

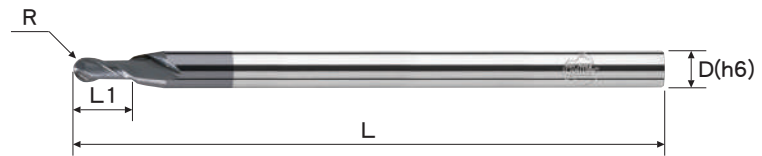
M520 極細鎢鋼球型銑刀- 微/小柄- 高精度型- 2刃

M520 ULTRA CARBIDE END MILLS- Ball Nose- High R Tolerance Type- Micro Diameter- 2F

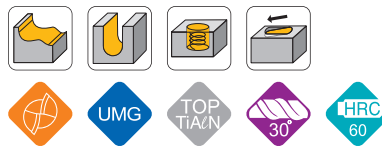
· MEBYS20000A

· MEBYM20000A

半徑 R	公差 Tolerance	刃徑 d	公差 Tolerance
0.1R	±0.005	0.2	-0.01~-0.02
0.15R	±0.005	0.3	-0.01~-0.02
0.2R	±0.005	0.4	-0.01~-0.02
0.25R	±0.005	0.5	-0.01~-0.02
0.3R	±0.005	0.6	-0.01~-0.02
0.35R	±0.005	0.7	-0.01~-0.02
0.4R	±0.005	0.8	-0.01~-0.02
0.45R	±0.005	0.9	-0.01~-0.02
0.5R	±0.005	1.0	-0.01~-0.02
0.75R	±0.005	1.5	-0.01~-0.02
1.0R	±0.005	2.0	-0.01~-0.02
1.25R	±0.005	2.5	-0.01~-0.02
1.5R	±0.005	3.0	-0.01~-0.02
2.0R	±0.005	4.0	-0.01~-0.02



Cutting Table 64



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

半徑 R	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.
0.1R	0.2	0.4	50	3	2	MEBYS20010	MEBYS20010A
0.15R	0.3	0.6	50	3	2	MEBYS20015	MEBYS20015A
0.2R	0.4	0.8	50	3	2	MEBYS20020	MEBYS20020A
0.25R	0.5	1.0	50	3	2	MEBYS20025	MEBYS20025A
0.3R	0.6	1.2	50	3	2	MEBYS20030	MEBYS20030A
0.35R	0.7	1.4	50	3	2	MEBYS20035	MEBYS20035A
0.4R	0.8	1.6	50	3	2	MEBYS20040	MEBYS20040A
0.45R	0.9	1.8	50	3	2	MEBYS20045	MEBYS20045A
0.5R	1.0	2.0	50	3	2	MEBYS20050	MEBYS20050A
0.6R	1.2	2.4	50	3	2	MEBYS20060	MEBYS20060A
0.7R	1.4	2.8	50	3	2	MEBYS20070	MEBYS20070A
0.75R	1.5	3.0	50	3	2	MEBYS20075	MEBYS20075A
0.8R	1.6	3.2	50	3	2	MEBYS20080	MEBYS20080A
0.9R	1.8	3.6	50	3	2	MEBYS20090	MEBYS20090A
1.0R	2.0	4.0	50	3	2	MEBYS20100	MEBYS20100A
1.5R	3.0	6.0	50	3	2	MEBYS20150	MEBYS20150A
0.1R	0.2	0.4	50	4	2	MEBYM20010	MEBYM20010A
0.15R	0.3	0.6	50	4	2	MEBYM20015	MEBYM20015A
0.2R	0.4	0.8	50	4	2	MEBYM20020	MEBYM20020A
0.25R	0.5	1.0	50	4	2	MEBYM20025	MEBYM20025A
0.3R	0.6	1.2	50	4	2	MEBYM20030	MEBYM20030A
0.35R	0.7	1.4	50	4	2	MEBYM20035	MEBYM20035A
0.4R	0.8	1.6	50	4	2	MEBYM20040	MEBYM20040A
0.45R	0.9	1.8	50	4	2	MEBYM20045	MEBYM20045A
0.5R	1.0	2.0	50	4	2	MEBYM20050	MEBYM20050A
0.75R	1.5	3.0	50	4	2	MEBYM20075	MEBYM20075A
1.0R	2.0	4.0	50	4	2	MEBYM20100	MEBYM20100A
1.25R	2.5	5.0	50	4	2	MEBYM20125	MEBYM20125A
1.5R	3.0	6.0	50	4	2	MEBYM20150	MEBYM20150A
2.0R	4.0	8.0	50	4	2	MEBYM20200	MEBYM20200A

→ 切削條件表 P.568
Cutting Condition

→ 技術資料 P.622
Technical Data

M520

M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 ULTRA CARBIDE END MILLS- Ball Nose- High R Tolerance Type- 2F

Technical drawing of a double-flute drill bit. The drawing shows the bit from a side perspective. The dimensions are labeled as follows: L_1 is the length of the cutting edge, L is the total length, $D(h6)$ is the outer diameter, and R is the radius of the tip. The bit has a blue-colored cutting edge and a silver-colored body. The brand name "GEMMATE" is visible on the body.

半徑 R	公差 Tolerance	刃徑 d	公差 Tolerance
1.0R	±0.005	2.0	-0.01~-0.02
1.25R	±0.005	2.5	-0.01~-0.02
1.5R	±0.005	3.0	-0.01~-0.02
2.0R	±0.005	4.0	-0.01~-0.02
2.5R	±0.005	5.0	-0.01~-0.02
3.0R	±0.005	6.0	-0.01~-0.02



64



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

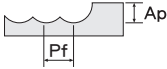
[illegible]

→ 技術資料
Technical Data

Table 64

M520 極細鎢鋼高精度型球刀- 2 / 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	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=0.02D Pf=0.05D 													

※ 切削公式 Cutting Formula : S(主軸轉速) = Vc(切削速度) × 1000 / D(外徑) / π (3.14) F(進給速度) = fz(每刃進給量) × Z(刃數) × S(主軸轉速)

Table 65

M520 極細鎢鋼圓鼻銑刀- 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	95m/min		75m/min		63m/min		38m/min		28m/min		75m/min		110m/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	22,400	140	19,150	110	16,130	70	8,960	60	6,720	40	19,150	110	28,220	300
2mm	12,100	180	9,680	140	8,060	100	4,840	70	3,630	50	9,680	140	14,110	330
3mm	8,460	180	6,450	150	5,240	100	3,360	70	2,500	50	6,450	150	9,680	330
4mm	6,050	180	4,840	150	4,030	110	2,420	70	1,820	60	4,840	150	7,260	330
5mm	5,040	200	3,830	150	3,220	110	2,020	80	1,510	60	3,830	150	5,650	360
6mm	4,030	200	3,220	150	2,620	110	1,620	80	1,210	60	3,220	150	4,840	400
8mm	3,020	200	2,420	180	2,020	120	1,210	80	900	60	2,420	180	3,630	400
10mm	2,420	200	1,910	180	1,620	140	980	80	730	60	1,910	180	2,820	420
12mm	2,020	200	1,620	180	1,340	140	810	80	610	60	1,620	180	2,420	450
14mm	2,020	220	1,520	190	1,280	140	810	90	610	60	1,520	190	2,240	500
16mm	1,740	250	1,340	200	1,120	160	700	100	530	70	1,340	200	2,020	540
18mm	1,740	250	1,180	200	980	160	700	100	530	70	1,180	200	1,790	540
20mm	1,340	250	1,070	200	900	160	540	100	400	70	1,070	200	1,570	540
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) 													

- 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.