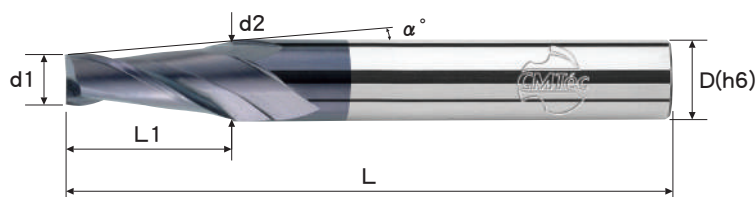


# S220 鎢鋼斜度銑刀- 標準型- 2刃

S220 MICRO GRAIN CARBIDE END MILLS- Taper- 2F

· CETF20000000A



| 先端徑 d1 | 公差 Tolerance |
|--------|--------------|
| Φ      | 0 ~ -0.05    |

|                      |   |
|----------------------|---|
| 超精銑 Bright Finishing | — |
| 精銑 Finishing         | ○ |
| 中銑 Semi Finishing    | ◎ |
| 粗銑 Roughing          | ○ |



| 先端徑 d1 | 刃斜角 α° | 刃長 L1 | 粗端徑 d2 | 全長 L | 柄徑 D | 刃數 F | 白刀訂購編號<br>Uncoated Order No. | 鍍膜訂購編號<br>Coated Order No. |
|--------|--------|-------|--------|------|------|------|------------------------------|----------------------------|
| 1.0    | 0.5°   | 4     | 1.07   | 50   | 4    | 2    | CETF2010005                  | CETF2010005A               |
| 1.0    | 1°     | 4     | 1.14   | 50   | 4    | 2    | CETF2010010                  | CETF2010010A               |
| 1.0    | 1.5°   | 4     | 1.21   | 50   | 4    | 2    | CETF2010015                  | CETF2010015A               |
| 1.0    | 2°     | 4     | 1.28   | 50   | 4    | 2    | CETF2010020                  | CETF2010020A               |
| 1.0    | 2.5°   | 4     | 1.35   | 50   | 4    | 2    | CETF2010025                  | CETF2010025A               |
| 1.0    | 3°     | 4     | 1.42   | 50   | 4    | 2    | CETF2010030                  | CETF2010030A               |
| 1.0    | 5°     | 4     | 1.70   | 50   | 4    | 2    | CETF2010050                  | CETF2010050A               |
| 1.0    | 7°     | 4     | 1.98   | 50   | 4    | 2    | CETF2010070                  | CETF2010070A               |
| 1.0    | 10°    | 4     | 2.41   | 50   | 4    | 2    | CETF20100100                 | CETF20100100A              |
| 1.0    | 15°    | 4     | 3.14   | 50   | 4    | 2    | CETF20100150                 | CETF20100150A              |
| 1.5    | 0.5°   | 5     | 1.59   | 50   | 4    | 2    | CETF2015005                  | CETF2015005A               |
| 1.5    | 1°     | 5     | 1.68   | 50   | 4    | 2    | CETF2015010                  | CETF2015010A               |
| 1.5    | 1.5°   | 5     | 1.76   | 50   | 4    | 2    | CETF2015015                  | CETF2015015A               |
| 1.5    | 2°     | 5     | 1.85   | 50   | 4    | 2    | CETF2015020                  | CETF2015020A               |
| 1.5    | 2.5°   | 5     | 1.93   | 50   | 4    | 2    | CETF2015025                  | CETF2015025A               |
| 1.5    | 3°     | 5     | 2.02   | 50   | 4    | 2    | CETF2015030                  | CETF2015030A               |
| 1.5    | 5°     | 5     | 2.37   | 50   | 4    | 2    | CETF2015050                  | CETF2015050A               |
| 2.0    | 0.5°   | 6     | 2.10   | 50   | 4    | 2    | CETF2020005                  | CETF2020005A               |
| 2.0    | 1°     | 6     | 2.21   | 50   | 4    | 2    | CETF2020010                  | CETF2020010A               |
| 2.0    | 1.5°   | 6     | 2.31   | 50   | 4    | 2    | CETF2020015                  | CETF2020015A               |
| 2.0    | 2°     | 6     | 2.41   | 50   | 4    | 2    | CETF2020020                  | CETF2020020A               |
| 2.0    | 2.5°   | 6     | 2.52   | 50   | 4    | 2    | CETF2020025                  | CETF2020025A               |
| 2.0    | 3°     | 6     | 2.62   | 50   | 4    | 2    | CETF2020030                  | CETF2020030A               |
| 2.0    | 5°     | 6     | 3.05   | 50   | 4    | 2    | CETF2020050                  | CETF2020050A               |
| 2.0    | 7°     | 6     | 3.47   | 50   | 4    | 2    | CETF2020070                  | CETF2020070A               |
| 2.0    | 10°    | 6     | 4.11   | 50   | 6    | 2    | CETF20200100                 | CETF20200100A              |
| 2.0    | 15°    | 6     | 5.22   | 50   | 6    | 2    | CETF20200150                 | CETF20200150A              |
| 2.5    | 0.5°   | 8     | 2.64   | 50   | 4    | 2    | CETF2025005                  | CETF2025005A               |
| 2.5    | 1°     | 8     | 2.78   | 50   | 4    | 2    | CETF2025010                  | CETF2025010A               |
| 2.5    | 1.5°   | 8     | 2.91   | 50   | 4    | 2    | CETF2025015                  | CETF2025015A               |
| 2.5    | 2°     | 8     | 3.05   | 50   | 4    | 2    | CETF2025020                  | CETF2025020A               |
| 2.5    | 2.5°   | 8     | 3.20   | 50   | 4    | 2    | CETF2025025                  | CETF2025025A               |
| 2.5    | 3°     | 8     | 3.33   | 50   | 4    | 2    | CETF2025030                  | CETF2025030A               |
| 2.5    | 5°     | 8     | 3.90   | 50   | 4    | 2    | CETF2025050                  | CETF2025050A               |
| 2.5    | 10°    | 8     | 5.32   | 50   | 6    | 2    | CETF20250100                 | CETF20250100A              |

→ 切削條件表  
Cutting Condition

P.534

→ 技術資料  
Technical Data

P.622

S220

S220 Carbide End Mills

S220 鎢鋼銑刀系列

## S220 MICRO GRAIN CARBIDE END MILLS- Taper- 2F

Technical drawing of a double-flute drill bit. The drawing shows the bit's geometry with the following dimensions and labels:

- $d1$ : Diameter of the cutting edge.
- $d2$ : Diameter of the flute.
- $\alpha^\circ$ : Flute angle.
- $L1$ : Length of the cutting edge.
- $L$ : Total length of the bit.
- $D(h6)$ : Diameter of the shank.
- The brand logo "GMT&C" is visible on the shank.

01

→ 技術資料 P.622  
Technical Data

## S220 MICRO GRAIN CARBIDE END MILLS- Taper- 2F

Technical drawing of a double-flute drill bit. The drawing shows the bit's geometry with the following dimensions and labels:

- $d1$ : Diameter of the cutting edge.
- $d2$ : Diameter at the start of the flutes.
- $\alpha^\circ$ : Flute angle.
- $L1$ : Length of the cutting edge.
- $L$ : Total length of the bit.
- $D(h6)$ : Diameter of the shank.

01

→ 技術資料  
Technical Data

Table 01

S220 鎢鋼銑刀- 2 / 3刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

| 加工材質<br>Material              | 碳素鋼<br>Carbon Steels                                                                                              |               | 合金鋼<br>Alloy Steels |               | 合金鋼<br>Alloy Steels |               | 調質鋼<br>Hardened Steels                                                                                              |               | 調質鋼<br>Hardened Steels |               | 不銹鋼<br>Stainless Steels |               | 鑄鐵<br>Cast Iron                                                                                                     |               |  |  |  |  |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------------------------------------------------------------------------------------------------------|---------------|------------------------|---------------|-------------------------|---------------|---------------------------------------------------------------------------------------------------------------------|---------------|--|--|--|--|
| 工件料號<br>Material Code         | S35C,S45C,S50C                                                                                                    |               | SCM,SKT,SKD         |               | SCM,SKT,SKD         |               | SKT,SKD                                                                                                             |               | SKT,SKD                |               | SUS304                  |               | FC,FCD                                                                                                              |               |  |  |  |  |
| 硬度<br>Hardness                | HRC<20                                                                                                            |               | HRC20~30            |               | HRC30~45            |               | HRC45~55                                                                                                            |               | HRC55~63               |               | —                       |               | HRC<30                                                                                                              |               |  |  |  |  |
| 切削速度 Vc                       | 68m/min                                                                                                           |               | 54m/min             |               | 45m/min             |               | 27m/min                                                                                                             |               | 20m/min                |               | 54m/min                 |               | 79m/min                                                                                                             |               |  |  |  |  |
| 外徑<br>Diameter                | S<br>(rpm)                                                                                                        | F<br>(mm/min) | S<br>(rpm)          | F<br>(mm/min) | S<br>(rpm)          | F<br>(mm/min) | S<br>(rpm)                                                                                                          | F<br>(mm/min) | S<br>(rpm)             | F<br>(mm/min) | S<br>(rpm)              | F<br>(mm/min) | S<br>(rpm)                                                                                                          | F<br>(mm/min) |  |  |  |  |
| 1mm                           | 20,000                                                                                                            | 120           | 17,100              | 100           | 14,400              | 65            | 8,000                                                                                                               | 50            | 6,000                  | 35            | 17,100                  | 100           | 25,200                                                                                                              | 270           |  |  |  |  |
| 2mm                           | 10,800                                                                                                            | 155           | 8,640               | 120           | 7,200               | 85            | 4,320                                                                                                               | 65            | 3,240                  | 45            | 8,640                   | 120           | 12,600                                                                                                              | 290           |  |  |  |  |
| 3mm                           | 7,560                                                                                                             | 155           | 5,760               | 135           | 4,680               | 90            | 3,000                                                                                                               | 65            | 2,230                  | 45            | 5,760                   | 135           | 8,640                                                                                                               | 290           |  |  |  |  |
| 4mm                           | 5,400                                                                                                             | 165           | 4,320               | 135           | 3,600               | 100           | 2,160                                                                                                               | 65            | 1,620                  | 50            | 4,320                   | 135           | 6,480                                                                                                               | 290           |  |  |  |  |
| 5mm                           | 4,500                                                                                                             | 180           | 3,420               | 135           | 2,880               | 100           | 1,800                                                                                                               | 75            | 1,350                  | 55            | 3,420                   | 135           | 5,040                                                                                                               | 325           |  |  |  |  |
| 6mm                           | 3,600                                                                                                             | 180           | 2,880               | 135           | 2,340               | 100           | 1,440                                                                                                               | 75            | 1,080                  | 55            | 2,880                   | 135           | 4,320                                                                                                               | 360           |  |  |  |  |
| 8mm                           | 2,700                                                                                                             | 180           | 2,160               | 155           | 1,800               | 110           | 1,080                                                                                                               | 75            | 810                    | 55            | 2,160                   | 155           | 3,240                                                                                                               | 360           |  |  |  |  |
| 10mm                          | 2,160                                                                                                             | 180           | 1,710               | 155           | 1,440               | 120           | 870                                                                                                                 | 75            | 650                    | 55            | 1,710                   | 155           | 2,520                                                                                                               | 380           |  |  |  |  |
| 12mm                          | 1,800                                                                                                             | 180           | 1,440               | 155           | 1,200               | 120           | 720                                                                                                                 | 75            | 540                    | 55            | 1,440                   | 155           | 2,160                                                                                                               | 400           |  |  |  |  |
| 14mm                          | 1,800                                                                                                             | 200           | 1,360               | 170           | 1,140               | 130           | 720                                                                                                                 | 80            | 540                    | 60            | 1,360                   | 170           | 2,000                                                                                                               | 440           |  |  |  |  |
| 16mm                          | 1,560                                                                                                             | 220           | 2,100               | 180           | 1,000               | 140           | 630                                                                                                                 | 90            | 470                    | 65            | 2,100                   | 180           | 1,800                                                                                                               | 480           |  |  |  |  |
| 18mm                          | 1,560                                                                                                             | 220           | 1,060               | 180           | 880                 | 140           | 630                                                                                                                 | 90            | 470                    | 65            | 1,060                   | 180           | 1,600                                                                                                               | 480           |  |  |  |  |
| 20mm                          | 1,200                                                                                                             | 220           | 960                 | 180           | 800                 | 140           | 480                                                                                                                 | 90            | 360                    | 65            | 960                     | 180           | 1,400                                                                                                               | 480           |  |  |  |  |
|                               |                                                                                                                   |               |                     |               |                     |               |                                                                                                                     |               |                        |               |                         |               |                                                                                                                     |               |  |  |  |  |
| 切削量<br>Cutting Amount<br>(mm) | Ap=0.5D<br>(D<3, Ap≦0.25D)<br> |               |                     |               |                     |               | Ap=0.1D<br>(D<3, Ap≦0.05D)<br> |               |                        |               |                         |               | Ap=0.5D<br>(D<3, Ap≦0.25D)<br> |               |  |  |  |  |

Table 02

S220 鎢鋼銑刀- 3 / 4刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

| 加工材質<br>Material           | 碳素鋼<br>Carbon Steels |               | 合金鋼<br>Alloy Steels                                                                 |               | 合金鋼<br>Alloy Steels |               | 調質鋼<br>Hardened Steels |               | 調質鋼<br>Hardened Steels |               | 不銹鋼<br>Stainless Steels                                                              |               | 鑄鐵<br>Cast Iron |               |                    |  |  |  |                                                                                       |  |  |  |
|----------------------------|----------------------|---------------|-------------------------------------------------------------------------------------|---------------|---------------------|---------------|------------------------|---------------|------------------------|---------------|--------------------------------------------------------------------------------------|---------------|-----------------|---------------|--------------------|--|--|--|---------------------------------------------------------------------------------------|--|--|--|
| 工件料號<br>Material Code      | S35C,S45C,S50C       |               | SCM,SKT,SKD                                                                         |               | SCM,SKT,SKD         |               | SKT,SKD                |               | SKT,SKD                |               | SUS304                                                                               |               | FC,FCD          |               |                    |  |  |  |                                                                                       |  |  |  |
| 硬度<br>Hardness             | HRC<20               |               | HRC20~30                                                                            |               | HRC30~45            |               | HRC45~55               |               | HRC55~63               |               | —                                                                                    |               | HRC<30          |               |                    |  |  |  |                                                                                       |  |  |  |
| 切削速度 Vc                    | 68m/min              |               | 54m/min                                                                             |               | 45m/min             |               | 27m/min                |               | 20m/min                |               | 54m/min                                                                              |               | 79m/min         |               |                    |  |  |  |                                                                                       |  |  |  |
| 外徑<br>Diameter             | S<br>(rpm)           | F<br>(mm/min) | S<br>(rpm)                                                                          | F<br>(mm/min) | S<br>(rpm)          | F<br>(mm/min) | S<br>(rpm)             | F<br>(mm/min) | S<br>(rpm)             | F<br>(mm/min) | S<br>(rpm)                                                                           | F<br>(mm/min) | S<br>(rpm)      | F<br>(mm/min) |                    |  |  |  |                                                                                       |  |  |  |
| 3mm                        | 7,560                | 490           | 5,760                                                                               | 345           | 4,680               | 165           | 3,020                  | 200           | 2,300                  | 150           | 5,760                                                                                | 345           | 8,640           | 900           |                    |  |  |  |                                                                                       |  |  |  |
| 4mm                        | 5,400                | 490           | 4,320                                                                               | 345           | 3,600               | 165           | 2,160                  | 200           | 1,620                  | 150           | 4,320                                                                                | 345           | 6,480           | 1,080         |                    |  |  |  |                                                                                       |  |  |  |
| 5mm                        | 4,500                | 490           | 3,420                                                                               | 345           | 2,880               | 165           | 1,800                  | 200           | 1,350                  | 150           | 3,420                                                                                | 345           | 5,040           | 1,080         |                    |  |  |  |                                                                                       |  |  |  |
| 6mm                        | 3,600                | 490           | 2,880                                                                               | 345           | 2,340               | 165           | 1,440                  | 200           | 1,080                  | 150           | 2,880                                                                                | 345           | 4,320           | 1,080         |                    |  |  |  |                                                                                       |  |  |  |
| 8mm                        | 2,700                | 490           | 2,160                                                                               | 345           | 1,800               | 175           | 1,080                  | 200           | 810                    | 150           | 2,160                                                                                | 345           | 3,240           | 1,080         |                    |  |  |  |                                                                                       |  |  |  |
| 10mm                       | 2,160                | 505           | 1,710                                                                               | 360           | 1,440               | 175           | 860                    | 210           | 650                    | 155           | 1,710                                                                                | 360           | 2,520           | 1,170         |                    |  |  |  |                                                                                       |  |  |  |
| 12mm                       | 1,800                | 505           | 1,440                                                                               | 360           | 1,200               | 175           | 720                    | 210           | 540                    | 155           | 1,440                                                                                | 360           | 2,160           | 1,260         |                    |  |  |  |                                                                                       |  |  |  |
| 14mm                       | 1,800                | 560           | 1,360                                                                               | 400           | 1,140               | 190           | 720                    | 230           | 540                    | 170           | 1,360                                                                                | 400           | 2,000           | 1,400         |                    |  |  |  |                                                                                       |  |  |  |
| 16mm                       | 1,560                | 600           | 1,200                                                                               | 420           | 1,000               | 200           | 620                    | 240           | 470                    | 180           | 1,200                                                                                | 420           | 1,800           | 1,500         |                    |  |  |  |                                                                                       |  |  |  |
| 18mm                       | 1,400                | 600           | 1,060                                                                               | 420           | 880                 | 200           | 560                    | 240           | 420                    | 180           | 1,060                                                                                | 420           | 1,600           | 1,500         |                    |  |  |  |                                                                                       |  |  |  |
| 20mm                       | 1,200                | 600           | 960                                                                                 | 420           | 800                 | 200           | 480                    | 240           | 360                    | 180           | 960                                                                                  | 420           | 1,490           | 1,400         |                    |  |  |  |                                                                                       |  |  |  |
|                            |                      |               |                                                                                     |               |                     |               |                        |               |                        |               |                                                                                      |               |                 |               |                    |  |  |  |                                                                                       |  |  |  |
| 切削量<br>Cutting Amount (mm) | Ap=1.5D<br>Ae≤0.1D   |               |  |               |                     |               | Ap=1.5D<br>Ae≤0.05D    |               |                        |               |  |               |                 |               | Ap=1.5D<br>Ae≤0.1D |  |  |  |  |  |  |  |

- 當加工聲音尖銳時，請調降主軸轉速(S) (10~40%)。When the sound is piercing, please lower the spindle speed(S) (10~40%).
- 當機台震動太大時，請調降進給速度(F) (10~40%)。When the machine is vibrating, please decrease the feed rate(F) (10~40%).
- 當主軸負載太大時，請調降進給速度(F) (10~40%)。When the spindle load is high, please decrease the feed rate(F) (10~40%).
- 以上數據為建議值，適當的條件仍需視機台狀況、夾治具品質、潤滑冷卻系統...等而改變。

These are recommended values which depend on the condition of the machine, fixture, lubricating & cooling systems... etc. They may have to be adapted.