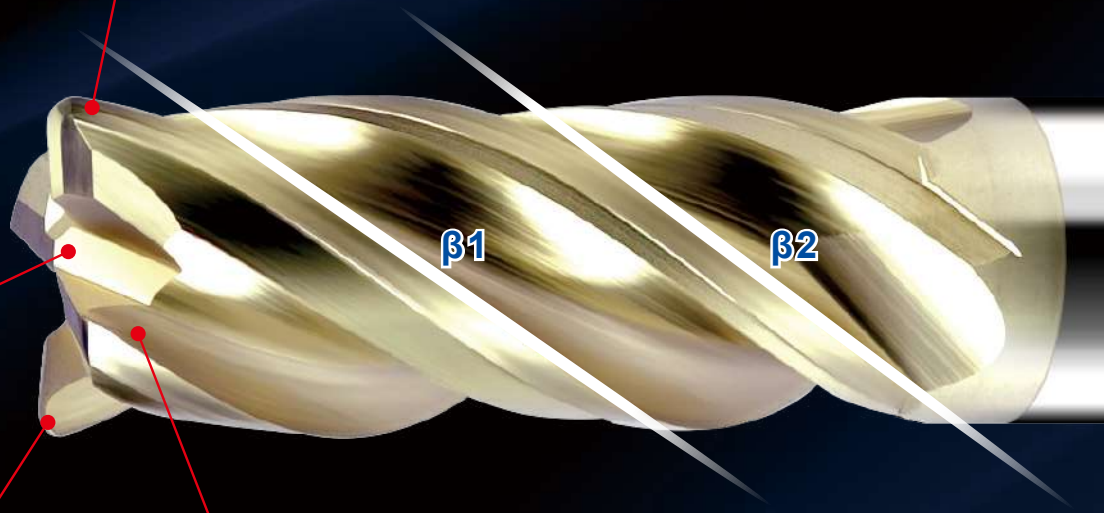
CMTéc

採用特殊不等距＆不等螺旋角設計，大幅降低切削時的震動，提升加工速度及穩定性。

Chattering is decreased dramatically with unequal flute spacing & nonequivalent helix angle, increase processing speed and stability.



適合粗、中、精加工。

Use for roughing cutting, semi finishing, finishing.

攻面寬與R角2種選擇。

Gash Land / Corner Radius Type.

圓弧溝槽設計，使排屑性能更加優異，減少積屑及應力產生，提升刀具剛性。

Circular flute design for better chip disposal, reduces chip packing, release stress and improving rigidity of the tool.

THE NEW 高效型

METV

鈦合金之刀．駕馭領先未來

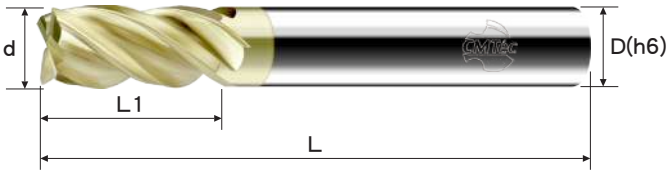
FOR TITANIUM ALLOYS

鈦合金、鎳基合金、3字頭不銹鋼、鋼材≦45°HRC加工應用！

M520 極細鎢鋼鈦合金用平銑刀- 高效型- 4刃

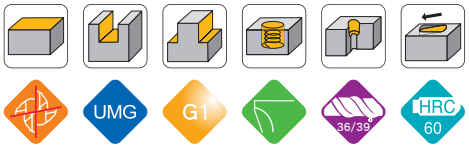
M520 ULTRA CARBIDE END MILLS FOR TITANIUM- High Performance- 4F

· METV4□□□□A



刃徑 d	公差 Tolerance
Φ<3	0 ~ -0.02
3≦Φ≦10	-0.01 ~ -0.03
10<Φ	-0.01 ~ -0.04

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



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NEW SIZE

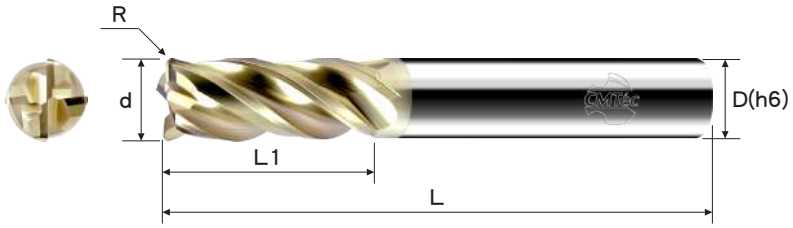
刃徑 d	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
2.0	5	50	6	4	METV40200A
3.0	8	50	6	4	METV40300A
4.0	10	50	6	4	METV40400A
4.0	12	50	6	4	METV40400120CA
6.0	15	50	6	4	METV40600A
6.0	18	50	6	4	METV40600180CA
8.0	20	60	8	4	METV40800A
8.0	24	60	8	4	METV40800240CA
10.0	25	75	10	4	METV41000A
10.0	30	75	10	4	METV41000300CA
12.0	30	75	12	4	METV41200A
12.0	36	75	12	4	METV41200360CA

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

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

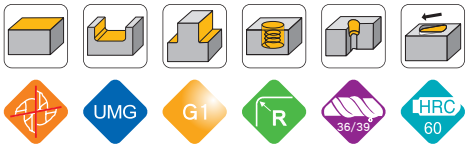
· METVC4□□□□A



刃徑 d	公差 Tolerance
Φ<3	0 ~ -0.02
3≦Φ≦10	-0.01 ~ -0.03
10<Φ	-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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NEW

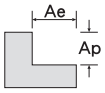
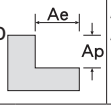
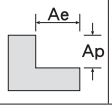
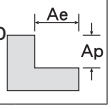
刃徑 d	R角 R	刃長 L1	全長 L	柄徑 D	刃數 F	鍍膜訂購編號 Coated Order No.
3.0	0.2R	8	50	6	4	METVC4030002A
3.0	0.5R	8	50	6	4	METVC4030005A
4.0	0.2R	10	50	6	4	METVC4040002A
4.0	0.5R	10	50	6	4	METVC4040005A
4.0	1.0R	10	50	6	4	METVC4040010A
5.0	0.2R	13	50	6	4	METVC4050002A
5.0	0.5R	13	50	6	4	METVC4050005A
5.0	1.0R	13	50	6	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 Cutting Condition P.580
➡ 技術資料 Technical Data P.622

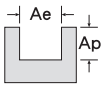
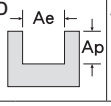
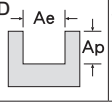
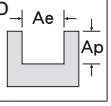
Table 83 M520 極細鎢鋼鈦合金用高效型銑刀- 4刃(鍍膜) 切削條件表

SOLID CARBIDE END MILLS- CUTTING CONDITION TABLE

側銑加工 Side Milling

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		不銹鋼 Stainless Steels		高溫合金 High-Temp Alloys	
工件料號 Material Code	S35C,S45C,S50C		SCM,SKT,SKD		SCM,SKT,SKD		SKT,SKD		SUS304		Ti-6Al-4V	
硬度 Hardness	HRC<20		HRC20~30		HRC30~45		HRC45~55		—		HRC<30	
切削速度 Vc	110m/min		90m/min		75m/min		70m/min		70m/min		35m/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)
3mm	11,670	1,100	9,550	840	7,960	620	7,430	540	7,430	610	3,710	220
4mm	8,750	1,200	7,160	980	5,970	680	5,570	630	5,570	710	2,780	240
5mm	7,000	1,300	5,730	1,050	4,770	720	4,450	670	4,450	770	2,220	240
6mm	5,830	1,600	4,770	1,200	3,980	890	3,710	690	3,710	830	1,850	250
8mm	4,370	1,550	3,580	1,100	2,980	810	2,780	670	2,780	810	1,390	220
10mm	3,500	1,450	2,860	1,050	2,380	720	2,220	630	2,220	710	1,110	210
12mm	2,910	1,400	2,380	1,000	1,990	720	1,850	600	1,850	675	920	210
16mm	2,180	1,200	1,790	940	1,490	630	1,390	500	1,390	550	690	210
20mm	1,750	980	1,430	750	1,190	590	1,110	460	1,110	510	550	200
25mm	1,400	880	1,140	670	955	530	890	390	890	480	440	180
切削量 Cutting Amount (mm)	Ap≦1.5D Ae≦0.2D 						Ap≦1.5D Ae≦0.05D 		Ap≦1.5D Ae≦0.1D 		Ap≦1.5D Ae≦0.05D 	

溝銑加工 Slot Milling

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		不銹鋼 Stainless Steels		高溫合金 High-Temp Alloys	
工件料號 Material Code	S35C,S45C,S50C		SCM,SKT,SKD		SCM,SKT,SKD		SKT,SKD		SUS304		Ti-6Al-4V	
硬度 Hardness	HRC<20		HRC20~30		HRC30~45		HRC45~55		—		HRC<30	
切削速度 Vc	95m/min		75m/min		70m/min		60m/min		60m/min		20m/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)
3mm	10,080	730	7,960	680	7,430	520	6,360	440	6,360	460	2,120	120
4mm	7,560	730	5,970	770	5,570	520	4,770	490	4,770	510	1,590	130
5mm	6,050	730	4,770	750	4,450	540	3,820	530	3,820	540	1,270	140
6mm	5,040	740	3,980	630	3,710	570	3,180	540	3,180	570	1,060	140
8mm	3,780	600	2,980	550	2,780	550	2,380	510	2,380	520	790	150
10mm	3,020	580	2,380	540	2,220	480	1,910	450	1,910	470	630	140
12mm	2,520	560	1,990	470	1,850	460	1,590	430	1,590	440	530	140
16mm	1,890	550	1,490	430	1,390	370	1,190	360	1,190	370	390	110
20mm	1,510	470	1,190	380	1,110	350	955	330	955	330	310	110
25mm	1,210	450	950	360	890	310	760	230	760	280	250	100
切削量 Cutting Amount (mm)	Ap≦1D 						Ap≦0.2D 		Ap≦0.5D 		Ap≦0.2D 	

※ 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)

1. 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%).
2. 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%).
3. 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%).
4. 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.