# AP

# 航太系列
## Aerospace Cutting Tools Series

向全球使用金利成刀具的加工航太客戶，深深感謝。JLC為全球客戶開發了多款加工鈦與WASPLOY及鎳基材料的經典刀款，獲得客戶的持續讚賞與肯定，我們也因為航太客戶的持續互動，一直追求創新與進步。航空零部件不僅採用了很多新結構、新技術和新材料，零件也越來越講求精密與材料合適性。為了讓客戶在航太的加工上，有更多元的因應方式，我們正式推出新設計的**航太特殊材料用刀– AP系列**。

整體子彈流動力學的設計理念，與一貫的優質歐系棒材，再搭配更勝一般鈦矽的複合及類鑽鍍層，經過廠內多次的實驗，AP航太系列刀具，絕對讓您面對航太材料加工上游刃有餘。

歡迎全球客戶指教，金利成再次感謝您的支持。

**HOT**

**歐系鎢鋼棒材與獨家幾何角度設計，刀具表面鏡面處理，使刀具與被削材不易沾黏，整體壽命增加一倍以上。**

實際測試影片

008 APEL 子彈銑刀
APET-Bullet-Shaped End Mill For Steel

APAL 子彈鋁刀
APAL-Bullet-Shaped Design End Mill For Aluminum

010 AP5-718 鎳基合金專用刀
AP5-End Mill For Nickel Alloy 718 - 5 Flutes

012 AP4-718 鎳基合金專用刀
AP4-End Mill For Nickel Alloy 718 - 4 Flutes

014 APB 子彈球刀
APB-Bullet-Shaped Design-Ball End Milles - 2 Flutes

APN 子彈球刀
APN-Bullet-Shaped Design-Ball End Milles - 4 Flutes

AP

AP 航太

客製化底刃出水加徑向出水，
請另外洽詢。

NEW

JLC

實際測試影片

# 航太專用刀系列
## 子彈銑刀、子彈鋁刀

**Aerospace Cutting Tools Series**
**Bullet-shaped Generic End For Steel**
**Bullet-shaped Design End Mill For Aluminum**

**插銑、鑽銑的最佳利器**

圓鼻款底角與R型排屑刃，擴大容屑空間。

Radius bottom corner and R-shaped chip removal flute expander chip removal space.

子彈流體力學概念，阻力小，破壞力強大。

Bullet fluid mechanics concept less resistance, powerful cutting force.

流線子彈型設計可斜插加工與大角度切削，發揮粗加工最佳表現。

Bullet-shaped design, excellent slop processing and large angle cutting best performance in rough milling.

德系專用棒材，搭配頂級類鑽鍍層，斷除鋁屑沾黏困擾。壽命與表面品質雙重保證。

From German special carbide round bar, coated with top DLC, to eliminate the aluminum sticky chips problem. The best choice, for end mill longer life time and better workpiece surface quality.

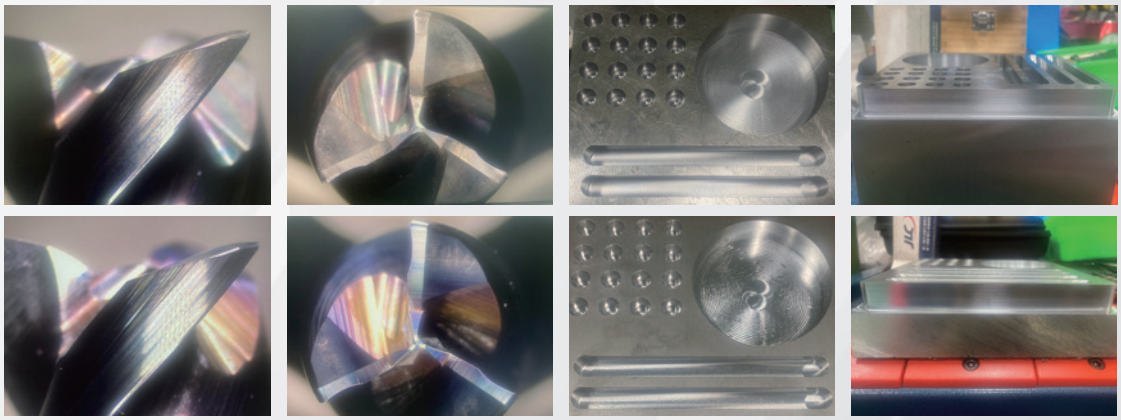
### 實績測試 BENCHMARK TEST

| 產品型號 (Product) | APET 1010<br>APAL 1010 | | | | |
|---|---|---|---|---|---|
| 機台 (Machine) | 常銘 (ChampMill e-1000) | | | | |
| 工件 (Work Piece) | 中碳鋼 (S45C)<br>鋁 (Aluminum 6061) | | | | |
| 轉速 (Spindle Speed) | 6360 RPM<br>7950 RPM | 6360 RPM<br>7950 RPM | 6360 RPM<br>7950 RPM | 6360 RPM<br>7950 RPM | 6360 RPM<br>7950 RPM |
| 進給 (Feed Rate) | 954 mm/min<br>2862 mm/min | 954 mm/min<br>2862 mm/min | 1350 mm/min<br>3500 mm/min | 1350 mm/min<br>2862 mm/min | 954 mm/min<br>2862 mm/min |
| 單刃切削量 (Feed Rate Per Tooth) | 0.05 mm<br>0.12 mm | 0.05 mm<br>0.12 mm | 0.07 mm<br>0.15 mm | 0.07 mm<br>0.12 mm | 0.05 mm<br>0.12 mm |
| 深度 (Depth) | 10 mm | 10 mm | 15 mm | 15 mm | 10 mm |
| 寬度 (Width) | 10 mm | 10 mm | 2.5 mm | 2.5 mm | 10 mm |
| 切削方式 (Milling Method) | 斜向45度溝銑<br>45° Ramping | 溝銑<br>Slot Milling | 側銑<br>Side Milling | 螺旋下刀<br>Helix Milling | 鑽孔<br>Drilling |

### 真實切削磨耗 TOOL WEAR OUT BENCHMARK

APET

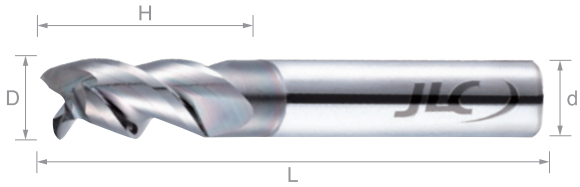
APAL



# APET子彈銑刀(泛用型)

*非標準尺寸可訂製

## APET-Bullet-Shaped Generic End Mill For Steel



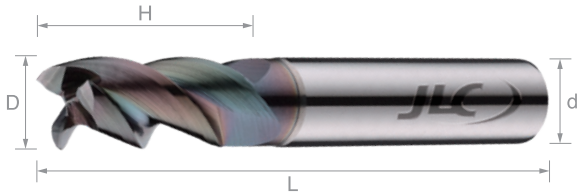

3 Flutes | 41° | HRC 55 | Planing | Side | Slotting

| 編號 (Number) | 外徑 (D) | 刃長 (H) | R角 (R) | 有效長 (NL) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|---|
| APET0404 | 4 | 8 | 0.2R | 12.5 | 3 | 4 | 50 | |
| APET0506 | 5 | 10 | 0.2R | 15.5 | 3 | 6 | 60 | |
| APET0606 | 6 | 12 | 0.3R | 18.5 | 3 | 6 | 60 | |
| APET0708 | 7 | 14 | 0.3R | 21.5 | 3 | 8 | 60 | |
| APET0808 | 8 | 16 | 0.4R | 24.5 | 3 | 8 | 64 | |
| APET0910 | 9 | 18 | 0.4R | 27.5 | 3 | 10 | 75 | |
| APET1010 | 10 | 20 | 0.5R | 30.5 | 3 | 10 | 80 | |
| APET1112 | 11 | 22 | 0.5R | 33.5 | 3 | 12 | 80 | |
| APET1212 | 12 | 24 | 0.6R | 36.5 | 3 | 12 | 85 | |
| APET1616 | 16 | 32 | 0.8R | 48.5 | 3 | 16 | 100 | |
| APET2020 | 20 | 40 | 1R | 60.5 | 3 | 20 | 110 | |

切削條件表 Cutting Condition P.270-P.271

# APAL子彈鋁刀

## APAL-Bullet-Shaped Design End Mill For Aluminum




3 Flutes | 41° | HRC 50 | Planing | Side | Slotting

| 編號 (Number) | 外徑 (D) | 刃長 (H) | R角 (R) | 有效長 (NL) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|---|
| APAL0404 | 4 | 8 | 0.1R | 12.5 | 3 | 4 | 50 | |
| APAL0506 | 5 | 10 | 0.1R | 15.5 | 3 | 6 | 60 | |
| APAL0606 | 6 | 12 | 0.15R | 18.5 | 3 | 6 | 60 | |
| APAL0708 | 7 | 14 | 0.15R | 21.5 | 3 | 8 | 60 | |
| APAL0808 | 8 | 16 | 0.2R | 24.5 | 3 | 8 | 64 | |
| APAL0910 | 9 | 18 | 0.2R | 27.5 | 3 | 10 | 75 | |
| APAL1010 | 10 | 20 | 0.25R | 30.5 | 3 | 10 | 80 | |
| APAL1111 | 11 | 22 | 0.25R | 33.5 | 3 | 12 | 80 | |
| APAL1212 | 12 | 24 | 0.3R | 36.5 | 3 | 12 | 85 | |
| APAL1616 | 16 | 32 | 0.4R | 48.5 | 3 | 16 | 100 | |
| APAL2020 | 20 | 40 | 0.5R | 60.5 | 3 | 20 | 110 | |

切削條件表 Cutting Condition P.272-P.273

實際測試影片

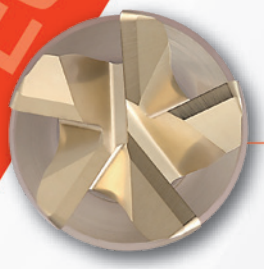
NEW

# 航太專用刀系列

## AP5-718 鎳基合金專用刀

**Aerospace Cutting Tools Series**
**AP5-End Mill For Nickel Alloy 718 - 5 Flutes**

AP5 AEROSPACE SPECIAL



5刃高剛性設計，側銑專用，精修表面品質更好。

5 flutes high-rigidity design for side milling, excellent finished surface quality.

整體F值較4刃增加2成以上，效率更高。

The overal F-value is increased more than 20% compared with the 4 flutes type.

特殊刃口設計，完全不用降低切削量，達到最高效率極致。

Special flute design, no need to reduce the cutting feeds.

刀具鍍層：JLC獨家高硬度複合鍍層，抗沾黏耐溫1200度以上，有效提高刀具壽命跟加工表面精度。

Coating: JLC exclusive composite coating, remove chips smoothly and temperature-resistant is above 1200 degree. Improve tool life time and surface accuracy of workpiece.

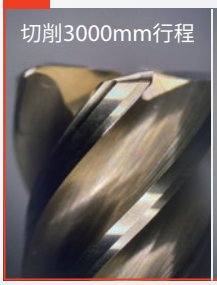
### 實績測試 BENCHMARK TEST

| 產品型號 (Product) | AP5-0605R | | |
|---|---|---|---|
| 機台 (Machine) | 常銘 (ChampMill e-1000) | 單刃切削量 (Feed Rate Per Tooth) | 0.04 mm |
| 工件 (Work Piece) | 鎳基合金 (Inconel 718) | 深度 (Depth) | 2 mm |
| 轉速 (Spindle Speed) | 1590 RPM | 寬度 (Width) | 0.5 mm |
| 進給 (Feed Rate) | 318 mm/min | 切削方式 (Milling Method) | 側銑 Side Milling |

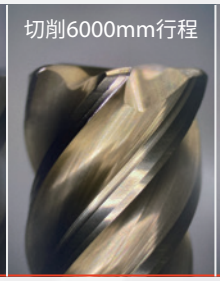
### 真實切削磨耗比較 TOOL WEAR OUT BENCHMARK TEST

○ **AP5**

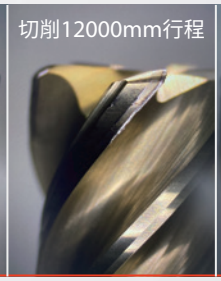
切削3000mm行程



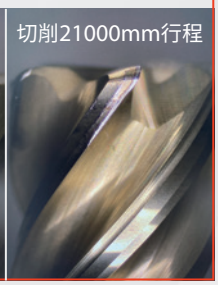
切削6000mm行程



切削12000mm行程



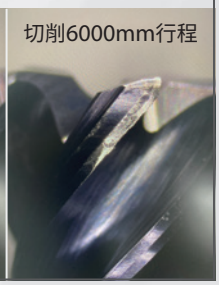
切削21000mm行程



× **他社 OTHER**

切削3000mm行程

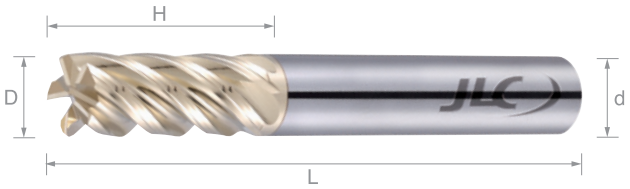
切削6000mm行程



# AP5-718鎳基合金專用銑刀

*非標準尺寸可訂製

## AP5-End Mill For Nickel Alloy 718 - 5 Flutes

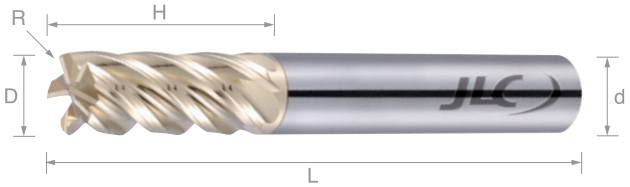


| 編號 (Number) | 外徑 (D) | 刃長 (H) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|
| AP5-0404 | 4 | 10 | 5 | 4 | 50 | |
| AP5-0506 | 5 | 13 | 5 | 6 | 50 | |
| AP5-0606 | 6 | 15 | 5 | 6 | 50 | |
| AP5-0808 | 8 | 20 | 5 | 8 | 60 | |
| AP5-1010 | 10 | 25 | 5 | 10 | 75 | |
| AP5-1212 | 12 | 30 | 5 | 12 | 75 | |
| AP5-1616 | 16 | 45 | 5 | 16 | 100 | |
| AP5-2020 | 20 | 50 | 5 | 20 | 100 | |

| 編號 (Number) | 外徑 (D) | 刃長 (H) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|
| AP5L-0404 | 4 | 10 | 5 | 4 | 75 | |
| AP5L-0506 | 5 | 13 | 5 | 6 | 75 | |
| AP5L-0606 | 6 | 15 | 5 | 6 | 75/100 | |
| AP5L-0808 | 8 | 20 | 5 | 8 | 75/100 | |
| AP5L-1010 | 10 | 25 | 5 | 10 | 100 | |
| AP5L-1212 | 12 | 30 | 5 | 12 | 100 | |
| AP5L-1616 | 16 | 45 | 5 | 16 | 150 | |
| AP5L-2020 | 20 | 50 | 5 | 20 | 150 | |

# AP5-718鎳基合金專用圓鼻銑刀

## AP5-Corner Radius End Mill For Nickel Alloy 718 - 5 Flutes



| 編號 (Number) | 外徑 (D) | 刃長 (H) | R角 (R) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|
| AP5-0405R | 4 | 10 | 0.5R | 5 | 4 | 50 | |
| AP5-0410R | 4 | 10 | 1R | 5 | 4 | 50 | |
| AP5-0605R | 6 | 15 | 0.5R | 5 | 6 | 50 | |
| AP5-0610R | 6 | 15 | 1R | 5 | 6 | 50 | |
| AP5-0620R | 6 | 15 | 2R | 5 | 6 | 50 | |
| AP5-0805R | 8 | 20 | 0.5R | 5 | 8 | 60 | |
| AP5-0810R | 8 | 20 | 1R | 5 | 8 | 60 | |
| AP5-0820R | 8 | 20 | 2R | 5 | 8 | 60 | |
| AP5-1005R | 10 | 25 | 0.5R | 5 | 10 | 75 | |
| AP5-1010R | 10 | 25 | 1R | 5 | 10 | 75 | |
| AP5-1020R | 10 | 25 | 2R | 5 | 10 | 75 | |
| AP5-1205R | 12 | 30 | 0.5R | 5 | 12 | 75 | |
| AP5-1210R | 12 | 30 | 1R | 5 | 12 | 75 | |
| AP5-1220R | 12 | 30 | 2R | 5 | 12 | 75 | |
| AP5-1605R | 16 | 45 | 0.5R | 5 | 16 | 100 | |
| AP5-1610R | 16 | 45 | 1R | 5 | 16 | 100 | |
| AP5-1620R | 16 | 45 | 2R | 5 | 16 | 100 | |
| AP5-2010R | 20 | 50 | 1R | 5 | 20 | 100 | |
| AP5-2020R | 20 | 50 | 2R | 5 | 20 | 100 | |

| 編號 (Number) | 外徑 (D) | 刃長 (H) | R角 (R) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|
| AP5L-0405R | 4 | 10 | 0.5R | 5 | 4 | 75 | |
| AP5L-0410R | 4 | 10 | 1R | 5 | 4 | 75 | |
| AP5L-0605R | 6 | 15 | 0.5R | 5 | 6 | 75/100 | |
| AP5L-0610R | 6 | 15 | 1R | 5 | 6 | 75/100 | |
| AP5L-0620R | 6 | 15 | 2R | 5 | 6 | 75/100 | |
| AP5L-0805R | 8 | 20 | 0.5R | 5 | 8 | 75/100 | |
| AP5L-0810R | 8 | 20 | 1R | 5 | 8 | 75/100 | |
| AP5L-0820R | 8 | 20 | 2R | 5 | 8 | 75/100 | |
| AP5L-1005R | 10 | 25 | 0.5R | 5 | 10 | 100 | |
| AP5L-1010R | 10 | 25 | 1R | 5 | 10 | 100 | |
| AP5L-1020R | 10 | 25 | 2R | 5 | 10 | 100 | |
| AP5L-1205R | 12 | 30 | 0.5R | 5 | 12 | 100 | |
| AP5L-1210R | 12 | 30 | 1R | 5 | 12 | 100 | |
| AP5L-1220R | 12 | 30 | 2R | 5 | 12 | 100 | |
| AP5L-1605R | 16 | 45 | 0.5R | 5 | 16 | 150 | |
| AP5L-1610R | 16 | 45 | 1R | 5 | 16 | 150 | |
| AP5L-1620R | 16 | 45 | 2R | 5 | 16 | 150 | |
| AP5L-2010R | 20 | 50 | 1R | 5 | 20 | 150 | |
| AP5L-2020R | 20 | 50 | 2R | 5 | 20 | 150 | |

切削條件表 Cutting Condition P.274

實際測試影片

NEW

# 航太專用刀系列

## AP4-718 鎳基合金專用刀

**Aerospace Cutting Tools Series**
**AP4-End Mill For Nickel Alloy 718 - 4 Flutes**

AP4 AEROSPACE SPECIAL

不等刃設計降低與工件親附性，全方位抑制加工顫振及噪音，效果更加卓越。

Unequal flute design reduce the friction with the workpiece, Lower machining chatter and noise .

特殊R型溝底不等螺旋與不等刃設計,增加刀具最大剛性及最大的有效排屑空間。

The special R-shaped groove and unequal helix angle design, increase the rigidity of the tool and chip removal space.

獨特外緣刃設計,加速排屑、降低排屑阻抗，相比一般刀具壽命增加1倍以上。

Unique outer flute design, accelerate chip out process, double life time than the general tools.

刀具鍍層：JLC獨家高硬度複合鍍層，抗沾黏耐溫1200度以上，有效提高刀具壽命跟加工表面精度。

Coating: JLC exclusive composite coating, remove chips smoothly and temperature resistance is above 1200 degree, improve tool life time and surface accuracy of workpiece.

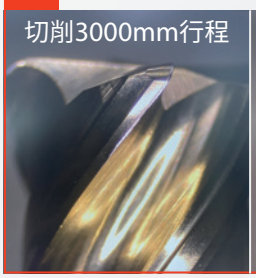
### 實績測試 BENCHMARK TEST

| 產品型號 (Product) | AP4-0605R | | |
|---|---|---|---|
| 機台 (Machine) | 常銘 (ChampMill e-1000) | 單刃切削量 (Feed Rate Per Tooth) | 0.05 mm |
| 工件 (Work Piece) | 鎳基合金 (Inconel 718) | 深度 (Depth) | 2 mm |
| 轉速 (Spindle Speed) | 1590 RPM | 寬度 (Width) | 0.5 mm |
| 進給 (Feed Rate) | 318 mm/min | 切削方式 (Milling Method) | 側銑 Side Milling |

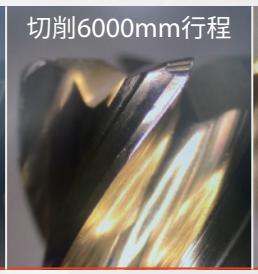
### 真實切削磨耗比較 TOOL WEAR OUT BENCHMARK TEST

○ **AP4**

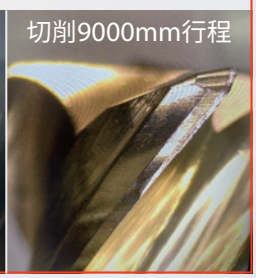
切削3000mm行程



切削6000mm行程



切削9000mm行程



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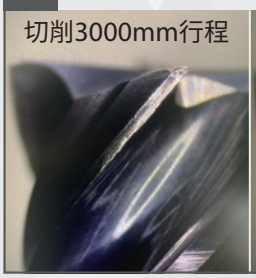
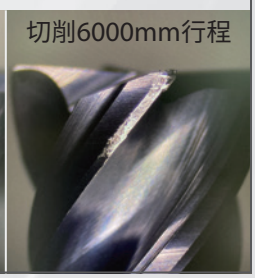
切削3000mm行程



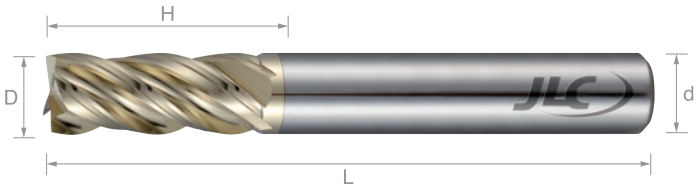
切削6000mm行程



# AP4-718鎳基合金專用銑刀

*非標準尺寸可訂製

## AP4-End Mill For Nickel Alloy 718 - 4 Flutes

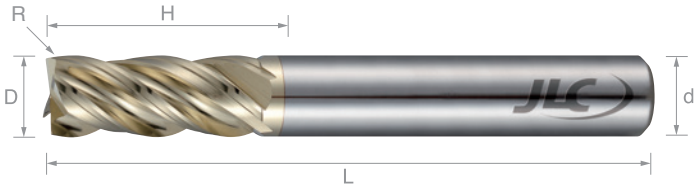


| 編號 (Number) | 外徑 (D) | 刃長 (H) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|
| AP4-0404 | 4 | 10 | 4 | 4 | 50 | |
| AP4-0506 | 5 | 13 | 4 | 6 | 50 | |
| AP4-0606 | 6 | 15 | 4 | 6 | 50 | |
| AP4-0808 | 8 | 20 | 4 | 8 | 60 | |
| AP4-1010 | 10 | 25 | 4 | 10 | 75 | |
| AP4-1212 | 12 | 30 | 4 | 12 | 75 | |
| AP4-1616 | 16 | 45 | 4 | 16 | 100 | |
| AP4-2020 | 20 | 50 | 4 | 20 | 100 | |

| 編號 (Number) | 外徑 (D) | 刃長 (H) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|
| AP4L-0404 | 4 | 10 | 4 | 4 | 75 | |
| AP4L-0506 | 5 | 13 | 4 | 6 | 75 | |
| AP4L-0606 | 6 | 15 | 4 | 6 | 75/100 | |
| AP4L-0808 | 8 | 20 | 4 | 8 | 75/100 | |
| AP4L-1010 | 10 | 25 | 4 | 10 | 100 | |
| AP4L-1212 | 12 | 30 | 4 | 12 | 100 | |
| AP4L-1616 | 16 | 45 | 4 | 16 | 150 | |
| AP4L-2020 | 20 | 50 | 4 | 20 | 150 | |

# AP4-718鎳基合金專用圓鼻銑刀

## AP4-Corner Radius End Mill For Nickel Alloy 718 - 4 Flutes



| 編號 (Number) | 外徑 (D) | 刃長 (H) | R角 (R) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|
| AP4-0405R | 4 | 10 | 0.5R | 4 | 4 | 50 | |
| AP4-0410R | 4 | 10 | 1R | 4 | 4 | 50 | |
| AP4-0605R | 6 | 15 | 0.5R | 4 | 6 | 50 | |
| AP4-0610R | 6 | 15 | 1R | 4 | 6 | 50 | |
| AP4-0620R | 6 | 15 | 2R | 4 | 6 | 50 | |
| AP4-0805R | 8 | 20 | 0.5R | 4 | 8 | 60 | |
| AP4-0810R | 8 | 20 | 1R | 4 | 8 | 60 | |
| AP4-0820R | 8 | 20 | 2R | 4 | 8 | 60 | |
| AP4-1005R | 10 | 25 | 0.5R | 4 | 10 | 75 | |
| AP4-1010R | 10 | 25 | 1R | 4 | 10 | 75 | |
| AP4-1020R | 10 | 25 | 2R | 4 | 10 | 75 | |
| AP4-1205R | 12 | 30 | 0.5R | 4 | 12 | 75 | |
| AP4-1210R | 12 | 30 | 1R | 4 | 12 | 75 | |
| AP4-1220R | 12 | 30 | 2R | 4 | 12 | 75 | |
| AP4-1605R | 16 | 45 | 0.5R | 4 | 16 | 100 | |
| AP4-1610R | 16 | 45 | 1R | 4 | 16 | 100 | |
| AP4-1620R | 16 | 45 | 2R | 4 | 16 | 100 | |
| AP4-2010R | 20 | 50 | 1R | 4 | 20 | 100 | |
| AP4-2020R | 20 | 50 | 2R | 4 | 20 | 100 | |

| 編號 (Number) | 外徑 (D) | 刃長 (H) | R角 (R) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|
| AP4L-0405R | 4 | 10 | 0.5R | 4 | 4 | 75 | |
| AP4L-0410R | 4 | 10 | 1R | 4 | 4 | 75 | |
| AP4L-0605R | 6 | 15 | 0.5R | 4 | 6 | 75/100 | |
| AP4L-0610R | 6 | 15 | 1R | 4 | 6 | 75/100 | |
| AP4L-0620R | 6 | 15 | 2R | 4 | 6 | 75/100 | |
| AP4L-0805R | 8 | 20 | 0.5R | 4 | 8 | 75/100 | |
| AP4L-0810R | 8 | 20 | 1R | 4 | 8 | 75/100 | |
| AP4L-0820R | 8 | 20 | 2R | 4 | 8 | 75/100 | |
| AP4L-1005R | 10 | 25 | 0.5R | 4 | 10 | 100 | |
| AP4L-1010R | 10 | 25 | 1R | 4 | 10 | 100 | |
| AP4L-1020R | 10 | 25 | 2R | 4 | 10 | 100 | |
| AP4L-1205R | 12 | 30 | 0.5R | 4 | 12 | 100 | |
| AP4L-1210R | 12 | 30 | 1R | 4 | 12 | 100 | |
| AP4L-1220R | 12 | 30 | 2R | 4 | 12 | 100 | |
| AP4L-1605R | 16 | 45 | 0.5R | 4 | 16 | 150 | |
| AP4L-1610R | 16 | 45 | 1R | 4 | 16 | 150 | |
| AP4L-1620R | 16 | 45 | 2R | 4 | 16 | 150 | |
| AP4L-2010R | 20 | 50 | 1R | 4 | 20 | 150 | |
| AP4L-2020R | 20 | 50 | 2R | 4 | 20 | 150 | |

切削條件表 Cutting Condition P.274

AP 航太

實際測試影片

NEW

# 航太專用刀系列
## 子彈球刀

**Aerospace cutting tools series**
**Bullet-shaped design-Ball end mill**

特殊子彈刀型設計，流線刃口抗崩角設計，加大底角降低切削阻力。

Special bullet shape design, improve anti-chipping function, large bottom angle to reduce cutting resistance.

主要用於開溝、輪廓銑削，運用獨特的子彈型切削槽來做加工，加工工件表面更均勻，去屑迅速、不沾黏，工件光潔度更加優異。

For ditch and profile process with bullet-shaped cutting groove. Easy to remove chips and the surface is more equal than general type.

嚴選歐系底材，材料穩定，高剛性刀刃結構使抑制顫振及噪音的效果更加優越。

Selected carbide round bar from Europe high rigidity flutes lead the effect of lower tools chatter and processing noise.

刀具鍍層：JLC高韌性專用鍍層，有效覆蓋靜點，提高刀具壽命跟加工表面精度。

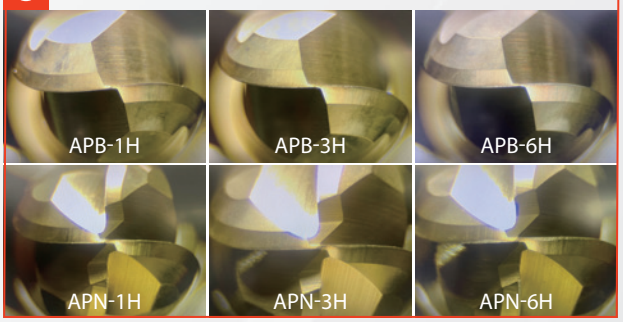
Coating: JLC exclusive coating (ball end mill static point is covered ) improve tool life time and surface accuracy of workpiece.

### 實績測試 BENCHMARK TEST

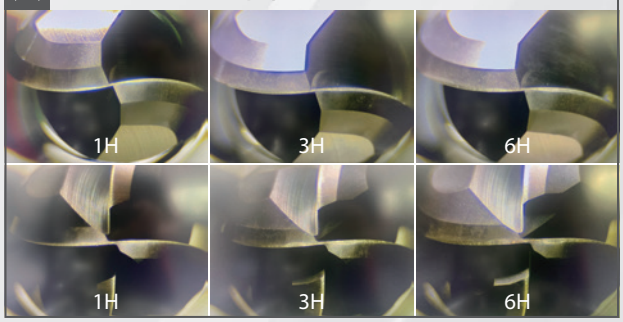
| 產品型號 (Product) | APB1010<br>APN1010 | | |
|---|---|---|---|
| 機台 (Machine) | 常銘 (ChampMill e-1000) | 單刃切削量 (Feed Rate Per Tooth) | 0.06 mm |
| 工件 (Work Piece) | 鎳基合金 (Inconel 718) | 深度 (Depth) | 0.3 mm |
| 轉速 (Spindle Speed) | 1273 RPM | 寬度 (Width) | 0.3 mm |
| 進給 (Feed Rate) | 153 mm/min<br>306 mm/min | 切削方式 (Milling Method) | 表面加工 Surface Milling |

### 真實切削磨耗比較 TOOL WEAR OUT BENCHMARK TEST

**APB APN**



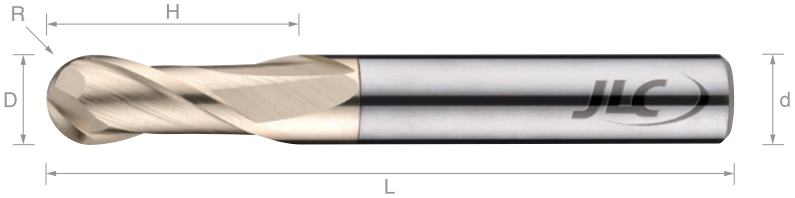

**他社 OTHER**



# APB子彈球刀 - 2刃

*非標準尺寸可訂製

## APB-Bullet-Shaped Design-Ball End Mill - 2 Flutes



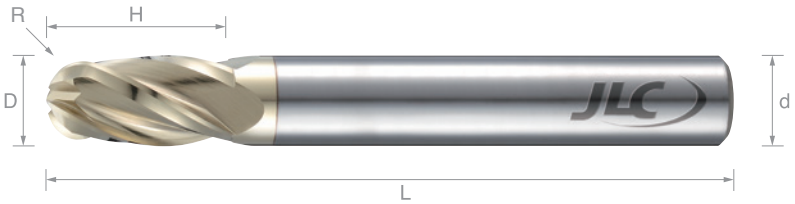

2 Flutes | 30° | HRC 55 | Profiling

| 編號 (Number) | 球半徑 (R) | 外徑 (D) | 刃長 (H) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|
| APB0204 | 1.0R | 2 | 4 | 2 | 4 | 50 | |
| APB0304 | 1.5R | 3 | 6 | 2 | 4 | 50 | |
| APB0404 | 2.0R | 4 | 8 | 2 | 4 | 50 | |
| APB0606 | 3.0R | 6 | 12 | 2 | 6 | 50 | |
| APB0808 | 4.0R | 8 | 16 | 2 | 8 | 60 | |
| APB1010 | 5.0R | 10 | 20 | 2 | 10 | 75 | |
| APB1212 | 6.0R | 12 | 24 | 2 | 12 | 75 | |
| APB1616 | 8.0R | 16 | 32 | 2 | 16 | 100 | |
| APB2020 | 10.0R | 20 | 40 | 2 | 20 | 100 | |

| 編號 (Number) | 球半徑 (R) | 外徑 (D) | 刃長 (H) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|
| APBS0204 | 1.0R | 2 | 4 | 2 | 4 | 75 | |
| APBS0304 | 1.5R | 3 | 6 | 2 | 4 | 75 | |
| APBS0404 | 2.0R | 4 | 8 | 2 | 4 | 75 | |
| APBS0606 | 3.0R | 6 | 12 | 2 | 6 | 75/100 | |
| APBS0808 | 4.0R | 8 | 16 | 2 | 8 | 75/100 | |
| APBS1010 | 5.0R | 10 | 20 | 2 | 10 | 100 | |
| APBS1212 | 6.0R | 12 | 24 | 2 | 12 | 100 | |
| APBS1616 | 8.0R | 16 | 32 | 2 | 16 | 150 | |
| APBS2020 | 10.0R | 20 | 40 | 2 | 20 | 150 | |

# APN子彈球刀 - 4刃

## APN-Bullet-Shaped Design-Ball End Mill - 4 Flutes




4 Flutes | 30° | HRC 55 | Profiling

| 編號 (Number) | 球半徑 (R) | 外徑 (D) | 刃長 (H) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|
| APN0204 | 1.0R | 2 | 4 | 4 | 4 | 50 | |
| APN0304 | 1.5R | 3 | 6 | 4 | 4 | 50 | |
| APN0404 | 2.0R | 4 | 8 | 4 | 4 | 50 | |
| APN0606 | 3.0R | 6 | 12 | 4 | 6 | 50 | |
| APN0808 | 4.0R | 8 | 16 | 4 | 8 | 60 | |
| APN1010 | 5.0R | 10 | 20 | 4 | 10 | 75 | |
| APN1212 | 6.0R | 12 | 24 | 4 | 12 | 75 | |
| APN1616 | 8.0R | 16 | 32 | 4 | 16 | 100 | |
| APN2020 | 10.0R | 20 | 40 | 4 | 20 | 100 | |

| 編號 (Number) | 球半徑 (R) | 外徑 (D) | 刃長 (H) | 刃數 (T) | 柄徑 (d) | 全長 (L) | 價格 (Price) |
|---|---|---|---|---|---|---|---|
| APNS0204 | 1.0R | 2 | 4 | 4 | 4 | 75 | |
| APNS0304 | 1.5R | 3 | 6 | 4 | 4 | 75 | |
| APNS0404 | 2.0R | 4 | 8 | 4 | 4 | 75 | |
| APNS0606 | 3.0R | 6 | 12 | 4 | 6 | 75/100 | |
| APNS0808 | 4.0R | 8 | 16 | 4 | 8 | 75/100 | |
| APNS1010 | 5.0R | 10 | 20 | 4 | 10 | 100 | |
| APNS1212 | 6.0R | 12 | 24 | 4 | 12 | 100 | |
| APNS1616 | 8.0R | 16 | 32 | 4 | 16 | 150 | |
| APNS2020 | 10.0R | 20 | 40 | 4 | 20 | 150 | |

切削條件表 Cutting Condition P.275