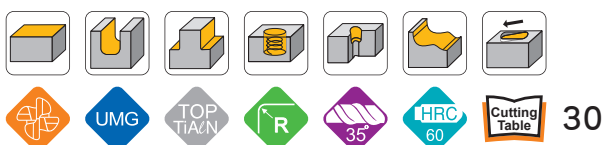


M520 ULTRA CARBIDE END MILLS- Corner Radius- Short Flute & Long Shank- 4F

Technical drawing of a double-flute drill bit. The drawing shows the bit from the side with the following dimensions labeled:

- R : Radius of the tip.
- $L1$: Length of the cutting edge.
- d : Diameter of the cutting edge.
- $L2$: Length of the cutting edge.
- L : Total length of the bit.
- $D(h6)$: Diameter of the shank.

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



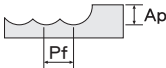
➡ 切削條件表 P.549
Cutting Condition

➡ 技術資料 P.622
Technical Data

Table 29

M520 極細鎢鋼短刀型 / 短刀長柄型球刀- 2刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

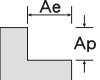
加工材質 Material	碳素鋼 Carbon Steels		合金鋼 Alloy Steels		合金鋼 Alloy Steels		調質鋼 Hardened Steels		調質鋼 Hardened Steels		不銹鋼 Stainless Steels		鑄鐵 Cast Iron	
工件料號 Material Code	S35C,S45C,S50C		SCM,SKT,SKD		SCM,SKT,SKD		SKT,SKD		SKT,SKD		SUS304		FC,FCD	
硬度 Hardness	HRC<20		HRC20~30		HRC30~45		HRC45~55		HRC55~63		—		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	850	28,660	680	23,890	440	19,110	230	14,330	150	22,290	320	31,850	850
1.0R	15,920	850	14,330	680	11,940	440	9,550	230	7,170	150	11,150	320	15,920	1,030
2.0R	7,960	850	7,170	690	5,970	500	4,780	300	3,580	200	5,570	410	7,960	1,030
3.0R	5,310	950	4,780	740	3,980	520	3,190	330	2,390	210	3,720	430	5,310	1,160
4.0R	3,980	1,160	3,580	870	2,990	620	2,390	360	1,790	230	2,790	510	3,980	1,430
5.0R	3,190	950	2,870	830	2,390	580	1,910	370	1,430	230	2,230	470	3,190	1,320
6.0R	2,650	980	2,390	770	1,990	540	1,590	340	1,190	220	1,860	470	2,650	1,210
8.0R	1,990	920	1,790	720	1,490	530	1,190	300	900	210	1,390	420	1,990	1,160
10.0R	1,590	850	1,430	630	1,190	500	960	280	720	190	1,120	410	1,590	1,030
切削量 Cutting Amount (mm)	Ap=0.05D Pf=0.1D 													

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

Table 30

M520 極細鎢鋼短刀型 / 短刀長柄型圓鼻銑刀- 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	128m/min		108m/min		65m/min		48m/min		189m/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	13,820	620	11,230	300	7,250	360	5,520	270	20,740	1,620
4mm	10,370	620	8,640	300	5,180	360	3,890	270	15,550	1,940
5mm	8,210	620	6,910	300	4,320	360	3,240	270	12,100	1,940
6mm	6,910	620	5,620	300	3,460	360	2,590	270	10,370	1,940
8mm	5,180	620	4,320	310	2,590	360	1,940	270	7,780	1,940
10mm	4,100	650	3,460	310	2,060	380	1,560	280	6,050	2,100
12mm	3,460	650	2,880	310	1,730	380	1,300	280	5,180	2,270
14mm	3,260	720	2,740	340	1,730	410	1,300	310	4,800	2,520
16mm	2,880	760	2,400	360	1,490	430	1,130	320	4,320	2,700
18mm	2,540	760	2,110	360	1,340	430	1,130	320	3,840	2,700
20mm	2,300	760	1,920	360	1,150	430	860	320	3,360	2,880
切削量 Cutting Amount (mm)	Ap=1.5D Ae=0.06D				Ap=1D Ae=0.03D				Ap=1.5D Ae=0.06D	
										

※ 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.