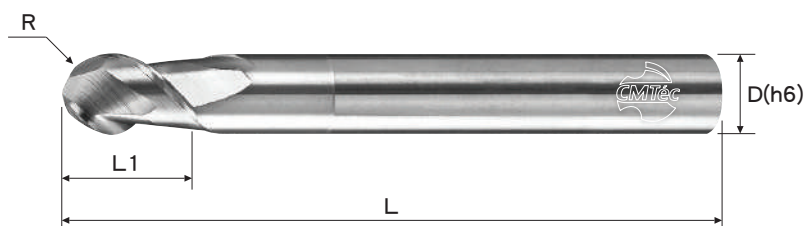


S220 CARBIDE END MILLS FOR COPPER & ALUMINUM- Ball Nose- Long Neck- 2F

- **CEBNC20000A**



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



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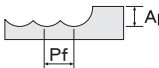
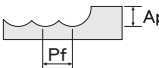
→ 切削條件表 P.546
Cutting Condition

→ 技術資料 P.622
Technical Data

Table 23

S220 鎢鋼銅鋁用長頸型球刀- 2刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

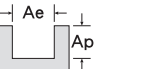
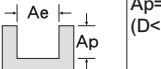
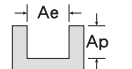
加工材質 Material	鋁合金 Aluminum Alloys		銅合金 Copper Alloys	
切削速度 Vc	150m/min		80m/min	
半徑 R	S (rpm)	F (mm/min)	S (rpm)	F (mm/min)
0.50R	15,920	500	12,740	270
0.75R	15,920	500	12,740	270
1.00R	15,920	500	12,740	270
1.25R	15,920	550	10,190	300
1.50R	15,920	550	8,490	300
2.00R	11,940	680	6,370	370
2.50R	9,550	680	5,100	370
3.00R	7,960	790	4,250	400
4.00R	5,970	900	3,190	450
5.00R	4,780	1,060	2,550	520
6.00R	3,980	1,350	2,120	680
切削量 Cutting Amount (mm)	Ap=0.02D Pf=0.05D 		Ap=0.02D Pf=0.05D 	

※ 切削公式 Cutting Formula : $S(\text{主軸轉速}) = Vc(\text{切削速度}) \times 1000 / D(\text{外徑}) / \pi (3.14)$ $F(\text{進給速度}) = fz(\text{每刃進給量}) \times Z(\text{刃數}) \times S(\text{主軸轉速})$

Table 24

M520 極細鎢鋼銑刀- 2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	136m/min		107m/min		90m/min		55m/min		41m/min		107m/min		158m/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	40,000	180	34,200	150	28,800	97	16,000	75	12,000	52	34,200	150	50,400	405				
2mm	21,600	232	17,280	180	14,400	127	8,640	97	6,480	67	17,280	180	25,200	435				
3mm	15,120	232	11,520	202	9,360	135	6,000	97	4,460	67	11,520	202	17,280	435				
4mm	10,800	247	8,640	202	7,200	150	4,320	97	3,240	75	8,640	202	12,960	435				
5mm	9,000	270	6,840	202	5,760	150	3,600	112	2,700	82	6,840	202	10,080	487				
6mm	7,200	270	5,760	202	4,680	150	2,880	112	2,160	82	5,760	202	8,640	540				
8mm	5,400	270	4,320	232	3,600	165	2,160	112	1,620	82	4,320	232	6,480	540				
10mm	4,320	270	3,420	232	2,880	180	1,740	112	1,300	82	3,420	232	5,040	570				
12mm	3,600	270	2,880	232	2,400	180	1,440	112	1,080	82	2,880	232	4,320	600				
14mm	3,600	300	2,720	255	2,280	195	1,440	120	1,080	90	2,720	255	4,000	660				
16mm	3,120	330	2,400	270	2,000	210	1,260	135	940	97	2,400	270	3,600	720				
18mm	3,120	330	2,120	270	1,760	210	1,260	135	940	97	2,120	270	3,200	720				
20mm	2,400	330	1,920	270	1,600	210	960	135	720	97	1,920	270	2,800	720				
切削量 Cutting Amount (mm)	Ap=0.3D (D<3, Ap≦0.15D)						Ap=0.06D (D<3, Ap≦0.03D)								Ap=0.3D (D<3, Ap≦0.15D)			

- 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.