

M520

極細鎢鋼銑刀系列

Ultra Carbide End Mills Series

合金鋼

調質鋼 $\leq 55\text{HRC}$

不銹鋼

鈦合金 / 鎳基合金

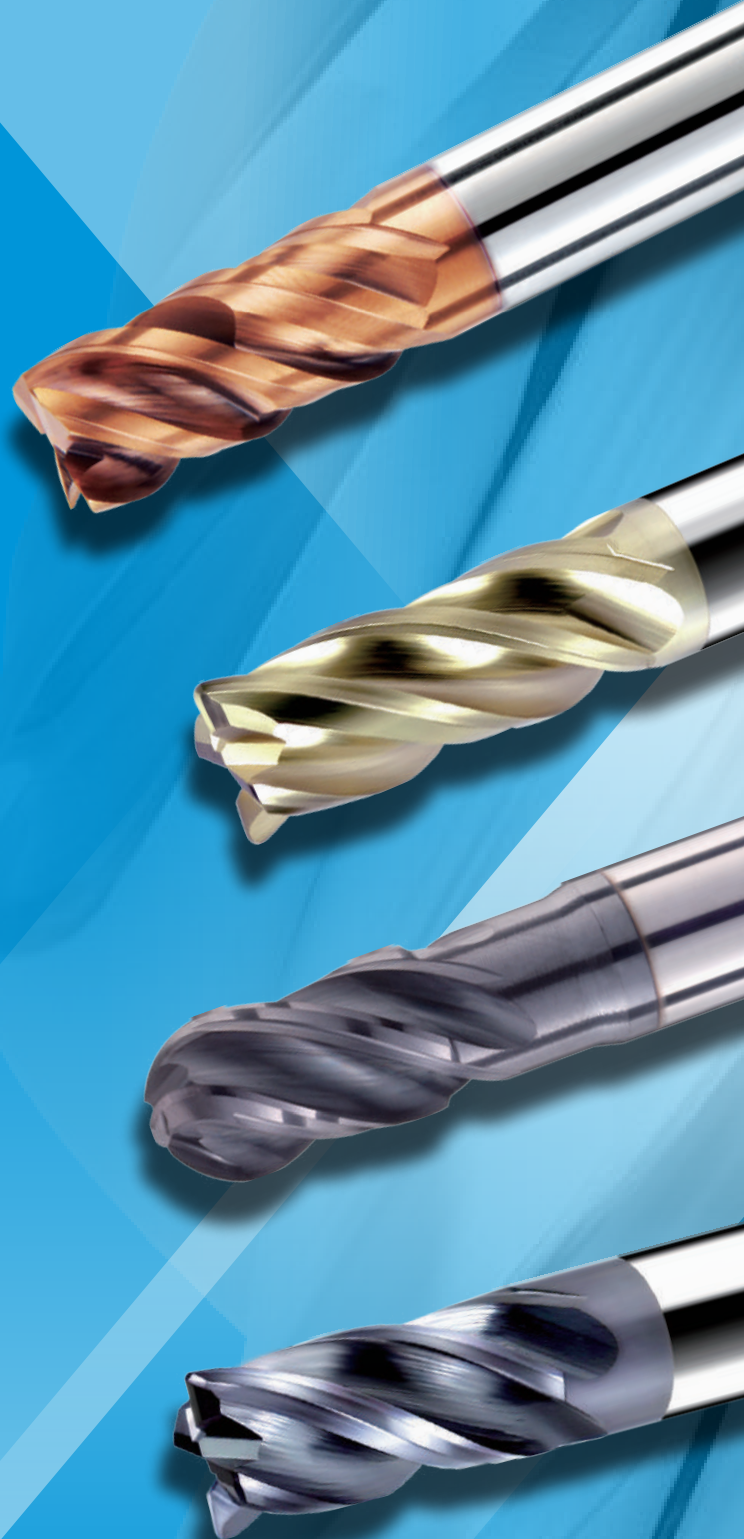
For Difficult-to-Cut materials (high-temp alloy), stainless steel (300 series), alloy steel and hardened steel ($\leq 55\text{HRC}$) machining.

模具加工專用刀具。

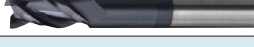
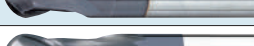
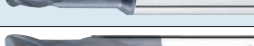
Cutting tools for mold processing

包裝盒蓋 / 藍色

Color of M520 packaging box / Blue



產品選擇表 Product Selection Table

刀型 Type	刃數 Flute	型號 Model Number	產品類別 Product Classification	形狀 Appearance	尺寸 Size	頁數 Page
M520 極細鎢鋼銑刀系列 M520 Carbide End Mills Series 應用於鋼材(≦55HRC)加工 For Alloy Steel (≦55HRC) Machining.						
平刀 Square	二刃 2 Flutes	MESS20000A	微小徑型 -Micro Dia.		Ø0.2 ~ Ø3.0	98
		MESM20000A			Ø0.2 ~ Ø0.9	98
		MESM20000A			Ø1 ~ Ø4	99
		MES20000A			Ø3 ~ Ø25	100
	四刃 4 Flutes	MESS40000A			Ø1 ~ Ø3	101
		MESM40000A			Ø1 ~ Ø4	101
		MES40000A			Ø3 ~ Ø25	102
短刃平刀 Short Flute Square	二刃 2 Flutes	MESD20000A	短刃型 -Short Flute		Ø1 ~ Ø12	103
	四刃 4 Flutes	MESD40000A	短刃型 -Short Flute		Ø3 ~ Ø12	104
長柄平刀 Long Shank Square	二刃 2 Flutes	MESDL20000A	短刃型 -Short Flute		Ø1 ~ Ø12	103
	四刃 4 Flutes	MESDL40000A	短刃型 -Short Flute		Ø3 ~ Ø12	104
長頸平刀 Long Neck Square	二刃 2 Flutes	MEN20000000A			Ø1 ~ Ø4	105
球刀 Ball	二刃 2 Flutes	MEBS20000A	微小徑型 -Micro Dia.		0.05R ~ 1.5R	106
		MEBM20000A			0.05R ~ 0.5R	106
		MEB(M)20000A			0.5R ~ 10.0R	107
	四刃 4 Flutes	MEB(M)40000A			1R ~ 8R	108
短刃球刀 Short Flute Ball	二刃 2 Flutes	MEBDM20000A	短刃型 -Short Flute		0.15R~1.50R	109
		MEBD20000A	短刃型 -Short Flute		1R ~ 6R	109
長柄球刀 Long Shank Ball	二刃 2 Flutes	MEBML20000A			1R ~ 2R	110
		MEBL20000A			1R ~ 10R	110
	二刃 2 Flutes	MEBDML20000A	短刃型 -Short Flute		0.5R ~ 1.5R	111
		MEBDL20000A	短刃型 -Short Flute		1R ~ 6R	111
長頸球刀 Long Neck Ball	二刃 2 Flutes	MEBN20000000A			0.5R ~ 2.0R	112
	四刃 4 Flutes	MEBN40000000A			0.5R ~ 2.0R	113
圓鼻刀 Corner Radius	二刃 2 Flutes	MECR(M)2000000A			Ø1 ~ Ø12	114
	四刃 4 Flutes	MECR(M)4000000A			Ø1 ~ Ø12	115

碳素鋼 Carbon Steels (<20HRC)	合金鋼 Alloy Steels (20~30HRC)	合金鋼 Alloy Steels (30~45HRC)	調質鋼 Hardened Steels (45~55HRC)	調質鋼 Hardened Steels (55~65HRC)	不銹鋼 Stainless Steels	鑄鐵 Cast Iron	鋁合金 Aluminum Alloys	銅 Copper	非金屬 Non-metal	高溫合金 High-Temp Alloys	冷卻方式推薦 Suitable Coolant	加工型態 Type of Finishing			
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加工型態 Type of Finishing → A=超精銑 Bright Finishing B=精銑 Finishing C=中銑 Semi Finishing D=粗銑 Roughing

產品選擇表 Product Selection Table

刀型 Type	刃數 Flute	型號 Model Number	產品類別 Product Classification	形狀 Appearance	尺寸 Size	頁數 Page
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圓鼻刀 Corner Radius	四刃 4 Flutes	MECD(M)4000000A	短刃型 -Short Flute		Ø1 ~ Ø12	116
長柄圓鼻刀 Long Shsnk Corner Radius	三刃 3 Flutes	MECDL300000A	短刃型 -Short Flute		Ø3 ~ Ø12	117
	四刃 4 Flutes	MECDL400000A	短刃型 -Short Flute		Ø3 ~ Ø12	118
長頸圓鼻刀 Long Neck Corner Radius	二刃 2 Flutes	MECRN2000000000A			Ø1 ~ Ø6	119 ~ 121
	四刃 4 Flutes	MECRN4000000000A			Ø1 ~ Ø6	122 ~ 124
高精度刀具 High Tolerance End Mills						
球刀 Ball	二刃 2 Flutes	MEBYS200000A	高精度型 -High Tolerance		0.1R ~ 1.5R	125
		MEBYM200000A	高精度型 -High Tolerance		0.1R ~ 2R	125
		MEBY200000A	高精度型 -High Tolerance		1R ~ 3R	126
	四刃 4 Flutes	MEBYM400000A	高精度型 -High Tolerance		1R ~ 2R	127
		MEBY400000A	高精度型 -High Tolerance		3R	127
圓鼻刀 Corner Radius	二刃 2 Flutes	MECYM20000000A	高精度型 -High Tolerance		Ø1 ~ Ø3	128
		MECY20000000A	高精度型 -High Tolerance		Ø4 ~ Ø6	128
	四刃 4 Flutes	MECY40000000A	高精度型 -High Tolerance		Ø3 ~ Ø6	129
應用於鋼材(≦50HRC)加工 For Alloy Steel (≦50HRC) Machining. 不等距 & 圓溝設計 Unequal Flute Spacing Angle & Circular Flute.						
平刀 Square	四刃 4 Flutes	MEHU(M)40000A	高導型 -High Helix		Ø3 ~ Ø16	130
應用於鋼材(≦55HRC)加工 For Alloy Steel (≦55HRC) Machining. 強力重切削 Heavy Duty Cutting.						
平刀 Square	三刃 3 Flutes	MEHHD300000A	短刃型 -Short Flute		Ø3 ~ Ø12	131
	四刃 4 Flutes	MEHHD400000A	短刃型 -Short Flute		Ø3 ~ Ø12	131
		MEHH400000A			Ø3 ~ Ø20	132
圓鼻刀 Corner Radius	四刃 4 Flutes	MEHHC40000000A			Ø3 ~ Ø20	133
應用於鋼材(≦55HRC)加工 For Alloy Steel (≦55HRC) Machining. 高剛性銑刀 High Rigidity End Mill (不等距 & 雙心徑設計 Unequal Flute Spacing Angle & Duo Core Dia.)						
平刀 Square	四刃 4 Flutes	MEP400000A	標準型 -Standard		Ø4 ~ Ø12	134
		MEP40000-C0000A	倒角型 -Chamfering		Ø4 ~ Ø12	134
		MEP40000-R0000A	R角型 -Corner Radius		Ø4 ~ Ø12	135

碳素鋼 Carbon Steels ($<20\text{HRC}$)		合金鋼 Alloy Steels ($20\sim30\text{HRC}$)		合金鋼 Alloy Steels ($30\sim45\text{HRC}$)		調質鋼 Hardened Steels ($45\sim55\text{HRC}$)		調質鋼 Hardened Steels ($55\sim65\text{HRC}$)		不銹鋼 Stainless Steels		鑄鐵 Cast Iron		鋁合金 Aluminum Alloys		銅 Copper		非金屬 Non-metal		高溫合金 High-Temp Alloys		冷卻方式推薦 Suitable Coolant		加工型態 Type of Finishing			
P Carbon Steels ($<20\text{HRC}$)		P Alloy Steels ($20\sim30\text{HRC}$)		P Alloy Steels ($30\sim45\text{HRC}$)		H Hardened Steels ($45\sim55\text{HRC}$)		H Hardened Steels ($55\sim65\text{HRC}$)		M Stainless Steels		K Cast Iron		N Aluminum Alloys		N Copper		X Non-metal		S High Temp Alloys				A	B	C	D
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加工型態 Type of Finishing → A=超精銑 Bright Finishing B=精銑 Finishing C=中銑 Semi Finishing D=粗銑 Roughing

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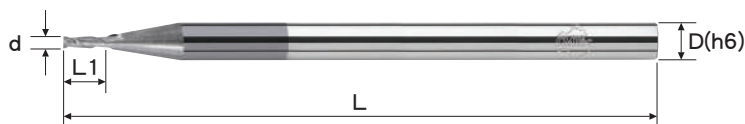
加工型態 Type of Finishing → A=超精銑 Bright Finishing B=精銑 Finishing C=中銑 Semi Finishing D=粗銑 Roughing

M520 極細鎢鋼平銑刀- 微柄/小柄型- 2刃

M520 ULTRA CARBIDE END MILLS- Square Type- Micro Diameter- 2F

· MESS20000A

· MESM20000A



刃徑 d	公差 Tolerance
Φ	0 ~ -0.02

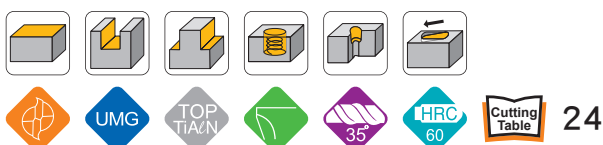
超精銑 Bright Finishing	—
精銑 Finishing	○
中銑 Semi Finishing	◎
粗銑 Roughing	○



M520 ULTRA CARBIDE END MILLS- Square Type- 2F

Technical drawing of a double-flute drill bit. The drawing shows the bit with its dimensions labeled: d (minor diameter), $D(h6)$ (major diameter), L_1 (length of the cutting edge), and L (total length). The bit has a blue coating on the cutting edge and a silver body with the 'EMRAC' logo.

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



※ 0.2以上採攻面寬型式。
From 0.2 and larger have flatland type.

※ 尖角型式依需求生產。
Sharp corner type is on request.

➡ 切削條件表 P.546
Cutting Condition

➡ 技術資料 P.622
Technical Data

M520 ULTRA CARBIDE END MILLS- Square Type- 2F

Technical drawing of a double-flute drill bit. The drawing shows the bit's profile with the following dimensions labeled:

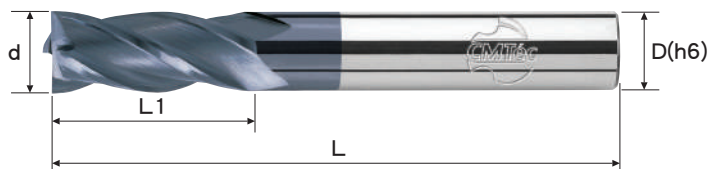
- d : Drill bit diameter.
- L_1 : Length of the cutting edge.
- L : Total length of the drill bit.
- $D(h6)$: Diameter of the drill bit shank.



→ 技術資料
Technical Data

M520 ULTRA CARBIDE END MILLS- Square Type- 4F

▪ **MESM40000A**



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



26

※ 0.2以上採攻面寬型式。
From 0.2 and larger have flatland type.

※ 尖角型式依需求生產。
Sharp corner type is on request.

M520 極細鎢鋼銑刀系列

M520 ULTRA CARBIDE END MILLS- Square Type- 4F

Technical drawing of a double-flute drill bit. The drawing shows the bit's profile with the following dimensions labeled:

- d : Diameter of the drill bit.
- L_1 : Length of the cutting edge.
- L : Total length of the drill bit.
- $D(h6)$: Diameter of the drill bit shank.

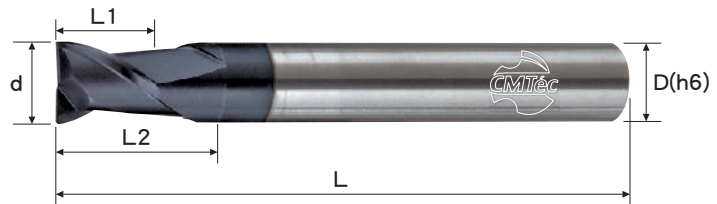


→ 技術資料 P.622
Technical Data

M520 極細鎢鋼平銑刀- 短刃型- 2刃

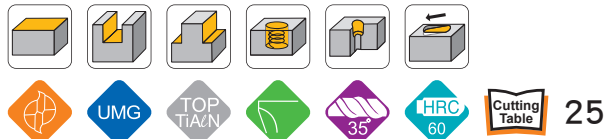
M520 ULTRA CARBIDE END MILLS- Square Type- Short Flute- 2F

· MESD20000A



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

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

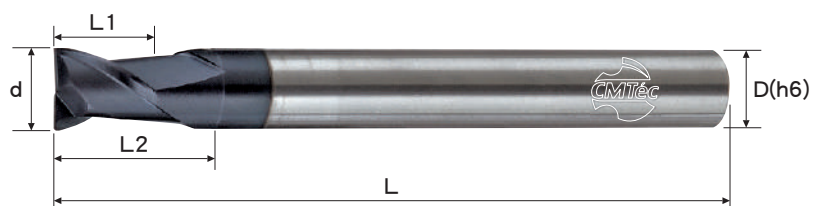


刃徑 d	刃長 L1	有效長 L2	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
1.0	1	2	50	6	2	MESD20100A
2.0	2	4	50	6	2	MESD20200A
3.0	3	6	50	6	2	MESD20300A
4.0	4	8	50	6	2	MESD20400A
6.0	6	12	50	6	2	MESD20600A
8.0	8	16	60	8	2	MESD20800A
10.0	10	20	75	10	2	MESD21000A
12.0	12	24	75	12	2	MESD21200A

M520 極細鎢鋼平銑刀- 短刃長柄型- 2刃

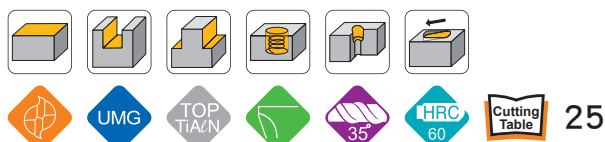
M520 ULTRA CARBIDE END MILLS- Square Type- Short Flute & Long Shank- 2F

· MESDL20000A



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

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



刃徑 d	刃長 L1	有效長 L2	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
1.0	1	2	75	6	2	MESDL20100A
2.0	2	4	75	6	2	MESDL20200A
3.0	3	6	75	6	2	MESDL20300A
4.0	4	8	75	6	2	MESDL20400A
6.0	6	12	75	6	2	MESDL20600A
8.0	8	16	100	8	2	MESDL20800A
10.0	10	20	100	10	2	MESDL21000A
12.0	12	24	100	12	2	MESDL21200A

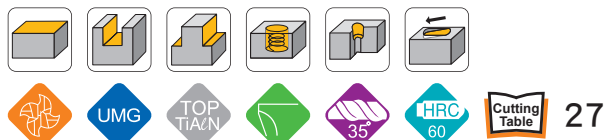
M520 極細鎢鋼平銑刀- 短刃型- 4刃

M520 ULTRA CARBIDE END MILLS- Square Type- Short Flute- 4F

· MESD40000A

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

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



刃徑 d	刃長 L1	有效長 L2	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
3.0	3	6	50	6	4	MESD40300A
4.0	4	8	50	6	4	MESD40400A
5.0	5	10	50	6	4	MESD40500A
6.0	6	12	50	6	4	MESD40600A
8.0	8	16	60	8	4	MESD40800A
10.0	10	20	75	10	4	MESD41000A
12.0	12	24	75	12	4	MESD41200A

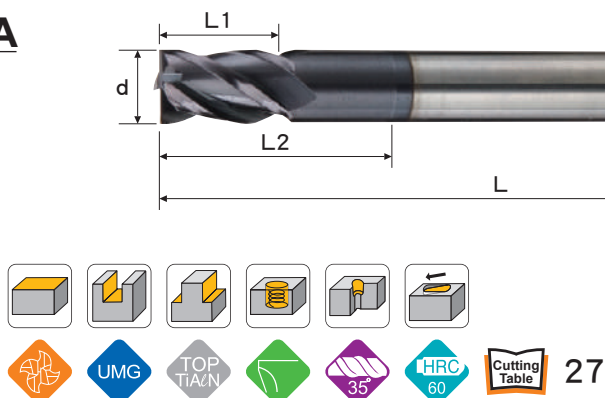
M520 極細鎢鋼平銑刀- 短刃長柄型- 4刃

M520 ULTRA CARBIDE END MILLS- Square Type- Short Flute & Long Shank- 4F

· MESDL40000A

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

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



刃徑 d	刃長 L1	有效長 L2	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
3.0	3	6	75	6	4	MESDL40300A
4.0	4	8	75	6	4	MESDL40400A
5.0	5	10	75	6	4	MESDL40500A
6.0	6	12	75	6	4	MESDL40600A
8.0	8	16	100	8	4	MESDL40800A
10.0	10	20	100	10	4	MESDL41000A
12.0	12	24	100	12	4	MESDL41200A

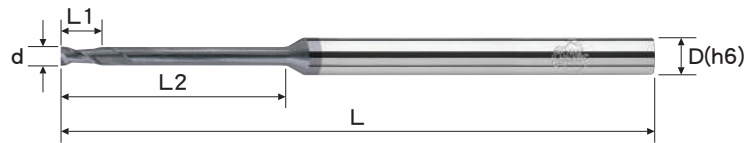
→ 切削條件表
Cutting Condition P.548

→ 技術資料
Technical Data P.622

M520 極細鎢鋼平銑刀- 長頸型- 2刃

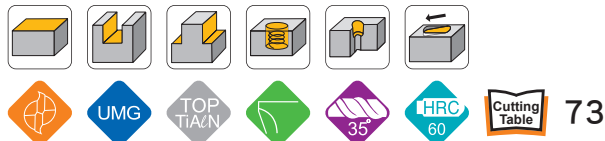
M520 ULTRA CARBIDE END MILLS- Square Type- Long Neck- 2F

· MEN20000000A



刃徑 d	公差 Tolerance
Φ	0 ~ -0.02

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



刃徑 d	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	1.5	4	50	4	2	MEN20100040	MEN20100040A
1.0	1.5	8	50	4	2	MEN20100080	MEN20100080A
1.2	1.8	6	50	4	2	MEN20120060	MEN20120060A
1.2	1.8	10	50	4	2	MEN20120100	MEN20120100A
1.5	2.3	8	50	4	2	MEN20150080	MEN20150080A
1.5	2.3	12	50	4	2	MEN20150120	MEN20150120A
1.8	2.7	10	50	4	2	MEN20180100	MEN20180100A
1.8	2.7	16	50	4	2	MEN20180160	MEN20180160A
2.0	3.0	10	50	4	2	MEN20200100	MEN20200100A
2.0	3.0	16	50	4	2	MEN20200160	MEN20200160A
2.0	3.0	20	60	4	2	MEN20200200	MEN20200200A
2.5	3.5	12	50	4	2	MEN20250120	MEN20250120A
2.5	3.5	20	60	4	2	MEN20250200	MEN20250200A
3.0	4.5	12	50	6	2	MEN20300120	MEN20300120A
3.0	4.5	20	60	6	2	MEN20300200	MEN20300200A
4.0	6.0	20	60	6	2	MEN20400200	MEN20400200A
4.0	6.0	30	60	6	2	MEN20400300	MEN20400300A
1.0	1.5	4	38	4	2	MEN20100040038L	MEN20100040038LA
1.0	1.5	8	38	4	2	MEN20100080038L	MEN20100080038LA
1.2	1.8	6	38	4	2	MEN20120060038L	MEN20120060038LA
1.2	1.8	10	38	4	2	MEN20120100038L	MEN20120100038LA
1.5	2.3	8	38	4	2	MEN20150080038L	MEN20150080038LA
1.5	2.3	12	38	4	2	MEN20150120038L	MEN20150120038LA
1.8	2.7	10	38	4	2	MEN20180100038L	MEN20180100038LA
1.8	2.7	16	38	4	2	MEN20180160038L	MEN20180160038LA
2.0	3.0	10	38	4	2	MEN20200100038L	MEN20200100038LA
2.0	3.0	16	38	4	2	MEN20200160038L	MEN20200160038LA
2.0	3.0	20	50	4	2	MEN20200200050L	MEN20200200050LA
2.5	3.5	12	38	4	2	MEN20250120038L	MEN20250120038LA
2.5	3.5	20	50	4	2	MEN20250200050L	MEN20250200050LA
3.0	4.5	12	38	6	2	MEN20300120038L	MEN20300120038LA
3.0	4.5	20	50	6	2	MEN20300200050L	MEN20300200050LA
4.0	6.0	20	50	6	2	MEN20400200050L	MEN20400200050LA
4.0	6.0	30	50	6	2	MEN20400300050L	MEN20400300050LA

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), $D(h6)$ (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**



→ 技術資料 P.622
Technical Data

M520 ULTRA CARBIDE END MILLS- Ball Nose- 4F

▪ **MEB40000A**



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



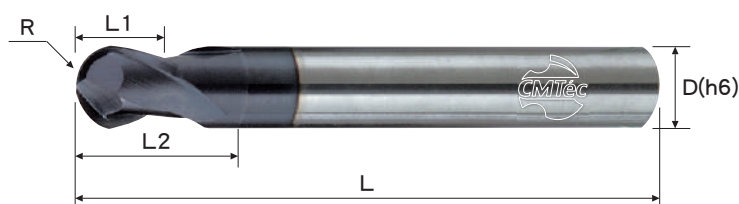
 28

➡ **切削條件表** P.548
Cutting Condition

➡ **技術資料** P.622
Technical Data

M520 ULTRA CARBIDE END MILLS- Ball Nose- Short Flute- 2F

▪ **MEBD2000A**



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



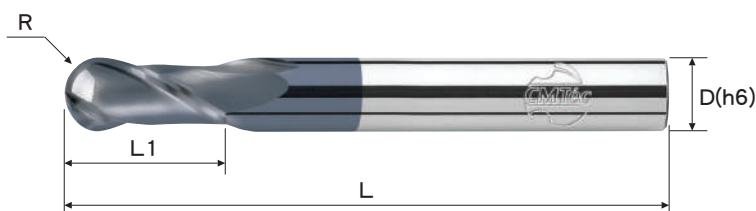
29

➡ 切削條件表 P.549
Cutting Condition

→ 技術資料 P.622
Technical Data

M520 ULTRA CARBIDE END MILLS- Ball Nose- Long Shank- 2F

▪ **MEBL20000A**



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



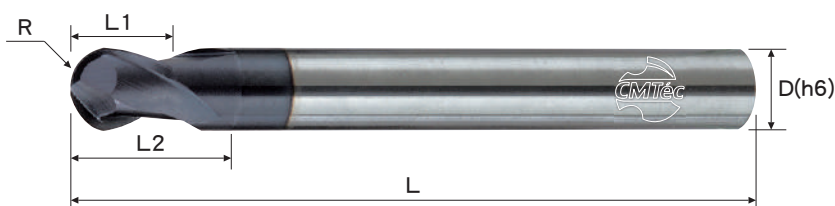
28

→ 切削條件表 P.548
Cutting Condition

→ 技術資料
Technical Data

M520 ULTRA CARBIDE END MILLS- Ball Nose- Short Flute & Long Shank- 2F

- **MEBDL20000A**



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.549
Cutting Condition

→ 技術資料
Technical Data

M520 ULTRA CARBIDE END MILLS- Ball Nose- Long Neck- 2F

Technical drawing of a drill bit. The drawing shows a side view of the drill bit with the following dimensions labeled:

- R : Radius of the tip.
- $L1$: Length of the tip section.
- $L2$: Length of the flute section.
- L : Total length of the drill bit.
- $D(h6)$: Diameter of the drill bit.

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→ 技術資料 P.622
Technical Data

M520 ULTRA CARBIDE END MILLS- Ball Nose- Long Neck- 4F

Technical drawing of a drill bit. The drawing shows a side view of the drill bit with the following dimensions and labels:

- $L1$: Length of the cutting edge.
- $L2$: Length of the cutting edge plus the length of the flute.
- L : Total length of the drill bit.
- $D(h6)$: Diameter of the drill bit.
- R : Reference point at the tip of the drill bit.

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



74

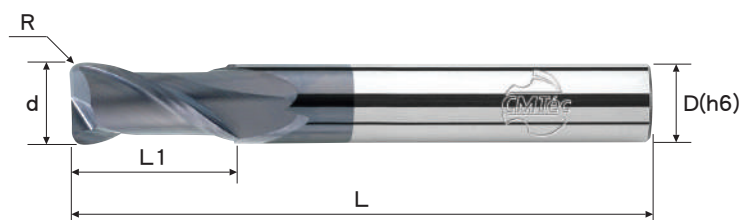
M520

M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 ULTRA CARBIDE END MILLS- Corner Radius- 2F

▪ MECR2000000A



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



**NEW
SIZE**

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➡ 切削條件表 P.550
Cutting Condition

➡ 技術資料 P.622
Technical Data

M520 極細鎢鋼圓鼻銑刀- 標準型- 4刃

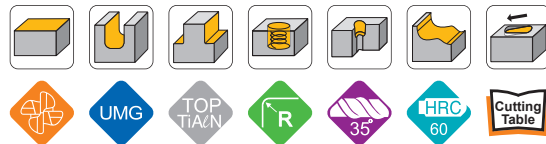
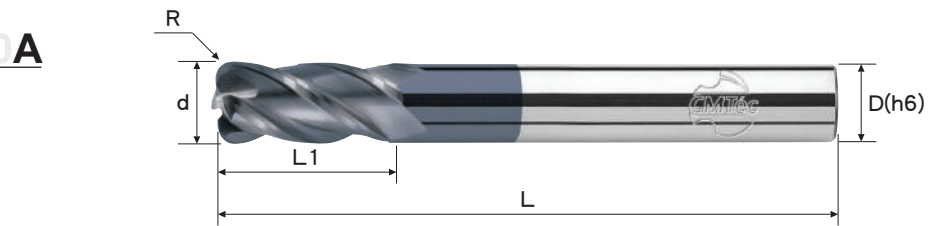
M520 ULTRA CARBIDE END MILLS- Corner Radius- 4F

MECR400000A

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	○



NEW
SIZE

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刃徑 d	R角 R	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.
1.0	0.2R	2	50	4	4	MECRM4010002	MECRM4010002A
1.5	0.2R	3	50	4	4	MECRM4015002	MECRM4015002A
2.0	0.2R	4	50	4	4	MECRM4020002	MECRM4020002A
2.5	0.2R	5	50	4	4	MECRM4025002	MECRM4025002A
2.5	0.5R	5	50	4	4	MECRM4025005	MECRM4025005A
3.0	0.5R	6	50	4	4	MECRM4030005	MECRM4030005A
3.0	1.0R	6	50	4	4	MECRM4030010	MECRM4030010A
4.0	0.3R	8	50	4	4	MECRM4040003	MECRM4040003A
4.0	0.5R	8	50	4	4	MECRM4040005	MECRM4040005A
4.0	1.0R	8	50	4	4	MECRM4040010	MECRM4040010A
3.0	0.5R	6	50	6	4	MECR4030005	MECR4030005A
3.0	1.0R	6	50	6	4	MECR4030010	MECR4030010A
4.0	0.5R	8	50	6	4	MECR4040005	MECR4040005A
4.0	1.0R	8	50	6	4	MECR4040010	MECR4040010A
5.0	0.5R	10	50	6	4	MECR4050005	MECR4050005A
5.0	1.0R	10	50	6	4	MECR4050010	MECR4050010A
6.0	0.5R	12	50	6	4	MECR4060005	MECR4060005A
6.0	1.0R	12	50	6	4	MECR4060010	MECR4060010A
8.0	0.5R	16	60	8	4	MECR4080005	MECR4080005A
8.0	1.0R	16	60	8	4	MECR4080010	MECR4080010A
8.0	1.5R	16	60	8	4	MECR4080015	MECR4080015A
8.0	0.5R	16	75	8	4	MECR4080005075L	MECR4080005075LA
10.0	0.5R	20	75	10	4	MECR4100005	MECR4100005A
10.0	1.0R	20	75	10	4	MECR4100010	MECR4100010A
10.0	1.5R	20	75	10	4	MECR4100015	MECR4100015A
10.0	2.0R	20	75	10	4	MECR4100020	MECR4100020A
12.0	0.5R	24	75	12	4	MECR4120005	MECR4120005A
12.0	1.0R	24	75	12	4	MECR4120010	MECR4120010A
12.0	1.5R	24	75	12	4	MECR4120015	MECR4120015A
12.0	2.0R	24	75	12	4	MECR4120020	MECR4120020A
12.0	3.0R	24	75	12	4	MECR4120030	MECR4120030A

→ 切削條件表
Cutting Condition P.551

→ 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- Short Flute- 4F

▪ **MECD4000000A**



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

M520 ULTRA CARBIDE END MILLS- Corner Radius- Short Flute & Long Shank- 3F

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

➡ 切削條件表 P.547
Cutting Condition

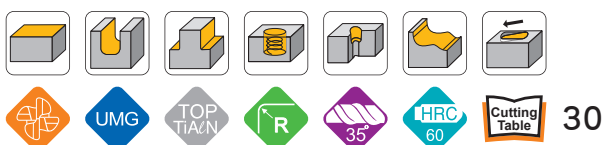
➡ 技術資料 P.622
Technical Data

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	○



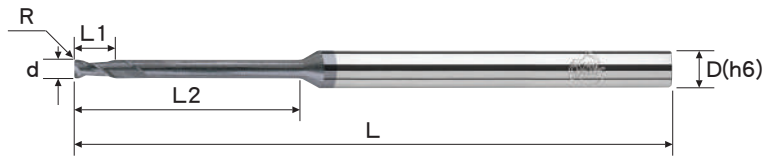
➡ 切削條件表 P.549
Cutting Condition

➡ 技術資料 P.622
Technical Data

M520 極細鎢鋼圓鼻銑刀- 長頸型- 2刃

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

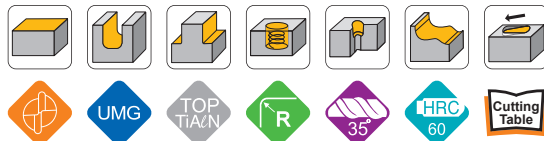
MECRN2000000000A



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	◎



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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

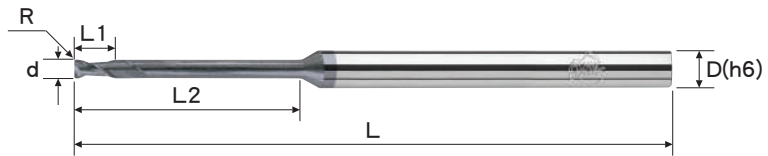
M520 Ultra Carbide End Mills

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

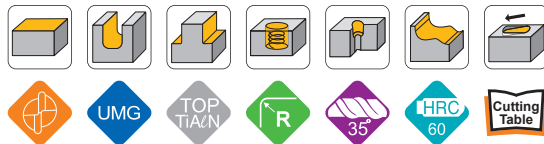
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刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.04

半徑 R	公差 Tolerance
R	± 0.02

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



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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

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→ 技術資料
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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	◎



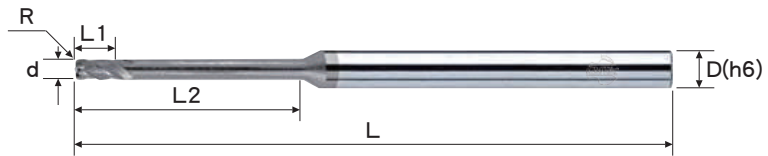
➡ 切削條件表 P.550
Cutting Condition

➡ 技術資料 P.622
Technical Data

M520 極細鎢鋼圓鼻銑刀- 長頸型- 4刃

M520 ULTRA CARBIDE END MILLS- Corner Radius- Long Neck- 4F

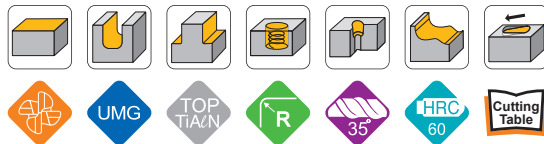
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刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.04

半徑 R	公差 Tolerance
R	± 0.02

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



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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	4	MECRN4010002040	MECRN4010002040A
1.0	0.2	1.5	6	50	4	4	MECRN4010002060	MECRN4010002060A
1.0	0.2	1.5	8	50	4	4	MECRN4010002080	MECRN4010002080A
1.0	0.2	1.5	10	50	4	4	MECRN4010002100	MECRN4010002100A
1.0	0.2	1.5	12	50	4	4	MECRN4010002120	MECRN4010002120A
1.5	0.2	2.3	6	50	4	4	MECRN4015002060	MECRN4015002060A
1.5	0.2	2.3	8	50	4	4	MECRN4015002080	MECRN4015002080A
1.5	0.2	2.3	10	50	4	4	MECRN4015002100	MECRN4015002100A
1.5	0.2	2.3	12	50	4	4	MECRN4015002120	MECRN4015002120A
1.5	0.2	2.3	16	50	4	4	MECRN4015002160	MECRN4015002160A
2.0	0.2	3.0	6	50	4	4	MECRN4020002060	MECRN4020002060A
2.0	0.2	3.0	8	50	4	4	MECRN4020002080	MECRN4020002080A
2.0	0.2	3.0	10	50	4	4	MECRN4020002100	MECRN4020002100A
2.0	0.2	3.0	12	50	4	4	MECRN4020002120	MECRN4020002120A
2.0	0.2	3.0	16	50	4	4	MECRN4020002160	MECRN4020002160A
2.0	0.2	3.0	20	60	4	4	MECRN4020002200	MECRN4020002200A
2.0	0.3	3.0	6	50	4	4	MECRN4020003060	MECRN4020003060A
2.0	0.3	3.0	8	50	4	4	MECRN4020003080	MECRN4020003080A
2.0	0.3	3.0	10	50	4	4	MECRN4020003100	MECRN4020003100A
2.0	0.3	3.0	12	50	4	4	MECRN4020003120	MECRN4020003120A
2.0	0.3	3.0	16	50	4	4	MECRN4020003160	MECRN4020003160A
2.0	0.3	3.0	20	60	4	4	MECRN4020003200	MECRN4020003200A
2.0	0.5	3.0	6	50	4	4	MECRN4020005060	MECRN4020005060A
2.0	0.5	3.0	8	50	4	4	MECRN4020005080	MECRN4020005080A
2.0	0.5	3.0	10	50	4	4	MECRN4020005100	MECRN4020005100A
2.0	0.5	3.0	12	50	4	4	MECRN4020005120	MECRN4020005120A
2.0	0.5	3.0	16	50	4	4	MECRN4020005160	MECRN4020005160A
2.0	0.5	3.0	20	60	4	4	MECRN4020005200	MECRN4020005200A
2.5	0.2	3.5	10	50	4	4	MECRN4025002100	MECRN4025002100A
2.5	0.2	3.5	16	50	4	4	MECRN4025002160	MECRN4025002160A
2.5	0.2	3.5	20	60	4	4	MECRN4025002200	MECRN4025002200A
2.5	0.3	3.5	10	50	4	4	MECRN4025003100	MECRN4025003100A
2.5	0.3	3.5	16	50	4	4	MECRN4025003160	MECRN4025003160A
2.5	0.3	3.5	20	60	4	4	MECRN4025003200	MECRN4025003200A
2.5	0.5	3.5	10	50	4	4	MECRN4025005100	MECRN4025005100A
2.5	0.5	3.5	16	50	4	4	MECRN4025005160	MECRN4025005160A
2.5	0.5	3.5	20	60	4	4	MECRN4025005200	MECRN4025005200A

→ 切削條件表
Cutting Condition

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→ 技術資料
Technical Data

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M520

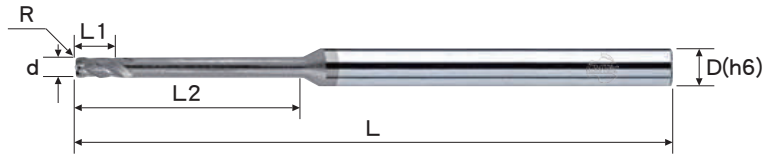
M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 極細鎢鋼圓鼻銑刀- 長頸型- 4刃

M520 ULTRA CARBIDE END MILLS- Corner Radius- Long Neck- 4F

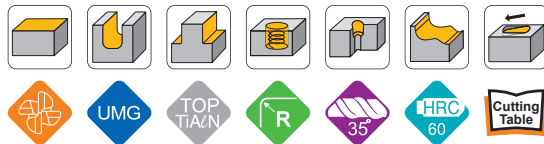
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刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.04

半徑 R	公差 Tolerance
R	± 0.02

超精銑 Bright Finishing	☐
精銑 Finishing	☒
中銑 Semi Finishing	☐
粗銑 Roughing	☐



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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	4	MECRN4030002100	MECRN4030002100A
3.0	0.2	4.5	16	50	6	4	MECRN4030002160	MECRN4030002160A
3.0	0.2	4.5	20	60	6	4	MECRN4030002200	MECRN4030002200A
3.0	0.3	4.5	10	50	6	4	MECRN4030003100	MECRN4030003100A
3.0	0.3	4.5	16	50	6	4	MECRN4030003160	MECRN4030003160A
3.0	0.3	4.5	20	60	6	4	MECRN4030003200	MECRN4030003200A
3.0	0.5	4.5	10	50	6	4	MECRN4030005100	MECRN4030005100A
3.0	0.5	4.5	16	50	6	4	MECRN4030005160	MECRN4030005160A
3.0	0.5	4.5	20	60	6	4	MECRN4030005200	MECRN4030005200A
3.0	1.0	4.5	10	50	6	4	MECRN4030010100	MECRN4030010100A
3.0	1.0	4.5	16	50	6	4	MECRN4030010160	MECRN4030010160A
3.0	1.0	4.5	20	60	6	4	MECRN4030010200	MECRN4030010200A
4.0	0.2	6.0	12	50	6	4	MECRN4040002120	MECRN4040002120A
4.0	0.2	6.0	16	50	6	4	MECRN4040002160	MECRN4040002160A
4.0	0.2	6.0	20	60	6	4	MECRN4040002200	MECRN4040002200A
4.0	0.2	6.0	25	60	6	4	MECRN4040002250	MECRN4040002250A
4.0	0.3	6.0	12	50	6	4	MECRN4040003120	MECRN4040003120A
4.0	0.3	6.0	16	50	6	4	MECRN4040003160	MECRN4040003160A
4.0	0.3	6.0	20	60	6	4	MECRN4040003200	MECRN4040003200A
4.0	0.3	6.0	25	60	6	4	MECRN4040003250	MECRN4040003250A
4.0	0.5	6.0	12	50	6	4	MECRN4040005120	MECRN4040005120A
4.0	0.5	6.0	16	50	6	4	MECRN4040005160	MECRN4040005160A
4.0	0.5	6.0	20	60	6	4	MECRN4040005200	MECRN4040005200A
4.0	0.5	6.0	25	60	6	4	MECRN4040005250	MECRN4040005250A
4.0	1.0	6.0	12	50	6	4	MECRN4040010120	MECRN4040010120A
4.0	1.0	6.0	16	50	6	4	MECRN4040010160	MECRN4040010160A
4.0	1.0	6.0	20	60	6	4	MECRN4040010200	MECRN4040010200A
4.0	1.0	6.0	25	60	6	4	MECRN4040010250	MECRN4040010250A
5.0	0.2	7.0	16	60	6	4	MECRN4050002160	MECRN4050002160A
5.0	0.2	7.0	20	60	6	4	MECRN4050002200	MECRN4050002200A
5.0	0.2	7.0	25	60	6	4	MECRN4050002250	MECRN4050002250A
5.0	0.2	7.0	30	60	6	4	MECRN4050002300	MECRN4050002300A
5.0	0.3	7.0	16	60	6	4	MECRN4050003160	MECRN4050003160A
5.0	0.3	7.0	20	60	6	4	MECRN4050003200	MECRN4050003200A
5.0	0.3	7.0	25	60	6	4	MECRN4050003250	MECRN4050003250A
5.0	0.3	7.0	30	60	6	4	MECRN4050003300	MECRN4050003300A

M520 ULTRA CARBIDE END MILLS- Corner Radius- Long Neck- 4F

Technical drawing of a drill bit. The drawing shows a side view of the drill bit with the following dimensions labeled: R (radius of the tip), $L1$ (length of the tip), d (minor diameter), $L2$ (length of the cutting edge), L (total length), and $D(h6)$ (major diameter).

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



➡ 切削條件表 P.551
Cutting Condition

➡ 技術資料 P.622
Technical Data

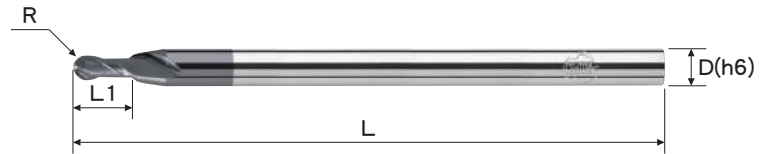
M520 極細鎢鋼球型銑刀- 微/小柄- 高精度型- 2刃

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

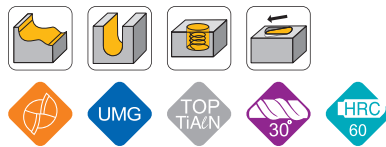
· MEBYS20000A

· 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

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's profile with dimensions: L_1 (length of the cutting edge), L (total length), $D(h6)$ (outer diameter), and R (radius of the tip).

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



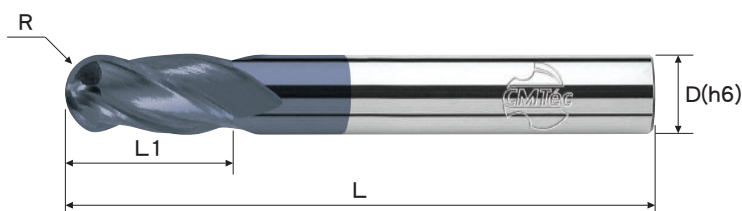
超精銑 Bright Finishing	—
精銑 Finishing	○
中銑 Semi Finishing	◎
粗銑 Roughing	○

[illegible]

→ 技術資料
Technical Data

M520 ULTRA CARBIDE END MILLS- Ball Nose- High R Tolerance Type- 4F

▪ **MEBY40000A**



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
1.75R	±0.005	3.5	-0.01~-0.02
2.0R	±0.005	4.0	-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]

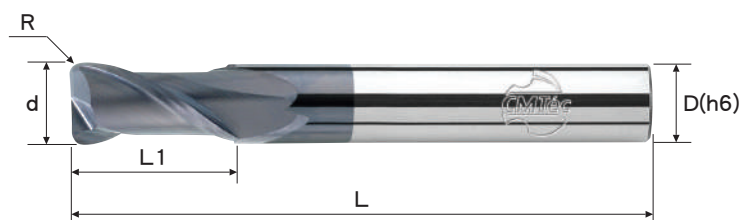
→ 切削條件表 P.568
Cutting Condition

→ 技術資料
Technical Data

M520 ULTRA CARBIDE END MILLS- Corner Radius- High R Tolerance Type- 2F

▪ MECY2000000A

半徑 R	公差 Tolerance	刃徑 d	公差 Tolerance
0.2R	+0.01 ~ 0	1.0	0 ~ -0.02
0.2R	+0.01 ~ 0	1.5	0 ~ -0.02
0.2R	+0.01 ~ 0	2.0	0 ~ -0.02
0.2R	+0.01 ~ 0	2.5	0 ~ -0.02
0.5R	+0.01 ~ 0	2.5	0 ~ -0.02
0.5R	+0.01 ~ 0	3.0	-0.01~-0.02
1.0R	+0.01 ~ 0	3.0	-0.01~-0.02
0.5R	+0.01 ~ 0	4.0	-0.01~-0.02
1.0R	+0.01 ~ 0	4.0	-0.01~-0.02
0.5R	+0.01 ~ 0	5.0	-0.01~-0.02
1.0R	+0.01 ~ 0	5.0	-0.01~-0.02
0.5R	+0.01 ~ 0	6.0	-0.01~-0.02
1.0R	+0.01 ~ 0	6.0	-0.01~-0.02



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

[illegible]

→ 技術資料 P.622
Technical Data

M520 ULTRA CARBIDE END MILLS- Corner Radius- High R Tolerance Type- 4F

Technical drawing of a double-flute drill bit. The drawing shows the bit's profile with the following dimensions labeled: L (total length), L_1 (length of the cutting edge), $D(h6)$ (outer diameter), d (minor diameter), and R (radius of the cutting edge). The bit features a double-flute design and a central cutting edge.

半徑 R	公差 Tolerance	刃徑 d	公差 Tolerance
0.5R	+0.01 ~ 0	3.0	-0.01~-0.02
1.0R	+0.01 ~ 0	3.0	-0.01~-0.02
0.5R	+0.01 ~ 0	4.0	-0.01~-0.02
1.0R	+0.01 ~ 0	4.0	-0.01~-0.02
0.5R	+0.01 ~ 0	5.0	-0.01~-0.02
1.0R	+0.01 ~ 0	5.0	-0.01~-0.02
0.5R	+0.01 ~ 0	6.0	-0.01~-0.02
1.0R	+0.01 ~ 0	6.0	-0.01~-0.02



66



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

[illegible]

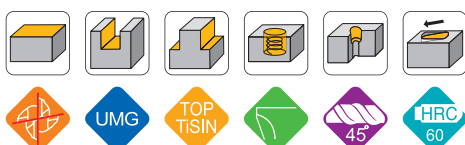
→ 切削條件表 P.569
Cutting Condition

→ 技術資料
Technical Data

M520 ULTRA CARBIDE END MILLS- Unequal Flute Spacing Angle & High Helix- 4F

Technical drawing of a double-flute drill bit. The drawing includes a 3D perspective view of the tip, a side view with dimensions, and a top view. The side view shows the cutting edge with diameter d , a length L_1 for the cutting edge, and a total length L . The top view shows the double-flute design. The brand 'CMTAC' is visible on the shank.

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



➡ 切削條件表 P.579
Cutting Condition

➡ 技術資料 P.622
Technical Data

M520 極細鎢鋼平銑刀- 強重短刃型- 3刃

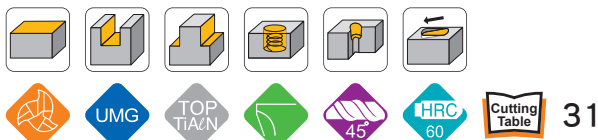
M520 ULTRA CARBIDE END MILLS- Square Type- For Heavy Duty Cutting- Short Flute- 3F

MEHHD30000A



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

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

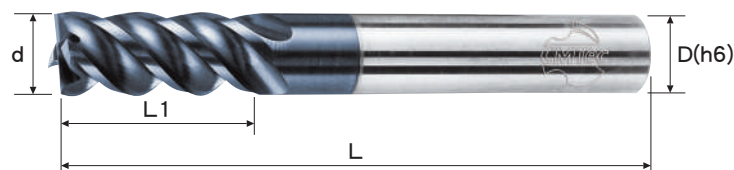


刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
3.0	4.5	50	6	3	MEHHD30300A
4.0	6.0	50	6	3	MEHHD30400A
5.0	7.5	50	6	3	MEHHD30500A
6.0	9.0	50	6	3	MEHHD30600A
8.0	12.0	60	8	3	MEHHD30800A
10.0	15.0	75	10	3	MEHHD31000A
12.0	18.0	75	12	3	MEHHD31200A

M520 極細鎢鋼平銑刀- 強重短刃型- 4刃

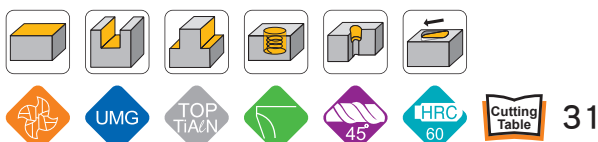
M520 ULTRA CARBIDE END MILLS- Square Type- For Heavy Duty Cutting- Short Flute- 4F

MEHHD40000A



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

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



刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
3.0	4.5	50	6	4	MEHHD40300A
4.0	6.0	50	6	4	MEHHD40400A
5.0	7.5	50	6	4	MEHHD40500A
6.0	9.0	50	6	4	MEHHD40600A
8.0	12.0	60	8	4	MEHHD40800A
10.0	15.0	75	10	4	MEHHD41000A
12.0	18.0	75	12	4	MEHHD41200A

M520 極細鎢鋼平銑刀- 強重型- 4刃

M520 ULTRA CARBIDE END MILLS- Square Type- For Heavy Duty Cutting- 4F

· MEHH40000A



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

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



M520 極細鎢鋼圓鼻銑刀- 強重型- 4刃

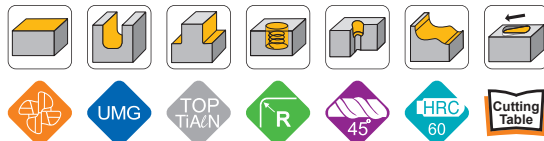
M520 ULTRA CARBIDE END MILLS- Corner Radius- For Heavy Duty Cutting- 4F

MEHHCR4000000A

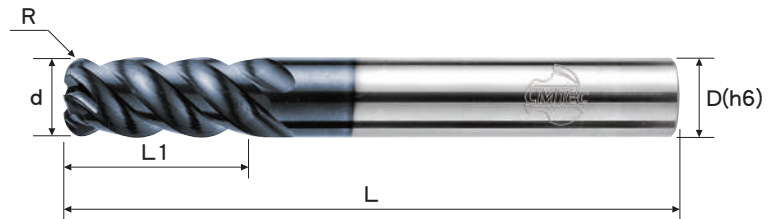
刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.04

半徑 R	公差 Tolerance
R	±0.02

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



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刃徑 d	R角 R	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
3.0	0.2R	8	50	6	4	MEHHCR4030002A
3.0	0.5R	8	50	6	4	MEHHCR4030005A
4.0	0.2R	11	50	6	4	MEHHCR4040002A
4.0	0.5R	11	50	6	4	MEHHCR4040005A
4.0	1.0R	11	50	6	4	MEHHCR4040010A
5.0	0.2R	13	50	6	4	MEHHCR4050002A
5.0	0.5R	13	50	6	4	MEHHCR4050005A
5.0	1.0R	13	50	6	4	MEHHCR4050010A
6.0	0.3R	13	50	6	4	MEHHCR4060003A
6.0	0.5R	13	50	6	4	MEHHCR4060005A
6.0	1.0R	13	50	6	4	MEHHCR4060010A
8.0	0.3R	19	60	8	4	MEHHCR4080003A
8.0	0.5R	19	60	8	4	MEHHCR4080005A
8.0	1.0R	19	60	8	4	MEHHCR4080010A
8.0	1.5R	19	60	8	4	MEHHCR4080015A
8.0	2.0R	19	60	8	4	MEHHCR4080020A
10.0	0.3R	22	75	10	4	MEHHCR4100003A
10.0	0.5R	22	75	10	4	MEHHCR4100005A
10.0	1.0R	22	75	10	4	MEHHCR4100010A
10.0	1.5R	22	75	10	4	MEHHCR4100015A
10.0	2.0R	22	75	10	4	MEHHCR4100020A
10.0	3.0R	22	75	10	4	MEHHCR4100030A
12.0	0.5R	26	75	12	4	MEHHCR4120005A
12.0	1.0R	26	75	12	4	MEHHCR4120010A
12.0	1.5R	26	75	12	4	MEHHCR4120015A
12.0	2.0R	26	75	12	4	MEHHCR4120020A
12.0	3.0R	26	75	12	4	MEHHCR4120030A
16.0	1.0R	35	100	16	4	MEHHCR4160010A
16.0	1.5R	35	100	16	4	MEHHCR4160015A
16.0	2.0R	35	100	16	4	MEHHCR4160020A
16.0	3.0R	35	100	16	4	MEHHCR4160030A
20.0	1.0R	40	100	20	4	MEHHCR4200010A
20.0	1.5R	40	100	20	4	MEHHCR4200015A
20.0	2.0R	40	100	20	4	MEHHCR4200020A
20.0	3.0R	40	100	20	4	MEHHCR4200030A

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

M520

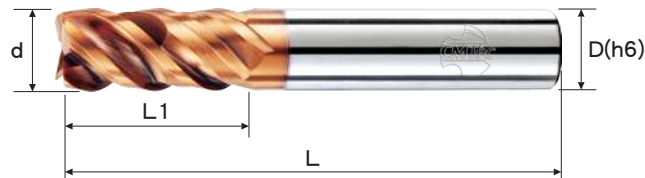
M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 極細鎢鋼平銑刀- 不等距雙心徑型- 4刃

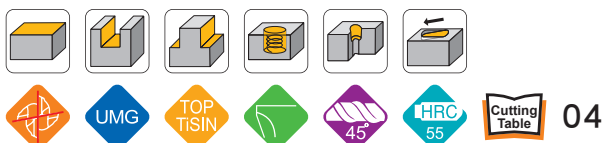
M520 ULTRA CARBIDE END MILLS- Square Type- Unequal Flute Spacing Angle- Duo Core Dia- 4F

· MEP40000A



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

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



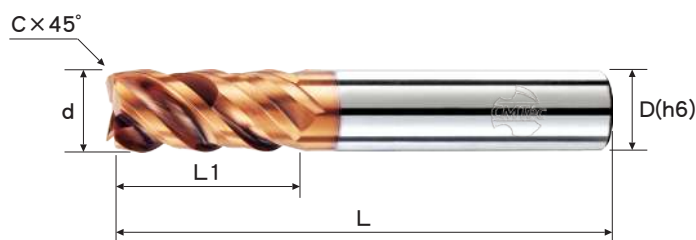
刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
4.0	10	50	6	4	MEP40400A
5.0	12	50	6	4	MEP40500A
6.0	14	50	6	4	MEP40600A
8.0	18	60	8	4	MEP40800A
10.0	22	75	10	4	MEP41000A
12.0	26	75	12	4	MEP41200A

→ 切削條件表 Cutting Condition P.536 → 技術資料 Technical Data P.622

M520 極細鎢鋼平銑刀- 不等距雙心徑倒角型- 4刃

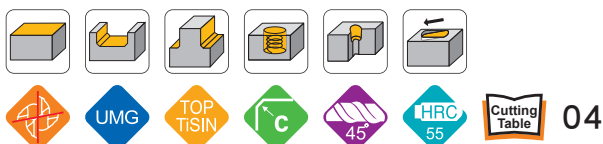
M520 ULTRA CARBIDE END MILLS- Square Type- Unequal Flute Spacing Angle- Duo Core Dia- Chamfering- 4F

· MEP40000-C0000A



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

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



刃徑 d	倒C角 C(Max)	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
4.0	0.2	10	50	6	4	MEP40400-C0020A
5.0	0.2	12	50	6	4	MEP40500-C0020A
6.0	0.2	14	50	6	4	MEP40600-C0020A
8.0	0.3	18	60	8	4	MEP40800-C0030A
10.0	0.3	22	75	10	4	MEP41000-C0030A
12.0	0.4	26	75	12	4	MEP41200-C0040A

→ 切削條件表 Cutting Condition P.536 → 技術資料 Technical Data P.622

M520 極細鎢鋼平銑刀- 不等距雙心徑圓角型- 4刃

M520 ULTRA CARBIDE END MILLS- Square Type- Unequal Flute Spacing Angle- Duo Core Dia- Corner Radius- 4F

· MEP40000-R0000A

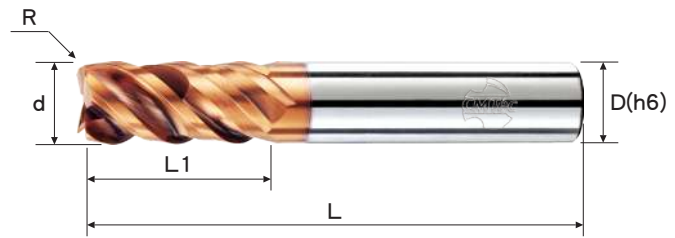
刃徑 d	公差 Tolerance
$\phi < 3$	0 ~ -0.02
$3 \leq \phi \leq 10$	-0.01 ~ -0.03
$10 < \phi$	-0.01 ~ -0.04

R角	公差 Tolerance
R	± 0.02

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



04



刃徑 d	R角 R	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
4.0	0.2R	10	50	6	4	MEP40400-R0020A
5.0	0.2R	12	50	6	4	MEP40500-R0020A
6.0	0.2R	14	50	6	4	MEP40600-R0020A
8.0	0.5R	18	60	8	4	MEP40800-R0050A
10.0	0.5R	22	75	10	4	MEP41000-R0050A
12.0	0.5R	26	75	12	4	MEP41200-R0050A

→ 切削條件表
Cutting Condition P.536

→ 技術資料
Technical Data P.622

M520

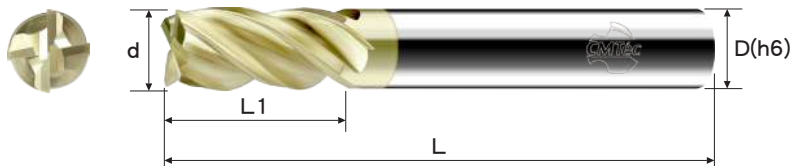
M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 極細鎢鋼鈦合金用平銑刀- 高效型- 4刃

M520 ULTRA CARBIDE END MILLS FOR TITANIUM- High Performance- 4F

· METV40000A



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

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



NEW
SIZE



M520 極細鎢鋼鈦合金用圓鼻銑刀- 高效型- 4刃

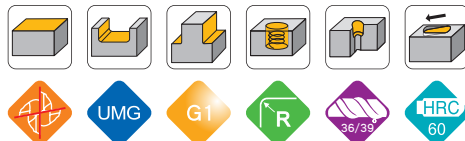
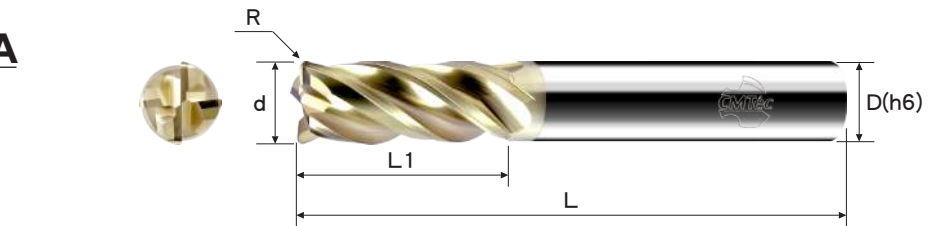
M520 ULTRA CARBIDE END MILLS FOR TITANIUM- Corner Radius- High Performance- 4F

· METVC40000A

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	◎



NEW

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刃徑 d	R角 R	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
3.0	0.2R	8	50	6	4	METVC4030002A
3.0	0.5R	8	50	6	4	METVC4030005A
4.0	0.2R	10	50	6	4	METVC4040002A
4.0	0.5R	10	50	6	4	METVC4040005A
4.0	1.0R	10	50	6	4	METVC4040010A
5.0	0.2R	13	50	6	4	METVC4050002A
5.0	0.5R	13	50	6	4	METVC4050005A
5.0	1.0R	13	50	6	4	METVC4050010A
5.0	1.5R	13	50	6	4	METVC4050015A
6.0	0.3R	15	50	6	4	METVC4060003A
6.0	0.5R	15	50	6	4	METVC4060005A
6.0	1.0R	15	50	6	4	METVC4060010A
8.0	0.3R	20	60	8	4	METVC4080003A
8.0	0.5R	20	60	8	4	METVC4080005A
8.0	1.0R	20	60	8	4	METVC4080010A
8.0	1.5R	20	60	8	4	METVC4080015A
8.0	2.0R	20	60	8	4	METVC4080020A
10.0	0.3R	25	75	10	4	METVC4100003A
10.0	0.5R	25	75	10	4	METVC4100005A
10.0	1.0R	25	75	10	4	METVC4100010A
10.0	1.5R	25	75	10	4	METVC4100015A
10.0	2.0R	25	75	10	4	METVC4100020A
10.0	3.0R	25	75	10	4	METVC4100030A
12.0	0.5R	30	75	12	4	METVC4120005A
12.0	1.0R	30	75	12	4	METVC4120010A
12.0	1.5R	30	75	12	4	METVC4120015A
12.0	2.0R	30	75	12	4	METVC4120020A
12.0	3.0R	30	75	12	4	METVC4120030A

→ 切削條件表 P.580 → 技術資料 P.622
Cutting Condition Technical Data

M520

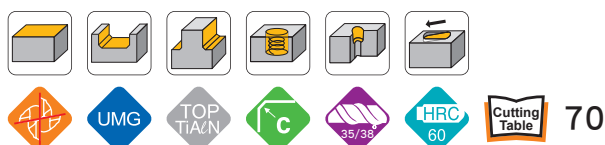
M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 ULTRA CARBIDE END MILLS FOR ALLOY STEEL- High Performance- 4F

Technical drawing of a double-flute drill bit. The drawing includes a side view and a cross-sectional view. The side view labels the cutting edge angle as $C \times 45^\circ$, the diameter as $D(h6)$, the length of the cutting edge as $L1$, and the total length as L . The cross-sectional view shows the double-flute design.

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



➡ 切削條件表 P.570
Cutting Condition

➡ 技術資料 P.622
Technical Data

M520 極細鎢鋼鋼用圓鼻銑刀- 高效型- 4刃

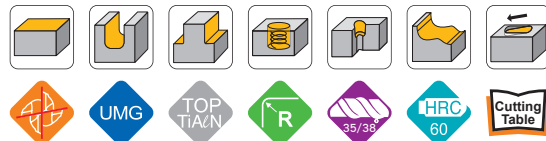
M520 ULTRA CARBIDE END MILLS FOR ALLOY STEEL- Corner Radius- High Performance- 4F

MEVC400000A

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	◎



刃徑 d	R角 R	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
3.0	0.2R	8	50	6	4	MEVC4030002A
3.0	0.5R	8	50	6	4	MEVC4030005A
4.0	0.2R	11	50	6	4	MEVC4040002A
4.0	0.5R	11	50	6	4	MEVC4040005A
4.0	1.0R	11	50	6	4	MEVC4040010A
5.0	0.2R	13	50	6	4	MEVC4050002A
5.0	0.5R	13	50	6	4	MEVC4050005A
5.0	1.0R	13	50	6	4	MEVC4050010A
6.0	0.3R	13	50	6	4	MEVC4060003A
6.0	0.5R	13	50	6	4	MEVC4060005A
6.0	1.0R	13	50	6	4	MEVC4060010A
8.0	0.3R	19	60	8	4	MEVC4080003A
8.0	0.5R	19	60	8	4	MEVC4080005A
8.0	1.0R	19	60	8	4	MEVC4080010A
8.0	1.5R	19	60	8	4	MEVC4080015A
8.0	2.0R	19	60	8	4	MEVC4080020A
10.0	0.3R	22	75	10	4	MEVC4100003A
10.0	0.5R	22	75	10	4	MEVC4100005A
10.0	1.0R	22	75	10	4	MEVC4100010A
10.0	1.5R	22	75	10	4	MEVC4100015A
10.0	2.0R	22	75	10	4	MEVC4100020A
10.0	3.0R	22	75	10	4	MEVC4100030A
12.0	0.5R	26	75	12	4	MEVC4120005A
12.0	1.0R	26	75	12	4	MEVC4120010A
12.0	1.5R	26	75	12	4	MEVC4120015A
12.0	2.0R	26	75	12	4	MEVC4120020A
12.0	3.0R	26	75	12	4	MEVC4120030A
16.0	1.0R	35	100	16	4	MEVC4160010A
16.0	1.5R	35	100	16	4	MEVC4160015A
16.0	2.0R	35	100	16	4	MEVC4160020A
16.0	3.0R	35	100	16	4	MEVC4160030A
20.0	1.0R	40	100	20	4	MEVC4200010A
20.0	1.5R	40	100	20	4	MEVC4200015A
20.0	2.0R	40	100	20	4	MEVC4200020A
20.0	3.0R	40	100	20	4	MEVC4200030A

→ 切削條件表 P.570 → 技術資料 P.622
Cutting Condition Technical Data

M520

M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列

M520 ULTRA CARBIDE END MILLS FOR ALLOY STEEL- Ball Nose- High Performance- 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.
- $L2$: Length of the flute.
- L : Total length of the bit.
- $D(h6)$: Diameter of the bit.

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→ 技術資料
Technical Data

M520 ULTRA CARBIDE END MILLS FOR HIGH HARDNESS- Standard- 6F

Technical drawing of a double-flute drill bit. The drawing shows the bit's profile with dimensions: d (flute diameter), L_1 (flute length), L (total length), and $D(h6)$ (shank diameter). The bit features a double-flute design with a yellow coating on the flutes and a silver shank. The brand name "GEMMING" is visible on the shank.

➡ 切削條件表 P.581
Cutting Condition

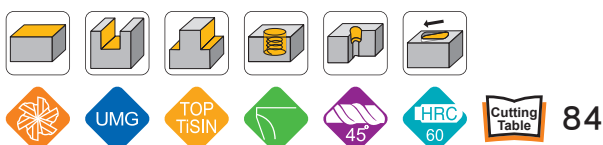
➡ 技術資料 P.622
Technical Data

M520 ULTRA CARBIDE END MILLS FOR HIGH HARDNESS- Long Flute- 6F

Technical drawing of a double-flute drill bit. The drawing shows the bit's profile with the following dimensions and labels:

- d : Diameter of the drill bit.
- L_1 : Length of the double-flute section.
- L : Total length of the drill bit.
- $D(h6)$: Diameter of the drill bit shank.

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

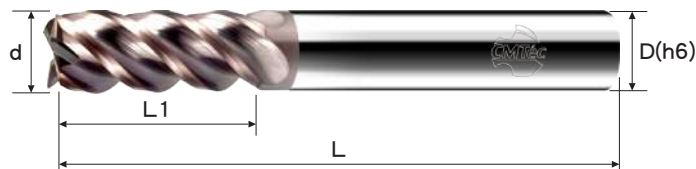


➡ 切削條件表 P.581
Cutting Condition

➡ 技術資料 P.622
Technical Data

M520 ULTRA CARBIDE END MILLS FOR STAINLESS- High Helix- 4F

MEMH40000F



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



➡ 切削條件表 P.574
Cutting Condition

➡ 技術資料 P.622
Technical Data

MEMO



M520

M520 Ultra Carbide End Mills

M520 極細鎢鋼銑刀系列