

S220 鎢鋼平銑刀- 小柄型/標準型- 3刃

S220 MICRO GRAIN CARBIDE END MILLS- Square Type- 3F

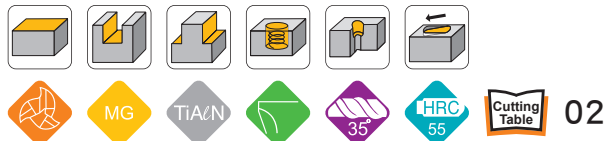
· CESM30000A

· CES30000A



刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.04

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



刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	白刀訂購編號 Uncoated Order No.	鍍膜訂購編號 Coated Order No.
2.0	5	50	4	3	CESM30200	CESM30200A
2.5	6	50	4	3	CESM30250	CESM30250A
3.0	8	50	4	3	CESM30300	CESM30300A
3.5	9	50	4	3	CESM30350	CESM30350A
4.0	10	50	4	3	CESM30400	CESM30400A
2.0	5	50	6	3	CES30200	CES30200A
2.5	6	50	6	3	CES30250	CES30250A
3.0	8	50	6	3	CES30300	CES30300A
3.5	9	50	6	3	CES30350	CES30350A
4.0	10	50	6	3	CES30400	CES30400A
4.5	11	50	6	3	CES30450	CES30450A
5.0	13	50	6	3	CES30500	CES30500A
5.5	14	50	6	3	CES30550	CES30550A
6.0	15	50	6	3	CES30600	CES30600A
6.5	16	60	8	3	CES30650	CES30650A
7.0	18	60	8	3	CES30700	CES30700A
7.5	18	60	8	3	CES30750	CES30750A
8.0	20	60	8	3	CES30800	CES30800A
8.5	20	75	10	3	CES30850	CES30850A
9.0	22	75	10	3	CES30900	CES30900A
9.5	22	75	10	3	CES30950	CES30950A
10.0	25	75	10	3	CES31000	CES31000A
10.5	25	75	12	3	CES31050	CES31050A
11.0	25	75	12	3	CES31100	CES31100A
11.5	25	75	12	3	CES31150	CES31150A
12.0	30	75	12	3	CES31200	CES31200A
13.0	30	75	14	3	CES3130014	CES3130014A
14.0	30	75	14	3	CES3140014	CES3140014A
15.0	35	100	16	3	CES31500	CES31500A
16.0	35	100	16	3	CES31600	CES31600A

※ 0.2以上採攻面寬型式。
From 0.2 and larger have flatland type.
※ 尖角型式依需求生產。
Sharp corner type is on request.

→ 切削條件表 P.534 → 技術資料 P.622
Cutting Condition Technical Data

S220

S220 Carbide End Mills

S220 鎢鋼銑刀系列

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 Material	碳素鋼 Carbon Steels		合金鋼 Alloy Steels		合金鋼 Alloy Steels		調質鋼 Hardened Steels		調質鋼 Hardened Steels		不銹鋼 Stainless Steels		鑄鐵 Cast Iron					
工件料號 Material Code	S35C,S45C,S50C		SCM,SKT,SKD		SCM,SKT,SKD		SKT,SKD		SKT,SKD		SUS304		FC,FCD					
硬度 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 Diameter	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (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 Cutting Amount (mm)	Ap=0.5D (D<3, Ap≦0.25D) 						Ap=0.1D (D<3, Ap≦0.05D) 						Ap=0.5D (D<3, Ap≦0.25D) 					

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 Material	碳素鋼 Carbon Steels		合金鋼 Alloy Steels		合金鋼 Alloy Steels		調質鋼 Hardened Steels		調質鋼 Hardened Steels		不銹鋼 Stainless Steels		鑄鐵 Cast Iron									
工件料號 Material Code	S35C,S45C,S50C		SCM,SKT,SKD		SCM,SKT,SKD		SKT,SKD		SKT,SKD		SUS304		FC,FCD									
硬度 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 Diameter	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)	S (rpm)	F (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 Cutting Amount (mm)	Ap=1.5D Ae≤0.1D						Ap=1.5D Ae≤0.05D								Ap=1.5D 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.