

M520 ULTRA CARBIDE END MILLS- Ball Nose- Micro Diameter- 2F

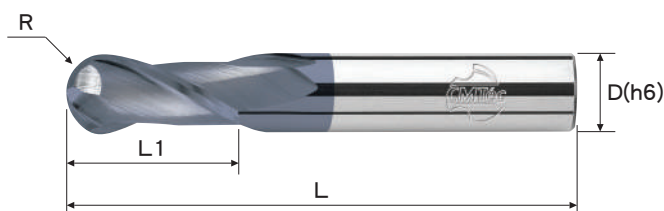
Technical drawing of a drill bit. The drawing shows a side view of the drill bit with the following dimensions labeled: L (total length), $D(h6)$ (outer diameter), and L_1 (length of the cutting edge). A reference point R is indicated at the tip of the drill bit.

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→ 技術資料 P.622
Technical Data

M520 ULTRA CARBIDE END MILLS- Ball Nose- 2F

- **MEB20000A**



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



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M520

M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

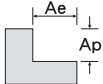
→ 切削條件表 P.548
Cutting Condition

→ 技術資料
Technical Data

Table 27

M520 極細鎢鋼短刀型 / 短刀長柄型銑刀- 4刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

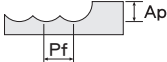
加工材質 Material	合金鋼 Alloy Steels		合金鋼 Alloy Steels		調質鋼 Hardened Steels		調質鋼 Hardened Steels		鑄鐵 Cast Iron	
工件料號 Material Code	SCM,SKT,SKD		SCM,SKT,SKD		SKT,SKD		SKT,SKD		FC,FCD	
硬度 Hardness	HRC20~30		HRC30~45		HRC45~55		HRC55~63		HRC<30	
切削速度 Vc	110m/min		110m/min		95m/min		79m/min		126m/min	
外徑 Diameter	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)
3mm	11,800	1,260	11,800	1,150	10,060	830	8,390	500	13,460	1,550
4mm	8,790	1,190	8,790	1,070	7,570	780	6,300	460	10,060	1,470
5mm	7,050	1,150	7,050	990	6,060	730	5,030	420	8,080	1,310
6mm	5,900	1,070	5,900	910	5,030	660	4,200	400	6,730	1,230
8mm	4,400	990	4,400	830	3,800	610	3,170	400	5,030	1,150
10mm	3,530	990	3,530	830	3,010	610	2,540	400	4,040	1,150
12mm	2,930	990	2,930	830	2,540	610	2,100	400	3,370	1,150
切削量 Cutting Amount (mm)	D<6, Ap=1D, Ae=0.02D D≥6, Ap=1D, Ae=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 28

M520 極細鎢鋼球刀- 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	100m/min		90m/min		75m/min		60m/min		45m/min		70m/min		100m/min	
半徑 R	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)
0.5R	31,850	770	28,660	620	23,890	400	19,110	210	14,330	140	22,290	290	31,850	770
1.0R	15,920	770	14,330	620	11,940	400	9,550	210	7,170	140	11,150	290	15,920	940
2.0R	7,960	770	7,170	630	5,970	450	4,780	270	3,580	180	5,570	370	7,960	940
3.0R	5,310	860	4,780	670	3,980	470	3,190	300	2,390	190	3,720	390	5,310	1,050
4.0R	3,980	1,050	3,580	790	2,990	560	2,390	330	1,790	210	2,790	460	3,980	1,300
5.0R	3,190	860	2,870	750	2,390	530	1,910	340	1,430	210	2,230	430	3,190	1,200
6.0R	2,650	890	2,390	700	1,990	490	1,590	310	1,190	200	1,860	430	2,650	1,100
8.0R	1,990	840	1,790	650	1,490	480	1,190	270	900	190	1,390	380	1,990	1,050
10.0R	1,590	770	1,430	570	1,190	450	960	250	720	170	1,120	370	1,590	940
切削量 Cutting Amount (mm)	Ap=0.05D Pf=0.1D 													

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

- 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.