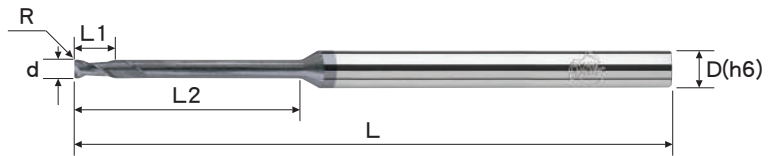


M520 極細鎢鋼圓鼻銑刀- 長頸型- 2刃

M520 ULTRA CARBIDE END MILLS- Corner Radius- Long Neck- 2F

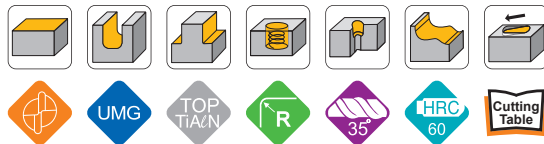
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刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.04

半徑 R	公差 Tolerance
R	± 0.02

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



32

刃徑 d	R角 R	刃長 L1	有效長 L2	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.
1.0	0.2	1.5	4	50	4	2	MECRN2010002040	MECRN2010002040A
1.0	0.2	1.5	6	50	4	2	MECRN2010002060	MECRN2010002060A
1.0	0.2	1.5	8	50	4	2	MECRN2010002080	MECRN2010002080A
1.0	0.2	1.5	10	50	4	2	MECRN2010002100	MECRN2010002100A
1.0	0.2	1.5	12	50	4	2	MECRN2010002120	MECRN2010002120A
1.5	0.2	2.3	6	50	4	2	MECRN2015002060	MECRN2015002060A
1.5	0.2	2.3	8	50	4	2	MECRN2015002080	MECRN2015002080A
1.5	0.2	2.3	10	50	4	2	MECRN2015002100	MECRN2015002100A
1.5	0.2	2.3	12	50	4	2	MECRN2015002120	MECRN2015002120A
1.5	0.2	2.3	16	50	4	2	MECRN2015002160	MECRN2015002160A
2.0	0.2	3.0	6	50	4	2	MECRN2020002060	MECRN2020002060A
2.0	0.2	3.0	8	50	4	2	MECRN2020002080	MECRN2020002080A
2.0	0.2	3.0	10	50	4	2	MECRN2020002100	MECRN2020002100A
2.0	0.2	3.0	12	50	4	2	MECRN2020002120	MECRN2020002120A
2.0	0.2	3.0	16	50	4	2	MECRN2020002160	MECRN2020002160A
2.0	0.2	3.0	20	60	4	2	MECRN2020002200	MECRN2020002200A
2.0	0.3	3.0	6	50	4	2	MECRN2020003060	MECRN2020003060A
2.0	0.3	3.0	8	50	4	2	MECRN2020003080	MECRN2020003080A
2.0	0.3	3.0	10	50	4	2	MECRN2020003100	MECRN2020003100A
2.0	0.3	3.0	12	50	4	2	MECRN2020003120	MECRN2020003120A
2.0	0.3	3.0	16	50	4	2	MECRN2020003160	MECRN2020003160A
2.0	0.3	3.0	20	60	4	2	MECRN2020003200	MECRN2020003200A
2.0	0.5	3.0	6	50	4	2	MECRN2020005060	MECRN2020005060A
2.0	0.5	3.0	8	50	4	2	MECRN2020005080	MECRN2020005080A
2.0	0.5	3.0	10	50	4	2	MECRN2020005100	MECRN2020005100A
2.0	0.5	3.0	12	50	4	2	MECRN2020005120	MECRN2020005120A
2.0	0.5	3.0	16	50	4	2	MECRN2020005160	MECRN2020005160A
2.0	0.5	3.0	20	60	4	2	MECRN2020005200	MECRN2020005200A
2.5	0.2	3.5	10	50	4	2	MECRN2025002100	MECRN2025002100A
2.5	0.2	3.5	16	50	4	2	MECRN2025002160	MECRN2025002160A
2.5	0.2	3.5	20	60	4	2	MECRN2025002200	MECRN2025002200A
2.5	0.3	3.5	10	50	4	2	MECRN2025003100	MECRN2025003100A
2.5	0.3	3.5	16	50	4	2	MECRN2025003160	MECRN2025003160A
2.5	0.3	3.5	20	60	4	2	MECRN2025003200	MECRN2025003200A
2.5	0.5	3.5	10	50	4	2	MECRN2025005100	MECRN2025005100A
2.5	0.5	3.5	16	50	4	2	MECRN2025005160	MECRN2025005160A
2.5	0.5	3.5	20	60	4	2	MECRN2025005200	MECRN2025005200A

→ 切削條件表 Cutting Condition P.550 → 技術資料 Technical Data P.622

M520

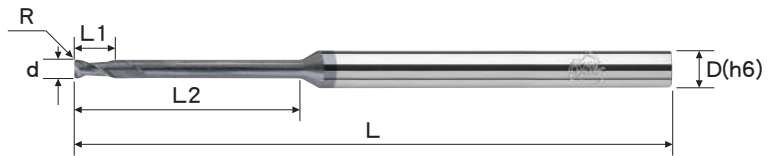
M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 極細鎢鋼圓鼻銑刀- 長頸型- 2刃

M520 ULTRA CARBIDE END MILLS- Corner Radius- Long Neck- 2F

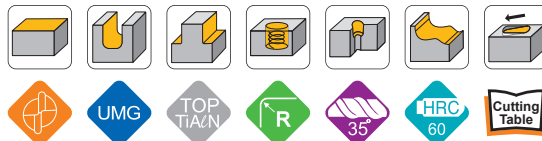
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刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.04

半徑 R	公差 Tolerance
R	± 0.02

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



32

刃徑 d	R角 R	刃長 L1	有效長 L2	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.
3.0	0.2	4.5	10	50	6	2	MECRN2030002100	MECRN2030002100A
3.0	0.2	4.5	16	50	6	2	MECRN2030002160	MECRN2030002160A
3.0	0.2	4.5	20	60	6	2	MECRN2030002200	MECRN2030002200A
3.0	0.3	4.5	10	50	6	2	MECRN2030003100	MECRN2030003100A
3.0	0.3	4.5	16	50	6	2	MECRN2030003160	MECRN2030003160A
3.0	0.3	4.5	20	60	6	2	MECRN2030003200	MECRN2030003200A
3.0	0.5	4.5	10	50	6	2	MECRN2030005100	MECRN2030005100A
3.0	0.5	4.5	16	50	6	2	MECRN2030005160	MECRN2030005160A
3.0	0.5	4.5	20	60	6	2	MECRN2030005200	MECRN2030005200A
3.0	1.0	4.5	10	50	6	2	MECRN2030010100	MECRN2030010100A
3.0	1.0	4.5	16	50	6	2	MECRN2030010160	MECRN2030010160A
3.0	1.0	4.5	20	60	6	2	MECRN2030010200	MECRN2030010200A
4.0	0.2	6.0	12	50	6	2	MECRN2040002120	MECRN2040002120A
4.0	0.2	6.0	16	50	6	2	MECRN2040002160	MECRN2040002160A
4.0	0.2	6.0	20	60	6	2	MECRN2040002200	MECRN2040002200A
4.0	0.2	6.0	25	60	6	2	MECRN2040002250	MECRN2040002250A
4.0	0.3	6.0	12	50	6	2	MECRN2040003120	MECRN2040003120A
4.0	0.3	6.0	16	50	6	2	MECRN2040003160	MECRN2040003160A
4.0	0.3	6.0	20	60	6	2	MECRN2040003200	MECRN2040003200A
4.0	0.3	6.0	25	60	6	2	MECRN2040003250	MECRN2040003250A
4.0	0.5	6.0	12	50	6	2	MECRN2040005120	MECRN2040005120A
4.0	0.5	6.0	16	50	6	2	MECRN2040005160	MECRN2040005160A
4.0	0.5	6.0	20	60	6	2	MECRN2040005200	MECRN2040005200A
4.0	0.5	6.0	25	60	6	2	MECRN2040005250	MECRN2040005250A
4.0	1.0	6.0	12	50	6	2	MECRN2040010120	MECRN2040010120A
4.0	1.0	6.0	16	50	6	2	MECRN2040010160	MECRN2040010160A
4.0	1.0	6.0	20	60	6	2	MECRN2040010200	MECRN2040010200A
4.0	1.0	6.0	25	60	6	2	MECRN2040010250	MECRN2040010250A
5.0	0.2	7.0	16	60	6	2	MECRN2050002160	MECRN2050002160A
5.0	0.2	7.0	20	60	6	2	MECRN2050002200	MECRN2050002200A
5.0	0.2	7.0	25	60	6	2	MECRN2050002250	MECRN2050002250A
5.0	0.2	7.0	30	60	6	2	MECRN2050002300	MECRN2050002300A
5.0	0.3	7.0	16	60	6	2	MECRN2050003160	MECRN2050003160A
5.0	0.3	7.0	20	60	6	2	MECRN2050003200	MECRN2050003200A
5.0	0.3	7.0	25	60	6	2	MECRN2050003250	MECRN2050003250A
5.0	0.3	7.0	30	60	6	2	MECRN2050003300	MECRN2050003300A

→ 切削條件表
Cutting Condition

P.550

→ 技術資料
Technical Data

P.622

M520

M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 ULTRA CARBIDE END MILLS- Corner Radius- Long Neck- 2F

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



➡ 切削條件表 P.550
Cutting Condition

➡ 技術資料 P.622
Technical Data

Table 31

M520 極細鎢鋼強重型銑刀- 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	94m/min		75m/min		63m/min		37m/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)
3mm	10,500	675	8,000	475	6,500	225	4,200	250	3,150	200	8,000	475	12,000	1,250
4mm	7,500	675	6,000	475	5,000	225	3,000	275	2,250	200	6,000	475	9,000	1,500
5mm	6,250	675	4,000	475	4,000	225	2,500	275	1,875	200	4,750	475	7,000	1,500
6mm	5,000	675	3,250	475	3,250	225	2,000	275	1,500	200	4,000	475	6,000	1,500
8mm	3,750	675	3,000	475	2,500	238	1,500	275	1,125	200	3,000	475	4,500	1,500
10mm	3,000	700	2,375	500	2,000	238	1,200	275	900	213	2,375	500	3,500	1,625
12mm	2,500	700	2,000	500	1,650	238	1,000	275	750	213	2,000	500	3,000	1,750
14mm	2,250	700	1,700	500	1,425	238	900	275	675	213	1,700	500	2,500	1,750
16mm	1,950	750	1,500	525	1,250	250	800	300	575	225	1,500	525	2,250	1,875
18mm	1,750	750	1,325	525	1,100	250	700	300	525	225	1,325	525	2,000	1,875
20mm	1,500	750	1,200	525	1,000	250	600	300	450	225	1,200	525	1,750	2,000
切削量 Cutting Amount (mm)	Ap=1.5D Ap≤0.1D						Ap=1D Ae≤0.05D				Ap=1.5D Ae≤0.1D			

Table 32

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	28,000	170	23,940	140	20,160	90	11,200	70	8,400	50	23,940	140	35,280	380
2mm	15,120	220	12,100	170	10,080	120	6,050	90	4,540	60	12,100	170	17,640	410
3mm	10,580	220	8,060	190	6,550	125	4,200	90	3,120	60	8,060	190	12,100	410
4mm	7,560	230	6,050	190	5,040	140	3,020	90	2,270	70	6,050	190	9,070	410
5mm	6,300	250	4,790	190	4,030	140	2,520	105	1,890	80	4,790	190	7,060	455
6mm	5,040	250	4,030	190	3,280	140	2,020	105	1,510	80	4,030	190	6,050	500
8mm	3,780	250	3,020	220	2,520	150	1,510	105	1,130	80	3,020	220	4,540	500
10mm	3,020	250	2,390	220	2,020	170	1,220	105	910	80	2,390	220	3,530	530
12mm	2,520	250	2,020	220	1,680	170	1,010	105	760	80	2,020	220	3,020	560
14mm	2,520	280	1,900	240	1,600	180	1,010	110	760	80	1,900	240	2,800	620
16mm	2,180	310	1,680	250	1,400	200	880	130	660	90	1,680	250	2,520	670
18mm	2,180	310	1,480	250	1,230	200	880	130	660	90	1,480	250	2,240	670
20mm	1,680	310	1,340	250	1,120	200	670	130	500	90	1,340	250	1,960	670
切削量 Cutting Amount (mm)	Ap=0.5D (D<3, Ae≤0.25D)						Ap=0.1D (D<3, Ae≤0.05D)				Ap=0.5D (D<3, Ae≤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.