5 | 26 | 75 | 12 | 4 | 1300 |
| PVR1201004 | 12 | 1 | 26 | 75 | 12 | 4 | 1300 |
| PVR1202004 | 12 | 2 | 26 | 75 | 12 | 4 | 1300 |

## Corner Radius series - 4 flutes
## 4刃不等圓鼻立銑刀

400 PLUS ALTIBN




| MODE | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | l 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| PVR1600504 | 16 | 0.5 | 35 | 100 | 16 | 4 | 3300 |
| PVR1601004 | 16 | 1 | 35 | 100 | 16 | 4 | 3300 |
| PVR1602004 | 16 | 2 | 35 | 100 | 16 | 4 | 3300 |
| PVR1603004 | 16 | 3 | 35 | 100 | 16 | 4 | 3300 |
| PVR2001004 | 20 | 1 | 40 | 100 | 20 | 4 | 4950 |
| PVR2001504 | 20 | 1.5 | 40 | 100 | 20 | 4 | 4950 |
| PVR2002004 | 20 | 2 | 40 | 100 | 20 | 4 | 4950 |
| PVR2002504 | 20 | 2.5 | 40 | 100 | 20 | 4 | 4950 |
| PVR2003004 | 20 | 3 | 40 | 100 | 20 | 4 | 4950 |

# Patent

Patent of China No:ZL 2007 2 0154039.4
獲中國專利 字號：ZL 2007 2 0154039.4




Patent of Italy No:N. 0000268164
獲義大利專利 字號：N. 0000268164



Patent of Taiwan No:M 328331
獲台灣專利 字號：新型第 M 328331



SPEED TIGER



# 200 PLUS

SERIES

**High Performance for High Hardness Exotic Materials**

高效高硬度難切削

擁有 持續 掌握

## 200 PLUS High Performance Series
## For High Hardness Exotic Materials.

# INDEX索引

## 200PLUS 高效高硬度難切削系列

| Shape<br>刃部形狀 | Flute<br>刃數 | Type<br>刀型 | Mode<br>品名 | Photo<br>照片 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Condition<br>切削條件 |
|---|---|---|---|---|---|---|---|
| Square<br>平刀 | 4 | Square Type<br>立銑刀 | P-SFUET |  | P-nACo | 82 | 197 |
| Ball Nose<br>球刀 | 2 | Ball Nose Type<br>球型立銑刀 | P-SFUBT |  | P-nACo | 82 | 197 |
| | 4 | Ball Nose Type<br>球型立銑刀 | P-SFUBT |  | P-nACo | 82 | 197 |
| Corner Radius<br>圓鼻刀 | 4 | Corner Radius Type<br>圓鼻立銑刀 | P-SFURTA |  | P-nACo | 82-83 | 198 |
| Square<br>平刀 | 2 | Square Type<br>立銑刀 | KKH |  | P-nACo | 83 | 199 |
| | 3 | Square Type<br>立銑刀 | KKH |  | P-nACo | 83 | 199 |

# Patent

Patent of Germany No:Nr.20 2006 014 089.1
獲德國專利 字號：Nr.20 2006 014 089.1




Patent of China No:ZL 2006 2 0124295.4
獲中國專利 字號：ZL 2006 2 0124295.4

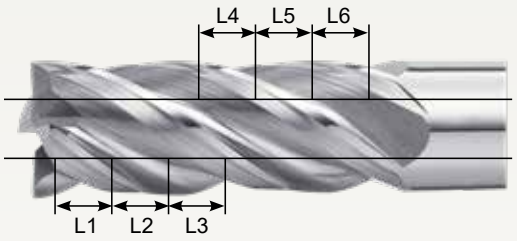


# High Performance for High Hardness Exotic Materials
# 高效高硬度難切削型銑刀

We are different 我們不一樣

## Characteristics 特點

Unequal leads
不等導程




L1 ≠ L2 ≠ L3 ≠ L4 ≠ L5 ≠ L6

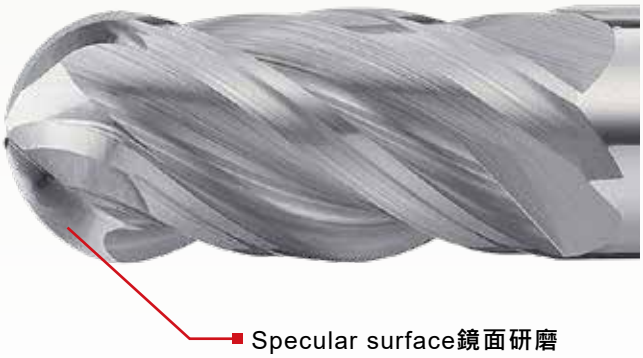
### Excellent Anti-vibration effect 振動抑制效果

- Unequal flute spacing and unequal lead design have excellent and long effect of anti-vibration during milling.
  通過不等分割、不等距導程形狀抑制加工時的顫振，表現出眾的耐久性。
- Super Ultra Fine Micro Grain Carbide raw material with the most suitable flute geometry ensure to improve chip disposal and rigidity.
  採用高硬度材料，溝槽特殊設計，提升刀具排屑力與剛性。

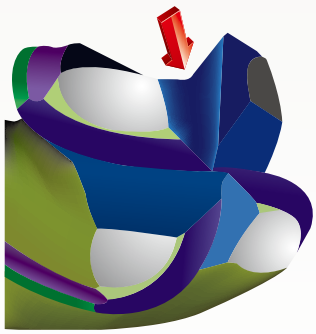
### Long tool life 增長刀具壽命

- With Super Ultra Fine Micro Grain Carbide raw material which has high temperature resistance and with P-nACo coating that can extend tool life.
  採用高耐熱的超硬材質與 P-nACo 塗層，延長刀具壽命。
- It's much easier to have finishing procedure on Hardened steel compare to general endmills.
  一般銑刀在精加工淬硬鋼材質時難度相當高，本產品可解決此問題使加工順暢輕鬆。

## 200PLUS Ball nose & Corner radius type - surface and angle
## 200PLUS 球刀 & 圓鼻刀 - 表面及角度

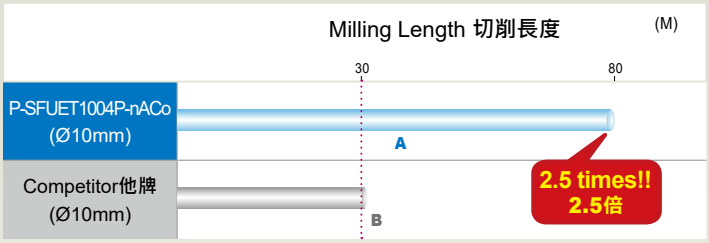



R angle:0~90° Unequal cutting edge and negative angle design
R部0~90°不等切削角負角設計



## 200PLUS square type - surface
## 200PLUS 平刀 - 表面






**A**

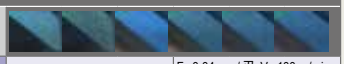
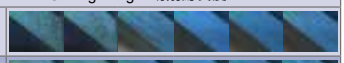
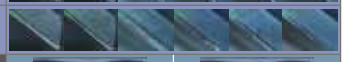
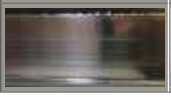
P-SFUET1004P-nACo：
Picture of wear after milling 60m
P-SFUET1004P-nACo：
加工60M的損耗照片

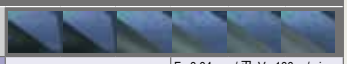
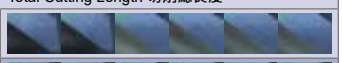
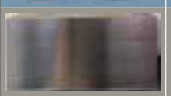
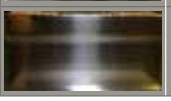


**B**

Competitor：
Picture of wear after milling 30m
他　　牌：
加工30M的損耗照片



| P-SFUET1004P-nACo Tool Life 壽命 | | | | | | |
|---|---|---|---|---|---|---|
| Before Cutting 測試前 |  | | | | | |
| Parameter 綜合參數 | Cutting Condition 使用參數： | Fz:0.04 mm/ 刃 Vc:100 m/min AP:15 mm AE:0.1 mm S:3183 min F:510 mm/min | | | | |
| | Machine 使用 CNC 機台： | MAKINO V33 | | | | |
| | Coolant 冷卻方式： | Air 空冷 | | | | |
| | Work Material 切削素材： | SKD11 熱處理冷模鋼 (HRC58) | | | | |
| | Tool 測試刀款： | SFUPVE1004-FIN-nACo | | | | |
| | Holder 使用刀桿： | GD HSK-F63-EZ10-090 Shrink Fit Holder 燒結式刀桿 | | | | |
| | The Length of Tool Extend 刀具伸出長度： | 37mm | | | | |
| | Runout of Tool 刀具偏擺： | 0.002mm | | | | |
| Tool' s Cutting Part 刀具刃處 | Cutting Edge 前端（1） | Cutting Edge 前端（2） | 7.5mm（1） | 7.5mm（2） | 15mm（1） | 15mm（2） |
| Total Cutting Length 切削總長度 | | | | | | |
| 0.2 m 米 |  | | | | | |
| 3m 米 |  | | | | | |
| 30m 米 |  | | | | | |
| 60m 米 |  | | | | | |
| Before & After Cutting 測試前後 |  | |  | | | |
| Work Surface 工件表面（0.2m 米） |  | |  | | | |
| Work Surface 工件表面（60m 米） |  | |  | | | |

| Competitor Tool Life 它牌壽命 | | | | | | |
|---|---|---|---|---|---|---|
| Before Cutting 測試前 |  | | | | | |
| Parameter 綜合參數 | Cutting Condition 使用參數： | Fz:0.04 mm/ 刃 Vc:100 m/min AP:15 mm AE:0.1 mm S:3183 min F:510 mm/min | | | | |
| | Machine 使用 CNC 機台： | MAKINO V33 | | | | |
| | Coolant 冷卻方式： | Air 空冷 | | | | |
| | Work Material 切削素材： | SKD11 熱處理冷模鋼 (HRC58) | | | | |
| | Tool 測試刀款： | Competitor 它牌 | | | | |
| | Holder 使用刀桿： | GD HSK-F63-EZ10-090 Shrink Fit Holder 燒結式刀桿 | | | | |
| | The Length of Tool Extend 刀具伸出長度： | 37mm | | | | |
| | Runout of Tool 刀具偏擺： | 0.002mm | | | | |
| Tool' s Cutting Part 刀具刃處 | Cutting Edge 前端（1） | Cutting Edge 前端（2） | 7.5mm（1） | 7.5mm（2） | 15mm（1） | 15mm（2） |
| Total Cutting Length 切削總長度 | | | | | | |
| 0.2 m 米 |  | | | | | |
| 3m 米 |  | | | | | |
| 30m 米 |  | | | | | |
| 60m 米 |  | | | | | |
| Before & After Cutting 測試前後 |  | |  | | | |
| Work Surface 工件表面（0.2m 米） |  | |  | | | |
| Work Surface 工件表面（30m 米） |  | |  | | | |

# Patent

Patent of Japan No:Nr.3145278
獲日本專利 字號：Nr.3145278



Patent of Taiwan No:M 303075
獲台灣專利 字號：新型第 M 303075 號



## P-SFUBT1004 Uncoated 無鍍膜

### Parameter 綜合參數

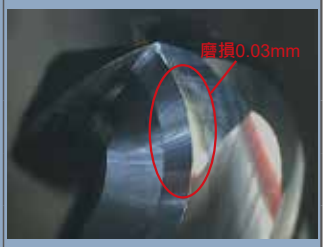
| | | | |
|---|---|---|---|
| Cutting Condition 使用參數： | Fz:0.08 mm/ 刃<br>Vc:80 m/min<br>AP:0.2 mm AE:0.2 mm<br>S:2546 min F:814 mm/min | The Length of Tool Extend 刀具伸出長度： | 33mm |
| Work Material 切削素材： | SKD11 熱處理冷模鋼 (HRC58) ( 100mm*15mm ) | Coolant 冷卻方式： | Air 空冷 |
| Tool 測試刀款： | P-SFUBT1004 Uncoated 無鍍膜 | Cutting Time 加工時間： | 18 min |
| Holder 使用刀桿： | GD HSK-F63-EZ10-090 Shink Fit Holder 燒結式刀桿 | Runout of Tool 刀具偏擺： | 0.001mm |
| Machine 使用 CNC 機台： | MAKINO V33 | Load of Spindle 主軸負載： | 5% |

### The cutting edge broke 刀具磨損

Before Cutting 測 試 前



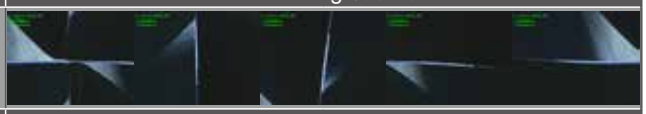
After Cutting 測 試 後




### Before Cutting 測試前



### After Cutting 測 試 後



### Work Surface 工件表面




### Surface Roughness(Ra) 粗 糙 度

Side up and down 側面上下

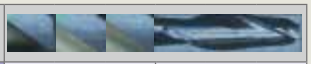
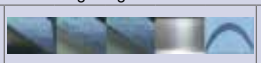



Side left and right 側面左右

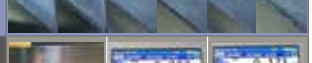



# Uncoating Tool Life Test

## SE1002 down milling SE1002 順銑

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Before Cutting 刀具使用前 |  | | | | | | |
| Parameter 綜合參數 | Cutting Condition 使用參數： | Fz:0.179 mm/ 刃 Vc:87.98 m/min<br>AP:20 mm AE:1 mm<br>S:2802 min F:1003 mm/min | | | | | |
| | Machine 使用 CNC 機台： | YCM 永進 FV102A | | | | | |
| | Coolant 冷卻方式： | Air 空冷 | | | | | |
| | Work Material 切削素材： | S45C | | | | | |
| | Tool 測試刀款： | SE1002 | | | | | |
| | Holder 使用刀桿： | BT40 Pull Back Holder 後拉式刀桿 | | | | | |
| | The Length of Tool Extend 刀具伸出長度： | 37mm | | | | | |
| | Runout of Tool 刀具偏擺： | 0.004mm | | | | | |
| Tool' s Cutting Part 刀具刃處 | Cutting Edge 前端刃 | 10mm 刃 | 20mm 刃 | Section 切 面 | Iron Chips 鐵屑 | Load 負載 | |
| Total Cutting Length 切削總長度 | | | | | | | |
| 0.2 m 米 |  | | | | | Load of Spindle 主軸負載 10% | |
| 8 m 米 |  | | | | | Load of Spindle 主軸負載 : 10% | |
| Surface Roughness(Pa) up and down 粗糙度 上 下 |  | | | | | | |

## KKH1002 down milling KKH1002 順銑

| | | | | | | |
|---|---|---|---|---|---|---|
| Before Cutting 刀具使用前 | Back Cutting Edge 子刃前端刃 | Front Cutting Edge 母刃前端刃 | Back Cutting Edge 子刃 10mm 刃 | Front Cutting Edge 母刃 10mm 刃 | Back Cutting Edge 子刃 20mm 刃 | Front Cutting Edge 母刃 20mm 刃 |
| |  | | | | | |
| Parameter 綜合參數 | Cutting Condition 使用參數： | Fz:0.04 mm/ 刃 Vc:100 m/min<br>AP:20 mm AE:0.2 mm<br>S:3183 min F:255 mm/min | | | | |
| | Machine 使用 CNC 機台： | MAKINO V33 | | | | |
| | Coolant 冷卻方式： | Air 空冷 | | | | |
| | Work Material 切削素材： | SKD61 熱處理熱模鋼 (HRC53) | | | | |
| | Tool 測試刀款： | KKH1002 | | | | |
| | Holder 使用刀桿： | GD HSK-F63-EZ10-090 Shrink Fit Holder 燒結式刀桿 | | | | |
| | The Length of Tool Extend 刀具伸出長度： | 37mm | | | | |
| | Runout of Tool 刀具偏擺： | 0.001mm | | | | |
| Tool' s Cutting Part 刀具刃處 | Back Cutting Edge 子刃前端刃 | Front Cutting Edge 母刃前端刃 | Back Cutting Edge 子刃 10mm 刃 | Front Cutting Edge 母刃 10mm 刃 | Back Cutting Edge 子刃 20mm 刃 | Front Cutting Edge 母刃 20mm 刃 |
| Total Cutting Length 切削總長度 | | | | | | |
| 1m 米 |  | | | | | |
| 8m 米 |  | | | | | |
| 16m 米 |  | | | | | |
| Work Surface 工件表面 |  | | | | | |

## KKH1002 up milling KKH1002 逆銑

| | | | | | | |
|---|---|---|---|---|---|---|
| Before Cutting 刀具使用前 | Back Cutting Edge 子刃前端刃 | Front Cutting Edge 母刃前端刃 | Back Cutting Edge 子刃 10mm 刃 | Front Cutting Edge 母刃 10mm 刃 | Back Cutting Edge 子刃 20mm 刃 | Front Cutting Edge 母刃 20mm 刃 |
| |  | | | | | |
| Parameter 綜合參數 | Cutting Condition 使用參數： | Fz:0.04 mm/ 刃 Vc:100 m/min<br>AP:20 mm AE:0.2 mm<br>S:3183 min F:255 mm/min | | | | |
| | Machine 使用 CNC 機台： | MAKINO V33 | | | | |
| | Coolant 冷卻方式： | Air 空冷 | | | | |
| | Work Material 切削素材： | SKD61 熱處理熱模鋼 (HRC53) | | | | |
| | Tool 測試刀款： | KKH1002 | | | | |
| | Holder 使用刀桿： | GD HSK-F63-EZ10-090 Shrink Fit Holder 燒結式刀桿 | | | | |
| | The Length of Tool Extend 刀具伸出長度： | 37mm | | | | |
| | Runout of Tool 刀具偏擺： | 0.002mm | | | | |
| Tool' s Cutting Part 刀具刃處 | Back Cutting Edge 子刃前端刃 | Front Cutting Edge 母刃前端刃 | Back Cutting Edge 子刃 10mm 刃 | Front Cutting Edge 母刃 10mm 刃 | Back Cutting Edge 子刃 20mm 刃 | Front Cutting Edge 母刃 20mm 刃 |
| Total Cutting Length 切削總長度 | | | | | | |
| 1m 米 |  | | | | | |
| 45m 米 |  | | | | | |
| 92m 米 |  | | | | | |
| Work Surface 工件表面 |  | | | | | |

P.S. Recommend up milling P.S. 建議逆銑加工

## Square series - 4 flutes
## 4刃立銑刀

200 PLUS P-nACo 切削條件表 P197 Cutting Condition




L1 ≠ L2 ≠ L3 ≠ L4 ≠ L5 ≠ L6

| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Variable Helix | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | 刃長 | L 全長 | D 柄徑 | 變螺旋 | Z 刃數 | 最低售價 |
| P-SFUET0204P-nACo | 2 | 5 | 50 | 4 | 38°~35° | 4 | 310 |
| P-SFUET0304P-nACo | 3 | 7 | 50 | 4 | 38°~35° | 4 | 310 |
| P-SFUET0404P-nACo | 4 | 9 | 50 | 6 | 38°~35° | 4 | 400 |
| P-SFUET0504P-nACo | 5 | 11 | 50 | 6 | 38°~35° | 4 | 400 |
| P-SFUET0604P-nACo | 6 | 13 | 50 | 6 | 38°~35° | 4 | 400 |
| P-SFUET0804P-nACo | 8 | 19 | 60 | 8 | 38°~35° | 4 | 640 |
| P-SFUET1004P-nACo | 10 | 22 | 75 | 10 | 38°~35° | 4 | 920 |
| P-SFUET1204P-nACo | 12 | 26 | 75 | 12 | 38°~35° | 4 | 1160 |
| P-SFUET1604P-nACo | 16 | 35 | 100 | 16 | 38°~35° | 4 | 3020 |
| P-SFUET2004P-nACo | 20 | 44 | 100 | 20 | 38°~35° | 4 | 4620 |

## Ball Nose - 2 flutes
## 2刃球型立銑刀

200 PLUS P-nACo 切削條件表 P197 Cutting Condition



| Mode | Diameter | Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SFUBT0102P-nACo | 1 | 0.5 | 1.5 | 50 | 4 | 2 | 330 |
| P-SFUBT0202P-nACo | 2 | 1 | 3 | 50 | 4 | 2 | 330 |
| P-SFUBT0302P-nACo | 3 | 1.5 | 4.5 | 50 | 4 | 2 | 330 |
| P-SFUBT0402P-nACo | 4 | 2 | 6 | 50 | 4 | 2 | 330 |
| P-SFUBT0502P-nACo | 5 | 2.5 | 7.5 | 50 | 6 | 2 | 440 |
| P-SFUBT0602P-nACo | 6 | 3 | 9 | 50 | 6 | 2 | 440 |
| P-SFUBT0802P-nACo | 8 | 4 | 12 | 60 | 8 | 2 | 710 |
| P-SFUBT1002P-nACo | 10 | 5 | 15 | 75 | 10 | 2 | 1030 |
| P-SFUBT1202P-nACo | 12 | 6 | 18 | 75 | 12 | 2 | 1320 |
| P-SFUBT1602P-nACo | 16 | 8 | 24 | 100 | 16 | 2 | 3280 |

## Ball Nose - 4 flutes
## 4刃球型立銑刀

200 PLUS P-nACo 切削條件表 P197 Cutting Condition



| Mode | Diameter | Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 值 | 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SFUBT0104P-nACo | 1 | 0.5 | 1.5 | 50 | 4 | 4 | 330 |
| P-SFUBT0204P-nACo | 2 | 1 | 3 | 50 | 4 | 4 | 330 |
| P-SFUBT0304P-nACo | 3 | 1.5 | 4.5 | 50 | 4 | 4 | 330 |
| P-SFUBT0404P-nACo | 4 | 2 | 6 | 50 | 4 | 4 | 330 |
| P-SFUBT0504P-nACo | 5 | 2.5 | 7.5 | 50 | 6 | 4 | 440 |
| P-SFUBT0604P-nACo | 6 | 3 | 9 | 50 | 6 | 4 | 440 |
| P-SFUBT0804P-nACo | 8 | 4 | 12 | 60 | 8 | 4 | 710 |
| P-SFUBT1004P-nACo | 10 | 5 | 15 | 75 | 10 | 4 | 1030 |
| P-SFUBT1204P-nACo | 12 | 6 | 18 | 75 | 12 | 4 | 1320 |
| P-SFUBT1604P-nACo | 16 | 8 | 24 | 100 | 16 | 4 | 3280 |

## Corner Radius - 4 flutes
## 4刃圓鼻立銑刀

200 PLUS P-nACo 切削條件表 P198 Cutting Condition




L1 ≠ L2 ≠ L3 ≠ L4 ≠ L5 ≠ L6

| Mode | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SFURTA04024P-nACo | 4 | 0.2 | 9 | 50 | 6 | 4 | 470 |
| P-SFURTA04054P-nACo | 4 | 0.5 | 9 | 50 | 6 | 4 | 470 |
| P-SFURTA06054P-nACo | 6 | 0.5 | 15 | 50 | 6 | 4 | 470 |
| P-SFURTA06104P-nACo | 6 | 1 | 15 | 50 | 6 | 4 | 470 |
| P-SFURTA08054P-nACo | 8 | 0.5 | 19 | 60 | 8 | 4 | 750 |
| P-SFURTA08104P-nACo | 8 | 1 | 19 | 60 | 8 | 4 | 750 |



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## Corner Radius - 4 flutes
## 4刃圓鼻立銑刀




L1 ≠ L2 ≠ L3 ≠ L4 ≠ L5 ≠ L6

| Mode | Diameter | Corner Radius | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | R 角 | ℓ 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| P-SFURTA10054P-nACo | 10 | 0.5 | 22 | 75 | 10 | 4 | 1130 |
| P-SFURTA10104P-nACo | 10 | 1 | 22 | 75 | 10 | 4 | 1130 |
| P-SFURTA10204P-nACo | 10 | 2 | 22 | 75 | 10 | 4 | 1130 |
| P-SFURTA12054P-nACo | 12 | 0.5 | 26 | 75 | 12 | 4 | 1420 |
| P-SFURTA12104P-nACo | 12 | 1 | 26 | 75 | 12 | 4 | 1420 |
| P-SFURTA12204P-nACo | 12 | 2 | 26 | 75 | 12 | 4 | 1420 |

## Square series - 2 flutes
## 2刃立銑刀

切削條件表 P199
Cutting Condition



| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| KKH0602P-nACo | 6 | 16 | 50 | 6 | 2 | 510 |
| KKH0802P-nACo | 8 | 19 | 60 | 8 | 2 | 740 |
| KKH1002P-nACo | 10 | 22 | 75 | 10 | 2 | 800 |
| KKH1202P-nACo | 12 | 26 | 75 | 12 | 2 | 1420 |
| KKH1602P-nACo | 16 | 35 | 110 | 16 | 2 | 3300 |
| KKH2002P-nACo | 20 | 40 | 110 | 20 | 2 | 5350 |
| KKH2502P-nACo | 25 | 45 | 110 | 25 | 2 | 7260 |

## Square series - 3 flutes
## 3刃立銑刀



| MODE | Diameter | Flute Length | Full Length | Shank Diameter | Flutes | List Price |
|---|---|---|---|---|---|---|
| 型號 | d 刃徑 | ℓ 刃長 | L 全長 | D 柄徑 | Z 刃數 | 最低售價 |
| KKH0603P-nACo | 6 | 16 | 50 | 6 | 3 | 540 |
| KKH0803P-nACo | 8 | 19 | 60 | 8 | 3 | 800 |
| KKH1003P-nACo | 10 | 25 | 75 | 10 | 3 | 1230 |
| KKH1203P-nACo | 12 | 30 | 75 | 12 | 3 | 1520 |
| KKH1603P-nACo | 16 | 40 | 110 | 16 | 3 | 3570 |
| KKH2003P-nACo | 20 | 45 | 110 | 20 | 3 | 5680 |
| KKH2503P-nACo | 25 | 50 | 110 | 25 | 3 | 7530 |

# AUE PLUS SERIES

## High Feed U-Type Aluminum End Mill For Slotting

## 3刃超高速鋁用開槽立銑刀



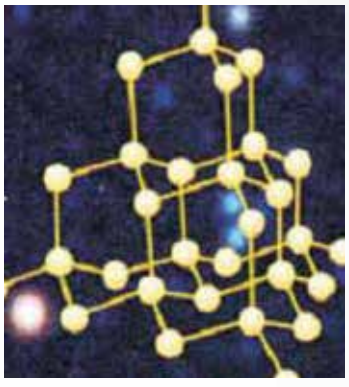
With Speed Tiger exclusive TB Tetrabond Diamond Coating.
Super High lubrication, super low friction coefficient, and longer tool life.
全系列搭配震虎獨家開發 TB 超硬類鑽塗層，
超高潤滑性、超低摩擦係數、超長壽命

Special U-Type design:
Material removal rate (MRR) and surface finishes are greatly improved due to effective chip removal at high rate.
特殊 U 型設計：流暢的切屑排除效果，
提高移除率、表面光潔度

Strong tooth with double relief angles:
Excellent production rates become 100% possible due to the improvement of tooth hardness.
高強度雙離隙刀刃：
刀刃強度提升、實現了穩定的高效率加工

Sharp aluminum alloy tooth design applicable for roughing and finishing, dry and cutting.
粗精銑皆適用，乾溼加工皆可

## TB Coating
## TB 超硬類鑽膜 系列



▲ Molecular Structure 分子結構圖

***DLC coatings are generally deposited by five methods, each having different properties :***

DLC 薄膜有 5 種不同的沉積方法，而每一個各有不同的特性：

| | | TB Ta:C | PVD a:CH | PVD Me:CH | CVD | PaCVD |
|---|---|---|---|---|---|---|
| Deposition temp | 沈積溫度 | under 150 C | under 200 C | under 200 C | over 900 C | under 200 C |
| Range of substrates | 基材限制 | Broad | Broad | Broad | Limited | Broad |
| Oxidation temp | 氧化溫度 | 500-1000 C | 350 C | 300 C | 700 C | 300 C |
| Adhesion | 附著力 | Very good | Good | Very Good | Excellent | Good |
| Smoothness | 平滑度 | Good | Very good | Good | Good | Excellent |
| Hardness (GPA) | 硬度 | 60-95 | 25 | 10-15 | 40-90 | 20-40 |
| Coefficient of friction | 摩擦係數 | <0.1 | <0.1 | 0.15 | <0.4 | <0.1 |
| Hydrogenated | 氫化 | No | Yes or No | Yes | No | Yes |
| Metal content | 金屬親和性 | No | Yes | Yes | No | No |

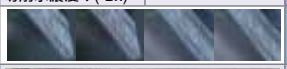
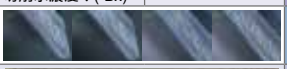
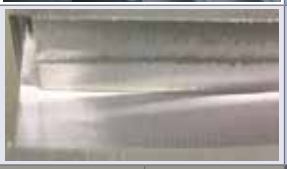
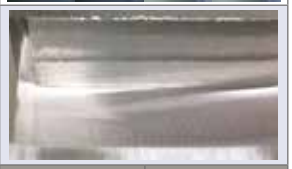
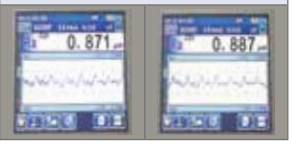
All DLC coatings are not equal：especially on Hardness and Oxidation
各種類鑽膜都有不同的特性，尤其是硬度和氧化溫度

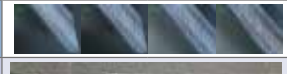
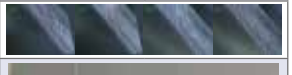
## Specification 規格

600 Nano | 50° | TB | 切削條件表 P200 Cutting Condition

| MODE 型號 | Diameter d 刃徑 | Flute Length ℓ 刃長 | Efficient Length L1 有效長 | Full Length L 全長 | Shank Diameter D 柄徑 | Flutes Z 刃數 | List Price 最低售價 |
|---|---|---|---|---|---|---|---|
| S-AUE0603 TB | 6 | 10 | 15 | 50 | 6 | 3 | 440 |
| S-AUE0803 TB | 8 | 13 | 20 | 60 | 8 | 3 | 770 |
| S-AUE1003 TB | 10 | 16 | 25 | 75 | 10 | 3 | 1090 |
| S-AUE1203 TB | 12 | 19 | 30 | 75 | 12 | 3 | 1420 |

## Extreme Testing 極限測試 - S-AUE1003

| | 7th 第 7 次 | 8th 第 8 次 | 9th 第 9 次 | 10th 第 10 次 |
|---|---|---|---|---|
| Before Cutting 刀具使用前 |  |  |  |  |
| 綜位參數 Parameter | Cutting Condition 使用參數：Fz:0.36mm/刃 Vc:358m/min AP:10mm AE:10mm S:11400min F:12312mm/min<br>Machine 使用 CNC 機台：YCM 永進 FV102A<br>Coolant 冷卻方式：Wet Cutting 水冷<br>Work Material 切削素材：AL6061<br>Tool 測試刀款：S-AUE1003<br>Holder 使用刀桿：BT40 Pull Back Holder 後拉式刀桿<br>Tool's Clamping Length 刀具夾持長度：37mm<br>Cutting Length 切削長度：0.1m 米<br>Runout of Tool 刀具偏擺：0.002mm<br>Load of Spindle 主軸負載：180%<br>Concentration of cutting water 切削水濃度：(°Bx) 10.5°Bx | Cutting Condition 使用參數：Fz:0.39mm/刃 Vc:358m/min AP:10mm AE:10mm S:11400min F:13338mm/min<br>Machine 使用 CNC 機台：YCM 永進 FV102A<br>Coolant 冷卻方式：Wet Cutting 水冷<br>Work Material 切削素材：AL6061<br>Tool 測試刀款：S-AUE1003<br>Holder 使用刀桿：BT40 Pull Back Holder 後拉式刀桿<br>Tool's Clamping Length 刀具夾持長度：37mm<br>Cutting Length 切削長度：0.1m 米<br>Runout of Tool 刀具偏擺：0.002mm<br>Load of Spindle 主軸負載：180%<br>Concentration of cutting water 切削水濃度：(°Bx) 10.5°Bx | Cutting Condition 使用參數：Fz:0.42mm/刃 Vc:358m/min AP:10mm AE:10mm S:11400min F:14364mm/min<br>Machine 使用 CNC 機台：YCM 永進 FV102A<br>Coolant 冷卻方式：Wet Cutting 水冷<br>Work Material 切削素材：AL6061<br>Tool 測試刀款：S-AUE1003<br>Holder 使用刀桿：BT40 Pull Back Holder 後拉式刀桿<br>Tool's Clamping Length 刀具夾持長度：37mm<br>Cutting Length 切削長度：0.1m 米<br>Runout of Tool 刀具偏擺：0.002mm<br>Load of Spindle 主軸負載：178%<br>Concentration of cutting water 切削水濃度：(°Bx) 10.5°Bx | Cutting Condition 使用參數：Fz:0.45mm/刃 Vc:358m/min AP:10mm AE:10mm S:11400min F:15390mm/min<br>Machine 使用 CNC 機台：YCM 永進 FV102A<br>Coolant 冷卻方式：Wet Cutting 水冷<br>Work Material 切削素材：AL6061<br>Tool 測試刀款：S-AUE1003<br>Holder 使用刀桿：BT40 Pull Back Holder 後拉式刀桿<br>Tool's Clamping Length 刀具夾持長度：37mm<br>Cutting Length 切削長度：0.1m 米<br>Runout of Tool 刀具偏擺：0.002mm<br>Load of Spindle 主軸負載：174%<br>Concentration of cutting water 切削水濃度：(°Bx) 10.5°Bx |
| After Cutting 刀具使用後 |  |  |  |  |
| 工件表面 Work Surface |  |  |  |  |
| 粗糙度 Surface Roughness(Ra) |   |   |   |   |

| | 11th 第 11 次 | 12th 第 12 次 | 13th 第 13 次 | 14th 第 14 次 |
|---|---|---|---|---|
| Before Cutting 刀具使用前 |  |  |  |  |
| 綜位參數 Parameter | Cutting Condition 使用參數：Fz:0.48mm/刃 Vc:358m/min AP:10mm AE:10mm S:11400min F:16416mm/min<br>Machine 使用 CNC 機台：YCM 永進 FV102A<br>Coolant 冷卻方式：Wet Cutting 水冷<br>Work Material 切削素材：AL6061<br>Tool 測試刀款：S-AUE1003<br>Holder 使用刀桿：BT40 Pull Back Holder 後拉式刀桿<br>Tool's Clamping Length 刀具夾持長度：37mm<br>Cutting Length 切削長度：0.1m 米<br>Runout of Tool 刀具偏擺：0.002mm<br>Load of Spindle 主軸負載：174%<br>Concentration of cutting water 切削水濃度：(°Bx) 10.5°Bx | Cutting Condition 使用參數：Fz:0.51mm/刃 Vc:358m/min AP:10mm AE:10mm S:11400min F:17442mm/min<br>Machine 使用 CNC 機台：YCM 永進 FV102A<br>Coolant 冷卻方式：Wet Cutting 水冷<br>Work Material 切削素材：AL6061<br>Tool 測試刀款：S-AUE1003<br>Holder 使用刀桿：BT40 Pull Back Holder 後拉式刀桿<br>Tool's Clamping Length 刀具夾持長度：37mm<br>Cutting Length 切削長度：0.1m 米<br>Runout of Tool 刀具偏擺：0.002mm<br>Load of Spindle 主軸負載：173%<br>Concentration of cutting water 切削水濃度：(°Bx) 10.5°Bx | Cutting Condition 使用參數：Fz:0.54mm/刃 Vc:358m/min AP:10mm AE:10mm S:11400min F:18468mm/min<br>Machine 使用 CNC 機台：YCM 永進 FV102A<br>Coolant 冷卻方式：Wet Cutting 水冷<br>Work Material 切削素材：AL6061<br>Tool 測試刀款：S-AUE1003<br>Holder 使用刀桿：BT40 Pull Back Holder 後拉式刀桿<br>Tool's Clamping Length 刀具夾持長度：37mm<br>Cutting Length 切削長度：0.1m 米<br>Runout of Tool 刀具偏擺：0.002mm<br>Load of Spindle 主軸負載：173%<br>Concentration of cutting water 切削水濃度：(°Bx) 10.5°Bx | Cutting Condition 使用參數：Fz:0.57mm/刃 Vc:358m/min AP:10mm AE:10mm S:11400min F:19494mm/min<br>Machine 使用 CNC 機台：YCM 永進 FV102A<br>Coolant 冷卻方式：Wet Cutting 水冷<br>Work Material 切削素材：AL6061<br>Tool 測試刀款：S-AUE1003<br>Holder 使用刀桿：BT40 Pull Back Holder 後拉式刀桿<br>Tool's Clamping Length 刀具夾持長度：37mm<br>Cutting Length 切削長度：0.1m 米<br>Runout of Tool 刀具偏擺：0.002mm<br>Load of Spindle 主軸負載：169%<br>Concentration of cutting water 切削水濃度：(°Bx) 10.5°Bx |
| After Cutting 刀具使用後 |  |  |  |  |
| 工件表面 Work Surface |  |  |  |  |
| 粗糙度 Surface Roughness(Ra) |   |   |   |   |

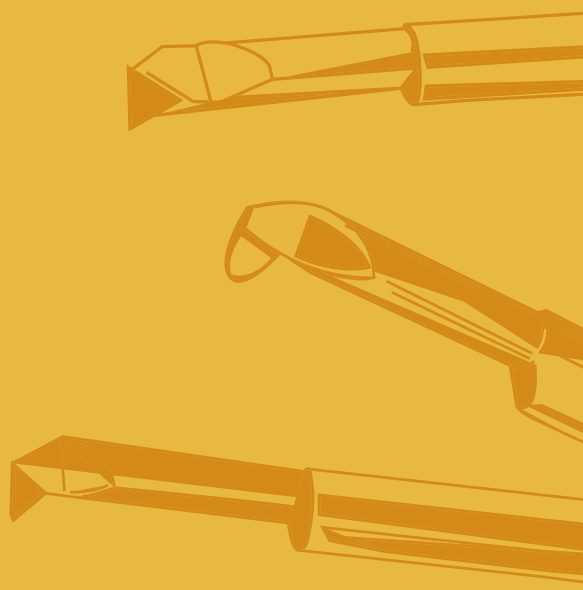
# MINI SPEED



**方寸之間，游刃有餘**

The Best Solution for Applying to Small Space.

小徑空間加工的最佳解決方案

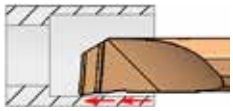
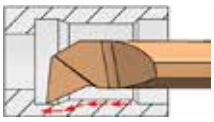
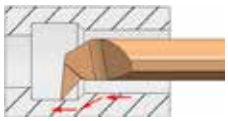
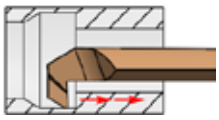
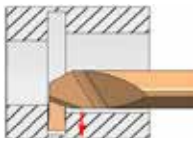
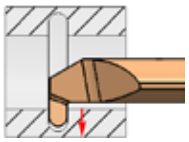
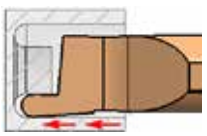
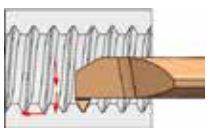




## MINI SYSTEM Ultra-small Turning Tool

# INDEX索引

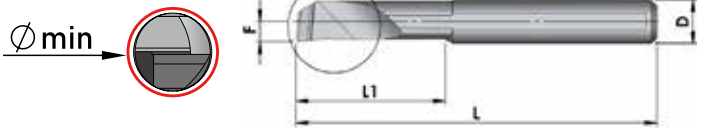
小徑車削工具

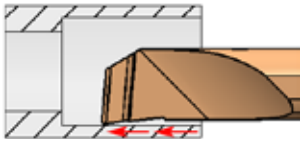
| MODE<br>型號 | Type<br>類型 | Item<br>品名 | Min. boring hole diameter<br>最小加工孔徑 | Coating<br>塗層 | Spec.<br>規格表 | Cutting Contition<br>切削條件 |
|---|---|---|---|---|---|---|
| BR |  | Boring<br>搪孔 | Ø0.5mm~Ø8.0mm | TiSiN | 88 | 192 |
| PF22 |  | Profiling & Boring<br>仿形 & 搪孔 | Ø1.0mm~Ø8.0mm | TiSiN | 89 | |
| PF47 |  | Profiling & Boring<br>仿形 & 搪孔 | Ø1.0mm~Ø8.0mm | TiSiN | 90 | |
| BT |  | Back Turning<br>背車削 | Ø4.0mm~Ø8.0mm | TiSiN | 91 | |
| IG |  | Internal Grooving<br>內徑溝槽 | Ø4.0mm~Ø8.0mm | TiSiN | 92 | |
| IGR |  | Internal Grooving Radius<br>內徑圓溝槽 | Ø4.0mm~Ø8.0mm | TiSiN | 93 | |
| FG |  | Face Grooving<br>端面溝槽 | Ø4.0mm~Ø8.0mm | TiSiN | 94 | |
| FGR |  | Face Grooving Radius<br>端面圓溝槽 | Ø4.0mm~Ø6.0mm | TiSiN | 95 | |
| TA |  | Threading<br>螺紋車削 | Ø2.3mm~Ø6.0mm | TiSiN | 96 | 193 |

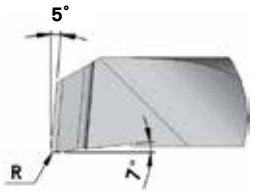
# Boring
# 搪孔

TiSiN 切削條件表 P192 Cutting Condition







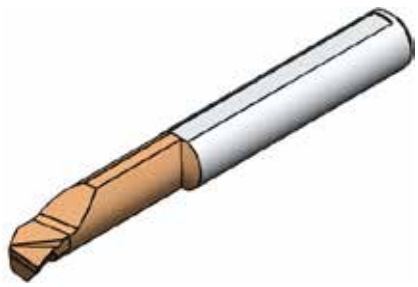

| MODE<br>型號 | D | Ø min | F | L | L1 | R | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|
| BR07-05.003-015 R/L | 4 | 0.5 | 0.2 | 50 | 1.5 | 0.03 | 310 |
| BR07-05.003-025 R/L | 4 | 0.5 | 0.2 | 50 | 2.5 | 0.03 | 310 |
| BR07-10.005-03 R/L | 4 | 1 | 0.4 | 50 | 3.0 | 0.05 | 310 |
| BR07-10.005-05 R/L | 4 | 1 | 0.4 | 50 | 5.0 | 0.05 | 310 |
| BR07-20.005-06 R/L | 4 | 2 | 0.8 | 50 | 6.0 | 0.05 | 310 |
| BR07-20.005-10 R/L | 4 | 2 | 0.8 | 50 | 10.0 | 0.05 | 310 |
| BR07-20.005-14 R/L | 4 | 2 | 0.8 | 50 | 14.0 | 0.05 | 350 |
| BR07-30.010-09 R/L | 4 | 3 | 1.3 | 50 | 9.0 | 0.1 | 310 |
| BR07-30.010-15 R/L | 4 | 3 | 1.3 | 50 | 15.0 | 0.1 | 350 |
| BR07-30.010-21 R/L | 4 | 3 | 1.3 | 50 | 21.0 | 0.1 | 390 |
| BR07-40.010-12 R/L | 4 | 4 | 1.8 | 50 | 12.0 | 0.1 | 350 |
| BR07-40.010-20 R/L | 4 | 4 | 1.8 | 50 | 20.0 | 0.1 | 370 |
| BR07-40.010-28 R/L | 4 | 4 | 1.8 | 60 | 28.0 | 0.1 | 420 |
| BR07-50.020-15 R/L | 6 | 5 | 2.3 | 50 | 15.0 | 0.2 | 510 |
| BR07-50.020-25 R/L | 6 | 5 | 2.3 | 50 | 25.0 | 0.2 | 580 |
| BR07-50.020-35 R/L | 6 | 5 | 2.3 | 60 | 35.0 | 0.2 | 640 |
| BR07-60.020-18 R/L | 6 | 6 | 2.8 | 50 | 18.0 | 0.2 | 510 |
| BR07-60.020-30 R/L | 6 | 6 | 2.8 | 60 | 30.0 | 0.2 | 580 |
| BR07-60.020-42 R/L | 6 | 6 | 2.8 | 75 | 42.0 | 0.2 | 640 |
| BR07-70.020-21 R/L | 8 | 7 | 3.3 | 60 | 21.0 | 0.2 | 640 |
| BR07-70.020-35 R/L | 8 | 7 | 3.3 | 75 | 35.0 | 0.2 | 710 |
| BR07-70.020-49 R/L | 8 | 7 | 3.3 | 100 | 49.0 | 0.2 | 770 |
| BR07-80.020-24 R/L | 8 | 8 | 3.8 | 60 | 24.0 | 0.2 | 690 |
| BR07-80.020-40 R/L | 8 | 8 | 3.8 | 75 | 40.0 | 0.2 | 750 |
| BR07-80.020-56 R/L | 8 | 8 | 3.8 | 100 | 56.0 | 0.2 | 820 |

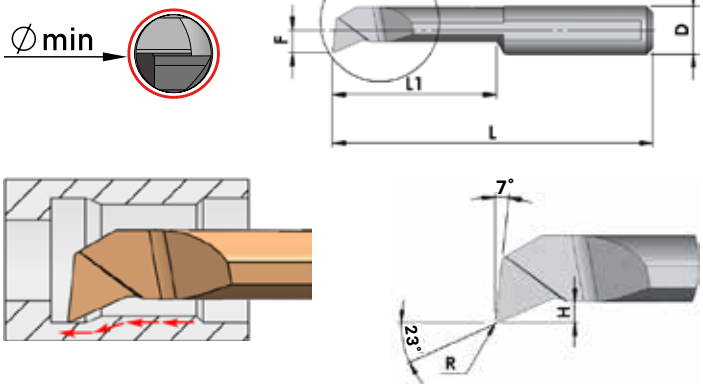


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## Profiling & Boring
## 仿形&搪孔

TiSiN 切削條件表 P192 Cutting Condition

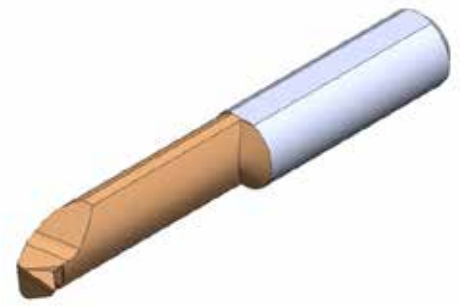


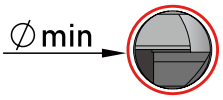


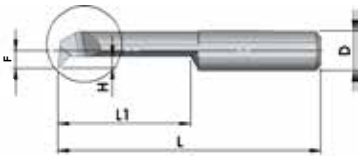

| MODE<br>型號 | D | Ø min | F | L | L1 | R | H | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|---|
| PF22-10.005-03 R/L | 4 | 1 | 0.4 | 50 | 3 | 0.05 | 0.2 | 500 |
| PF22-10.005-05 R/L | 4 | 1 | 0.4 | 50 | 5 | 0.05 | 0.2 | 500 |
| PF22-20.005-06 R/L | 4 | 2 | 0.8 | 50 | 6 | 0.05 | 0.4 | 500 |
| PF22-20.005-10 R/L | 4 | 2 | 0.8 | 50 | 10 | 0.05 | 0.4 | 530 |
| PF22-20.005-14 R/L | 4 | 2 | 0.8 | 50 | 14 | 0.05 | 0.4 | 570 |
| PF22-30.010-09 R/L | 4 | 3 | 1.3 | 50 | 9 | 0.1 | 0.6 | 530 |
| PF22-30.010-15 R/L | 4 | 3 | 1.3 | 50 | 15 | 0.1 | 0.6 | 570 |
| PF22-30.010-21 R/L | 4 | 3 | 1.3 | 50 | 21 | 0.1 | 0.6 | 610 |
| PF22-40.010-12 R/L | 4 | 4 | 1.8 | 50 | 12 | 0.1 | 0.8 | 530 |
| PF22-40.010-20 R/L | 4 | 4 | 1.8 | 50 | 20 | 0.1 | 0.8 | 570 |
| PF22-40.010-28 R/L | 4 | 4 | 1.8 | 60 | 28 | 0.1 | 0.8 | 610 |
| PF22-50.020-15 R/L | 6 | 5 | 2.3 | 50 | 15 | 0.2 | 1 | 640 |
| PF22-50.020-25 R/L | 6 | 5 | 2.3 | 50 | 25 | 0.2 | 1 | 680 |
| PF22-50.020-30 R/L | 6 | 5 | 2.3 | 60 | 30 | 0.2 | 1 | 720 |
| PF22-60.020-18 R/L | 6 | 6 | 2.8 | 50 | 18 | 0.2 | 1.2 | 640 |
| PF22-60.020-30 R/L | 6 | 6 | 2.8 | 60 | 30 | 0.2 | 1.2 | 690 |
| PF22.60.020-42 R/L | 6 | 6 | 2.8 | 75 | 42 | 0.2 | 1.2 | 730 |
| PF22-70.020-21 R/L | 8 | 7 | 3.3 | 60 | 21 | 0.2 | 1.4 | 810 |
| PF22-70.020-35 R/L | 8 | 7 | 3.3 | 75 | 35 | 0.2 | 1.4 | 850 |
| PF22-70.020-49 R/L | 8 | 7 | 3.3 | 100 | 49 | 0.2 | 1.4 | 970 |
| PF22-80.020-24 R/L | 8 | 8 | 3.8 | 60 | 24 | 0.2 | 1.6 | 860 |
| PF22-80.020-40 R/L | 8 | 8 | 3.8 | 75 | 40 | 0.2 | 1.6 | 910 |
| PF22-80.020-56 R/L | 8 | 8 | 3.8 | 100 | 56 | 0.2 | 1.6 | 990 |

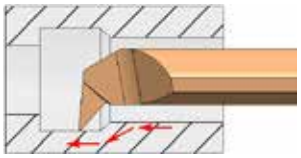
## Profiling & Boring
## 仿形&搪孔

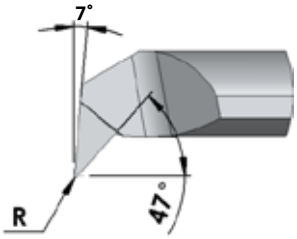
TiSiN 切削條件表 P192 Cutting Condition







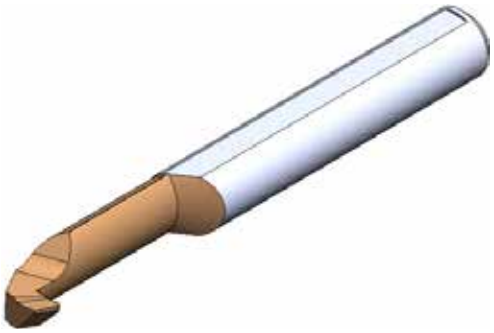

| MODE<br>型號 | D | Ø min | F | L | L1 | R | H | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|---|
| PF47-10.005-03 R/L | 4 | 1 | 0.4 | 50 | 3 | 0.05 | 0.2 | 500 |
| PF47-10.005-05 R/L | 4 | 1 | 0.4 | 50 | 5 | 0.05 | 0.2 | 500 |
| PF47-20.005-06 R/L | 4 | 2 | 0.8 | 50 | 6 | 0.05 | 0.4 | 500 |
| PF47-20.005-10 R/L | 4 | 2 | 0.8 | 50 | 10 | 0.05 | 0.4 | 530 |
| PF47-20.005-14 R/L | 4 | 2 | 0.8 | 50 | 14 | 0.05 | 0.4 | 570 |
| PF47-30.010-09 R/L | 4 | 3 | 1.3 | 50 | 9 | 0.1 | 0.6 | 530 |
| PF47-30.010-15 R/L | 4 | 3 | 1.3 | 50 | 15 | 0.1 | 0.6 | 570 |
| PF47-30.010-21 R/L | 4 | 3 | 1.3 | 50 | 21 | 0.1 | 0.6 | 610 |
| PF47-40.010-12 R/L | 4 | 4 | 1.8 | 50 | 12 | 0.1 | 0.8 | 530 |
| PF47-40.010-20 R/L | 4 | 4 | 1.8 | 50 | 20 | 0.1 | 0.8 | 570 |
| PF47-40.010-28 R/L | 4 | 4 | 1.8 | 60 | 28 | 0.1 | 0.8 | 610 |
| PF47-50.020-15 R/L | 6 | 5 | 2.3 | 50 | 15 | 0.2 | 1 | 640 |
| PF47-50.020-25 R/L | 6 | 5 | 2.3 | 50 | 25 | 0.2 | 1 | 680 |
| PF47-50.020-35 R/L | 6 | 5 | 2.3 | 60 | 35 | 0.2 | 1 | 720 |
| PF47-60.020-18 R/L | 6 | 6 | 2.8 | 50 | 18 | 0.2 | 1.2 | 640 |
| PF47-60.020-30 R/L | 6 | 6 | 2.8 | 60 | 30 | 0.2 | 1.2 | 690 |
| PF47.60.020-42 R/L | 6 | 6 | 2.8 | 75 | 42 | 0.2 | 1.2 | 730 |
| PF47-70.020-21 R/L | 8 | 7 | 3.3 | 60 | 21 | 0.2 | 1.4 | 810 |
| PF47-70.020-35 R/L | 8 | 7 | 3.3 | 75 | 35 | 0.2 | 1.4 | 850 |
| PF47-70.020-49 R/L | 8 | 7 | 3.3 | 100 | 49 | 0.2 | 1.4 | 970 |
| PF47-80.020-24 R/L | 8 | 8 | 3.8 | 60 | 24 | 0.2 | 1.6 | 860 |
| PF47-80.020-40 R/L | 8 | 8 | 3.8 | 75 | 40 | 0.2 | 1.6 | 910 |
| PF47-80.020-56 R/L | 8 | 8 | 3.8 | 100 | 56 | 0.2 | 1.6 | 990 |

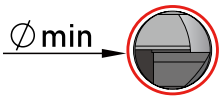


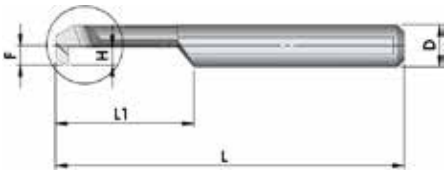
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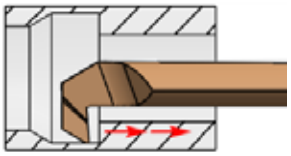
## Back Turning
## 背車削

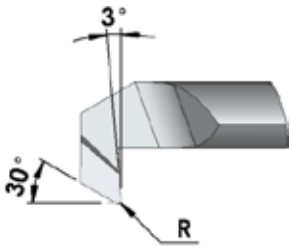
TiSiN 切削條件表 P192 Cutting Condition





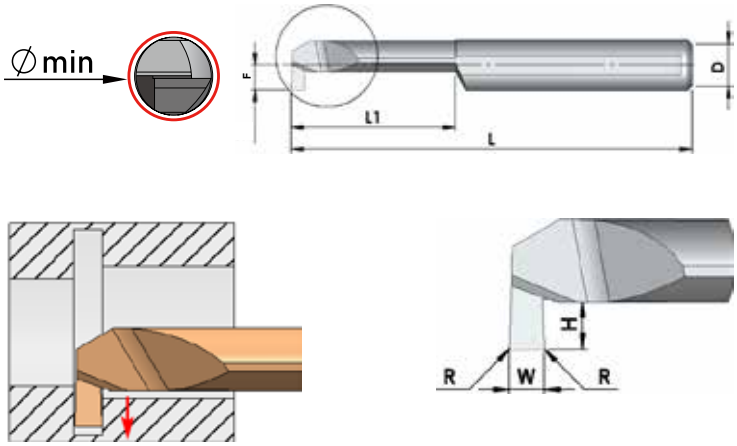



| MODE<br>型號 | D | Ø min | F | L | L1 | R | H | W | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|---|---|
| BT30-40.010-12 R/L | 4 | 4 | 1.8 | 50 | 12 | 0.1 | 1 | 1.5 | 530 |
| BT30-40.010-20 R/L | 4 | 4 | 1.8 | 50 | 20 | 0.1 | 1 | 1.5 | 600 |
| BT30-60.020-18 R/L | 6 | 6 | 2.8 | 50 | 18 | 0.2 | 1.5 | 2 | 620 |
| BT30-60.020-30 R/L | 6 | 6 | 2.8 | 60 | 30 | 0.2 | 1.5 | 2.5 | 690 |
| BT30-80.020-24 R/L | 8 | 8 | 3.8 | 60 | 24 | 0.2 | 2 | 2.5 | 840 |
| BT30-80.020-40 R/L | 8 | 8 | 3.8 | 75 | 40 | 0.2 | 2 | 2.5 | 910 |

# Internal Grooving
# 內徑溝槽

TiSiN 切削條件表 P192 Cutting Condition






| MODE<br>型號 | D | Ø min | F | L | L1 | W | R | H | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|---|---|
| IG05-40.005-10 R/L | 4 | 4 | 1.8 | 50 | 10 | 0.5 | 0.05 | 0.5 | 580 |
| IG05-40.005-15 R/L | 4 | 4 | 1.8 | 50 | 15 | 0.5 | 0.05 | 0.5 | 640 |
| IG10-40.010-10 R/L | 4 | 4 | 1.8 | 50 | 10 | 1.0 | 0.10 | 1.0 | 580 |
| IG10-40.010-15 R/L | 4 | 4 | 1.8 | 50 | 15 | 1.0 | 0.10 | 1.0 | 640 |
| IG15-40.015-10 R/L | 4 | 4 | 1.8 | 50 | 10 | 1.5 | 0.15 | 1.0 | 580 |
| IG15-40.015-15 R/L | 4 | 4 | 1.8 | 60 | 15 | 1.5 | 0.15 | 1.0 | 640 |
| IG10-50.010-15 R/L | 6 | 5 | 2.3 | 50 | 15 | 1.0 | 0.10 | 1.2 | 690 |
| IG10-50.010-25 R/L | 6 | 5 | 2.3 | 50 | 25 | 1.0 | 0.10 | 1.2 | 750 |
| IG15-50.015-15 R/L | 6 | 5 | 2.3 | 50 | 15 | 1.5 | 0.15 | 1.2 | 690 |
| IG15-50.015-25 R/L | 6 | 5 | 2.3 | 50 | 25 | 1.5 | 0.15 | 1.2 | 750 |
| IG20-50.020-15 R/L | 6 | 5 | 2.3 | 50 | 15 | 2.0 | 0.20 | 1.2 | 690 |
| IG20-50.020-25 R/L | 6 | 5 | 2.3 | 50 | 25 | 2.0 | 0.20 | 1.2 | 750 |
| IG10-60.010-15 R/L | 6 | 6 | 2.8 | 50 | 15 | 1.0 | 0.10 | 1.5 | 690 |
| IG10-60.010-25 R/L | 6 | 6 | 2.8 | 50 | 25 | 1.0 | 0.10 | 1.5 | 750 |
| IG15-60.015-15 R/L | 6 | 6 | 2.8 | 50 | 15 | 1.5 | 0.15 | 1.5 | 690 |
| IG15-60.015-25 R/L | 6 | 6 | 2.8 | 50 | 25 | 1.5 | 0.15 | 1.5 | 750 |
| IG20.60.020-15 R/L | 6 | 6 | 2.8 | 50 | 15 | 2.0 | 0.20 | 1.5 | 690 |
| IG20.60.020-25 R/L | 6 | 6 | 2.8 | 50 | 25 | 2.0 | 0.20 | 1.5 | 750 |
| IG10-70.010-20 R/L | 8 | 7 | 3.3 | 60 | 20 | 1.0 | 0.10 | 1.8 | 770 |
| IG10-70.010-30 R/L | 8 | 7 | 3.3 | 75 | 30 | 1.0 | 0.10 | 1.8 | 860 |
| IG15-70.015-20 R/L | 8 | 7 | 3.3 | 60 | 20 | 1.5 | 0.15 | 2.0 | 770 |
| IG15-70.015-30 R/L | 8 | 7 | 3.3 | 75 | 30 | 1.5 | 0.15 | 2.0 | 860 |
| IG20-70.020-20 R/L | 8 | 7 | 3.3 | 60 | 20 | 2.0 | 0.20 | 2.5 | 770 |
| IG20-70.020-30 R/L | 8 | 7 | 3.3 | 75 | 30 | 2.0 | 0.20 | 2.5 | 860 |
| IG10-80.010-20 R/L | 8 | 8 | 3.8 | 60 | 20 | 1.0 | 0.10 | 1.8 | 770 |
| IG10-80.010-30 R/L | 8 | 8 | 3.8 | 75 | 30 | 1.0 | 0.10 | 1.8 | 860 |
| IG15-80.015-20 R/L | 8 | 8 | 3.8 | 60 | 20 | 1.5 | 0.15 | 2.0 | 770 |
| IG15-80.015-30 R/L | 8 | 8 | 3.8 | 75 | 30 | 1.5 | 0.15 | 2.0 | 860 |
| IG20-80.020-20 R/L | 8 | 8 | 3.8 | 60 | 20 | 2.0 | 0.20 | 2.5 | 770 |
| IG20-80.020-30 R/L | 8 | 8 | 3.8 | 75 | 30 | 2.0 | 0.20 | 2.5 | 860 |

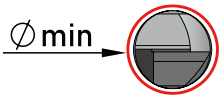


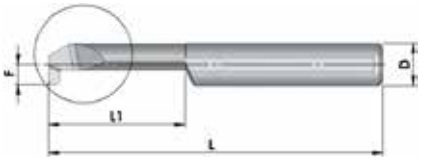
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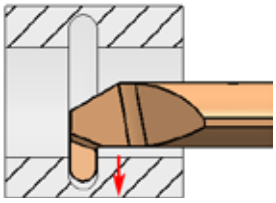
## Internal Grooving Radius
## 內徑圓溝槽

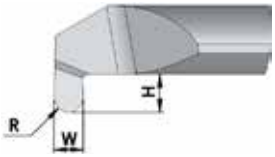
TiSiN 切削條件表 P192 Cutting Condition





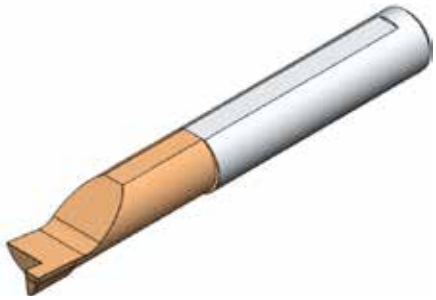



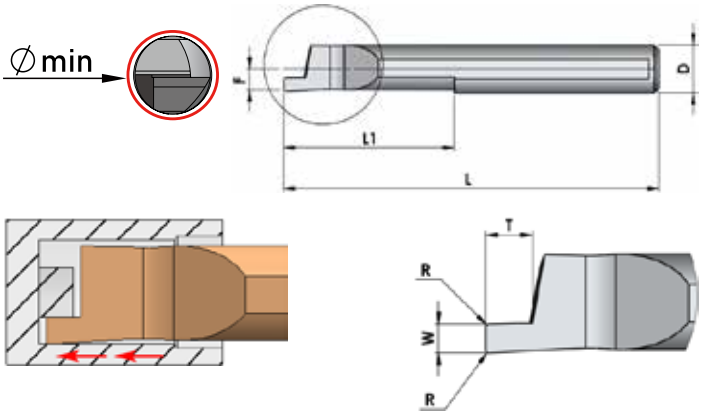



| MODE<br>型號 | D | Ø min | F | L | L1 | W | R | H | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|---|---|
| IGR10-40.050-12 R/L | 4 | 4 | 1.8 | 50 | 12 | 1.0 | 0.50 | 1.0 | 720 |
| IGR15-40.075-12R/L | 4 | 4 | 1.8 | 50 | 12 | 1.5 | 0.75 | 1.0 | 720 |
| IGR20-40.100-12 R/L | 4 | 4 | 1.8 | 50 | 12 | 2.0 | 1.00 | 1.3 | 720 |
| IGR10-60.050-18 R/L | 6 | 6 | 2.8 | 50 | 18 | 1.0 | 0.50 | 1.6 | 860 |
| IGR15-60.075-18 R/L | 6 | 6 | 2.8 | 50 | 18 | 1.5 | 0.75 | 1.6 | 860 |
| IGR20-60.100-18 R/L | 6 | 6 | 2.8 | 50 | 18 | 2.0 | 1.00 | 1.6 | 860 |
| IGR10-80.050-24 R/L | 8 | 8 | 3.8 | 60 | 24 | 1.0 | 0.50 | 2.5 | 1180 |
| IGR15-80.075-24 R/L | 8 | 8 | 3.8 | 60 | 24 | 1.5 | 0.75 | 2.5 | 1180 |
| IGR20-80.100-24 R/L | 8 | 8 | 3.8 | 60 | 24 | 2.0 | 1.00 | 2.5 | 1180 |

# Face Grooving
# 端面溝槽

TiSiN 切削條件表 P192 Cutting Condition





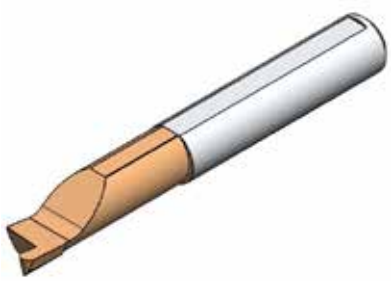

| MODE<br>型號 | D | Ø min | F | L | L1 | W | R | T | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|---|---|
| FG075-40.010-15 R/L | 4 | 4 | 1.8 | 50 | 15 | 0.75 | 0.1 | 1.2 | 610 |
| FG100-40.010-15 R/L | 4 | 4 | 1.8 | 50 | 15 | 1.00 | 0.1 | 1.5 | 610 |
| FG150-40.010-15 R/L | 4 | 4 | 1.8 | 50 | 15 | 1.50 | 0.1 | 2.6 | 610 |
| FG075-50.010-22 R/L | 6 | 5 | 2.3 | 50 | 22 | 0.75 | 0.1 | 1.2 | 720 |
| FG100-50.010-22 R/L | 6 | 5 | 2.3 | 50 | 22 | 1.00 | 0.1 | 1.5 | 720 |
| FG150-50.010-22 R/L | 6 | 5 | 2.3 | 50 | 22 | 1.50 | 0.1 | 2.5 | 720 |
| FG200-50.010-22 R/L | 6 | 5 | 2.3 | 50 | 22 | 2.00 | 0.1 | 3.6 | 720 |
| FG100-60.010-22R/L | 6 | 6 | 2.8 | 50 | 22 | 1.00 | 0.1 | 1.5 | 720 |
| FG150-60.010-22R/L | 6 | 6 | 2.8 | 50 | 22 | 1.50 | 0.1 | 2.5 | 720 |
| FG200-60.010-22 R/L | 6 | 6 | 2.8 | 50 | 22 | 2.00 | 0.1 | 3.0 | 720 |
| FG250-60.010-22 R/L | 6 | 6 | 2.8 | 50 | 22 | 2.50 | 0.1 | 4.6 | 720 |
| FG250-80.010-22 R/L | 8 | 8 | 3.8 | 60 | 22 | 2.50 | 0.1 | 4.6 | 920 |

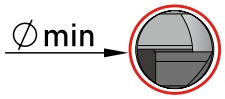


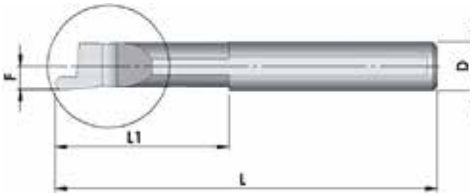
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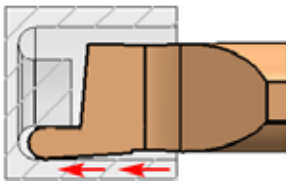
## Face Grooving Radius
## 端面圓溝槽

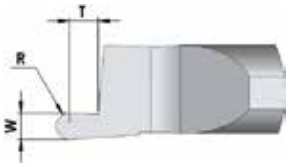
TiSiN 切削條件表 P192 Cutting Condition





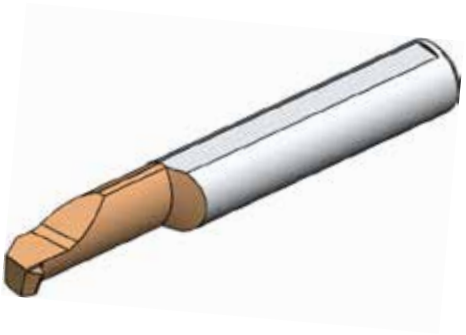



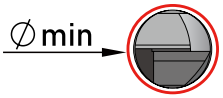



| MODE<br>型號 | D | Ø min | F | L | L1 | W | R | T | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|---|---|
| FGR100-40.050-15 R/L | 4 | 4 | 1.8 | 50 | 15 | 1.0 | 0.50 | 1.2 | 800 |
| FGR150-40.075-15 R/L | 4 | 4 | 1.8 | 50 | 15 | 1.5 | 0.75 | 1.5 | 800 |
| FGR100-50.050-22 R/L | 6 | 5 | 2.3 | 50 | 22 | 1.0 | 0.50 | 1.2 | 910 |
| FGR150-50.075-22 R/L | 6 | 5 | 2.3 | 50 | 22 | 1.5 | 0.75 | 1.5 | 910 |
| FGR200-50.100-22 R/L | 6 | 5 | 2.3 | 50 | 22 | 2.0 | 1.00 | 2.5 | 910 |
| FGR100-60.050-22 R/L | 6 | 6 | 2.3 | 50 | 22 | 1.0 | 0.50 | 1.2 | 910 |
| FGR150-60.075-22R/L | 6 | 6 | 2.8 | 50 | 22 | 1.5 | 0.75 | 1.5 | 910 |
| FGR200-60.100-22R/L | 6 | 6 | 2.8 | 50 | 22 | 2.0 | 1.00 | 2.5 | 910 |

# Threading
# 螺紋車削

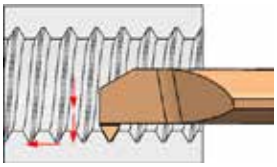
TiSiN 切削條件表 P193
Cutting Condition

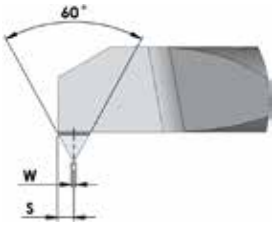










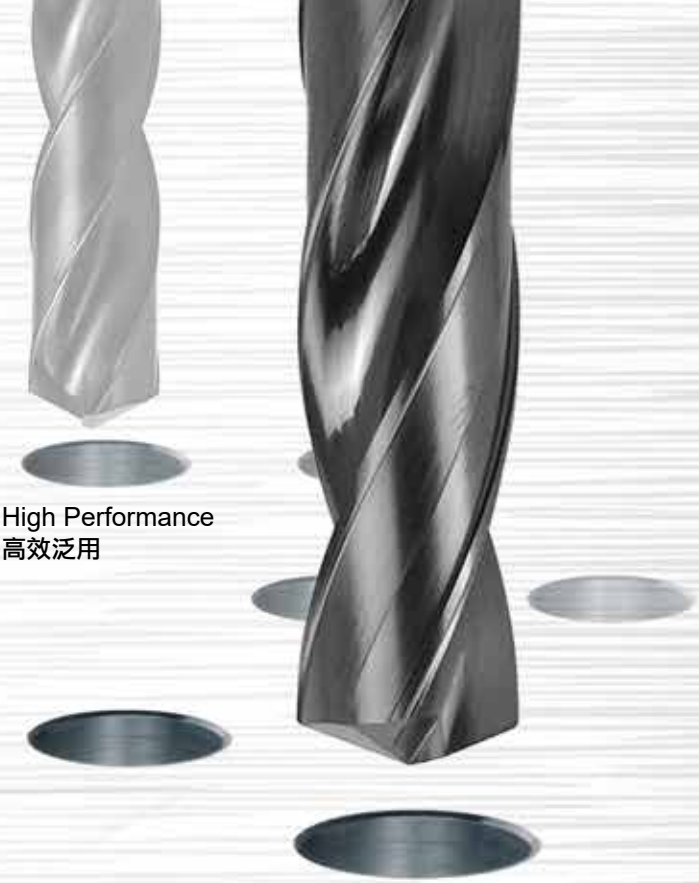



| MODE<br>型號 | D | Ø min | F | P(mm) | P(TPI) | L | L1 | S | W | List Price<br>最低售價 |
|---|---|---|---|---|---|---|---|---|---|---|
| TA60-23-08 R/L | 4 | 2.3 | 1.0 | 0.2-0.5 | 80-48 | 50 | 8 | 0.45 | 0.03 | 580 |
| TA60-30-15 R/L | 4 | 3.0 | 1.3 | 0.5-0.75 | 40-36 | 50 | 15 | 0.75 | 0.06 | 620 |
| TA60-40-15 R/L | 4 | 4.0 | 1.8 | 0.5-1.0 | 40-24 | 50 | 15 | 0.75 | 0.06 | 620 |
| TA60-60-20 R/L | 6 | 6.0 | 2.8 | 0.75-1.5 | 36-18 | 50 | 20 | 0.80 | 0.09 | 730 |

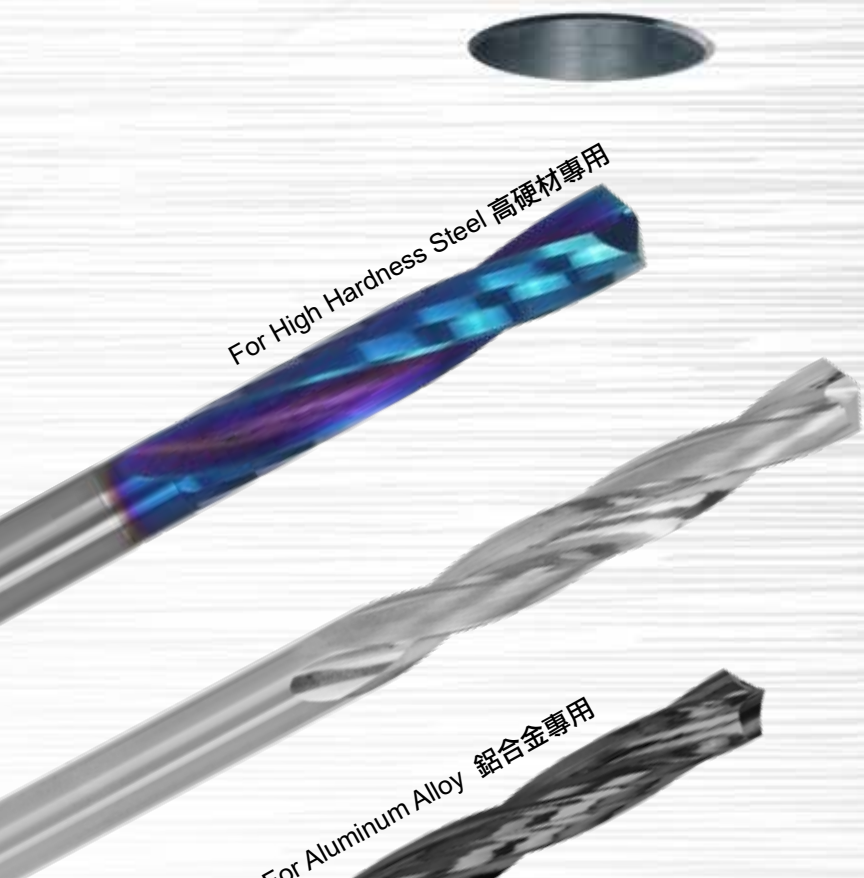
SPEED TIGER

# CARBIDE DRILLS SERIES

# 鎢鋼鑽頭系列



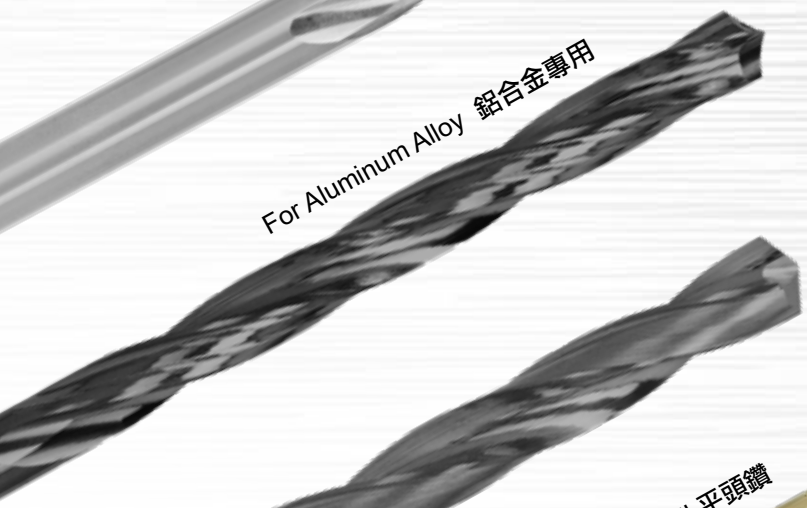
High Performance
高效泛用



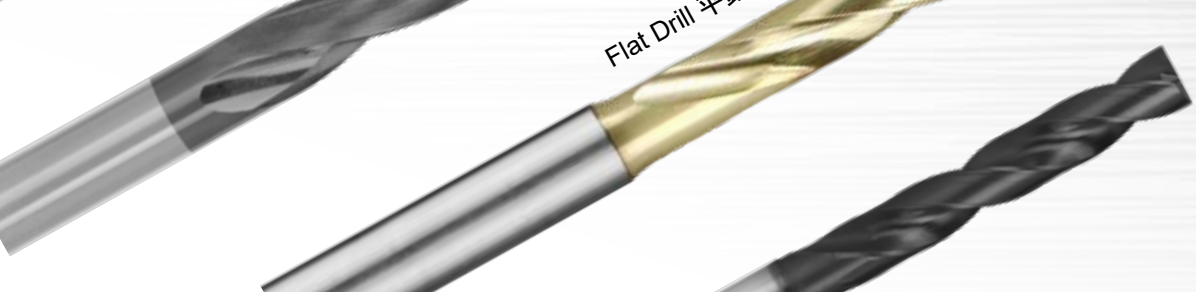
For High Hardness Steel 高硬材專用

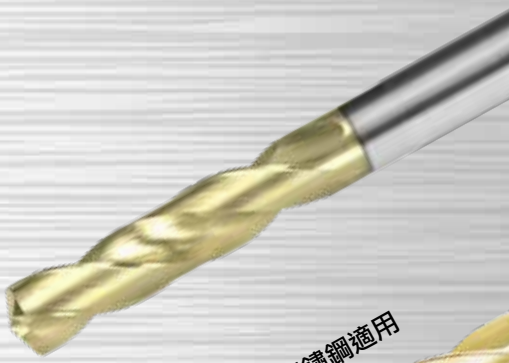


For Aluminum Alloy 鋁合金專用

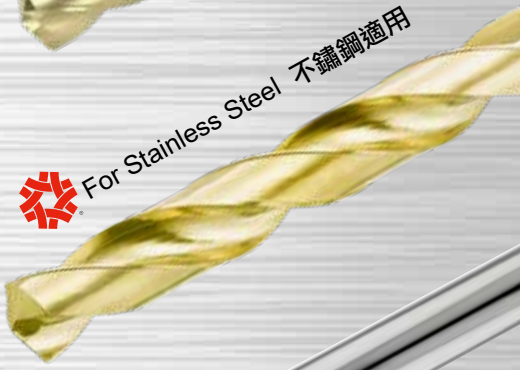


Flat Drill 平頭鑽



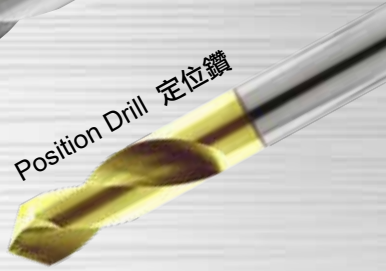


For Stainless Steel 不鏽鋼適用





Position Drill 定位鑽



| Product Line<br>產品別 | Mode<br>型號 | Shape<br>圖樣 | Coolant Hole<br>冷卻孔 | Helix Angle<br>螺旋角 | Point Angle<br>鑽尖角度 | Coating<br>塗層 | Size Range<br>尺寸範圍 |
|---|---|---|---|---|---|---|---|
| High Performance<br>高效泛用 | 5PK |  | - | 25-30˚ | 140˚ | nACRo | ø3-14mm |
| | 5PKC |  | O | 25-30˚ | 140˚ | nACRo | ø3-14mm |
| | 8PKC |  | O | 25-30˚ | 135˚ | nACRo | ø3-12mm |
| Stainless Steel<br>不鏽鋼適用 | 3SN |  | - | 25-30˚ | 140˚ | ZrN-A | ø3-16mm |
| | 5SN |  | - | 25-30˚ | 140˚ | ZrN-A | ø3-14mm |
| | 5SNC |  | O | 25-30˚ | 140˚ | ZrN-A | ø3-14mm |
| | 8SNC |  | O | 25-30˚ | 135˚ | ZrN-A | ø3-12mm |
| Aluminum Alloy<br>鋁合金專用 | 5AL |  | - | 15-20˚ | 130˚ | | ø3-12mm |
| | |  | - | 15-20˚ | 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<br>高硬材專用 | 3HD |  | - | 15˚ | 140˚ | nACo | ø3-14mm |
| Flat Drill<br>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 | 25-30˚ | 180˚ | nACRo | ø3-16mm |
| | |  | O | 25-30˚ | 180˚ | ZrN-A | ø3-16mm |
| | 5FDC |  | O | 25-30˚ | 180˚ | nACRo | ø3-14mm |
| | |  | O | 25-30˚ | 180˚ | ZrN-A | ø3-14mm |
| Position Drill<br>定位鑽 | PDST |  | - | | 90˚/120˚ | | ø3-20mm |
| | |  | - | | 90˚/120˚ | ZrN-A | ø3-20mm |
| Position Drill<br>- Long Shank<br>長柄定位鑽 | PDST |  | - | | 90˚/120˚ | | ø4-20mm |
| | |  | - | | 90˚/120˚ | ZrN-A | ø4-20mm |
| Carbide Reamer<br>鉸刀 | RE |  | - | 7-12˚ | 180˚ | | ø1.5-12mm |
| Carbide Edge Reamer<br>刃部鎢鋼鉸刀 | REC |  | - | 7-12˚ | 180˚ | | ø8.5-16mm |



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| 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 | | |
| | | | ◎ | | ◎ | | | O | 101 | 204 |
| | | | ◎ | O | ◎ | | O | O | 106 | |
| | | | ◎ | O | ◎ | | O | O | 111 | |
| | | | O | ◎ | O | | | | 117 | 206 |
| | | | O | ◎ | O | | | | 121 | |
| | | | ◎ | ★ | O | | O | | 125 | |
| | | | ◎ | ★ | O | | O | | 129 | |
| | | | | | | ◎ | | | 133 | 208 |
| | | | | | | ◎ | | | | |
| | | | | | | ◎ | | | 137 | |
| | | | | | | ◎ | | | | |
| | | | | | | ◎ | | | 141 | |
| | | | | | | ◎ | | | | |
| | | | | | | | | ◎ | 145 | 203 |
| | | | ◎ | O | O | | | | 148 | 210 |
| | | | O | ◎ | O | O | O | | | |
| | | | ◎ | O | O | | | | 152 | |
| | | | O | ◎ | O | O | O | | | |
| | | | ◎ | O | O | | | | 156 | 212 |
| | | | O | ◎ | O | O | O | | | |
| | | | ◎ | O | O | | | | 160 | |
| | | | O | ◎ | O | O | O | | | |
| | | | O | | O | O | | | 164 | 214 |
| | | | ◎ | O | O | O | O | | | |
| | | | O | | O | O | | | 165 | |
| | | | ◎ | O | O | O | O | | | |
| | | | O | O | O | | | | 166 | 214 |
| | | | O | O | O | | | | 167 | |

# High Performance
## 高效泛用鎢鋼鑽頭

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

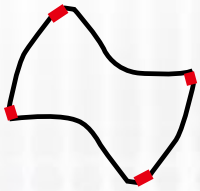


**1** Double margin -

- ✓ 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

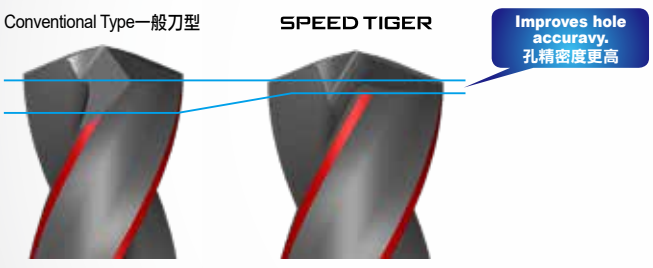
**3** Reinforced design in cutting edge improves tool life effectively.

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。

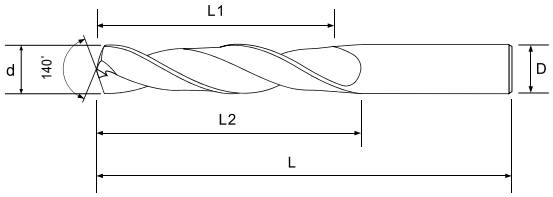


## 5xD High Performance
## 5PK 高效泛用鎢鋼鑽頭




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

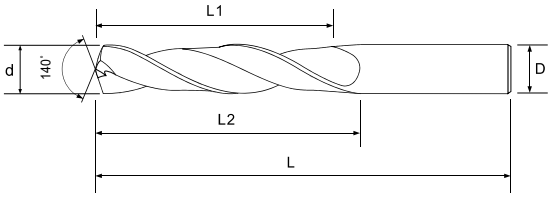
| Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC |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

# 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-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 | | | | | | |
| ◎ | ◎ | ○ | | | | | ◎ | | | | |



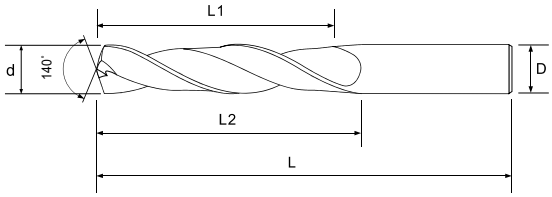
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## 5xD High Performance
## 5PK 高效泛用鎢鋼鑽頭




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

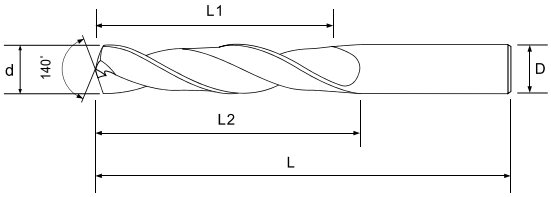
| Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC |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

# 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-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 | | | | | | |
| ◎ | ◎ | ○ | | | | | ◎ | | | | |



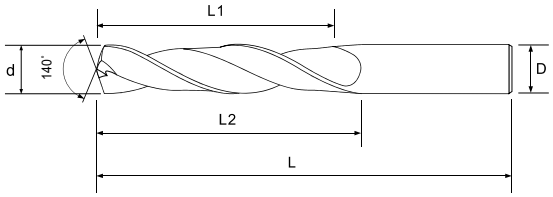
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## 5xD High Performance
## 5PK 高效泛用鎢鋼鑽頭




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 | | | | | | |
| ◎ | ◎ | ○ | | | | | ◎ | | | | |

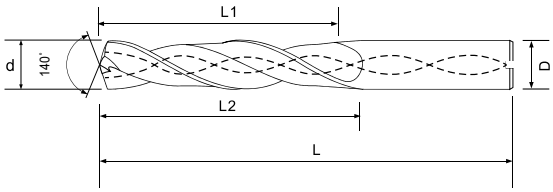
## 5xD High Performance with Coolant Hole

# 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-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 | | | | | | |
| ◎ | ◎ | ○ | | | | ○ | ◎ | | | ○ | ○ |



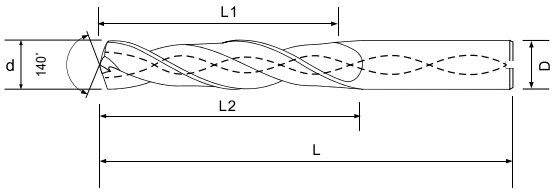
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## 5xD High Performance with Coolant Hole
# 5PKC 高效泛用內冷鎢鋼鑽頭

P204 切削條件表 Cutting Condition

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 | | | | | | |
| ◎ | ◎ | ○ | | | | ○ | ◎ | | | ○ | ○ |

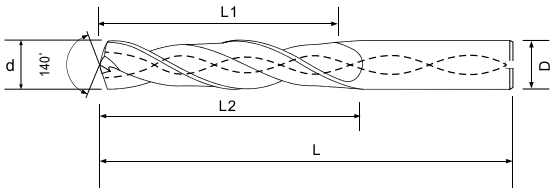
## 5xD High Performance with Coolant Hole

# 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 | | | | | | |
| ◎ | ◎ | ○ | | | | ○ | ◎ | | | ○ | ○ |



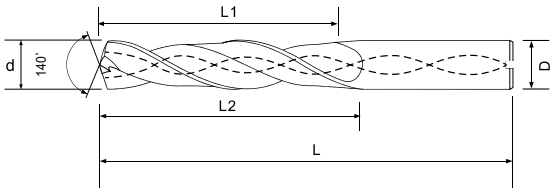
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## 5xD High Performance with Coolant Hole
# 5PKC 高效泛用內冷鎢鋼鑽頭




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-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 | | | | | | |
| ◎ | ◎ | ○ | | | | ○ | ◎ | | | ○ | ○ |

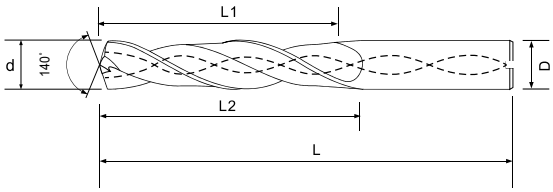
## 5xD High Performance with Coolant Hole

# 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 |
| 5PKC1322 | | 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-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 | | | | | | |
| ◎ | ◎ | ○ | | | | ○ | ◎ | | | ○ | ○ |



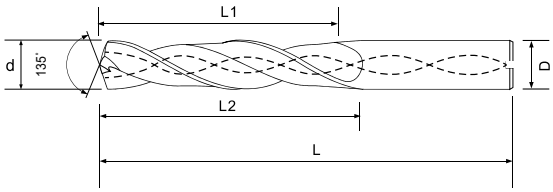
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## 8xD High Performance with Coolant Hole
## 8PKC 高效泛用內冷鎢鋼鑽頭




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

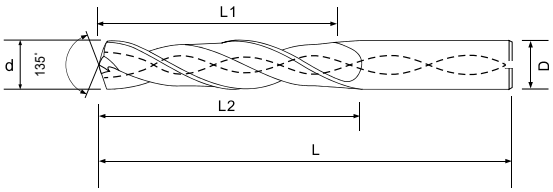
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC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

## 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 | | | | | | |
| ◎ | ◎ | ○ | | | | ○ | ◎ | | | ○ | ○ |



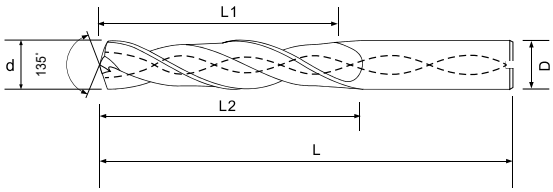
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## 8xD High Performance with Coolant Hole
## 8PKC 高效泛用內冷鎢鋼鑽頭




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

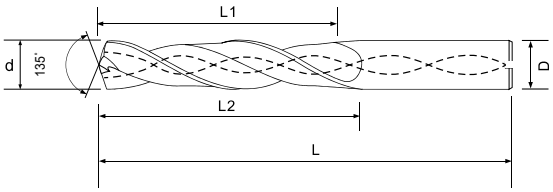
| Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC |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

## 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-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 | | | | | | |
| ◎ | ◎ | ○ | | | | ○ | ◎ | | | ○ | ○ |



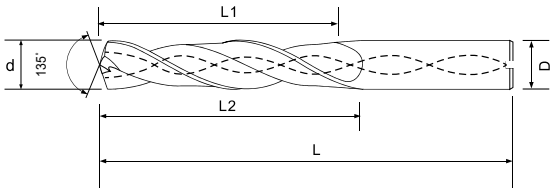
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## 8xD High Performance with Coolant Hole
## 8PKC 高效泛用內冷鎢鋼鑽頭




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-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 | | | | | | |
| ◎ | ◎ | ○ | | | | ○ | ◎ | | | ○ | ○ |

台灣精品 2021
TAIWAN EXCELLENCE

# Stainless Steel
# 不鏽鋼專用鎢鋼鑽頭

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

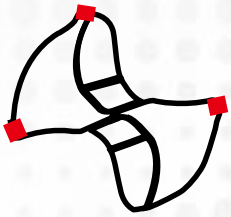


**1** Dissymmetrical irregular margins -

- ✓ 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



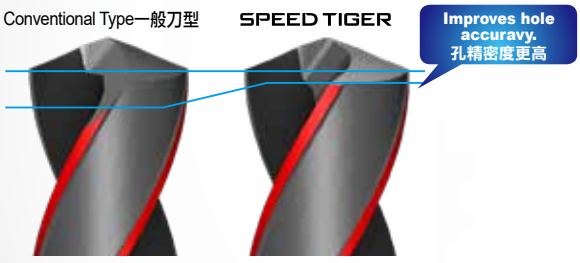
**2** Unequal Flute Spacing - Anti-vibration and the chip removals are improved.

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。

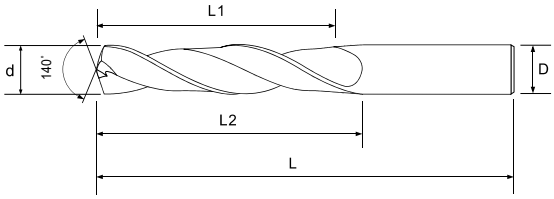


## 3xD for Stainless Steel
## 3SN 不鏽鋼專用




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

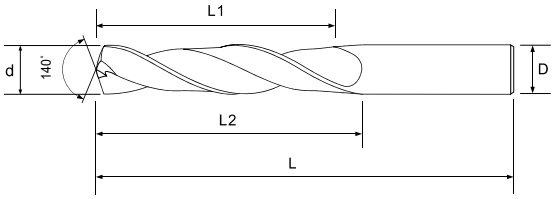
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC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

## 3xD for Stainless Steel
## 3SN 不鏽鋼專用

25°~30° | 140° | h7 | h6 | ZrN-A | 切削條件表 P206 Cutting Condition

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-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 | | | | | | |
| ○ | ○ | | | | | ◎ | ○ | | | | |



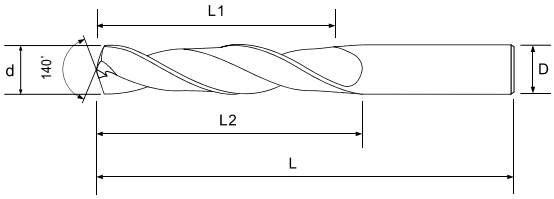
www.speedtiger.com.tw

## 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

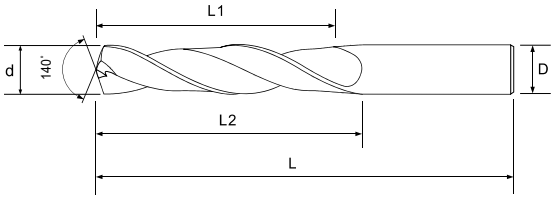
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC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

## 3xD for Stainless Steel
## 3SN 不鏽鋼專用

25°~30° | 140° | h7 | h6 | ZrN-A | 切削條件表 P206 Cutting Condition

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-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 | | | | | | |
| ○ | ○ | | | | | ◎ | ○ | | | | |



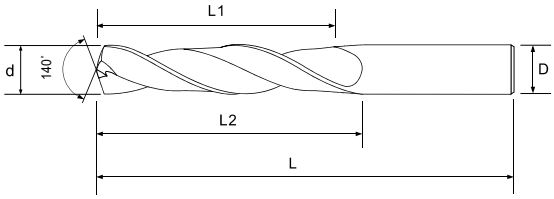
www.speedtiger.com.tw

## 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

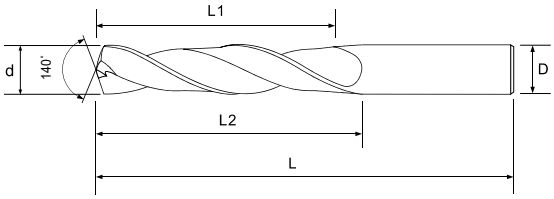
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC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

## 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 | 90 |
| 5SN0622 | 6.2 | 46 | 8 | 90 |
| 5SN0632 | 6.3 | 46 | 8 | 90 |
| 5SN0642 | 6.4 | 46 | 8 | 90 |
| 5SN0652 | 6.5 | 46 | 8 | 90 |
| 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-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 | | | | | | |
| ○ | ○ | | | | | ◎ | ○ | | | | |



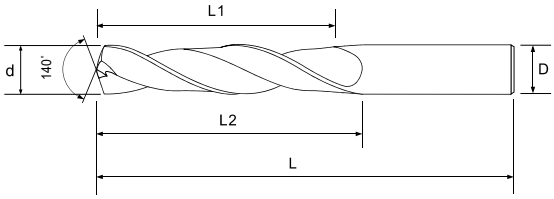
www.speedtiger.com.tw

## 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 | 130 |
| 5SN1022 | 10.2 | 74 | 12 | 130 |
| 5SN1032 | 10.3 | 74 | 12 | 130 |
| 5SN1042 | 10.4 | 74 | 12 | 130 |
| 5SN1052 | 10.5 | 74 | 12 | 130 |

Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

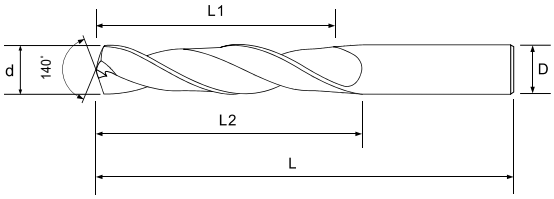
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC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

# 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 | | | | | | |
| ○ | ○ | | | | | ◎ | ○ | | | | |



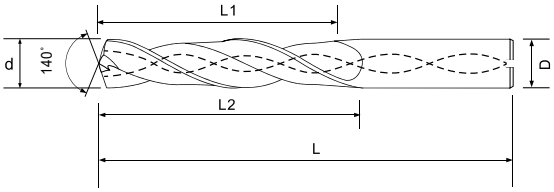
www.speedtiger.com.tw

## 5xD with Coolant Hole for Stainless Steel
# 5SNC 內冷不鏽鋼專用

25°~30° | 140° | h7 | h6 | ZrN-A | 切削條件表 P206 Cutting Condition

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-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 | | | | | | |
| ◎ | ◎ | | | | | ★ | ○ | | | ○ | ○ |

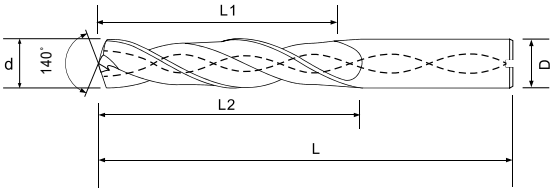
## 5xD with Coolant Hole for Stainless Steel

# 5SNC 內冷不鏽鋼專用

25°~30° | 140° | h7 | h6 | ZrN-A | 切削條件表 P206 Cutting Condition

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 | 90 |
| 5SNC0622 | 6.2 | 46 | 8 | 90 |
| 5SNC0632 | 6.3 | 46 | 8 | 90 |
| 5SNC0642 | 6.4 | 46 | 8 | 90 |
| 5SNC0652 | 6.5 | 46 | 8 | 90 |
| 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-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 | | | | | | |
| ◎ | ◎ | | | | | ★ | ○ | | | ○ | ○ |



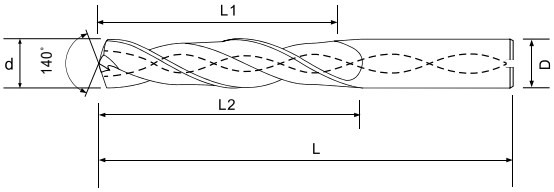
www.speedtiger.com.tw

## 5xD with Coolant Hole for Stainless Steel
# 5SNC 內冷不鏽鋼專用

25°~30° | 140° | h7 | h6 | ZrN-A | 切削條件表 P206 Cutting Condition

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 | 130 |
| 5SNC1022 | 10.2 | 74 | 12 | 130 |
| 5SNC1032 | 10.3 | 74 | 12 | 130 |
| 5SNC1042 | 10.4 | 74 | 12 | 130 |
| 5SNC1052 | 10.5 | 74 | 12 | 130 |
| 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-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 | | | | | | |
| ◎ | ◎ | | | | | ★ | ○ | | | ○ | ○ |

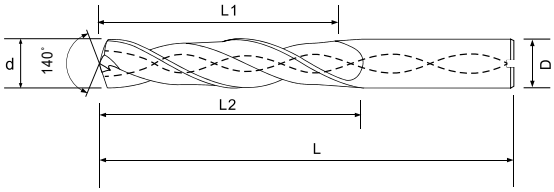
## 5xD with Coolant Hole for Stainless Steel

# 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 | | | | | | |
| ◎ | ◎ | | | | | ★ | ○ | | | ○ | ○ |



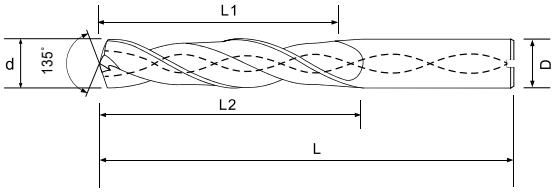
www.speedtiger.com.tw

## 8xD with Coolant Hole for Stainless Steel
# 8SNC 內冷不鏽鋼專用

25°~30° | 135° | h7 | h6 | ZrN-A | 切削條件表 P206 Cutting Condition

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 | | | | | | |
| ◎ | ◎ | | | | | ★ | ○ | | | ○ | ○ |

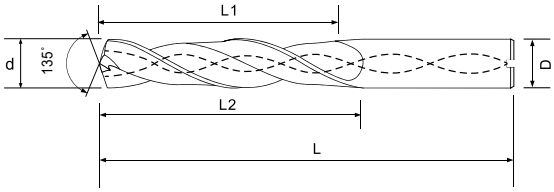
## 8xD with Coolant Hole for Stainless Steel

# 8SNC 內冷不鏽鋼專用

25°~30° | 135° | h7 | h6 | ZrN-A | 切削條件表 P206 Cutting Condition

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-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 | | | | | | |
| ◎ | ◎ | | | | | ★ | ○ | | | ○ | ○ |



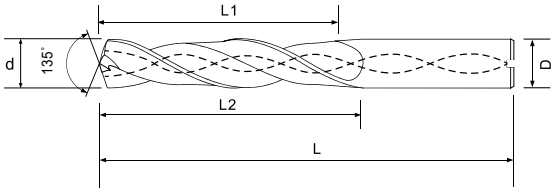
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## 8xD with Coolant Hole for Stainless Steel
# 8SNC 內冷不鏽鋼專用

25°~30° | 135° | h7 | h6 | ZrN-A | 切削條件表 P206 Cutting Condition

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 alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | | |
| ◎ | ◎ | | | | | ★ | ○ | | | ○ | ○ |

# Aluminum Application
# 鋁合金專用鎢鋼鑽頭

## 5AL
## 5ALC
## 8ALC

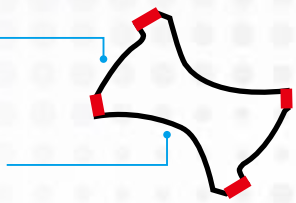


**1** Double margin - the second margin also has cutting edge.

- ✓ 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

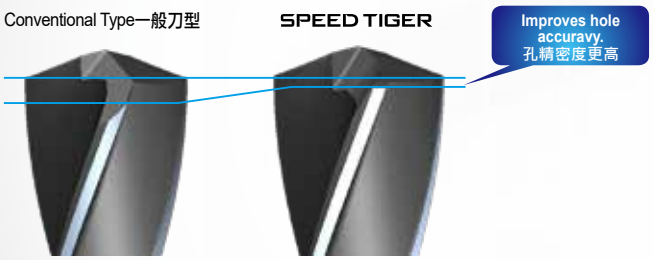


**2** High rigidity design, and the room of chip removals greatly improved.

高剛性設計，優異的排屑空間

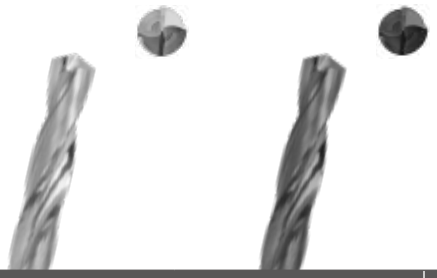
**3** Improved the margin top position, to advance the drilling precision.

刃帶頂端位置改善，使孔精密度更高

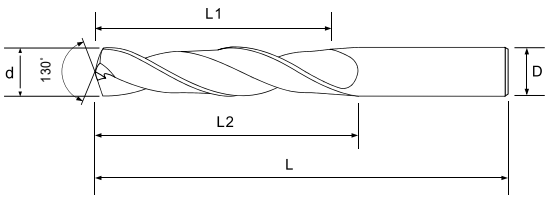


## 5xD for Aluminum Application
## 5AL 鋁合金專用

切削條件表 P208 Cutting Condition



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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 5AL0302 | 5AL0302 TB | 3 | 26 | 4 | 56 |
| 5AL0312 | 5AL0312 TB | 3.1 | 26 | 4 | 56 |
| 5AL0322 | 5AL0322 TB | 3.2 | 26 | 4 | 56 |
| 5AL0332 | 5AL0332 TB | 3.3 | 26 | 4 | 56 |
| 5AL0342 | 5AL0342 TB | 3.4 | 26 | 4 | 56 |
| 5AL0352 | 5AL0352 TB | 3.5 | 26 | 4 | 56 |
| 5AL0362 | 5AL0362 TB | 3.6 | 30 | 4 | 59 |
| 5AL0372 | 5AL0372 TB | 3.7 | 30 | 4 | 59 |
| 5AL0382 | 5AL0382 TB | 3.8 | 30 | 4 | 59 |
| 5AL0392 | 5AL0392 TB | 3.9 | 30 | 4 | 59 |
| 5AL0402 | 5AL0402 TB | 4 | 30 | 4 | 59 |
| 5AL0412 | 5AL0412 TB | 4.1 | 34 | 5 | 68 |
| 5AL0422 | 5AL0422 TB | 4.2 | 34 | 5 | 68 |
| 5AL0432 | 5AL0432 TB | 4.3 | 34 | 5 | 68 |
| 5AL0442 | 5AL0442 TB | 4.4 | 34 | 5 | 68 |
| 5AL0452 | 5AL0452 TB | 4.5 | 34 | 5 | 68 |
| 5AL0462 | 5AL0462 TB | 4.6 | 38 | 5 | 72 |
| 5AL0472 | 5AL0472 TB | 4.7 | 38 | 5 | 72 |
| 5AL0482 | 5AL0482 TB | 4.8 | 38 | 5 | 72 |
| 5AL0492 | 5AL0492 TB | 4.9 | 38 | 5 | 72 |
| 5AL0502 | 5AL0502 TB | 5 | 38 | 5 | 72 |
| 5AL0512 | 5AL0512 TB | 5.1 | 42 | 6 | 80 |
| 5AL0522 | 5AL0522 TB | 5.2 | 42 | 6 | 80 |

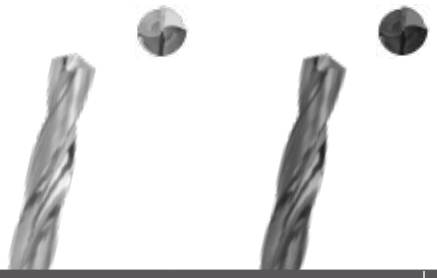
Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

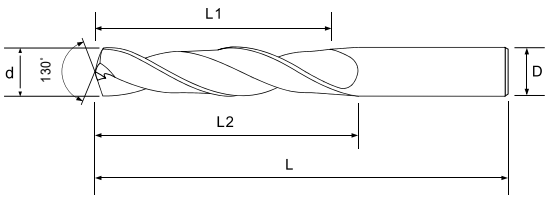
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC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

## 5xD for Aluminum Application
# 5AL 鋁合金專用

切削條件表 P208
Cutting Condition



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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 5AL0532 | 5AL0532 TB | 5.3 | 42 | 6 | 80 |
| 5AL0542 | 5AL0542 TB | 5.4 | 42 | 6 | 80 |
| 5AL0552 | 5AL0552 TB | 5.5 | 42 | 6 | 80 |
| 5AL0562 | 5AL0562 TB | 5.6 | 46 | 6 | 85 |
| 5AL0572 | 5AL0572 TB | 5.7 | 46 | 6 | 85 |
| 5AL0582 | 5AL0582 TB | 5.8 | 46 | 6 | 85 |
| 5AL0592 | 5AL0592 TB | 5.9 | 46 | 6 | 85 |
| 5AL0602 | 5AL0602 TB | 6 | 46 | 6 | 85 |
| 5AL0612 | 5AL0612 TB | 6.1 | 50 | 7 | 88 |
| 5AL0622 | 5AL0622 TB | 6.2 | 50 | 7 | 88 |
| 5AL0632 | 5AL0632 TB | 6.3 | 50 | 7 | 88 |
| 5AL0642 | 5AL0642 TB | 6.4 | 50 | 7 | 88 |
| 5AL0652 | 5AL0652 TB | 6.5 | 50 | 7 | 88 |
| 5AL0662 | 5AL0662 TB | 6.6 | 54 | 7 | 92 |
| 5AL0672 | 5AL0672 TB | 6.7 | 54 | 7 | 92 |
| 5AL0682 | 5AL0682 TB | 6.8 | 54 | 7 | 92 |
| 5AL0692 | 5AL0692 TB | 6.9 | 54 | 7 | 92 |
| 5AL0702 | 5AL0702 TB | 7 | 54 | 7 | 92 |
| 5AL0712 | 5AL0712 TB | 7.1 | 57 | 8 | 95 |
| 5AL0722 | 5AL0722 TB | 7.2 | 57 | 8 | 95 |
| 5AL0732 | 5AL0732 TB | 7.3 | 57 | 8 | 95 |
| 5AL0742 | 5AL0742 TB | 7.4 | 57 | 8 | 95 |
| 5AL0752 | 5AL0752 TB | 7.5 | 57 | 8 | 95 |

Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

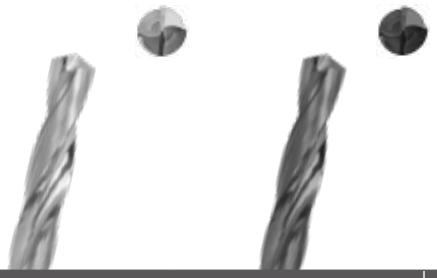
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC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



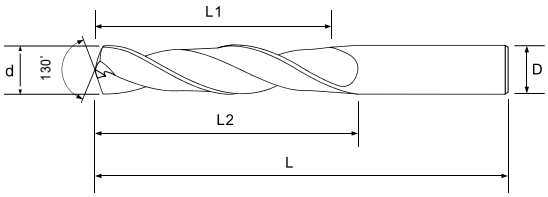
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## 5xD for Aluminum Application
## 5AL 鋁合金專用

切削條件表 P208 Cutting Condition



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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 5AL0762 | 5AL0762 TB | 7.6 | 62 | 8 | 100 |
| 5AL0772 | 5AL0772 TB | 7.7 | 62 | 8 | 100 |
| 5AL0782 | 5AL0782 TB | 7.8 | 62 | 8 | 100 |
| 5AL0792 | 5AL0792 TB | 7.9 | 62 | 8 | 100 |
| 5AL0802 | 5AL0802 TB | 8 | 62 | 8 | 100 |
| 5AL0812 | 5AL0812 TB | 8.1 | 65 | 9 | 107 |
| 5AL0822 | 5AL0822 TB | 8.2 | 65 | 9 | 107 |
| 5AL0832 | 5AL0832 TB | 8.3 | 65 | 9 | 107 |
| 5AL0842 | 5AL0842 TB | 8.4 | 65 | 9 | 107 |
| 5AL0852 | 5AL0852 TB | 8.5 | 65 | 9 | 107 |
| 5AL0862 | 5AL0862 TB | 8.6 | 68 | 9 | 110 |
| 5AL0872 | 5AL0872 TB | 8.7 | 68 | 9 | 110 |
| 5AL0882 | 5AL0882 TB | 8.8 | 68 | 9 | 110 |
| 5AL0892 | 5AL0892 TB | 8.9 | 68 | 9 | 110 |
| 5AL0902 | 5AL0902 TB | 9 | 68 | 9 | 110 |
| 5AL0912 | 5AL0912 TB | 9.1 | 72 | 10 | 115 |
| 5AL0922 | 5AL0922 TB | 9.2 | 72 | 10 | 115 |
| 5AL0932 | 5AL0932 TB | 9.3 | 72 | 10 | 115 |
| 5AL0942 | 5AL0942 TB | 9.4 | 72 | 10 | 115 |
| 5AL0952 | 5AL0952 TB | 9.5 | 72 | 10 | 115 |
| 5AL0962 | 5AL0962 TB | 9.6 | 77 | 10 | 120 |
| 5AL0972 | 5AL0972 TB | 9.7 | 77 | 10 | 120 |
| 5AL0982 | 5AL0982 TB | 9.8 | 77 | 10 | 120 |

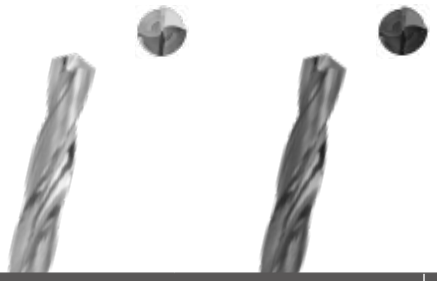
Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

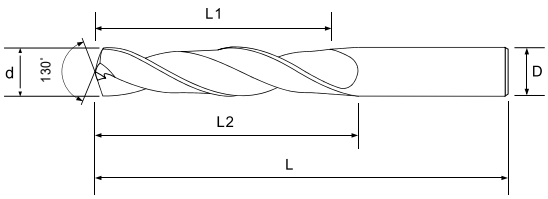
| Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金，銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC | ~60HRC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

## 5xD for Aluminum Application
# 5AL 鋁合金專用

切削條件表 P208 Cutting Condition



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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 5AL0992 | 5AL0992 TB | 9.9 | 77 | 10 | 120 |
| 5AL1002 | 5AL1002 TB | 10 | 77 | 10 | 120 |
| 5AL1012 | 5AL1012 TB | 10.1 | 80 | 11 | 123 |
| 5AL1022 | 5AL1022 TB | 10.2 | 80 | 11 | 123 |
| 5AL1032 | 5AL1032 TB | 10.3 | 80 | 11 | 123 |
| 5AL1042 | 5AL1042 TB | 10.4 | 80 | 11 | 123 |
| 5AL1052 | 5AL1052 TB | 10.5 | 80 | 11 | 123 |
| 5AL1062 | 5AL1062 TB | 10.6 | 84 | 11 | 127 |
| 5AL1072 | 5AL1072 TB | 10.7 | 84 | 11 | 127 |
| 5AL1082 | 5AL1082 TB | 10.8 | 84 | 11 | 127 |
| 5AL1092 | 5AL1092 TB | 10.9 | 84 | 11 | 127 |
| 5AL1102 | 5AL1102 TB | 11 | 84 | 11 | 127 |
| 5AL1112 | 5AL1112 TB | 11.1 | 88 | 12 | 135 |
| 5AL1122 | 5AL1122 TB | 11.2 | 88 | 12 | 135 |
| 5AL1132 | 5AL1132 TB | 11.3 | 88 | 12 | 135 |
| 5AL1142 | 5AL1142 TB | 11.4 | 88 | 12 | 135 |
| 5AL1152 | 5AL1152 TB | 11.5 | 88 | 12 | 135 |
| 5AL1162 | 5AL1162 TB | 11.6 | 93 | 12 | 140 |
| 5AL1172 | 5AL1172 TB | 11.7 | 93 | 12 | 140 |
| 5AL1182 | 5AL1182 TB | 11.8 | 93 | 12 | 140 |
| 5AL1192 | 5AL1192 TB | 11.9 | 93 | 12 | 140 |
| 5AL1202 | 5AL1202 TB | 12 | 93 | 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-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 | | | | | | |
| | | | | | | | | ◎ | ◎ | | |



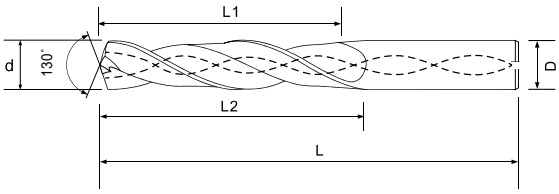
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## 5xD with Coolant Hole for Aluminum Application
# 5ALC 內冷鋁合金專用






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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 5ALC0302 | 5ALC0302 TB | 3 | 26 | 4 | 56 |
| 5ALC0312 | 5ALC0312 TB | 3.1 | 26 | 4 | 56 |
| 5ALC0322 | 5ALC0322 TB | 3.2 | 26 | 4 | 56 |
| 5ALC0332 | 5ALC0332 TB | 3.3 | 26 | 4 | 56 |
| 5ALC0342 | 5ALC0342 TB | 3.4 | 26 | 4 | 56 |
| 5ALC0352 | 5ALC0352 TB | 3.5 | 26 | 4 | 56 |
| 5ALC0362 | 5ALC0362 TB | 3.6 | 30 | 4 | 59 |
| 5ALC0372 | 5ALC0372 TB | 3.7 | 30 | 4 | 59 |
| 5ALC0382 | 5ALC0382 TB | 3.8 | 30 | 4 | 59 |
| 5ALC0392 | 5ALC0392 TB | 3.9 | 30 | 4 | 59 |
| 5ALC0402 | 5ALC0402 TB | 4 | 30 | 4 | 59 |
| 5ALC0412 | 5ALC0412 TB | 4.1 | 34 | 5 | 68 |
| 5ALC0422 | 5ALC0422 TB | 4.2 | 34 | 5 | 68 |
| 5ALC0432 | 5ALC0432 TB | 4.3 | 34 | 5 | 68 |
| 5ALC0442 | 5ALC0442 TB | 4.4 | 34 | 5 | 68 |
| 5ALC0452 | 5ALC0452 TB | 4.5 | 34 | 5 | 68 |
| 5ALC0462 | 5ALC0462 TB | 4.6 | 38 | 5 | 72 |
| 5ALC0472 | 5ALC0472 TB | 4.7 | 38 | 5 | 72 |
| 5ALC0482 | 5ALC0482 TB | 4.8 | 38 | 5 | 72 |
| 5ALC0492 | 5ALC0492 TB | 4.9 | 38 | 5 | 72 |
| 5ALC0502 | 5ALC0502 TB | 5 | 38 | 5 | 72 |
| 5ALC0512 | 5ALC0512 TB | 5.1 | 42 | 6 | 80 |
| 5ALC0522 | 5ALC0522 TB | 5.2 | 42 | 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 | | | | | | |
| | | | | | | | | ◎ | ◎ | | |

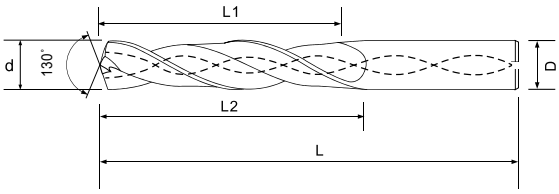
## 5xD with Coolant Hole for Aluminum Application

# 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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 5ALC0532 | 5ALC0532 TB | 5.3 | 42 | 6 | 80 |
| 5ALC0542 | 5ALC0542 TB | 5.4 | 42 | 6 | 80 |
| 5ALC0552 | 5ALC0552 TB | 5.5 | 42 | 6 | 80 |
| 5ALC0562 | 5ALC0562 TB | 5.6 | 46 | 6 | 85 |
| 5ALC0572 | 5ALC0572 TB | 5.7 | 46 | 6 | 85 |
| 5ALC0582 | 5ALC0582 TB | 5.8 | 46 | 6 | 85 |
| 5ALC0592 | 5ALC0592 TB | 5.9 | 46 | 6 | 85 |
| 5ALC0602 | 5ALC0602 TB | 6 | 46 | 6 | 85 |
| 5ALC0612 | 5ALC0612 TB | 6.1 | 50 | 7 | 88 |
| 5ALC0622 | 5ALC0622 TB | 6.2 | 50 | 7 | 88 |
| 5ALC0632 | 5ALC0632 TB | 6.3 | 50 | 7 | 88 |
| 5ALC0642 | 5ALC0642 TB | 6.4 | 50 | 7 | 88 |
| 5ALC0652 | 5ALC0652 TB | 6.5 | 50 | 7 | 88 |
| 5ALC0662 | 5ALC0662 TB | 6.6 | 54 | 7 | 92 |
| 5ALC0672 | 5ALC0672 TB | 6.7 | 54 | 7 | 92 |
| 5ALC0682 | 5ALC0682 TB | 6.8 | 54 | 7 | 92 |
| 5ALC0692 | 5ALC0692 TB | 6.9 | 54 | 7 | 92 |
| 5ALC0702 | 5ALC0702 TB | 7 | 54 | 7 | 92 |
| 5ALC0712 | 5ALC0712 TB | 7.1 | 57 | 8 | 95 |
| 5ALC0722 | 5ALC0722 TB | 7.2 | 57 | 8 | 95 |
| 5ALC0732 | 5ALC0732 TB | 7.3 | 57 | 8 | 95 |
| 5ALC0742 | 5ALC0742 TB | 7.4 | 57 | 8 | 95 |
| 5ALC0752 | 5ALC0752 TB | 7.5 | 57 | 8 | 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-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 | | | | | | |
| | | | | | | | | ◎ | ◎ | | |



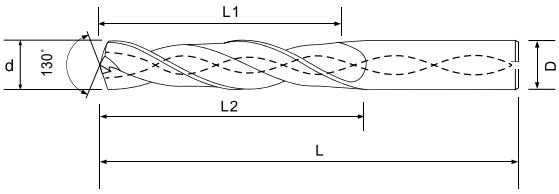
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## 5xD with Coolant Hole for Aluminum Application
# 5ALC 內冷鋁合金專用






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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 5ALC0762 | 5ALC0762 TB | 7.6 | 62 | 8 | 100 |
| 5ALC0772 | 5ALC0772 TB | 7.7 | 62 | 8 | 100 |
| 5ALC0782 | 5ALC0782 TB | 7.8 | 62 | 8 | 100 |
| 5ALC0792 | 5ALC0792 TB | 7.9 | 62 | 8 | 100 |
| 5ALC0802 | 5ALC0802 TB | 8 | 62 | 8 | 100 |
| 5ALC0812 | 5ALC0812 TB | 8.1 | 65 | 9 | 107 |
| 5ALC0822 | 5ALC0822 TB | 8.2 | 65 | 9 | 107 |
| 5ALC0832 | 5ALC0832 TB | 8.3 | 65 | 9 | 107 |
| 5ALC0842 | 5ALC0842 TB | 8.4 | 65 | 9 | 107 |
| 5ALC0852 | 5ALC0852 TB | 8.5 | 65 | 9 | 107 |
| 5ALC0862 | 5ALC0862 TB | 8.6 | 68 | 9 | 110 |
| 5ALC0872 | 5ALC0872 TB | 8.7 | 68 | 9 | 110 |
| 5ALC0882 | 5ALC0882 TB | 8.8 | 68 | 9 | 110 |
| 5ALC0892 | 5ALC0892 TB | 8.9 | 68 | 9 | 110 |
| 5ALC0902 | 5ALC0902 TB | 9 | 68 | 9 | 110 |
| 5ALC0912 | 5ALC0912 TB | 9.1 | 72 | 10 | 115 |
| 5ALC0922 | 5ALC0922 TB | 9.2 | 72 | 10 | 115 |
| 5ALC0932 | 5ALC0932 TB | 9.3 | 72 | 10 | 115 |
| 5ALC0942 | 5ALC0942 TB | 9.4 | 72 | 10 | 115 |
| 5ALC0952 | 5ALC0952 TB | 9.5 | 72 | 10 | 115 |
| 5ALC0962 | 5ALC0962 TB | 9.6 | 77 | 10 | 120 |
| 5ALC0972 | 5ALC0972 TB | 9.7 | 77 | 10 | 120 |
| 5ALC0982 | 5ALC0982 TB | 9.8 | 77 | 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 | | | | | | |
| | | | | | | | | ◎ | ◎ | | |

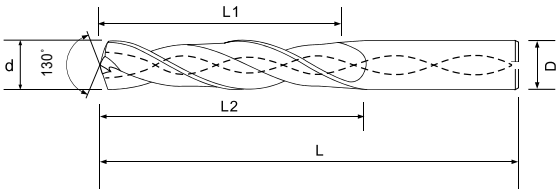
## 5xD with Coolant Hole for Aluminum Application

# 5ALC 內冷鋁合金專用

切削條件表 P208 Cutting Condition



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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 5ALC0992 | 5ALC0992 TB | 9.9 | 77 | 10 | 120 |
| 5ALC1002 | 5ALC1002 TB | 10 | 77 | 10 | 120 |
| 5ALC1012 | 5ALC1012 TB | 10.1 | 80 | 11 | 123 |
| 5ALC1022 | 5ALC1022 TB | 10.2 | 80 | 11 | 123 |
| 5ALC1032 | 5ALC1032 TB | 10.3 | 80 | 11 | 123 |
| 5ALC1042 | 5ALC1042 TB | 10.4 | 80 | 11 | 123 |
| 5ALC1052 | 5ALC1052 TB | 10.5 | 80 | 11 | 123 |
| 5ALC1062 | 5ALC1062 TB | 10.6 | 84 | 11 | 127 |
| 5ALC1072 | 5ALC1072 TB | 10.7 | 84 | 11 | 127 |
| 5ALC1082 | 5ALC1082 TB | 10.8 | 84 | 11 | 127 |
| 5ALC1092 | 5ALC1092 TB | 10.9 | 84 | 11 | 127 |
| 5ALC1102 | 5ALC1102 TB | 11 | 84 | 11 | 127 |
| 5ALC1112 | 5ALC1112 TB | 11.1 | 88 | 12 | 135 |
| 5ALC1122 | 5ALC1122 TB | 11.2 | 88 | 12 | 135 |
| 5ALC1132 | 5ALC1132 TB | 11.3 | 88 | 12 | 135 |
| 5ALC1142 | 5ALC1142 TB | 11.4 | 88 | 12 | 135 |
| 5ALC1152 | 5ALC1152 TB | 11.5 | 88 | 12 | 135 |
| 5ALC1162 | 5ALC1162 TB | 11.6 | 93 | 12 | 140 |
| 5ALC1172 | 5ALC1172 TB | 11.7 | 93 | 12 | 140 |
| 5ALC1182 | 5ALC1182 TB | 11.8 | 93 | 12 | 140 |
| 5ALC1192 | 5ALC1192 TB | 11.9 | 93 | 12 | 140 |
| 5ALC1202 | 5ALC1202 TB | 12 | 93 | 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-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 | | | | | | |
| | | | | | | | | ◎ | ◎ | | |



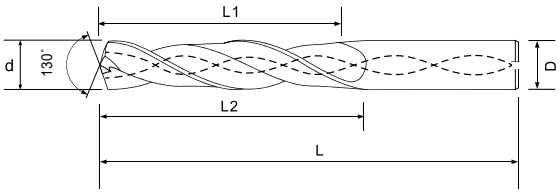
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## 8xD with Coolant Hole for Aluminum Application
# 8ALC 內冷鋁合金專用






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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 8ALC0302 | 8ALC0302 TB | 3 | 36 | 4 | 66 |
| 8ALC0312 | 8ALC0312 TB | 3.1 | 36 | 4 | 66 |
| 8ALC0322 | 8ALC0322 TB | 3.2 | 36 | 4 | 66 |
| 8ALC0332 | 8ALC0332 TB | 3.3 | 36 | 4 | 66 |
| 8ALC0342 | 8ALC0342 TB | 3.4 | 36 | 4 | 66 |
| 8ALC0352 | 8ALC0352 TB | 3.5 | 36 | 4 | 66 |
| 8ALC0362 | 8ALC0362 TB | 3.6 | 41 | 4 | 70 |
| 8ALC0372 | 8ALC0372 TB | 3.7 | 41 | 4 | 70 |
| 8ALC0382 | 8ALC0382 TB | 3.8 | 41 | 4 | 70 |
| 8ALC0392 | 8ALC0392 TB | 3.9 | 41 | 4 | 70 |
| 8ALC0402 | 8ALC0402 TB | 4 | 41 | 4 | 70 |
| 8ALC0412 | 8ALC0412 TB | 4.1 | 46 | 5 | 80 |
| 8ALC0422 | 8ALC0422 TB | 4.2 | 46 | 5 | 80 |
| 8ALC0432 | 8ALC0432 TB | 4.3 | 46 | 5 | 80 |
| 8ALC0442 | 8ALC0442 TB | 4.4 | 46 | 5 | 80 |
| 8ALC0452 | 8ALC0452 TB | 4.5 | 46 | 5 | 80 |
| 8ALC0462 | 8ALC0462 TB | 4.6 | 53 | 5 | 87 |
| 8ALC0472 | 8ALC0472 TB | 4.7 | 53 | 5 | 87 |
| 8ALC0482 | 8ALC0482 TB | 4.8 | 53 | 5 | 87 |
| 8ALC0492 | 8ALC0492 TB | 4.9 | 53 | 5 | 87 |
| 8ALC0502 | 8ALC0502 TB | 5 | 53 | 5 | 87 |
| 8ALC0512 | 8ALC0512 TB | 5.1 | 58 | 6 | 96 |
| 8ALC0522 | 8ALC0522 TB | 5.2 | 58 | 6 | 96 |
| 8ALC0532 | 8ALC0532 TB | 5.3 | 58 | 6 | 96 |
| 8ALC0542 | 8ALC0542 TB | 5.4 | 58 | 6 | 96 |
| 8ALC0552 | 8ALC0552 TB | 5.5 | 58 | 6 | 96 |
| 8ALC0562 | 8ALC0562 TB | 5.6 | 63 | 6 | 101 |
| 8ALC0572 | 8ALC0572 TB | 5.7 | 63 | 6 | 101 |
| 8ALC0582 | 8ALC0582 TB | 5.8 | 63 | 6 | 101 |
| 8ALC0592 | 8ALC0592 TB | 5.9 | 63 | 6 | 101 |
| 8ALC0602 | 8ALC0602 TB | 6 | 63 | 6 | 101 |

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 | | | | | | |
| | | | | | | | | ◎ | ◎ | | |

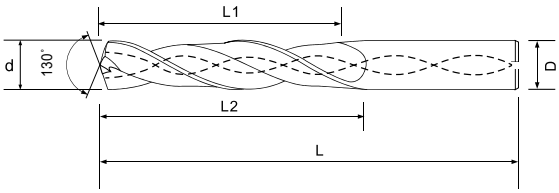
## 8xD with Coolant Hole for Aluminum Application

# 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 |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 8ALC0612 | 8ALC0612 TB | 6.1 | 68 | 7 | 106 |
| 8ALC0622 | 8ALC0622 TB | 6.2 | 68 | 7 | 106 |
| 8ALC0632 | 8ALC0632 TB | 6.3 | 68 | 7 | 106 |
| 8ALC0642 | 8ALC0642 TB | 6.4 | 68 | 7 | 106 |
| 8ALC0652 | 8ALC0652 TB | 6.5 | 68 | 7 | 106 |
| 8ALC0662 | 8ALC0662 TB | 6.6 | 73 | 7 | 111 |
| 8ALC0672 | 8ALC0672 TB | 6.7 | 73 | 7 | 111 |
| 8ALC0682 | 8ALC0682 TB | 6.8 | 73 | 7 | 111 |
| 8ALC0692 | 8ALC0692 TB | 6.9 | 73 | 7 | 111 |
| 8ALC0702 | 8ALC0702 TB | 7 | 73 | 7 | 111 |
| 8ALC0712 | 8ALC0712 TB | 7.1 | 78 | 8 | 116 |
| 8ALC0722 | 8ALC0722 TB | 7.2 | 78 | 8 | 116 |
| 8ALC0732 | 8ALC0732 TB | 7.3 | 78 | 8 | 116 |
| 8ALC0742 | 8ALC0742 TB | 7.4 | 78 | 8 | 116 |
| 8ALC0752 | 8ALC0752 TB | 7.5 | 78 | 8 | 116 |
| 8ALC0762 | 8ALC0762 TB | 7.6 | 84 | 8 | 122 |
| 8ALC0772 | 8ALC0772 TB | 7.7 | 84 | 8 | 122 |
| 8ALC0782 | 8ALC0782 TB | 7.8 | 84 | 8 | 122 |
| 8ALC0792 | 8ALC0792 TB | 7.9 | 84 | 8 | 122 |
| 8ALC0802 | 8ALC0802 TB | 8 | 84 | 8 | 122 |
| 8ALC0812 | 8ALC0812 TB | 8.1 | 89 | 9 | 131 |
| 8ALC0822 | 8ALC0822 TB | 8.2 | 89 | 9 | 131 |
| 8ALC0832 | 8ALC0832 TB | 8.3 | 89 | 9 | 131 |
| 8ALC0842 | 8ALC0842 TB | 8.4 | 89 | 9 | 131 |
| 8ALC0852 | 8ALC0852 TB | 8.5 | 89 | 9 | 131 |
| 8ALC0862 | 8ALC0862 TB | 8.6 | 94 | 9 | 136 |
| 8ALC0872 | 8ALC0872 TB | 8.7 | 94 | 9 | 136 |
| 8ALC0882 | 8ALC0882 TB | 8.8 | 94 | 9 | 136 |
| 8ALC0892 | 8ALC0892 TB | 8.9 | 94 | 9 | 136 |
| 8ALC0902 | 8ALC0902 TB | 9 | 94 | 9 | 136 |
| 8ALC0912 | 8ALC0912 TB | 9.1 | 99 | 10 | 142 |

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 | | | | | | |
| | | | | | | | | ◎ | ◎ | | |



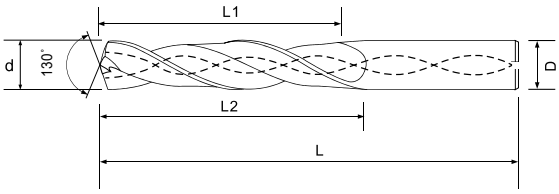
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## 8xD with Coolant Hole for Aluminum Application
# 8ALC 內冷鋁合金專用

切削條件表 P208 Cutting Condition



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



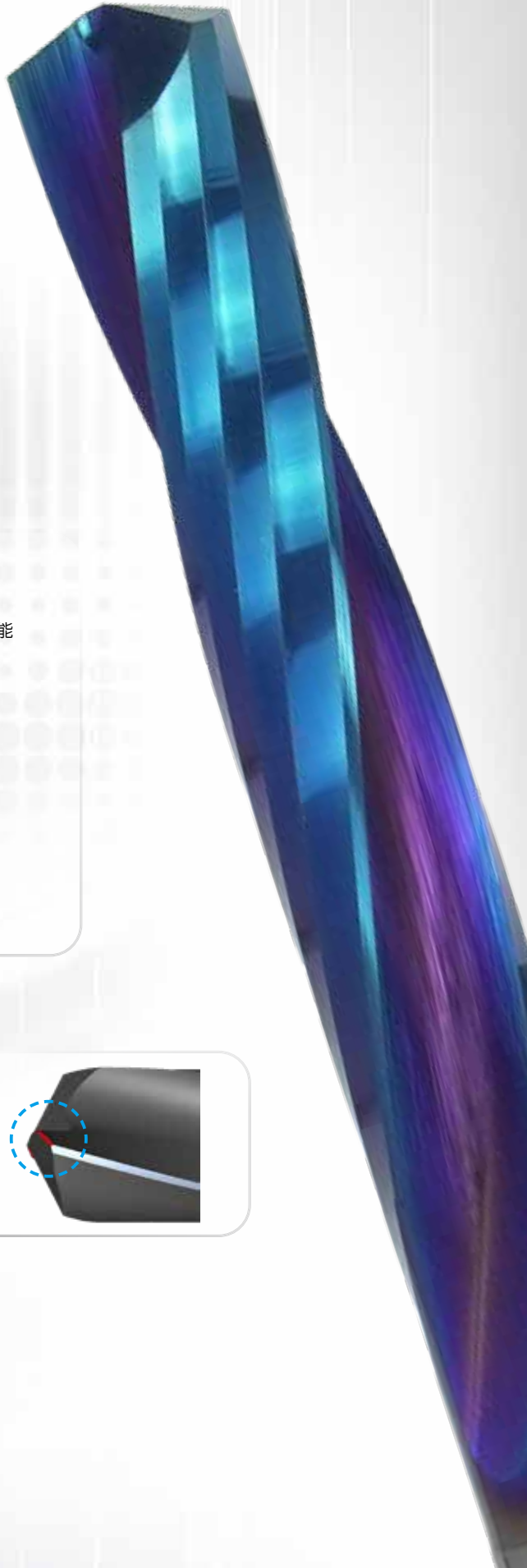

| MODE 型號 | | Dimension 規格 | | | |
|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Flute Length | Shank Diameter | Full Length |
| | TB | d 刃徑 | L2 溝長 | D 直徑 | L 全長 |
| 8ALC0922 | 8ALC0922 TB | 9.2 | 99 | 10 | 142 |
| 8ALC0932 | 8ALC0932 TB | 9.3 | 99 | 10 | 142 |
| 8ALC0942 | 8ALC0942 TB | 9.4 | 99 | 10 | 142 |
| 8ALC0952 | 8ALC0952 TB | 9.5 | 99 | 10 | 142 |
| 8ALC0962 | 8ALC0962 TB | 9.6 | 105 | 10 | 148 |
| 8ALC0972 | 8ALC0972 TB | 9.7 | 105 | 10 | 148 |
| 8ALC0982 | 8ALC0982 TB | 9.8 | 105 | 10 | 148 |
| 8ALC0992 | 8ALC0992 TB | 9.9 | 105 | 10 | 148 |
| 8ALC1002 | 8ALC1002 TB | 10 | 105 | 10 | 148 |
| 8ALC1012 | 8ALC1012 TB | 10.1 | 110 | 11 | 153 |
| 8ALC1022 | 8ALC1022 TB | 10.2 | 110 | 11 | 153 |
| 8ALC1032 | 8ALC1032 TB | 10.3 | 110 | 11 | 153 |
| 8ALC1042 | 8ALC1042 TB | 10.4 | 110 | 11 | 153 |
| 8ALC1052 | 8ALC1052 TB | 10.5 | 110 | 11 | 153 |
| 8ALC1062 | 8ALC1062 TB | 10.6 | 115 | 11 | 158 |
| 8ALC1072 | 8ALC1072 TB | 10.7 | 115 | 11 | 158 |
| 8ALC1082 | 8ALC1082 TB | 10.8 | 115 | 11 | 158 |
| 8ALC1092 | 8ALC1092 TB | 10.9 | 115 | 11 | 158 |
| 8ALC1102 | 8ALC1102 TB | 11 | 115 | 11 | 158 |
| 8ALC1112 | 8ALC1112 TB | 11.1 | 120 | 12 | 168 |
| 8ALC1122 | 8ALC1122 TB | 11.2 | 120 | 12 | 168 |
| 8ALC1132 | 8ALC1132 TB | 11.3 | 120 | 12 | 168 |
| 8ALC1142 | 8ALC1142 TB | 11.4 | 120 | 12 | 168 |
| 8ALC1152 | 8ALC1152 TB | 11.5 | 120 | 12 | 168 |
| 8ALC1162 | 8ALC1162 TB | 11.6 | 126 | 12 | 174 |
| 8ALC1172 | 8ALC1172 TB | 11.7 | 126 | 12 | 174 |
| 8ALC1182 | 8ALC1182 TB | 11.8 | 126 | 12 | 174 |
| 8ALC1192 | 8ALC1192 TB | 11.9 | 126 | 12 | 174 |
| 8ALC1202 | 8ALC1202 TB | 12 | 126 | 12 | 174 |

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 | | | | | | |
| | | | | | | | | ◎ | ◎ | | |

# High Hardness Steel
## 高硬鎢鋼鑽頭
## HD



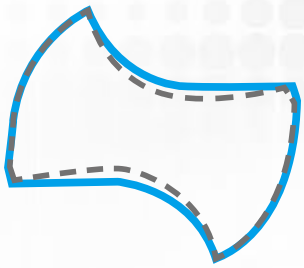
**1**

Small helix angle
低螺旋高剛性

Special geometry
特殊溝型設計

Large core thickness
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

**2**

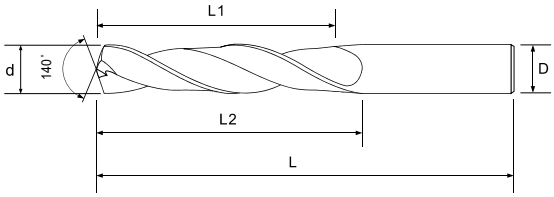
Negative angle design for protecting the edge against chipping.

負角防崩設計。

## High Hardness Steel
# HD 高硬度鎢鋼鑽頭



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 | | | | | | |
| | ◎ | ◎ | ◎ | ◎ | ○ | | | | | | |

# 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.

特殊溝型及齒槽設計 - 優異的排屑能力，有效斷屑及強化的刃口。

**2FD 4FD**



**3FDC**

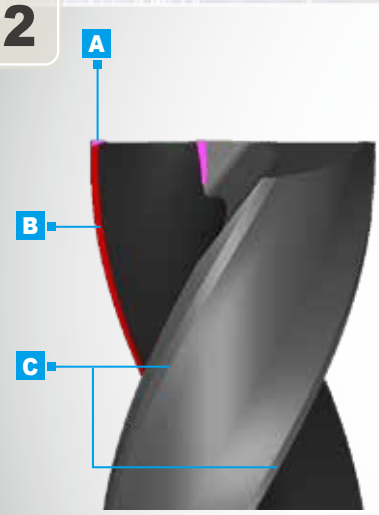


**5FDC**



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

**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。

3

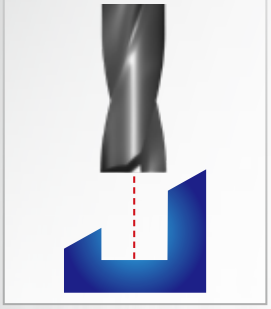
## High Efficiency Drilling in Various Type of Machining

## 多功能高效能用途

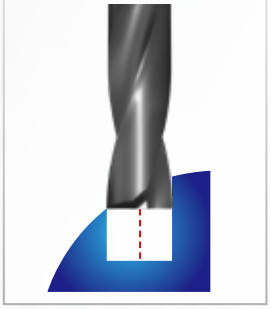
Applicable for a multitude of drilling applications such as inclined surface, curved surface, flat-bottom hole, eccentric hole, and more.

適用於多種鑽孔應用，如傾斜表面、曲面、平底孔、偏心孔等。

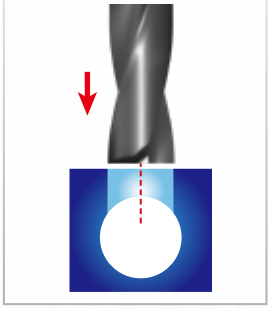
**Inclined Surface**
**傾斜面鑽孔**



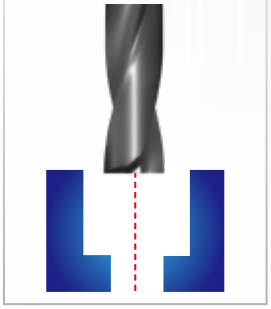
**Curved Surface**
**曲面加工**



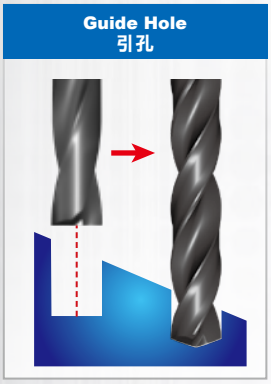
**Cross-Hole**
**孔貫通加工**



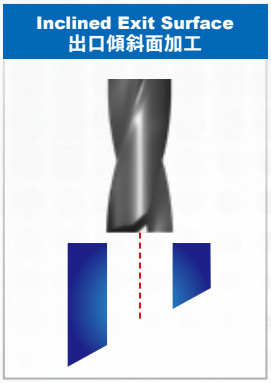
**Counterboring**
**沉孔加工**



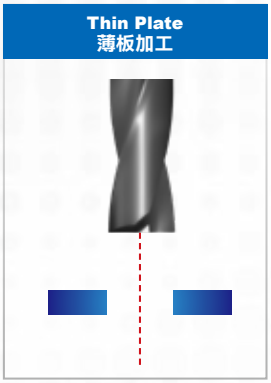
**Guide Hole**
**引孔**



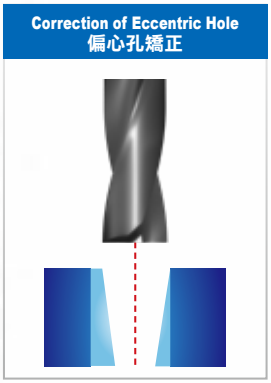
**Inclined Exit Surface**
**出口傾斜面加工**



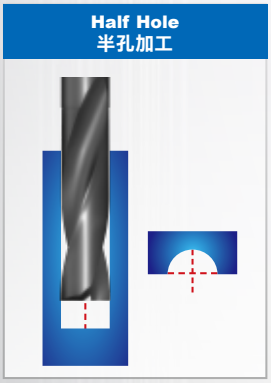
**Thin Plate**
**薄板加工**



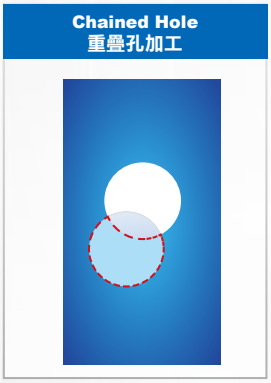
**Correction of Eccentric Hole**
**偏心孔矯正**



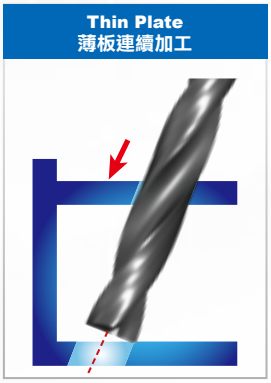
**Half Hole**
**半孔加工**



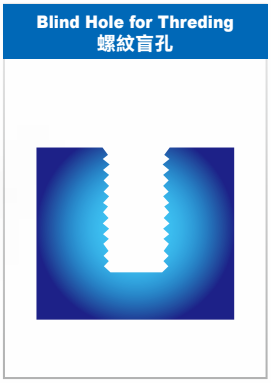
**Chained Hole**
**重疊孔加工**



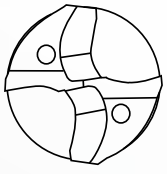
**Thin Plate**
**薄板連續加工**

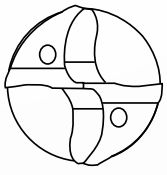


**Blind Hole for Threding**
**螺紋盲孔**





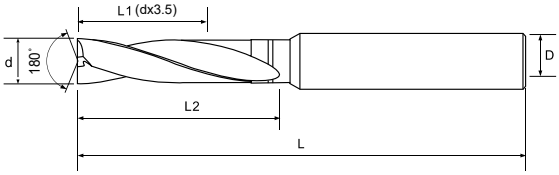




## 2xD Flat Drill
## 2FD 平頭鑽






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | 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 | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

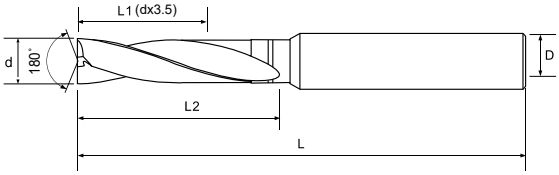


www.speedtiger.com.tw

## 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 刃徑 | 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 |

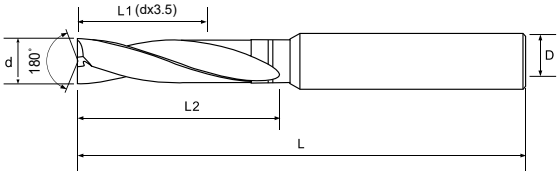
Application 適用材質：

★ 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 | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

# 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 刃徑 | 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 | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

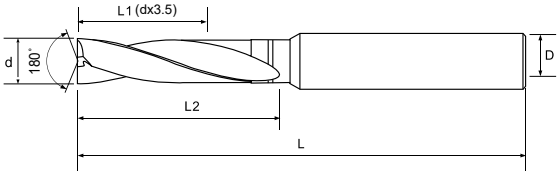


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## 2xD Flat Drill
## 2FD 平頭鑽






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | 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-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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

# 4xD Flat Drill
# 4FD 平頭鑽





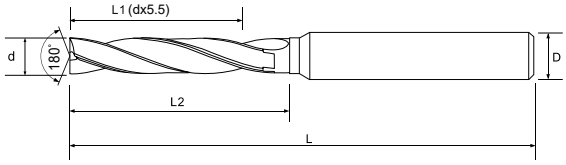




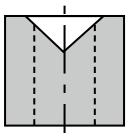


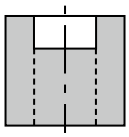







| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | L1 有效深度 | L2 溝長 | D 直徑 | L 全長 |
| 4FD0302 nACRo | 4FD0302 ZrN-A | 3.0 | 16.5 | 19.5 | 6 | 60 |
| 4FD0312 nACRo | 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

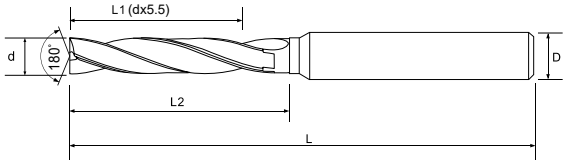
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC |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


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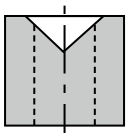
## 4xD Flat Drill
## 4FD 平頭鑽

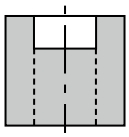





| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | L1 有效深度 | L2 溝長 | D 直徑 | L 全長 |
| 4FD0552 nACRo | 4FD0552 ZrN-A | 5.5 | 30.3 | 35.8 | 6 | 80 |
| 4FD0562 nACRo | 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。

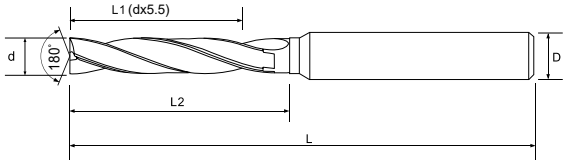
Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

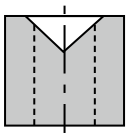
| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC |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

# 4xD Flat Drill
# 4FD 平頭鑽

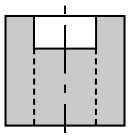





| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | L1 有效深度 | L2 溝長 | D 直徑 | L 全長 |
| 4FD0802 nACRo | 4FD0802 ZrN-A | 8.0 | 44.0 | 52.0 | 8 | 90 |
| 4FD0812 nACRo | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

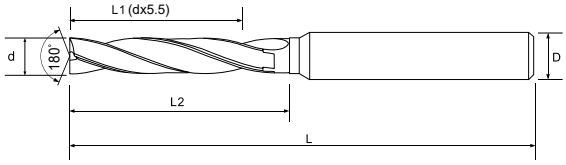


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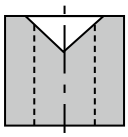
## 4xD Flat Drill
## 4FD 平頭鑽

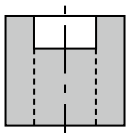





| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | L1 有效深度 | L2 溝長 | D 直徑 | L 全長 |
| 4FD1052 nACRo | 4FD1052 ZrN-A | 10.5 | 57.8 | 68.3 | 12 | 120 |
| 4FD1062 nACRo | 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：

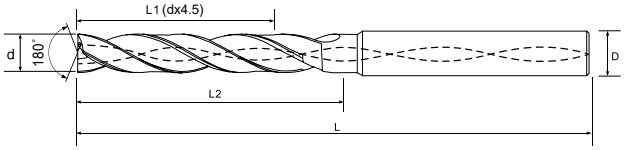
★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

## 3xD Flat Drill with Coolant Hole
## 3FDC 內冷平頭鑽

切削條件表 P212 Cutting Condition






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | 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 | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

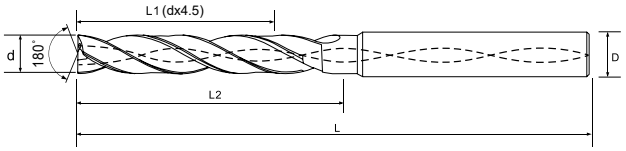


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## 3xD Flat Drill with Coolant Hole
## 3FDC 內冷平頭鑽






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | 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：

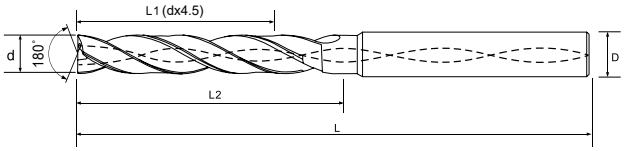
★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼，合金鋼 | Pre-harden steel 預硬鋼 | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

## 3xD Flat Drill with Coolant Hole
## 3FDC 內冷平頭鑽

切削條件表 P212 Cutting Condition






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | 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 | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

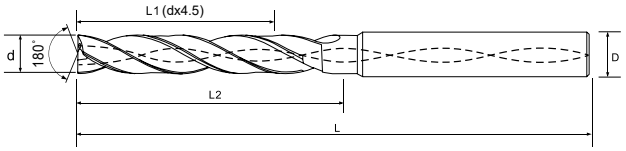


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## 3xD Flat Drill with Coolant Hole
## 3FDC 內冷平頭鑽






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | 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：

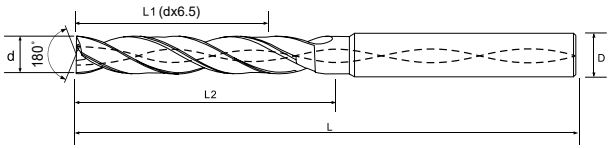
★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

| Coating 塗層 | Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

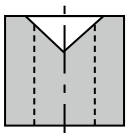
# 5xD Flat Drill with Coolant Hole
# 5FDC 內冷平頭鑽

切削條件表 P212 Cutting Condition

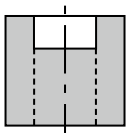





| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | L1 有效深度 | L2 溝長 | D 直徑 | L 全長 |
| 5FDC0302 nACRo | 5FDC0302 ZrN-A | 3.0 | 19.5 | 21.0 | 6.0 | 60 |
| 5FDC0312 nACRo | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

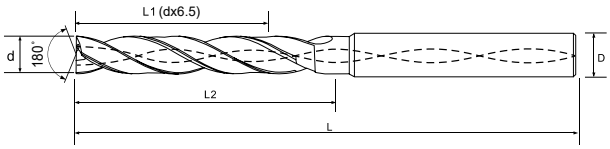


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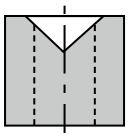
## 5xD Flat Drill with Coolant Hole
## 5FDC 內冷平頭鑽

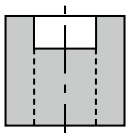





| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | L1 有效深度 | L2 溝長 | D 直徑 | L 全長 |
| 5FDC0542 nACRo | 5FDC0542 ZrN-A | 5.4 | 35.1 | 37.8 | 6.0 | 75 |
| 5FDC0552 nACRo | 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：

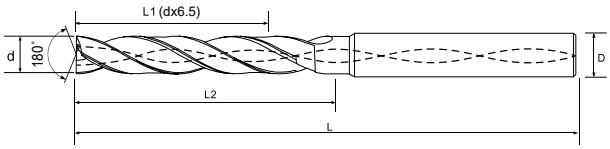
★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

| 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 | ~65HRC | | | | | | |
| nACRo | ◎ | ○ | | | | | ○ | ○ | | | | |
| ZrN-A | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

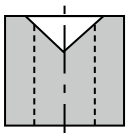
# 5xD Flat Drill with Coolant Hole
# 5FDC 內冷平頭鑽

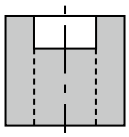
切削條件表 P212 Cutting Condition






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | 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 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

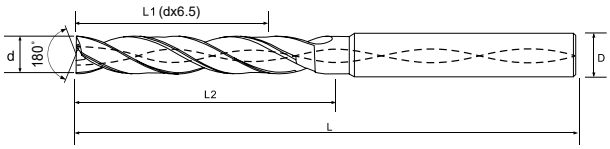


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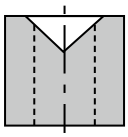
## 5xD Flat Drill with Coolant Hole
## 5FDC 內冷平頭鑽

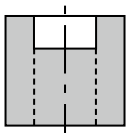





| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Effective Drill Depth | Flute Length | Shank Diameter | Full Length |
| nACRo | ZrN-A | d 刃徑 | L1 有效深度 | L2 溝長 | D 直徑 | L 全長 |
| 5FDC1022 nACRo | 5FDC1022 ZrN-A | 10.2 | 66.3 | 71.4 | 12 | 120 |
| 5FDC1032 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 | 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 | ○ | | | | | | ◎ | ○ | ○ | ○ | ○ | |

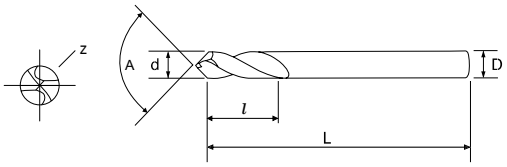
# Position Drill
# 定位鑽

600 Nano | HRC ▶45 | 切削條件表 P214 Cutting Condition

## Micro Grain Carbide

WC=90 Co=10 HV30=1571 Rupture=3750N/mm$^2$ Grain Size=0.6μm






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Flute Length | Full Length | Shank Diameter | Tip Angle |
| | 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 alloy 鎳基合金 | Copper alloy 銅合金,銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC | ~65HRC | | | | | |
| | ○ | ◎ | ○ | | | | | | | ○ | ○ |
| ZrN-A | ○ | ◎ | ◎ | ○ | | | ○ | ○ | ○ | ○ | ○ |



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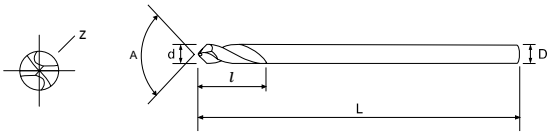
## Position Drill
## 定位鑽

600 Nano | HRC ▶45 | 切削條件表 P214 Cutting Condition

Micro Grain Carbide

WC=90 Co=10 HV30=1571 Rupture=3750N/mm$^2$ Grain Size=0.6μm






| MODE 型號 | | Dimension 規格 | | | | |
|---|---|---|---|---|---|---|
| Coating 塗層 | | Diameter | Flute Length | Full Length | Shank Diameter | Tip Angle |
| | 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

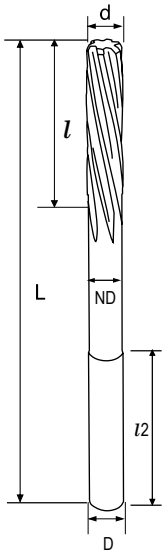
| Coating 塗層 | carbon steel, Alloy steel 炭素鋼 ,合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Titanium ally 鈦合金 | Nickel/Inconel ally 鎳基合金 | Copper alloy 銅合金,銅 | Aluminum alloy 鋁合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ~45HRC | ~50HRC | ~55HRC | ~60HRC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

Micro Grain Carbide

WC=90 Co=10 HV30=1571 Rupture=3750N/mm$^2$ Grain Size=0.6μm






| MODE<br>型號 | Diameter<br>直徑d | Flute Length<br>l 刃長 | Neck Diameter<br>ND頸部直徑 | Shank Length<br>l2 柄長 | Full Length<br>L全長 | Flutes<br>刃數Z |
|---|---|---|---|---|---|---|
| RE015 | 1.5 | 8 | 1.35 | 20 | 40 | |
| RE016 | 1.6 | 9 | 1.4 | 20 | 43 | |
| RE017 | 1.7 | 9 | 1.5 | 18 | 43 | |
| RE018 | 1.8 | 10 | 1.6 | 18 | 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 | 4 |
| 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 | |
| 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 | 6 |
| 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 | |

Application 適用材質：

★ Perfect 最推薦　◎ Excellent 適合　○ Good 佳

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



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# Carbide Edge Reamer
# 刃部鎢鋼頭鉸刀

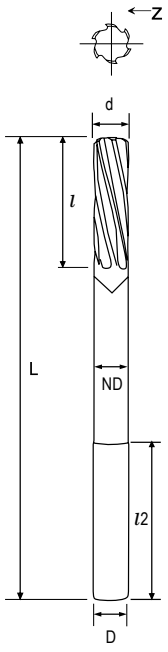
600 Nano | HRC ▶45 | 切削條件表 P214 Cutting Condition

Micro Grain Carbide

WC=90 Co=10 HV30=1571 Rupture=3750N/mm$^2$ 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: 7°~12°  Tolerance: H7
Main character: Mold steel and nonmetal material specialized in ream process of mold, could reach prefect 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。特別在製造模具時鉸孔作業，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-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 | | | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

SPEED TIGER

# SOLID CARBIDE THREAD MILLS

TM

HIGH PERFORMANCE



# TM Series INDEX索引

## 螺紋銑刀

| Shape 刃部形狀 | Flute 刃數 | Type 刀型 | Mode 品名 | Photo 照片 | Coating 塗層 | Spec. 規格表 | Cutting Condition 切削條件 |
|---|---|---|---|---|---|---|---|
| Thread 螺紋 | 3~5 | Thread Mill.ISO 2D<br>ISO 2D 螺紋銑刀 | TM |  | ZrN-A<br>nACRo | 170 | 201 |
| Thread 螺紋 | 3~5 | Thread Mill.ISO. 2D Coolant<br>ISO 2D 螺紋銑刀/內冷 | TMC |  | | 170 | 201 |
| Thread 螺紋 | 3~5 | Thread Mill.ISO.1.5D<br>ISO1.5D 螺紋銑刀/有效 | TMEL |  | | 171 | 201 |
| Thread 螺紋 | 3~5 | Thread Mill.ISO.1.5D Coolant<br>ISO1.5D 螺紋銑刀<br>有效/內冷 | TMCEL |  | | 171 | 201 |
| Thread 螺紋 | 3~4 | Thread Mill.ISO.<br>1.5D/2D/2.5D Chamfer<br>ISO.1.5D/2D/2.5D<br>螺紋銑刀/倒角 | TMCH |  | | 172 | 201 |
| Thread 螺紋 | 3~4 | Thread Mill.ISO.<br>1.5D/2D/2.5D<br>Chamfer Coolant<br>ISO.1.5D/2D/2.5D<br>螺紋銑刀/倒角/內冷 | TMCHC |  | | 173 | 201 |
| Thread 螺紋 | 3~4 | 3 Pitch Thread Mill.ISO.<br>ISO. 3牙式螺紋銑刀 | TM3ZT |  | | 174 | 202 |
| Thread 螺紋 | 3 | 1 Pitch Miniature<br>Thread Mill.ISO.<br>ISO. 單牙微小徑螺紋銑刀 | TMSM1ZT |  | | 175 | 202 |
| Thread 螺紋 | 3~5 | Internal / External<br>Thread Mill<br>內外牙通用螺紋銑刀 | TMPA |  | | 175 | 202 |
| 定製款螺紋銑刀 Customized Thread Mill | | | | | | | |
| Thread 螺紋 | 2 | Thread Mill.ISO.<br>Drill+ Chamfer<br>ISO. 螺紋銑刀/鑽孔+倒角 | TMCHD |  | - | 176 | - |
| Thread 螺紋 | 1~4 | Full Profile Thread Mill.ISO<br>ISO. 完整牙螺紋銑刀 | TMFP |  | - | 177 | - |

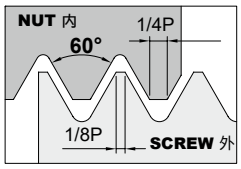
# TM 螺紋銑刀系列

# 臺灣限定保固

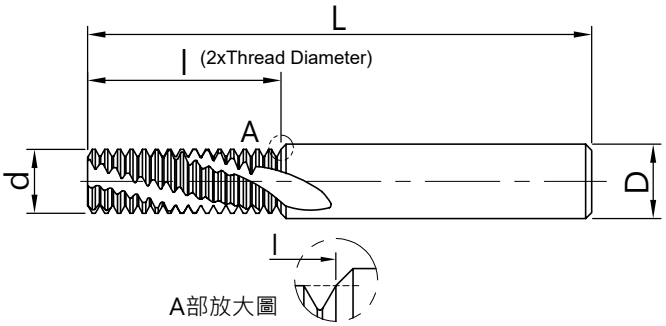
購買日起一年內斷刀保固，不限次數憑柄部更換正常磨耗除外。

## TM - Thread Mill.ISO 2D
## ISO 螺紋銑刀

ZrN-A nACRo 切削條件表 P201 Cutting Condition



ISO R262（DIN13）/6H

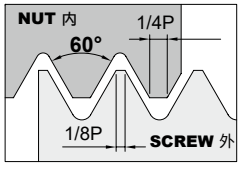




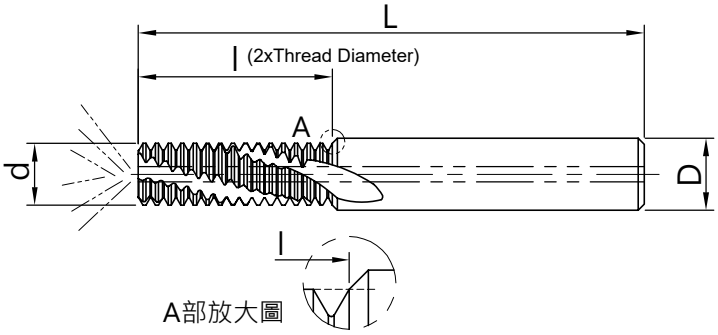

| MODE | Thread Diameter | Pitch | Diameter | Thread Length | Full Length | Shank Diameter | No. of flutes | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | M 螺紋 | mm 螺距 | d 刃徑 | l 螺紋長度 | L 全長 | D 柄徑 | z 刃數 | ZrN-A | nACRo | 最低售價 |
| TM-M0305002303 | M3 | 0.5 | 2.3 | 6.75 | 50 | 4 | 3 | .03 | .08 | 1870 |
| TM-M0407003103 | M4 | 0.7 | 3.1 | 8.75 | 50 | 4 | 3 | .03 | .08 | 1870 |
| TM-M0508003803 | M5 | 0.8 | 3.8 | 10.80 | 50 | 4 | 3 | .03 | .08 | 1870 |
| TM-M0610004503 | M6 | 1 | 4.5 | 13.50 | 65 | 6 | 3 | .03 | .08 | 2200 |
| TM-M0812506004 | M8 | 1.25 | 6 | 18.13 | 65 | 6 | 4 | .03 | .08 | 2200 |
| TM-M1015007504 | M10 | 1.5 | 7.5 | 21.75 | 80 | 8 | 4 | .03 | .08 | 2530 |
| TM-M1217509504 | M12 | 1.75 | 9.5 | 27.13 | 80 | 10 | 4 | .03 | .08 | 3080 |
| TM-M1420010004 | M14 | 2 | 10 | 31.00 | 80 | 10 | 4 | .03 | .08 | 3080 |
| TM-M1620012005 | M16 | 2 | 12 | 35.00 | 105 | 12 | 5 | .03 | .08 | 3630 |
| TM-M2025016005 | M20 | 2.5 | 16 | 43.75 | 105 | 16 | 5 | .03 | .08 | 4840 |
| TM-M2430016005 | M24 | 3 | 16 | 52.50 | 110 | 16 | 5 | .03 | .08 | 4840 |

## TMC - Thread Mill.ISO. 2D Coolant
## ISO 螺紋銑刀/內冷

ZrN-A nACRo 切削條件表 P201 Cutting Condition



ISO R262（DIN13）/6H



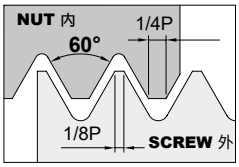



| MODE | Thread Diameter | Pitch | Diameter | Thread Length | Full Length | Shank Diameter | No. of flutes | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | M 螺紋 | mm 螺距 | d 刃徑 | l 螺紋長度 | L 全長 | D 柄徑 | z 刃數 | ZrN-A | nACRo | 最低售價 |
| TMC-M0610004503 | M6 | 1 | 4.5 | 13.50 | 65 | 6 | 3 | .03 | .08 | 2530 |
| TMC-M0812506004 | M8 | 1.25 | 6 | 18.13 | 65 | 6 | 4 | .03 | .08 | 2530 |
| TMC-M1015007504 | M10 | 1.5 | 7.5 | 21.75 | 80 | 8 | 4 | .03 | .08 | 2970 |
| TMC-M1217509504 | M12 | 1.75 | 9.5 | 27.13 | 80 | 10 | 4 | .03 | .08 | 3520 |
| TMC-M1420010004 | M14 | 2 | 10 | 31.00 | 80 | 10 | 4 | .03 | .08 | 3520 |
| TMC-M1620012005 | M16 | 2 | 12 | 35.00 | 105 | 12 | 5 | .03 | .08 | 4180 |
| TMC-M2025016005 | M20 | 2.5 | 16 | 43.75 | 105 | 16 | 5 | .03 | .08 | 5610 |
| TMC-M2430016005 | M24 | 3 | 16 | 52.50 | 110 | 16 | 5 | .03 | .08 | 5610 |

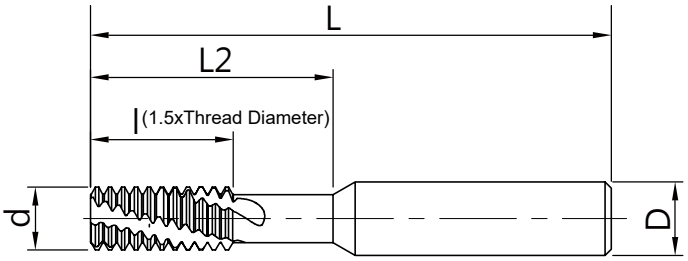

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## TMEL - Thread Mill.ISO.1.5D
## ISO 螺紋銑刀/有效

ZrN-A nACRo 切削條件表 P201 Cutting Condition



ISO R262（DIN13）/6H

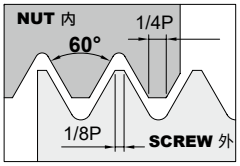




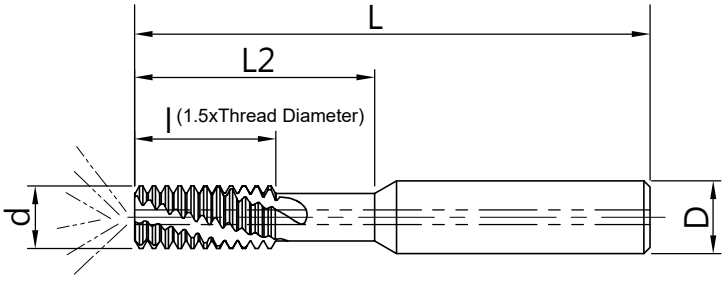

| MODE | Thread Diameter | Pitch | Diameter | Thread Length | Full Length | Shank Diameter | No. of flutes | Effective Length | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | M 螺紋 | mm 螺距 | d 刃徑 | l 螺紋長度 | L 全長 | D 柄徑 | z 刃數 | L2 有效長度 | ZrN-A | nACRo | 最低售價 |
| TMEL-M0305002303 | M3 | 0.5 | 2.3 | 5.0 | 50 | 4 | 3 | 9.0 | .03 | .08 | 1980 |
| TMEL-M0407003103 | M4 | 0.7 | 3.1 | 7.0 | 50 | 4 | 3 | 12.0 | .03 | .08 | 1980 |
| TMEL-M0508003803 | M5 | 0.8 | 3.8 | 8.0 | 50 | 4 | 3 | 15.0 | .03 | .08 | 1980 |
| TMEL-M0610004503 | M6 | 1 | 4.5 | 10.0 | 65 | 6 | 3 | 18.0 | .03 | .08 | 2310 |
| TMEL-M0812506004 | M8 | 1.25 | 6 | 13.8 | 65 | 6 | 4 | 24.0 | .03 | .08 | 2420 |
| TMEL-M1015007504 | M10 | 1.5 | 7.5 | 16.5 | 80 | 8 | 4 | 30.0 | .03 | .08 | 2750 |
| TMEL-M1217509504 | M12 | 1.75 | 9.5 | 19.3 | 105 | 10 | 4 | 36.0 | .03 | .08 | 3300 |
| TMEL-M1420010004 | M14 | 2 | 10 | 24.0 | 105 | 10 | 4 | 42.0 | .03 | .08 | 3300 |
| TMEL-M1620012005 | M16 | 2 | 12 | 26.0 | 105 | 12 | 5 | 48.0 | .03 | .08 | 3960 |

## TMCEL - Thread Mill.ISO.1.5D Coolant
## ISO 螺紋銑刀/有效/內冷

ZrN-A nACRo 切削條件表 P201 Cutting Condition



ISO R262（DIN13）/6H

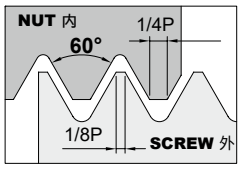




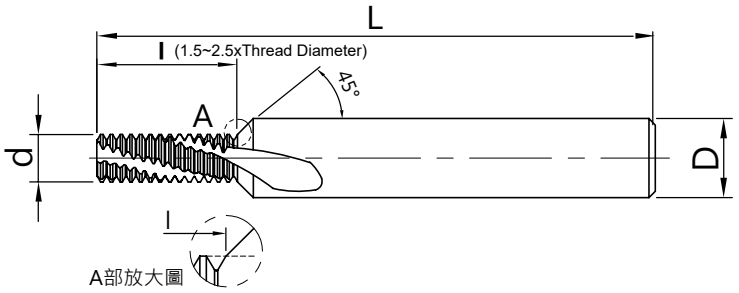

| MODE | Thread Diameter | Pitch | Diameter | Thread Length | Full Length | Shank Diameter | No. of flutes | Effective Length | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | M 螺紋 | mm 螺距 | d 刃徑 | l 螺紋長度 | L 全長 | D 柄徑 | z 刃數 | L2 有效長度 | ZrN-A | nACRo | 最低售價 |
| TMCEL-M0610004503 | M6 | 1 | 4.5 | 10.0 | 65 | 6 | 3 | 18.0 | .03 | .08 | 2500 |
| TMCEL-M0812506004 | M8 | 1.25 | 6 | 13.8 | 65 | 6 | 4 | 24.0 | .03 | .08 | 2500 |
| TMCEL-M1015007504 | M10 | 1.5 | 7.5 | 16.5 | 80 | 8 | 4 | 30.0 | .03 | .08 | 2900 |
| TMCEL-M1217509504 | M12 | 1.75 | 9.5 | 19.3 | 105 | 10 | 4 | 36.0 | .03 | .08 | 3400 |
| TMCEL-M1420010004 | M14 | 2 | 10 | 24.0 | 105 | 10 | 4 | 42.0 | .03 | .08 | 3400 |
| TMCEL-M1620012005 | M16 | 2 | 12 | 26.0 | 105 | 12 | 5 | 48.0 | .03 | .08 | 4100 |

# TMCH - Thread Mill.ISO.1.5D/2D/2.5D Chamfer
# ISO 螺紋銑刀/倒角

ZrN-A nACRo 切削條件表 P201 Cutting Condition



ISO R262（DIN13）/6H



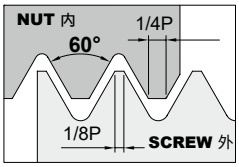



| MODE | Thread Diameter | Pitch | Diameter | Thread Length | Full Length | Shank Diameter | No. of flutes | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | M 螺紋 | mm 螺距 | d 刃徑 | l 螺紋長度 | L 全長 | D 柄徑 | z 刃數 | ZrN-A | nACRo | 最低售價 |
| TMCH45-M0305002303(TL5.25) | M3 (1.5xD) | 0.5 | 2.3 | 5.25 | 65 | 6 | 3 | .03 | .08 | 2530 |
| TMCH45-M0305002303(TL6.75) | M3 (2xD) | 0.5 | 2.3 | 6.75 | 65 | 6 | 3 | .03 | .08 | 2640 |
| TMCH45-M0407003103(TL7.35) | M4 (1.5xD) | 0.7 | 3.1 | 7.35 | 65 | 6 | 3 | .03 | .08 | 2530 |
| TMCH45-M0407003103(TL8.75) | M4 (2xD) | 0.7 | 3.1 | 8.75 | 65 | 6 | 3 | .03 | .08 | 2640 |
| TMCH45-M0508003803(TL8.4) | M5 (1.5xD) | 0.8 | 3.8 | 8.40 | 65 | 6 | 3 | .03 | .08 | 2530 |
| TMCH45-M0508003803(TL10.8) | M5 (2xD) | 0.8 | 3.8 | 10.80 | 65 | 6 | 3 | .03 | .08 | 2640 |
| TMCH45-M0610004503(TL10.5) | M6 (1.5xD) | 1 | 4.5 | 10.50 | 80 | 8 | 3 | .03 | .08 | 2970 |
| TMCH45-M0610004503(TL13.5) | M6 (2xD) | 1 | 4.5 | 13.50 | 80 | 8 | 3 | .03 | .08 | 3190 |
| TMCH45-M0610004503(TL16.5) | M6 (2.5xD) | 1 | 4.5 | 16.50 | 80 | 8 | 3 | .03 | .08 | 3300 |
| TMCH45-M0812506004(TL14.38) | M8 (1.5xD) | 1.25 | 6 | 14.38 | 80 | 10 | 4 | .03 | .08 | 3080 |
| TMCH45-M0812506004(TL18.13) | M8 (2xD) | 1.25 | 6 | 18.13 | 80 | 10 | 4 | .03 | .08 | 3190 |
| TMCH45-M0812506004(TL21.88) | M8 (2.5xD) | 1.25 | 6 | 21.88 | 80 | 10 | 4 | .03 | .08 | 3300 |
| TMCH45-M1015007504(TL17.25) | M10 (1.5xD) | 1.5 | 7.5 | 17.25 | 105 | 12 | 4 | .03 | .08 | 3520 |
| TMCH45-M1015007504(TL21.75) | M10 (2xD) | 1.5 | 7.5 | 21.75 | 105 | 12 | 4 | .03 | .08 | 3630 |
| TMCH45-M1015007504(TL27.75) | M10 (2.5xD) | 1.5 | 7.5 | 27.75 | 105 | 12 | 4 | .03 | .08 | 3850 |
| TMCH45-M1217509504(TL20.13) | M12 (1.5xD) | 1.75 | 9.5 | 20.13 | 105 | 14 | 4 | .03 | .08 | 4180 |
| TMCH45-M1217509504(TL27.13) | M12 (2xD) | 1.75 | 9.5 | 27.13 | 105 | 14 | 4 | .03 | .08 | 4400 |
| TMCH45-M1217509504(TL32.38) | M12 (2.5xD) | 1.75 | 9.5 | 32.38 | 105 | 14 | 4 | .03 | .08 | 4620 |

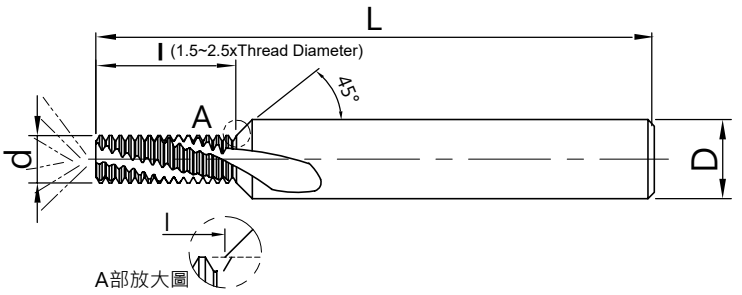

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## TMCHC - Thread Mill.ISO.1.5D/2D/2.5D Chamfer Coolant
## ISO 螺紋銑刀/倒角/內冷

ZrN-A nACRo 切削條件表 P201 Cutting Condition



ISO R262（DIN13）/6H

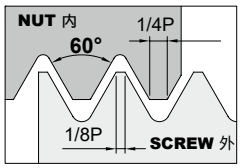




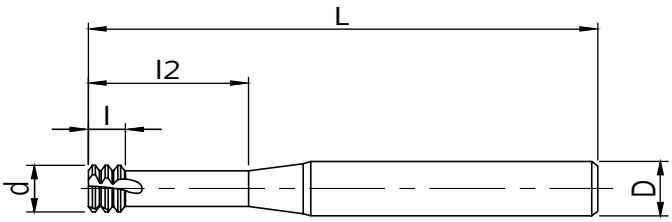

| MODE | Thread Diameter | Pitch | Diameter | Thread Length | Full Length | Shank Diameter | No. of flutes | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | M 螺紋 | mm 螺距 | d 刃徑 | l 螺紋長度 | L 全長 | D 柄徑 | z 刃數 | ZrN-A | nACRo | 最低售價 |
| TMCHC45-M0508003803(TL8.4) | M5 (1.5xD) | 0.8 | 3.8 | 8.40 | 65 | 6 | 3 | .03 | .08 | 2970 |
| TMCHC45-M0508003803(TL10.8) | M5 (2xD) | 0.8 | 3.8 | 10.80 | 65 | 6 | 3 | .03 | .08 | 3080 |
| TMCHC45-M0610004503(TL10.5) | M6 (1.5xD) | 1 | 4.5 | 10.50 | 80 | 8 | 3 | .03 | .08 | 3520 |
| TMCHC45-M0610004503(TL13.5) | M6 (2xD) | 1 | 4.5 | 13.50 | 80 | 8 | 3 | .03 | .08 | 3630 |
| TMCHC45-M0610004503(TL16.5) | M6 (2.5xD) | 1 | 4.5 | 16.50 | 80 | 8 | 3 | .03 | .08 | 3740 |
| TMCHC45-M0812506004(TL14.38) | M8 (1.5xD) | 1.25 | 6 | 14.38 | 80 | 10 | 4 | .03 | .08 | 3520 |
| TMCHC45-M0812506004(TL18.13) | M8 (2xD) | 1.25 | 6 | 18.13 | 80 | 10 | 4 | .03 | .08 | 3630 |
| TMCHC45-M0812506004(TL21.88) | M8 (2.5xD) | 1.25 | 6 | 21.88 | 80 | 10 | 4 | .03 | .08 | 3850 |
| TMCHC45-M1015007504(TL17.25) | M10 (1.5xD) | 1.5 | 7.5 | 17.25 | 105 | 12 | 4 | .03 | .08 | 4070 |
| TMCHC45-M1015007504(TL21.75) | M10 (2xD) | 1.5 | 7.5 | 21.75 | 105 | 12 | 4 | .03 | .08 | 4290 |
| TMCHC45-M1015007504(TL27.75) | M10 (2.5xD) | 1.5 | 7.5 | 27.75 | 105 | 12 | 4 | .03 | .08 | 4400 |
| TMCHC45-M1217509504(TL20.13) | M12 (1.5xD) | 1.75 | 9.5 | 20.13 | 105 | 14 | 4 | .03 | .08 | 4840 |
| TMCHC45-M1217509504(TL27.13) | M12 (2xD) | 1.75 | 9.5 | 27.13 | 105 | 14 | 4 | .03 | .08 | 5060 |
| TMCHC45-M1217509504(TL32.38) | M12 (2.5xD) | 1.75 | 9.5 | 32.38 | 105 | 14 | 4 | .03 | .08 | 5280 |

# TM3ZT - 3 Pitch Thread Mill.ISO.
# ISO 3牙式螺紋銑刀

ZrN-A nACRo 切削條件表 P202 Cutting Condition



ISO R262（DIN13）/6H



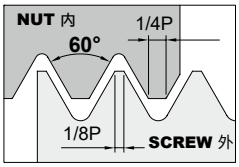



| MODE | Thread Diameter | Pitch | Diameter | Thread Length | Full Length | Shank Diameter | No. of flutes | Effective Lengh | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | M 螺紋 | mm 螺距 | d 刃徑 | l 螺紋長度 | L 全長 | D 柄徑 | z 刃數 | L2 有效長度 | ZrN-A | nACRo | 最低售價 |
| TM3ZT-M01603501203(EL3.2) | M1.6 | 0.35 | 1.2 | 1.05 | 50 | 4 | 3 | 3.2 | .03 | .08 | 1400 |
| TM3ZT-M01603501203(EL4.8) | M1.6 | 0.35 | 1.2 | 1.05 | 50 | 4 | 3 | 4.8 | .03 | .08 | 1420 |
| TM3ZT-M02004001523(EL4) | M2 | 0.4 | 1.52 | 1.20 | 50 | 4 | 3 | 4.0 | .03 | .08 | 1350 |
| TM3ZT-M02004001523(EL6) | M2 | 0.4 | 1.52 | 1.20 | 50 | 4 | 3 | 6.0 | .03 | .08 | 1260 |
| TM3ZT-M02204501603(EL4.4) | M2.2 | 0.45 | 1.6 | 1.35 | 50 | 4 | 3 | 4.4 | .03 | .08 | 1220 |
| TM3ZT-M02204501603(EL6.6) | M2.2 | 0.45 | 1.6 | 1.35 | 50 | 4 | 3 | 6.6 | .03 | .08 | 1260 |
| TM3ZT-M02504501903(EL5) | M2.5 | 0.45 | 1.9 | 1.35 | 50 | 4 | 3 | 5.0 | .03 | .08 | 1220 |
| TM3ZT-M02504501903(EL7.5) | M2.5 | 0.45 | 1.9 | 1.35 | 50 | 4 | 3 | 7.5 | .03 | .08 | 1260 |
| TM3ZT-M03005002303(EL6) | M3 | 0.5 | 2.3 | 1.50 | 50 | 4 | 3 | 6.0 | .03 | .08 | 1260 |
| TM3ZT-M03005002303(EL9) | M3 | 0.5 | 2.3 | 1.50 | 50 | 4 | 3 | 9.0 | .03 | .08 | 1300 |
| TM3ZT-M04007003103(EL8) | M4 | 0.7 | 3.1 | 2.10 | 50 | 4 | 3 | 8.0 | .03 | .08 | 1290 |
| TM3ZT-M04007003103(EL12) | M4 | 0.7 | 3.1 | 2.10 | 50 | 4 | 3 | 12.0 | .03 | .08 | 1340 |
| TM3ZT-M05008003803(EL10) | M5 | 0.8 | 3.8 | 2.40 | 50 | 4 | 3 | 10.0 | .03 | .08 | 1320 |
| TM3ZT-M05008003803(EL15) | M5 | 0.8 | 3.8 | 2.40 | 50 | 4 | 3 | 15.0 | .03 | .08 | 1380 |
| TM3ZT-M06010004504(EL12) | M6 | 1 | 4.5 | 3.00 | 50 | 6 | 4 | 12.0 | .03 | .08 | 1520 |
| TM3ZT-M06010004504(EL18) | M6 | 1 | 4.5 | 3.00 | 60 | 6 | 4 | 18.0 | .03 | .08 | 1600 |
| TM3ZT-M08012506004(EL16) | M8 | 1.25 | 6 | 3.75 | 60 | 6 | 4 | 16.0 | .03 | .08 | 1520 |
| TM3ZT-M08012506004(EL24) | M8 | 1.25 | 6 | 3.75 | 60 | 6 | 4 | 24.0 | .03 | .08 | 1600 |
| TM3ZT-M10015007504(EL20) | M10 | 1.5 | 7.5 | 4.50 | 60 | 8 | 4 | 20.0 | .03 | .08 | 1880 |
| TM3ZT-M10015007504(EL30) | M10 | 1.5 | 7.5 | 4.50 | 75 | 8 | 4 | 30.0 | .03 | .08 | 1980 |
| TM3ZT-M12017509504(EL24) | M12 | 1.75 | 9.5 | 5.25 | 75 | 10 | 4 | 24.0 | .03 | .08 | 2120 |
| TM3ZT-M12017509504(EL36) | M12 | 1.75 | 9.5 | 5.25 | 100 | 10 | 4 | 36.0 | .03 | .08 | 2200 |

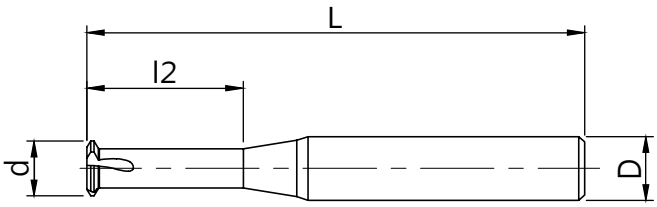

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## TMSM1ZT - 1 Pitch Miniature Thread Mill.ISO.
## ISO 單牙式微小徑螺紋銑刀

ZrN-A nACRo 切削條件表 P202 Cutting Condition



ISO R262（DIN13）/6H

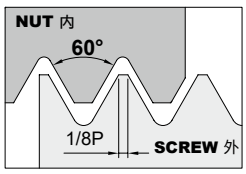


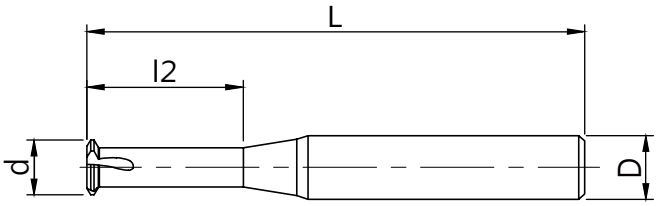



| MODE | Thread Diameter | Pitch | Diameter | Full Length | Shank Diameter | No. of flutes | Effective Length | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | M 螺紋 | mm 螺距 | d 刃徑 | L 全長 | D 柄徑 | z 刃數 | L2 有效長度 | ZrN-A | nACRo | 最低售價 |
| TMSM1ZT-M01002500723 | M1.0 | 0.25 | 0.72 | 50 | 4 | 3 | 3.1 | .03 | .08 | 1170 |
| TMSM1ZT-M01202500903 | M1.2 | 0.25 | 0.9 | 50 | 4 | 3 | 3.7 | .03 | .08 | 1170 |
| TMSM1ZT-M01403001053 | M1.4 | 0.3 | 1.05 | 50 | 4 | 3 | 4.3 | .03 | .08 | 1170 |
| TMSM1ZT-M01603501203 | M1.6 | 0.35 | 1.2 | 50 | 4 | 3 | 5.0 | .03 | .08 | 1120 |
| TMSM1ZT-M02004001523 | M2 | 0.4 | 1.52 | 50 | 4 | 3 | 6.2 | .03 | .08 | 1120 |
| TMSM1ZT-M02204501603 | M2.2 | 0.45 | 1.6 | 50 | 4 | 3 | 6.8 | .03 | .08 | 1120 |
| TMSM1ZT-M02504501903 | M2.5 | 0.45 | 1.9 | 50 | 4 | 3 | 7.8 | .03 | .08 | 1120 |
| TMSM1ZT-M03005002303 | M3 | 0.5 | 2.3 | 50 | 4 | 3 | 9.3 | .03 | .08 | 1120 |

## TMPA - Internal / External Thread Mill
## 通用款內外牙60度螺紋銑刀

ZrN-A nACRo 切削條件表 P202 Cutting Condition



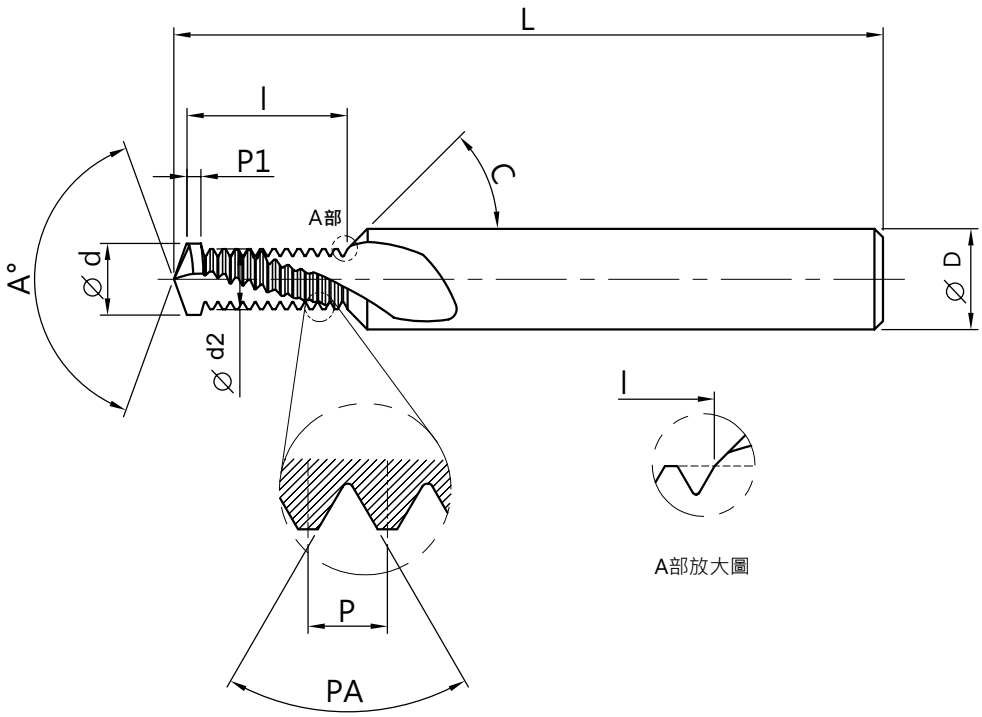



| MODE | Pitch | | Diameter | Thread Length | Full Length | Shank Diameter | No. of flutes | Effective Length | Coating | | List Price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 型號 | mm | TPI | d 刃徑 | l 螺紋長度 | L 全長 | D 柄徑 | z 刃數 | L2 有效長度 | ZrN-A | nACRo | 最低售價 |
| TMPA60-035-0600195003 | 0.35-0.6 | 72-40 | 1.95 | 0.75 | 50 | 4 | 3 | 6.0 | .03 | .08 | 860 |
| TMPA60-050-0770245003 | 0.5-0.8 | 48-32 | 2.45 | 0.75 | 50 | 4 | 3 | 7.7 | .03 | .08 | 860 |
| TMPA60-050-1000315003 | 0.5-0.8 | 48-32 | 3.15 | 0.90 | 50 | 4 | 3 | 10.0 | .03 | .08 | 860 |
| TMPA60-050-1200400003 | 0.5-1.0 | 48-24 | 4 | 1.05 | 50 | 4 | 3 | 12.0 | .03 | .08 | 860 |
| TMPA60-050-1500470004 | 0.5-1.25 | 48-20 | 4.7 | 1.05 | 60 | 6 | 4 | 15.0 | .03 | .08 | 990 |
| TMPA60-050-1800600004 | 0.5-1.25 | 48-20 | 6 | 1.20 | 60 | 6 | 4 | 18.0 | .03 | .08 | 1060 |
| TMPA60-075-2400800004 | 0.75-1.5 | 32-16 | 8 | 1.20 | 60 | 8 | 4 | 24.0 | .03 | .08 | 1210 |
| TMPA60-100-3001000005 | 1.0-2.5 | 24-10 | 10 | 1.35 | 75 | 10 | 5 | 30.0 | .03 | .08 | 1540 |
| TMPA60-100-3601200005 | 1.0-2.5 | 24-10 | 12 | 1.35 | 100 | 12 | 5 | 36.0 | .03 | .08 | 1870 |

## TMCHD - 2 Flutes Drill Thread Mill for Internal Threads
## 2刃鑽+銑+倒角多工能螺紋銑刀

**訂製款**
**Customized**






D = _____ C = _____

L = _____ l = _____

P = _____ P1 = _____

d = _____ d2 = _____

A = _____ PA = _____

M = _____
（螺紋尺寸）

Application 適用材質：

◎ Excellent 適合　○ Good 佳

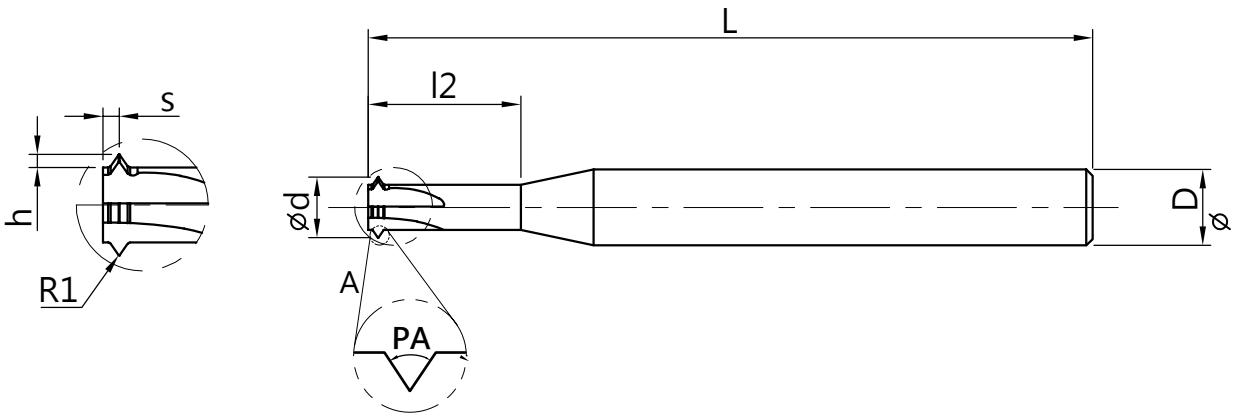
| Carbon steel, Alloy steel 炭素鋼 , 合金鋼 | Pre-harden steel 預硬鋼 | High-hardened 高硬度鋼 | | | | Stainless steel 不鏽鋼 | Cast iron 鑄鐵 | Copper alloy 銅合金 , 銅 | Aluminum alloy 鋁合金 | Titanium alloy 鈦合金 | Nickel/Inconel alloy 鎳基合金 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | ~45HRC | ~50HRC | ~55HRC |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



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## TMFP - High Accuracy Full Profile Thread Mill
## 高精度全牙式螺紋銑刀

**訂製款**
**Customized**






D = _____ l2 = _____

L = _____ R1 = _____

S = _____ h = _____

d = _____ 刃數 = _____

PA = _____ M = _____ (螺紋尺寸)

☐ 無塗層 ☐ nACRo ☐ ZrN-A ☐ nACo

Application 適用材質：

◎ 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 | ○ | ○ | | | | | ◎ | | | ○ | ○ | ○ |
| nACo | | ◎ | ◎ | ◎ | ◎ | ○ | | | | | | |

TSTE/TTE 產品規格表 P18 Specification page
MSE/SE 產品規格表 P56 Specification page
P-SSE/P-MSE/P-SE 產品規格表 P65 Specification page

## TSTE/TTE/MSE/SE/P-SSE/P-MSE/P-SE 2 Flutes Slotting
## TSTE/TTE/MSE/SE/P-SSE/P-MSE/P-SE 2 刃溝銑

| WORK MATERIAL 被切削材 | COPPER, COPPER ALLOY 銅、鋁合金 | | MILD STEELS, CARBON STEELS, SS400、S55C、FC250、NAK55 一般構造用鋼、碳素鋼 | | HARDENED STEELS, PREHARDENED STEELS, STAINLESS STEELS SKT、SKD61、NAK80、HPM1、DH 調質鋼、預硬鋼、不鏽鋼 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | ~32HRC | | 33~41HRC | | 42~50HRC | |
| MILL DIA. (mm) 直徑 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 |
| 1 | 47,500 | 280 | 17,500 | 96 | 12,500 | 72 | 11,000 | 52 |
| 1.5 | 32,000 | 256 | 12,500 | 96 | 8,900 | 72 | 7,900 | 52 |
| 2 | 24,000 | 248 | 9,700 | 104 | 7,000 | 72 | 6,300 | 56 |
| 2.5 | 20,000 | 280 | 8,200 | 128 | 6,100 | 72 | 5,300 | 56 |
| 3 | 16,000 | 320 | 6,900 | 136 | 5,300 | 80 | 4,400 | 60 |
| 3.5 | 14,000 | 336 | 6,000 | 152 | 4,600 | 96 | 3,800 | 64 |
| 4 | 12,000 | 360 | 5,400 | 168 | 4,200 | 100 | 3,500 | 72 |
| 4.5 | 10,500 | 400 | 5,100 | 192 | 3,900 | 104 | 3,200 | 76 |
| 5 | 9,500 | 432 | 4,800 | 216 | 3,500 | 104 | 3,000 | 80 |
| 5.5 | 8,800 | 432 | 4,400 | 216 | 3,200 | 104 | 2,700 | 80 |
| 6 | 7,900 | 424 | 4,000 | 216 | 2,900 | 104 | 2,500 | 80 |
| 6.5 | 7,500 | 424 | 3,700 | 216 | 2,700 | 104 | 2,300 | 80 |
| 7 | 6,900 | 424 | 3,400 | 216 | 2,500 | 104 | 2,100 | 80 |
| 7.5 | 6,400 | 424 | 3,200 | 216 | 2,300 | 104 | 2,000 | 80 |
| 8 | 5,900 | 416 | 3,000 | 208 | 2,200 | 100 | 1,900 | 80 |
| 8.5 | 5,600 | 416 | 2,800 | 208 | 2,000 | 100 | 1,700 | 80 |
| 9 | 5,300 | 408 | 2,600 | 208 | 1,900 | 100 | 1,500 | 80 |
| 9.5 | 5,100 | 408 | 2,500 | 208 | 1,800 | 100 | 1,400 | 76 |
| 10 | 4,700 | 400 | 2,400 | 200 | 1,700 | 100 | 1,500 | 76 |
| 11 | 4,400 | 400 | 2,200 | 200 | 1,600 | 100 | 1,100 | 76 |
| 12 | 4,000 | 408 | 2,000 | 200 | 1,400 | 100 | 1,200 | 76 |
| 16 | 3,000 | 320 | 1,500 | 160 | 1,100 | 92 | 800 | 64 |
| 18 | 2,700 | 288 | 1,300 | 144 | 900 | 80 | 700 | 56 |
| 20 | 2,400 | 240 | 1,200 | 120 | 800 | 72 | 600 | 48 |

DEPTH OF CUT 加工深度





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TSTE/TTE 產品規格表 P20 Specification page
DE 產品規格表 P42-44 Specification page
DH+ 產品規格表 P48-49 Specification page
P-SSE/P-MSE/P-SE 產品規格表 P66 Specification page
DH 產品規格表 P56 Specification page

## TSTE/TTE/DE/DH+/DH/P-SSE/P-MSE/P-SE 4 Flutes Side Milling
## TSTE/TTE/DE/DH+/DH/P-SSE/P-MSE/P-SE 4 刃側銑

| WORK MATERIAL 被切削材  | MILD STEELS, CARBON STEELS, CAST IRON SS400、S55C、FC250 (~750N/mm²) 一般構造用鋼、碳素鋼、鑄鐵 | | ALLOY STEELS, TOOL STEELS SCM、SKT、SKS、SKD (~30HRC) 合金鋼、工具鋼 | | HARDENED STEELS, PREHARDENED STEELS SKT、SKD、NAK55、HPM1 (30~38HRC) 調質鋼、預硬鋼 | | STAINLESS STEELS, HARDENED STEELS SUS304、SKD (38~45HRC)不鏽鋼、調質鋼 | | HARDENED STEELS, TITANIUM ALLOY STEELS (45~55HRC) 調質鋼、鈦合金 | | HEAT RESISTANT ALLOY STEELS INCONEL 耐熱合金鋼、高鎳合金 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILL DIA. (mm) 直徑 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 |
| 3 | 12,500 | 880 | 9,550 | 672 | 8,100 | 500 | 7,650 | 492 | 7,400 | 436 | 3,800 | 176 |
| 4 | 9,750 | 960 | 7,550 | 788 | 6,400 | 544 | 6,050 | 568 | 5,850 | 504 | 3,000 | 192 |
| 5 | 7,950 | 1,040 | 6,150 | 840 | 5,250 | 580 | 4,950 | 620 | 4,800 | 536 | 2,450 | 196 |
| 6 | 6,750 | 1,280 | 5,250 | 960 | 4,450 | 712 | 4,200 | 668 | 4,050 | 556 | 2,100 | 200 |
| 8 | 5,050 | 1,240 | 3,950 | 880 | 3,350 | 652 | 3,150 | 648 | 3,050 | 540 | 1,600 | 180 |
| 10 | 4,100 | 1,160 | 3,200 | 840 | 2,700 | 580 | 2,550 | 572 | 2,450 | 508 | 1,250 | 172 |
| 12 | 3,400 | 1,120 | 2,650 | 800 | 2,250 | 576 | 2,100 | 540 | 2,050 | 484 | 1,050 | 168 |
| 16 | 2,550 | 960 | 2,000 | 752 | 1,700 | 508 | 1,600 | 444 | 1,550 | 404 | 765 | 168 |
| 20 | 2,050 | 788 | 1,600 | 604 | 1,350 | 472 | 1,250 | 412 | 1,250 | 368 | 635 | 160 |
| 25 | 1,650 | 704 | 1,250 | 540 | 1,100 | 428 | 1,000 | 388 | 990 | 316 | 510 | 148 |

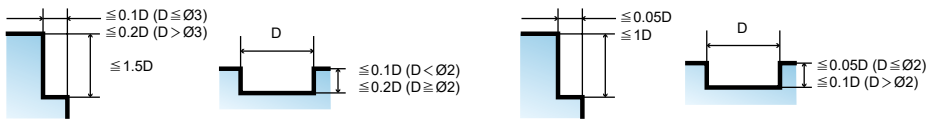
DEPTH OF CUT 加工深度




## TSTE/TTE/DE/DH+/DH/P-SSE/P-MSE/P-SE 4 Flutes Slotting
## TSTE/TTE/DE/DH+/DH/P-SSE/P-MSE/P-SE 4 刃溝銑

| WORK MATERIAL 被切削材  | MILD STEELS, CARBON STEELS, CAST IRON SS400、S55C、FC250 (~750N/mm²) 一般構造用鋼、碳素鋼、鑄鐵 | | ALLOY STEELS, TOOL STEELS SCM、SKT、SKS、SKD(~30HRC) 合金鋼、工具鋼 | | HARDENED STEELS, PREHARDENED STEELS SKT、SKD、NAK55、HPM1(30~38HRC) 調質鋼、預硬鋼 | | STAINLESS STEELS, HARDENED STEELS SUS304、SKD (38~45HRC)不鏽鋼、調質鋼 | | HARDENED STEELS, TITANIUM ALLOY STEELS (45~55HRC) 調質鋼、鈦合金 | | HEAT RESISTANT ALLOY STEELS INCONEL 耐熱合金鋼、高鎳合金 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILL DIA. (mm) 直徑 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 |
| 3 | 10,500 | 584 | 8,550 | 544 | 7,850 | 416 | 7,450 | 368 | 7,200 | 352 | 2,500 | 100 |
| 4 | 7,750 | 584 | 6,400 | 620 | 5,900 | 416 | 5,550 | 412 | 5,400 | 396 | 1,900 | 108 |
| 5 | 6,200 | 588 | 5,100 | 604 | 4,700 | 436 | 4,450 | 436 | 4,300 | 428 | 1,500 | 116 |
| 6 | 5,150 | 592 | 4,250 | 508 | 3,950 | 460 | 3,700 | 456 | 3,600 | 436 | 1,250 | 116 |
| 8 | 3,850 | 480 | 3,200 | 440 | 2,950 | 440 | 2,800 | 420 | 2,700 | 408 | 945 | 124 |
| 10 | 3,100 | 464 | 2,550 | 432 | 2,350 | 384 | 2,250 | 380 | 2,150 | 364 | 760 | 116 |
| 12 | 2,600 | 448 | 2,150 | 380 | 1,950 | 368 | 1,850 | 352 | 1,800 | 348 | 630 | 116 |
| 16 | 1,950 | 444 | 1,600 | 344 | 1,500 | 296 | 1,400 | 296 | 1,350 | 292 | 475 | 88 |
| 20 | 1,550 | 380 | 1,300 | 304 | 1,200 | 284 | 1,100 | 264 | 1,100 | 264 | 380 | 88 |
| 25 | 1,250 | 360 | 1,000 | 292 | 945 | 252 | 890 | 228 | 865 | 188 | 300 | 84 |

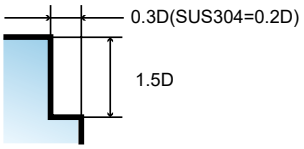
DEPTH OF CUT 加工深度

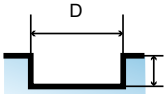


## TSTE/TTE 3 Flutes Slotting
## TSTE/TTE 3刃 溝銑

| WORK MATERIAL 被切削材 | COPPER, ALUMINUM ALLOY 銅、鋁合金 | | MILD STEELS, CARBON STEELS, SS400、S55C、FC250、NAK55 一般構造用鋼、碳素鋼 | | HARDENED STEELS, PREHARDENED STEELS, STAINLESS STEELS SKT、SKD61、NAK80、HPM1、DH 調質鋼、預硬鋼、不鏽鋼 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | ~32HRC | | HRC33~41 | | HRC42~50 | |
| 直徑 MILL DIA. (mm) | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 |
| 1 | 47,500 | 420 | 17,500 | 144 | 12,500 | 108 | 11,000 | 78 |
| 1.5 | 32,000 | 384 | 12,500 | 144 | 8,900 | 108 | 7,900 | 78 |
| 2 | 24,000 | 372 | 9,700 | 156 | 7,000 | 108 | 6,300 | 84 |
| 2.5 | 20,000 | 420 | 8,200 | 192 | 6,100 | 108 | 5,300 | 84 |
| 3 | 16,000 | 480 | 6,900 | 204 | 5,300 | 120 | 4,400 | 90 |
| 3.5 | 14,000 | 504 | 6,000 | 228 | 4,600 | 144 | 3,800 | 96 |
| 4 | 12,000 | 540 | 5,400 | 252 | 4,200 | 150 | 3,500 | 108 |
| 4.5 | 10,500 | 600 | 5,100 | 288 | 3,900 | 156 | 3,200 | 114 |
| 5 | 9,500 | 648 | 4,800 | 324 | 3,500 | 156 | 3,000 | 120 |
| 5.5 | 8,800 | 648 | 4,400 | 324 | 3,200 | 156 | 2,700 | 120 |
| 6 | 7,900 | 636 | 4,000 | 324 | 2,900 | 156 | 2,500 | 120 |
| 6.5 | 7,500 | 636 | 3,700 | 324 | 2,700 | 156 | 2,300 | 120 |
| 7 | 6,900 | 636 | 3,400 | 324 | 2,500 | 156 | 2,100 | 120 |
| 7.5 | 6,400 | 636 | 3,200 | 324 | 2,300 | 156 | 2,000 | 120 |
| 8 | 5,900 | 624 | 3,000 | 312 | 2,200 | 150 | 1,900 | 120 |
| 8.5 | 5,600 | 624 | 2,800 | 312 | 2,000 | 150 | 1,700 | 120 |
| 9 | 5,300 | 612 | 2,600 | 312 | 1,900 | 150 | 1,500 | 120 |
| 9.5 | 5,100 | 612 | 2,500 | 312 | 1,800 | 150 | 1,400 | 114 |
| 10 | 4,700 | 600 | 2,400 | 300 | 1,700 | 150 | 1,500 | 114 |
| 11 | 4,400 | 600 | 2,200 | 300 | 1,600 | 150 | 1,100 | 114 |
| 12 | 4,000 | 612 | 2,000 | 300 | 1,400 | 150 | 1,200 | 114 |
| 16 | 3,000 | 480 | 1,500 | 240 | 1,100 | 138 | 800 | 96 |
| 18 | 2,700 | 432 | 1,300 | 216 | 900 | 120 | 700 | 84 |
| 20 | 2,400 | 360 | 1,200 | 180 | 800 | 108 | 600 | 72 |

DEPTH OF CUT 加工深度



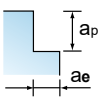




Ø1~2.5=0.5D
Ø3~12=1D
(SKD, SCM=0.5D)


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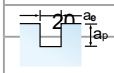
TSEE/TEE 產品規格表 P21 Specification page
EE/EES 產品規格表 P37-38 Specification page

## TSEE 3 Flutes/EE 4 Flutes Side Milling : HPC- Roughing, HSC- Finishing
## TSEE 3 刃/EE 4 刃側銑 : HPC - 粗銑 、 HSC - 精修

| Work Material 被削材 | SS400. AISI 1050. SCM等 一般構造鋼.碳素鋼. NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS | | AISI H13. AISI D2等 合金鋼.工具鋼 調質鋼 ALLOY STEELS HEAT RESISTANT STEELS | | AISI 304 AISI 316等 沃斯田鐵、麻田散鐵系 系列不銹鋼 STAINLESS STEELS | | 鑄鐵、球狀石墨鑄鐵 可延展性鑄鐵 FC250等 CAST IRON | | 鋁鎂合金 鋁及鋁合金 | | 特殊合金、鈦及鈦合金 TITANUM ALLOYS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HARDNESS 硬度 | ~30HRC | | 30~45HRC | | ~40HRC | | ≧240HB | | | | | |
| STRENGTH 抗拉強度 | ~1000 N/mm² | | 1000~1500 N/mm² | | ~950N/mm² | | | | | | 1300N/mm² | |
| Cutting Type 切削條件 | Roughing | Finishing | Roughing | Finishing | Roughing | Finishing | Roughing | Finishing | Roughing | Finishing | Roughing | Finishing |
| Vc | 260~315 | 415~490 | 235 | 315 | 100~150 | 145~200 | 170 | 270 | 400~540 | 610~900 | 100 | 115 |
| Diameter 直徑(mm) | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | |
| 3 | 0.015 | 0.013 | 0.013 | 0.011 | 0.013 | 0.011 | 0.015 | 0.013 | 0.018 | 0.017 | 0.012 | 0.010 |
| 4 | 0.020 | 0.017 | 0.017 | 0.014 | 0.018 | 0.014 | 0.020 | 0.018 | 0.024 | 0.022 | 0.016 | 0.013 |
| 5 | 0.025 | 0.021 | 0.021 | 0.018 | 0.022 | 0.018 | 0.025 | 0.022 | 0.030 | 0.028 | 0.020 | 0.017 |
| 6 | 0.030 | 0.025 | 0.025 | 0.022 | 0.026 | 0.021 | 0.030 | 0.026 | 0.036 | 0.033 | 0.023 | 0.020 |
| 7 | 0.035 | 0.029 | 0.029 | 0.025 | 0.031 | 0.025 | 0.035 | 0.031 | 0.042 | 0.039 | 0.027 | 0.023 |
| 8 | 0.040 | 0.034 | 0.034 | 0.029 | 0.035 | 0.028 | 0.040 | 0.035 | 0.048 | 0.044 | 0.031 | 0.026 |
| 9 | 0.055 | 0.048 | 0.051 | 0.043 | 0.051 | 0.040 | 0.055 | 0.048 | 0.067 | 0.059 | 0.045 | 0.038 |
| 10 | 0.060 | 0.053 | 0.057 | 0.048 | 0.057 | 0.044 | 0.061 | 0.053 | 0.074 | 0.066 | 0.050 | 0.042 |
| 12 | 0.072 | 0.064 | 0.068 | 0.058 | 0.068 | 0.053 | 0.073 | 0.064 | 0.089 | 0.079 | 0.060 | 0.050 |
| 14 | 0.084 | 0.074 | 0.080 | 0.067 | 0.080 | 0.062 | 0.085 | 0.074 | 0.104 | 0.092 | 0.070 | 0.059 |
| 16 | 0.096 | 0.085 | 0.091 | 0.077 | 0.091 | 0.070 | 0.098 | 0.085 | 0.118 | 0.106 | 0.080 | 0.067 |
| 20 | 0.120 | 0.106 | 0.114 | 0.096 | 0.114 | 0.088 | 0.122 | 0.106 | 0.148 | 0.132 | 0.100 | 0.084 |
|  | Ae: ≦0.4 D<br>Ap: ≦1.5 D | Ae: ≦0.02 D<br>Ap: ≦2.0 D | Ae: ≦0.32D<br>Ap: ≦1.5 D | Ae: ≦0.02D<br>Ap: ≦2.0 D | Ae: ≦0.28D<br>Ap: ≦1.5 D | Ae: ≦0.02D<br>Ap: ≦1.5 D | Ae: ≦0.4D<br>Ap: ≦1.5 D | Ae: ≦0.02D<br>Ap: ≦1.5 D | Ae: ≦0.4D<br>Ap: ≦1.5 D | Ae: ≦0.02D<br>Ap: ≦1.5 D | Ae: ≦0.32D<br>Ap:≦ 1.5 D | Ae: ≦0.02D<br>Ap: ≦1.5 D |

## TSEE 3 Flutes/EE 4 Flutes Slotting, Drilling, Ramping, Helix, Grooving
## TSEE 3 刃/EE 4刃槽銑、孔加工、斜進加工

TSEE/TEE 產品規格表 P21 Specification page
EE/EES 產品規格表 P37-38 Specification page

| Work Material 被削材 | SS400. AISI 1050. SCM等 一般構造鋼.碳素鋼. NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS | | AISI H13. AISI D2等 合金鋼.工具鋼 調質鋼 ALLOY STEELS HEAT RESISTANT STEELS | | AISI 304 AISI 316等 沃斯田鐵、麻田 散鐵系 系列不銹鋼 STAINLESS STEELS | | 鑄鐵、球狀石墨鑄鐵 可延展性鑄鐵 FC250 等 CAST IRON | | 鋁鎂合金 鋁及鋁合金 | | 特殊合金、 鈦及鈦合金 TITANUM ALLOYS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HARDNESS 硬度 | ~30HRC | | 30~45HRC | | ~40HRC | | ≧240HB | | | | | |
| STRENGTH 抗拉强度 | ~1000 N/mm² | | 1000~1500 N/mm² | | ~950N/mm² | | | | | | 1300N/mm² | |
| Cutting Type 切削條件 | Slotting | Ramping, Helix, Grooving | Slotting | Ramping, Helix, Grooving | Slotting | Ramping, Helix, Grooving | Slotting | Ramping, Helix, Grooving | Slotting | Ramping, Helix, Grooving | Slotting | Ramping, Helix, Grooving |
| Ramping max. angle 斜向銑削角度 | | 45° | | 30° ~45° | | 5° ~10° | | 45° | | 30° ~45° | | 10° |
| Vc | 205~245 | | 160 | | 70~100 | | 135 | | 300~450 | | 55 | |
| Diameter 直徑(mm) | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | |
| 3 | 0.012 | 0.010 | 0.010 | 0.008 | 0.010 | 0.005 | 0.012 | 0.011 | 0.015 | 0.011 | 0.009 | 0.005 |
| 4 | 0.016 | 0.013 | 0.013 | 0.010 | 0.013 | 0.007 | 0.016 | 0.014 | 0.020 | 0.014 | 0.012 | 0.006 |
| 5 | 0.020 | 0.016 | 0.017 | 0.013 | 0.017 | 0.009 | 0.020 | 0.018 | 0.025 | 0.018 | 0.015 | 0.008 |
| 6 | 0.023 | 0.019 | 0.020 | 0.015 | 0.020 | 0.010 | 0.024 | 0.021 | 0.030 | 0.021 | 0.018 | 0.009 |
| 7 | 0.027 | 0.022 | 0.023 | 0.018 | 0.023 | 0.012 | 0.028 | 0.025 | 0.035 | 0.025 | 0.021 | 0.011 |
| 8 | 0.031 | 0.026 | 0.026 | 0.020 | 0.026 | 0.014 | 0.032 | 0.028 | 0.040 | 0.028 | 0.024 | 0.012 |
| 9 | 0.043 | 0.036 | 0.039 | 0.025 | 0.036 | 0.024 | 0.043 | 0.039 | 0.054 | 0.038 | 0.034 | 0.021 |
| 10 | 0.048 | 0.040 | 0.043 | 0.028 | 0.040 | 0.027 | 0.048 | 0.043 | 0.060 | 0.043 | 0.038 | 0.023 |
| 12 | 0.058 | 0.048 | 0.052 | 0.034 | 0.048 | 0.032 | 0.058 | 0.052 | 0.072 | 0.051 | 0.046 | 0.028 |
| 14 | 0.067 | 0.056 | 0.060 | 0.039 | 0.056 | 0.038 | 0.067 | 0.060 | 0.084 | 0.060 | 0.053 | 0.032 |
| 16 | 0.077 | 0.064 | 0.069 | 0.045 | 0.064 | 0.043 | 0.077 | 0.069 | 0.096 | 0.068 | 0.061 | 0.037 |
| 20  | 0.096 | 0.080 | 0.086 | 0.056 | 0.080 | 0.054 | 0.096 | 0.086 | 0.120 | 0.085 | 0.076 | 0.046 |
| | Ae: ≦1 .0 D Ap: ≦1.0 D | Ap: 1.0 D | Ae: ≦1 .0 D Ap: ≦1.0 D | Ap: 1.0 D | Ae: ≦1 .0 D Ap: ≦1.0 D | Ap: 1.0 D | Ae: ≦1 .0 D Ap: ≦1.0 D | Ap: 1.0 D | Ae: ≦1 .0 D Ap: ≦1.0 D | Ap: 1.0 D | Ae: ≦1 .0 D Ap: ≦1.0 D | Ap: 1.0 D |

## EE 4 Flutes Drilling
## EE 4刃孔加工

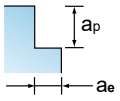
EE/EES 產品規格表 P37-38 Specification page

| Work Material 被削材 | SS400. AISI 1050. SCM等 一般構造鋼.碳素鋼. NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS | AISI H13. AISI D2等 合金鋼.工具鋼 調質鋼 ALLOY STEELS HEAT RESISTANT STEELS | 鑄鐵、球狀石墨鑄鐵 可延展性鑄鐵 FC250 等 CAST IRON | 鋁鎂合金 鋁及鋁合金 |
|---|---|---|---|---|
| HARDNESS | ~30HRC | 30~45HRC | ≧240HB | |
| STRENGTH | ~1000 N/mm² | 1000~1500 N/mm² | | |
| Vc | 205~245 | 160 | 135 | 300~450 |
| Diameter 直徑(mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 3 | 0.010 | 0.005 | 0.010 | 0.010 |
| 4 | 0.013 | 0.007 | 0.013 | 0.013 |
| 5 | 0.016 | 0.009 | 0.017 | 0.017 |
| 6 | 0.019 | 0.011 | 0.020 | 0.020 |
| 7 | 0.022 | 0.013 | 0.023 | 0.023 |
| 8 | 0.026 | 0.014 | 0.027 | 0.026 |
| 9 | 0.033 | 0.021 | 0.034 | 0.034 |
| 10 | 0.037 | 0.023 | 0.038 | 0.038 |
| 12 | 0.044 | 0.028 | 0.045 | 0.045 |
| 14 | 0.052 | 0.032 | 0.053 | 0.053 |
| 16 | 0.059 | 0.037 | 0.060 | 0.060 |
| 20 | 0.074 | 0.046 | 0.075 | 0.075 |
|  | Ap: ≦1.5 D | Ap: ≦1.0 D | Ae: ≦1 .0 D Ap: 1.0 D | Ae: ≦1 .0 D Ap: 1.0 D |

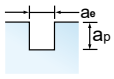

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TSUE/TUE 產品規格表 P22 Specification page
TSEE/TEE 產品規格表 P23 Specification page
TVE 產品規格表 P24 Specification page
SUS+/SUSL+ 產品規格表 P53 Specification page

## TSEE&TEE 5 Flutes/TVE 6 Flutes/TSUE&TUE /SUS+/SUSL+ 4 Flutes Side Milling
## TSEE&TEE 5 刃/TVE 6 刃/TSUE&TUE/SUS+/SUSL+ 4 刃 側銑

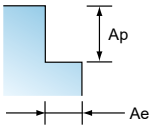
| Work Material 被削材 | SS400. AISI 1050. SCM等 一般構造鋼.碳素鋼. NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS | AISI H13. AISI D2等 合金鋼.工具鋼 調質鋼 ALLOY STEELS HEAT RESISTANT STEELS | AISI 304 AISI 316等 沃斯田鐵、麻田 散鐵系 系列不銹鋼 STAINLESS STEELS | 特殊合金、 鈦及鈦合金 TITANUM ALLOYS |
|---|---|---|---|---|
| HARDNESS 硬度 | ~30HRC | 30~45HRC | ~40HRC | |
| STRENGTH 抗拉强度 | ~1000 N/mm² | 1000~1500 N/mm² | ~950N/mm² | 1300N/mm² |
| Vc | 90~140 | 70~110 | 50~100 | 35~80 |
| Diameter 直徑(mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 3 | 0.015 | 0.013 | 0.013 | 0.012 |
| 4 | 0.020 | 0.017 | 0.018 | 0.016 |
| 5 | 0.025 | 0.021 | 0.022 | 0.020 |
| 6 | 0.030 | 0.025 | 0.026 | 0.023 |
| 7 | 0.035 | 0.029 | 0.031 | 0.027 |
| 8 | 0.040 | 0.034 | 0.035 | 0.031 |
| 9 | 0.055 | 0.051 | 0.051 | 0.045 |
| 10 | 0.060 | 0.057 | 0.057 | 0.050 |
| 12 | 0.072 | 0.068 | 0.068 | 0.060 |
| 14 | 0.084 | 0.080 | 0.080 | 0.070 |
| 16 | 0.096 | 0.091 | 0.091 | 0.080 |
| 20 | 0.120 | 0.114 | 0.114 | 0.100 |
|  | Ae: ≦0.2D Ap: ≦1.5 D | | | |

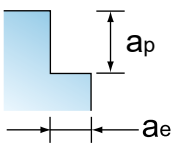
## TSUE/TUE /SUS+/SUSL+ Slot Milling
## TSUE/TUE /SUS+/SUSL+ 槽銑

| Work Material 被削材 | SS400. AISI 1050. SCM等 一般構造鋼.碳素鋼. NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS | AISI H13. AISI D2等 合金鋼.工具鋼 調質鋼 ALLOY STEELS HEAT RESISTANT STEELS | AISI 304 AISI 316等 沃斯田鐵、麻田 散鐵系 系列不銹鋼 STAINLESS STEELS | 特殊合金、 鈦及鈦合金 TITANUM ALLOYS |
|---|---|---|---|---|
| HARDNESS 硬度 | ~30HRC | 30~45HRC | ~40HRC | |
| STRENGTH 抗拉强度 | ~1000 N/mm² | 1000~1500 N/mm² | ~950N/mm² | 1300N/mm² |
| Cutting Type | Slotting | Slotting | Slotting | Slotting |
| Vc | 70~110 | 50~100 | 40~80 | 25~60 |
| Diameter 直徑(mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 3 | 0.012 | 0.010 | 0.010 | 0.009 |
| 4 | 0.016 | 0.013 | 0.013 | 0.012 |
| 5 | 0.020 | 0.017 | 0.017 | 0.015 |
| 6 | 0.023 | 0.020 | 0.020 | 0.018 |
| 7 | 0.027 | 0.023 | 0.023 | 0.021 |
| 8 | 0.031 | 0.026 | 0.026 | 0.024 |
| 9 | 0.043 | 0.039 | 0.036 | 0.034 |
| 10 | 0.048 | 0.043 | 0.040 | 0.038 |
| 12 | 0.058 | 0.052 | 0.048 | 0.046 |
| 14 | 0.067 | 0.060 | 0.056 | 0.053 |
| 16 | 0.077 | 0.069 | 0.064 | 0.061 |
| 20 | 0.096 | 0.086 | 0.080 | 0.076 |
|  | Ae: ≦1.0 D Ap: ≦1.0 D | | D≦6 Ap:0.5D D>6 Ap:1.0D | |

## TSAE/TAE 2 Flutes Series
## TSAE/TAE 2 刃 系列

TSAE/TAE
產 品 規格表 P25
Specification page

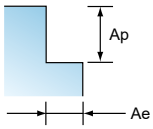
| Side Milling  | COPPER,COPPER ALLOY 銅，銅合金 | | Aluminum alloy expanding material A7075 Aluminum alloy casting<Sil 13% 鋁合金 | |
|---|---|---|---|---|
| Max Cutting Speed(V) 最大切削速度(V) | 140m/min | | 380m/min | |
| Diameter 直徑 (mm) | Speed 迴轉數 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉數 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) |
| 3 | 14,770 | 2,100 | 39,910 | 6,380 |
| 4 | 11,080 | 1,580 | 29,940 | 4,790 |
| 5 | 8,860 | 1,260 | 23,950 | 3,830 |
| 6 | 7,380 | 1,060 | 19,960 | 3,190 |
| 8 | 5,550 | 790 | 15,000 | 2,400 |
| 10 | 4,430 | 630 | 11,980 | 1,920 |
| 12 | 3,690 | 530 | 9,980 | 1,600 |
| 16 | 2,770 | 400 | 7,490 | 1,200 |
| 20 | 2,220 | 320 | 5,980 | 960 |
| 25 | 1,780 | 260 | 4,790 | 770 |
| Depth of cut | *Side milling（側銑）   Ap=1.0D Ae=0.5D | | | |
| | V線速度 | 140 | V線速度 | 380 |
| | Z刃數 | 2 | Z刃數 | 2 |
| | Fz | 0.07 | Fz | 0.08 |

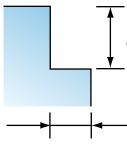
| Slotting  | COPPER,COPPER ALLOY 銅，銅合金 | | Aluminum alloy expanding material A7075 Aluminum alloy casting<Sil 13% 鋁合金 | |
|---|---|---|---|---|
| Max Cutting Speed(V) 最大切削速度(V) | 90m/min | | 310m/min | |
| Diameter 直徑 (mm) | Speed 迴轉數 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉數 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) |
| 3 | 9,740 | 700 | 32,910 | 2630 |
| 4 | 7,300 | 520 | 24,680 | 1970 |
| 5 | 5,850 | 420 | 19,750 | 1580 |
| 6 | 4,870 | 350 | 16,450 | 1320 |
| 8 | 3,660 | 260 | 12,340 | 990 |
| 10 | 2,960 | 210 | 9,870 | 790 |
| 12 | 2,440 | 180 | 8,230 | 660 |
| 16 | 1,820 | 130 | 6,170 | 490 |
| 20 | 1,460 | 100 | 4,940 | 400 |
| 25 | 1,170 | 90 | 3,950 | 320 |
| Depth of cut 切削基準量 (D=直徑Dia) |   Ap=1.0D Ae=1.0D | | | |
| | V線速度 | 90 | V線速度 | 310 |
| | Z刃數 | 2 | Z刃數 | 2 |
| | Fz | 0.04 | Fz | 0.04 |


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TSAE/TAE
產 品 規格表 P26
Specification page

## TSAE/TAE 3 Flutes Series
## TSAE/TAE 3 刃 系列

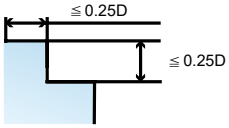
| Side Milling  | COPPER,COPPER ALLOY 銅，銅合金 | | Aluminum alloy expanding material A7075 Aluminum alloy casting<Sil 13% 鋁合金 | |
|---|---|---|---|---|
| Max Cutting Speed(V) 最大切削速度(V) | 140m/min | | 380m/min | |
| Diameter 直徑 (mm) | Speed 迴轉數 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉數 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) |
| 3 | 14,770 | 3,160 | 39,910 | 9,580 |
| 4 | 11,080 | 2,370 | 29,940 | 7,180 |
| 5 | 8,860 | 1,900 | 23,950 | 5,750 |
| 6 | 7,380 | 1,580 | 19,960 | 4,790 |
| 8 | 5,550 | 1,190 | 15,000 | 3,600 |
| 10 | 4,430 | 940 | 11,980 | 2,870 |
| 12 | 3,690 | 790 | 9,980 | 2,390 |
| 16 | 2,770 | 590 | 7,490 | 1,800 |
| 20 | 2,220 | 470 | 5,980 | 1,440 |
| 25 | 1,780 | 380 | 4,790 | 1,150 |
| Depth of cut | *Side milling（側銑）   Ap=1.0D Ae=0.5D | | | |
| | V線速度 | 140 | V線速度 | 380 |
| | Z刃數 | 3 | Z刃數 | 3 |
| | Fz | 0.07 | Fz | 0.08 |

| Slotting  | COPPER,COPPER ALLOY 銅，銅合金 | | Aluminum alloy expanding material A7075 Aluminum alloy casting<Sil 13% 鋁合金 | |
|---|---|---|---|---|
| Max Cutting Speed(V) 最大切削速度(V) | 90m/min | | 310m/min | |
| Diameter 直徑 (mm) | Speed 迴轉數 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉數 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) |
| 3 | 9,740 | 1,040 | 32,910 | 3950 |
| 4 | 7,300 | 780 | 24,680 | 2960 |
| 5 | 5,850 | 620 | 19,750 | 2370 |
| 6 | 4,870 | 520 | 16,450 | 1970 |
| 8 | 3,660 | 390 | 12,340 | 1480 |
| 10 | 2,960 | 320 | 9,870 | 1180 |
| 12 | 2,440 | 260 | 8,230 | 990 |
| 16 | 1,820 | 190 | 6,170 | 740 |
| 20 | 1,460 | 150 | 4,940 | 590 |
| 25 | 1,170 | 130 | 3,950 | 470 |
| Depth of cut 切削基準量 (D=直徑Dia) |   Ap=1.0D Ae=1.0D | | | |
| | V線速度 | 90 | V線速度 | 310 |
| | Z刃數 | 3 | Z刃數 | 3 |
| | Fz | 0.04 | Fz | 0.04 |

SCDM

產品規格表 P31-32
Specification page

## SSM/SCDM Chamfer End Mill
## SSM/SCDM 倒角銑刀

| WORK MATERIAL 被切削材 | MILD STEELS, CARBON STEELS, CAST IRON SS400、S55C、FC250 (~750N/mm²) 一般構造用鋼、碳素鋼、鑄鐵 | | ALLOY STEELS, TOOL STEELS SCM、SKT、SKS、SKD (~30HRC) 合金鋼、工具鋼 | | HARDENED STEELS, PREHARDENED STEELS SKT、SKD、NAK55、HPM1 (30~38HRC) 調質鋼、預硬鋼 | | STAINLESS STEELS, HARDENED STEELS SUS304、SKD (38~45HRC)不鏽鋼、調質鋼 | | HARDENED STEELS, TITANIUM ALLOY STEELS (45~55HRC) 調質鋼、鈦合金 | | MAGNALIUM ALLOY, TITANIUM, TITANIUM ALLOY 鋁鎂合金、鈦及鈦合金 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILL DIA. (mm) 直徑 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 |
| Cutting Type 切削條件 | Chamfer 倒角 | Hole Chamfer/ Centering 孔倒角/ 定點 | Chamfer 倒角 | Hole Chamfer/ Centering 孔倒角/ 定點 | Chamfer 倒角 | Hole Chamfer/ Centering 孔倒角/ 定點 | Chamfer 倒角 | Hole Chamfer/ Centering 孔倒角/ 定點 | Chamfer 倒角 | Hole Chamfer/ Centering 孔倒角/ 定點 | Chamfer 倒角 | Hole Chamfer/ Centering 孔倒角/ 定點 |
| Vc | 80-140 | 40-70 | 60-100 | 30-50 | 30-80 | 15-40 | 20-50 | 10-25 | 15-40 | 7.5-20 | 120-200 | 60-100 |
| Diameter 直徑(mm) | fz (mm/z) | fz (mm/rev) | fz (mm/z) | fz (mm/rev) | fz (mm/z) | fz (mm/rev) | fz (mm/z) | fz (mm/rev) | fz (mm/z) | fz (mm/rev) | fz (mm/z) | fz (mm/rev) |
| 6 | 0.05 | 0.075 | 0.045 | 0.0675 | 0.045 | 0.0675 | 0.035 | 0.0525 | 0.03 | 0.045 | 0.07 | 0.105 |
| 8 | 0.06 | 0.09 | 0.055 | 0.0825 | 0.055 | 0.0825 | 0.04 | 0.06 | 0.035 | 0.0525 | 0.08 | 0.12 |
| 10 | 0.07 | 0.105 | 0.065 | 0.0975 | 0.065 | 0.0975 | 0.045 | 0.0675 | 0.04 | 0.06 | 0.09 | 0.135 |
| 12 | 0.08 | 0.12 | 0.075 | 0.1125 | 0.075 | 0.1125 | 0.05 | 0.075 | 0.045 | 0.0675 | 0.1 | 0.15 |
| DEPTH OF CUT 加工深度 |  | | | | | | | | | | | |





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CSM
產 品 規格表 P33
Specification page

## CSM Centering
## CSM 定點切削

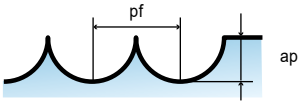
| Work Material 被削材 | Mild steels, Carbon steels, Cast iron SS400, S55C, FC250 (-750N/mm2) 一般構造鋼.碳素鋼.鑄鐵 | | Alloy Steels, Tool Steels, SCM, SKT, SKS, SKD ~HRC30合金鋼.工具鋼 | | Hardened steels. Prehardened steels. (Free-cutting) SKT.SKD.NAK55.HPM1 調質鋼、預硬鋼 HRC30~38 | | 鑄鐵 FC250等 一般構造鋼.碳素鋼. ~HRC30 | | Aluminum alloy expanding material | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter 直徑(mm) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) |
| 4 | 4000 | 480 | 2400 | 270 | 1200 | 108 | 4000 | 480 | 6000 | 900 |
| 6 | 2600 | 486 | 1600 | 252 | 800 | 102 | 2700 | 486 | 4000 | 900 |
| 8 | 2000 | 450 | 1200 | 234 | 600 | 99 | 2000 | 450 | 3000 | 900 |
| 10 | 1600 | 432 | 960 | 201 | 480 | 93 | 1600 | 432 | 2400 | 900 |

## CSM Chamfering
## CSM 導角、側銑切削

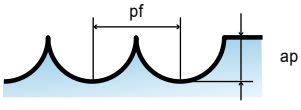
| Work Material 被削材 | Mild steels, Carbon steels, Cast iron SS400, S55C, FC250 (-750N/mm2) 一般構造鋼.碳素鋼.鑄鐵 | | Alloy Steels, Tool Steels, SCM, SKT, SKS, SKD ~HRC30合金鋼.工具鋼 | | Hardened steels. Prehardened steels. (Free-cutting) SKT.SKD.NAK55.HPM1 調質鋼、預硬鋼 HRC30~38 | | 鑄鐵 FC250等 一般構造鋼.碳素鋼. ~HRC30 | | Aluminum alloy expanding material | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter 直徑(mm) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) | Rotational Speed 迴轉速 (min-1) | Feed Rate 進給速度 (mm/min) |
| 4 | 4000 | 300 | 2400 | 150 | 1200 | 60 | 4000 | 675 | 6000 | 600 |
| 6 | 2600 | 300 | 1600 | 150 | 800 | 60 | 2700 | 675 | 4000 | 600 |
| 8 | 2000 | 300 | 1200 | 150 | 600 | 60 | 2000 | 675 | 3000 | 600 |
| 10 | 1600 | 300 | 960 | 150 | 480 | 60 | 1600 | 675 | 2400 | 600 |

MSB/SB
產品規格表 P57
Specification page
P-SSB/P-MSB/P-SB
產品規格表 P67
Specification page

## MSB/SB/P-SSB/P-MSB/P-SB 2 Flutes Regular Milling
## MSB/SB/P-SSB/P-MSB/P-SB 2刃 標準切削

| WORK MATERIAL 被切削材 | COPPER, COPPER ALLOY 銅、鋁合金 | | | | MILD STEELS, CARBON STEELS, SS400、S55C、FC250、NAK55 一般構造用鋼、碳素鋼 | | | | HARDENED STEELS, PREHARDENED STEELS, STAINLESS STEELS SKT、SKD61、NAK80、HPM1、DH 調質鋼、預硬鋼、不鏽鋼 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ~32HRC | | | | 33~41HRC | | | | 42~50HRC | | | |
| R | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | DEPTH OF CUT 加工深度 | | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | DEPTH OF CUT 加工深度 | | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | DEPTH OF CUT 加工深度 | | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | DEPTH OF CUT 加工深度 | |
| | | | ap | pf | | | ap | pf | | | ap | pf | | | ap | pf |
| R 0.05 | 40,000 | 120 | 0.003 | 0.005 | 32,000 | 60 | 0.005 | 0.005 | 32,000 | 40 | 0.005 | 0.005 | 32,000 | 28 | 0.005 | 0.005 |
| R 0.1 | 40,000 | 240 | 0.010 | 0.020 | 32,000 | 160 | 0.010 | 0.010 | 32,000 | 160 | 0.010 | 0.010 | 32,000 | 160 | 0.005 | 0.005 |
| R0.2 | 40,000 | 392 | 0.020 | 0.080 | 32,000 | 328 | 0.020 | 0.080 | 32,000 | 264 | 0.040 | 0.080 | 32,000 | 164 | 0.020 | 0.040 |
| R0.3 | 40,000 | 464 | 0.030 | 0.120 | 32,000 | 392 | 0.030 | 0.120 | 32,000 | 336 | 0.060 | 0.120 | 32,000 | 212 | 0.030 | 0.060 |
| R0.4 | 40,000 | 528 | 0.040 | 0.160 | 32,000 | 440 | 0.040 | 0.160 | 31,500 | 336 | 0.080 | 0.160 | 27,500 | 232 | 0.040 | 0.080 |
| R0.5 | 32,000 | 600 | 0.050 | 0.200 | 31,500 | 496 | 0.050 | 0.200 | 25,000 | 320 | 0.100 | 0.200 | 22,000 | 228 | 0.050 | 0.100 |
| R1 | 19,000 | 600 | 0.200 | 0.400 | 15,500 | 496 | 0.200 | 0.400 | 12,500 | 320 | 0.200 | 0.400 | 11,000 | 232 | 0.100 | 0.200 |
| R1.5 | 12,500 | 608 | 0.300 | 0.600 | 10,500 | 504 | 0.300 | 0.600 | 8,450 | 324 | 0.300 | 0.600 | 7,400 | 232 | 0.150 | 0.300 |
| R2 | 9,500 | 608 | 0.400 | 0.800 | 7,950 | 504 | 0.400 | 0.800 | 6,350 | 356 | 0.400 | 0.080 | 5,550 | 296 | 0.200 | 0.400 |
| R3 | 6,300 | 640 | 0.600 | 1.200 | 5,300 | 536 | 0.600 | 1.200 | 4,200 | 372 | 0.600 | 1.200 | 3,700 | 312 | 0.300 | 0.600 |
| R4 | 4,750 | 760 | 0.800 | 1.600 | 3,950 | 632 | 0.800 | 1.600 | 3,150 | 444 | 0.800 | 1.600 | 2,750 | 364 | 0.400 | 0.800 |
| R5 | 3,800 | 712 | 1.000 | 2.000 | 3,150 | 596 | 1.000 | 2.000 | 2,500 | 420 | 1.000 | 2.000 | 2,200 | 344 | 0.500 | 1.000 |
| R6 | 3,170 | 672 | 1.200 | 2.400 | 2,650 | 560 | 1.200 | 2.400 | 2,100 | 392 | 1.200 | 2.400 | 1,850 | 344 | 0.600 | 1.200 |
| R8 | 2,400 | 504 | 1.600 | 3.200 | 1,990 | 420 | 1.600 | 3.200 | 1,580 | 296 | 1.600 | 3.200 | 1,390 | 260 | 0.800 | 1.600 |
| R10 | 1,900 | 400 | 2.000 | 4.000 | 1,590 | 336 | 2.000 | 4.000 | 1,260 | 232 | 2.000 | 4.000 | 1,110 | 208 | 1.000 | 2.000 |
| DEPTH OF CUT 加工深度 |  | | | | | | | | | | | | | | | |

## MSB/SB/P-SSB/P-MSB/P-SB 2 Flutes High-speed Light Milling
## MSB/SB/P-SSB/P-MSB/P-SB 2刃 高速切削

| WORK MATERIAL 被切削材 | COPPER, COPPER ALLOY 銅、鋁合金 | | | | MILD STEELS, CARBON STEELS, SS400、S55C、FC250、NAK55 一般構造用鋼、碳素鋼 | | | | HARDENED STEELS, PREHARDENED STEELS, STAINLESS STEELS SKT、SKD61、NAK80、HPM1、DH 調質鋼、預硬鋼、不鏽鋼 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ~32HRC | | | | 33~41HRC | | | | 42~50HRC | | | |
| R | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | DEPTH OF CUT 加工深度 | | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | DEPTH OF CUT 加工深度 | | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | DEPTH OF CUT 加工深度 | | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | DEPTH OF CUT 加工深度 | |
| | | | ap | pf | | | ap | pf | | | ap | pf | | | ap | pf |
| R 0.5 | 50,000 | 2,680 | 0.020 | 0.050 | 50,000 | 2,240 | 0.020 | 0.050 | 50,000 | 2,000 | 0.020 | 0.050 | 47,500 | 1,800 | 0.020 | 0.050 |
| R1 | 31,500 | 2,680 | 0.040 | 0.100 | 25,000 | 2,240 | 0.040 | 0.100 | 24,500 | 2,000 | 0.040 | 0.100 | 23,500 | 1,800 | 0.040 | 0.100 |
| R1.5 | 21,000 | 2,680 | 0.060 | 0.150 | 16,500 | 2,240 | 0.060 | 0.150 | 16,000 | 2,000 | 0.060 | 0.150 | 15,500 | 1,800 | 0.060 | 0.150 |
| R2 | 15,500 | 3,264 | 0.080 | 0.200 | 15,500 | 2,720 | 0.080 | 0.200 | 15,000 | 2,200 | 0.080 | 0.200 | 13,500 | 1,960 | 0.080 | 0.200 |
| R3 | 10,500 | 4,128 | 0.120 | 0.300 | 13,500 | 3,440 | 0.300 | 0.600 | 11,500 | 2,200 | 0.300 | 0.600 | 9,500 | 1,800 | 0.120 | 0.300 |
| R4 | 7,900 | 3,072 | 0.160 | 0.400 | 10,000 | 2,560 | 0.400 | 0.800 | 8,950 | 1,680 | 0.400 | 0.800 | 7,150 | 1,360 | 0.160 | 0.400 |
| R5 | 6,300 | 2,496 | 0.200 | 0.500 | 8,250 | 2,080 | 0.500 | 1.000 | 7,150 | 1,360 | 0.500 | 1.000 | 5,700 | 1,080 | 0.200 | 0.500 |
| R6 | 5,250 | 2,064 | 0.240 | 0.600 | 6,850 | 1,720 | 0.500 | 2.400 | 5,950 | 1,120 | 0.500 | 2.400 | 4,750 | 880 | 0.240 | 0.600 |
| R8 | 4,950 | 1,240 | 0.320 | 0.800 | 4,110 | 1,032 | 0.500 | 3.200 | 4,460 | 840 | 0.500 | 3.200 | 3,560 | 656 | 0.320 | 0.800 |
| R10 | 3,950 | 992 | 0.400 | 1.000 | 3,290 | 824 | 0.500 | 4.000 | 3,570 | 672 | 0.500 | 4.000 | 2,850 | 528 | 0.320 | 1.000 |
| DEPTH OF CUT 加工深度 |  | | | | | | | | | | | | | | | |


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## RDH/P-RTA 4 Flutes Slotting
## RDH/P-RTA 4刃 溝銑

RDH 產品規格表 P57 Specification page
P-RTA 產品規格表 67-69 Specification page

| WORK MATERIAL 被切削材 | MILD STEELS, CARBON STEELS, CAST IRON SS400、S55C、FC250 (~750N/mm²) 一般構造用鋼、碳素鋼、鑄鐵 | | ALLOY STEELS, TOOL STEELS SCM、SKT、SKS、SKD (~30HRC) 合金鋼、工具鋼 | | HARDENED STEELS, PREHARDENED STEELS SKT、SKD、NAK55、HPM1 (30~38HRC) 調質鋼、預硬鋼 | | STAINLESS STEELS, HARDENED STEELS SUS304、SKD (38~45HRC) 不鏽鋼、調質鋼 | | HARDENED STEELS, TITANIUM ALLOY STEELS (45~55HRC) 調質鋼、鈦合金 | | HEAT RESISTANT ALLOY STEELS INCONEL 耐熱合金鋼、高鎳合金 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILL DIA. (mm) 直徑 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 | SPEED ($min^{-1}$) 迴轉速 | FEED (mm/min) 進給速 |
| 3 | 10,500 | 584 | 8,550 | 544 | 7,850 | 416 | 7,450 | 368 | 7,200 | 352 | 2,500 | 100 |
| 4 | 7,750 | 584 | 6,400 | 620 | 5,900 | 416 | 5,550 | 412 | 5,400 | 396 | 1,900 | 108 |
| 5 | 6,200 | 588 | 5,100 | 604 | 4,700 | 436 | 4,450 | 436 | 4,300 | 428 | 1,500 | 116 |
| 6 | 5,150 | 592 | 4,250 | 508 | 3,950 | 460 | 3,700 | 456 | 3,600 | 436 | 1,250 | 116 |
| 8 | 3,850 | 480 | 3,200 | 440 | 2,950 | 440 | 2,800 | 420 | 2,700 | 408 | 945 | 124 |
| 10 | 3,100 | 464 | 2,550 | 432 | 2,350 | 384 | 2,250 | 380 | 2,150 | 364 | 760 | 116 |
| 12 | 2,600 | 448 | 2,150 | 380 | 1,950 | 368 | 1,850 | 352 | 1,800 | 348 | 630 | 116 |

DEPTH OF CUT 加工深度




## SFUET 2 Flutes
## SFUET 2 刃

產品規格表 P59 Specification page

| Working material hardness 被切削材硬度 | HRC30° | | HRC30° ~ 35° | | HRC35° ~ 40° | | HRC40° ~ 45° | | HRC45° ~ 65° | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter D | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 |
| | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 |
| D1.0 | 12800 | 480 | 11840 | 400 | 11120 | 360 | 10400 | 320 | 8400 | 304 |
| D2.0 | 11840 | 560 | 11120 | 520 | 10240 | 480 | 8920 | 464 | 7200 | 400 |
| D3.0 | 9600 | 880 | 8800 | 800 | 7840 | 720 | 7200 | 640 | 6240 | 400 |
| D4.0 | 9200 | 1280 | 7840 | 1080 | 7200 | 760 | 6800 | 600 | 5600 | 544 |
| D5.0 | 8000 | 1600 | 7600 | 1360 | 7120 | 1040 | 6240 | 640 | 4400 | 480 |
| D6.0 | 8000 | 1600 | 7200 | 1320 | 6560 | 960 | 6080 | 760 | 4000 | 440 |
| D8.0 | 5200 | 1760 | 4800 | 1440 | 3600 | 1200 | 3200 | 960 | 2000 | 520 |
| D10.0 | 3040 | 1520 | 2400 | 1200 | 2000 | 880 | 1600 | 720 | 1280 | 400 |
| D12.0 | 2560 | 1440 | 2160 | 1200 | 2000 | 960 | 1600 | 800 | 960 | 360 |

## SFDH 4 Flutes
## SFDH 4刃

產 品 規格表 P59
Specification page

| Working material hardness 被切削材硬度 | Below HRC30° | | HRC30° ~35° | | HRC35° ~40° | | HRC40° ~45° | | HRC45° ~65° | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter D 值 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 |
| | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 |
| D1.0 | 16000 | 600 | 14800 | 500 | 13900 | 450 | 13000 | 400 | 10500 | 380 |
| D2.0 | 14800 | 700 | 13900 | 650 | 12800 | 600 | 11150 | 580 | 9000 | 500 |
| D3.0 | 12000 | 1100 | 11000 | 1000 | 9800 | 900 | 9000 | 800 | 7800 | 500 |
| D4.0 | 11500 | 1600 | 9800 | 1350 | 9000 | 950 | 8500 | 750 | 7000 | 680 |
| D5.0 | 10000 | 2000 | 9500 | 1700 | 8900 | 1300 | 7800 | 1000 | 5500 | 600 |
| D6.0 | 10000 | 2000 | 9000 | 1650 | 8200 | 1200 | 7600 | 950 | 5000 | 550 |
| D8.0 | 6500 | 2200 | 6000 | 1800 | 4500 | 1500 | 4000 | 1200 | 2500 | 650 |
| D10.0 | 3800 | 1900 | 3000 | 1500 | 2500 | 1100 | 2000 | 900 | 1600 | 500 |
| D12.0 | 3200 | 1800 | 2700 | 1500 | 2500 | 1200 | 2000 | 1000 | 1200 | 450 |

## SFUBT 2 Flutes
## SFUBT 2 刃

產 品 規格表 P59
Specification page

| Working material hardness 被切削材硬度 | Below HRC30° | | HRC30° ~ 45° | | HRC45° ~ 65° | |
|---|---|---|---|---|---|---|
| Radius of Ball Nose R 徑 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 |
| | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 |
| D0.5R | 25600 | 960 | 20800 | 640 | 16800 | 608 |
| D1.0R | 23680 | 1120 | 17840 | 928 | 14400 | 800 |
| D1.5R | 19200 | 1760 | 14400 | 1280 | 12480 | 800 |
| D2.0R | 18400 | 2560 | 13600 | 1200 | 11200 | 1088 |
| D2.5R | 16000 | 3200 | 12480 | 1600 | 8800 | 960 |
| D3.0R | 16000 | 3200 | 12160 | 1520 | 8000 | 880 |
| D4.0R | 10400 | 3520 | 6400 | 1920 | 4000 | 1040 |
| D5.0R | 6080 | 3040 | 3200 | 1440 | 2560 | 800 |
| D6.0R | 5120 | 2880 | 3200 | 1600 | 1920 | 720 |


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## SFRDH 4 Flutes
## SFRDH 4刃

產 品 規格表 P60
Specification page

| Working material hardness 被切削材硬度 | HRC30° | | HRC40° | | HRC50° | | HRC55° | | HRC60° | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter × Radius D × R | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 |
| | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 |
| D1.0 x 0.1R | 11880 | 588 | 10500 | 510 | 8700 | 390 | 7200 | 336 | 5880 | 270 |
| D1.0 x 0.2R | 11880 | 588 | 10500 | 510 | 8700 | 390 | 7200 | 336 | 5880 | 270 |
| D1.0 x 0.3R | 11880 | 588 | 10500 | 510 | 8700 | 390 | 7200 | 336 | 5880 | 270 |
| D1.5 x 0.2R | 10500 | 720 | 9120 | 540 | 8280 | 420 | 6300 | 360 | 5100 | 300 |
| D1.5 x 0.3R | 10500 | 720 | 9120 | 540 | 8280 | 420 | 6300 | 360 | 5100 | 300 |
| D2.0 x 0.1R | 9600 | 900 | 7920 | 660 | 7560 | 540 | 5880 | 450 | 4320 | 300 |
| D2.0 x 0.2R | 9600 | 900 | 7920 | 660 | 7560 | 540 | 5880 | 450 | 4320 | 300 |
| D2.0 x 0.3R | 9600 | 900 | 7920 | 660 | 7560 | 540 | 5880 | 450 | 4320 | 300 |
| D3.0 x 0.1R | 7800 | 1080 | 6600 | 900 | 5880 | 720 | 4920 | 630 | 4500 | 300 |
| D3.0 x 0.2R | 7800 | 1080 | 6600 | 900 | 5880 | 720 | 4920 | 630 | 4500 | 300 |
| D3.0 x 0.3R | 7800 | 1080 | 6600 | 900 | 5880 | 720 | 4920 | 630 | 4500 | 300 |
| D4.0 x 0.2R | 7500 | 1200 | 6300 | 1080 | 5580 | 630 | 4710 | 510 | 4080 | 300 |
| D4.0 x 0.3R | 7500 | 1200 | 6300 | 1080 | 5580 | 630 | 4710 | 510 | 4080 | 300 |
| D2.0 x 0.5R | 9600 | 720 | 8700 | 660 | 7800 | 540 | 6000 | 450 | 5520 | 360 |
| D3.0 x 0.5R | 7800 | 1200 | 6600 | 1080 | 5880 | 900 | 4920 | 660 | 4500 | 300 |
| D4.0 x 0.5R | 7500 | 1200 | 6300 | 1080 | 5580 | 630 | 4710 | 510 | 4080 | 300 |
| D6.0 x 0.5R | 6900 | 1800 | 6000 | 1560 | 5280 | 1200 | 4320 | 900 | 2760 | 450 |
| D8.0 x 0.5R | 5190 | 2040 | 4770 | 1620 | 3210 | 1020 | 2790 | 720 | 2310 | 492 |
| D10.0 x 0.5R | 3300 | 1680 | 2520 | 1140 | 1920 | 660 | 1620 | 570 | 990 | 348 |
| D12.0 x 0.5R | 2790 | 1740 | 2070 | 1020 | 1320 | 570 | 1080 | 480 | 780 | 318 |
| D3.0 x 1R | 8970 | 1380 | 7590 | 1242 | 6762 | 1035 | 5658 | 759 | 5175 | 345 |
| D4.0 x 1R | 8625 | 1380 | 7245 | 1243 | 6417 | 725 | 5417 | 587 | 4692 | 345 |
| D6.0 x 1R | 7935 | 2070 | 6900 | 1794 | 6072 | 1380 | 4968 | 1035 | 3174 | 518 |
| D8.0 x 1R | 5969 | 2346 | 5486 | 1863 | 3692 | 1173 | 3209 | 828 | 2657 | 566 |
| D10.0 x 1R | 3795 | 1920 | 2898 | 1311 | 2208 | 759 | 1863 | 656 | 1139 | 400 |
| D12.0 x 1R | 3209 | 2001 | 2381 | 1173 | 1518 | 855 | 1242 | 522 | 897 | 366 |
| D6.0 x 1.5R | 6900 | 2160 | 7200 | 1872 | 6336 | 1440 | 5184 | 1080 | 3312 | 540 |
| D8.0 x 1.5R | 6228 | 2448 | 5724 | 1944 | 3852 | 1224 | 3348 | 864 | 2772 | 590 |
| D10.0 x 1.5R | 3960 | 2016 | 3024 | 1368 | 2304 | 792 | 1944 | 684 | 1188 | 418 |
| D12.0 x 1.5R | 3348 | 2088 | 2484 | 1224 | 1584 | 684 | 1296 | 576 | 936 | 382 |
| D6.0 x 2R | 8970 | 2340 | 7800 | 2028 | 6864 | 1560 | 5616 | 1170 | 3588 | 585 |
| D8.0 x 2R | 6747 | 2652 | 6201 | 2106 | 4173 | 1326 | 3627 | 3003 | 3003 | 640 |
| D10.0 x 2R | 4290 | 2184 | 3276 | 1482 | 2496 | 858 | 2106 | 1287 | 1287 | 452 |
| D12.0 x 2R | 3627 | 2262 | 2691 | 1326 | 1716 | 741 | 1404 | 1014 | 1014 | 413 |
| D8.0 x 3R | 7007 | 2754 | 6440 | 2187 | 4334 | 1377 | 3767 | 972 | 3120 | 664 |
| D10.0 x 3R | 4455 | 2268 | 3402 | 1539 | 2592 | 891 | 2187 | 770 | 1337 | 470 |
| D12.0 x 3R | 3767 | 2349 | 2795 | 1377 | 1782 | 770 | 1458 | 648 | 1053 | 430 |

## Internal Turning（Boring & Profiling）內徑車削（搪孔 & 仿形）

產品規格表 P88-90
Specification page

| Work Materials 被切削材料 | Vc(m/min) 切削速度 | f(mm/rev) 進給 | Work Materials 被切削材料 | Vc(m/min) 切削速度 | f(mm/rev) 進給 |
|---|---|---|---|---|---|
| 低碳鋼，易削鋼 S10C，SUM22等... | 50-140 | 0.01-0.12 | 碳鋼，合金鋼 S45C，SCM415等... | 30-120 | 0.01-0.1 |
| 不鏽鋼 SUS303，SUS430等… | 20-100 | 0.01-0.1 | 灰鑄鐵，球墨鑄鐵 FC200，FCD400等… | 30-100 | 0.01-0.08 |
| 鋁合金 A5052，A6061，A7025等… | 50-140 | 0.01-0.12 | 鈦合金，耐熱合金 Ti-6Al-4V(TC4)等… | 20-80 | 0.01-0.08 |
| 黃銅 C2801，C3604等… | 50-150 | 0.01-0.12 | | | |

## Internal Cutting 內徑槽切削

產品規格表 P91-93
Specification page

| Work Materials 被切削材料 | Vc(m/min) 切削速度 | f(mm/rev) 進給 | Work Materials 被切削材料 | Vc(m/min) 切削速度 | f(mm/rev) 進給 |
|---|---|---|---|---|---|
| 低碳鋼，易削鋼 S10C，SUM22等... | 50-140 | 0.01-0.04 | 碳鋼，合金鋼 S45C，SCM415等... | 30-120 | 0.01-0.04 |
| 不鏽鋼 SUS303，SUS430等… | 20-100 | 0.01-0.04 | 灰鑄鐵，球墨鑄鐵 FC200，FCD400等… | 30-100 | 0.01-0.04 |
| 鋁合金 A5052，A6061，A7025等… | 50-140 | 0.01-0.04 | 鈦合金，耐熱合金 Ti-6Al-4V(TC4)等… | 20-80 | 0.01-0.04 |
| 黃銅 C2801，C3604等… | 50-150 | 0.01-0.04 | | | |

## Face Cutting 端面槽切削

產品規格表 P94-95
Specification page

| Work Materials 被切削材料 | Vc(m/min) 切削速度 | f(mm/rev) 進給 | Work Materials 被切削材料 | Vc(m/min) 切削速度 | f(mm/rev) 進給 |
|---|---|---|---|---|---|
| 低碳鋼，易削鋼 S10C，SUM22等... | 50-140 | 0.01-0.06 | 碳鋼，合金鋼 S45C，SCM415等... | 30-120 | 0.01-0.06 |
| 不鏽鋼 SUS303，SUS430等… | 20-100 | 0.01-0.06 | 灰鑄鐵，球墨鑄鐵 FC200，FCD400等… | 30-100 | 0.01-0.06 |
| 鋁合金 A5052，A6061，A7025等… | 50-140 | 0.01-0.06 | 鈦合金，耐熱合金 Ti-6Al-4V(TC4)等… | 20-80 | 0.01-0.06 |
| 黃銅 C2801，C3604等… | 50-150 | 0.01-0.06 | | | |

產品規格表 P96
Specification page

## Internal Threading 內徑螺紋切削

| Work Materials 被切削材料 | Vc(m/min) 切削速度 | P-0.5mm Number of Passes 進刀次數 | P-0.75mm Number of Passes 進刀次數 | P-1.0mm Number of Passes 進刀次數 | P-1.25mm Number of Passes 進刀次數 | P-1.5mm Number of Passes 進刀次數 |
|---|---|---|---|---|---|---|
| S10C，SUM22，etc. | 50-150 | 5~7 | 7~9 | 9~11 | 11~14 | 14~17 |
| S45C，SCM415等... | 30-120 | 6~8 | 8~10 | 10~12 | 12~15 | 15~18 |
| SUS303，SUS430等… | 20-100 | 8~10 | 10~12 | 12~14 | 15~17 | 18~20 |
| FC200，FCD400等… | 30-100 | 7~9 | 9~11 | 11~13 | 14~16 | 17~19 |
| A5052，A6061，A7025等… | 50-150 | 6~8 | 8~10 | 10~12 | 12~14 | 15~17 |
| C2801，C3604，etc. | 50-150 | 6~8 | 8~10 | 10~12 | 12~14 | 15~17 |

產品規格表 P75
Specification page

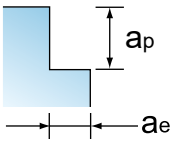
## PVE1T Series
## PVE1T 系列

| type | PVE1T | | |
|---|---|---|---|
| Side Milling  | TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 | | |
| Hardness BRINELL | ≦ 300 | | |
| HRC | ≦ 31 | | |
| Vc | 60 | | |
| ae/ap | ae=0.4D ap=1.5D | | |
| MILL DIA (Metric) | RPM | Fz | Feed 4 flutes |
| 4 | 4,775 | 0.0159 | 303.2 |
| 5 | 3,820 | 0.0238 | 363.7 |
| 6 | 3,183 | 0.0318 | 404.3 |
| 8 | 2,388 | 0.0397 | 378.7 |
| 10 | 1,910 | 0.0429 | 327.5 |
| 12 | 1,592 | 0.0582 | 370.6 |
| 16 | 1,194 | 0.0642 | 306.5 |
| 20 | 955 | 0.0762 | 291.1 |

| type | PVE1T | | |
|---|---|---|---|
| Slot Milling  | TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 | | |
| Hardness BRINELL | ≦ 300 | | |
| HRC | ≦ 31 | | |
| Vc | 50 | | |
| ae/ap | ae=1D ap=1.25D | | |
| MILL DIA (Metric) | RPM | Fz | Feed 4 flutes |
| 4 | 3,980 | 0.0119 | 189.5 |
| 5 | 3,184 | 0.0190 | 242.5 |
| 6 | 2,653 | 0.0265 | 280.8 |
| 8 | 1,990 | 0.0297 | 236.7 |
| 10 | 1,592 | 0.0333 | 212.3 |
| 12 | 1,327 | 0.0423 | 224.6 |
| 16 | 995 | 0.0494 | 196.5 |
| 20 | 796 | 0.0572 | 182.0 |

## PVEC/PVE/PVR Series
## PVEC/PVE/PVR 系列

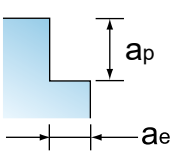
產 品 規格表 P75-76
Specification page

| Side Milling | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | | | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100 | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hardness BRINELL | ≦ 275 | | | ≦ 375 | | | ≦ 375 | | | > 375 ≦ 475 | | | > 475 ≦ 655 | | |
| HRC | ≦ 28.5 | | | ≦ 39.8 | | | ≦ 39.8 | | | > 39.8 ≦ 49.1 | | | > 50 ≦ 65 | | |
| Vc (SFM) | 155 | (150-163) | | 90 | (86-93) | | 36 | (35-38) | | 60 | (58-62) | | 25 | (24-26) | |
| ae/ap | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | |
| MILL DIA. (Metric) | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes |
| 3 | 15,962 | 0.01016 | 648.7 | 9,099 | 0.00762 | 277.33 | 3,729 | 0.01270 | 189 | 6,066 | 0.01016 | 246.5 | 2554 | 0.00508 | 51.9 |
| 4 | 13,621 | 0.01397 | 761.2 | 7,764 | 0.00889 | 276.09 | 3,182 | 0.01715 | 218 | 5,176 | 0.01397 | 289.2 | 2179 | 0.00699 | 60.9 |
| 6 | 9,081 | 0.02350 | 853.4 | 5,176 | 0.01842 | 381.28 | 2,121 | 0.02826 | 240 | 3,451 | 0.02350 | 324.3 | 1453 | 0.01175 | 68.3 |
| 8 | 6,811 | 0.03683 | 1003.4 | 3,882 | 0.02794 | 433.86 | 1,591 | 0.04445 | 283 | 2,588 | 0.03683 | 381.3 | 1090 | 0.01842 | 80.3 |
| 10 | 5,449 | 0.05017 | 1093.3 | 3,106 | 0.03715 | 461.47 | 1,273 | 0.06064 | 309 | 2,070 | 0.05017 | 415.5 | 872 | 0.02508 | 87.5 |
| 12 | 4,540 | 0.05969 | 1084.1 | 2,588 | 0.04509 | 466.73 | 1,061 | 0.07176 | 304 | 1,725 | 0.05969 | 411.9 | 726 | 0.02985 | 86.7 |
| 16 | 3,405 | 0.07874 | 1072.5 | 1,941 | 0.06096 | 473.31 | 795 | 0.09906 | 315 | 1,294 | 0.08128 | 420.7 | 545 | 0.04064 | 88.6 |
| 20 | 2,956 | 0.08128 | 961.1 | 1,685 | 0.06350 | 427.97 | 691 | 0.10668 | 295 | 1,123 | 0.08890 | 399.4 | 473 | 0.04445 | 84.1 |
| 25 | 2,078 | 0.08890 | 739.1 | 1,185 | 0.06858 | 324.99 | 486 | 0.12700 | 247 | 790 | 0.09652 | 304.9 | 333 | 0.04826 | 64.2 |
| Depth of cut |  | | | | | | | | | | | | | | |



## PVEC/PVE/PVR Series
## PVEC/PVE/PVR 系列

產 品 規格表 P75-76
Specification page

| Side Milling | CAST IRONS (LOW&MEDIUM ALLOY) Gray, Malleable, Ductile | | | CAST IRONS (HIGH ALLOY) Gray, Malleable, Ductile | | | STAINLESS STEELS (FREE MACHINING ) 303, 416,420F,430F,440F | | | STAINLESS STEELS (DIFFICULT ) 304, 304L,316,316L | | | STAINLESS STEELS(PH) 13-8 PH,15-5PH,17-4PH, Custom 450 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hardness BRINELL | ≦ 220 | | | > 220 ≦ 260 | | | ≦ 275 | | | ≦ 275 | | | ≦ 325 | | |
| HRC | ≦ 18.8 | | | > 18.8 ≦ 26.6 | | | ≦ 28.5 | | | ≦ 28.5 | | | ≦ 34.4 | | |
| Vc (SFM) | 100 | (96-105) | | 100 | (96-105) | | 137 | (132-143) | | 100 | (96-105) | | 87 | (84-91) | |
| ae/ap | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | |
| MILL DIA. (Metric) | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes |
| 3 | 12658 | 0.01016 | 514 | 9,737 | 0.00762 | 296.8 | 14,047 | 0.00762 | 428.2 | 9,737 | 0.00508 | 197.9 | 8,939 | 0.00508 | 181.6 |
| 4 | 10802 | 0.01397 | 604 | 8,309 | 0.01016 | 337.7 | 11,987 | 0.01016 | 487.1 | 8,309 | 0.00762 | 253.3 | 7,628 | 0.00762 | 232.5 |
| 6 | 7201 | 0.02350 | 677 | 5,539 | 0.01651 | 365.8 | 7,991 | 0.01651 | 527.7 | 5,539 | 0.01397 | 309.5 | 5,085 | 0.01397 | 284.2 |
| 8 | 5401 | 0.03556 | 768 | 4,155 | 0.02667 | 443.2 | 5,993 | 0.02667 | 639.4 | 4,155 | 0.02159 | 358.8 | 3,814 | 0.02159 | 329.4 |
| 10 | 4321 | 0.04763 | 823 | 3,324 | 0.03683 | 489.6 | 4,795 | 0.03683 | 706.4 | 3,324 | 0.02889 | 384.1 | 3,051 | 0.02889 | 352.6 |
| 12 | 3601 | 0.05715 | 823 | 2,770 | 0.04318 | 478.4 | 3,996 | 0.04318 | 690.1 | 2,770 | 0.03366 | 372.9 | 2,543 | 0.03366 | 342.3 |
| 16 | 2700 | 0.07620 | 823 | 2,077 | 0.05842 | 485.4 | 2,997 | 0.05842 | 700.3 | 2,077 | 0.04572 | 379.9 | 1,907 | 0.04572 | 348.8 |
| 20 | 2344 | 0.07874 | 738 | 1,803 | 0.06096 | 439.7 | 2,601 | 0.06096 | 634.3 | 1,803 | 0.04826 | 348.1 | 1,655 | 0.04826 | 319.6 |
| 25 | 1648 | 0.08636 | 569 | 1,268 | 0.06350 | 322.0 | 1,829 | 0.06350 | 464.6 | 1,268 | 0.05080 | 257.6 | 1,164 | 0.05080 | 236.5 |
| Depth of cut |  | | | | | | | | | | | | | | |

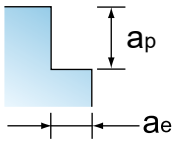




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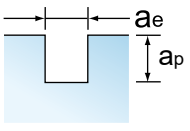
## PVEC/PVE/PVR Series
## PVEC/PVE/PVR 系列

產 品 規格表 P75-76
Specification page

| Side Milling  | SUPER ALLOYS (NICKEL,COBALT,IRON,BASE) Inconel 601,617,625,Incoly 800,Monel 400 | | | SUPER ALLOYS (NICKEL,COBALT,IRON,BASE) Inconel 718,750X,Incoly 925,Waspalloy,Hastelloy,Rene | | | TITANIUM ALLOYS Pure Ttanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si | | | TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hardness BRINELL | ≦ 300 | | | > 300 | | | ≦ 350 | | | > 350 ≦ 440 | | |
| HRC | ≦ 32.1 | | | ≦ 32.1 | | | | | | | | |
| Vc (SFM) | 22 | (21-23) | | 17 | (16-18) | | 63 | (60-65) | | 22 | (21-23) | |
| ae/ap | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | | ae=0.5D ap=1.5D | | |
| MILL DIA. (Metric) | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes |
| 3 | 2,235 | 0.00508 | 45.4 | 1,756 | 0.00254 | 17.8 | 6,385 | 0.00508 | 129.7 | 2,235 | 0.00508 | 45.4 |
| 4 | 1,907 | 0.00635 | 48.4 | 1,498 | 0.00381 | 22.8 | 5,448 | 0.00699 | 152.2 | 1,907 | 0.00699 | 53.3 |
| 6 | 1,271 | 0.00953 | 48.4 | 999 | 0.00699 | 27.9 | 3,632 | 0.01175 | 170.7 | 1,271 | 0.01175 | 59.7 |
| 8 | 953 | 0.01524 | 58.1 | 749 | 0.01016 | 30.4 | 2,724 | 0.01905 | 207.6 | 953 | 0.01905 | 72.7 |
| 10 | 763 | 0.02096 | 63.9 | 599 | 0.01334 | 32.0 | 2,179 | 0.02635 | 229.7 | 763 | 0.02635 | 80.4 |
| 12 | 636 | 0.02413 | 61.4 | 499 | 0.01651 | 33.0 | 1,816 | 0.03112 | 226.0 | 636 | 0.03112 | 79.1 |
| 16 | 477 | 0.03302 | 63.0 | 375 | 0.02286 | 34.3 | 1,362 | 0.04064 | 221.4 | 477 | 0.04064 | 77.5 |
| 20 | 414 | 0.03556 | 58.9 | 325 | 0.02540 | 33.0 | 1,182 | 0.04318 | 204.2 | 414 | 0.04318 | 71.5 |
| 25 | 291 | 0.03810 | 44.3 | 229 | 0.02794 | 25.6 | 831 | 0.04572 | 152.0 | 291 | 0.04572 | 53.2 |
| Depth of cut |   | | | | | | | | | | | |

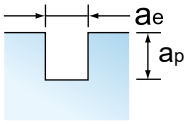
## PVEC/PVE/PVR Series
## PVEC/PVE/PVR 系列

產 品 規格表 P75-76
Specification page

| Slot Milling  | CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536 | | | ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 50100 | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | | TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hardness BRINELL | ≦ 275 | | | ≦ 375 | | | ≦ 375 | | | > 375 ≦ 475 | | | > 475 ≦ 655 | | |
| HRC | ≦ 28.5 | | | ≦ 39.8 | | | ≦ 39.8 | | | > 39.8 ≦ 49.1 | | | > 50 ≦ 65 | | |
| Vc (SFM) | 125 | (120-130) | | 57 | (55-60) | | 29 | (28-30) | | 48 | (46-50) | | 20 | (19-21) | |
| ae/ap | ae=1D ap=1D | | | ae=1D ap=1D | | | ae=1D ap=1D | | | ae=1D ap=1D | | | ae=1D ap=1D | | |
| MILL DIA. (Metric) | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes |
| 3 | 12,770 | 0.01016 | 519.0 | 5,832 | 0.00762 | 177.77 | 3,007 | 0.01270 | 153 | 4,853 | 0.01016 | 197.2 | 2043 | 0.00508 | 41.5 |
| 4 | 10,897 | 0.01397 | 608.9 | 4,977 | 0.00889 | 176.98 | 2,566 | 0.01715 | 176 | 4,141 | 0.01397 | 231.4 | 1744 | 0.00699 | 48.7 |
| 6 | 7,265 | 0.02350 | 682.7 | 3,318 | 0.01842 | 244.41 | 1,711 | 0.02826 | 193 | 2,761 | 0.02350 | 259.4 | 1162 | 0.01175 | 54.6 |
| 8 | 5,449 | 0.03683 | 802.7 | 2,489 | 0.02794 | 278.12 | 1,283 | 0.04445 | 228 | 2,070 | 0.03683 | 305.0 | 872 | 0.01842 | 64.2 |
| 10 | 4,359 | 0.05017 | 874.6 | 1,991 | 0.03715 | 295.82 | 1,026 | 0.06064 | 249 | 1,656 | 0.05017 | 332.4 | 697 | 0.02508 | 70.0 |
| 12 | 3,632 | 0.05969 | 867.3 | 1,659 | 0.04509 | 299.19 | 855 | 0.07176 | 246 | 1,380 | 0.05969 | 329.6 | 581 | 0.02985 | 69.4 |
| 16 | 2,724 | 0.07874 | 858.0 | 1,244 | 0.06096 | 303.40 | 642 | 0.09906 | 254 | 1,035 | 0.08128 | 336.6 | 436 | 0.04064 | 70.9 |
| 20 | 2,365 | 0.08128 | 768.9 | 1,080 | 0.06350 | 274.34 | 557 | 0.10668 | 238 | 899 | 0.08890 | 319.6 | 378 | 0.04445 | 67.3 |
| 25 | 1,663 | 0.08890 | 591.3 | 759 | 0.06858 | 208.33 | 392 | 0.12700 | 199 | 632 | 0.09652 | 243.9 | 266 | 0.04826 | 51.4 |
| Depth of cut |   | | | | | | | | | | | | | | |

## PVEC/PVE/PVR Series
## PVEC/PVE/PVR 系列

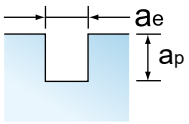
產 品 規格表 P75-76
Specification page

| Slot Milling | CAST IRONS (LOW&MEDIUM ALLOY) Gray, Malleable, Ductile | | | CAST IRONS (HIGH ALLOY) Gray, Malleable, Ductile | | | STAINLESS STEELS (FREE MACHINING ) 304, 416,420F,430F,440F | | | STAINLESS STEELS (DIFFICULT ) 304, 304L,316,316L | | | STAINLESS STEELS(PH) 13-8 PH,15-5PH,17-4PH, Custom 450 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hardness BRINELL | ≦ 220 | | | > 220 ≦ 260 | | | ≦ 275 | | | ≦ 275 | | | ≦ 325 | | |
| HRC | ≦ 18.8 | | | > 18.8 ≦ 26.6 | | | ≦ 28.5 | | | ≦ 28.5 | | | ≦ 34.4 | | |
| Vc (SFM) | 64 | (62-67) | | 61 | (59-64) | | 88 | (84-92) | | 61 | (59-64) | | 56 | (54-59) | |
| ae/ap | ae=1D ap=1D | | | ae=1D ap=1D | | | ae=1D ap=1D | | | ae=1D ap=1D | | | ae=1D ap=1D | | |
| MILL DIA. (Metric) | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes |
| 3 | 8,114 | 0.01016 | 330 | 6,242 | 0.00762 | 190.2 | 9,005 | 0.00762 | 274.5 | 6,242 | 0.00508 | 126.8 | 5,730 | 0.00508 | 116.4 |
| 4 | 6,924 | 0.01397 | 387 | 5,326 | 0.01016 | 216.5 | 7,684 | 0.01016 | 312.3 | 5,326 | 0.00762 | 162.3 | 4,890 | 0.00762 | 149.0 |
| 6 | 4,616 | 0.02350 | 434 | 3,551 | 0.01651 | 234.5 | 5,123 | 0.01651 | 338.3 | 3,551 | 0.01397 | 198.4 | 3,260 | 0.01397 | 182.2 |
| 8 | 3,462 | 0.03556 | 492 | 2,663 | 0.02667 | 284.1 | 3,842 | 0.02667 | 409.9 | 2,663 | 0.02159 | 230.0 | 2,445 | 0.02159 | 211.1 |
| 10 | 2,770 | 0.04763 | 528 | 2,131 | 0.03683 | 313.9 | 3,074 | 0.03683 | 452.8 | 2,131 | 0.02889 | 246.2 | 1,956 | 0.02889 | 226.0 |
| 12 | 2,308 | 0.05715 | 528 | 1,775 | 0.04318 | 306.7 | 2,561 | 0.04318 | 442.4 | 1,775 | 0.03366 | 239.0 | 1,630 | 0.03366 | 219.4 |
| 16 | 1,731 | 0.07620 | 528 | 1,332 | 0.05842 | 311.2 | 1,921 | 0.05842 | 448.9 | 1,332 | 0.04572 | 243.5 | 1,222 | 0.04572 | 223.6 |
| 20 | 1,503 | 0.07874 | 473 | 1,156 | 0.06096 | 281.9 | 1,668 | 0.06096 | 406.6 | 1,156 | 0.04826 | 223.1 | 1,061 | 0.04826 | 204.8 |
| 25 | 1,057 | 0.08636 | 365 | 813 | 0.06350 | 206.4 | 1,172 | 0.06350 | 297.8 | 813 | 0.05080 | 165.1 | 746 | 0.05080 | 151.6 |
| Depth of cut |  | | | | | | | | | | | | | | |



## PVEC/PVE/PVR Series
## PVEC/PVE/PVR 系列

產 品 規格表 P75-76
Specification page

| Slot Milling | SUPER ALLOYS (NICKEL,COBALT,IRON,BASE) Inconel 601,617,625,Incoly 800,Monel 400 | | | SUPER ALLOYS (NICKEL,COBALT,IRON,BASE) Inconel 718,750X,Incoly 925,Waspalloy,Hastelloy,Rene | | | TITANIUM ALLOYS Pure Ttanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si | | | TITANIUM ALLOYS (DIFFICULT) Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3 Cr3Sn3Al | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hardness BRINELL | ≦ 300 | | | > 300 | | | ≦ 350 | | | > 350 ≦ 440 | | |
| HRC | ≦ 32.1 | | | ≦ 32.1 | | | | | | | | |
| Vc (SFM) | 14 | (13-15) | | 11 | (10-12) | | 40 | (38-42) | | 14 | (13-15) | |
| ae/ap | ae=1D ap=1D | | | ae=1D ap=1D | | | ae=1D ap=1D | | | ae=1D ap=1D | | |
| MILL DIA. (Metric) | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes | RPM | Fz | Feed 4 flutes |
| 3 | 1,433 | 0.00508 | 29.1 | 1,126 | 0.00254 | 11.4 | 4,093 | 0.00508 | 83.2 | 1,433 | 0.00508 | 29.1 |
| 4 | 1,222 | 0.00635 | 31.0 | 960 | 0.00381 | 14.6 | 3,493 | 0.00699 | 97.6 | 1,222 | 0.00699 | 34.2 |
| 6 | 815 | 0.00953 | 31.0 | 640 | 0.00699 | 17.9 | 2,328 | 0.01175 | 109.4 | 815 | 0.01175 | 38.3 |
| 8 | 611 | 0.01524 | 37.3 | 480 | 0.01016 | 19.5 | 1,746 | 0.01905 | 133.1 | 611 | 0.01905 | 46.6 |
| 10 | 489 | 0.02096 | 41.0 | 384 | 0.01334 | 20.5 | 1,397 | 0.02635 | 147.3 | 489 | 0.02635 | 51.5 |
| 12 | 407 | 0.02413 | 39.3 | 320 | 0.01651 | 21.1 | 1,164 | 0.03112 | 144.9 | 407 | 0.03112 | 50.7 |
| 16 | 306 | 0.03302 | 40.4 | 240 | 0.02286 | 22.0 | 873 | 0.04064 | 141.9 | 306 | 0.04064 | 49.7 |
| 20 | 265 | 0.03556 | 37.7 | 208 | 0.02540 | 21.2 | 758 | 0.04318 | 130.9 | 265 | 0.04318 | 45.8 |
| 25 | 187 | 0.03810 | 28.4 | 147 | 0.02794 | 16.4 | 533 | 0.04572 | 97.5 | 187 | 0.04572 | 34.1 |
| Depth of cut |  | | | | | | | | | | | |





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## P-SFUET 4 Flutes
## P-SFUET 4 刃

產 品 規格表 P82
Specification page

| Working material hardness 被切削材硬度 | Below HRC30 ° | | HRC30 ° ~35 ° | | HRC35 ° ~40 ° | | HRC40 ° ~45 ° | | HRC45 ° ~65 ° | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter D 值 | RPM | mm/min | RPM | mm/min | RPM | mm/min | RPM | mm/min | RPM | mm/min |
| D1 | 17600 | 660 | 16280 | 550 | 15290 | 495 | 14300 | 440 | 11550 | 418 |
| D2 | 16280 | 770 | 15290 | 715 | 14080 | 660 | 12265 | 638 | 9900 | 550 |
| D3 | 13200 | 1210 | 12100 | 1100 | 10780 | 990 | 9900 | 880 | 8580 | 550 |
| D4 | 12650 | 1760 | 10780 | 1485 | 9900 | 1045 | 9350 | 825 | 7700 | 748 |
| D5 | 11000 | 2200 | 10450 | 1870 | 9790 | 1430 | 8580 | 1100 | 6050 | 660 |
| D6 | 11000 | 2200 | 9900 | 1815 | 9020 | 1320 | 8360 | 1045 | 5500 | 605 |
| D8 | 7150 | 2420 | 6600 | 1980 | 4950 | 1650 | 4400 | 1320 | 2750 | 715 |
| D10 | 4180 | 2090 | 3300 | 1650 | 2750 | 1210 | 2200 | 990 | 1760 | 550 |
| D12 | 3520 | 1980 | 2970 | 1650 | 2750 | 1320 | 2200 | 1100 | 1320 | 495 |

## P-SFUBT Series
## P-SFUBT 系列

產 品 規格表 P82
Specification page

| Working material hardness 被切削材硬度 | Below HRC30 ° | | HRC30° ~ 45° | | HRC45° ~ 65° | |
|---|---|---|---|---|---|---|
| Radius of Ball Nose R 徑 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 | Rotational speed 轉速 | Feeding speed 進給 |
| | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 | RPM 轉/分 | mm/min. mm/分 |
| D0.5R | 28160 | 1056 | 22880 | 704 | 18480 | 669 |
| D1R | 26048 | 1232 | 19624 | 1021 | 15840 | 880 |
| D1.5R | 21120 | 1936 | 15840 | 1408 | 13728 | 880 |
| D2R | 20240 | 2816 | 14960 | 1320 | 12320 | 1197 |
| D2.5R | 17600 | 3520 | 13728 | 1760 | 9680 | 1056 |
| D3R | 17600 | 3520 | 13376 | 1672 | 8800 | 968 |
| D4R | 11440 | 3872 | 7040 | 2112 | 4400 | 1144 |
| D5R | 6688 | 3344 | 3520 | 1584 | 2816 | 880 |
| D6R | 5632 | 3168 | 3520 | 1760 | 2112 | 792 |

## P-SFURTA 4 Flutes
## P-SFURTA 4 刃

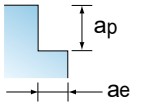
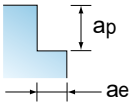
產 品 規格表 P82-83
Specification page

| Working material hardness 被切削材硬度 | Below HRC30° | | HRC40° | | HRC50° | | HRC55° | | HRC60° | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter × Radius D × R | RPM | mm/min | RPM | mm/min | RPM | mm/min | RPM | mm/min | RPM | mm/min |
| D1.0x0.1R | 13068 | 647 | 11550 | 561 | 9570 | 429 | 7920 | 370 | 6468 | 297 |
| D1.0x0.2R | 13068 | 647 | 11550 | 561 | 9570 | 429 | 7920 | 370 | 6468 | 297 |
| D1.0x0.3R | 13068 | 647 | 11550 | 561 | 9570 | 429 | 7920 | 370 | 6468 | 297 |
| D1.5x0.2R | 11550 | 792 | 10032 | 594 | 9108 | 462 | 6930 | 396 | 5610 | 330 |
| D1.5x0.3R | 11550 | 792 | 10032 | 594 | 9108 | 462 | 6930 | 396 | 5610 | 330 |
| D2.0x0.1R | 10560 | 990 | 8712 | 726 | 8316 | 594 | 6468 | 495 | 4752 | 330 |
| D2.0x0.2R | 10560 | 990 | 8712 | 726 | 8316 | 594 | 6468 | 495 | 4752 | 330 |
| D2.0x0.3R | 10560 | 990 | 8712 | 726 | 8316 | 594 | 6468 | 495 | 4752 | 330 |
| D3.0x0.1R | 8580 | 1188 | 7260 | 990 | 6468 | 792 | 5412 | 693 | 4950 | 330 |
| D3.0x0.2R | 8580 | 1188 | 7260 | 990 | 6468 | 792 | 5412 | 693 | 4950 | 330 |
| D3.0x0.3R | 8580 | 1188 | 7260 | 990 | 6468 | 792 | 5412 | 693 | 4950 | 330 |
| D4.0x0.2R | 8250 | 1320 | 6930 | 1188 | 6138 | 693 | 5181 | 561 | 4488 | 330 |
| D4.0x0.3R | 8250 | 1320 | 6930 | 1188 | 6138 | 693 | 5181 | 561 | 4488 | 330 |
| D2.0x0.5R | 10560 | 792 | 9570 | 726 | 858 | 594 | 6600 | 495 | 6072 | 396 |
| D3.0x0.5R | 8580 | 1320 | 7260 | 1188 | 6468 | 990 | 5412 | 726 | 4950 | 330 |
| D4.0x0.5R | 8250 | 1320 | 6930 | 1188 | 6138 | 693 | 5181 | 561 | 4488 | 330 |
| D6.0x0.5R | 7590 | 1980 | 6600 | 1716 | 5808 | 1320 | 4752 | 990 | 3036 | 495 |
| D8.0x0.5R | 5709 | 2244 | 5247 | 1782 | 3531 | 1122 | 3069 | 792 | 2541 | 541 |
| D10.0x0.5R | 3630 | 1848 | 2772 | 1254 | 2112 | 726 | 1782 | 627 | 1089 | 383 |
| D12.0x0.5R | 3069 | 1914 | 2277 | 1122 | 1452 | 627 | 1188 | 528 | 858 | 350 |
| D3.0x1R | 9867 | 1518 | 8349 | 1366 | 7438 | 1139 | 6224 | 835 | 5693 | 380 |
| D4.0x1R | 9488 | 1518 | 7970 | 1367 | 7059 | 798 | 5959 | 646 | 5161 | 380 |
| D6.0x1R | 8729 | 2277 | 7590 | 1973 | 6679 | 1518 | 5465 | 1139 | 3491 | 570 |
| D8.0x1R | 6566 | 2581 | 6035 | 2049 | 4061 | 1290 | 3530 | 911 | 2923 | 623 |
| D10.0x1R | 4175 | 2112 | 3288 | 1442 | 2429 | 835 | 2049 | 722 | 1253 | 440 |
| D12.0x1R | 3530 | 2201 | 2619 | 1290 | 1670 | 941 | 1366 | 574 | 987 | 403 |
| D6.0x1.5R | 7590 | 2376 | 7920 | 2059 | 6970 | 1584 | 5702 | 1188 | 3643 | 594 |
| D8.0x1.5R | 6851 | 2693 | 6296 | 2138 | 4237 | 1346 | 3683 | 950 | 3049 | 649 |
| D10.0x1.5R | 396 | 2218 | 3326 | 1505 | 2534 | 871 | 2138 | 752 | 1307 | 460 |
| D12.0x1.5R | 3683 | 2297 | 2732 | 1346 | 1742 | 752 | 1426 | 634 | 1030 | 420 |
| D6.0x2R | 9867 | 2574 | 8580 | 2231 | 7550 | 1716 | 6178 | 1287 | 3947 | 644 |
| D8.0x2R | 7422 | 2917 | 6821 | 2317 | 4590 | 1459 | 3990 | 3303 | 3303 | 704 |
| D10.0x2R | 4719 | 2402 | 3604 | 1630 | 2746 | 944 | 2317 | 1416 | 1416 | 497 |
| D12.0x2R | 3990 | 2488 | 2960 | 1459 | 1888 | 815 | 1544 | 1115 | 1115 | 454 |
| D8.0x3R | 7708 | 3029 | 7084 | 2406 | 4767 | 1515 | 4144 | 1069 | 3432 | 730 |
| D10.0x3R | 4901 | 2495 | 3742 | 1693 | 2851 | 980 | 2406 | 847 | 1471 | 517 |
| D12.0x3R | 4144 | 2584 | 4175 | 1515 | 1960 | 847 | 1604 | 713 | 1158 | 473 |

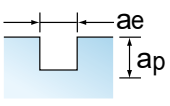

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## KKH Side Milling
## KKH 側銑

產 品 規格表 P83
Specification page

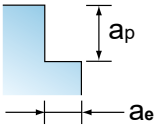
| Work material hardness 被削材硬度  | SS400. AISI 1050. SCM 鑄鐵 FC250等 一般構造鋼. 碳素鋼.(~30HRC) | | AISI H13. AISI D2等 合金鋼.工具鋼(30~35HRC) | | AISI 304. AISI 316等 沃斯田鐵系列不鏽鋼 | | SKD61等焠火鋼(45~50HRC) | | Heat resistanct alloy, Inconel 耐熱合金高鎳等 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter 直徑 (mm) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) |
| 6 | 6400 | 750 | 3700 | 390 | 3200 | 290 | 2700 | 110 | 2100 | 75 |
| 8 | 4800 | 780 | 2800 | 420 | 2400 | 340 | 2000 | 140 | 1600 | 95 |
| 10 | 3800 | 790 | 2200 | 420 | 1900 | 340 | 1600 | 150 | 1300 | 105 |
| 12 | 3200 | 790 | 1900 | 420 | 1600 | 320 | 1300 | 150 | 1100 | 110 |
| 16 | 2400 | 770 | 1400 | 390 | 1200 | 300 | 1000 | 150 | 800 | 110 |
| 20 | 1900 | 760 | 1100 | 370 | 1000 | 300 | 800 | 140 | 600 | 100 |
| 25 | 1500 | 600 | 900 | 300 | 800 | 250 | 640 | 115 | 480 | 80 |
| Depth of cut 切削基準量 (D=直徑Dia) | *Side milling（側銑）   AP=1.5D AE=0.5D | | | | | | *Side milling（側銑）   AP=1.0D AE=0.3D | | | |

## KKH SLOTTING
## KKH 溝銑

| Work material hardness 被削材硬度  | SS400. AISI 1050. SCM 鑄鐵 FC250等 一般構造鋼. 碳素鋼.(~30HRC) | | AISI H13. AISI D2等 合金鋼.工具鋼(30~35HRC) | | AISI 304. AISI 316等 沃斯田鐵系列不銹鋼 | | SKD61等焠火鋼 (45~50HRC) | | Heat resistanct alloy, Inconel 耐熱合金高鎳等 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter 直徑 (mm) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) |
| 6 | 5300 | 580 | 3200 | 290 | 2700 | 200 | 1600 | 55 | 1100 | 30 |
| 8 | 4000 | 600 | 2400 | 320 | 2000 | 220 | 1200 | 70 | 800 | 35 |
| 10 | 3200 | 600 | 1900 | 310 | 1600 | 220 | 1000 | 70 | 600 | 35 |
| 12 | 2700 | 600 | 1600 | 310 | 1300 | 210 | 800 | 75 | 500 | 40 |
| 16 | 2000 | 570 | 1200 | 320 | 1000 | 180 | 600 | 75 | 400 | 45 |
| 20 | 1600 | 540 | 1000 | 270 | 800 | 160 | 500 | 70 | 300 | 40 |
| 25 | 1300 | 440 | 760 | 205 | 635 | 130 | 380 | 55 | 240 | 30 |
| Depth of cut 切削基準量 (D=直徑Dia) | Ap=1.0D Ae=0.5D *Slotting（溝銑）   | | | | | | | | | |

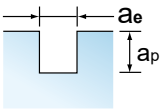
## S-AUE 3 Flutes Side Milling
## S-AUE 3 刃側銑

產 品 規格表 P85
Specification page

| Work Material 被削材  | Aluminum alloy expanding material A7075<br>Aluminum alloy casting<Sil 13%<br>鋁合金 | | Copper<br>銅 | |
|---|---|---|---|---|
| Max Cutting Speed(V)<br>最大切削速度(V) | 240m/min | | 87m/min | |
| Diameter<br>直徑<br>(mm) | Speed<br>迴轉數<br>($min^{-1}$) | Feed Rate<br>進給速度<br>(mm/min) | Speed<br>迴轉數<br>($min^{-1}$) | Feed Rate<br>進給速度<br>(mm/min) |
| 2.5 | 30,000 | 2,600 | 11,000 | 800 |
| 3 | 25,000 | 2,900 | 9,250 | 1,000 |
| 4 | 18,750 | 3,300 | 6,950 | 1,300 |
| 5 | 15,000 | 3,700 | 5,550 | 1,600 |
| 6 | 12,500 | 4,150 | 4,650 | 2,000 |
| 8 | 9,400 | 3,150 | 3,500 | 1,520 |
| 10 | 7,500 | 2,500 | 2,800 | 1,200 |
| 12 | 6,250 | 2,100 | 2,300 | 1,000 |
| 16 | 4,700 | 1,550 | 1,750 | 760 |
| 20 | 3,750 | 1,250 | 1,400 | 600 |
| Depth of cut<br>切削基準量<br>(D=直徑Dia) | AP=2.0D<br>AE=0.5D  | | | |
| | V線速度 | 235.5 | V線速度 | 87.92 |
| | Z刃數 | 3 | Z刃數 | 3 |
| | f | 0.11 | f | 0.10 |



## S-AUE 3 Flutes Slotting
## S-AUE 3 刃溝銑

| Work Material 被削材  | Aluminum alloy expanding material A7075<br>Aluminum alloy casting<Sil 13%<br>鋁合金 | | Copper<br>銅 | |
|---|---|---|---|---|
| Max Cutting Speed(V)<br>最大切削速度(V) | 250m/min | | 90m/min | |
| Diameter<br>直徑<br>(mm) | Speed<br>迴轉數<br>($min^{-1}$) | Feed Rate<br>進給速度<br>(mm/min) | Speed<br>迴轉數<br>($min^{-1}$) | Feed Rate<br>進給速度<br>(mm/min) |
| 2.5 | 20,000 | 1,500 | 11,800 | 850 |
| 3 | 18,000 | 1,800 | 9,840 | 990 |
| 4 | 15,000 | 2,300 | 7,440 | 1,100 |
| 5 | 13,000 | 2,800 | 5,920 | 1,200 |
| 6 | 12,000 | 4,000 | 4,960 | 1,350 |
| 8 | 10,000 | 3,040 | 3,680 | 1,050 |
| 10 | 8,000 | 2,400 | 2,960 | 850 |
| 12 | 6,660 | 2,000 | 2,480 | 700 |
| 16 | 5,000 | 1,300 | 1,840 | 500 |
| 20 | 4,000 | 1,000 | 1,520 | 400 |
| Depth of cut<br>切削基準量<br>(D=直徑Dia) | AP=1.5D<br>AE=1.0D  | | | |
| | V線速度 | 251.2 | V線速度 | 92.944 |
| | Z刃數 | 3 | Z刃數 | 3 |
| | f | 0.10 | f | 0.14 |





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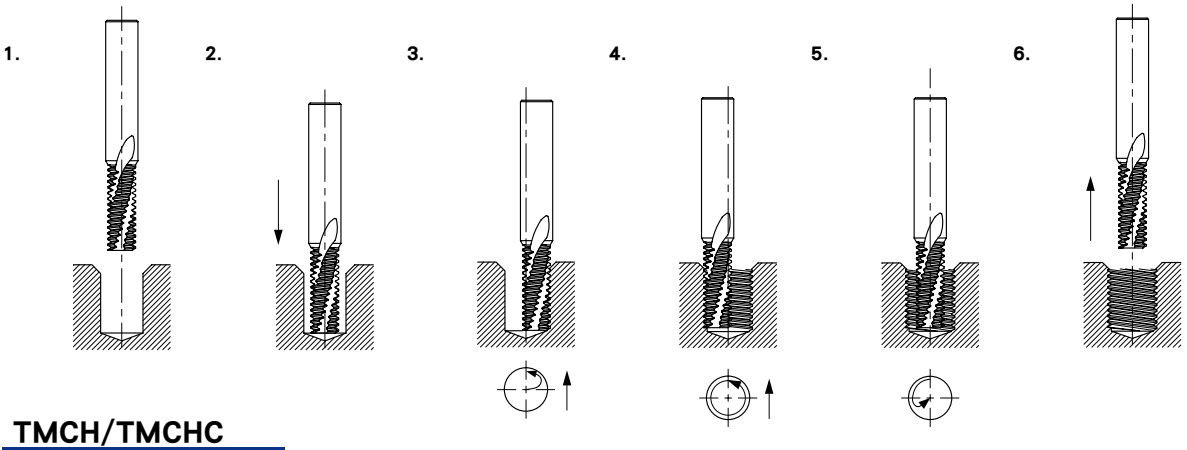
## TM/TMC/TMEL/TMCEL/TMCH/TMCHC
## TM/TMC/TMEL/TMCEL/TMCH/TMCHC 切削條件

產 品 規格表 P170-173
Specification page

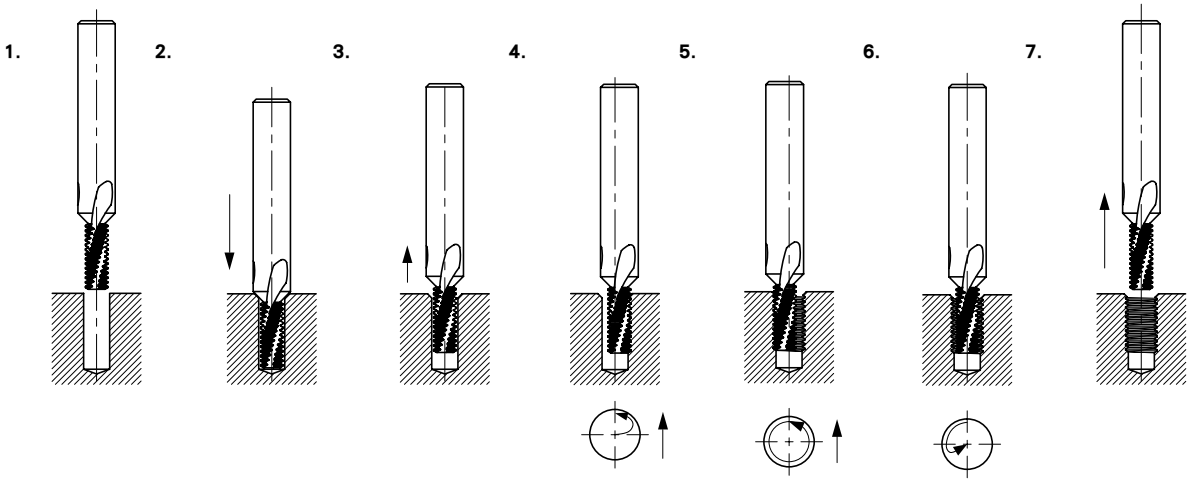
| Work Material 被削材 | SS400. AISI 1050. SCM等 一般構造鋼.碳素鋼. NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS | | AISI H13. AISI D2等 合金鋼.工具鋼 調質鋼 ALLOY STEELS HEAT RESISTANT STEELS | | AISI 304 AISI 316等 沃斯田鐵、麻田 散鐵系 系列不銹鋼 STAINLESS STEELS | | 鑄鐵、球狀石墨鑄鐵 可延展性鑄鐵 FC250 等 CAST IRON | | 鋁鎂合金 鋁及鋁合金 | | 特殊合金、 鈦及鈦合金 TITANUM ALLOYS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HARDNESS 硬度 | ~30HRC | | 30~45HRC | | ~40HRC | | ≧240HB | | | | | |
| STRENGTH 抗拉強度 | ~1000 N/mm² | | 1000~1500 N/mm² | | ~950N/mm² | | | | | | 1300N/mm² | |
| Vc | 50~220 | | 30~100 | | 50~140 | | 60~140 | | 80~280 | | 15~80 | |
| Diameter 直徑(mm) | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | | fz (mm/z) | |
| 2 | 0.025 | 0.020 | 0.020 | 0.025 | 0.025 | 0.015 | 0.012 | 0.011 | 0.015 | 0.011 | 0.009 | 0.005 |
| 3 | 0.035 | 0.025 | 0.025 | 0.035 | 0.035 | 0.015 | 0.016 | 0.014 | 0.020 | 0.014 | 0.012 | 0.006 |
| 4 | 0.040 | 0.030 | 0.030 | 0.040 | 0.040 | 0.020 | 0.020 | 0.018 | 0.025 | 0.018 | 0.015 | 0.008 |
| 6 | 0.055 | 0.035 | 0.035 | 0.055 | 0.055 | 0.025 | 0.024 | 0.021 | 0.030 | 0.021 | 0.018 | 0.009 |
| 8 | 0.065 | 0.040 | 0.040 | 0.065 | 0.065 | 0.025 | 0.028 | 0.025 | 0.035 | 0.025 | 0.021 | 0.011 |
| 10 | 0.080 | 0.045 | 0.045 | 0.080 | 0.080 | 0.030 | 0.032 | 0.028 | 0.040 | 0.028 | 0.024 | 0.012 |
| 12 | 0.090 | 0.050 | 0.050 | 0.090 | 0.090 | 0.030 | 0.043 | 0.039 | 0.054 | 0.038 | 0.034 | 0.021 |
| 16 | 0.110 | 0.060 | 0.060 | 0.110 | 0.110 | 0.040 | 0.048 | 0.043 | 0.060 | 0.043 | 0.038 | 0.023 |
| 20 | 0.140 | 0.070 | 0.070 | 0.140 | 0.140 | 0.040 | 0.058 | 0.052 | 0.072 | 0.051 | 0.046 | 0.028 |
| 14 | 0.067 | 0.056 | 0.060 | 0.039 | 0.056 | 0.038 | 0.067 | 0.060 | 0.084 | 0.060 | 0.053 | 0.032 |
| 16 | 0.077 | 0.064 | 0.069 | 0.045 | 0.064 | 0.043 | 0.077 | 0.069 | 0.096 | 0.068 | 0.061 | 0.037 |
| 20 | 0.096 | 0.080 | 0.086 | 0.056 | 0.080 | 0.054 | 0.096 | 0.086 | 0.120 | 0.085 | 0.076 | 0.046 |

## 切削示範 Cutting Demonstration

### TM/TMC/TMEL/TMCEL




### TMCH/TMCHC




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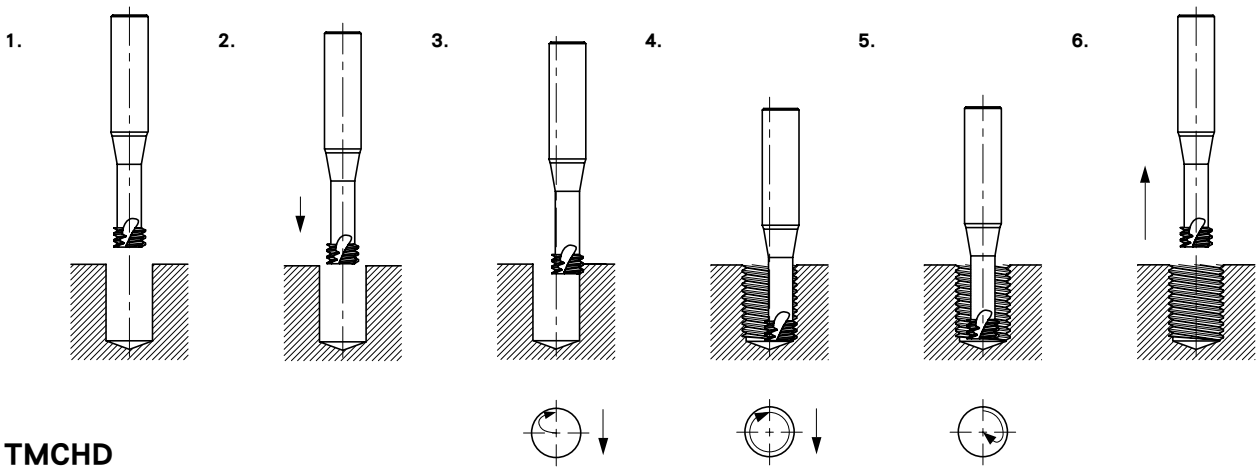
## TM3ZT/TMSM/TMPA/TMCHD/TMFP Cutting Condition
## TM3ZT/TMSM/TMPA/TMCHD/TMFP 切削條件

產 品 規格表 P174-175
Specification page

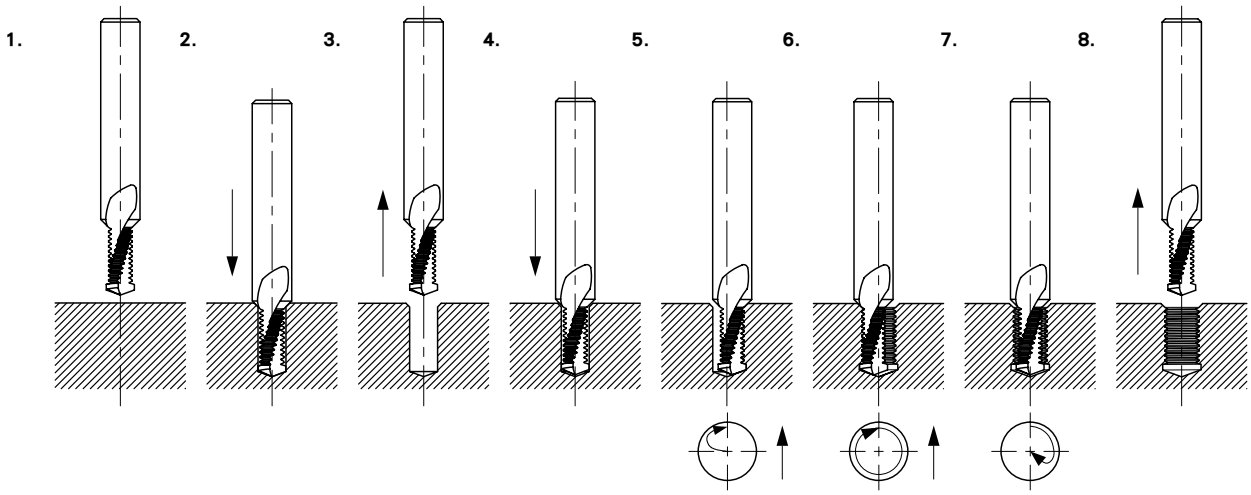
| Work Material 被削材 | SS400. AISI 1050. SCM等 一般構造鋼.碳素鋼. NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS | AISI H13. AISI D2等 合金鋼.工具鋼 調質鋼 ALLOY STEELS HEAT RESISTANT STEELS | AISI 304 AISI 316等 沃斯田鐵、麻田散鐵系 系列不銹鋼 STAINLESS STEELS | 鑄鐵、球狀石墨鑄鐵 可延展性鑄鐵 FC250等 CAST IRON | 鋁鎂合金 鋁及鋁合金 | 特殊合金、 鈦及鈦合金 TITANUM ALLOYS |
|---|---|---|---|---|---|---|
| HARDNESS 硬度 | ~30HRC | 30~45HRC | ~40HRC | ≧240HB | | |
| STRENGTH 抗拉強度 | ~1000 N/mm² | 1000~1500 N/mm² | ~950N/mm² | | | 1300N/mm² |
| Vc | 50~220 | 30~100 | 50~140 | 60~140 | 80~280 | 15~80 |
| Diameter 直徑(mm) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) | fz (mm/z) |
| 1 | 0.025 | 0.020 | 0.020 | 0.025 | 0.030 | 0.020 |
| 1.5 | 0.035 | 0.030 | 0.030 | 0.035 | 0.040 | 0.020 |
| 2 | 0.040 | 0.040 | 0.040 | 0.040 | 0.045 | 0.025 |
| 3 | 0.055 | 0.045 | 0.045 | 0.055 | 0.060 | 0.030 |
| 4 | 0.065 | 0.050 | 0.050 | 0.065 | 0.075 | 0.035 |
| 5 | 0.080 | 0.055 | 0.055 | 0.080 | 0.090 | 0.045 |
| 6 | 0.095 | 0.060 | 0.060 | 0.095 | 0.105 | 0.050 |
| 8 | 0.130 | 0.075 | 0.075 | 0.130 | 0.130 | 0.055 |
| 10 | 0.145 | 0.090 | 0.090 | 0.145 | 0.145 | 0.060 |

## 切削示範 Cutting Demonstration

### TM3ZT/TMSM1ZT/TMFP/TMPA




### TMCHD





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## HD Carbide Drill for High Hardness Steel Cutting Condition
## HD 高硬鎢鋼鑽頭切削條件表

產 品 規格表 P145
Specification page

| HRC of Work Material 被切削材硬度 | 45HRC~55HRC | | 55HRC~60HRC | | 60HRC~ | |
|---|---|---|---|---|---|---|
| Drilling Condition 切削條件 / Drill Dia (mm)直徑 | 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 |
| 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（$min^{-1}$）

### 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（$min^{-1}$）
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）

### 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，可通過下速公式求出。

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

N = Rotating speed 轉速（$min^{-1}$）
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（$min^{-1}$）
Z = Number of flute 鑽頭刃數
(The flute number of drill is 1. 鑽頭刃數為單刃）

## 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 | | |
| Drill Dia (mm)直徑 | 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）
π = 3.14（圓周率）
D = Diameter 鑽頭直徑（mm）
N = Rotating speed 轉速（$min^{-1}$）

● 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，可通過下速公式求出。

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

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


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5PK 產品規格表 P101 Specification page
5PKC 產品規格表 P106 Specification page
8PKC 產品規格表 P111 Specification page

| Work Material 被切削材 | Ductile Cast Iron 球墨鑄鐵 | | | | Stainless Steel 不鏽鋼 | | | | Nickel / Inconel Alloy 鎳基合金 | | | | Type 型式 / Drilling Condition 切削條件 / Drill Dia (mm) 直徑 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | |
| | 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 |
| | | | | | | | | | 11-16 | | 18-24 | | 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 | | 0.1-0.14 | | 0.1-0.16 | 10 |
| | | | | | | | | | | | | | 11 |
| | | | | | | | | | | | | | 12 |
| | | | | | | | | | | | | | 13 |
| | | | | | | | | | | | | | 14 |
| | 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 | 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（$min^{-1}$）
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（$min^{-1}$）
Z = Number of flute 鑽頭刃數
(The flute number of drill is 1. 鑽頭刃數為單刃）

## 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 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Type 型式 | External Coolant 無油孔 | | Internal Oil-hole 油孔 | | External Coolant 無油孔 | | Internal Oil-hole 油孔 | | |
| Drilling Condition 切削條件 / Drill Dia (mm) 直徑 | 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 | 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 | | | | | | | | | |
| 15 | 80-140 | 0.2-0.35 | 90-150 | 0.2-0.35 | 70-110 | 0.2-0.32 | 80-130 | 0.2-0.32 | |
| 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）
π = 3.14（圓周率）
D = Diameter 鑽頭直徑（mm）
N = Rotating speed 轉速（$min^{-1}$）

● 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，可通過下速公式求出。

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

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


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3SN 產品規格表 P117 Specification page
5SN 產品規格表 P121 Specification page
5SNC 產品規格表 P125 Specification page
8SNC 產品規格表 P129 Specification page

| Work Material 被切削材 | Stainless Steel 不鏽鋼 | | | | Titanium Alloy 鈦合金 | | | | Nickel / Inconel Alloy 鎳基合金 | | | | Drill Dia (mm)直徑 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type 型式 | 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 | | |
| 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 | 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 | |
| | 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 |
| | | | | | | | | | | | | | 4 |
| | | | | | | | | | | | | | 5 |
| | | | | | | | | | | | | | 6 |
| | 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 | 7 |
| | | | | | | | | | | | | | 8 |
| | | | | | 22-35 | | 33-45 | | 9-13 | | 15-22 | | 9 |
| | | 0.12-0.2 | | 0.1-0.2 | | 0.12-0.18 | | 0.13-0.18 | | 0.06-0.12 | | 0.06-0.12 | 10 |
| | | | | | | | | | | | | | 11 |
| | | | | | | | | | | | | | 12 |
| | 50-75 | | 60-90 | | 25-38 | | 35-50 | | | | | | 13 |
| | | | | | | | | | | | | | 14 |
| | | 0.13-0.21 | | 0.1-0.2 | | 0.14-0.22 | | 0.15-0.22 | | 0.1-0.14 | | 0.1-0.14 | 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（$min^{-1}$）
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（$min^{-1}$）
Z = Number of flute 鑽頭刃數
(The flute number of drill is 1. 鑽頭刃數為單刃）

## AL / ALC Carbide Drill for Aluminium 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 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Type 型式 | External Coolant 無油孔 | | Internal Oil-hole 油孔 | | | External Coolant 無油孔 | | Internal Oil-hole 油孔 | | |
| Drilling Condition 切削條件 | | | | 5xD | 8xD | | | | 5xD | 8xD |
| Drill Dia (mm)直徑 | vc (m/min) 切削速度 | f(mm/rev) 進給 | vc (m/min) 切削速度 | f(mm/rev) 進給 | 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 | f(mm/rev) 進給 |
| 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 | | 0.12-0.18 | | 0.13-0.2 | 0.1-0.16 | | 0.12-0.18 | | 0.13-0.2 | 0.1-0.16 |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | | 0.18-0.3 | | 0.2-0.35 | 0.16-0.3 | | 0.18-0.3 | | 0.2-0.35 | 0.16-0.3 |
| 11 | | | | | | | | | | |
| 12 | | | | | | | | | | |

● 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（$min^{-1}$）

● 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，可通過下速公式求出。

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

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


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5AL 產品規格表 P133 Specification page
5ALC 產品規格表 P137 Specification page
8ALC 產品規格表 P141 Specification page

| Work Material 被切削材 | Aluminium Alloy A5052 A7075 鋁合金 | | | | | Aluminum Alloy Casting AC, ADC 鑄鋁 | | | | | Copper Alloy 銅合金 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type 型式 | 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 | | |
| 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 | 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 |
| Drill Dia (mm) 直徑 | | | | | | | | | | | | | | | |
| 3 | 140-200 | 0.07-0.16 | 160-220 | 0.09-0.18 | 0.07-0.14 | 140-200 | 0.07-0.16 | 160-220 | 0.09-0.18 | 0.1-0.2 | 90-150 | 0.05-0.12 | 100-160 | 0.05-0.12 | 0.04-0.1 |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | |
| 10 | | 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 |
| 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（$min^{-1}$）
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（$min^{-1}$）
Z = Number of flute 鑽頭刃數
(The flute number of drill is 1. 鑽頭刃數為單刃）

## 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 | | |
|---|---|---|---|---|---|---|---|---|---|
| Drill Dia (mm)直徑 | 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（$min^{-1}$）

● 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，可通過下速公式求出。

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

N = Rotating speed 轉速（$min^{-1}$）
V = Cutting speed 切削速度（m/min）
π = 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（$min^{-1}$）
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（$min^{-1}$）
Z = Number of flute 鑽頭刃數
(The flute number of drill is 1. 鑽頭刃數為單刃）

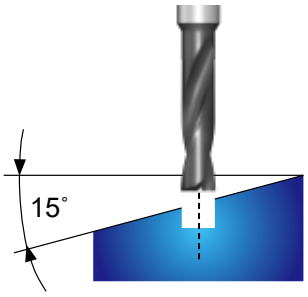

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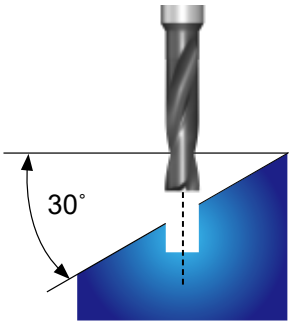
2FD 產品規格表 P148 Specification page
4FD 產品規格表 P152 Specification page

| | 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 / Drilling Condition 切削條件 / Drill Dia (mm)直徑 |
|---|---|---|---|---|---|---|---|---|---|
| | 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 | |
| | 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% |



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

| Work Material 被切削材 / Drilling Condition 切削條件 / Drill Dia (mm)直徑 | 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 |
| 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）
π = 3.14（圓周率）
D = Diameter 鑽頭直徑（mm）
N = Rotating speed 轉速（$min^{-1}$）

● 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，可通過下速公式求出。

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

N = Rotating speed 轉速（$min^{-1}$）
V = Cutting speed 切削速度（m/min）
π = 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（$min^{-1}$）
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（$min^{-1}$）
Z = Number of flute 鑽頭刃數
(The flute number of drill is 1. 鑽頭刃數為單刃）

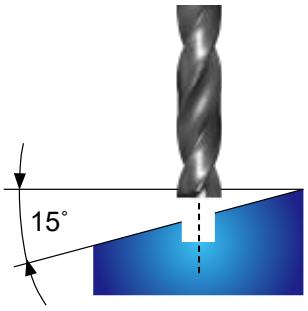

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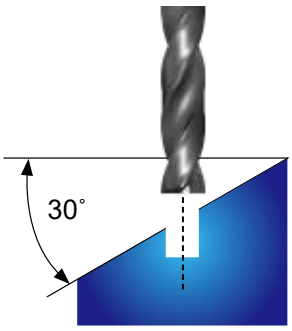
3FDC 產品規格表 P156 Specification page
5FDC 產品規格表 P160 Specification page

| | 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 / Drilling Condition 切削條件 / Drill Dia (mm)直徑 |
|---|---|---|---|---|---|---|---|---|---|
| | 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 | |
| | 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% |



## PDST Series Cutting Codition
## 標準切削

產品規格表 P164-165
Specification page

| 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 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | Feed Rate 進給速度 (mm/min) | Speed 迴轉速 ($min^{-1}$) | 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 / REC Series Cutting Condition
## 標準切削

RE
產品規格表 P166
Specification page

REC
產品規格表 P167
Specification page

| 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 |


www.speedtiger.com.tw

# ST-3500

## 3.5KW Induction Machine & Water Cooling Station



| Specifications 機台規格 | ST-3500 | ST-3500 eco |
|---|---|---|
| Power 功率 | 3.5KW | |
| Voltage 電壓 | 1ø220V 15A | |
| Tools 適用刀具 | Solid Carbide 鎢鋼 | |
| Tool diameter 適用刀具直徑 | 3~32mm | |
| Maximum length of shrink fit chuck<br>最大熱縮刀柄長度 | 300mm | |
| Dimensions 機器尺寸 | (W)600x(L)480x(H)777 mm | (W)410x(L)480x(H)777 mm |
| Weight 機器重量 | 80Kg | 40Kg |
| Cooling Station 冷卻設備 | 有 | 無 |

# ST8000 系列

## ST8000H

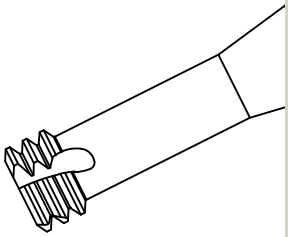


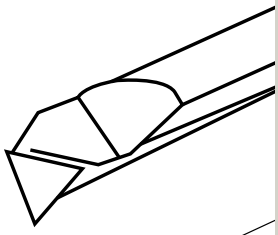
## ST8000&CM

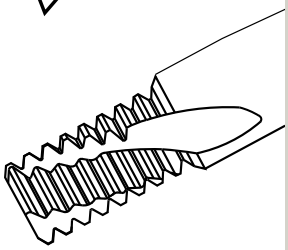


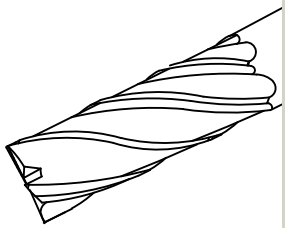
- 採用8KW功率進行中週波調變，產生交流磁場，進行感應加熱。
- 高功率加熱，可快速燒結刀桿節省作業時間。
- 利用水冷卻方式，搭配專用冷卻劑，進而清除大部分積碳，更有效抑制刀桿生鏽。
- 搭配可更換集熱環以及快速拆換加熱頭、另可客製化加熱頭。
- ST-8000&CM可單獨選購加熱機及水冷機
- ST-8000H具備三種冷卻功能：
  1.內建水冷卻系統 2.外部水冷卻系統 3.氣冷系統
- 可加熱超長刀桿

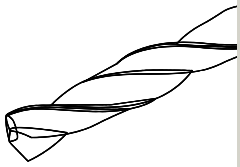
| 項目/類型 | ST-8000&CM | ST-8000H |
|---|---|---|
| 類型 | 分離式 | 一體式 |
| 電壓 | 1Ø220V 40A | 1Ø220V 40A |
| 頻率 | 60HZ | 60HZ |
| 瓦數 | 8KW | 8KW |
| 機器重量(KG) | 117.32 | 101.66 |
| 機器尺寸(mm) | 925.8x610.9x963.2 | 863.4x693.7x862 |
| 適用刀具柄徑 | 3~32mm | 3~32mm |
| 最大熱縮刀柄長度 | 300mm | 300mm |

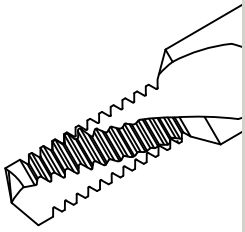












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