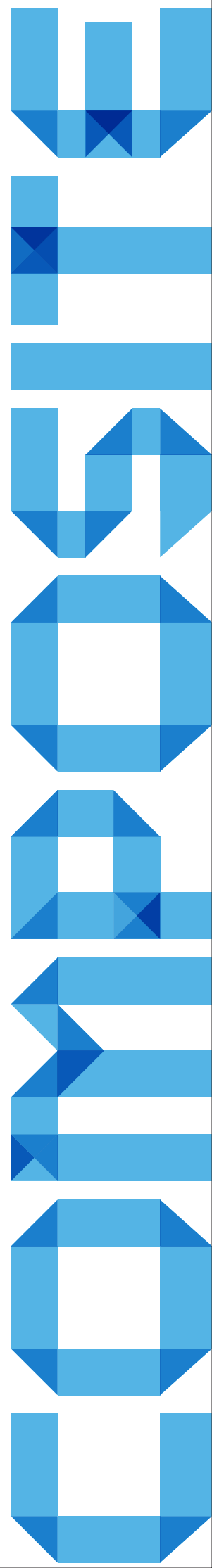




COMPOSITE MATERIALS  
CUTTING SERIES

# 複合材料加工系列



COMPOSITE MATERIALS CUTTING SERIES

複合材料加工系列

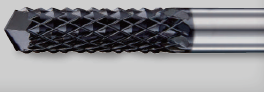
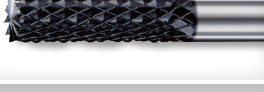
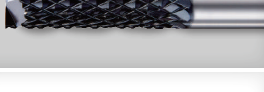
- 1.全系列產品設計用於加工CFRP(碳纖維)、GFRP(玻璃纖維)等。
- 2.針對複合材料加工特性、完美的幾何圖形設計、避免加工時纖維斷裂及脫層、並能展現極佳的表面粗糙度。
- 3.Diamond是一種CVD金剛石鍍層、摩擦系數低及具有優越的耐磨性、刀具壽命佳。
1. Applied for machining CFRP (Carbon Fiber Reinforced Plastic) and GFRP (Glass Fiber Reinforced Plastic) composite materials.
2. Optimized milling geometry minimizes fiber breakout and delamination and provides great surface finish.
3. Diamond is a type of CVD coating. Low friction and superior wear resistant features secure a long tool life.

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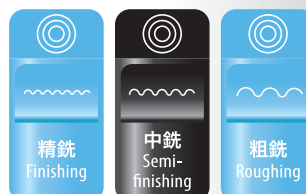
| 型號/頁碼<br>Type No.<br>& Page | 產品照片 Product Picture                                                                  | 鑄鐵<br>Cast Iron | 碳鋼<br>Carbon<br>Steels | 合金鋼<br>工具鋼<br>Alloy Steels,<br>Tool Steels | 調質鋼<br>Prehardened<br>Steels | 不鏽鋼<br>Stainless<br>Steels | 鈦合金<br>Titanium<br>Alloys | 石墨<br>Graphite | 玻璃纖維<br>GFRP | 碳纖維<br>CFRP |
|-----------------------------|---------------------------------------------------------------------------------------|-----------------|------------------------|--------------------------------------------|------------------------------|----------------------------|---------------------------|----------------|--------------|-------------|
| <b>FPA</b><br>P.300         |    | ---             | ---                    | ---                                        | ---                          | ---                        | ---                       | ★              | ★★★          | ★★★         |
| <b>FPB</b><br>P.301         |    | ---             | ---                    | ---                                        | ---                          | ---                        | ---                       | ★              | ★★★          | ★★★         |
| <b>FPC</b><br>P.302         |    | ---             | ---                    | ---                                        | ---                          | ---                        | ---                       | ★              | ★★★          | ★★★         |
| <b>FPD</b><br>P.303         |    | ---             | ---                    | ---                                        | ---                          | ---                        | ---                       | ★              | ★★★          | ★★★         |
| <b>FPE</b><br>P.304         |  | ---             | ---                    | ---                                        | ---                          | ---                        | ---                       | ★              | ★★★          | ★★★         |



# FPA

鎢鋼複合材料專用銑刀  
END MILLS

## 切削性能 CUTTING PERFORMANCE



## 冷卻性能 COOLANT TYPE



## 公差表 TOLERANCE unit : mm

| 直徑<br>D1 | 直徑公差值<br>D1<br>Tolerance | 柄徑<br>D2(h6) | 柄徑公差值<br>D2<br>Tolerance |
|----------|--------------------------|--------------|--------------------------|
| 4.0      | -0.02<br>-0.08           | Ø4           | 0<br>-0.008              |
| 6.0      | -0.02<br>-0.08           | Ø6           | 0<br>-0.008              |
| 8.0      | -0.02<br>-0.08           | Ø8           | 0<br>-0.009              |
| 10.0     | -0.02<br>-0.08           | Ø10          | 0<br>-0.009              |
| 12.0     | -0.02<br>-0.08           | Ø12          | 0<br>-0.011              |

# FPB

鎢鋼複合材料專用銑刀  
END MILLS



## 冷卻性能 COOLANT TYPE



## 公差表 TOLERANCE unit : mm

| 直徑<br>D1 | 直徑公差值<br>D1<br>Tolerance | 柄徑<br>D2(h6) | 柄徑公差值<br>D2<br>Tolerance |
|----------|--------------------------|--------------|--------------------------|
| 4.0      | -0.02<br>-0.08           | Ø4           | 0<br>-0.008              |
| 6.0      | -0.02<br>-0.08           | Ø6           | 0<br>-0.008              |
| 8.0      | -0.02<br>-0.08           | Ø8           | 0<br>-0.009              |
| 10.0     | -0.02<br>-0.08           | Ø10          | 0<br>-0.009              |
| 12.0     | -0.02<br>-0.08           | Ø12          | 0<br>-0.011              |

## 切削性能 CUTTING PERFORMANCE



## 產品規格 SPECIFICATIONS

| 型號<br>Type No. | D1<br>直徑<br>Diameter | L1<br>刃長<br>Flute Length | L3<br>全長<br>O.A.L. | D2<br>柄徑<br>Shank Dia. |
|----------------|----------------------|--------------------------|--------------------|------------------------|
| FPA0410        | 4.0                  | 12                       | 50                 | 4                      |
| FPA0610        | 6.0                  | 18                       | 65                 | 6                      |
| FPA0810        | 8.0                  | 24                       | 75                 | 8                      |
| FPA1010        | 10.0                 | 30                       | 85                 | 10                     |
| FPA1210        | 12.0                 | 36                       | 100                | 12                     |

unit : mm

## 產品規格 SPECIFICATIONS

| 型號<br>Type No. | D1<br>直徑<br>Diameter | L1<br>刃長<br>Flute Length | L3<br>全長<br>O.A.L. | D2<br>柄徑<br>Shank Dia. |
|----------------|----------------------|--------------------------|--------------------|------------------------|
| FPB0411        | 4.0                  | 12                       | 50                 | 4                      |
| FPB0611        | 6.0                  | 18                       | 65                 | 6                      |
| FPB0811        | 8.0                  | 24                       | 75                 | 8                      |
| FPB1011        | 10.0                 | 30                       | 85                 | 10                     |
| FPB1211        | 12.0                 | 36                       | 100                | 12                     |

unit : mm



# FPC

鎢鋼複合材料專用銑刀  
END MILLS

## 切削性能 CUTTING PERFORMANCE

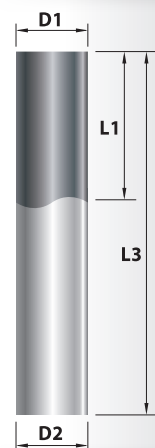


## 冷卻性能 COOLANT TYPE



## 公差表 TOLERANCE unit : mm

| 直徑<br>D1 | 直徑公差值<br>D1<br>Tolerance | 柄徑<br>D2(h6) | 柄徑公差值<br>D2<br>Tolerance |
|----------|--------------------------|--------------|--------------------------|
| 4.0      | -0.02<br>-0.08           | Ø4           | 0<br>-0.008              |
| 6.0      | -0.02<br>-0.08           | Ø6           | 0<br>-0.008              |
| 8.0      | -0.02<br>-0.08           | Ø8           | 0<br>-0.009              |
| 10.0     | -0.02<br>-0.08           | Ø10          | 0<br>-0.009              |
| 12.0     | -0.02<br>-0.08           | Ø12          | 0<br>-0.011              |



## 產品規格 SPECIFICATIONS

| 型號<br>Type No. | D1<br>直徑<br>Diameter | L1<br>刃長<br>Flute Length | L3<br>全長<br>O.A.L. | D2<br>柄徑<br>Shank Dia. |
|----------------|----------------------|--------------------------|--------------------|------------------------|
| FPC0410        | 4.0                  | 12                       | 50                 | 4                      |
| FPC0610        | 6.0                  | 18                       | 65                 | 6                      |
| FPC0810        | 8.0                  | 24                       | 75                 | 8                      |
| FPC1010        | 10.0                 | 30                       | 85                 | 10                     |
| FPC1210        | 12.0                 | 36                       | 100                | 12                     |

unit : mm

# FPD

鎢鋼複合材料專用銑刀  
END MILLS



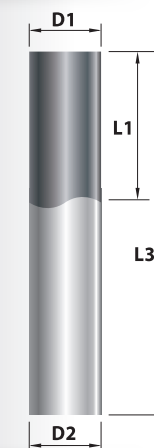
## 冷卻性能 COOLANT TYPE



## 公差表 TOLERANCE unit : mm

| 直徑<br>D1 | 直徑公差值<br>D1<br>Tolerance | 柄徑<br>D2(h6) | 柄徑公差值<br>D2<br>Tolerance |
|----------|--------------------------|--------------|--------------------------|
| 6.0      | -0.02<br>-0.04           | Ø6           | 0<br>-0.008              |
| 8.0      | -0.02<br>-0.04           | Ø8           | 0<br>-0.009              |
| 10.0     | -0.02<br>-0.04           | Ø10          | 0<br>-0.009              |
| 12.0     | -0.02<br>-0.04           | Ø12          | 0<br>-0.011              |

## 切削性能 CUTTING PERFORMANCE



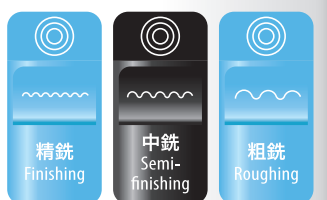
## 產品規格 SPECIFICATIONS

| 型號<br>Type No. | D1<br>直徑<br>Diameter | L1<br>刃長<br>Flute Length | L2<br>刃長<br>OF CUT Length | L3<br>全長<br>O.A.L. | D2<br>柄徑<br>Shank Dia. | ZN<br>刃數<br>Number of Flutes |
|----------------|----------------------|--------------------------|---------------------------|--------------------|------------------------|------------------------------|
| FPD0604        | 6.0                  | 3.2                      | 12                        | 65                 | 6                      | 4                            |
| FPD0806        | 8.0                  | 4.2                      | 16                        | 70                 | 8                      | 6                            |
| FPD1008        | 10.0                 | 5.2                      | 20                        | 80                 | 10                     | 8                            |
| FPD1208        | 12.0                 | 6.2                      | 24                        | 90                 | 12                     | 8                            |

unit : mm



切削性能 CUTTING PERFORMANCE

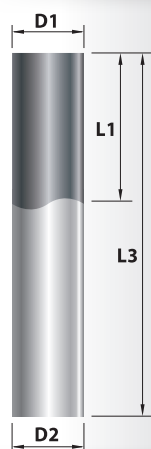


冷卻性能 COOLANT TYPE



公差表 TOLERANCE unit : mm

| 直徑<br>D1 | 直徑公差值<br>D1<br>Tolerance | 柄徑<br>D2(h6) | 柄徑公差值<br>D2<br>Tolerance |
|----------|--------------------------|--------------|--------------------------|
| 6.0      | -0.02<br>-0.04           | Ø6           | 0<br>-0.008              |
| 8.0      | -0.02<br>-0.04           | Ø8           | 0<br>-0.009              |
| 10.0     | -0.02<br>-0.04           | Ø10          | 0<br>-0.009              |
| 12.0     | -0.02<br>-0.04           | Ø12          | 0<br>-0.011              |
| 16.0     | -0.02<br>-0.04           | Ø16          | 0<br>-0.011              |



產品規格 SPECIFICATIONS

| 型號<br>Type No. | D1<br>直徑<br>Diameter | L1<br>刃長<br>Flute Length | L3<br>全長<br>O.A.L. | D2<br>柄徑<br>Shank Dia. | ZN<br>刃數<br>Number of Flutes |
|----------------|----------------------|--------------------------|--------------------|------------------------|------------------------------|
| FPE0605        | 6.0                  | 18                       | 70                 | 6                      | 5                            |
| FPE0805        | 8.0                  | 24                       | 80                 | 8                      | 6                            |
| FPE1008        | 10.0                 | 30                       | 90                 | 10                     | 8                            |
| FPE1209        | 12.0                 | 36                       | 110                | 12                     | 9                            |
| FPE1611        | 16.0                 | 48                       | 125                | 16                     | 11                           |

unit : mm