



SOLID CARBIDE
End Mills | Drills | Reamers



7-Leaders Corp. specializes in production and marketing of tungsten carbide cutting tools such as End mills, Drills, Reamers, and etc.

Established in 1990 by Mr. Jack Lee, the company manufactures high quality products and provides best services along with the trade mark "7Leaders" all over the world. 7Leaders manufactures solid carbide cutting tools for Mold& Die, Machine Tools, Automotive, Aerospace, 3C, Watches, Optical and Medical solutions.

We keep integrating marketing in all kinds of cutting tools and providing the best quality products to our customers. We aim to become a leading brand name in the cutting tools industry.



七發科技股份有限公司為董事長李啟樂先生於1990年創立，主要從事銼刀、鑽頭、鉸刀等各種不同碳化鎢鋼切削刀具的生產與銷售，以“7leaders”行銷全球，提供高品質產品與優越服務。

所研製的刀具，主要應用於模具、機械配件、汽機車、航太、3C、鐘錶眼鏡、運動器材、醫療業，營運範圍遍及兩岸三地以及歐洲、亞洲、中美洲、巴西等國家。

未來七發將整合各式樣系列的碳化鎢鋼切削刀具銷售業務，致力滿足客戶對刀具的所有需求，成為超越全球的領導品牌。

24 Hours a Day. 365 Days
a Year Automated
Production Capabilities

24小時全天、365天全年自動化，最先進生產能力

Tungsten
Carbide Rods



01

材料生產

7-Leaders cooperates with a Swiss tungsten carbide rod manufacturer, producing high quality tungsten carbide rods in ETM brand.

七駿與瑞士碳化鎢鋼燒結工廠長期配合，生產ETM品牌碳化鎢鋼圓棒，提供高性能及穩定的材料。

Tools
Manufacturing



02

刀具製作

7-Leaders has Walter and Rollomatic CNC grinding machines and manufactures end mills, drills and reamers.

七駿公司擁有最新進的WALTER德國刀具研磨設備及ROLLOMATIC瑞士高階刀具研磨設備，產品系列有立銼刀、鑽頭、銼刀等全碳化鎢鋼刀具。

Coating Service



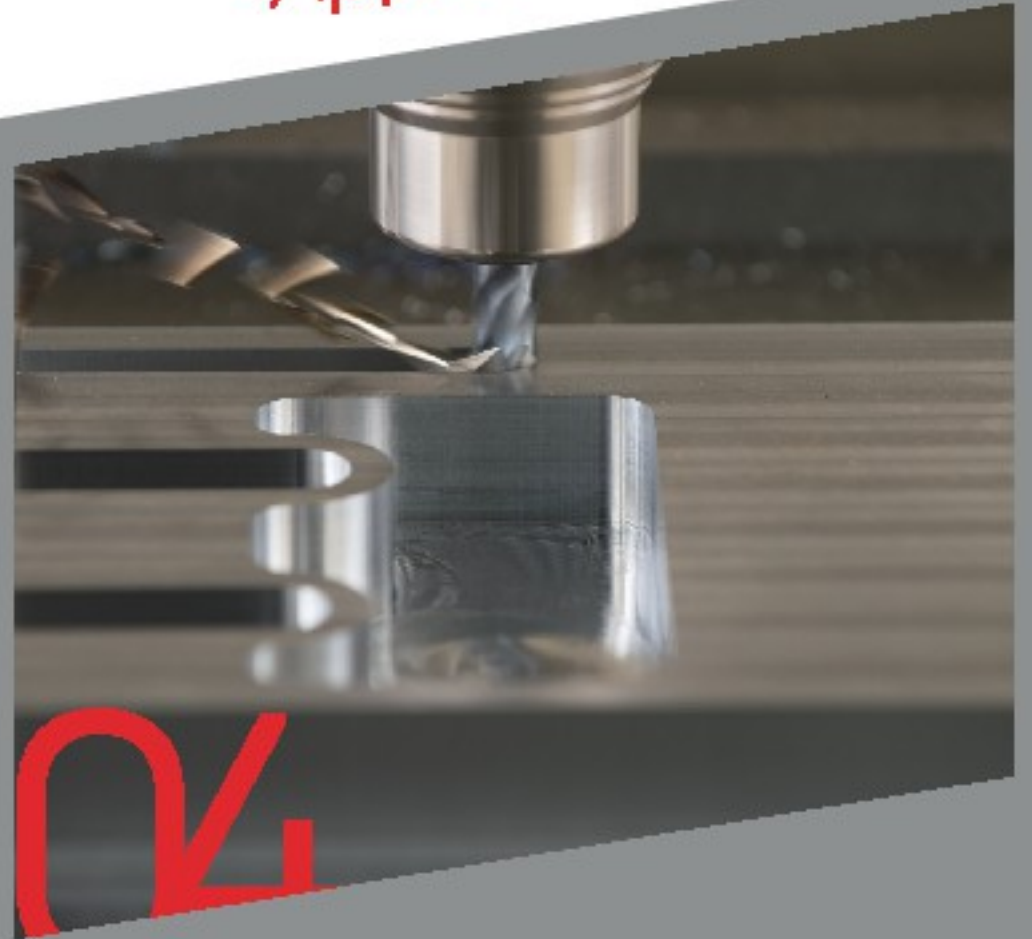
塗層服務

Our Nano thin film coating center uses cathodic arc evaporation splitting coating machines from "Swiss-PVD" in Switzerland.

7-Leaders is the first company applying "splitting arc" technology in Taiwan. We provide variable coating service.

七駿奈米塗層部，引進瑞士Swiss-PVD的刀具塗層設備，為台灣首家獲得劈裂式電弧 (Splitting Arc) 奈米塗層技術企業，目前提供高種類塗層服務。

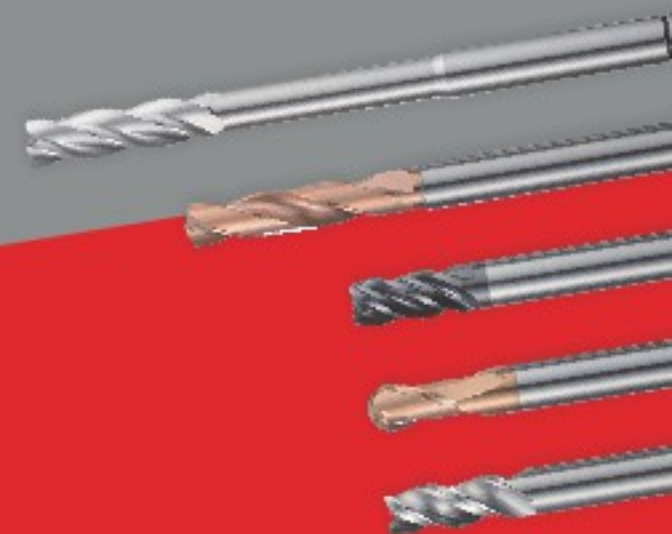
Application



應用技術

7-Leaders manufactures cutting tools through strict cutting test and fulfill customers' requirements on application.

七駿所生產的刀具，皆經過嚴密的切削測試，充分滿足客戶對切削應用的所有需求。



NEW OFFER

新產品發售



7 Flutes End Mills
For Titanium, Nickel

E236TX

Page 131 航太刀具

Multi flutes design and U-shaped groove are capable of performing well on finish process. Seven uneven flute distributions are able to decrease vibration. It is suitable for Titanium and Nickel work material.

多刃設計及U型槽設計可在中加工、精加工應用上實現優異切削性能。7刃不等分割設計有效抑制震動。針對鈦合金及鎳加工設計。

5 Flutes End Mills
For SUS, SUH

E234SX

Page 127/129 航太刀具

Geometry angles reach ideal balance with flute design. Five uneven flute distributions which are effective in reducing vibration allow deeper cutting and high speed cutting. It can be widely applied to rough, high speed and finish process on varied metal working material, stainless steel and heat-resistant steel.

幾何角度和刃型達到理想的平衡。5刃不等分割有效抑制震動的設計允許較大切深和高速加工。可廣泛使用在粗加工、高速加工和精加工各種金屬材料、不銹鋼及耐熱鋼。





End Mills for Aluminium

E143

Page 141 強力鋁用銑刀

Suitable for roughing and finishing process on aluminium.
Better cleanliness on the side and bottom surface of working material.

適用於鋁合金粗加工、中加工及精加工。
加工物的表側面及底面光潔度佳。

Multipurpose End Mills

E140HX E141HX

Page 93/95/97 多用途立銑刀

Uneven flutes distribution and variable helix design.

Suitable for roughing and finishing process.

A complete range of specifications for flute length:

- 1.5D •2.0D •2.5D
- 3.0D •4.0D •5.0D

不等分割及不等螺旋設計。
適用於粗加工、中加工及精加工。

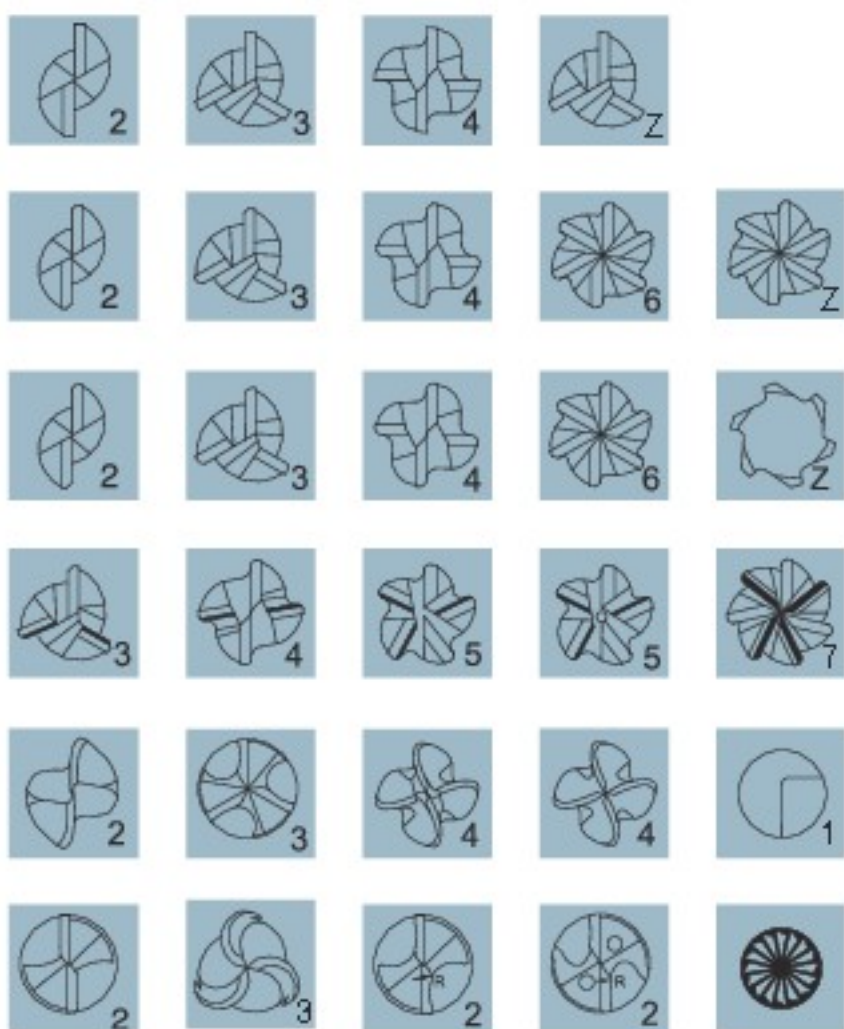


Guide Lines / 簡介表

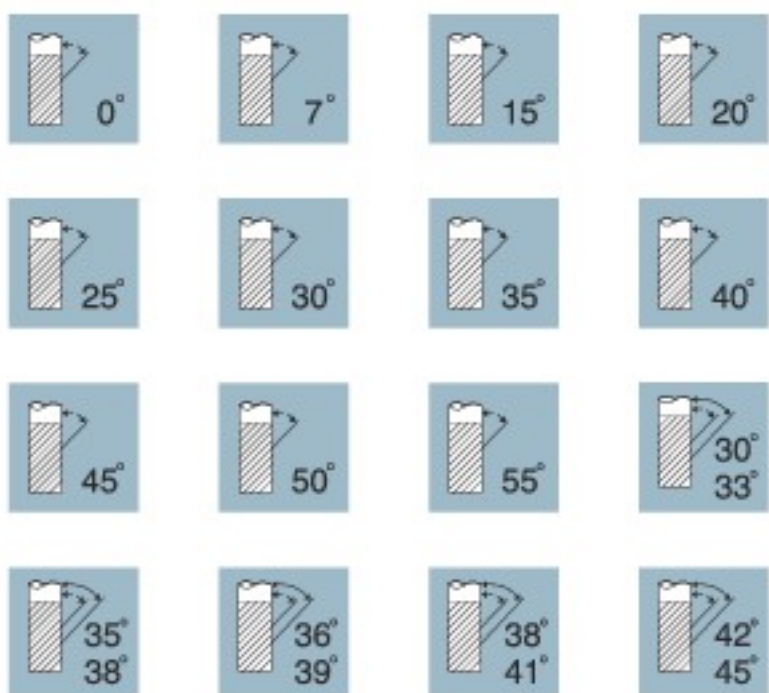
Tool Material / 刀具原料

- MG Carbide** Micro Grain 超微粒
- UMG Carbide** Ultra Micro Grain 極超微粒
- SMG Carbide** Super Micro Grain 特極超微粒

Number of Flute / 刀具刃數



Helix Angle / 螺旋角



Coating Type / 塗層種類

- TiAlN FT** High heat resistance, high oxidation resistance, nanocomposite coating with lubrication property. Suitable for any material and steels < 48HRC.
抗高熱性、高抗氧化性、奈米結構潤滑性佳，適用任何材料及鋼材硬度 < 48HRC。
- AlTiN X-NaNo** Very high heat resistance and oxidation resistance. Suitable for steels < 60HRC.
非常高抗熱性，非常高抗氧化性，適用鋼材硬度 < 60HRC。
- AlTiN HX** Multilayer, higher hardness, high oxidation resistance. Suitable for steels < 52 HRC.
多層膜，更高的硬度，高抗氧化性、耐熱性，適用鋼材硬度 < 52HRC。
- AlTiSiN TX** Multilayer, higher nano hardness, extremely high heat resistance, very good thermal insulation. Suitable for high performance machining condition and also for midhardness alloy steels to 70HRC.
多層膜，更高的奈米硬度，非常高抗熱性、耐熱性，適用高效率的加工條件及中高硬度合金鋼材至70HRC。
- AlTiN+ZrN SX** The cutting tools that are coated with multilayer nano rainbow film have some advantages as follow: AlTiZrN with extremely high heat and oxidation resistance, as well as good toughness and a smooth surface qualify. These benefits substantially enhance the tool life.
奈米彩虹多層膜，高抗氧化性、耐熱性，大幅提升刀具壽命。
- ZrN ZX** Coating features. High surface finish with strong wear resistance anti-oxidation low friction anti-adhesion Application. Suitable for machining difficult material like aluminum copper stainless steels titanium.
塗層特性：表面光潔度高，兼具耐磨、抗氧化性能、低摩擦係數、抗沾黏。
應用：適用於加工鋁合金、銅、不銹鋼、鈦合金等難切削材。
- DLC DX** The cutting tools that are coated with multilayer nano rainbow film have some advantages as follow: Abrasion resistance, low-coefficient of friction, Anti-adhesion. These benefits substantially enhance the tool life.
奈米彩虹多層膜，耐磨耗、低摩擦係數、抗沾黏，大幅提升刀具壽命。
- Diamond Dc** Extremely high hardness, good chemical stability. Suitable for machining graphite.
極高硬度、化學穩定性，適用石墨加工。

Relief / 傾斜角度



Slant Relief
傾銷



Eccentric Relief
偏心傾斜



Big Eccentric Relief
大偏心傾斜

Corner of Edges / 切削邊緣



Sharp
直角



Ball Nose
圓頭角



Corner Edge 45°
45°直角



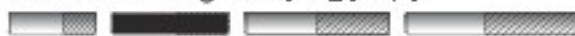
Corner Radius
角度半徑

Series Length / 長度系列

Stub Length / 短系列



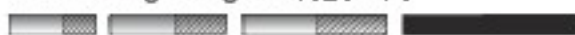
Standard Length / 標準長系列



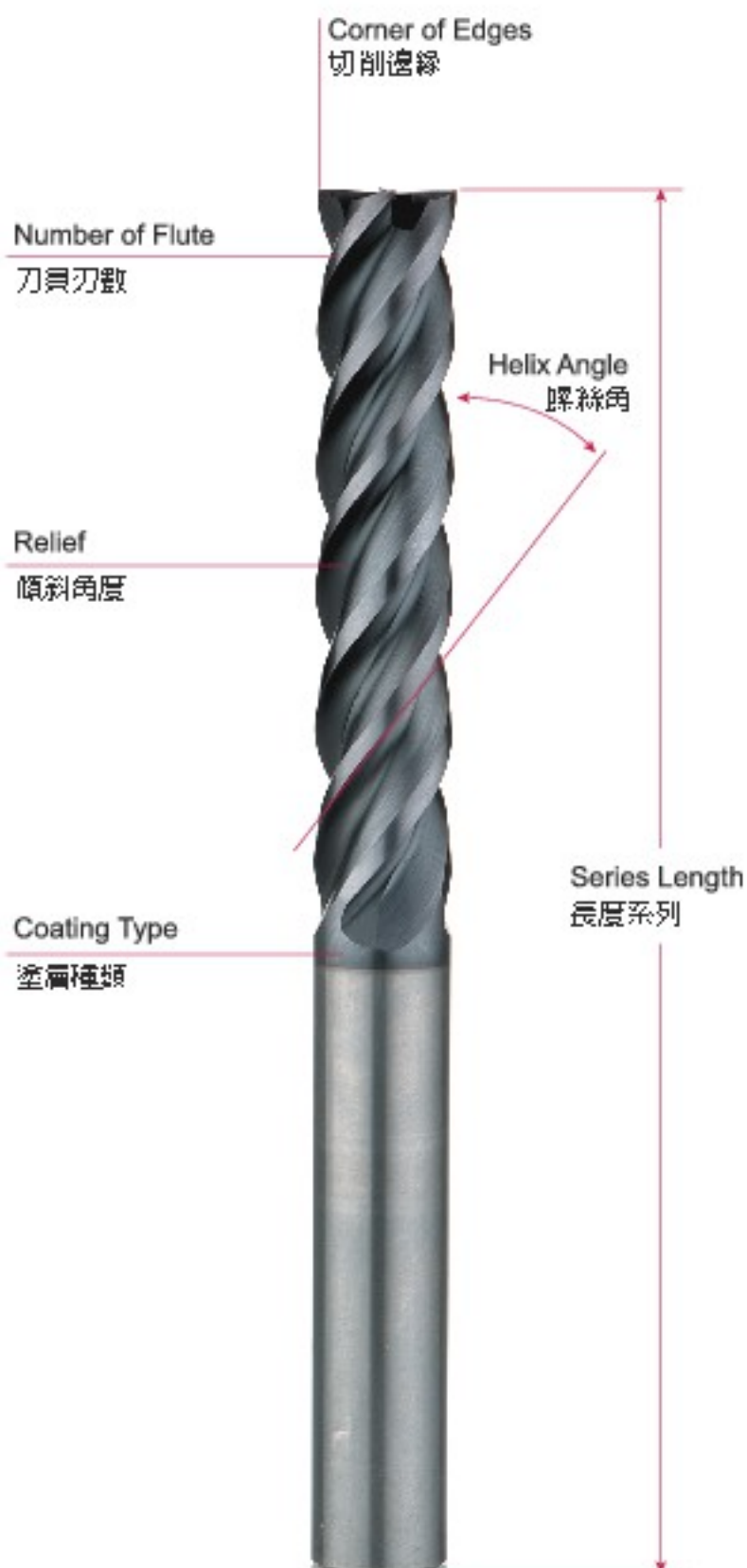
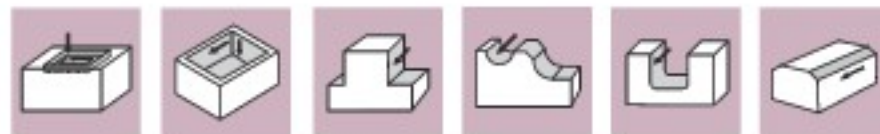
Long Length / 加長系列

















































Extra Long Length / 特長系列

















































Type of Operation / 機械加工方式






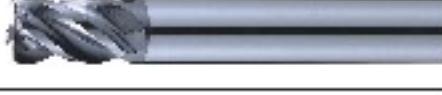








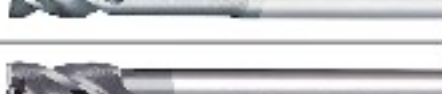

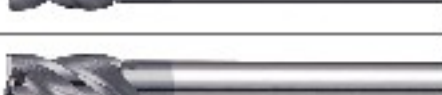
















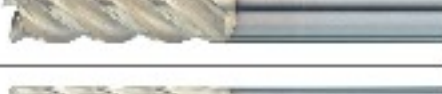








Index

Series	Code No.	Appearance	Flute	Product Name	Page
Universal Finishing End mills	EI22X			Universal End Mills	3
	EI25X EI27X			Universal End Mills	5
	EI26TX EI63TX			Universal End Mills	7
	EI24X			Finishing End Mills	9
	EI26X EI28X			Finishing End Mills	11
	EI64TX EI65TX			Finishing End Mills	13
	EI58TX EI59TX			High Performance End Mills	15
	EI68TX EI69TX			High Performance End Mills	17
	EI66TX EI67TX			Finishing End Mills	19
Ball Nose End Mills	B222X			Ball Nose End Mills	23
	B232X B242X B246X			Ball Nose End Mills	25
	B262TX B263TX B264TX			Ball Nose End Mills	27
	B272TX			Ball Nose End Mills	29
	B273TX			Ball Nose End Mills	29
	B251TX			Ball Nose End Mills	31
	B261TX			Ball Nose End Mills	33
	B253TX			Ball Nose End Mills - 3 Flutes	35
	B254TX			Ball Nose End Mills - 4 Flutes	35
	B250TX			Ball Nose End Mills	37
End Mills With Corner Radius	B255X			End Mills With Corner Radius	41
	B257X			End Mills With Corner Radius	43
	B256X			End Mills With Corner Radius	45
	B258X			End Mills With Corner Radius	47













































Index

Series	Code No.	Appearance	Flute	Product Name	Page
End Mills With Corner Radius	B275TX			High Performance End Mills With Corner Radius	49
	B277TX			High Performance End Mills With Corner Radius	51
	B259TX			Finishing End Mills With Corner Radius	53
	B269TX			Finishing End Mills With Corner Radius	53
	B271TX			High Performance End Mills With Corner Radius	55
	F676TX			High Feed End Mills	57
	E105X			Taper End Mills	59
	E106X			End Mills For Chamfering 60°	61
	E107X			End Mills For Chamfering 90°	61
	E108X			End Mills For Chamfering 60°	63
	E109X			End Mills For Chamfering 90°	63
	E110HX E120HX			End Mills For Back and Front Chamfering / 90°	65
End Mills For Rib Processing	F692TX			End Mills For Rib Processing	69
	F694TX			End Mills For Rib Processing	71
	F690TX			Toric End Mills For Rib Processing With Corner Radius	73
	F690TX			Toric End Mills For Rib Processing With Corner Radius	75
	F693TX			Toric End Mills For Rib Processing With Corner Radius	77
	F695TX			Ball Nose End Mills For Rib Processing	79
	F691TX			End Mills For Rib Processing	81
Short End Mills For Lathe Machine	E113X			Short End Mills For Lathe	85
	E114X			Short End Mills For Lathe	85
	E115HX			Short End Mills For Lathe	87
	E116S			Short End Mills For Lathe	87













































Index

Series	Code No.	Appearance	Flute	Product Name	Page
Multipurpose End Mills	EI30HX			Multipurpose End Mills	91
	EI40HX			Multipurpose End Mills	93
	EI41-1.5HX EI41-2.0HX EI41-3.0HX			Multipurpose End Mills	95
	EI41-4.0HX EI41-5.0HX			Multipurpose End Mills	97
	EI44X			Multipurpose End Mills	99
	EI46X			Multipurpose End Mills	99
	EI44-4.0X EI44-5.0X EI44-6.0X			Multipurpose End Mills	101
	F612HX F617HX			Multipurpose End Mills	103
	EI48HX			Multipurpose End Mills · Slim Shank · Short Type	105
	EI49HX			Multipurpose End Mills · Slim Shank · Long Type	107
	B270TX			Multipurpose End Mills With Corner Radius	109
	B252-2.5HX			Multipurpose End Mills With Corner Radius	111
	B274HX			Multipurpose End Mills With Corner Radius	113
	F636TX			Multipurpose End Mills	115
	F608HX F609HX			Roughing End Mills	117
	F638TX F649TX			Roughing End Mills	119
End Mills For Stainless, Titanium	EI29SX			End Mills for Stainless	123
	E233SX			End Mills for Stainless	125
	E234SX			End Mills for Stainless	127
	E235-2.5SX			End Mills With Corner Radius for Stainless	129
	E235-5.0SX			End Mills With Corner Radius for Stainless	129
	E236TX			End Mills With Corner Radius for Titanium	131













































Index

Series	Code No.	Appearance	Flute	Product Name	Page
End Mills For Aluminium	EI32 EI34			End Mills For Aluminium	135
	EI42			End Mills For Aluminium	137
	EI43DX			End Mills For Aluminium	139
	EI43			End Mills For Aluminium	141
	EI43-3.0 EI43-4.0 EI43-5.0			End Mills For Aluminium	143
	EI45			End Mills For Aluminium	145
	EI94			Utmost Finishing End Mills For Aluminium	147
	EI95R			End Mills For Aluminium	149
	EI95L			End Mills For Aluminium	149
Routers For Composite Materials	EI90 EI91			Routers For Composite Materials	153
	EI97			Routers For Composite Materials	155
	EI98			Routers For Composite Materials	155
	EI99			Routers For Composite Materials	155
	E298			Routers For Composite Materials	157
	E299			Routers For Composite Materials	157
	E291			Routers For Composite Materials	159
	E294			Routers For Composite Materials	159
	EI89R EI89L			End Mills For Plastics	161
End Mills For Graphite	G696DC			Ball Nose End Mills For Graphite	165
	G234DC G244DC			Ball Nose End Mills For Graphite	167
	G697DC			End Mills For Graphite	169
	G298DC			End Mills For Graphite	171













































Index

Series	Code No.	Appearance	Flute	Product Name	Page
Drills	D921X D922X D932X			NC Spot Drills	175
	D923X D924X			NC Spot Drills	177
	D420HX			Micro Precision Drills	179
	D421TX			High Performance Drills	183
	D422TX			High Performance Drills	185
	D423TX-3			Oil-Feed High Performance Drills	187
	D423TX-5			Oil-Feed High Performance Drills	189
	D423TX-8			Oil-Feed High Performance Drills	191
	D423TX-12 D423TX-16			Oil-Feed High Performance Drills	193
	D423TX-20 D423TX-25 D423TX-30			Oil-Feed High Performance Drills	195
End Mill - ANSI	E172			Universal End Mills	199
	E182 E185 E187			Universal End Mills	201
	E174			Finishing End Mills	203
	E184 E186 E188			Finishing End Mills	205
	B212			Ball Nose End Mills	207
	B280 B282			Ball Nose End Mills	209
	B214			Ball Nose End Mills	211
	B281 B284			Ball Nose End Mills	213
	E133			End Mills For Aluminum	215
	E135 E136 E137			End Mills For Aluminum	217
	E192			Roughing End Mills For Aluminium	219
	E193			Finishing End Mills For Aluminium	219





























Index

Series	Code No.	Appearance	Flute	Product Name	Page
End Mills - DIN	E102HX			Universal End Mills	223
	F500HX F501HX			Universal End Mills	225
	F602TX			Universal End Mills	227
	F503HX F504HX			Universal End Mills	229
	F603TX			Universal End Mills	231
	E104HX			Finishing End Mills	233
	F506HX F507HX			Finishing End Mills	235
	F604TX F606TX			Finishing End Mills	237
	F660TX F661TX			Finishing End Mills	239
	B202HX			Ball Nose End Mills	241
	F520HX F521HX			Ball Nose End Mills	243
	F623HX F624HX			Ball Nose End Mills	245
	F625TX F626TX			Ball Nose End Mills	247
High Performance End Mills - DIN	F513SX			Multipurpose End Mills	251
	F514SX			Multipurpose End Mills	253
	HF514SX			Multipurpose End Mills with Coolant Hole	255
	F674TX			Multipurpose End Mills	257
	F608HX F609HX			Roughing End Mills	259
	F638TX F649TX			Roughing End Mills	261
	F651SX			Multipurpose End Mills	263
	F652SX			Multipurpose End Mills with Corner Radius	265
	F653SX			Multipurpose End Mills with Corner Radius	267

Index

Series	Code No.	Appearance	Flute	Product Name	Page
High Performance End Mills - DIN	F615TX			Toric End Mills	269
	F619TX			Toric End Mills	269
	F613TX			Toric End Mills	271
	F614TX			Toric End Mills	271
End Mills For Aluminium - DIN	F631ZX			End Mills For Aluminium	275
	F607ZX			Toric End Mills For Aluminium	277
	F642ZX			Roughing End Mills For Aluminium	279
	F618ZX			Ball Nose End Mills For Aluminium	281
	F620ZX			Ball Nose End Mills For Aluminium	281
Drills - DIN	D903 D904			NC Spot Drills / 90°	285
	D913 D914			NC Spot Drills / 120°	285
	D908			Combined Drill and Countersink / 60°	287
	D400			Micro Precision Drills	289
	D412			Twist Drills	291
	D413			Twist Drills	293
	D415			High performance 3-Flute Drills	296
	D430FN			High Performance Drills	297
	D433FN			High Performance Drills	299
	D431FT			High Performance Drills	301
	D432FT			High Performance Drills	303
	D435FT			Oil-Feed High Performance Drills	305
	D436FT			Oil-Feed High Performance Drills	307

Index

Series	Code No.	Appearance	Flute	Product Name	Page
Drills - DIN	D437FT			Oil-Feed High Performance Drills	309
	D441FT D422FT D433FT			Oil-Feed High Performance Drills	311
	D419FT			Combined Drill and Chamfer Tool	313
Reamers - DIN	R300			Machine Reamers	317
	R301			Machine Reamers	319
	R302			Machine Reamers Long Length	321
	R303			Machine Reamers Carbide Tipped	323
	R308			Machine Reamers In Steps of 0.1mm	325
	R309			NC Machine Reamers	327
	R329			NC Machine Reamers Right Hand Helix (End Cutting)	329
End Mills	EMH/SM			Multipurpose End Mills	332
	EMH/SA			End Mills For Aluminum	332
	EMH/BE			Ball Nose End Mills	332
	EMH/BH			Ball Nose End Mills - 4 Flutes	332

通用 精加工立銑刀 Universal Finishing End mills



Page	3	5	7	9	11	13
Apperance						
Code No	EI22X	EI25X EI27X	EI62TX EI63TX	EI24X	EI26X EI28X	EI64TX EI65TX
Carbide	MG Carbide	MG Carbide	MG Carbide	MG Carbide	MG Carbide	UMG Carbide
Coating	AITIN X-NaNo	AITIN X-NaNo	AITISIN TX	AITIN X-NaNo	AITIN X-NaNo	AITISIN TX
Helix Angle	35°	35°	35°	35°	35°	35°
No.of Flutes	2	2	2	4	4	4

15

17

19



EI58TX
EI59TX

EI68TX
EI69TX

EI66TX
EI67TX

SMG
Carbide

SMG
Carbide

SMG
Carbide

AITISIN
TX

AITISIN
TX

AITISIN
TX

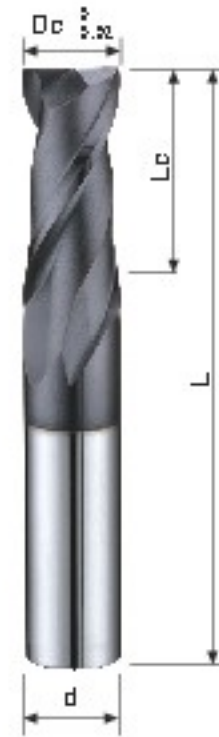


E122X 超微粒鎢鋼塗層通用立銑刀

Universal End Mills

Code No. E122X-Dc

Dc -0.02	Lc mm	L mm	d h6	AlTiN E122X	Dc -0.02	Lc mm	L mm	d h6	AlTiN E122X	Dc -0.02	Lc mm	L mm	d h6	AlTiN E122X
0.1	0.3	50	4	●	6.9	20	60	8	●	13.9	26	80	12	●
0.2	0.5	50	4	●	7	20	60	8	●	14	32	90	16	●
0.3	0.8	50	4	●	7.1	20	60	8	●	14.1	32	90	16	●
0.4	1	50	4	●	7.2	20	60	8	●	14.2	32	90	16	●
0.5	1.2	50	4	●	7.3	20	60	8	●	14.3	32	90	16	●
0.6	1.5	50	4	●	7.4	20	60	8	●	14.4	32	90	16	●
0.7	1.8	50	4	●	7.5	20	60	8	●	14.5	32	90	16	●
0.8	2	50	4	●	7.6	20	60	8	●	14.6	32	90	16	●
0.9	2.5	50	4	●	7.7	20	60	8	●	14.7	32	90	16	●
1	3	50	4	●	7.8	20	60	8	●	14.8	32	90	16	●
1.1	3	50	4	●	7.9	20	60	8	●	14.9	32	90	16	●
1.2	4	50	4	●	8	20	60	8	●	15	32	90	16	●
1.3	4	50	4	●	8.1	20	72	10	●	15.1	38	100	16	●
1.4	4	50	4	●	8.2	20	72	10	●	15.2	38	100	16	●
1.5	5	50	4	●	8.3	20	72	10	●	15.3	38	100	16	●
1.6	5	50	4	●	8.4	20	72	10	●	15.4	38	100	16	●
1.7	5	50	4	●	8.5	20	72	10	●	15.5	38	100	16	●
1.8	5	50	4	●	8.6	22	72	10	●	15.6	38	100	16	●
1.9	5	50	4	●	8.7	22	72	10	●	15.7	38	100	16	●
2	6	50	4	●	8.8	22	72	10	●	15.8	38	100	16	●
2.1	6	50	4	●	8.9	22	72	10	●	15.9	38	100	16	●
2.2	6	50	4	●	9	22	72	10	●	16	38	100	16	●
2.3	6	50	4	●	9.1	22	72	10	●	16.1	38	100	20	●
2.4	8	50	4	●	9.2	22	72	10	●	16.2	38	100	20	●
2.5	8	50	4	●	9.3	22	72	10	●	16.3	38	100	20	●
2.6	8	50	4	●	9.4	22	72	10	●	16.4	38	100	20	●
2.7	8	50	4	●	9.5	22	72	10	●	16.5	38	100	20	●
2.8	8	50	4	●	9.6	22	72	10	●	16.6	38	100	20	●
2.9	8	50	4	●	9.7	22	72	10	●	16.7	38	100	20	●
3A	8	50	4	●	9.8	22	72	10	●	16.8	38	100	20	●
4A	11	50	4	●	9.9	22	72	10	●	16.9	38	100	20	●
3	8	50	6	●	10	22	72	10	●	17	38	100	20	●
3.1	10	50	6	●	10.1	22	75	12	●	17.1	38	100	20	●
3.2	10	50	6	●	10.2	22	75	12	●	17.2	38	100	20	●
3.3	10	50	6	●	10.3	22	75	12	●	17.3	38	100	20	●
3.4	10	50	6	●	10.4	22	75	12	●	17.4	38	100	20	●
3.5	10	50	6	●	10.5	22	75	12	●	17.5	38	100	20	●
3.6	10	50	6	●	10.6	26	75	12	●	17.6	38	100	20	●
3.7	10	50	6	●	10.7	26	75	12	●	17.7	38	100	20	●
3.8	11	50	6	●	10.8	26	75	12	●	17.8	38	100	20	●
3.9	11	50	6	●	10.9	26	75	12	●	17.9	38	100	20	●
4	11	50	6	●	11	26	75	12	●	18	38	100	20	●
4.1	11	50	6	●	11.1	26	75	12	●	18.1	38	100	20	●
4.2	11	50	6	●	11.2	26	75	12	●	18.2	38	100	20	●
4.3	11	50	6	●	11.3	26	75	12	●	18.3	38	100	20	●
4.4	11	50	6	●	11.4	26	75	12	●	18.4	38	100	20	●
4.5	11	50	6	●	11.5	26	75	12	●	18.5	38	100	20	●
4.6	11	50	6	●	11.6	26	75	12	●	18.6	38	100	20	●
4.7	11	50	6	●	11.7	26	75	12	●	18.7	38	100	20	●
4.8	13	50	6	●	11.8	26	75	12	●	18.8	38	100	20	●
4.9	13	50	6	●	11.9	26	75	12	●	18.9	38	100	20	●
5	13	50	6	●	12	26	75	12	●	19	38	100	20	●
5.1	13	50	6	●	12.1	26	80	12	●	19.1	38	100	20	●
5.2	13	50	6	●	12.2	26	80	12	●	19.2	38	100	20	●
5.3	13	50	6	●	12.3	26	80	12	●	19.3	38	100	20	●
5.4	13	50	6	●	12.4	26	80	12	●	19.4	38	100	20	●
5.5	13	50	6	●	12.5	26	80	12	●	19.5	38	100	20	●
5.6	16	50	6	●	12.6	26	80	12	●	19.6	38	100	20	●
5.7	16	50	6	●	12.7	26	80	12	●	19.7	38	100	20	●
5.8	16	50	6	●	12.8	26	80	12	●	19.8	38	100	20	●
5.9	16	50	6	●	12.9	26	80	12	●	19.9	38	100	20	●
6	16	50	6	●	13	26	80	12	●	20	38	100	20	●
6.1	16	60	8	●	13.1	26	80	12	●	1/8 3.175	8	50	6	●
6.2	16	60	8	●	13.2	26	80	12	●	3/16 4.760	12	50	6	●
6.3	16	60	8	●	13.3	26	80	12	●	1/4 6.350	18	60	8	●
6.4	16	60	8	●	13.4	26	80	12	●	5/16 7.940	20	60	8	●
6.5	16	60	8	●	13.5	26	80	12	●	3/8 9.525	22	72	10	●
6.6	20	60	8	●	13.6	26	80	12	●	1/2 12.700	26	75	12	●
6.7	20	60	8	●	13.7	26	80	12	●	5/8 15.880	38	100	16	●
6.8	20	60	8	●	13.8	26	80	12	●	3/4 19.050	38	100	20	●



Steel < 48HRC

P	H	M	K	N	S
●	●	○	●	○	

MG Carbide AlTiN X-NaNo




Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	
	GR7	硬化鋼 56-68HRC Hardened Steel	
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
	GR14	石墨 Graphite	
S	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

Slotting 溝切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.8 不銹鋼 Stainless Steel ※切削液使用		GR.9 鑄鐵 Cast Iron		GR.11 銅 Copper	
切削速度 Vc m/min		Ø0.1-0.7 20-50 Ø0.8-3.0 55-65 Ø3.1-20 65-80		Ø0.1-0.7 20-50 Ø0.8-3.0 55-65 Ø3.1-20 65-80		Ø0.1-0.7 20-50 Ø0.8-3.0 55-65 Ø3.1-20 65-80		Ø0.1-0.7 20-40 Ø0.8-3.0 40-50 Ø3.1-20 55-60		Ø0.1-0.7 20-35 Ø0.8-3.0 35-45 Ø3.1-20 45-50		Ø0.1-0.7 20-40 Ø0.8-3.0 40-50 Ø3.1-20 55-60		Ø0.1-0.7 20-50 Ø0.8-3.0 55-65 Ø3.1-20 80-100		Ø0.1-0.7 30-95 Ø0.8-20 125-150	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (m n-l)		Feed 進給速度 (mm/m n)		RPM 迴轉速度 (m n-l)		Feed 進給速度 (mm/m n)		RPM 迴轉速度 (m n-l)		Feed 進給速度 (mm/m n)		RPM 迴轉速度 (m n-l)		Feed 進給速度 (mm/m n)	
		RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed		
E122X-01	0.1	35 000	60	35 000	60	35 000	60	35 000	50	35 000	20	35 000	50	35 000	60	50 000	100
E122X-02	0.2	32 000	85	32 000	85	32 000	80	32 000	75	32 000	30	32 000	75	32 000	85	50 000	140
E122X-03	0.3	32 000	100	32 000	100	32 000	90	32 000	80	32 000	55	32 000	80	32 000	100	50 000	170
E122X-04	0.4	32 000	110	32 000	110	32 000	100	32 000	90	27 500	60	32 000	90	32 000	110	50 000	190
E122X-05	0.5	31 000	115	31 000	115	31 000	150	25 000	90	22 000	60	25 000	90	31 000	115	50 000	200
E122X-06	0.6	27 000	118	27 000	118	27 000	105	19 500	90	17 000	60	19 500	90	27 000	118	50 000	230
E122X-08	0.8	21 500	120	21 500	120	21 500	108	15 500	90	13 500	60	15 500	90	21 500	120	50 000	290
E122X-1	1	17 500	120	17 500	120	17 500	108	12 500	90	11 000	60	12 500	90	17 500	120	47 500	300
E122X-1.2	1.2	15 000	118	15 000	118	15 000	106	10 500	90	9 300	60	10 500	90	15 000	118	40 500	300
E122X-1.5	1.5	12 500	122	12 500	122	12 500	110	8 900	90	7 900	60	8 900	90	12 500	122	32 000	300
E122X-1.8	1.8	10 500	125	10 500	125	10 500	115	7 500	90	6 800	60	7 500	90	10 500	125	28 000	300
E122X-2	2	9 700	130	9 700	130	9 700	117	7 000	90	6 300	70	7 000	90	9 700	130	24 000	300
E122X-2.5	2.5	8 200	155	8 200	155	8 200	140	6 100	90	5 300	70	6 100	90	8 200	155	20 000	350
E122X-3	3	6 900	170	6 900	170	6 900	153	5 300	100	4 400	70	5 300	100	6 493	200	16 000	400
E122X-3.5	3.5	6 000	190	6 000	190	6 000	190	4 700	100	3 850	70	4 700	100	7 280	210	13 650	415
E122X-4	4	5 400	210	5 400	210	5 400	190	4 200	120	3 500	90	4 200	120	6 370	215	12 000	430
E122X-4.5	4.5	4 850	240	4 850	240	4 850	240	3 800	120	3 200	90	3 800	120	5 660	220	10 600	465
E122X-5	5	4 500	265	4 500	265	4 500	240	3 500	130	3 000	95	3 500	130	5 096	225	9 500	500
E122X-5.5	5.5	4 200	268	4 200	268	4 200	268	3 200	130	2 720	95	3 200	130	4 630	225	8 700	510
E122X-6	6	4 000	270	4 000	270	4 000	243	2 900	130	2 500	100	2 900	130	4 247	230	7 900	520
E122X-7	7	3 500	265	3 500	265	3 500	265	2 550	120	2 200	100	2 550	120	3 640	235	6 900	520
E122X-8	8	3 000	265	3 000	265	3 000	265	2 200	120	1 900	100	2 200	120	3 185	235	5 900	520
E122X-9	9	2 700	260	2 700	260	2 700	260	1 950	120	1 650	95	1 950	120	2 830	215	5 300	500
E122X-10	10	2 400	255	2 400	255	2 400	255	1 700	120	1 400	95	1 700	120	2 548	215	4 700	500
E122X-11	11	2 200	250	2 200	250	2 200	250	1 550	120	1 300	95	1 550	120	2 310	215	4 350	500
E122X-12	12	2 000	246	2 000	246	2 000	246	1 400	120	1 200	95	1 400	120	2 123	215	4 000	500
E122X-13	13	1 850	240	1 850	240	1 850	240	1 300	90	1 100	80	1 300	90	1 960	210	3 750	400
E122X-14	14	1 700	240	1 700	240	1 700	240	1 200	90	1 000	80	1 200	90	1 820	210	3 500	400
E122X-15	15	1 600	220	1 600	220	1 600	220	1 050	90	900	80	1 050	90	1 700	210	3 250	400
E122X-16	16	1 500	200	1 500	200	1 500	200	1 100	90	800	80	1 100	90	1 593	210	3 000	400
E122X-17	17	1 400	190	1 400	190	1 400	190	1 000	90	750	70	1 000	90	1 500	205	2 850	350
E122X-18	18	1 300	180	1 300	180	1 300	180	900	90	700	70	900	90	1 416	205	2 700	350
E122X-19	19	1 100	165	1 100	165	1 100	165	850	90	650	60	850	90	1 340	205	2 550	300
E122X-20	20	1 200	155	1 200	155	1 200	155	800	90	600	60	800	90	1 274	205	2 400	300
切入深度 (mm)		ap:<1.0 ID <3.0 3D ≥3.0 5D		ap:<1.0 ID <3.0 3D ≥3.0 5D		ap:<1.0 ID <3.0 3D ≥3.0 5D		ap:<1.0 ID <3.0 3D ≥3.0 5D		ap:<1.0 ID <3.0 02D ≥3.0 05D		ap:<1.0 ID <3.0 3D ≥3.0 5D		ap:<1.0 ID <3.0 3D ≥3.0 5D		ap:<1.0 ID <3.0 3D ≥3.0 5D	

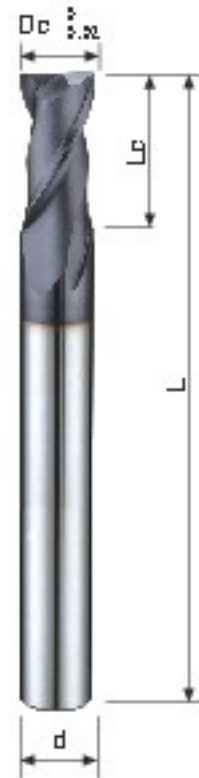
1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E125X / E127X 超微粒鎢鋼塗層通用立銑刀

Universal End Mills

Code No. E125X-Dc				
Dc D -0.02	Lc mm	L mm	d h6	AITiN E125X
3	12	70	6	●
4	15	70	6	●
5	20	80	6	●
6	20	80	6	●
7	25	100	8	●
8	25	100	8	●
9	30	100	10	●
10	30	100	10	●
11	35	110	12	●
12	40	110	12	●
14	40	120	16	●
16	50	140	16	●
20	60	160	20	●



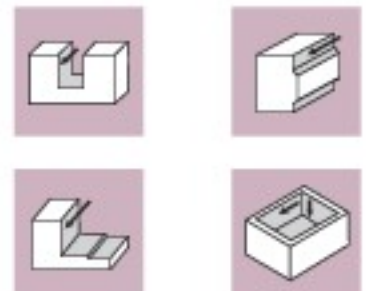
Steel < 48HRC

P	H	M	K	N	S
●	●	○	●	○	○

MG Carbide	AITiN X-NaNo
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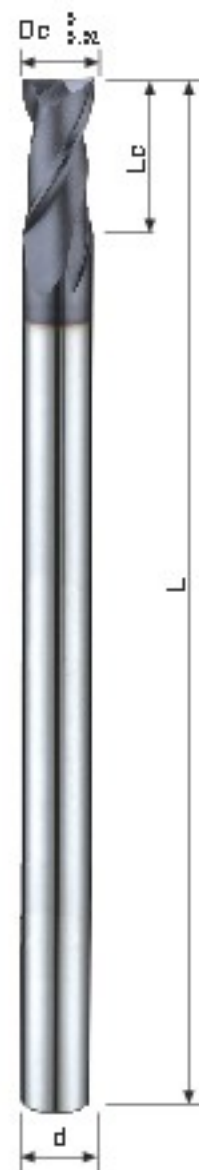


Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloyed Steel	●
	GR3	高合金鋼 < 30HRC High alloyed Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	○
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○



Code No. E127X-Dc				
Dc D -0.02	Lc mm	L mm	d h6	AITiN E127X
3	12	80	4	●
4	15	80	4	●
5	20	100	6	●
6	20	100	6	●
8	25	130	8	●
10	30	160	10	●
12	40	180	12	●
16	50	210	16	●
20	60	210	20	●

Slotting 溝切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		60		60		50		40		30		80	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E 125X/E 127X-3	3	6 050	140	6 050	140	5 200	120	4 200	80	3 000	65	6 800	140
E 125X/E 127X-4	4	4 860	148	4 860	148	3 800	120	3 200	90	2 160	65	4 860	148
E 125X/E 127X-5	5	4 050	162	4 050	162	3 050	120	2 600	90	1 800	75	4 050	162
E 125X/E 127X-6	6	3 250	162	3 250	162	2 600	120	2 100	90	1 440	75	3 250	162
E 125X-7	7	2 850	162	2 850	162	2 275	130	1 850	100	1 260	75	2 850	162
E 125X/E 127X-8	8	2 450	162	2 450	162	1 950	140	1 600	100	1 080	75	2 450	162
E 125X-9	9	2 200	162	2 200	162	1 750	140	1 450	110	970	75	2 200	162
E 125X/E 127X-10	10	1 950	162	1 950	162	1 550	140	1 300	110	870	75	1 950	162
E 125X-11	11	1 780	162	1 780	162	1 420	140	1 200	110	790	75	1 780	162
E 125X/E 127X-12	12	1 620	162	1 620	162	1 300	140	1 080	110	720	75	1 620	162
E 125X-14	14	1 650	180	1 650	180	1 200	150	1 000	118	720	80	1 650	180
E 125X/E 127X-16	16	1 400	198	1 400	198	1 900	160	900	125	630	90	1 400	198
E 125X/E 127X-20	20	1 080	198	1 080	198	870	160	720	125	480	90	1 080	198
切入深度 (mm)		ap:0.3D		ap:0.3D		ap:0.3D		ap:0.2D		ap:0.2D		ap:0.3D	

※ Notice: E127X is Long Length series End Mills. Please adjust the parameter according

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

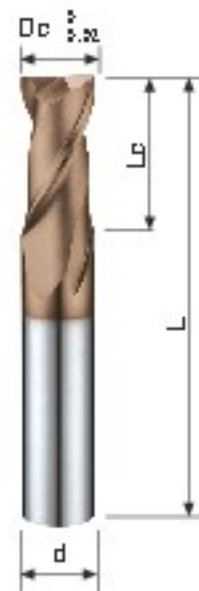
※ 注意E127X為加長柄系列銑刀，請按照適當的伸長度調整刀具的參數。

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E162TX / E163TX 極超微粒鎢鋼塗層通用立銑刀

Universal End Mills

Code No. E162TX-Dc				
Dc D -0.02	Lc mm	L mm	d h6	AITiSiN E162TX
0.1	0.3	50	4	●
0.2	0.5	50	4	●
0.3	0.8	50	4	●
0.4	1	50	4	●
0.5	1.2	50	4	●
0.6	1.5	50	4	●
0.8	2	50	4	●
1	3	50	4	●
1.5	5	50	4	●
2	6	50	4	●
2.5	8	50	4	●
3A	8	50	4	●
4A	11	50	4	●
3	8	50	6	●
3.5	10	50	6	●
4	11	50	6	●
4.5	11	50	6	●
5	13	50	6	●
5.5	13	50	6	●
6	16	50	6	●
7	20	60	8	●
8	20	60	8	●
9	22	72	10	●
10	22	72	10	●
11	26	75	12	●
12	26	75	12	●
14	32	90	16	●
16	38	100	16	●
18	38	100	20	●
20	38	100	20	●



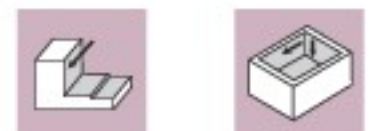
Steel < 56HRC

P	H	M	K	N	S
●	●	●	●	●	●

UMG Carbide	AITISIN TX
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Type of Operation




Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	



Code No. E163TX-Dc				
Dc D -0.02	Lc mm	L mm	d h6	AITiSiN E163TX
3	12	70	6	●
4	15	70	6	●
5	20	80	6	●
6	20	80	6	●
7	25	100	8	●
8	25	100	8	●
9	30	100	10	●
10	30	100	10	●
11	35	110	12	●
12	40	110	12	●
14	40	120	16	●
16	50	140	16	●
20	60	160	20	●

Slotting 溝切削

液削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)	
切削速度 Vc m/min		Ø0.1-0.7 28-57 Ø0.8-3.0 60-100 Ø3.1-20 100-120		Ø0.1-0.7 28-57 Ø0.8-3.0 60-100 Ø3.1-20 100-120		Ø0.1-0.7 20-50 Ø0.8-3.0 55-65 Ø3.1-20 65-80		Ø0.1-0.7 28-45 Ø0.8-3.0 48-80 Ø3.1-20 88-110		Ø0.1-0.7 28-34 Ø0.8-3.0 35-50 Ø3.1-20 65-70		Ø0.1-20 21-45	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E162TX-0 1	0 1	30 000	100	30 000	100	30 000	100	30 000	100	30 000	50	30 000	25
E162TX-0 2	0 2	30 000	100	30 000	100	30 000	100	30 000	100	30 000	50	30 000	25
E162TX-0 3	0 3	30 000	110	30 000	110	30 000	110	30 000	110	30 000	55	22 000	25
E162TX-0 4	0 4	30 000	120	30 000	120	30 000	120	30 000	120	27 000	60	17 000	25
E162TX-0 5	0 5	30 000	120	30 000	120	29 000	120	29 000	120	21 500	60	13 000	25
E162TX-0 6	0 6	30 000	120	30 000	120	24 000	120	24 000	120	18 000	60	11 000	25
E162TX-0 8	0 8	24 000	120	24 000	120	19 000	120	19 000	120	13 800	60	8 800	30
E162TX-1	1	28 500	500	28 500	500	28 500	500	25 000	380	19 000	250	12 500	110
E162TX-1 5	1 5	22 000	505	22 000	505	22 000	505	19 250	390	14 500	255	9 650	115
E162TX-2	2	15 500	510	15 500	510	15 500	510	13 500	400	10 000	260	6 800	120
E162TX-2 5	2 5	13 000	530	13 000	530	13 000	530	11 000	405	8 150	270	5 800	130
E162TX/E163TX-3	3	10 500	550	10 500	550	10 500	550	8 500	410	6 300	280	4 800	140
E162TX-3 5	3 5	9 600	555	9 600	555	9 600	555	7 750	405	5 750	275	4 300	135
E162TX/E163TX-4	4	8 700	560	8 700	560	8 700	560	7 000	400	5 200	270	3 800	135
E162TX-4 5	4 5	7 700	550	7 700	550	7 700	550	6 500	450	4 800	260	3 500	130
E162TX/E163TX-5	5	7 500	545	7 500	545	7 500	545	6 150	475	4 450	250	3 225	125
E162TX-5 5	5 5	6 800	540	6 800	540	6 800	540	5 800	500	4 000	240	3 000	120
E162TX/E163TX-6	6	6 300	530	6 300	530	6 300	530	5 300	550	3 700	235	2 650	120
E162TX/E163TX-7	7	5 550	530	5 550	530	5 550	530	4 650	460	3 250	240	2 300	135
E162TX/E163TX-8	8	4 800	530	4 800	530	4 800	530	4 000	370	2 800	250	2 000	130
E162TX/E163TX-9	9	4 300	540	4 300	540	4 300	540	3 600	375	2 550	250	1 800	140
E162TX/E163TX-10	10	3 800	550	3 800	550	3 800	550	3 200	380	2 300	250	1 600	150
E162TX/E163TX-11	11	3 500	540	3 500	540	3 500	540	2 900	380	2 120	255	1 500	150
E162TX/E163TX-12	12	3 200	530	3 200	530	3 200	530	2 600	380	1 950	260	1 400	155
E162TX/E163TX-14	14	2 750	510	2 750	510	2 750	510	2 500	360	1 600	250	1 000	135
E162TX/E163TX-16	16	2 400	500	2 400	500	2 400	500	2 200	350	1 400	240	900	120
E162TX-18	18	2 200	480	2 200	480	2 200	480	1 950	320	1 200	220	800	110
E162TX/E163TX-20	20	1 900	460	1 900	460	1 900	460	1 750	300	1 100	200	720	110
切入深度 (mm)		ap:<3 0 1D ≥3 0 2D		ap:<3 0 1D ≥3 0 2D		ap:<3 0 1D ≥3 0 2D		ap:<3 0 1D ≥3 0 2D		ap:<3 0 05D ≥3 0 1D		ap:<3 0 05D ≥3 0 1D	

※ Notice: E163TX is Long Length series End Mills. Please adjust the parameter according

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

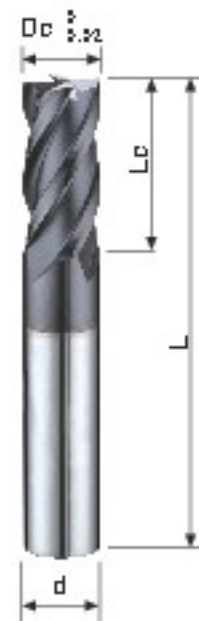
※ 注意E163TX為加長柄系列銼刀，請按照適當的伸長度調整刀具的參數。

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E124X 超微粒鎢鋼塗層精加工立銑刀

Finishing End Mills

Code No. E124X-Dc				
Dc D -0.02	Lc mm	L mm	d h6	AITiN E124X
1	3	50	4	●
1.2	4	50	4	●
1.4	4	50	4	●
1.5	5	50	4	●
1.6	5	50	4	●
1.8	5	50	4	●
2	6	50	4	●
2.2	6	50	4	●
2.4	8	50	4	●
2.5	8	50	4	●
2.6	8	50	4	●
2.8	8	50	4	●
3A	8	50	4	●
4A	11	50	4	●
3	8	50	6	●
3.5	10	50	6	●
4	11	50	6	●
4.5	11	50	6	●
5	13	50	6	●
5.5	13	50	6	●
6	16	50	6	●
6.5	16	60	8	●
7	20	60	8	●
7.5	20	60	8	●
8	20	60	8	●
8.5	20	72	10	●
9	22	72	10	●
9.5	22	72	10	●
10	22	72	10	●
10.5	22	75	12	●
11	26	75	12	●
12	26	75	12	●
13	26	80	12	●
14	32	90	16	●
15	32	90	16	●
16	38	100	16	●
17	38	100	20	●
18	38	100	20	●
19	38	100	20	●
20	38	100	20	●



Steel < 48HRC

P	H	M	K	N	S
●	●	○	●	○	○

MG Carbide	AITiN X-NaNo
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Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	○
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Code No. E124X-Dc				
Dc D -0.02	Lc mm	L mm	d h6	AITiN E124X
1/8	3.175	8	6	●
3/16	4.760	12	6	●
1/4	6.350	18	8	●
5/16	7.940	20	8	●
3/8	9.525	22	10	●
1/2	12.700	26	12	●
5/8	15.880	38	16	●
3/4	19.050	38	20	●

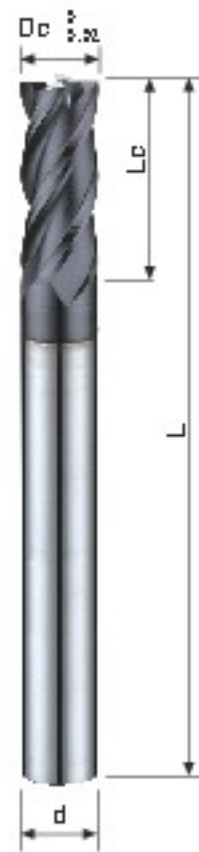
Side Milling 側面切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-3DHRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-46HRC)		GR.8 不銹鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron		GR.11 銅 Copper	
切削速度 Vc m/min		85		85		75		60		50		60		85		150	
型號 Code No.	刃徑 Dc	RPM		Feed		RPM		Feed		RPM		Feed		RPM		Feed	
		迴轉速度 [m n-1]	進給速度 [mm/n s]	迴轉速度 [m n-1]	進給速度 [mm/n s]	迴轉速度 [m n-1]	進給速度 [mm/n s]	迴轉速度 [m n-1]	進給速度 [mm/n s]	迴轉速度 [m n-1]	進給速度 [mm/n s]	迴轉速度 [m n-1]	進給速度 [mm/n s]	迴轉速度 [m n-1]	進給速度 [mm/n s]	迴轉速度 [m n-1]	進給速度 [mm/n s]
E124X-1	1	20 000	240	20 000	240	15 000	210	11 000	85	7 100	40	11 000	85	20 000	240	47 600	420
E124X-1.5	1.5	13 500	250	13 500	250	12 500	215	8 000	90	6 900	60	8 000	90	13 500	250	31 800	620
E124X-2	2	13 000	300	13 000	300	11 000	280	7 000	110	6 350	100	7 000	110	13 000	300	24 000	590
E124X-2.5	2.5	11 000	370	11 000	370	9 500	245	6 300	110	5 500	105	6 300	110	11 000	370	19 200	960
E124X-3	3	9 000	480	9 000	480	7 400	350	5 300	120	4 800	110	5 300	120	9 000	480	15 800	860
E124X-3.5	3.5	7 800	490	7 800	490	6 500	350	4 800	130	4 300	110	4 800	130	7 800	490	13 600	860
E124X-4	4	6 650	500	6 650	500	5 500	350	4 250	135	3 700	115	4 250	135	6 650	500	12 000	900
E124X-4.5	4.5	6 000	550	6 000	550	5 000	385	3 870	130	3 450	120	3 870	130	5 950		10 700	970
E124X-5	5	5 300	600	5 300	600	4 500	420	3 500	130	3 200	120	3 500	130	5 300	600	9 400	1 040
E124X-5.5	5.5	4 900	600	4 900	600	4 100	420	3 250	135	2 920	125	3 250	135	4 900		8 600	1 040
E124X-6	6	4 500	600	4 500	600	3 700	425	3 000	140	2 650	125	3 000	140	4 500	600	7 800	1 040
E124X-7	7	3 900	575	3 900	575	2 950	410	2 420	130	2 250	125	2 420	130	3 900		6 800	1 025
E124X-8	8	3 300	550	3 300	550	2 600	410	1 850	120	1 900	125	1 850	120	3 300	550	5 800	1 010
E124X-9	9	2 950	535	2 950	535	2 350	405	1 650	125	1 700	130	1 650	125	2 950		5 300	1 010
E124X-10	10	2 600	520	2 600	520	2 100	400	1 500	125	1 500	130	1 500	125	2 600	520	4 800	1 010
E124X-11	11	2 400	520	2 400	520	1 950	405	1 350	125	1 350	120	1 350	120	2 400		4 400	1 010
E124X-12	12	2 200	520	2 200	520	1 800	405	1 200	120	1 200	120	1 200	120	2 200	520	4 000	1 010
E124X-13	13	2 050	535	2 050	535	1 700	410	1 200	130	1 150	120	1 200	130	2 050		3 700	1 000
E124X-14	14	1 900	550	1 900	550	1 600	410	1 200	140	1 100	120	1 200	140	1 900	550	3 400	990
E124X-15	15	1 800	540	1 800	540	1 500	410	1 150	130	1 050	100	1 050	135	1 800		3 200	975
E124X-16	16	1 700	530	1 700	530	1 400	410	1 100	130	1 000	100	1 100	130	1 700	530	3 000	960
E124X-17	17	1 600	525	1 600	525	1 300	405	1 020	100	940	95	1 020	115	1 600		2 800	950
E124X-18	18	1 500	520	1 500	520	1 200	405	950	100	880	95	950	100	1 500	520	2 600	940
E124X-19	19	1 400	510	1 400	510	1 150	385	925	90	840	90	925	95	1 400		2 500	910
E124X-20	20	1 300	500	1 300	500	1 100	370	900	90	800	90	900	90	1 300	500	2 400	890
切入深度 (mm) 	ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		
	ae: < 3.0 05D ≥ 3.0 1D		ae: < 3.0 05D ≥ 3.0 1D		ae: < 3.0 05D ≥ 3.0 1D		ae: < 3.0 05D ≥ 3.0 1D		ae: < 3.0 05D ≥ 3.0 02D		ae: < 3.0 05D ≥ 3.0 1D		ae: < 3.0 05D ≥ 3.0 1D		ae: < 3.0 05D ≥ 3.0 1D		

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

Code No. E126X-Dc					
Dc D -0.02	Lc mm	L mm	d h6	AlTiN E126X	
3	12	70	6	●	
4	15	70	6	●	
5	20	80	6	●	
6	20	80	6	●	
7	25	100	8	●	
8	25	100	8	●	
9	30	100	10	●	
10	30	100	10	●	
11	35	110	12	●	
12	40	110	12	●	
14	40	120	16	●	
16	50	140	16	●	
20	60	160	20	●	



Steel < 48HRC

P	H	M	K	N	S
●	●	○	●	○	○

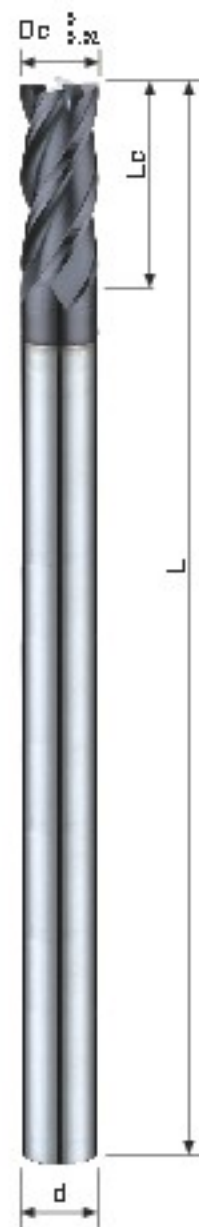
MG Carbide	AlTiN X-NaNo
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Type of Operation



Code No. E128X-Dc					
Dc D -0.02	Lc mm	L mm	d h6	AlTiN E128X	
3	12	80	4	●	
4	15	80	4	●	
5	20	100	6	●	
6	20	100	6	●	
8	25	130	8	●	
10	30	160	10	●	
12	40	180	12	●	
16	50	210	16	●	
20	60	210	20	●	



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	
	GR7	硬化鋼 56-68HRC Hardened Steel	
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
	GR14	石墨 Graphite	
S	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

Side Milling 側面切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 不銹鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron		GR.11 銅 Copper	
切削速度 Vc m/min		65		65		55		40		38		40		65		115	
型號 Code No.	刃徑 Dc	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
		[m n-l]	[mm/n s]	[m n-l]	[mm/n s]	[m n-l]	[mm/n s]	[m n-l]	[mm/n s]	[m n-l]	[mm/n s]	[m n-l]	[mm/n s]	[m n-l]	[mm/n s]	[m n-l]	[mm/n s]
E126X/E128X-3	3	6750	360	6750	360	5550	265	3975	90	3600	85	3975	90	6750	360	11850	645
E126X/E128X-4	4	5000	375	5000	375	4125	265	3200	100	2775	85	3200	100	5000	375	9000	675
E126X/E128X-5	5	3975	450	3975	450	3375	315	2625	100	2400	90	2625	100	3975	450	7050	780
E126X/E128X-6	6	3375	450	3375	450	2775	320	2250	105	1988	95	2250	105	3375	450	5850	780
E126X-7	7	2900	430	2900	430	2360	315	1800	100	1700	95	1820	100	2900	430	5000	770
E126X/E128X-8	8	2475	410	2475	410	1950	310	1400	90	1425	95	1400	90	2475	410	4350	760
E126X-9	9	2200	400	2200	400	1775	305	1270	95	1270	100	1250	95	2200	400	3950	760
E126X/E128X-10	10	1950	390	1950	390	1575	300	1125	95	1125	100	1125	95	1950	390	3600	760
E126X-11	11	1800	390	1800	390	1450	305	1000	90	1000	95	1000	90	1800	390	3300	760
E126X/E128X-12	12	1650	390	1650	390	1350	305	900	90	900	90	900	90	1650	390	3000	760
E126X-14	14	1430	413	1430	413	1200	310	900	105	825	90	900	105	1430	413	2550	750
E126X/E128X-16	16	1275	400	1275	400	1050	310	825	100	750	75	825	100	1275	400	2250	720
E126X/E128X-20	20	975	375	975	375	825	275	675	70	600	70	675	70	975	375	1800	670
切入深度 (mm)		ap:2.5D		ap:2.5D		ap:2.5D		ap:2.5D		ap:2.5D		ap:2.5D		ap:2.5D		ap:2.5D	
		ae:0 ID		ae:0 ID		ae:0 ID		ae:0 ID		ae:0 ID		ae:0 ID		ae:0 ID		ae:0 ID	

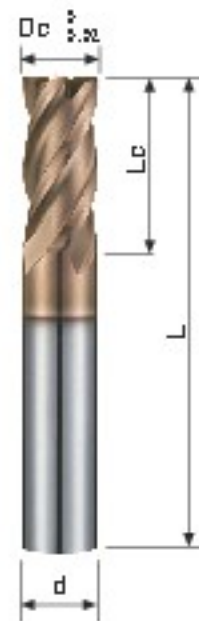
※ Notice: E128X is Long Length series End Mills. Please adjust the parameter according

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

※ 注意E128X為加長柄系列銼刀，請按照適當的伸長度調整刀具的參數。

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

Code No. E164TX-Dc					
Dc D -D 02	Lc mm	L mm	d h6	AITiSiN E164TX	
1	3	50	4	●	
1.5	5	50	4	●	
2	6	50	4	●	
2.5	8	50	4	●	
3 A	8	50	4	●	
4 A	11	50	4	●	
3	8	50	6	●	
3.5	10	50	6	●	
4	11	50	6	●	
4.5	11	50	6	●	
5	13	50	6	●	
5.5	13	50	6	●	
6	16	50	6	●	
7	20	60	8	●	
8	20	60	8	●	
9	22	72	10	●	
10	22	72	10	●	
11	26	75	12	●	
12	26	75	12	●	
14	32	90	16	●	
16	38	100	16	●	
18	38	100	20	●	
20	38	100	20	●	



Steel < 56HRC

P	H	M	K	N	S
●	●	●	●	●	●

UMG Carbide	AITISIN TX

Type of Operation

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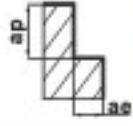
Code No. E165TX-Dc					
Dc D -D 02	Lc mm	L mm	d h6	AITiSiN E165TX	
3	12	70	6	●	
4	15	70	6	●	
5	20	80	6	●	
6	20	80	6	●	
7	25	100	8	●	
8	25	100	8	●	
9	30	100	10	●	
10	30	100	10	●	
11	35	110	12	●	
12	40	110	12	●	
14	40	120	16	●	
16	50	140	16	●	
20	60	160	20	●	



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

Side Milling 側面切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-68HRC)			
切削速度 Vc m/min		Ø1.0-2.5 63-70 Ø3.0-20 108-122		Ø1.0-2.5 63-70 Ø3.0-20 108-122		Ø1.0-2.5 63-70 Ø3.0-20 108-122		Ø1.0-2.0 63-67 Ø3.0-20 69-72		Ø1.0-2.0 63-67 Ø3.0-20 69-72		Ø1.0-2.0 30-45		Ø1.0-2.0 30-40			
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/m n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/m n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/m n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/m n)	
		E164TX-1	1	20 000	240	20 000	240	20 000	240	20 000	185	20 000	185	10 000	60	9 500	40
E164TX-1.5	1.5	15 000	245	15 000	245	15 000	245	15 000	185	15 000	185	7 100	70	6 300	50		
E164TX-2	2	11 000	480	11 000	480	11 000	480	10 000	300	10 000	300	6 400	150	4 800	95		
E164TX-2.5	2.5	8 800	600	8 800	600	8 800	600	8 500	350	8 500	350	5 600	170	4 500	100		
E164TX/E165TX-3	3	11 500	500	11 500	500	11 500	500	7 300	450	7 300	450	4 800	220	4 000	150		
E164TX-3.5	3.5	10 000	510	10 000	510	10 000	510	6 400	475	6 400	475	4 200	235	3 600	185		
E164TX/E165TX-4	4	8 600	515	8 600	515	8 600	515	5 600	500	5 600	500	3 600	250	3 200	220		
E164TX-4.5	4.5	7 700	515	7 700	515	7 700	515	5 100	525	5 100	525	3 250	265	2 900	220		
E164TX/E165TX-5	5	6 800	515	6 800	515	6 800	515	4 500	550	4 500	550	2 900	280	2 600	220		
E164TX-5.5	5.5	6 300	515	6 300	515	6 300	515	4 100	575	4 100	575	2 650	290	2 350	220		
E164TX/E165TX-6	6	5 800	520	5 800	520	5 800	520	3 700	600	3 700	600	2 400	300	2 100	220		
E164TX-7	7	5 050	520	5 050	520	5 050	520	3 250	610	3 250	610	2 100	305	1 850	210		
E164TX/E165TX-8	8	4 300	520	4 300	520	4 300	520	2 800	620	2 800	620	1 800	310	1 600	210		
E164TX-9	9	3 850	530	3 850	530	3 850	530	2 550	620	2 550	620	1 600	305	1 450	195		
E164TX/E165TX-10	10	3 400	540	3 400	540	3 400	540	2 300	620	2 300	620	1 400	300	1 300	180		
E164TX-11	11	3 150	545	3 150	545	3 150	545	2 100	620	2 100	620	1 300	300	1 200	165		
E164TX/E165TX-12	12	2 900	545	2 900	545	2 900	545	1 900	620	1 900	620	1 200	300	1 100	150		
E164TX-14	14	2 650	575	2 650	575	2 650	575	1 650	550	1 650	550	1 050	265	950	125		
E164TX/E165TX-16	16	2 400	610	2 400	610	2 400	610	1 400	480	1 400	480	900	230	800	120		
E164TX-18	18	2 250	620	2 250	620	2 250	620	1 250	450	1 250	450	810	220	720	105		
E164TX/E165TX-20	20	1 950	630	1 950	630	1 950	630	1 100	420	1 100	420	720	210	640	90		
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D			
		ae: < 3.0 D2D ≥ 3.0 D5D		ae: < 3.0 D2D ≥ 3.0 D5D		ae: < 3.0 D2D ≥ 3.0 D5D		ae: < 3.0 D2D ≥ 3.0 D5D		ae: < 3.0 D2D ≥ 3.0 D5D		ae: 0.02D		ae: 0.02D			

※ Notice: E165TX is Long Length series End Mills. Please adjust the parameter according

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

※ 注意E165TX為加長柄系列銼刀，請按照適當的伸長度調整刀具的參數。

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E158TX / E159TX 極超微粒鎢鋼塗層高效能立銑刀

High Performance End Mills

Code No. E158TX-Dc					
Dc D -0.02	Lc mm	L mm	d h6	AITiSiN E158TX	
1	3	50	4	●	
1.5	5	50	4	●	
2	6	50	4	●	
2.5	8	50	4	●	
3A	8	50	4	●	
4A	11	50	4	●	
3	8	50	6	●	
4	11	50	6	●	
5	13	50	6	●	
6	16	50	6	●	
8	20	60	8	●	
10	22	72	10	●	
12	26	75	12	●	
16	38	100	16	●	
20	38	100	20	●	



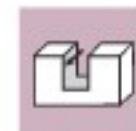
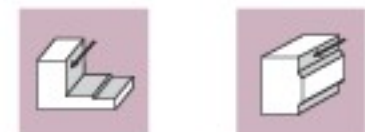
Steel < 62HRC

P	H	M	K	N	S
●	●	●	●	○	○

SMG Carbide AITISIN TX

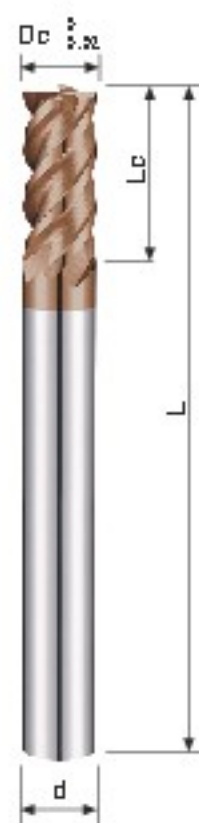


Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	●
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○



Code No. E159TX-Dc					
Dc D -0.02	Lc mm	L mm	d h6	AITiSiN E159TX	
3	12	70	6	●	
4	15	70	6	●	
5	20	80	6	●	
6	20	80	6	●	
8	25	100	8	●	
10	30	100	10	●	
12	40	110	12	●	
16	50	140	16	●	
20	60	160	20	●	

Side Milling 側面切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (~24HRC)		GR.3 高合金鋼 H-alloyed Steel (~30HRC)		GR.4 硬化鋼 Hardened Steel (30~38HRC)		GR.5 硬化鋼 Hardened Steel (38~48HRC)		GR.5 硬化鋼 Hardened Steel (48~56HRC)		GR.5 硬化鋼 Hardened Steel (56~68HRC)		GR.8 不銹鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		100		100		80		65		62		60		30		62		100	
型號 Code No.	刃徑 Dc	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
		[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]
E158TX-1	1	31,850	509	31,850	509	25,480	407	20,700	331	19,747	315	19,110	305	9,555	152	19,747	315	31,850	509
E158TX-1.5	1.5	21,233	594	21,233	594	16,986	475	13,800	386	13,164	368	12,740	305	6,370	152	13,164	368	21,233	594
E158TX-2	2	15,925	637	15,925	637	12,740	560	10,351	455	9,873	395	9,555	344	4,777	152	9,873	395	15,925	637
E158TX-2.5	2.5	12,740	764	12,740	764	10,192	611	8,281	496	7,898	473	7,644	458	3,822	152	7,898	473	12,740	764
E158TX-3	3	10,600	950	10,600	950	8,300	750	7,000	560	6,600	510	6,400	480	3,200	180	6,600	510	10,600	950
E158TX-4	4	8,000	1,000	8,000	1,000	6,150	800	5,200	560	5,000	600	4,800	510	2,400	185	5,000	600	8,000	1,000
E158TX-5	5	6,350	1,000	6,350	1,000	5,000	840	4,200	580	4,000	610	3,800	530	2,000	190	4,000	610	6,350	1,000
E158TX/E159TX-6	6	5,300	1,200	5,300	1,200	4,200	950	3,500	700	3,300	650	3,200	540	1,600	190	3,300	650	5,300	1,200
E158TX/E159TX-8	8	4,000	1,200	4,000	1,200	3,100	900	2,700	650	2,500	640	2,400	550	1,200	175	2,500	640	4,000	1,200
E158TX/E159TX-10	10	3,200	1,100	3,200	1,100	2,500	850	2,100	600	2,000	585	1,900	520	950	155	2,000	585	3,200	1,100
E158TX/E159TX-12	12	2,650	1,100	2,650	1,100	2,000	850	1,750	560	1,700	530	1,600	470	800	160	1,700	530	2,650	1,100
E158TX/E159TX-16	16	2,000	950	2,000	950	1,600	730	1,300	500	1,250	430	1,200	400	600	160	1,250	430	2,000	950
E158TX/E159TX-20	20	1,600	760	1,600	760	1,300	580	1,100	450	980	380	950	350	480	160	980	380	1,600	760
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.0D		ap: 1.0D		ap: 1.5D		ap: 1.5D	
		ae: 0.2D		ae: 0.2D		ae: 0.2D		ae: 0.1D		ae: 0.1D		ae: 0.05D		ae: 0.05D		ae: 0.1D		ae: 0.2D	

※ Notice: E159TX is Long Length series End Mills. Please adjust the parameter according

※ 注意 E159TX 為加長柄系列銼刀，請按照適當的伸長度調整刀具的參數。

Side Milling (High-speed machining) 側面切削(高速加工)

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (~24HRC)		GR.3 高合金鋼 H-alloyed Steel (~30HRC)		GR.4 硬化鋼 Hardened Steel (30~38HRC)		GR.5 硬化鋼 Hardened Steel (38~48HRC)		GR.5 硬化鋼 Hardened Steel (48~56HRC)		GR.5 硬化鋼 Hardened Steel (56~68HRC)		GR.8 不銹鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		200		200		200		200		150		100		80		150		200	
型號 Code No.	刃徑 Dc	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
		[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]	[n·s ⁻¹]	[mm/n·s]
E158TX-3	3	21,233	1,274	21,233	1,274	21,233	1,274	21,233	1,274	15,925	955	10,616	637	8,493	509	15,925	955	21,233	1,274
E158TX-4	4	15,925	1,274	15,925	1,274	15,925	1,274	15,925	1,274	11,943	955	7,962	637	6,370	509	11,943	955	15,925	1,274
E158TX-5	5	12,740	1,528	12,740	1,528	12,740	1,528	12,740	1,528	9,555	1,146	6,370	764	5,096	509	9,555	1,146	12,740	1,528
E158TX-6	6	10,500	2,800	10,500	2,800	10,500	2,500	10,500	1,800	8,000	1,350	5,300	900	4,200	600	8,000	1,350	10,500	2,800
E158TX-8	8	8,000	2,400	8,000	2,400	8,000	2,300	8,000	1,700	5,900	1,350	4,000	850	3,200	550	5,900	1,350	8,000	2,400
E158TX-10	10	6,300	2,350	6,300	2,350	6,300	2,200	6,300	1,650	4,700	1,300	3,200	800	2,500	500	4,700	1,300	6,300	2,350
E158TX-12	12	5,300	2,350	5,300	2,350	5,300	2,100	5,300	1,650	4,000	1,300	2,600	785	2,100	480	4,000	1,300	5,300	2,350
E158TX-16	16	4,000	1,800	4,000	1,800	4,000	1,800	4,000	1,600	3,000	1,200	2,000	780	1,600	480	3,000	1,200	4,000	1,800
E158TX-20	20	3,200	1,500	3,200	1,500	3,200	1,500	3,200	1,450	2,400	1,100	1,600	730	1,300	475	2,400	1,100	3,200	1,500
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.0D		ap: 1.0D		ap: 1.5D		ap: 1.5D	
		ae: 0.05D		ae: 0.02D		ae: 0.05D		ae: 0.05D		ae: 0.05D		ae: 0.02D		ae: 0.02D		ae: 0.05D		ae: 0.05D	

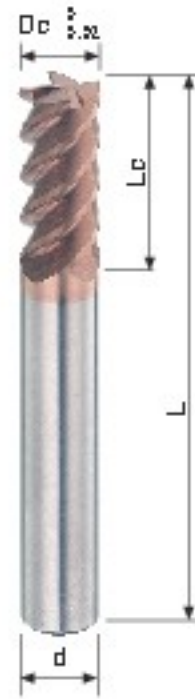
1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower than the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E168TX / E169TX 極超微粒鎢鋼塗層高效能立銑刀

High Performance End Mills

Code No. E168TX-Dc					
Dc D -0.02	Lc mm	L mm	d h6	AITiSiN E168TX	
3	8	50	6	●	
4	11	50	6	●	
5	13	50	6	●	
6	16	50	6	●	
8	20	60	8	●	
10	22	72	10	●	
12	26	75	12	●	
16	38	100	16	●	
20	38	100	20	●	



Hardened Steel 40-70HRC

P	H	M	K	N	S
	●				

SMG Carbide AITISIN TX



Type of Operation




Code No. E169TX-Dc					
Dc D -0.02	Lc mm	L mm	d h6	AITiSiN E169TX	
6	20	80	6	●	
8	25	100	8	●	
10	30	100	10	●	
12	40	110	12	●	
16	50	140	16	●	
20	60	160	20	●	




Work Material

P	GR1	碳鋼 Carbon Steel	
	GR2	低合金鋼 <24HRC Low alloy Steel	
	GR3	高合金鋼 <30HRC High alloy Steel	
H	GR4	硬化鋼 30-38HRC Hardened Steel	
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

Side Milling 側面切削

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		150		100		50	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E168TX-3	3	15 600	1 200	10 500	820	3 800	120
E168TX-4	4	12 000	1 300	8 000	800	2 650	135
E168TX-5	5	9 500	1 300	6 300	850	2 250	140
E168TX/E169TX-6	6	8 000	1 200	5 300	820	2 200	175
E168TX/E169TX-8	8	6 000	1 100	4 000	750	1 650	185
E168TX/E169TX-10	10	4 800	1 100	3 200	745	1 300	165
E168TX/E169TX-12	12	4 000	1 065	2 700	740	1 100	145
E168TX/E169TX-16	16	3 000	1 000	2 000	730	840	170
E168TX/E169TX-20	20	2 400	955	1 600	700	670	170
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D	
		ae: 0.05D		ae: 0.03D		ae: 0.02D	

High Speed Side Milling 高速側面切削

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		200		150		100	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E168TX-3	3	21 233	1 620	15 925	1 130	10 617	424
E168TX-4	4	15 925	1 725	11 944	1 200	7 963	477
E168TX-5	5	12 740	1 750	9 555	1 200	6 370	510
E168TX-6	6	10 617	1 200	7 963	700	5 308	530
E168TX-8	8	7 963	1 200	5 972	700	3 981	530
E168TX-10	10	6 370	850	4 778	630	3 185	420
E168TX-12	12	5 308	850	3 981	630	2 654	420
E168TX-16	16	3 981	900	2 986	650	1 991	420
E168TX-20	20	3 185	900	2 389	650	1 593	420
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D	
		ae: 0.01D		ae: 0.01D		ae: 0.01D	

※ Notice: E169TX is Long Length series End Mills. Please adjust the parameter according

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

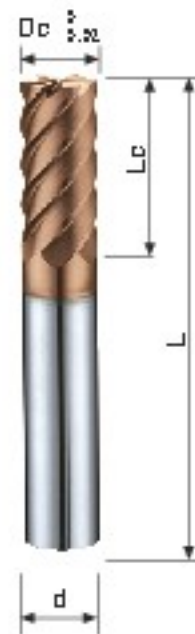
※注意E169TX為加長柄系列銼刀，請按照適當的伸長度調整刀具的參數。

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E166TX / E167TX 極超微粒鎢鋼塗層精加工立銑刀

Finishing End Mills

Code No. E166TX-Dc					
Dc 0 -0.02	Lc mm	L mm	d h6	NO. of Flute	AlTiSiN E166TX
3	8	50	6	4	●
4	11	50	6	4	●
5	13	50	6	6	●
6	16	50	6	6	●
8	20	60	8	6	●
10	22	72	10	6	●
12	26	75	12	6	●
16	38	100	16	6	●
20	38	100	20	6	●



Hardened Steel 40-70HRC

P	H	M	K	N	S
●	○				

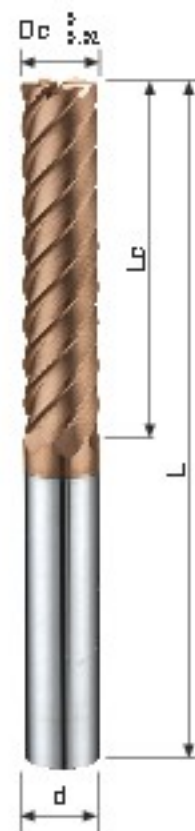
SMG Carbide	AITISIN TX
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Type of Operation



Code No. E167TX-Dc					
Dc 0 -0.02	Lc mm	L mm	d h6	NO. of Flute	AlTiSiN E167TX
6	26	80	6	6	●
8	36	100	8	6	●
10	46	100	10	6	●
12	56	110	12	6	●
16	66	140	16	6	●
20	76	160	20	6	●



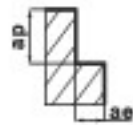
Work Material

P	GR1	碳鋼 Carbon Steel	
	GR2	低合金鋼 <24HRC Low alloy Steel	
	GR3	高合金鋼 <30HRC High alloy Steel	
H	GR4	硬化鋼 30-38HRC Hardened Steel	
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

E166TX Side Milling 側面切削

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		150		100		90		145	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E166TX-3	3	13 500	1 600	10 500	1 200	7 900	650	15 000	1 800
E166TX-4	4	9 900	1 600	7 900	1 200	5 900	650	11 000	1 800
E166TX-5	5	7 900	1 580	6 300	1 200	4 700	650	8 800	1 750
E166TX-6	6	6 600	2 300	5 300	1 800	4 000	1 000	7 400	2 600
E166TX-8	8	4 900	2 350	4 000	1 850	3 000	1 000	5 500	2 600
E166TX-10	10	4 000	2 400	3 200	1 900	2 400	1 000	4 500	2 600
E166TX-12	12	3 300	2 400	2 600	1 900	2 000	1 000	3 700	2 600
E166TX-16	16	2 500	2 100	2 000	1 700	1 500	900	2 800	2 400
E166TX-20	20	2 000	1 900	1 600	1 400	1 200	830	2 300	2 100
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.6D	
		ae: 0.1D		ae: 0.05D		ae: 0.03D		ae: 0.1D	

E167TX Side Milling 側面切削

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		45		35		30		70	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E167TX-6	6	2 100	530	1 500	300	1 350	230	3 200	850
E167TX-8	8	1 800	550	1 200	310	1 100	250	2 800	1 000
E167TX-10	10	1 600	550	1 150	340	1 000	260	2 400	1 000
E167TX-12	12	1 300	520	1 000	280	800	230	1 950	970
E167TX-16	16	985	450	700	230	600	200	1 400	800
E167TX-20	20	800	380	570	210	480	160	1 100	660
切入深度 (mm)		ap: 3.0D		ap: 3.0D		ap: 3.0D		ap: 3.0D	
		ae: 0.1D		ae: 0.05D		ae: 0.05D		ae: 0.1D	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

圓頭立銑刀 Ball Nose End Mills



	Page	23	25	27	29	29	31
Apperance							
Code No		B222X	B232X B242X B246X	B262TX B263TX B264TX	B272TX	B273TX	B25ITX
Carbide		MG Carbide	MG Carbide	SMG Carbide	SMG Carbide	SMG Carbide	SMG Carbide
Coating		AITIN X-NaNo	AITIN X-NaNo	AITISIN TX	AITIN X-NaNo	AITIN X-NaNo	AITISIN TX
Helix Angle		30°	30°	30°	30°	30°	25°
No.of Flutes		2	2	2	2	2	2

33 35 35 37



B261TX B253TX B254TX B250TX

SMG SMG SMG UMG
Carbide Carbide Carbide Carbide

AITISIN AITISIN AITISIN AITISIN
TX TX TX TX



B222X 超微粒鎢鋼塗層圓頭立銑刀

Ball Nose End Mills

Code No. B222X-Dc

Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiN B222X
0.1	0.05R	0.2	50	4	●
0.2	0.1R	0.4	50	4	●
0.3	0.15R	0.6	50	4	●
0.4	0.2R	0.8	50	4	●
0.5	0.25R	1	50	4	●
0.6	0.3R	1.2	50	4	●
0.7	0.35R	1.4	50	4	●
0.8	0.4R	1.6	50	4	●
0.9	0.45R	1.8	50	4	●
1	0.5R	2	50	4	●
1.2	0.6R	2.4	50	4	●
1.4	0.7R	2.8	50	4	●
1.5	0.75R	3	50	4	●
1.6	0.8R	3.2	50	4	●
1.8	0.9R	3.6	50	4	●
2	1R	4	50	4	●
2.5	1.25R	5	50	4	●
3 A	1.5R	6	50	4	●
4 A	2R	8	50	4	●
3	1.5R	6	50	6	●
3.5	1.75R	8	50	6	●
4	2R	8	50	6	●
4.5	2.25R	10	50	6	●
5	2.5R	10	50	6	●
5.5	2.75R	12	50	6	●
6	3R	12	50	6	●
6.5	3.25R	14	60	8	●
7	3.5R	14	60	8	●
7.5	3.75R	14	60	8	●
8	4R	14	60	8	●
8.5	4.25R	18	72	10	●
9	4.5R	18	72	10	●
9.5	4.75R	18	72	10	●
10	5R	18	72	10	●
11	5.5R	22	75	12	●
12	6R	22	75	12	●
13	6.5R	26	90	16	●
14	7R	26	90	16	●
15	7.5R	30	90	16	●
16	8R	30	100	16	●
17	8.5R	34	100	20	●
18	9R	34	100	20	●
19	9.5R	38	100	20	●
20	10R	38	100	20	●



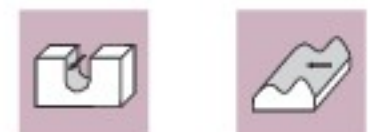
Steel < 48HRC

P	H	M	K	N	S
●	●	○	●	○	○

MG Carbide	AITiN X-NaNo
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Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	○
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

General processing 普通加工

液體材料 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 H-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.8 不銹鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron		GR.11 銅 Copper	
切削速度 Vc m/min		Ø0.1-0.6 20-60 Ø0.8-2.0 80-120		Ø0.1-0.6 20-60 Ø0.8-2.0 80-120		Ø0.1-0.6 20-60 Ø0.8-2.0 80-100		Ø0.1-0.6 20-60 Ø0.8-2.0 60-80		Ø0.1-0.6 20-60 Ø0.8-2.0 60-70		Ø0.1-0.6 20-60 Ø0.8-2.0 60-80		Ø0.1-0.6 20-60 Ø0.8-2.0 80-120		Ø0.1-0.6 25-75 Ø0.8-2.0 100-120	
型號 Code No.	刃徑 Dc	RPM		Feed		RPM		Feed		RPM		Feed		RPM		Feed	
		轉速 (m n-1)	進給速度 (mm/n)	轉速 (m n-1)	進給速度 (mm/n)	轉速 (m n-1)	進給速度 (mm/n)	轉速 (m n-1)	進給速度 (mm/n)	轉速 (m n-1)	進給速度 (mm/n)	轉速 (m n-1)	進給速度 (mm/n)	轉速 (m n-1)	進給速度 (mm/n)	轉速 (m n-1)	進給速度 (mm/n)
B222X-R0 05	0.1	32 000	140	32 000	140	32 000	140	32 000	120	32 000	120	32 000	100	32 000	140	40 000	180
B222X-R0 1	0.2	32 000	160	32 000	160	32 000	160	32 000	140	32 000	140	32 000	120	32 000	160	40 000	200
B222X-R0 15	0.3	32 000	200	32 000	200	32 000	200	32 000	200	32 000	200	32 000	200	32 000	200	40 000	300
B222X-R0 2	0.4	32 000	296	32 000	296	32 000	330	32 000	330	32 000	205	32 000	330	32 000	296	40 000	490
B222X-R0 25	0.5	32 000	395	32 000	395	32 000	330	32 000	330	32 000	205	32 000	330	32 000	395	40 000	490
B222X-R0 3	0.6	32 000	490	32 000	490	32 000	400	32 000	400	32 000	265	32 000	400	32 000	490	40 000	580
B222X-R0 4	0.8	32 000	550	32 000	550	31 500	406	31 500	406	27 500	290	31 500	406	32 000	550	40 000	660
B222X-R0 5	1	31 500	564	31 500	564	25 000	412	25 000	412	22 000	296	25 000	412	31 500	564	32 000	700
B222X-R0 6	1.2	29 190	570	29 190	570	23 880	410	23 880	410	18 580	300	21 250	410	29 195	570	31 850	710
B222X-R0 75	1.5	26 250	578	26 250	578	20 860	418	20 860	418	14 800	302	20 860	418	26 250	578	25 500	715
B222X-R0 8	1.6	21 230	580	21 230	580	17 690	424	17 690	424	12 380	305	17 690	420	23 000	580	23 000	720
B222X-R1	2	21 000	582	21 000	582	16 720	425	16 720	425	11 000	310	16 720	425	21 000	582	19 000	730
B222X-R1 25	2.5	15 750	596	15 750	596	12 580	430	12 580	430	8 900	316	12 580	430	15 750	596	12 700	745
B222X-R1 5	3	10 500	620	10 500	620	8 450	435	8 450	435	7 400	322	8 450	435	10 500	620	12 500	760
B222X-R1 75	3.5	9 840	625	9 840	625	7 350	440	7 350	440	6 400	330	7 350	440	9 840	625	11 000	760
B222X-R2	4	9 250	630	9 250	630	6 350	442	6 350	442	5 550	342	6 350	442	9 250	630	9 500	765
B222X-R1 25	4.5	8 600	635	8 600	635	5 700	445	5 700	445	5 100	355	5 700	445	8 600	635	8 600	770
B222X-R2 5	5	7 950	640	7 950	640	5 095	447	5 095	447	4 460	377	5 095	447	7 950	640	7 650	775
B222X-R2 75	5.5	6 600	645	6 600	645	4 650	450	4 650	450	4 050	380	4 650	450	6 600	645	6 950	780
B222X-R3	6	5 300	670	5 300	670	4 200	465	4 200	465	3 700	390	4 200	465	5 300	670	6 300	800
B222X-R3 5	7	4 600	730	4 600	730	3 700	510	3 700	510	3 200	420	3 700	510	4 600	730	5 500	870
B222X-R4	8	3 950	790	3 950	790	3 150	555	3 150	555	2 750	455	3 150	555	3 950	790	4 750	950
B222X-R4 5	9	3 550	765	3 550	765	2 825	540	2 825	540	2 450	440	2 825	540	3 550	765	4 250	920
B222X-R5	10	3 150	745	3 150	745	2 500	525	2 500	525	2 200	430	2 500	525	3 150	745	3 800	890
B222X-R5 5	11	2 900	720	2 900	720	2 300	505	2 300	505	2 000	430	2 300	505	2 900	720	3 470	865
B222X-R6	12	2 650	700	2 650	700	2 100	490	2 100	490	1 850	430	2 100	490	2 650	700	3 170	840
B222X-R6 5	13	2 450	655	2 450	655	1 960	460	1 960	460	1 730	400	1 960	460	2 450	655	2 970	790
B222X-R7	14	2 300	610	2 300	610	1 830	430	1 830	430	1 620	375	1 830	430	2 300	610	2 780	730
B222X-R7 5	15	2 150	565	2 150	565	1 700	400	1 700	400	1 500	350	1 700	400	2 150	565	2 590	680
B222X-R8	16	1 990	525	1 990	525	1 580	370	1 580	370	1 390	325	1 580	370	1 990	525	2 400	630
B222X-R8 5	17	1 890	495	1 890	495	1 500	350	1 500	350	1 320	305	1 500	350	1 890	495	2 270	590
B222X-R9	18	1 790	470	1 790	470	1 420	330	1 420	330	1 250	290	1 420	330	1 790	470	2 150	560
B222X-R9 5	19	1 690	445	1 690	445	1 340	310	1 340	310	1 180	275	1 340	310	1 690	445	2 020	530
B222X-R10	20	1 590	420	1 590	420	1 260	290	1 260	290	1 110	260	1 260	290	1 590	420	1 900	500
切入深度 (mm)		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID	
		ae:<1 0 ID ≥1 0 2D		ae:<1 0 ID ≥1 0 2D		ae:<1 0 ID ≥1 0 2D		ae:<1 0 ID ≥1 0 2D		ae:<1 0 05D ≥1 0 ID		ae:<1 0 05D ≥1 0 ID		ae:<1 0 ID ≥1 0 2D		ae:<1 0 ID ≥1 0 2D	

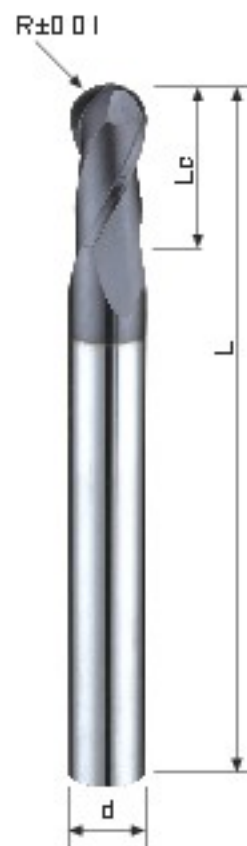
1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B232X / B242X / B246X 超微粒鎢鋼塗層圓頭立銑刀

Ball Nose End Mills

Code No. B232X-Dc					
Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiN B232X
1	0.5R	2	50	6	●
1.5	0.75R	3	50	6	●
2	1R	4	60	6	●
2.5	1.25R	5	60	6	●
3	1.5R	6	70	6	●
4	2R	8	70	6	●
5	2.5R	10	80	6	●
6	3R	12	80	6	●
7	3.5R	14	100	8	●
8	4R	14	100	8	●
9	4.5R	18	100	10	●
10	5R	18	100	10	●
12	6R	22	110	12	●
14	7R	26	120	16	●
16	8R	30	140	16	●
20	10R	38	160	20	●



Steel < 48HRC

P	H	M	K	N	S
●	●	○	●	○	○

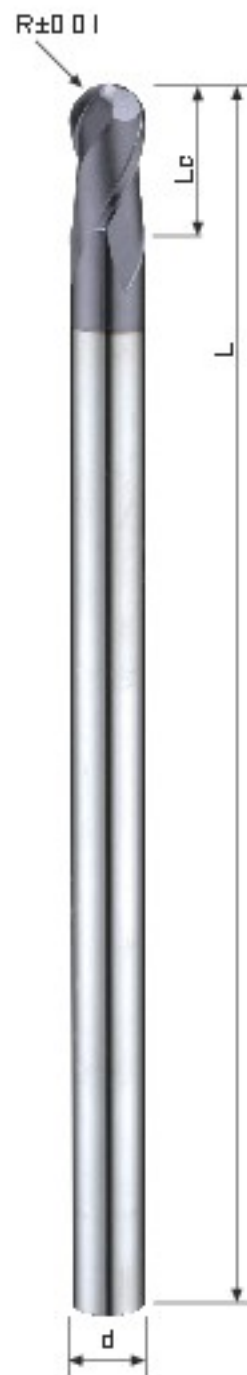
MG Carbide	AITiN X-NaNo
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Type of Operation



Code No. B242X-Dc					
Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiN B242X
1	0.5R	2	70	3	●
2	1R	4	70	3	●
3	1.5R	6	80	4	●
4	2R	8	80	4	●
5	2.5R	10	100	6	●
6	3R	12	100	6	●
8	4R	14	130	8	●
10	5R	18	160	10	●
12	6R	22	180	12	●
16	8R	30	210	16	●
20	10R	38	210	20	●



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	○
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Code No. B246X-Dc					
Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiN B246X
2	1R	4	100	3	●
4	2R	8	130	4	●
6	3R	12	160	6	●
8	4R	14	180	8	●
10	5R	18	200	10	●
12	6R	22	210	12	●

General processing 普通加工

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel [-24HRC]		GR.3 高合金鋼 H-alloyed Steel [-30HRC]		GR.4 硬化鋼 Hardened Steel [30-38HRC]		GR.5 硬化鋼 Hardened Steel [38-48HRC]		GR.8 不銹鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron		GR.11 銅 Copper	
切削速度 Vc m/min		100		100		65		65		55		65		100		100	
型號 Code No.	刃徑 Dc	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
		(m n-1)	(mm/n r)	(m n-1)	(mm/n r)	(m n-1)	(mm/n r)	(m n-1)	(mm/n r)	(m n-1)	(mm/n r)	(m n-1)	(mm/n r)	(m n-1)	(mm/n r)	(m n-1)	(mm/n r)
B232X/B242X R0.5	1	25 200	480	25 200	480	20 000	320	20 000	320	17 600	225	20 000	320	25 200	480	25 600	560
B232X R0.75	1.5	16 640	480	16 640	480	13 600	320	13 600	320	11 840	225	13 600	320	16 640	480	20 400	560
B232X/B242X/B246X R1	2	12 400	480	12 400	480	10 000	320	10 000	320	8 800	230	10 000	320	12 400	480	15 200	560
B232X R1.25	2.5	12 400	480	12 400	480	8 160	320	8 160	320	7 120	230	8 160	320	12 400	480	10 160	560
B232X/B242X R1.5	3	8 400	500	8 400	500	6 760	325	6 760	325	5 920	230	6 760	325	8 400	500	10 000	608
B232X/B242X/B246X R2	4	6 360	500	6 360	500	5 080	355	5 080	355	4 440	300	5 080	355	6 360	500	7 600	608
B232X/B242X R2.5	5	6 360	500	6 360	500	4 070	355	4 070	355	3 568	300	4 070	355	6 360	500	6 120	608
B232X/B242X/B246X R3	6	4 240	535	4 240	535	3 360	370	3 360	370	2 960	310	3 360	370	4 240	535	5 040	640
B232X/B242X/B246X R4	8	3 160	630	3 160	630	2 520	445	2 520	445	2 200	360	2 520	445	3 160	630	3 800	760
B232X/B242X/B246X R5	10	2 520	600	2 520	600	2 000	420	2 000	420	1 760	340	2 000	420	2 520	600	3 040	710
B232X/B242X/B246X R6	12	2 120	560	2 120	560	1 680	390	1 680	390	1 480	340	1 680	390	2 120	560	2 530	670
B232X/B242X R8	16	1 590	420	1 590	420	1 260	295	1 260	295	1 110	260	1 260	295	1 590	420	1 920	500
B232X/B242X R10	20	1 270	335	1 270	335	1 000	230	1 000	230	888	200	1 000	230	1 270	335	1 520	400
切入深度 (mm)		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID		ap:0 ID	
		ae:0 2D		ae:0 2D		ae:0 2D		ae:0 2D		ae:0 ID		ae:0 ID		ae:0 2D		ae:0 2D	

※ Notice: B242X&B246X is Long Length series End Mills. Please adjust the parameter according

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

※ 注意B242X&B246X為加長柄系列銼刀，請按照適當的伸長度調整刀具的參數。

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B262TX / B263TX / B264TX 極超微粒鎢鋼塗層圓頭立銑刀

Ball Nose End Mills

Code No. B262TX-Dc

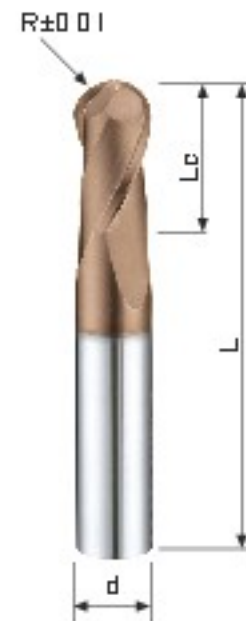
Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiSiN B262TX
0.1	0.05R	0.2	50	4	●
0.2	0.1R	0.4	50	4	●
0.3	0.15R	0.6	50	4	●
0.4	0.2R	0.8	50	4	●
0.5	0.25R	1	50	4	●
0.6	0.3R	1.2	50	4	●
0.8	0.4R	1.6	50	4	●
1	0.5R	2	50	4	●
1.5	0.75R	3	50	4	●
2	1R	4	50	4	●
2.5	1.25R	5	50	4	●
3 A	1.5R	6	50	4	●
4 A	2R	8	50	4	●
3	1.5R	6	50	6	●
4	2R	8	50	6	●
5	2.5R	10	50	6	●
6	3R	12	50	6	●
7	3.5R	14	60	8	●
8	4R	14	60	8	●
9	4.5R	18	72	10	●
10	5R	18	72	10	●
12	6R	22	75	12	●
14	7R	26	90	16	●
16	8R	30	100	16	●
20	10R	38	100	20	●

Code No. B263TX-Dc

Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiSiN B263TX
1	0.5R	2	50	6	●
1.5	0.75R	3	50	6	●
2	1R	4	60	6	●
2.5	1.25R	5	60	6	●
3	1.5R	6	70	6	●
4	2R	8	70	6	●
5	2.5R	10	80	6	●
6	3R	12	80	6	●
7	3.5R	14	100	8	●
8	4R	14	100	8	●
9	4.5R	18	100	10	●
10	5R	18	100	10	●
12	6R	22	110	12	●
14	7R	26	120	16	●
16	8R	30	140	16	●
20	10R	38	160	20	●

Code No. B264TX-Dc

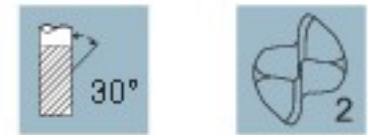
Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiSiN B264TX
1	0.5R	2	70	3	●
2	1R	4	70	3	●
3	1.5R	6	80	4	●
4	2R	8	80	4	●
5	2.5R	10	100	6	●
6	3R	12	100	6	●
8	4R	14	130	8	●
10	5R	18	160	10	●
12	6R	22	180	12	●
16	8R	30	210	16	●
20	10R	38	210	20	●



Steel < 62HRC

P	H	M	K	N	S
●	●	●	○	●	●

SMG Carbide	AITISIN TX
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Type of Operation



Work Material

Material Group	Material Name	Symbol
P	GR1 碳鋼 Carbon Steel	●
	GR2 低合金鋼 < 24HRC Low alloy Steel	●
	GR3 高合金鋼 < 30HRC High alloy Steel	●
H	GR4 硬化鋼 30-38HRC Hardened Steel	●
	GR5 硬化鋼 38-48HRC Hardened Steel	●
	GR6 硬化鋼 48-56HRC Hardened Steel	●
	GR7 硬化鋼 56-68HRC Hardened Steel	○
M	GR8 不銹鋼 Stainless Steel	●
K	GR9 鑄鐵 Cast Iron	○
N	GR10 鋁 Aluminum	●
	GR11 銅 Copper	●
	GR12 塑膠 Plastics	●
	GR13 複合材料 FRP CFRP Composite Material	●
S	GR14 石墨 Graphite	●
	GR15 鈦合金 Titanium	●
	GR16 鎳 Nickel	●
	GR17 耐熱鋼 Heat-resistant Steel	●

General processing 普通加工

液劑材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (~24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (~30HRC)		GR.4 硬化鋼 Hardened Steel (3D-3BHRC)		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		∅0.1-0.6 30-60 ∅0.8-20 80-120		∅0.1-0.6 30-60 ∅0.8-20 80-120		∅0.1-0.6 30-60 ∅0.8-20 80-100		∅0.1-0.6 30-60 ∅0.8-20 73-80		∅0.1-0.6 30-60 ∅0.8-20 65-70		∅0.1-0.6 23-46 ∅0.8-20 48-60		∅0.1-0.6 20-35 ∅0.8-20 35-42	
型號 Code No.	刃徑 Dc	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
		迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)
B 262 TX-R0.05	0.1	32 000	320	32 000	320	32 000	300	32 000	250	24 500	160	24 500	100	24 500	50
B 262 TX-R0.1	0.2	32 000	360	32 000	360	32 000	320	32 000	280	24 500	180	24 500	100	24 500	75
B 262 TX-R0.15	0.3	32 000	400	32 000	400	32 000	365	32 000	300	32 000	180	24 500	100	24 500	75
B 262 TX-R0.2	0.4	32 000	450	32 000	450	32 000	400	32 000	320	32 000	200	24 500	130	24 500	115
B 262 TX-R0.25	0.5	32 000	485	32 000	485	32 000	440	32 000	360	32 000	230	24 500	150	24 500	130
B 262 TX-R0.3	0.6	32 000	530	32 000	530	31 500	480	32 000	400	32 000	260	24 500	170	23 500	150
B 262 TX-R0.4	0.8	32 000	605	32 000	605	31 500	550	29 000	400	27 000	270	19 000	185	14 000	140
B 262 TX/B 263 TX/B 264 TX-R0.5	1	32 000	680	32 000	680	31 500	620	25 000	400	22 000	280	19 000	200	14 000	130
B 262 TX/B 263 TX-R0.75	1.5	32 000	680	32 000	680	31 500	620	25 000	400	22 000	280	19 000	200	14 000	130
B 262 TX/B 263 TX/B 264 TX-R1	2	19 000	765	19 000	765	15 500	620	12 500	400	11 000	290	9 500	200	7 100	135
B 262 TX/B 263 TX-R1.25	2.5	19 000	765	19 000	765	15 500	620	12 500	400	11 000	290	9 500	200	6 360	135
B 262 TX/B 236 TX/B 264 TX-R1.5	3	12 500	765	12 500	765	10 500	630	8 450	400	7 400	290	6 350	200	4 700	140
B 262 TX/B 236 TX/B 264 TX-R2	4	9 500	765	9 500	765	7 950	630	6 350	450	5 550	370	4 750	270	3 500	170
B 262 TX/B 236 TX/B 264 TX-R2.5	5	7 600	850	7 600	850	6 350	630	5 050	450	4 450	370	3 800	280	2 860	170
B 262 TX/B 236 TX/B 264 TX-R3	6	6 350	850	6 350	850	5 300	650	4 200	460	3 700	390	3 150	290	2 300	175
B 262 TX/B 263 TX-R3.5	7	5 050	950	5 050	950	4 650	710	3 650	500	3 200	420	2 750	305	2 000	190
B 262 TX/B 236 TX/B 264 TX-R4	8	4 750	1 050	4 750	1 050	3 950	780	3 150	550	2 750	450	2 350	325	1 700	200
B 262 TX/B 263 TX-R4.5	9	4 250	1 000	4 250	1 000	3 550	760	2 850	535	2 450	440	2 120	330	1 550	200
B 262 TX/B 236 TX/B 264 TX-R5	10	3 800	950	3 800	950	3 150	740	2 500	525	2 200	430	1 900	330	1 400	200
B 262 TX/B 236 TX/B 264 TX-R6	12	3 150	890	3 150	890	2 650	700	2 100	490	1 850	430	1 550	310	1 100	190
B 262 TX/B 263 TX-R7	14	2 700	860	2 700	860	2 250	670	1 800	475	1 550	380	1 350	300	955	180
B 262 TX/B 236 TX/B 264 TX-R8	16	2 350	840	2 350	840	1 950	640	1 550	475	1 350	380	1 150	265	835	175
B 262 TX/B 236 TX/B 264 TX-R10	20	1 900	760	1 900	760	1 750	570	1 400	450	1 100	350	955	250	665	170
切入深度 (mm)		ap: < 1.0 0.05D ≥ 1.0 1D		ap: < 1.0 0.05D ≥ 1.0 1D		ap: < 1.0 0.05D ≥ 1.0 1D		ap: < 1.0 0.05D ≥ 1.0 1D		ap: < 1.0 0.05D ≥ 1.0 1D		ap: 0.05D		ap: 0.05D	
		ae: < 1.0 1D ≥ 1.0 1D		ae: < 1.0 1D ≥ 1.0 1D		ae: < 1.0 1D ≥ 1.0 1D		ae: < 1.0 1D ≥ 1.0 1D		ae: < 1.0 1D ≥ 1.0 1D		ae: < 1.0 1D ≥ 1.0 1D		ae: 0.075D	

High-speed machining 高速加工

液劑材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (~24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (~30HRC)		GR.4 硬化鋼 Hardened Steel (3D-3BHRC)		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		∅1-3 157-198 ∅4-20 226-300		∅1-3 157-198 ∅4-20 226-300		∅1-3 155-165 ∅4-20 195-250		∅1-3 140-160 ∅4-20 188-220		∅1-3 125-153 ∅4-20 170-180		∅1-3 100-113 ∅4-20 138-180		∅1-3 79-92 ∅4-20 119-126	
型號 Code No.	刃徑 Dc	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
		迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)	迴轉速度 (m n-1)	進給速度 (mm/n)
B 262 TX/B 263 TX/B 264 TX-R0.5	1	50 000	2 800	50 000	2 800	50 000	2 800	50 000	2 500	47 500	2 200	32 000	1 400	25 000	1 000
B 262 TX/B 263 TX-R0.75	1.5	41 800	2 800	41 800	2 800	33 000	2 800	30 000	2 500	26 500	2 200	24 000	1 400	19 500	1 000
B 262 TX/B 263 TX/B 264 TX-R1	2	31 500	3 500	31 500	3 500	25 000	2 800	24 500	2 500	23 500	2 250	17 000	1 500	12 500	1 000
B 262 TX/B 263 TX-R1.25	2.5	41 800	3 500	41 800	3 500	21 000	2 800	20 000	2 500	19 500	2 200	14 000	1 500	10 000	950
B 262 TX/B 236 TX/B 264 TX-R1.5	3	21 000	3 500	21 000	3 500	16 500	2 800	16 000	2 500	15 500	2 200	11 000	1 500	8 400	950
B 262 TX/B 236 TX/B 264 TX-R2	4	18 000	3 700	18 000	3 700	15 500	3 200	15 000	2 700	13 500	2 400	11 000	1 900	7 900	1 000
B 262 TX/B 236 TX/B 264 TX-R2.5	5	15 500	4 000	15 500	4 000	15 000	4 000	14 000	2 800	11 000	2 300	10 000	2 000	7 600	1 200
B 262 TX/B 236 TX/B 264 TX-R3	6	15 000	4 800	15 000	4 800	13 500	4 300	11 500	2 700	9 500	2 200	9 500	2 200	6 600	1 050
B 262 TX/B 236 TX/B 264 TX-R4	8	11 500	3 600	11 500	3 600	10 000	3 200	8 900	2 000	7 100	1 700	7 100	1 700	4 900	880
B 262 TX/B 236 TX/B 264 TX-R5	10	9 500	3 000	9 500	3 000	8 200	2 500	7 100	1 700	5 700	1 300	5 700	1 300	3 900	700
B 262 TX/B 236 TX/B 264 TX-R6	12	7 900	2 450	7 900	2 450	6 800	2 100	5 900	1 350	4 700	1 000	4 700	1 000	3 300	580
B 262 TX/B 236 TX/B 264 TX-R8	16	5 900	1 800	5 900	1 800	5 000	1 500	4 500	1 000	3 500	800	3 500	800	2 450	400
B 262 TX/B 236 TX/B 264 TX-R10	20	4 700	1 300	4 700	1 300	4 000	1 200	3 500	800	2 800	650	2 800	650	2 000	320
切入深度 (mm)		ap: 0.02D		ap: 0.02D		ap: 0.02D		ap: 0.02D		ap: 0.02D		ap: 0.02D		ap: 0.02D	
		ae: 0.02D		ae: 0.02D		ae: 0.02D		ae: 0.02D		ae: 0.02D		ae: 0.02D		ae: 0.02D	

※ Notice: B263TX/B264TX is Long Length series End Mills. Please adjust the parameter according

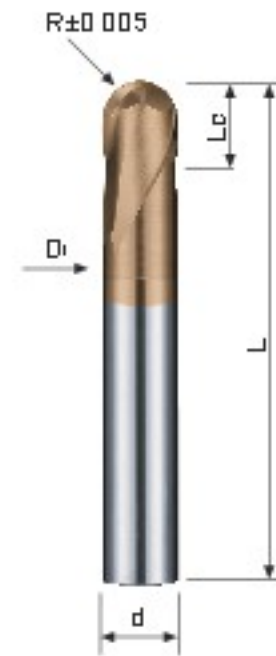
※注意B263TX/B264TX為加長柄系列銑刀，請按照適當的伸長度調整刀具的參數。

B272TX 極超微粒鎢鋼塗層圓頭立銑刀

Ball Nose End Mills

Code No. B272TX-Dc					
Dc 0 -0.02	R ±0.005	Lc mm	L mm	d h5	AlTiSiN B272TX
0.1	0.05R	0.1	40	4	●
0.2	0.1R	0.2	40	4	●
0.3	0.15R	0.3	40	4	●
0.4	0.2R	0.4	40	4	●
0.5	0.25R	0.5	40	4	●
0.6	0.3R	0.6	40	4	●
0.8	0.3R	0.8	40	4	●
1	0.5R	1	40	4	●
1.5	0.75R	1.5	40	4	●
2	1R	2	45	6	●
2.5	1.25R	2.5	45	6	●
3	1.5R	3	45	6	●
4	2R	4	45	6	●
5	2.5R	5	50	6	●
6	3R	6	50	6	●
8	4R	8	60	8	●
10	5R	10	72	10	●
12	6R	12	75	12	●

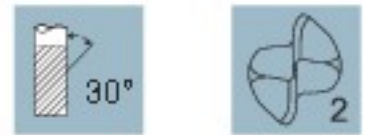
※ Suitable in: Heat-shrinkage shank
 ※ 適用：熱縮刀柄用



Hardened Steel 40-70HRC

P	H	M	K	N	S
	●				

SMG Carbide	AITISIN TX
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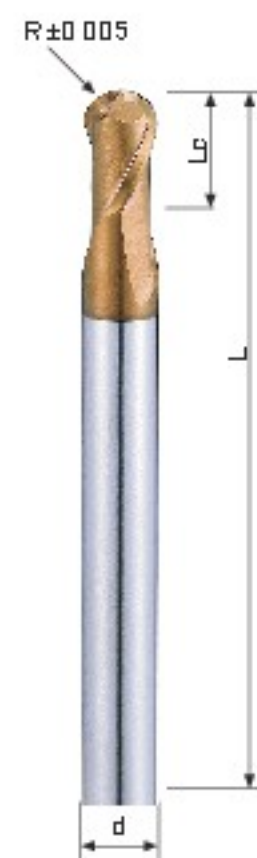


Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	
	GR2	低合金鋼 <24HRC Low alloy Steel	
	GR3	高合金鋼 <30HRC High alloy Steel	
H	GR4	硬化鋼 30-38HRC Hardened Steel	
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

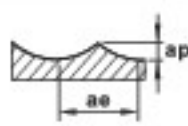


B273TX 極超微粒鎢鋼塗層圓頭立銑刀

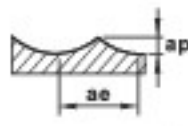
Ball Nose End Mills

Code No. B273TX-Dc					
Dc 0 -0.02	R ±0.005	Lc mm	L mm	d h5	AlTiSiN B273TX
1	0.5R	1.5	50	4	●
1.5	0.75R	2.5	50	4	●
2	1R	3	50	6	●
2.5	1.25R	4	50	6	●
3	1.5R	4.5	70	6	●
4	2R	6	70	6	●
5	2.5R	7.5	80	6	●
6	3R	9	80	6	●
8	4R	12	100	8	●
10	5R	15	100	10	●
12	6R	18	110	12	●

Finishing 精加工

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		130		120		90	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B272TX-R0 25	0.5	20 000	700	17 000	650	17 000	600
B272TX/B273TX-R0 5	1	20 000	800	15 000	750	15 000	750
B272TX/B273TX-R0 75	1.5	18 000	1 400	15 000	900	14 000	900
B272TX/B273TX-R1	2	15 000	1 600	14 000	1 200	14 000	1 260
B273TX-R1 25	2.5	14 000	1 700	13 000	1 500	10 000	1 200
B272TX/B273TX-R1 5	3	13 000	1 700	12 500	1 500	10 000	1 200
B272TX/B273TX-R2	4	11 000	1 680	10 000	1 560	7 200	1 080
B272TX/B273TX-R2 5	5	10 000	1 600	9 600	1 440	6 800	1 080
B272TX/B273TX-R3	6	6 900	1 450	6 400	1 280	4 800	960
B272TX/B273TX-R4	8	5 200	1 200	4 800	1 060	3 600	780
B272TX/B273TX-R5	10	4 100	1 030	3 800	910	2 900	700
B272TX/B273TX-R6	12	3 500	910	3 200	800	2 400	600
切入深度 (mm)		ap:0.02D		ap:0.02D		ap:0.02D	
		ae:0.02D		ae:0.02D		ae:0.02D	

High-speed machining 高速加工

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		235		130		115	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B272TX-R0 25	0.5	50 000	1 450	40 000	1 100	40 000	900
B272TX/B273TX-R0 5	1	30 000	1 700	24 000	2 000	21 000	1 700
B272TX/B273TX-R0 75	1.5	30 000	2 400	17 000	2 000	15 000	1 700
B272TX/B273TX-R1	2	28 000	2 800	14 000	2 100	12 200	1 800
B273TX-R1 25	2.5	24 000	2 850	12 500	2 100	10 500	1 800
B272TX/B273TX-R1 5	3	21 000	3 000	10 500	2 200	9 000	1 750
B272TX/B273TX-R2	4	18 000	3 200	9 000	2 300	7 900	2 000
B272TX/B273TX-R2 5	5	15 500	3 300	7 800	2 500	6 800	2 000
B272TX/B273TX-R3	6	13 000	3 450	6 500	2 500	5 700	2 200
B272TX/B273TX-R4	8	9 500	3 000	5 200	2 100	4 500	1 900
B272TX/B273TX-R5	10	7 500	2 500	4 200	1 800	3 700	1 700
B272TX/B273TX-R6	12	6 200	2 000	3 600	1 700	3 100	1 450
切入深度 (mm)		ap:0.02D		ap:0.02D		ap:0.02D	
		ae:0.02D		ae:0.02D		ae:0.02D	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

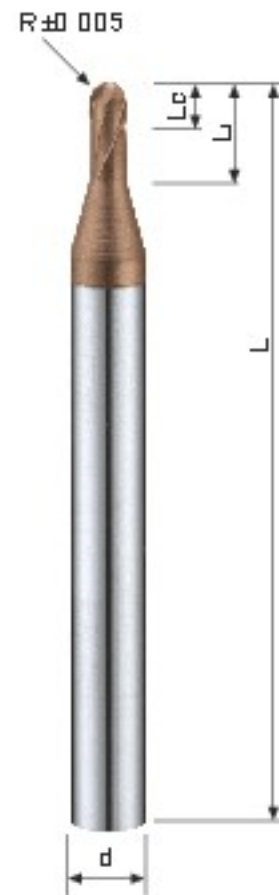
1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B25ITX 極超微粒鎢鋼塗層圓頭立銑刀

Ball Nose End Mills

Code No. B25ITX-Dc

Dc 0 -0.02	R ±0.005	Lc mm	L mm	d h6	Li mm	AITiSiN B25ITX
0.1	0.05R	0.1	50	4	0.3	●
0.2	0.1R	0.2	50	4	0.5	●
0.3	0.15R	0.3	50	4	0.8	●
0.4	0.2R	0.4	50	4	1	●
0.5	0.25R	0.5	50	4	1.3	●
0.6	0.3R	0.6	50	4	1.5	●
0.8	0.4R	0.8	50	4	2	●
1	0.5R	1	50	4	2.5	●
1.5	0.75R	1.5	50	4	3.8	●
2	1R	2	50	6	5	●
3	1.5R	3	60	6	8	●
4	2R	4	60	6	10	●
5	2.5R	5	60	6	12	●
6	3R	6	60	6	15	●



Hardened Steel 40-70HRC

P	H	M	K	N	S
●	●	●	●	●	●

SMG Carbide AITISIN TX




Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	
	GR2	低合金鋼 <24HRC Low alloy Steel	
	GR3	高合金鋼 <30HRC High alloy Steel	
H	GR4	硬化鋼 30-38HRC Hardened Steel	
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

Finishing 精加工

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		130		120		90	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B25ITX-R0 15	0.3	40 000	500	30 000	400	30 000	350
B25ITX-R0 2	0.4	40 000	500	30 000	400	30 000	350
B25ITX-R0 25	0.5	40 000	600	30 000	500	30 000	400
B25ITX-R0 3	0.6	30 000	600	30 000	500	30 000	500
B25ITX-R0 4	0.8	30 000	700	20 000	600	30 000	600
B25ITX-R0 5	1	20 000	800	15 000	750	15 000	750
B25ITX-R0 75	1.5	18 000	1 400	15 000	900	14 000	900
B25ITX-R 1	2	15 000	1 600	14 000	1 200	14 000	1 260
B25ITX-R 1.5	3	13 000	1 700	12 500	1 500	10 000	1 200
B25ITX-R 2	4	11 000	1 680	10 000	1 560	7 200	1 080
B25ITX-R 2.5	5	10 000	1 600	9 600	1 440	6 800	1 080
B25ITX-R 3	6	6 900	1 450	6 400	1 280	4 800	960
切入深度 (mm)		ap:0.02D		ap:0.02D		ap:0.02D	
		ae:0.02D		ae:0.02D		ae:0.02D	

High-speed machining 高速加工

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		200		175		120	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B25ITX-R0 15	0.3	50 000	950	40 000	720	40 000	600
B25ITX-R0 2	0.4	50 000	1 200	40 000	900	40 000	800
B25ITX-R0 25	0.5	50 000	1 400	40 000	1 000	40 000	930
B25ITX-R0 3	0.6	50 000	1 600	40 000	1 200	40 000	1 300
B25ITX-R0 4	0.8	50 000	2 000	40 000	1 500	40 000	1 400
B25ITX-R0 5	1	50 000	2 500	40 000	1 900	32 000	1 400
B25ITX-R0 75	1.5	46 000	3 000	32 000	2 000	25 000	1 600
B25ITX-R 1	2	35 000	3 300	25 000	2 500	20 000	1 750
B25ITX-R 1.5	3	23 000	3 200	19 000	2 500	13 000	1 800
B25ITX-R 2	4	17 500	3 300	14 000	2 500	9 800	1 600
B25ITX-R 2.5	5	14 000	3 300	11 000	2 500	7 900	1 700
B25ITX-R 3	6	11 500	3 000	9 500	2 500	6 500	1 700
切入深度 (mm)		ap:0.02D		ap:0.02D		ap:0.02D	
		ae:0.02D		ae:0.02D		ae:0.02D	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B26ITX 極超微粒鎢鋼塗層圓頭立銑刀

Ball Nose End Mills

Code No. B26ITX-Dc

Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	Li mm	AITiSiN B26ITX
1	0.5R	1	50	4	2	●
1.5	0.75R	1.5	50	4	3	●
2	1R	2	60	6	4	●
3	1.5R	3	70	6	6	●
4	2R	4	70	6	8	●
5	2.5R	5	80	6	10	●
6	3R	6	80	6	12	●
8	4R	8	100	8	16	●
10	5R	10	100	10	20	●
12	6R	12	110	12	24	●



Hardened Steel 40-70HRC

P	H	M	K	N	S
	●				

SMG Carbide	AITISIN TX
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Type of Operation




Work Material

P	GR1	碳鋼 Carbon Steel	
	GR2	低合金鋼 <24HRC Low alloy Steel	
	GR3	高合金鋼 <30HRC High alloy Steel	
H	GR4	硬化鋼 30-38HRC Hardened Steel	
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
	GR14	石墨 Graphite	
S	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

Finishing 精加工

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		230		200		180	
型號 Code No.	刀徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B261TX-R0.5	1	40 000	1 000	31 500	800	23 000	600
B261TX-R0.75	1.5	34 000	1 000	26 000	800	19 200	600
B261TX-R1	2	26 500	1 300	22 000	1 000	16 200	800
B261TX-R1.5	3	25 500	2 300	21 000	1 800	15 500	1 500
B261TX-R2	4	21 000	2 350	17 300	1 800	12 800	1 400
B261TX-R2.5	5	18 000	2 300	14 800	1 850	11 000	1 380
B261TX-R3	6	12 000	2 300	10 500	2 000	9 500	1 800
B261TX-R4	8	9 100	1 700	7 900	1 500	7 100	1 300
B261TX-R5	10	7 300	1 400	6 300	1 200	5 700	1 000
B261TX-R6	12	6 000	1 200	5 300	1 000	4 700	950
切入深度 (mm)		ap:0.02D		ap:0.02D		ap:0.02D	
		ae:0.02D		ae:0.02D		ae:0.02D	

High-speed machining 高速加工

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)	
切削速度 Vc m/min		320		250		180	
型號 Code No.	刀徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B261TX-R3	6	17 500	4 000	13 000	3 000	10 000	2 000
B261TX-R4	8	13 000	3 000	9 800	2 300	7 500	1 500
B261TX-R5	10	10 500	2 500	7 900	1 800	6 000	1 200
B261TX-R6	12	8 700	2 000	6 600	1 500	5 000	1 000
切入深度 (mm)		ap:0.02D		ap:0.02D		ap:0.02D	
		ae:0.02D		ae:0.02D		ae:0.02D	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B253TX 極超微粒鎢鋼塗層3刃圓頭立銑刀

Ball Nose End Mills - 3 Flutes



Code No. B253TX-Dc

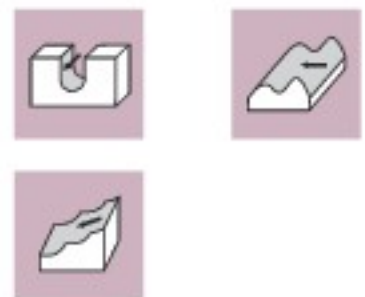
Dc -0.02	R ±0.005	Lc mm	L mm	d h6	AITiSiN B253TX
6	3	12	80	6	●
8	4	14	100	8	●
10	5	18	100	10	●
12	6	22	110	12	●



Hardened Steel 40-70HRC

P	H	M	K	N	S
	●		○		○

Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	
	GR2	低合金鋼 <24HRC Low alloy Steel	
	GR3	高合金鋼 <30HRC High alloy Steel	
H	GR4	硬化鋼 30-38HRC Hardened Steel	
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

B254TX 極超微粒鎢鋼塗層4刃圓頭立銑刀

Ball Nose End Mills - 4 Flutes

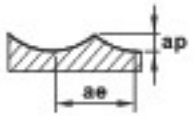


Code No. B254TX-Dc

Dc -0.02	R ±0.005	Lc mm	L mm	d h6	AITiSiN B254TX
3	1.5R	6	70	6	●
4	2R	8	70	6	●
5	2.5R	10	80	6	●
6	3R	12	80	6	●
8	4R	14	100	8	●
10	5R	18	100	10	●
12	6R	22	110	12	●
16	8R	30	140	16	●
20	10R	38	160	20	●



High feed machining 高進給加工

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-64HRC)	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B253TX-R3	6	8000-3200	2700-1200	6400-2500	1900-830	4800-1900	1500-700
B253TX-R4	8	6000-2400	2600-1000	4800-1900	1900-800	3800-1500	1500-600
B253TX-R5	10	4800-1900	3400-1400	3800-1500	2400-1000	3000-1000	1600-800
B253TX-R6	12	4000-1600	2400-1000	3200-1300	1700-1100	2200-800	1350-600
切入深度 (mm) 	ap:0.075-0.015		ap:0.075-0.015		ap:0.075-0.015		
	ae:0.2-0.18		ae:0.2-0.18		ae:0.2-0.18		

Finishing 精加工

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-64HRC)	
切削速度 Vc m/min		280		220		200	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B254TX-R1.5	3	29 000	6 560	23 000	4 500	21 100	4 240
B254TX-R2	4	22 000	6 250	17 100	4 000	15 800	3 520
B254TX-R2.5	5	17 500	5 600	13 600	3 500	12 700	3 200
B254TX-R3	6	15 000	5 000	11 400	3 000	10 600	2 500
B254TX-R4	8	11 000	4 200	8 550	2 500	7 950	2 250
B254TX-R5	10	9 000	3 500	6 850	2 150	6 350	2 000
B254TX-R6	12	7 500	3 000	5 700	2 000	5 300	1 900
B254TX-R8	16	5 500	3 000	4 280	2 000	4 000	1 900
B254TX-R10	20	4 500	3 000	3 500	2 000	3 200	1 900
切入深度 (mm) 	ap:0.02D		ap:0.02D		ap:0.02D		
	ae:0.05D		ae:0.05D		ae:0.05D		

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

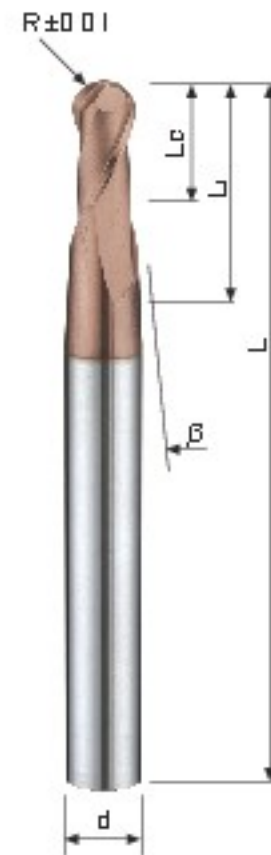
1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B250TX 極超微粒鎢鋼塗層圓頭立銑刀

Ball Nose End Mills

Code No. B250TX-R×β

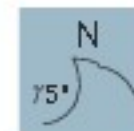
R ±0.01	β on Side	Lc mm	L mm	d h6	Li mm	AITiSiN B250TX
0.5R	1° 30'	2	60	6	23	●
0.5R	5°	2	60	6	23	●
0.5R	3°	2	80	6	42	●
1R	1° 30'	4	60	6	23	●
1R	5°	4	60	6	23	●
1R	3°	4	80	6	41	●
1.5R	3°	6	70	6	32	●
1.5R	1° 30'	6	90	6	52	●
2R	3°	8	70	6	28	●
2R	1° 30'	8	90	6	49	●
2.5R	3°	10	90	8	41	●
2.5R	1° 30'	10	110	8	61	●
3R	3°	12	90	8	34	●
3R	1° 30'	12	110	8	53	●
4R	3°	14	100	10	36	●
4R	1° 30'	14	120	10	55	●
5R	3°	18	110	12	40	●
5R	1° 30'	18	130	12	59	●
6R	3°	22	140	16	63	●
6R	1° 30'	22	160	16	83	●



Steel < 62HRC

P	H	M	K	N	S
●	●	●	○	○	○

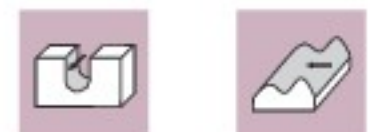
UMG
Carbide



AITISIN
TX



Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

General processing 普通加工



















被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (~24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (~30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)	
切削速度 Vc m/min		85		85		65		65		45		30	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B250TX-R05	1	20 000	125	20 000	125	15 000	120	15 000	120	11 000	65	7 100	30
B250TX-R1	2	11 000	130	11 000	130	85 000	120	85 000	120	6 400	70	4 000	40
B250TX-R15	3	5 900	230	5 900	230	5 000	190	5 000	190	3 500	90	2 150	45
B250TX-R2	4	5 300	310	5 300	310	4 200	230	4 200	230	2 950	90	1 850	55
B250TX-R25	5	4 400	305	4 400	305	3 500	230	3 500	230	2 450	100	1 500	55
B250TX-R3	6	3 300	290	3 300	290	2 600	230	2 600	230	1 850	95	1 200	50
B250TX-R4	8	2 600	275	2 600	275	2 100	220	2 100	220	1 450	95	950	50
B250TX-R5	10	2 200	275	2 200	275	1 750	220	1 750	220	1 200	90	800	45
B250TX-R6	12	2 650	700	2 650	700	2 100	490	2 100	490	1 850	430	2 100	490
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D	
		ae: 0.02D		ae: 0.02D		ae: 0.02D		ae: 0.02D		ae: 0.02D		ae: 0.02D	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

R角立銑刀

End Mills With Corner Radius

Page	41	43	45	47	49	51
Apperance						
Code No	B255X	B257X	B256X	B258X	B275TX	B277TX
Carbide	UMG Carbide	UMG Carbide	UMG Carbide	UMG Carbide	SMG Carbide	SUMG Carbide
Coating	AITIN X-NaNo	AITIN X-NaNo	AITIN X-NaNo	AITIN X-NaNo	AITISIN TX	AITISIN TX
Helix Angle	 30°	 30°	 30°	 30°	 45°	 45°
No.of Flutes	 2	 2	 4	 4	 4	 4

53	53	55	57	59	61	61	63	63	65
									
B259TX	B269TX	B271TX	F676TX	EI05X	EI06X	EI07X	EI08X	EI09X	EI10HX EI20HX
SMG Carbide	SMG Carbide	SMG Carbide	UMG Carbide	UMG Carbide	MG Carbide	MG Carbide	UMG Carbide	UMG Carbide	MG Carbide
AITISIN TX	AITISIN TX	AITISIN TX	AITISIN TX	AITIN X-NaNo	AITIN X-NaNo	AITIN X-NaNo	AITIN X-NaNo	AITIN X-NaNo	AITICrN HX
 45°	 45°	 0°	 0°	 30°	 30°	 30°	 0°	 0°	 15°
 6	 6	 4	 4	 2	 2	 2	 4	 4	 3~6Z

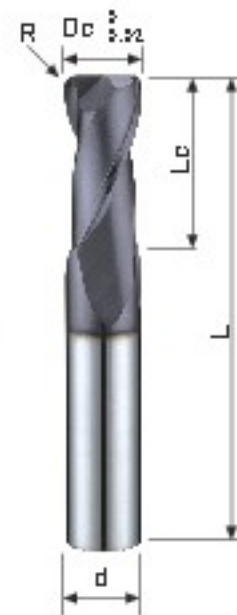
B255X 極超微粒鎢鋼塗層R角立銑刀

End Mills With Corner Radius

Code No. B255X-Dc×R

Dc -0.02	R ±0.01	Lc mm	L mm	d h6	AITiN B255X
1	R0.1	3	50	4	●
1	R0.2	3	50	4	●
1	R0.3	3	50	4	●
1.5	R0.1	5	50	4	●
1.5	R0.2	5	50	4	●
1.5	R0.3	5	50	4	●
1.5	R0.5	5	50	4	●
2	R0.1	6	50	4	●
2	R0.2	6	50	4	●
2	R0.3	6	50	4	●
2	R0.5	6	50	4	●
2.5	R0.1	8	50	4	●
2.5	R0.2	8	50	4	●
2.5	R0.3	8	50	4	●
2.5	R0.5	8	50	4	●
3A	R0.1	8	50	4	●
3A	R0.2	8	50	4	●
3A	R0.3	8	50	4	●
3A	R0.5	8	50	4	●
4A	R0.1	11	50	4	●
4A	R0.2	11	50	4	●
4A	R0.3	11	50	4	●
4A	R0.5	11	50	4	●
4A	R1	11	50	4	●
3	R0.1	8	50	6	●
3	R0.2	8	50	6	●
3	R0.3	8	50	6	●
3	R0.5	8	50	6	●
4	R0.1	11	50	6	●
4	R0.2	11	50	6	●
4	R0.3	11	50	6	●
4	R0.5	11	50	6	●
4	R1	11	50	6	●
5	R0.2	13	50	6	●
5	R0.3	13	50	6	●
5	R0.5	13	50	6	●
5	R1	13	50	6	●
6	R0.2	16	50	6	●
6	R0.3	16	50	6	●
6	R0.5	16	50	6	●
6	R1	16	50	6	●
6	R1.5	16	50	6	●
6	R2	16	50	6	●
8	R0.2	20	60	8	●
8	R0.3	20	60	8	●
8	R0.5	20	60	8	●
8	R1	20	60	8	●
8	R1.5	20	60	8	●
8	R2	20	60	8	●
8	R3	20	60	8	●
10	R0.2	22	72	10	●
10	R0.3	22	72	10	●
10	R0.5	22	72	10	●
10	R1	22	72	10	●
10	R1.5	22	72	10	●
10	R2	22	72	10	●
10	R3	22	72	10	●

Dc -0.02	R ±0.01	Lc mm	L mm	d h6	AITiN B255X
12	R0.2	26	75	12	●
12	R0.3	26	75	12	●
12	R0.5	26	75	12	●
12	R1	26	75	12	●
12	R1.5	26	75	12	●
12	R2	26	75	12	●
12	R3	26	75	12	●
16	R0.5	38	100	16	●
16	R1	38	100	16	●
16	R1.5	38	100	16	●
16	R2	38	100	16	●
16	R3	38	100	16	●
16	R4	38	100	16	●
20	R0.5	38	100	20	●
20	R1	38	100	20	●
20	R1.5	38	100	20	●
20	R2	38	100	20	●
20	R3	38	100	20	●
20	R4	38	100	20	●
20	R5	38	100	20	●



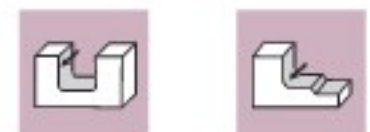
Steel < 56HRC

P	H	M	K	N	S
●	●	○	●	○	○

UMG Carbide	AITiN X-NaNo
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Type of Operation



Work Material

Material Group	Material	Availability
P	GR1 碳鋼 Carbon Steel	●
	GR2 低合金鋼 < 24HRC Low alloyed Steel	●
	GR3 高合金鋼 < 30HRC High alloyed Steel	●
H	GR4 硬化鋼 30-38HRC Hardened Steel	●
	GR5 硬化鋼 38-48HRC Hardened Steel	●
	GR6 硬化鋼 48-56HRC Hardened Steel	●
	GR7 硬化鋼 56-68HRC Hardened Steel	○
M	GR8 不銹鋼 Stainless Steel	○
K	GR9 鑄鐵 Cast Iron	●
N	GR10 鋁 Aluminum	○
	GR11 銅 Copper	○
	GR12 塑膠 Plastics	○
	GR13 複合材料 FRP CFRP Composite Material	○
S	GR14 石墨 Graphite	○
	GR15 鈦合金 Titanium	○
	GR16 鎳 Nickel	○
	GR17 耐熱鋼 Heat-resistant Steel	○

Slotting 溝切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.9 鑄鐵 Cast Iron			
切削速度 Vc m/min		Ø10-30 62-70 Ø31-20 75-80		Ø10-30 62-70 Ø31-20 75-80		Ø10-30 62-70 Ø31-20 75-80		Ø10-30 40-50 Ø31-20 53-55		Ø10-30 34-40 Ø31-20 44-50		Ø10-30 22-25 Ø31-20 28-30		Ø10-30 62-70 Ø31-20 75-80			
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/n)	
		B255X-1	1	19 500	120	19 500	120	14 500	120	12 500	85	11 000	65	7 000	30	19 500	120
B255X-1.5	1.5	14 000	120	14 000	120	10 500	120	8 500	85	8 000	65	5 000	40	14 000	120		
B255X-2	2	11 000	130	11 000	130	8 350	120	7 000	85	6 300	70	3 900	40	11 000	130		
B255X-2.5	2.5	9 900	115	9 900	115	7 000	130	6 000	85	5 000	70	3 500	40	9 900	115		
B255X-3	3	7 500	190	7 500	190	6 350	150	5 300	100	4 350	75	2 700	40	7 500	190		
B255X-4	4	6 000	225	6 000	225	4 900	180	4 200	120	3 500	90	2 200	50	6 000	225		
B255X-5	5	5 200	300	5 200	300	4 300	230	3 500	125	3 000	100	1 900	55	5 200	300		
B255X-6	6	4 500	300	4 500	300	3 600	230	2 900	120	2 500	100	1 600	55	4 500	300		
B255X-8	8	3 300	280	3 300	280	2 700	230	2 200	120	1 900	100	1 100	50	3 300	280		
B255X-10	10	2 600	270	2 600	270	2 100	220	1 700	120	1 500	90	950	50	2 600	270		
B255X-12	12	2 200	270	2 200	270	1 800	210	1 450	125	1 200	95	800	45	2 200	270		
B255X-16	16	1 600	250	1 600	250	1 350	190	1 100	100	950	85	600	35	1 600	250		
B255X-20	20	1 300	200	1 300	200	1 050	150	880	75	750	65	480	30	1 300	200		
切入深度 (mm)		ap: ≤3 0 3D >3 0 5D		ap: ≤3 0 3D >3 0 5D		ap: ≤3 0 3D >3 0 5D		ap: ≤3 0 3D >3 0 5D		ap: ≤3 0 3D >3 0 5D		ap : 0 05D		ap: ≤3 0 3D >3 0 5D			

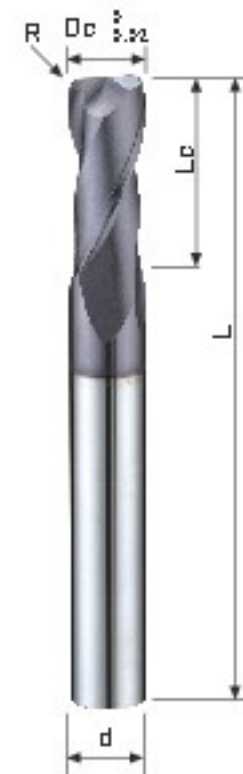
1. Please work with good rigidity / high precision facilities and collet chuck.
 2. Please choose proper cutting fluid.
 3. The cutting data is reference value only. Please adjust it according to your real working conditions.
 4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
 5. If vibration occurs during cutting, please reduce cutting parameter.
1. 請使用剛性好、精度高的設備和夾具。
 2. 請選擇適用於工件材料的切削液。
 3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
 4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
 5. 切削加工時如果發生振顫，請降低切削條件。

B257X 極超微粒鎢鋼塗層R角立銑刀

End Mills With Corner Radius

Code No. B257X-Dc×R

Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AlTiN B257X
3	R0.1	10	50	3	●
3	R0.2	10	50	3	●
3	R0.3	10	50	3	●
3	R0.5	10	50	3	●
4	R0.1	15	60	4	●
4	R0.2	15	60	4	●
4	R0.3	15	60	4	●
4	R0.5	15	60	4	●
4	R1	15	60	4	●
5	R0.2	18	70	5	●
5	R0.3	18	70	5	●
5	R0.5	18	70	5	●
5	R1	18	70	5	●
6	R0.2	20	80	6	●
6	R0.3	20	80	6	●
6	R0.5	20	80	6	●
6	R1	20	80	6	●
6	R1.5	20	80	6	●
6	R2	20	80	6	●
8	R0.2	25	100	8	●
8	R0.3	25	100	8	●
8	R0.5	25	100	8	●
8	R1	25	100	8	●
8	R1.5	25	100	8	●
8	R2	25	100	8	●
8	R3	25	100	8	●
10	R0.2	30	100	10	●
10	R0.3	30	100	10	●
10	R0.5	30	100	10	●
10	R1	30	100	10	●
10	R1.5	30	100	10	●
10	R2	30	100	10	●
10	R3	30	100	10	●
12	R0.2	40	110	12	●
12	R0.3	40	110	12	●
12	R0.5	40	110	12	●
12	R1	40	110	12	●
12	R1.5	40	110	12	●
12	R2	40	110	12	●
12	R3	40	110	12	●
16	R0.5	50	140	16	●
16	R1	50	140	16	●
16	R1.5	50	140	16	●
16	R2	50	140	16	●
16	R3	50	140	16	●
16	R4	50	140	16	●
20	R0.5	60	160	20	●
20	R1	60	160	20	●
20	R1.5	60	160	20	●
20	R2	60	160	20	●
20	R3	60	160	20	●
20	R4	60	160	20	●
20	R5	60	160	20	●



Steel < 56HRC

P	H	M	K	N	S
●	●	○	●	○	○

UMG Carbide	AlTiN X-NaNo
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Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Slotting 溝切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		80		80		80		55		50		30		80	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)
B257X-3	3	7 500	190	7 500	190	6 350	150	5 300	100	4 350	75	2 700	40	7 500	190
B257X-4	4	6 000	225	6 000	225	4 900	180	4 200	120	3 500	90	2 200	50	6 000	225
B257X-5	5	5 200	300	5 200	300	4 300	230	3 500	125	3 000	100	1 900	55	5 200	300
B257X-6	6	4 500	300	4 500	300	3 600	230	2 900	120	2 500	100	1 600	55	4 500	300
B257X-8	8	3 300	280	3 300	280	2 700	230	2 200	120	1 900	100	1 100	50	3 300	280
B257X-10	10	2 600	270	2 600	270	2 100	220	1 700	120	1 500	90	950	50	2 600	270
B257X-12	12	2 200	270	2 200	270	1 800	210	1 450	125	1 200	95	800	45	2 200	270
B257X-16	16	1 600	250	1 600	250	1 350	190	1 100	100	950	85	600	35	1 600	250
B257X-20	20	1 300	200	1 300	200	1 050	150	880	75	750	65	480	30	1 300	200
切入深度 (mm)		ap:0.5D		ap:0.5D		ap:0.5D		ap:0.5D		ap:0.5D		ap:0.5D		ap:0.5D	

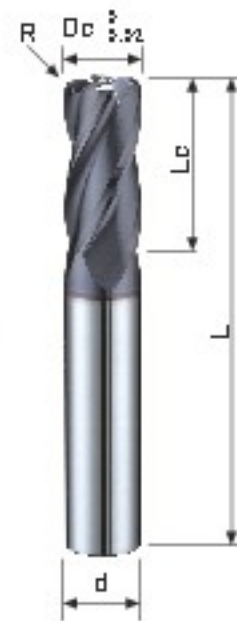
1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B256X 極超微粒鎢鋼塗層R角立銑刀

End Mills With Corner Radius

Code No. B256X-Dc×R



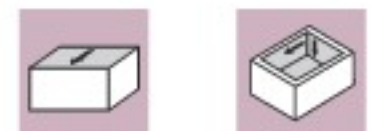
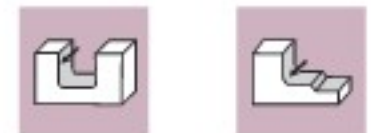
Steel < 56HRC

P	H	M	K	N	S
●	●	○	●	○	○

UMG Carbide	AITIN X-NaNo
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Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Dc -0.02	R ±0.01	Lc mm	L mm	d h6	AITiN B256X
1	R0.1	3	50	4	●
1	R0.2	3	50	4	●
1	R0.3	3	50	4	●
1.5	R0.1	5	50	4	●
1.5	R0.2	5	50	4	●
1.5	R0.3	5	50	4	●
1.5	R0.5	5	50	4	●
2	R0.1	6	50	4	●
2	R0.2	6	50	4	●
2	R0.3	6	50	4	●
2	R0.5	6	50	4	●
2.5	R0.1	8	50	4	●
2.5	R0.2	8	50	4	●
2.5	R0.3	8	50	4	●
2.5	R0.5	8	50	4	●
3A	R0.1	8	50	4	●
3A	R0.2	8	50	4	●
3A	R0.3	8	50	4	●
3A	R0.5	8	50	4	●
4A	R0.1	11	50	4	●
4A	R0.2	11	50	4	●
4A	R0.3	11	50	4	●
4A	R0.5	11	50	4	●
4A	R1	11	50	4	●
3	R0.1	8	50	6	●
3	R0.2	8	50	6	●
3	R0.3	8	50	6	●
3	R0.5	8	50	6	●
4	R0.1	11	50	6	●
4	R0.2	11	50	6	●
4	R0.3	11	50	6	●
4	R0.5	11	50	6	●
4	R1	11	50	6	●
5	R0.2	13	50	6	●
5	R0.3	13	50	6	●
5	R0.5	13	50	6	●
5	R1	13	50	6	●
6	R0.2	16	50	6	●
6	R0.3	16	50	6	●
6	R0.5	16	50	6	●
6	R1	16	50	6	●
6	R1.5	16	50	6	●
6	R2	16	50	6	●
8	R0.2	20	60	8	●
8	R0.3	20	60	8	●
8	R0.5	20	60	8	●
8	R1	20	60	8	●
8	R1.5	20	60	8	●
8	R2	20	60	8	●
8	R3	20	60	8	●
10	R0.2	22	72	10	●
10	R0.3	22	72	10	●
10	R0.5	22	72	10	●
10	R1	22	72	10	●
10	R1.5	22	72	10	●
10	R2	22	72	10	●
10	R3	22	72	10	●

Dc -0.02	R ±0.01	Lc mm	L mm	d h6	AITiN B256X
12	R0.2	26	75	12	●
12	R0.3	26	75	12	●
12	R0.5	26	75	12	●
12	R1	26	75	12	●
12	R1.5	26	75	12	●
12	R2	26	75	12	●
12	R3	26	75	12	●
16	R0.5	38	100	16	●
16	R1	38	100	16	●
16	R1.5	38	100	16	●
16	R2	38	100	16	●
16	R3	38	100	16	●
16	R4	38	100	16	●
20	R0.5	38	100	20	●
20	R1	38	100	20	●
20	R1.5	38	100	20	●
20	R2	38	100	20	●
20	R3	38	100	20	●
20	R4	38	100	20	●
20	R5	38	100	20	●

Side Milling 側面切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.9 鑄鐵 Cast Iron			
切削速度 Vc m/min		Ø10-25 60-80 Ø30-20 80-85		Ø10-25 60-80 Ø30-20 80-85		Ø10-25 47-70 Ø30-20 70-75		Ø10-15 47-57 Ø15-20 57-70		Ø10-25 30-47 Ø30-20 50-60		Ø10-20 22-30		Ø10-25 60-80 Ø30-20 80-85			
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/n)		RPM 迴轉速度 (m n-1)		Feed 進給速度 (mm/n)	
		B256X-1	1	20 000	240	20 000	240	15 000	215	15 000	215	10 000	85	7 100	40	20 000	240
B256X-1.5	1.5	13 500	245	13 500	245	12 000	215	12 000	215	8 000	90	5 100	50	13 500	245		
B256X-2	2	13 000	300	13 000	300	11 000	280	11 000	280	7 000	110	3 900	60	13 000	300		
B256X-2.5	2.5	10 000	320	10 000	320	9 000	300	9 000	300	6 000	120	3 000	60	10 000	320		
B256X-3	3	8 800	500	8 800	500	7 200	350	7 200	350	5 300	125	2 700	60	8 800	500		
B256X-4	4	6 600	530	6 600	530	5 500	360	5 500	360	4 200	130	2 200	70	6 600	530		
B256X-5	5	5 300	600	5 300	600	4 350	420	4 350	420	3 500	140	1 900	75	5 300	600		
B256X-6	6	4 500	610	4 500	610	3 700	425	3 700	425	2 900	145	1 500	70	4 500	610		
B256X-8	8	3 300	590	3 300	590	2 700	425	2 700	425	2 200	145	1 100	65	3 300	590		
B256X-10	10	2 600	580	2 600	580	2 200	420	2 200	420	1 700	145	950	65	2 600	580		
B256X-12	12	2 200	580	2 200	580	1 800	420	1 800	420	1 400	140	800	60	2 200	580		
B256X-16	16	1 600	530	1 600	530	1 300	400	1 300	400	1 200	130	600	45	1 600	530		
B256X-20	20	1 300	510	1 300	510	1 100	370	1 100	370	890	110	470	35	1 300	510		
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D			
		ae: <3.0 D ≥3.0 D		ae: <3.0 D ≥3.0 D		ae: <3.0 D ≥3.0 D		ae: <3.0 D ≥3.0 D		ae: <3.0 D ≥3.0 D		ae: 0.02D		ae: <3.0 D ≥3.0 D			

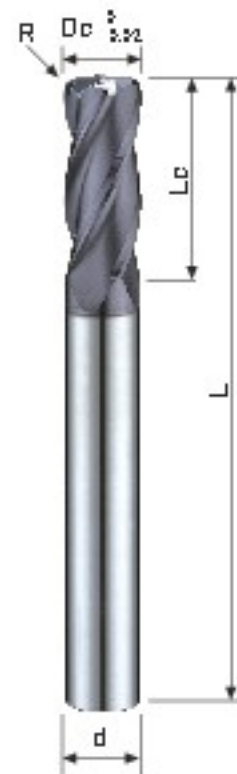
1. Please work with good rigidity / high precision facilities and collet chuck.
 2. Please choose proper cutting fluid.
 3. The cutting data is reference value only. Please adjust it according to your real working conditions.
 4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
 5. If vibration occurs during cutting, please reduce cutting parameter.
1. 請使用剛性好、精度高的設備和夾具。
 2. 請選擇適用於工件材料的切削液。
 3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
 4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
 5. 切削加工時如果發生振顫，請降低切削條件。

B258X 極超微粒鎢鋼塗層R角立銑刀

End Mills With Corner Radius

Code No. B258X-Dc×R

Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AlTiN B258X
3	R0.1	10	50	3	●
3	R0.2	10	50	3	●
3	R0.3	10	50	3	●
3	R0.5	10	50	3	●
4	R0.1	15	60	4	●
4	R0.2	15	60	4	●
4	R0.3	15	60	4	●
4	R0.5	15	60	4	●
4	R1	15	60	4	●
5	R0.2	18	70	5	●
5	R0.3	18	70	5	●
5	R0.5	18	70	5	●
5	R1	18	70	5	●
6	R0.2	20	80	6	●
6	R0.3	20	80	6	●
6	R0.5	20	80	6	●
6	R1	20	80	6	●
6	R1.5	20	80	6	●
6	R2	20	80	6	●
8	R0.2	25	100	8	●
8	R0.3	25	100	8	●
8	R0.5	25	100	8	●
8	R1	25	100	8	●
8	R1.5	25	100	8	●
8	R2	25	100	8	●
8	R3	25	100	8	●
10	R0.2	30	100	10	●
10	R0.3	30	100	10	●
10	R0.5	30	100	10	●
10	R1	30	100	10	●
10	R1.5	30	100	10	●
10	R2	30	100	10	●
10	R3	30	100	10	●
12	R0.2	40	110	12	●
12	R0.3	40	110	12	●
12	R0.5	40	110	12	●
12	R1	40	110	12	●
12	R1.5	40	110	12	●
12	R2	40	110	12	●
12	R3	40	110	12	●
16	R0.5	50	140	16	●
16	R1	50	140	16	●
16	R1.5	50	140	16	●
16	R2	50	140	16	●
16	R3	50	140	16	●
16	R4	50	140	16	●
20	R0.5	60	160	20	●
20	R1	60	160	20	●
20	R1.5	60	160	20	●
20	R2	60	160	20	●
20	R3	60	160	20	●
20	R4	60	160	20	●
20	R5	60	160	20	●



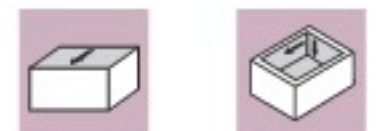
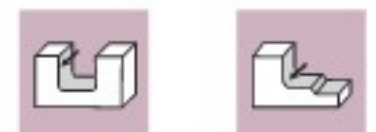
Steel < 56HRC

P	H	M	K	N	S
●	●	○	●	○	○

UMG Carbide	AlTiN X-NaNo
●	●



Type of Operation



Work Material

Group	Material	Symbol
P	GR1 碳鋼 Carbon Steel	●
	GR2 低合金鋼 < 24HRC Low alloy Steel	●
	GR3 高合金鋼 < 30HRC High alloy Steel	●
H	GR4 硬化鋼 30-38HRC Hardened Steel	●
	GR5 硬化鋼 38-48HRC Hardened Steel	●
	GR6 硬化鋼 48-56HRC Hardened Steel	●
	GR7 硬化鋼 56-68HRC Hardened Steel	○
M	GR8 不銹鋼 Stainless Steel	○
K	GR9 鑄鐵 Cast Iron	●
N	GR10 鋁 Aluminum	○
	GR11 銅 Copper	○
	GR12 塑膠 Plastics	○
	GR13 複合材料 FRP CFRP Composite Material	○
S	GR14 石墨 Graphite	○
	GR15 鈦合金 Titanium	○
	GR16 鎳 Nickel	○
	GR17 耐熱鋼 Heat-resistant Steel	○

Side Milling 側面切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		85		85		75		70		60		30		85	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/n)
B258X-3	3	8 800	500	8 800	500	7 200	350	7 200	350	5 300	125	2 700	60	8 800	500
B258X-4	4	6 600	530	6 600	530	5 500	360	5 500	360	4 200	130	2 200	70	6 600	530
B258X-5	5	5 300	600	5 300	600	4 350	420	4 350	420	3 500	140	1 900	75	5 300	600
B258X-6	6	4 500	610	4 500	610	3 700	425	3 700	425	2 900	145	1 500	70	4 500	610
B258X-8	8	3 300	590	3 300	590	2 700	425	2 700	425	2 200	145	1 100	65	3 300	590
B258X-10	10	2 600	580	2 600	580	2 200	420	2 200	420	1 700	145	950	65	2 600	580
B258X-12	12	2 200	580	2 200	580	1 800	420	1 800	420	1 400	140	800	60	2 200	580
B258X-16	16	1 600	530	1 600	530	1 300	400	1 300	400	1 200	130	600	45	1 600	530
B258X-20	20	1 300	510	1 300	510	1 100	370	1 100	370	890	110	470	35	1 300	510
切入深度 (mm)		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D		ap: 1.5D	
		ae: 0.1D		ae: 0.1D		ae: 0.1D		ae: 0.1D		ae: 0.1D		ae: 0.02D		ae: 0.1D	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

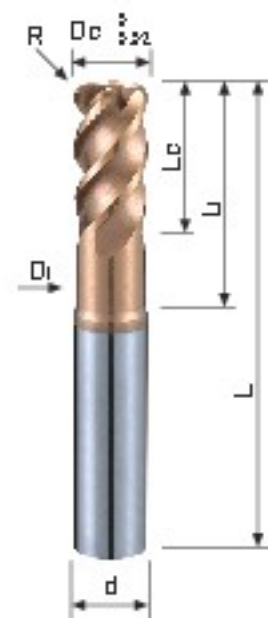
1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B275TX 極超微粒鎢鋼塗層高效能R角立銑刀

High Performance End Mills With Corner Radius

Code No. B275TX-Dc

Dc D _c -0.02	R ±0.01	Lc mm	L mm	d h6	L1 mm	D1 mm	AITiSiN B275TX
3	R0.2	5	50	6	8	2.85	●
3	R0.5	5	50	6	8	2.85	●
4	R0.2	6	50	6	10	3.8	●
4	R0.5	6	50	6	10	3.8	●
5	R0.2	8	50	6	13	4.8	●
5	R0.5	8	50	6	13	4.8	●
6	R0.2	9	50	6	15	5.7	●
6	R0.5	9	50	6	15	5.7	●
6	R1	9	50	6	15	5.7	●
6	R1.5	9	50	6	15	5.7	●
8	R0.2	12	60	8	20	7.6	●
8	R0.5	12	60	8	20	7.6	●
8	R1	12	60	8	20	7.6	●
8	R2	12	60	8	20	7.6	●
10	R0.2	15	75	10	25	9.5	●
10	R0.5	15	75	10	25	9.5	●
10	R1	15	75	10	25	9.5	●
10	R2	15	75	10	25	9.5	●
12	R0.2	18	80	12	30	11.4	●
12	R0.5	18	80	12	30	11.4	●
12	R1	18	80	12	30	11.4	●
12	R2	18	80	12	30	11.4	●
16	R0.5	24	100	16	40	15.2	●
16	R1	24	100	16	40	15.2	●
16	R2	24	100	16	40	15.2	●
16	R3	24	100	16	40	15.2	●
20	R0.5	30	110	20	50	19	●
20	R1	30	110	20	50	19	●
20	R2	30	110	20	50	19	●
20	R3	30	110	20	50	19	●



Steel < 62HRC

P	H	M	K	N	S
●	●	●	●	○	○

SMG Carbide	AITISIN TX
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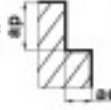
Type of Operation



Work Material

Group	Material	Symbol
P	GR1 碳鋼 Carbon Steel	●
	GR2 低合金鋼 < 24HRC Low alloy Steel	●
	GR3 高合金鋼 < 30HRC High alloy Steel	●
H	GR4 硬化鋼 30-38HRC Hardened Steel	●
	GR5 硬化鋼 38-48HRC Hardened Steel	●
	GR6 硬化鋼 48-56HRC Hardened Steel	●
	GR7 硬化鋼 56-68HRC Hardened Steel	○
M	GR8 不銹鋼 Stainless Steel	●
K	GR9 鑄鐵 Cast Iron	●
N	GR10 鋁 Aluminum	○
	GR11 銅 Copper	○
	GR12 塑膠 Plastics	○
	GR13 複合材料 FRP CFRP Composite Material	○
S	GR14 石墨 Graphite	○
	GR15 鈦合金 Titanium	○
	GR16 鎳 Nickel	○
	GR17 耐熱鋼 Heat-resistant Steel	○

Side Milling 側面切削

液劑材 Work Material		GR1 碳鋼/GR2 低合金鋼/GR3 高合金鋼 Carbon Steel / Low-alloyed Steel / H-alloyed Steel (1-24HRC) (1-30HRC)		GR4 硬化鋼/GR5 硬化鋼 Hardened Steel / Hardened Steel (30-38HRC) (38-48HRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)		GR.8 不鏽鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		170		150		100		50		60		150	
型號 Code No.	刃徑 (Dc)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)
B275TX-3	3	18048	1444	15800	1200	10500	820	3800	120	6370	510	15800	1200
B275TX-4	4	13536	1624	12000	1300	8000	800	2650	135	4778	573	12000	1300
B275TX-5	5	10829	1733	9500	1300	6300	850	2250	140	3822	612	9500	1300
B275TX-6	6	9024	1805	8000	1200	5300	820	2200	175	3185	637	8000	1200
B275TX-8	8	6768	1624	6000	1100	4000	750	1650	185	2389	573	6000	1100
B275TX-10	10	5415	1516	4800	1100	3200	745	1300	165	1911	535	4800	1100
B275TX-12	12	4512	1444	4000	1065	2700	740	1100	145	1593	510	4000	1065
B275TX-16	16	3384	1218	3000	1000	2000	730	840	170	1194	430	3000	1000
B275TX-20	20	2707	1083	2400	955	1600	700	670	170	956	382	2400	955
 切入深度 (mm)	ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		
	ae: 0.05D		ae: 0.05D		ae: 0.03D		ae: 0.02D		ae: 0.03D		ae: 0.05D		

High Speed Side Milling 高速側面切削

液劑材 Work Material		GR1 碳鋼/GR2 低合金鋼/GR3 高合金鋼 Carbon Steel / Low-alloyed Steel / H-alloyed Steel (1-24HRC) (1-30HRC)		GR4 硬化鋼/GR5 硬化鋼 Hardened Steel / Hardened Steel (30-38HRC) (38-48HRC)		GR.6 硬化鋼 Hardened Steel (4B-56HRC)		GR.7 硬化鋼 Hardened Steel (56-6BHRC)		GR.8 不鏽鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		250		200		150		100		100		200	
型號 Code No.	刃徑 (Dc)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)
B275TX-3	3	26542	2123	21233	850	15925	630	10617	424	10617	849	21233	850
B275TX-4	4	19906	2389	15925	900	11944	630	7963	477	7963	956	15925	900
B275TX-5	5	15925	2548	12740	1000	9555	650	6370	510	6370	1019	12740	1000
B275TX-6	6	13271	2654	10617	1200	7963	700	5308	530	5308	1062	10617	1200
B275TX-8	8	9953	2389	7963	1200	5972	700	3981	530	3981	956	7963	1200
B275TX-10	10	7963	2230	6370	850	4778	630	3185	420	3185	892	6370	850
B275TX-12	12	6635	2123	5308	850	3981	630	2654	420	2654	849	5308	850
B275TX-16	16	4977	1792	3981	900	2986	650	1991	420	1991	717	3981	900
B275TX-20	20	3981	1593	3185	900	2389	650	1593	420	1593	637	3185	900
 切入深度 (mm)	ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		
	ae: 0.01D		ae: 0.01D		ae: 0.01D		ae: 0.01D		ae: 0.03D		ae: 0.01D		

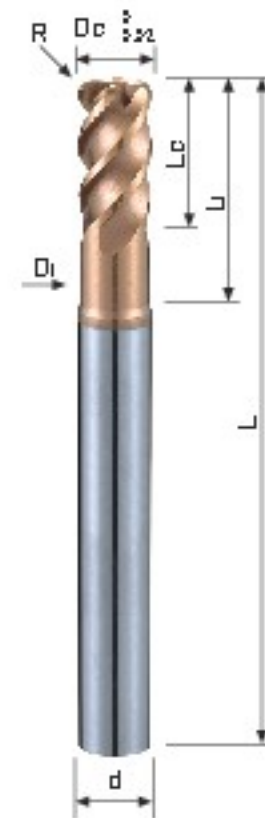
1. Please work with good rigidity / high precision facilities and collet chuck.
 2. Please choose proper cutting fluid.
 3. The cutting data is reference value only. Please adjust it according to your real working conditions.
 4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
 5. If vibration occurs during cutting, please reduce cutting parameter.
1. 請使用剛性好、精度高的設備和夾具。
 2. 請選擇適用於工件材料的切削液。
 3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
 4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
 5. 切削加工時如果發生振顫，請降低切削條件。

B277TX 極超微粒鎢鋼塗層高效能R角立銑刀

High Performance End Mills With Corner Radius

Code No. B277TX-Dc

Dc D _c -0.02	R ±0.01	Lc mm	L mm	d h6	L1 mm	D1 mm	AITiSiN B277TX
6	R0.2	9	80	6	18	5.7	●
6	R0.5	9	80	6	18	5.7	●
6	R1	9	80	6	18	5.7	●
6	R1.5	9	80	6	18	5.7	●
8	R0.2	12	100	8	24	7.6	●
8	R0.5	12	100	8	24	7.6	●
8	R1	12	100	8	24	7.6	●
8	R2	12	100	8	24	7.6	●
10	R0.2	15	100	10	30	9.5	●
10	R0.5	15	100	10	30	9.5	●
10	R1	15	100	10	30	9.5	●
10	R2	15	100	10	30	9.5	●
12	R0.2	18	110	12	36	11.4	●
12	R0.5	18	110	12	36	11.4	●
12	R1	18	110	12	36	11.4	●
12	R2	18	110	12	36	11.4	●
16	R0.5	24	140	16	48	15.2	●
16	R1	24	140	16	48	15.2	●
16	R2	24	140	16	48	15.2	●
16	R3	24	140	16	48	15.2	●
20	R0.5	30	160	20	60	19	●
20	R1	30	160	20	60	19	●
20	R2	30	160	20	60	19	●
20	R3	30	160	20	60	19	●



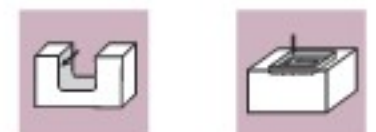
Steel < 62HRC

P	H	M	K	N	S
●	●	●	●	○	○

SMG Carbide	AITISIN TX
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Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloyed Steel	●
	GR3	高合金鋼 < 30HRC High alloyed Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	●
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
	GR14	石墨 Graphite	
S	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Side Milling 側面切削

被削材 Work Material		GR1 碳鋼/GR 2 低合金鋼/GR 3 高合金鋼 Carbon Steel / Low-alloyed Steel / H-alloyed Steel (~24HRC) (~30HRC)		GR4 硬化鋼/GR 5 硬化鋼 Hardened Steel / Hardened Steel (30-38HRC) (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-66HRC)		GR.8 不銹鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		150		130		100		50		60		150	
型號 Code No.	刃徑 (Dφ)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)
B277TX-6	6	7963	1593	7 200	1 080	5 300	820	2 200	175	3 185	637	8 000	1 200
B277TX-8	8	5972	1433	5 400	990	4 000	750	1 650	185	2389	573	6 000	1 100
B277TX-10	10	4778	1338	4 320	990	3 200	745	1 300	165	1911	535	4 800	1 100
B277TX-12	12	3981	1274	3 600	959	2 700	740	1 100	145	1593	510	4 000	1 065
B277TX-16	16	2986	1075	2 700	900	2 000	730	840	170	1194	430	3 000	1 000
B277TX-20	20	2389	956	2 160	860	1 600	700	670	170	956	382	2 400	955
切入深度 (mm)		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D	
		ae: 0.05D		ae: 0.05D		ae: 0.03D		ae: 0.02D		ae: 0.03D		ae: 0.05D	

High Speed Side Milling 高速側面切削

被削材 Work Material		GR1 碳鋼/GR 2 低合金鋼/GR 3 高合金鋼 Carbon Steel / Low-alloyed Steel / H-alloyed Steel (~24HRC) (~30HRC)		GR4 硬化鋼/GR 5 硬化鋼 Hardened Steel / Hardened Steel (30-38HRC) (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-66HRC)		GR.8 不銹鋼 Stainless Steel		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		200		180		150		100		100		200	
型號 Code No.	刃徑 (Dφ)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)
B277TX-6	6	10617	2123	9554	1080	7963	700	5308	530	5308	1062	10617	1200
B277TX-8	8	7963	1911	7166	1080	5972	700	3981	530	3981	956	7963	1200
B277TX-10	10	6370	1784	5733	765	4778	630	3185	420	3185	892	6370	850
B277TX-12	12	5308	1699	4777	765	3981	630	2654	420	2654	849	5308	850
B277TX-16	16	3981	1433	3583	810	2986	650	1991	420	1991	717	3981	900
B277TX-20	20	3185	1274	2867	810	2389	650	1593	420	1593	637	3185	900
切入深度 (mm)		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D		ap: 1.0D	
		ae: 0.01D		ae: 0.01D		ae: 0.01D		ae: 0.01D		ae: 0.03D		ae: 0.01D	

※ Notice: B277TX is Long Length series End Mills. Please adjust the parameter according

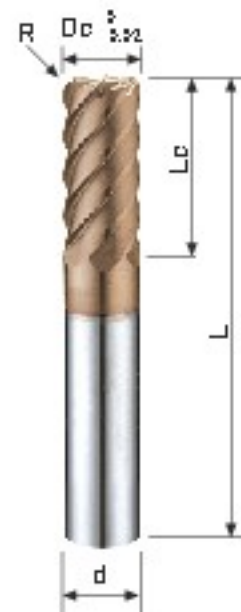
1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

※ 注意B277TX為加長柄系列銑刀，請按照適當的伸長度調整刀具的參數。

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

Code No. B259TX-Dc×R

Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiSiN B259TX
6	R0.5	16	50	6	●
6	R1	16	50	6	●
8	R0.5	20	60	8	●
8	R1	20	60	8	●
10	R0.5	22	72	10	●
10	R1	22	72	10	●
12	R0.5	26	75	12	●
12	R1	26	75	12	●
16	R1	38	100	16	●
16	R2	38	100	16	●
20	R1	38	100	20	●
20	R2	38	100	20	●



Hardened Steel 40-70HRC

P	H	M	K	N	S
●	●	○	○	○	○

SMG Carbide	AITISIN TX
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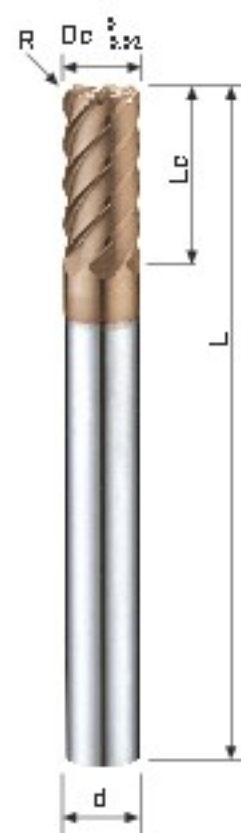


Type of Operation



Work Material

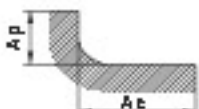
P	GR1	碳鋼 Carbon Steel	
	GR2	低合金鋼 <24HRC Low alloyed Steel	
	GR3	高合金鋼 <30HRC High alloyed Steel	
H	GR4	硬化鋼 30-38HRC Hardened Steel	
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	



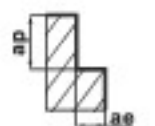
Code No. B269TX-Dc×R

Dc 0 -0.02	R ±0.01	Lc mm	L mm	d h6	AITiSiN B269TX
6	R0.5	16	80	6	●
6	R1	16	80	6	●
8	R0.5	20	100	8	●
8	R1	20	100	8	●
10	R0.5	22	100	10	●
10	R1	22	100	10	●
12	R0.5	26	110	12	●
12	R1	26	110	12	●
16	R1	38	140	16	●
16	R2	38	140	16	●
20	R1	38	160	20	●
20	R2	38	160	20	●

High feed cutting 高進給切削

被測材 Work Material		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-68HRC)		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		200		180		160		200	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B259TX/B269TX	6	10 617	2 548	9 555	2 293	8 493	2 038	10 617	2 548
B259TX/B269TX	8	7 963	2 389	7 166	2 150	6 370	2 293	7 963	2 389
B259TX/B269TX	10	6 370	3 058	5 733	2 752	5 096	2 446	6 370	3 058
B259TX/B269TX	12	5 308	3 185	4 778	2 867	4 247	2 548	5 308	3 185
B259TX/B269TX	16	3 981	2 867	3 583	2 580	3 185	2 293	3 981	2 867
B259TX/B269TX	20	3 185	2 293	2 867	2 064	2 548	1 835	3 185	2 293
切入深度 (mm) 		ap:0.2×R		ap:0.2×R		ap:0.1×R		ap:0.2×R	
		ae:0.5D		ae:0.5D		ae:0.5D		ae:0.5D	

Side Milling 側面切削

被測材 Work Material		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-68HRC)		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		150		100		90		145	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B259TX/B269TX-6	6	6 600	2 300	5 300	1 800	4 000	1 000	7 400	2 600
B259TX/B269TX-8	8	4 900	2 350	4 000	1 850	3 000	1 000	5 500	2 600
B259TX/B269TX-10	10	4 000	2 400	3 200	1 900	2 400	1 000	4 500	2 600
B259TX/B269TX-12	12	3 300	2 400	2 600	1 900	2 000	1 000	3 700	2 600
B259TX/B269TX-16	16	2 500	2 100	2 000	1 700	1 500	900	2 800	2 400
B259TX/B269TX-20	20	2 000	1 900	1 600	1 400	1 200	830	2 300	2 100
切入深度 (mm) 		ap:1.5D		ap:1.5D		ap:1.5D		ap:1.6D	
		ae:0.1D		ae:0.05D		ae:0.03D		ae:0.1D	

※ Notice: B269TX is Long Length series End Mills. Please adjust the parameter according

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

※注意B269TX為加長柄系列銼刀，請按照適當的伸長度調整刀具的參數。

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

B27ITX 極超微粒鎢鋼塗層高效能R角立銑刀

High Performance End Mills With Corner Radius

Code No. B27ITX-Dc

Dc D -0.02	R ±0.01	Lc mm	L mm	d h6	Li mm	Di mm	AITiSiN B27ITX
3	R0.75	1.2	70	6	7.5	2.7	●
4	R1	1.6	70	6	10	3.6	●
5	R1	2	80	6	12	4.5	●
5	R1.2	2	80	6	12	4.5	●
6	R1	2.5	80	6	12	5.4	●
6	R1.5	2.5	80	6	12	5.4	●
8	R1	3.5	100	8	16	7.2	●
8	R2	3.5	100	8	16	7.2	●
10	R1	4	100	10	20	9	●
10	R2	4	100	10	20	9	●
12	R1	5	110	12	24	11	●
12	R2	5	110	12	24	11	●
12	R3	5	110	12	24	11	●



Hardened Steel 40-70HRC

P	H	M	K	N	S
	●		●		

SMG Carbide AITISIN TX



Type of Operation



Work Material

Group	Material	Symbol
P	GR1 碳鋼 Carbon Steel	
	GR2 低合金鋼 <24HRC Low alloyed Steel	
	GR3 高合金鋼 <30HRC H-alloyed Steel	
H	GR4 硬化鋼 30-38HRC Hardened Steel	
	GR5 硬化鋼 38-48HRC Hardened Steel	●
	GR6 硬化鋼 48-56HRC Hardened Steel	●
	GR7 硬化鋼 56-68HRC Hardened Steel	●
M	GR8 不銹鋼 Stainless Steel	
K	GR9 鑄鐵 Cast Iron	●
N	GR10 鋁 Aluminum	
	GR11 銅 Copper	
	GR12 塑膠 Plastics	
	GR13 複合材料 FRP CFRP Composite Material	
	GR14 石墨 Graphite	
S	GR15 鈦合金 Titanium	
	GR16 鎳 Nickel	
	GR17 耐熱鋼 Heat-resistant Steel	

High feed cutting 高進給切削

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-68HRC)		GR.9 鑄鐵 Cast Iron	
切削速度 Vc m/min		70		50		30		100	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
B27ITX-3	3	7 400	3 800	5 300	2 500	3 200	990	10 500	6 000
B27ITX-4	4	5 500	4 100	4 000	2 700	2 400	1 000	8 000	6 500
B27ITX-5	5	4 450	4 300	3 200	2 800	1 900	1 100	6 350	6 800
B27ITX-6	6	3 700	4 300	2 600	2 800	1 600	1 100	5 300	6 800
B27ITX-8	8	2 800	4 300	2 000	2 800	1 200	1 100	4 000	7 000
B27ITX-10	10	2 250	4 400	1 600	2 800	1 000	1 100	3 200	7 000
B27ITX-12	12	1 850	4 400	1 350	2 800	800	1 100	2 650	7 000
切入深度 a_p (mm) 		ap:0.2xR		ap:0.2xR		ap:0.1xR		ap:0.2xR	
		ae:0.5D		ae:0.5D		ae:0.5D		ae:0.5D	

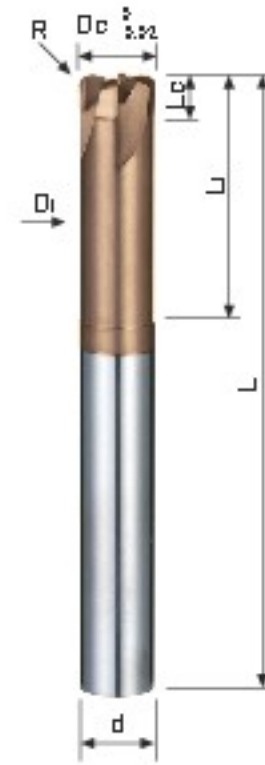
1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

High Feed End Mills

Code No. F676TX-Dc

Dc 0 -0.02	Programmable Radius	Lc mm	L mm	d h5	Li mm	Di mm	AlTiSiN F676TX
3	0.37	2	70	6	12	2.8	●
4	0.47	2	70	6	16	3.7	●
5	0.6	2.5	70	6	20	4.6	●
6	0.73	3	70	6	25	5.5	●
8	0.98	4	80	8	30	7.4	●
10	1.23	5	90	10	35	9.2	●
12	1.65	6	100	12	40	11	●



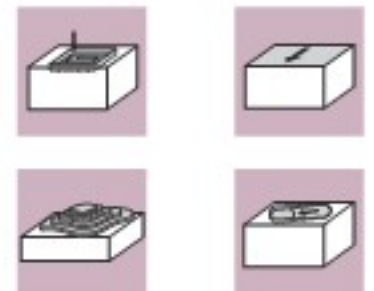
Steel < 70HRC

P	H	M	K	N	S
○	●	○	○	○	○

UMG Carbide AlTiSiN TX



Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	○
	GR2	低合金鋼 < 24HRC Low alloy Steel	○
	GR3	高合金鋼 < 30HRC High alloy Steel	○
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

High feed machining 高進給加工

被削材 Work Material		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)		GR.7 硬化鋼 Hardened Steel (56-68HRC)	
切削速度 Vc m/min		80		70		50		30	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
F 676TX-3	3	8 500	4 500	7 400	3 800	5 300	2 500	3 200	990
F 676TX-4	4	6 350	4 800	5 500	4 100	4 000	2 700	2 400	1 000
F 676TX-5	5	5 000	5 000	4 450	4 300	3 200	2 800	1 900	1 100
F 676TX-6	6	4 300	5 000	3 700	4 300	2 600	2 800	1 600	1 100
F 676TX-8	8	3 200	5 000	2 800	4 300	2 000	2 800	1 200	1 100
F 676TX-10	10	2 550	5 100	2 250	4 400	1 600	2 800	1 000	1 100
F 676TX-12	12	2 100	5 100	1 850	4 400	1 350	2 800	800	1 100
切入深度 (mm)		ap:0.2×R		ap:0.2×R		ap:0.2×R		ap:0.1×R	
		ae:0.5D		ae:0.5D		ae:0.5D		ae:0.5D	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

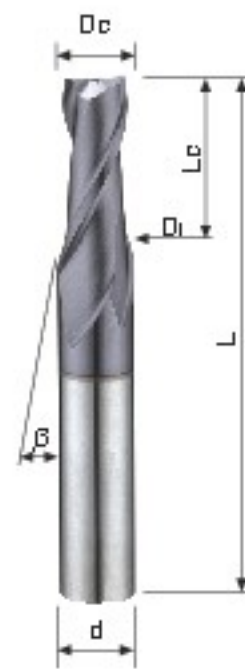
1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E105X 極超微粒鎢鋼塗層斜度立銑刀

Taper End Mills

Code No. E105X-Dc×β

Dc	β	DI	Lc	L	d	AITiN	Dc	β	DI	Lc	L	d	AITiN
mm	on Side	mm	mm	mm	h6	E105X	mm	on Side	mm	mm	mm	h6	E105X
1	30'	1.07	4	50	4	●	4	30'	4.26	15	50	6	●
1	1°	1.14	4	50	4	●	4	1°	4.52	15	50	6	●
1	1°30'	1.21	4	50	4	●	4	1°30'	4.79	15	50	6	●
1	2°	1.28	4	50	4	●	4	2°	5.04	15	50	6	●
1	2°30'	1.35	4	50	4	●	4	2°30'	5.31	15	50	6	●
1	3°	1.42	4	50	4	●	4	3°	5.57	15	50	6	●
1	4°	1.56	4	50	4	●	4	4°	6.1	15	60	8	●
1	5°	1.7	4	50	4	●	4	5°	6.62	15	60	8	●
1	6°	1.84	4	50	4	●	4	6°	7.15	15	60	8	●
1	7°	1.98	4	50	4	●	4	7°	7.68	15	60	8	●
1	10°	2.41	4	50	4	●	4	10°	9.3	15	70	10	●
1.5	30'	1.59	5	50	4	●	5	30'	5.34	20	60	6	●
1.5	1°	1.67	5	50	4	●	5	1°	5.7	20	60	6	●
1.5	1°30'	1.76	5	50	4	●	5	1°30'	6	20	60	6	●
1.5	2°	1.85	5	50	4	●	5	2°	6.39	20	60	8	●
1.5	2°30'	1.93	5	50	4	●	5	2°30'	6.75	20	60	8	●
1.5	3°	2.02	5	50	4	●	5	3°	7.1	20	60	8	●
1.5	4°	2.2	5	50	4	●	5	4°	7.8	20	60	8	●
1.5	5°	2.37	5	50	4	●	5	5°	8.5	20	70	10	●
1.5	6°	2.55	5	50	4	●	5	6°	9.2	20	70	10	●
1.5	7°	2.73	5	50	4	●	5	7°	9.91	20	70	10	●
1.5	10°	3.26	5	50	4	●	5	10°	12	20	75	12	●
2	30'	2.1	6	50	4	●	6	30'	6.35	20	60	8	●
2	1°	2.21	6	50	4	●	6	1°	6.7	20	60	8	●
2	1°30'	2.31	6	50	4	●	6	1°30'	7.05	20	60	8	●
2	2°	2.41	6	50	4	●	6	2°	7.4	20	60	8	●
2	2°30'	2.52	6	50	4	●	6	2°30'	7.75	20	60	8	●
2	3°	2.62	6	50	4	●	6	3°	8	20	60	8	●
2	4°	2.84	6	50	4	●	6	4°	8.8	20	70	10	●
2	5°	3.05	6	50	4	●	6	5°	9.5	20	70	10	●
2	6°	3.26	6	50	4	●	6	6°	10.2	20	75	12	●
2	7°	3.47	6	50	4	●	6	7°	10.91	20	75	12	●
2	10°	4.11	6	50	6	●	6	10°	13.05	20	75	12	●
2.5	30'	2.64	8	50	4	●	8	30'	8.44	25	70	10	●
2.5	1°	2.78	8	50	4	●	8	1°	8.87	25	70	10	●
2.5	1°30'	2.91	8	50	4	●	8	1°30'	9.31	25	70	10	●
2.5	2°	3.05	8	50	4	●	8	2°	9.74	25	70	10	●
2.5	2°30'	3.2	8	50	4	●	8	2°30'	10	25	70	10	●
2.5	3°	3.33	8	50	4	●	8	3°	10.62	25	75	12	●
2.5	4°	3.62	8	50	4	●	8	5°	12.37	25	90	12	●
2.5	5°	3.9	8	50	4	●	10	30'	10.61	35	90	10	●
2.5	6°	4.18	8	50	6	●	10	1°	11.22	35	90	10	●
2.5	7°	4.46	8	50	6	●	10	1°30'	11.83	35	90	10	●
2.5	10°	5.32	8	50	6	●	10	2°	12.44	35	90	12	●
3	30'	3.17	10	50	6	●	10	2°30'	13.06	35	90	12	●
3	1°	3.35	10	50	6	●	10	3°	13.67	35	90	12	●
3	1°30'	3.52	10	50	6	●	10	5°	16	35	100	16	●
3	2°	3.69	10	50	6	●							
3	2°30'	3.87	10	50	6	●							
3	3°	4.05	10	50	6	●							
3	4°	4.4	10	50	6	●							
3	5°	4.75	10	50	6	●							
3	6°	5.1	10	50	6	●							
3	7°	5.46	10	50	6	●							
3	10°	6.53	10	60	8	●							



Steel < 60HRC

P	H	M	K	N	S
●	●	●	○	○	○

UMG Carbide	AITiN X-NaNo
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Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Side Milling 側面切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 硬化鋼 Hardened Steel (48-56HRC)	
切削速度 Vc m/min		60		60		60		45		40		35	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E105X-1	1	15 500	120	15 500	120	15 500	120	13 000	85	12 000	80	10 500	35
E105X-1.5	1.5	10 500	120	10 500	120	10 500	120	9 000	85	8 200	80	7 000	35
E105X-2	2	7 900	145	7 900	145	7 900	120	6 600	85	6 300	80	5 200	35
E105X-2.5	2.5	6 200	140	6 200	140	6 200	115	5 300	85	4 900	80	4 200	35
E105X-3	3	5 100	140	5 100	140	5 100	120	4 400	80	4 000	80	3 500	35
E105X-4	4	3 800	140	3 800	140	3 800	115	3 400	80	3 000	80	2 500	35
E105X-5	5	3 100	140	3 100	140	3 100	115	2 600	80	2 400	75	2 000	35
E105X-6	6	2 600	140	2 600	140	2 600	115	2 200	80	2 000	75	1 700	35
E105X-8	8	1 900	140	1 900	140	1 900	115	1 600	80	1 500	75	1 300	35
E105X-10	10	1 500	140	1 500	140	1 500	110	1 300	80	1 200	75	1 000	35
切入深度 (mm)		ap:2.5		ap:2.5		ap:2.5		ap:2.5		ap:2.5		ap:2.5	
		ae:0.02		ae:0.02		ae:0.02		ae:0.02		ae:0.02		ae:0.02	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E106X 超微粒鎢鋼塗層倒角用立銑刀60°

End Mills For Chamfering 60°



Code No. E106X-Dc

Dc 0 -0.02	Lc mm	L mm	d h6	Blank E106	AlTiN E106X
1	2	38	3	●	●
2	4	38	3	●	●
3	6	50	3	●	●
4	8	50	4	●	●
5	12	50	6	●	●
6	12	50	6	●	●
8	16	60	8	●	●
10	20	72	10	●	●
12	24	75	12	●	●
16	32	100	16	●	●
20	40	100	20	●	●

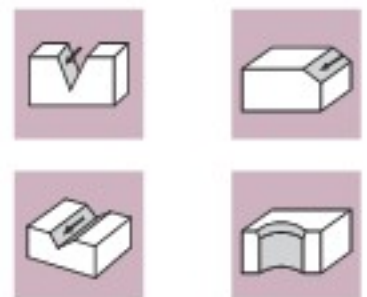
※E106 : Uncoated For Aluminium
 ※E106 : 無塗層鋁合金專用刀



Steel < 48HRC

P	H	M	K	N	S
●	●	○	●	●	○

Type of Operation



Work Material

Group	Material	Symbol
P	GR1 碳鋼 Carbon Steel	●
	GR2 低合金鋼 < 24HRC Low alloy Steel	●
	GR3 高合金鋼 < 30HRC High alloy Steel	●
H	GR4 硬化鋼 30-38HRC Hardened Steel	●
	GR5 硬化鋼 38-48HRC Hardened Steel	●
	GR6 硬化鋼 48-56HRC Hardened Steel	○
	GR7 硬化鋼 56-68HRC Hardened Steel	○
M	GR8 不銹鋼 Stainless Steel	○
K	GR9 鑄鐵 Cast Iron	●
N	GR10 鋁 Aluminum	●
	GR11 銅 Copper	●
	GR12 塑膠 Plastics	○
	GR13 複合材料 FRP CFRP Composite Material	○
S	GR14 石墨 Graphite	○
	GR15 鈦合金 Titanium	○
	GR16 鎳 Nickel	○
	GR17 耐熱鋼 Heat-resistant Steel	○

E107X 超微粒鎢鋼塗層倒角用立銑刀90°

End Mills For Chamfering 90°



Code No. E107X-Dc

Dc 0 -0.02	Lc mm	L mm	d h6	Blank E107	AlTiN E107X
0.5	1	38	3	—	●
0.6	1.2	38	3	—	●
0.8	1.6	38	3	—	●
1	2	38	3	●	●
1.2	2.4	38	3	—	●
1.5	3	38	3	—	●
1.8	3.6	38	3	—	●
2	4	38	3	●	●
2.5	5	38	3	—	●
3	6	50	3	●	●
4	8	50	4	●	●
5	12	50	6	●	●
6	12	50	6	●	●
8	16	60	8	●	●
10	20	72	10	●	●
12	24	75	12	●	●
16	32	100	16	●	●
20	40	100	20	●	●

※E107 : Uncoated For Aluminium
 ※E107 : 無塗層鋁合金專用刀



E106X / Chamfering 倒角加工

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-36HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.8 不銹鋼 Stainless Steel 使用切削液		GR.9 鑄鐵 Cast Iron		GR.10 鋁 Aluminium	
切削速度 Vc m/min		40~70		40~70		40~70		30~50		30~50		30~50		40~70		100~200	
型號 Code No.	刃徑 Dc	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
		(m n-l)	(mm/m n)	(m n-l)	(mm/m n)	(m n-l)	(mm/m n)	(m n-l)	(mm/m n)	(m n-l)	(mm/m n)	(m n-l)	(mm/m n)	(m n-l)	(mm/m n)	(m n-l)	(mm/m n)
E106X-1	1	17 500	1050	17 500	1050	17 500	1050	9 550	286	9 550	286	9 550	286	17 500	1050	31 830	2 864
E106X-2	2.0	11 670	700	11 670	700	11 670	700	4 774	143	4 774	143	4 774	143	11 670	700	15 915	1 432
E106X-3	3	8 753	525	8 753	525	8 753	525	3 183	100	3 183	100	3 183	100	8 753	525	10 610	954
E106X-4	4.0	7 000	420	7 000	420	7 000	420	3 183	100	3 183	100	3 183	100	7 000	420	9 550	955
E106X-5	5	5 729	343	5 729	343	5 729	343	2 546	100	2 546	100	2 546	100	5 729	343	7 639	763
E106X-6	6.0	4 774	286	4 774	286	4 774	286	2 122	90	2 122	90	2 122	90	4 774	286	6 366	700
E106X-8	8	3 580	358	3 580	358	3 580	358	1 989	120	1 989	120	1 989	120	3 580	358	5 570	668
E106X-10	10.0	2 864	286	2 864	286	2 864	286	1 591	95	1 591	95	1 591	95	2 864	286	4 456	712
E106X-12	12	2 387	238	2 387	238	2 387	238	1 591	127	1 591	127	1 591	127	2 387	238	3 978	716
E106X-16	16.0	1 790	116	1 790	116	1 790	116	1 193	119	1 193	119	1 193	119	1 790	116	2 984	537
E106X-20	20	1 432	186	1 432	186	1 432	186	954	95	954	95	954	95	1 432	186	2 387	477

E107X / Chamfering / V groove machining 倒角加工 / V槽加工

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-36HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.10 鋁 Aluminium	
切削速度 Vc m/min		Ø0.5-0.8 48-50 Ø1.0-3.0 55-70 Ø3.1-20 90		Ø0.5-0.8 48-50 Ø1.0-3.0 55-70 Ø3.1-20 90		Ø0.5-0.8 48-50 Ø1.0-3.0 55-70 Ø3.1-20 90		Ø0.5-0.8 40 Ø1.0-3.0 45-65 Ø3.1-20 75		Ø0.5-0.8 40 Ø1.0-3.0 45-65 Ø3.1-20 75		Ø0.5-0.8 50 Ø1.0-3.0 60-95 Ø3.1-20 120	
型號 Code No.	刃徑 Dc	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed	RPM	Feed
		(min-l)	(mm/min)	(min-l)	(mm/min)	(min-l)	(mm/min)	(min-l)	(mm/min)	(min-l)	(mm/min)	(min-l)	(mm/min)
E107X-0.5	0.5	31 000	460	31 000	460	31 000	460	25 480	320	25 480	320	32 000	650
E107X-0.6	0.6	27 000	500	27 000	500	27 000	500	21 230	320	21 230	320	26 540	700
E107X-0.8	0.8	21 500	530	21 500	530	21 500	530	15 920	350	15 920	350	19 900	750
E107X-1.0	1	17 500	530	17 500	530	17 500	530	14 330	350	14 330	350	17 510	800
E107X-1.2	1.2	15 000	600	15 000	600	15 000	600	13 270	360	13 270	360	14 590	850
E107X-1.5	1.5	12 500	620	12 500	620	12 500	620	10 610	360	10 610	360	12 740	900
E107X-1.8	1.8	10 500	630	10 500	630	10 500	630	9 730	380	9 730	380	10 610	950
E107X-2.0	2	9 700	630	9 700	630	9 700	630	9 555	380	9 555	380	10 350	980
E107X-2.5	2.5	8 200	650	8 200	650	8 200	650	7 640	400	7 640	400	10 192	1 010
E107X-3.0	3	7 430	670	7 430	670	7 430	670	6 900	410	6 900	410	10 080	1 150
E107X-4.0	4	7 200	650	7 200	650	7 200	650	6 000	360	6 000	360	9 600	860
E107X-5.0	5	5 730	515	5 730	515	5 730	515	4 770	290	4 770	290	7 645	690
E107X-6.0	6	4 800	430	4 800	430	4 800	430	4 000	240	4 000	240	6 400	580
E107X-8.0	8	3 600	430	3 600	430	3 600	430	3 000	180	3 000	180	4 800	580
E107X-10.0	10	2 900	410	2 900	410	2 900	410	2 400	140	2 400	140	3 800	530
E107X-12.0	12	2 400	336	2 400	336	2 400	336	2 000	120	2 000	120	3 200	510
E107X-16.0	16	1 800	252	1 800	252	1 800	252	1 500	100	1 500	100	2 400	400
E107X-20.0	20	1 400	196	1 400	196	1 400	196	1 200	95	1 200	95	1 900	340
切入深度 (mm)		≤ 0.3 D		≤ 0.3 D		≤ 0.3 D		≤ 0.3 D		≤ 0.3 D		≤ 0.3 D	

※ Pls. set up the feed speed under the 50% of conditions we described as above when you do the processing of V groove.

※ The standard of Ap(cutting depth) is 0.3d.

※ V槽加工時，進給速度請以上述條件的50%以下使用。

※ Ad(切入深度)以0.3d為基準。

E108X 極超微粒鎢鋼塗層倒角用立銑刀60°

End Mills For Chamfering 60°



Code No. E108X-Dc

Dc D -0.02	Lc mm	L mm	d h6	AITiN E108X
2	4	38	3	●
3	6	38	3	●
4	9	50	4	●
5	10	50	6	●
6	12	50	6	●
8	15	60	8	●
10	16	72	10	●
12	18	75	12	●
16	25	90	16	●
20	30	100	20	●



Steel < 52HRC

P	H	M	K	N	S
●	●	○	●	●	○

Type of Operation



Work Material

Group	Material	Symbol
P	GR1 碳鋼 Carbon Steel	●
	GR2 低合金鋼 <24HRC Low alloy Steel	●
	GR3 高合金鋼 <30HRC High alloy Steel	●
H	GR4 硬化鋼 30-38HRC Hardened Steel	●
	GR5 硬化鋼 38-48HRC Hardened Steel	●
	GR6 硬化鋼 48-56HRC Hardened Steel	○
	GR7 硬化鋼 56-68HRC Hardened Steel	○
M	GR8 不銹鋼 Stainless Steel	○
K	GR9 鑄鐵 Cast Iron	●
N	GR10 鋁 Aluminum	●
	GR11 銅 Copper	●
	GR12 塑膠 Plastics	○
	GR13 複合材料 FRP CFRP Composite Material	○
S	GR14 石墨 Graphite	○
	GR15 鈦合金 Titanium	○
	GR16 鎳 Nickel	○
	GR17 耐熱鋼 Heat-resistant Steel	○

E109X 極超微粒鎢鋼塗層倒角用立銑刀90°

End Mills For Chamfering 90°



Code No. E109X-Dc

Dc D -0.02	Lc mm	L mm	d h6	AITiN E109X
2	4	38	3	●
3	6	38	3	●
4	9	50	4	●
5	10	50	6	●
6	12	50	6	●
8	15	60	8	●
10	16	72	10	●
12	18	75	12	●
16	25	90	16	●
20	30	100	20	●



E108X / E109X / Chamfering 倒角加工

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (~24HRC)		GR.3 高合金鋼 H-alloyed Steel (~30HRC)		GR.4 硬化鋼 Hardened Steel (30-36HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 不銹鋼 Stainless Steel 使用切削液		GR.9 鑄鐵 Cast Iron		GR.10 鋁 Aluminium	
切削速度 Vc m/min		40~70		40~70		40~70		30~50		30~50		30~50		40~70		100~200	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)
E 108X/E 109X-2	2	11 670	700	11 670	700	11 670	700	4 774	143	4 774	143	4 774	143	11 670	700	15 915	1 432
E 108X/E 109X-3	3	8 753	525	8 753	525	8 753	525	3 183	100	3 183	100	3 183	100	8 753	525	10 610	954
E 108X/E 109X-4	4	7 000	420	7 000	420	7 000	420	3 183	100	3 183	100	3 183	100	7 000	420	9 550	955
E 108X/E 109X-5	5	5 729	343	5 729	343	5 729	343	2 546	100	2 546	100	2 546	100	5 729	343	7 639	763
E 108X/E 109X-6	6	4 774	286	4 774	286	4 774	286	2 122	90	2 122	90	2 122	90	4 774	286	6 366	700
E 108X/E 109X-8	8	3 580	358	3 580	358	3 580	358	1 989	120	1 989	120	1 989	120	3 580	358	5 570	668
E 108X/E 109X-10	10	2 864	286	2 864	286	2 864	286	1 591	95	1 591	95	1 591	95	2 864	286	4 456	712
E 108X/E 109X-12	12	2 387	238	2 387	238	2 387	238	1 591	127	1 591	127	1 591	127	2 387	238	3 978	716
E 108X/E 109X-16	16	1 790	116	1 790	116	1 790	116	1 193	119	1 193	119	1 193	119	1 790	116	2 984	537
E 108X/E 109X-20	20	1 432	186	1 432	186	1 432	186	954	95	954	95	954	95	1 432	186	2 387	477

E108X / V Groove Process V溝加工

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (~24HRC)		GR.3 高合金鋼 H-alloyed Steel (~30HRC)		GR.4 硬化鋼 Hardened Steel (30-36HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.6 不銹鋼 Stainless Steel 使用切削液		GR.9 鑄鐵 Cast Iron		GR.10 鋁 Aluminium	
切削速度 Vc m/min		40~70		40~70		40~70		20~50		20~50		20~50		40~70		100~200	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)	RPM 迴轉速度 (m n-l)	Feed 進給速度 (mm/m n)
E 108X-2	2	11 670	700	11 670	700	11 670	700	4 774	143	4 774	143	4 774	143	11 670	700	15 915	1 432
E 108X-3	3	8 753	525	8 753	525	8 753	525	3 183	100	3 183	100	3 183	100	8 753	525	10 610	954
E 108X-4	4	7 000	420	7 000	420	7 000	420	3 183	100	3 183	100	3 183	100	7 000	420	9 550	955
E 108X-5	5	5 729	343	5 729	343	5 729	343	2 546	100	2 546	100	2 546	100	5 729	343	7 639	763
E 108X-6	6	4 774	286	4 774	286	4 774	286	2 122	90	2 122	90	2 122	90	4 774	286	6 366	700
E 108X-8	8	3 580	358	3 580	358	3 580	358	1 989	120	1 989	120	1 989	120	3 580	358	5 570	668
E 108X-10	10	2 864	286	2 864	286	2 864	286	1 591	95	1 591	95	1 591	95	2 864	286	4 456	712
E 108X-12	12	2 387	238	2 387	238	2 387	238	1 591	127	1 591	127	1 591	127	2 387	238	3 978	716
E 108X-16	16	1 790	116	1 790	116	1 790	116	1 193	119	1 193	119	1 193	119	1 790	116	2 984	537
E 108X-20	20	1 432	186	1 432	186	1 432	186	954	95	954	95	954	95	1 432	186	2 387	477

※ Pls. set up the feed speed under the 50% of conditions we described as above when you do the processing of V groove.

※ The standard of Ad(cutting depth) is 0.3d.

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

※ V溝加工時，進給速度請以上述條件的50%以下使用。

※ Ad(切入深度)以0.3d為基準。

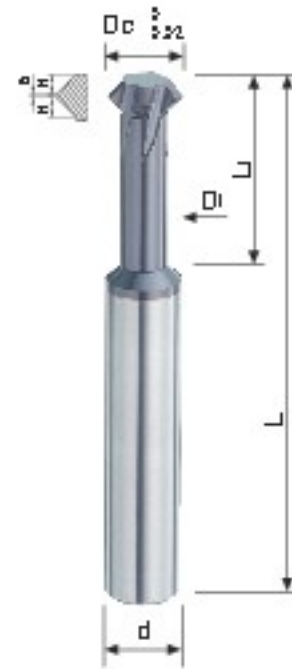
1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E110HX / E120HX 超微粒鎢鋼塗層倒角用立銑刀 / 90°

End Mills For Back and Front Chamfering / 90°

Code No. E110HX-Dc

Dc 0 -0.02	H mm	B mm	L mm	d h6	L1 mm	D1 mm	Z t	AlTiCrN E110HX
1	0.3	0.05	38	3	2.5	0.4	3	●
1.5	0.4	0.08	38	3	3.8	0.7	3	●
2	0.5	0.1	38	3	5	1	3	●
2.5	0.6	0.15	38	3	6.3	1.3	3	●
3	0.7	0.2	38	3	7.5	1.6	3	●
3.5	0.8	0.2	50	4	8.8	1.9	3	●
4	0.9	0.2	50	4	10	2.2	3	●
4.5	1.1	0.2	50	5	11.3	2.3	3	●
5	1.2	0.2	50	5	12.5	2.6	3	●
5.5	1.3	0.2	50	6	13.8	2.9	3	●
6	1.6	0.2	50	6	15	3.1	3	●
8	1.7	0.2	60	8	20	4.6	4	●
10	1.9	0.2	72	10	25	6.2	5	●
12	2.2	0.2	75	12	30	7.6	6	●



Steel < 48HRC

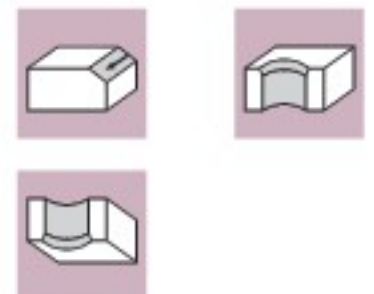
P	H	M	K	N	S
●	●	○	○	○	○

MG
Carbide

AlTiCrN
HX



Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	○
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Code No. E120HX-Dc

Dc 0 -0.02	H mm	B mm	L mm	d h6	L1 mm	D1 mm	Z t	AlTiCrN E120HX
3	0.7	0.2	50	3	12	1.6	3	●
3.5	0.8	0.2	50	4	14	1.9	3	●
4	0.9	0.2	50	4	16	2.2	3	●
4.5	1.1	0.2	50	5	18	2.3	3	●
5	1.2	0.2	50	5	20	2.6	3	●
5.5	1.3	0.2	60	6	22	2.9	3	●
6	1.6	0.2	60	6	24	3.1	3	●
8	1.7	0.2	70	8	32	4.6	4	●
10	1.9	0.2	80	10	40	6.2	5	●
12	2.2	0.2	90	12	48	7.6	6	●



E110HX / Chamfering 倒角加工

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.8 不銹鋼 Stainless Steel 使用切削液		GR.9 鑄鐵 Cast Iron		GR.15 鈦合金 Titanium		GR.10 鋁 Aluminium		GR.10 鋁 Aluminium	
切削速度 Vc m/min		30~60		25~70		15~40		25~50		30~80		15~30		25~80		100~200	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]
E110HX-1	1	14 323	2 148	14 323	2 148	7 957	477	11 140	835	14 323	2 148	4 774	286	14 323	2 148	31 830	4 700
E110HX-1.5	1.5	9 548	1 430	9 548	1 430	5300	318	7 427	557	9 548	1 430	3 183	190	9 548	1 430	21 220	3 183
E110HX-2.0	2	7 161	1 280	7 161	1 280	3978	238	5 570	417	7 161	1 280	2 387	143	7 161	1 280	15 915	2 387
E110HX-2.5	2.5	5 729	1 030	5 729	1 030	3183	238	4 456	400	5 729	1 030	1 909	114	5 729	1 030	12 732	1 900
E110HX-3	3	4 774	1 000	4 774	1 000	2652	198	3 713	334	4 774	1 000	1 591	100	4 774	1 000	10 610	1 591
E110HX-3.5	3.5	4 547	818	4 547	818	2728	204	3 637	381	4 547	818	1 818	136	4 547	818	9 094	1 364
E110HX-4	4	3 978	835	3 978	835	2387	214	3 183	334	3 978	835	1 591	119	3 978	835	9 549	1 432
E110HX-4.5	4.5	3 536	742	3 536	742	2122	190	2 828	296	3 536	742	1 414	127	3 536	742	8 848	1 327
E110HX-5	5	3 183	763	3 183	763	1910	200	2 546	305	3 183	763	1 273	114	3 183	763	7 639	1 145
E110HX-5.5	5.5	3 100	651	3 100	651	1736	182	2 314	277	3 100	651	1 157	121	3 100	651	6 944	1 041
E110HX-6	6	2 917	612	2 917	612	1856	194	2 387	286	2 917	612	1 061	111	2 917	612	6 366	954
E110HX-8	8	2 188	612	2 188	612	1392	194	1 790	286	2 188	612	994	159	2 188	612	5 570	1 114
E110HX-10	10	1 750	612	1 750	612	1114	222	1 432	286	1 750	612	795	159	1 750	612	4 456	1 114
E110HX-12	12	1 591	668	1 591	668	928	250	1 193	286	1 591	668	663	159	1 591	668	3 713	1 114

E120HX / Chamfering 倒角加工

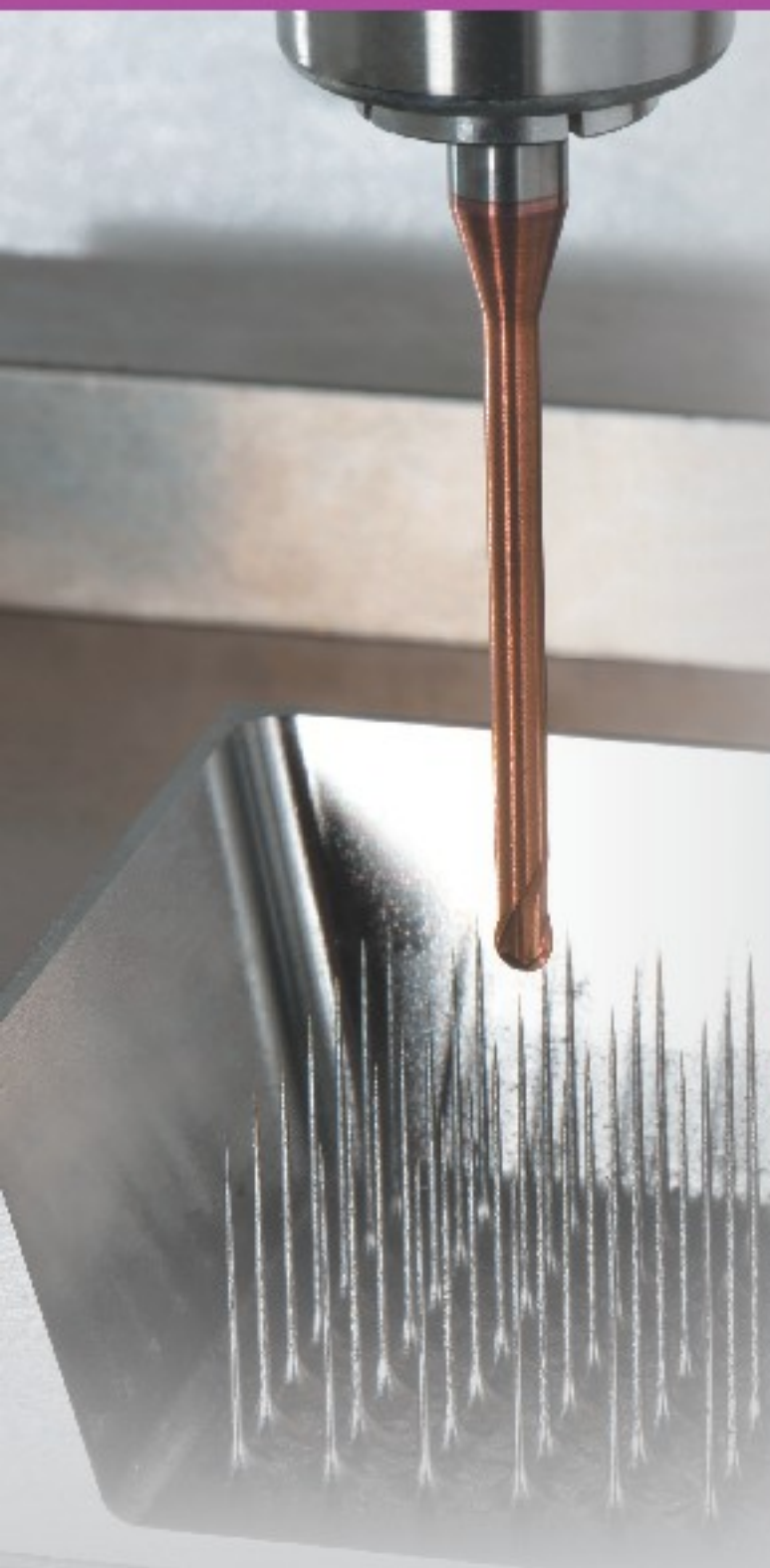
被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.8 不銹鋼 Stainless Steel 使用切削液		GR.9 鑄鐵 Cast Iron		GR.15 鈦合金 Titanium		GR.10 鋁 Aluminium		GR.10 鋁 Aluminium	
切削速度 Vc m/min		30~60		25~70		15~40		25~50		30~80		15~30		25~80		100~200	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]	RPM 迴轉速度 [m n-1]	Feed 進給速度 [mm/m n]
E120HX-3	3	4 774	1 000	4 774	1 000	2 652	198	3 713	334	4 774	1 000	1 591	100	4 774	1 000	10 610	1 591
E120HX-3.5	3.5	4 547	818	4 547	818	2 728	204	3 637	381	4 547	818	1 818	136	4 547	818	9 094	1 364
E120HX-4	4	3 978	835	3 978	835	2 387	214	3 183	334	3 978	835	1 591	119	3 978	835	9 549	1 432
E120HX-4.5	4.5	3 536	742	3 536	742	2 122	190	2 828	296	3 536	742	1 414	127	3 536	742	8 848	1 327
E120HX-5	5	3 183	763	3 183	763	1 910	200	2 546	305	3 183	763	1 273	114	3 183	763	7 639	1 145
E120HX-5.5	5.5	3 100	651	3 100	651	1 736	182	2 314	277	3 100	651	1 157	121	3 100	651	6 944	1 041
E120HX-6	6	2 917	612	2 917	612	1 856	194	2 387	286	2 917	612	1 061	111	2 917	612	6 366	954
E120HX-8	8	2 188	612	2 188	612	1 392	194	1 790	286	2 188	612	994	159	2 188	612	5 570	1 114
E120HX-10	10	1 750	612	1 750	612	1 114	222	1 432	286	1 750	612	795	159	1 750	612	4 456	1 114
E120HX-12	12	1 591	668	1 591	668	928	250	1 193	286	1 591	668	663	159	1 591	668	3 713	1 114

















1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

深溝立銑刀

End Mills For Rib Processing



Page	69	71	73	75	77	79
Apperance						
Code No	F692TX	F694TX	F690TX	F690TX	F693TX	F695TX
Carbide	SMG Carbide	SMG Carbide	SMG Carbide	SMG Carbide	SMG Carbide	SMG Carbide
Coating	AITISIN TX	AITISIN TX	AITISIN TX	AITISIN TX	AITISIN TX	AITISIN TX
Helix Angle	 30°	 30°	 30°	 30°	 30°	 30°
No.of Flutes	 2	 4	 2	 2	 4	 2

81



F69ITX

SMG
Carbide

AITISIN
TX



Code No. F692TX-Dc×L1

Dc D _{0.02}	L1 mm	Lc mm	L mm	d h5	DI mm	AITiSiN F692TX	Dc D _{0.02}	L1 mm	Lc mm	L mm	d h5	DI mm	AITiSiN F692TX
0.2	0.5	0.3	50	4	0.17	●	1.5	10	2.3	50	4	1.45	●
0.2	1	0.3	50	4	0.17	●	1.5	12	2.3	50	4	1.45	●
0.2	2	0.3	50	4	0.17	●	1.5	14	2.3	50	4	1.45	●
0.2	3	0.3	50	4	0.17	●	1.5	16	2.3	50	4	1.45	●
0.3	1	0.45	50	4	0.27	●	1.5	18	2.3	60	4	1.45	●
0.3	1.5	0.45	50	4	0.27	●	1.5	20	2.3	60	4	1.45	●
0.3	2	0.45	50	4	0.27	●	1.5	25	2.3	65	4	1.45	●
0.3	3	0.45	50	4	0.27	●	1.5	30	2.3	70	4	1.45	●
0.3	4	0.45	50	4	0.27	●	1.6	6	2.4	50	4	1.55	●
0.4	1	0.6	50	4	0.37	●	1.6	8	2.4	50	4	1.55	●
0.4	1.5	0.6	50	4	0.37	●	1.6	10	2.4	50	4	1.55	●
0.4	2	0.6	50	4	0.37	●	1.6	12	2.4	50	4	1.55	●
0.4	3	0.6	50	4	0.37	●	1.6	14	2.4	50	4	1.55	●
0.4	4	0.6	50	4	0.37	●	1.6	16	2.4	50	4	1.55	●
0.4	5	0.6	50	4	0.37	●	1.6	18	2.4	60	4	1.55	●
0.4	6	0.6	50	4	0.37	●	1.6	20	2.4	60	4	1.55	●
0.4	8	0.6	50	4	0.37	●	1.8	6	2.7	50	4	1.75	●
0.5	1	0.7	50	4	0.45	●	1.8	8	2.7	50	4	1.75	●
0.5	2	0.7	50	4	0.45	●	1.8	10	2.7	50	4	1.75	●
0.5	3	0.7	50	4	0.45	●	1.8	12	2.7	50	4	1.75	●
0.5	4	0.7	50	4	0.45	●	1.8	14	2.7	50	4	1.75	●
0.5	6	0.7	50	4	0.45	●	1.8	16	2.7	50	4	1.75	●
0.5	8	0.7	50	4	0.45	●	1.8	18	2.7	60	4	1.75	●
0.5	10	0.7	50	4	0.45	●	1.8	20	2.7	60	4	1.75	●
0.6	2	0.9	50	4	0.55	●	2	4	3	50	4	1.95	●
0.6	3	0.9	50	4	0.55	●	2	6	3	50	4	1.95	●
0.6	4	0.9	50	4	0.55	●	2	8	3	50	4	1.95	●
0.6	6	0.9	50	4	0.55	●	2	10	3	50	4	1.95	●
0.6	8	0.9	50	4	0.55	●	2	12	3	50	4	1.95	●
0.6	10	0.9	50	4	0.55	●	2	14	3	50	4	1.95	●
0.7	2	1	50	4	0.65	●	2	16	3	50	4	1.95	●
0.7	4	1	50	4	0.65	●	2	18	3	60	4	1.95	●
0.7	6	1	50	4	0.65	●	2	20	3	60	4	1.95	●
0.7	8	1	50	4	0.65	●	2	25	3	60	4	1.95	●
0.8	2	1.2	50	4	0.75	●	2	30	3	70	4	1.95	●
0.8	4	1.2	50	4	0.75	●	2	35	3	75	4	1.95	●
0.8	6	1.2	50	4	0.75	●	2	40	3	80	4	1.95	●
0.8	8	1.2	50	4	0.75	●	2.5	8	3.7	50	4	2.4	●
0.8	10	1.2	50	4	0.75	●	2.5	10	3.7	50	4	2.4	●
0.8	12	1.2	50	4	0.75	●	2.5	12	3.7	50	4	2.4	●
0.9	4	1.4	50	4	0.85	●	2.5	14	3.7	50	4	2.4	●
0.9	6	1.4	50	4	0.85	●	2.5	16	3.7	60	4	2.4	●
0.9	8	1.4	50	4	0.85	●	2.5	18	3.7	60	4	2.4	●
0.9	10	1.4	50	4	0.85	●	2.5	20	3.7	60	4	2.4	●
1	2	1.5	50	4	0.95	●	2.5	25	3.7	70	4	2.4	●
1	3	1.5	50	4	0.95	●	2.5	30	3.7	70	4	2.4	●
1	4	1.5	50	4	0.95	●	2.5	40	3.7	80	4	2.4	●
1	6	1.5	50	4	0.95	●	3	8	4.5	50	6	2.85	●
1	8	1.5	50	4	0.95	●	3	10	4.5	50	6	2.85	●
1	10	1.5	50	4	0.95	●	3	12	4.5	50	6	2.85	●
1	12	1.5	50	4	0.95	●	3	14	4.5	60	6	2.85	●
1	14	1.5	50	4	0.95	●	3	16	4.5	60	6	2.85	●
1	16	1.5	50	4	0.95	●	3	18	4.5	60	6	2.85	●
1	18	1.5	50	4	0.95	●	3	20	4.5	60	6	2.85	●
1	20	1.5	50	4	0.95	●	3	25	4.5	70	6	2.85	●
1.2	6	1.8	50	4	1.15	●	3	30	4.5	70	6	2.85	●
1.2	8	1.8	50	4	1.15	●	3	35	4.5	80	6	2.85	●
1.2	10	1.8	50	4	1.15	●	3	40	4.5	90	6	2.85	●
1.2	12	1.8	50	4	1.15	●	3	50	4.5	100	6	2.85	●
1.2	14	1.8	50	4	1.15	●	4	12	6	60	6	3.85	●
1.2	16	1.8	50	4	1.15	●	4	16	6	60	6	3.85	●
1.4	6	2.1	50	4	1.35	●	4	20	6	70	6	3.85	●
1.4	8	2.1	50	4	1.35	●	4	25	6	70	6	3.85	●
1.4	10	2.1	50	4	1.35	●	4	30	6	80	6	3.85	●
1.4	12	2.1	50	4	1.35	●	4	35	6	80	6	3.85	●
1.4	14	2.1	50	4	1.35	●	4	40	6	90	6	3.85	●
1.4	16	2.1	50	4	1.35	●	4	45	6	100	6	3.85	●
1.5	4	2.3	50	4	1.45	●	4	50	6	100	6	3.85	●
1.5	6	2.3	50	4	1.45	●							
1.5	8	2.3	50	4	1.45	●							



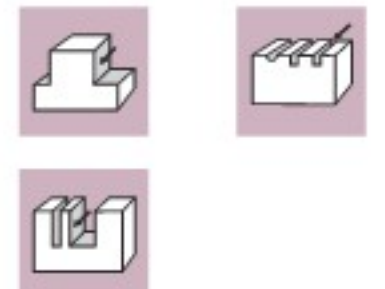
Steel < 62HRC

P	H	M	K	N	S
●	●	●	○	○	○

SMG Carbide AITISIN TX



Type of Operation

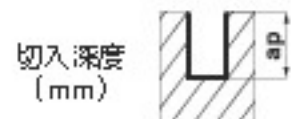


Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloyed Steel	●
	GR3	高合金鋼 < 30HRC High alloyed Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

Slotting 溝切削

被削材 Work Material		GR1 軟鋼 / GR2 低合金鋼 / GR3 高合金鋼 Carbon Steel / Low-alloyed Steel / H-a alloyed Steel I-24HRC I-30HRC			GR4 硬化鋼 / GR5 硬化鋼 Hardened Steel / Hardened Steel (30-38HRC) (38-48HRC)			GR6 硬化鋼 Hardened Steel (48-56HRC)			GR7 硬化鋼 Hardened Steel (56-68HRC)		
型號 Code No.	刃徑×刃長 D×L	RPM 迴轉速度 (m·n ⁻¹)	Fz/d 進給速度 (mm/m·n)	ap (mm)	RPM 迴轉速度 (m·n ⁻¹)	Fz/d 進給速度 (mm/m·n)	ap (mm)	RPM 迴轉速度 (m·n ⁻¹)	Fz/d 進給速度 (mm/m·n)	ap (mm)	RPM 迴轉速度 (m·n ⁻¹)	Fz/d 進給速度 (mm/m·n)	ap (mm)
F692TX	0.2×0.5	50,000	320	0.009	50,000	170	0.006	50,000	150	0.004	50,000	10	0.003
F692TX	0.2×1	50,000	320	0.008	50,000	150	0.005	50,000	150	0.004	50,000	10	0.003
F692TX	0.2×2	50,000	290	0.006	50,000	130	0.004	50,000	120	0.003	50,000	10	0.002
F692TX	0.2×3	50,000	280	0.002	50,000	100	0.001	50,000	100	0.001	50,000	10	0.001
F692TX	0.3×1	48,000	448	0.009	48,000	352	0.006	41,680	264	0.004	14,600	14	0.003
F692TX	0.3×1.5	40,640	368	0.008	40,640	288	0.005	34,160	208	0.004	14,600	13	0.003
F692TX	0.3×2	33,200	280	0.006	33,200	224	0.004	26,560	152	0.003	14,600	12	0.002
F692TX	0.3×3	25,520	192	0.002	25,520	152	0.001	20,400	104	0.001	14,600	10	0.001
F692TX	0.3×4	20,960	136	0.001	20,960	112	0.001	16,720	80	0.001	14,600	9	0.001
F692TX	0.4×1	42,160	528	0.011	38,480	376	0.007	30,800	256	0.004	14,300	17	0.003
F692TX	0.4×1.5	42,160	528	0.011	38,480	376	0.007	30,800	256	0.004	14,300	17	0.003
F692TX	0.4×2	40,000	488	0.009	35,680	344	0.006	28,560	232	0.004	14,600	17	0.003
F692TX	0.4×3	35,600	408	0.005	30,000	272	0.004	24,000	184	0.003	14,300	16	0.002
F692TX	0.4×4	32,800	352	0.004	26,480	224	0.003	21,200	152	0.002	14,300	15	0.001
F692TX	0.4×5	30,800	304	0.003	24,080	192	0.002	19,280	128	0.001	14,300	14	0.001
F692TX	0.4×6	30,800	280	0.002	24,000	180	0.001	18,000	100	0.001	14,000	10	0.001
F692TX	0.4×8	30,800	250	0.002	24,000	160	0.001	17,000	80	0.001	14,000	10	0.001
F692TX	0.5×1	45,440	720	0.015	32,480	408	0.011	26,000	280	0.008	14,000	20	0.004
F692TX	0.5×2	45,440	720	0.015	32,480	408	0.011	26,000	280	0.008	14,000	20	0.004
F692TX	0.5×3	35,360	528	0.007	25,760	296	0.007	20,560	208	0.005	14,000	19	0.004
F692TX	0.5×4	32,480	464	0.008	23,760	264	0.006	18,960	184	0.004	14,000	18	0.003
F692TX	0.5×6	26,720	336	0.004	19,760	200	0.003	15,760	136	0.002	14,000	16	0.001
F692TX	0.5×8	23,280	256	0.002	17,280	152	0.001	13,840	104	0.001	14,000	14	0.001
F692TX	0.5×10	20,880	200	0.001	15,680	120	0.001	12,480	80	0.001	14,000	12	0.001
F692TX	0.6×2/0.6×3/0.6×4	50,880	992	0.023	31,280	480	0.016	25,040	328	0.011	12,000	23	0.006
F692TX	0.6×6	25,680	416	0.007	18,400	232	0.005	14,720	160	0.003	12,000	19	0.002
F692TX	0.6×8	21,440	312	0.004	16,000	184	0.003	12,800	128	0.002	12,000	17	0.001
F692TX	0.6×10	18,720	240	0.002	14,320	144	0.002	11,440	104	0.001	12,000	15	0.001
F692TX	0.8×4/0.8×6	29,680	744	0.027	19,280	384	0.019	15,440	264	0.013	8,000	20	0.01
F692TX	0.8×8	19,280	416	0.009	13,760	240	0.006	11,040	160	0.004	8,000	16	0.003
F692TX	0.8×10	16,800	336	0.006	13,760	240	0.006	11,040	160	0.004	8,000	14	0.002
F692TX	0.8×12	14,960	272	0.004	11,280	160	0.003	9,040	112	0.002	8,000	12	0.001
F692TX	1×2 / 1×3 / 1×4	27,280	936	0.04	17,200	464	0.028	13,760	320	0.02	6,500	15	0.01
F692TX	1×6	21,200	680	0.023	14,080	352	0.016	11,280	248	0.012	6,500	14	0.006
F692TX	1×10	15,360	424	0.01	11,040	240	0.007	8,800	168	0.005	6,500	12	0.003
F692TX	1×12	13,760	352	0.007	10,080	200	0.005	8,080	136	0.003	6,500	11	0.002
F692TX	1×16	11,440	240	0.004	8,800	144	0.003	7,040	104	0.002	6,500	10	0.001
F692TX	1×20	10,000	160	0.003	8,800	144	0.003	7,040	104	0.002	6,500	10	0.001
F692TX	1.5×4/1.5×6/1.5×8	18,240	896	0.057	11,520	440	0.04	9,200	304	0.028	9,600	60	0.016
F692TX	1.5×10	13,280	600	0.03	8,960	312	0.021	7,120	216	0.015	9,600	13	0.009
F692TX	1.5×16	10,300	400	0.016	7,300	210	0.011	5,800	150	0.008	9,600	1	0.003
F692TX	1.5×20	9,500	330	0.011	6,600	170	0.007	5,200	130	0.005	9,600	10	0.003
F692TX	1.5×25	9,200	320	0.009	6,400	160	0.008	4,900	120	0.008	9,600	10	0.002
F692TX	1.5×30	9,000	300	0.007	6,200	140	0.006	4,600	110	0.006	9,600	10	0.001
F692TX	2×4 / 2×6 / 2×8	7,500	300	0.064	5,200	150	0.045	4,000	100	0.032	9,600	230	0.019
F692TX	2×10	11,840	736	0.045	7,760	376	0.031	6,240	264	0.022	9,600	45	0.013
F692TX	2×14	9,600	560	0.031	6,560	296	0.022	5,280	208	0.016	9,600	16	0.009
F692TX	2×20	7,680	400	0.018	5,520	224	0.013	4,400	152	0.009	9,600	11	0.002
F692TX	2×30	6,000	248	0.008	4,480	144	0.005	3,600	104	0.004	9,600	11	0.001
F692TX	2×40	5,000	200	0.003	3,800	90	0.001	3,000	40	0.001	9,600	10	0.001
F692TX	2.5×8/2.5×10/2.5×12	12,000	1,072	0.077	7,680	536	0.054	6,160	368	0.039	9,600	227	0.023
F692TX	2.5×14	8,560	704	0.052	5,840	376	0.036	4,640	256	0.026	9,600	42	0.015
F692TX	2.5×20	6,960	520	0.033	4,880	288	0.023	3,920	200	0.017	9,600	14	0.01
F692TX	2.5×25	6,080	416	0.022	4,400	240	0.015	3,520	168	0.011	9,600	10	0.008
F692TX	2.5×30	5,440	344	0.014	4,000	200	0.01	3,200	136	0.007	9,600	10	0.005
F692TX	2.5×40	5,300	300	0.01	3,500	160	0.006	2,800	100	0.004	9,600	10	0.003
F692TX	3×8 / 3×10 / 3×12	10,560	1,176	0.103	6,400	560	0.072	5,120	384	0.052	8,000	435	0.031
F692TX	3×14	7,680	800	0.072	4,960	408	0.051	4,000	280	0.036	8,000	81	0.021
F692TX	3×20	6,240	600	0.05	4,240	320	0.035	3,440	224	0.025	8,000	27	0.015
F692TX	3×30	4,960	416	0.026	3,600	232	0.018	2,880	160	0.013	8,000	10	0.007
F692TX	3×40	4,400	340	0.013	3,100	180	0.009	2,400	110	0.005	8,000	10	0.003
F692TX	3×50	4,200	320	0.009	2,900	160	0.005	2,200	90	0.003	8,000	10	0.001
F692TX	4×12/4×16/4×20	6,800	1,024	0.112	4,080	480	0.078	3,280	328	0.056	6,000	388	0.033
F692TX	4×30	4,000	504	0.048	2,640	264	0.033	2,080	184	0.024	6,000	24	0.014
F692TX	4×40	3,360	376	0.03	2,320	200	0.021	1,840	144	0.015	6,000	10	0.009
F692TX	4×50	2,960	288	0.018	2,080	160	0.013	1,680	112	0.009	6,000	10	0.001



Code No. F694TX-Dc×L1

Dc 0 -0.02	L1 mm	Lc mm	L mm	d h5	D1 mm	AITiSiN F694TX
1	3	1.5	50	4	0.95	●
1	4	1.5	50	4	0.95	●
1	6	1.5	50	4	0.95	●
1	8	1.5	50	4	0.95	●
1	10	1.5	50	4	0.95	●
1	12	1.5	50	4	0.95	●
1.5	4	2.3	50	4	1.45	●
1.5	6	2.3	50	4	1.45	●
1.5	8	2.3	50	4	1.45	●
1.5	10	2.3	50	4	1.45	●
1.5	12	2.3	50	4	1.45	●
1.5	16	2.3	50	4	1.45	●
2	6	3	50	4	1.95	●
2	8	3	50	4	1.95	●
2	10	3	50	4	1.95	●
2	12	3	50	4	1.95	●
2	16	3	50	4	1.95	●
2	20	3	60	4	1.95	●
2	25	3	60	4	1.95	●
2	30	3	70	4	1.95	●
3	8	4.5	50	6	2.85	●
3	10	4.5	50	6	2.85	●
3	12	4.5	50	6	2.85	●
3	16	4.5	60	6	2.85	●
3	20	4.5	60	6	2.85	●
3	25	4.5	70	6	2.85	●
3	30	4.5	70	6	2.85	●
4	12	6	60	6	3.85	●
4	16	6	60	6	3.85	●
4	20	6	70	6	3.85	●
4	25	6	70	6	3.85	●
4	30	6	80	6	3.85	●
4	40	6	90	6	3.85	●
5	16	7.5	60	6	4.85	●
5	20	7.5	70	6	4.85	●
5	30	7.5	80	6	4.85	●
5	40	7.5	90	6	4.85	●
6	20	9	70	6	5.85	●
6	30	9	80	6	5.85	●
6	40	9	90	6	5.85	●
6	50	9	100	6	5.85	●



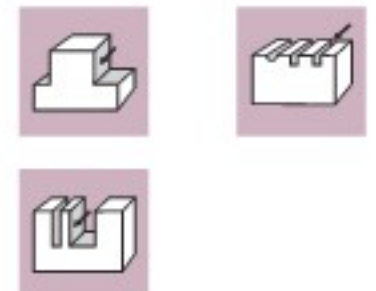
Steel < 70HRC

P	H	M	K	N	S
●	●	●	○	○	○

SMG Carbide AITISIN TX



Type of Operation

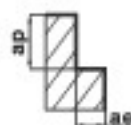


Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Side Milling 側面切削

被削材 Work Material		GR.5 硬化鋼 Hardened Steel (38-48HRC)				GR.6 硬化鋼 Hardened Steel (48-56HRC)				GR.7 硬化鋼 Hardened Steel (56-68HRC)			
型號 Code No.	刃徑 × 總長 D × L	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/m n)	ap (mm)	ae (mm)	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/m n)	ap (mm)	ae (mm)	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/m n)	ap (mm)	ae (mm)
F 694TX	1×3	14 000	1 350	0.04	0.3	13 000	1 100	0.035	0.25	8 800	700	0.02	0.25
F 694TX	1×4	13 800	1 310	0.039	0.270	12 000	1 070	0.031	0.243	8 500	640	0.015	0.243
F 694TX	1×6	11 300	1 040	0.021	0.216	9 800	860	0.016	0.209	7 000	510	0.01	0.108
F 694TX	1×8	9 800	780	0.02	0.189	8 500	720	0.012	0.16	6 100	420	0.008	0.094
F 694TX	1×10	8 800	510	0.011	0.126	7 600	510	0.009	0.1	5 400	350	0.006	0.05
F 694TX	1×12	8 300	490	0.01	0.1	7 200	490	0.005	0.1	5 000	300	0.003	0.05
F 694TX	1.5×4	12 000	1 300	0.045	0.5	12 000	1 250	0.045	0.5	9 000	500	0.03	0.25
F 694TX	1.5×6	11 600	1 280	0.041	0.486	10 600	1 210	0.038	0.445	8 100	460	0.025	0.202
F 694TX	1.5×8	10 200	1 080	0.038	0.35	9 300	1 020	0.031	0.346	7 100	390	0.015	0.157
F 694TX	1.5×10	9 000	900	0.03	0.3	8 200	800	0.03	0.3	6 500	360	0.01	0.1
F 694TX	1.5×12	8 500	830	0.029	0.324	7 800	780	0.026	0.297	5 900	300	0.01	0.162
F 694TX	1.5×16	7 400	670	0.018	0.216	6 800	600	0.014	0.198	5 100	230	0.005	0.108
F 694TX	2×6	12 800	1 280	0.064	0.648	12 000	1 200	0.06	0.729	9 700	700	0.028	0.324
F 694TX	2×8	11 200	1 160	0.058	0.612	10 400	1 100	0.055	0.648	8 400	600	0.026	0.288
F 694TX	2×10	10 000	1 100	0.045	0.5	9 000	1 000	0.045	0.5	8 200	500	0.02	0.25
F 694TX	2×12	9 100	1 030	0.046	0.405	8 500	960	0.044	0.405	6 900	420	0.018	0.180
F 694TX	2×16	7 800	860	0.042	0.283	7 300	700	0.039	0.315	5 900	270	0.016	0.157
F 694TX	2×20	7 000	800	0.025	0.198	6 600	650	0.024	0.198	5 300	290	0.007	0.116
F 694TX	2×25	6 500	650	0.02	0.15	6 500	600	0.02	0.15	5 000	200	0.005	0.08
F 694TX	2×30	6 000	500	0.02	0.1	6 000	450	0.02	0.1	4 500	150	0.003	0.05
F 694TX	3×8	11 250	2 300	0.1	0.65	11 000	2 000	0.08	0.65	9 000	750	0.05	0.5
F 694TX	3×10	11 250	2 277	0.0945	0.63	10 620	1 980	0.063	0.63	8 910	729	0.0423	0.45
F 694TX	3×12	10 500	2 020	0.084	0.670	10 000	1 950	0.052	0.67	8 100	660	0.037	0.5
F 694TX	3×16	9 200	1 680	0.064	0.634	8 800	1 600	0.04	0.63	7 100	570	0.027	0.378
F 694TX	3×20	8 400	1 540	0.058	0.580	7 900	1 490	0.036	0.58	6 300	550	0.022	0.319
F 694TX	3×25	7 500	1 350	0.05	0.4	7 000	1 100	0.025	0.4	6 000	450	0.01	0.2
F 694TX	3×30	7 000	1 260	0.04	0.38	6 500	1 230	0.015	0.38	5 400	390	0.007	0.144
F 694TX	4×12	8 500	1 400	0.1	1.0	7 100	1 350	0.078	1.08	6 000	760	0.051	0.76
F 694TX	4×16	7 900	1 370	0.091	1.0	6 600	1 330	0.071	1.0	5 600	740	0.043	0.7
F 694TX	4×20	6 200	1 200	0.06	0.8	5 200	1 120	0.047	0.8	4 500	630	0.022	0.56
F 694TX	4×25	6 200	1 200	0.06	0.8	5 200	1 120	0.047	0.8	4 500	630	0.022	0.56
F 694TX	4×30	5 500	960	0.037	0.648	4 600	920	0.029	0.648	3 900	600	0.011	0.388
F 694TX	4×40	5 000	800	0.03	0.5	4 300	800	0.025	0.5	3 500	500	0.005	0.3
F 694TX	5×16	8 000	1 100	0.15	1.0	8 000	1 100	0.15	1.0	5 500	700	0.05	0.6
F 694TX	5×20	7 500	900	0.1	1.0	7 500	900	0.1	1.0	5 200	680	0.03	0.5
F 694TX	5×30	6 500	700	0.08	0.5	6 500	700	0.08	0.5	4 800	630	0.02	0.3
F 694TX	5×40	5 500	600	0.05	0.3	5 500	600	0.05	0.3	4 500	600	0.01	0.2
F 694TX	6×20	7 000	1 000	0.3	1.2	7 000	1 000	0.3	1.2	5 000	650	0.05	0.6
F 694TX	6×30	6 500	800	0.2	1.0	6 500	800	0.2	1.0	4 700	620	0.03	0.5
F 694TX	6×40	6 000	700	0.15	0.8	6 000	700	0.15	0.8	4 400	580	0.02	0.3
F 694TX	6×50	5 500	600	0.1	0.6	5 500	600	0.1	0.6	4 100	550	0.01	0.2

切入深度
(mm)

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

F690TX 極超微粒鎢鋼塗層深溝環面R角立銑刀

Toric End Mills For Rib Processing With Corner Radius

Code No. F690TX-Dc×R×L1

Dc	R	Li	Lc	L	d	DI	AITiSiN	Dc	R	Li	Lc	L	d	DI	AITiSiN
$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	± 0.005	mm	mm	mm	h5	mm	F690TX	$\begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	± 0.005	mm	mm	mm	h5	mm	F690TX
0.2	R0.02	0.5	0.15	50	4	0.18	●	0.8	R0.2	4	0.65	50	4	0.75	●
0.2	R0.02	1	0.15	50	4	0.18	●	0.8	R0.2	6	0.65	50	4	0.75	●
0.2	R0.02	2	0.15	50	4	0.18	●	0.8	R0.2	8	0.65	50	4	0.75	●
0.2	R0.05	0.5	0.15	50	4	0.18	●	0.8	R0.2	12	0.65	50	4	0.75	●
0.2	R0.05	1	0.15	50	4	0.18	●	1	R0.02	2	0.8	50	4	0.95	●
0.2	R0.05	2	0.15	50	4	0.18	●	1	R0.02	4	0.8	50	4	0.95	●
0.3	R0.02	1	0.25	50	4	0.28	●	1	R0.02	6	0.8	50	4	0.95	●
0.3	R0.02	2	0.25	50	4	0.28	●	1	R0.02	8	0.8	50	4	0.95	●
0.3	R0.02	3	0.25	50	4	0.28	●	1	R0.02	10	0.8	50	4	0.95	●
0.3	R0.05	1	0.25	50	4	0.28	●	1	R0.02	12	0.8	50	4	0.95	●
0.3	R0.05	2	0.25	50	4	0.28	●	1	R0.05	2	0.8	50	4	0.95	●
0.3	R0.05	3	0.25	50	4	0.28	●	1	R0.05	4	0.8	50	4	0.95	●
0.4	R0.02	1	0.3	50	4	0.37	●	1	R0.05	6	0.8	50	4	0.95	●
0.4	R0.02	2	0.3	50	4	0.37	●	1	R0.05	8	0.8	50	4	0.95	●
0.4	R0.02	3	0.3	50	4	0.37	●	1	R0.05	10	0.8	50	4	0.95	●
0.4	R0.02	4	0.3	50	4	0.37	●	1	R0.05	12	0.8	50	4	0.95	●
0.4	R0.05	1	0.3	50	4	0.37	●	1	R0.1	2	0.8	50	4	0.95	●
0.4	R0.05	2	0.3	50	4	0.37	●	1	R0.1	4	0.8	50	4	0.95	●
0.4	R0.05	3	0.3	50	4	0.37	●	1	R0.1	6	0.8	50	4	0.95	●
0.4	R0.05	4	0.3	50	4	0.37	●	1	R0.1	8	0.8	50	4	0.95	●
0.4	R0.1	1	0.3	50	4	0.37	●	1	R0.1	10	0.8	50	4	0.95	●
0.4	R0.1	2	0.3	50	4	0.37	●	1	R0.1	12	0.8	50	4	0.95	●
0.4	R0.1	3	0.3	50	4	0.37	●	1	R0.2	2	0.8	50	4	0.95	●
0.4	R0.1	4	0.3	50	4	0.37	●	1	R0.2	4	0.8	50	4	0.95	●
0.5	R0.02	1	0.4	50	4	0.46	●	1	R0.2	6	0.8	50	4	0.95	●
0.5	R0.02	2	0.4	50	4	0.46	●	1	R0.2	8	0.8	50	4	0.95	●
0.5	R0.02	3	0.4	50	4	0.46	●	1	R0.2	10	0.8	50	4	0.95	●
0.5	R0.02	4	0.4	50	4	0.46	●	1	R0.2	12	0.8	50	4	0.95	●
0.5	R0.02	5	0.4	50	4	0.46	●	1	R0.3	2	0.8	50	4	0.95	●
0.5	R0.02	6	0.4	50	4	0.46	●	1	R0.3	4	0.8	50	4	0.95	●
0.5	R0.05	1	0.4	50	4	0.46	●	1	R0.3	6	0.8	50	4	0.95	●
0.5	R0.05	2	0.4	50	4	0.46	●	1	R0.3	8	0.8	50	4	0.95	●
0.5	R0.05	3	0.4	50	4	0.46	●	1	R0.3	10	0.8	50	4	0.95	●
0.5	R0.05	4	0.4	50	4	0.46	●	1	R0.3	12	0.8	50	4	0.95	●
0.5	R0.05	5	0.4	50	4	0.46	●	1.2	R0.2	6	1	50	4	1.15	●
0.5	R0.05	6	0.4	50	4	0.46	●	1.2	R0.2	8	1	50	4	1.15	●
0.5	R0.1	1	0.4	50	4	0.46	●	1.2	R0.2	10	1	50	4	1.15	●
0.5	R0.1	2	0.4	50	4	0.46	●	1.5	R0.1	4	1.2	50	4	1.45	●
0.5	R0.1	3	0.4	50	4	0.46	●	1.5	R0.1	6	1.2	50	4	1.45	●
0.5	R0.1	4	0.4	50	4	0.46	●	1.5	R0.1	8	1.2	50	4	1.45	●
0.5	R0.1	5	0.4	50	4	0.46	●	1.5	R0.1	10	1.2	50	4	1.45	●
0.5	R0.1	6	0.4	50	4	0.46	●	1.5	R0.1	12	1.2	50	4	1.45	●
0.6	R0.02	2	0.5	50	4	0.55	●	1.5	R0.1	16	1.2	50	4	1.45	●
0.6	R0.02	4	0.5	50	4	0.55	●	1.5	R0.2	4	1.2	50	4	1.45	●
0.6	R0.02	6	0.5	50	4	0.55	●	1.5	R0.2	6	1.2	50	4	1.45	●
0.6	R0.02	8	0.5	50	4	0.55	●	1.5	R0.2	8	1.2	50	4	1.45	●
0.6	R0.05	2	0.5	50	4	0.55	●	1.5	R0.2	10	1.2	50	4	1.45	●
0.6	R0.05	4	0.5	50	4	0.55	●	1.5	R0.2	12	1.2	50	4	1.45	●
0.6	R0.05	6	0.5	50	4	0.55	●	1.5	R0.2	16	1.2	50	4	1.45	●
0.6	R0.05	8	0.5	50	4	0.55	●	1.5	R0.3	4	1.2	50	4	1.45	●
0.6	R0.1	2	0.5	50	4	0.55	●	1.5	R0.3	6	1.2	50	4	1.45	●
0.6	R0.1	4	0.5	50	4	0.55	●	1.5	R0.3	8	1.2	50	4	1.45	●
0.6	R0.1	6	0.5	50	4	0.55	●	1.5	R0.3	10	1.2	50	4	1.45	●
0.6	R0.1	8	0.5	50	4	0.55	●	1.5	R0.3	12	1.2	50	4	1.45	●
0.8	R0.02	2	0.65	50	4	0.75	●	1.5	R0.3	16	1.2	50	4	1.45	●
0.8	R0.02	4	0.65	50	4	0.75	●	2	R0.1	4	1.6	50	4	1.95	●
0.8	R0.02	6	0.65	50	4	0.75	●	2	R0.1	6	1.6	50	4	1.95	●
0.8	R0.02	8	0.65	50	4	0.75	●	2	R0.1	8	1.6	50	4	1.95	●
0.8	R0.02	12	0.65	50	4	0.75	●	2	R0.1	10	1.6	50	4	1.95	●
0.8	R0.05	2	0.65	50	4	0.75	●	2	R0.1	12	1.6	50	4	1.95	●
0.8	R0.05	4	0.65	50	4	0.75	●	2	R0.1	16	1.6	50	4	1.95	●
0.8	R0.05	6	0.65	50	4	0.75	●	2	R0.1	20	1.6	60	4	1.95	●
0.8	R0.05	8	0.65	50	4	0.75	●	2	R0.2	4	1.6	50	4	1.95	●
0.8	R0.05	12	0.65	50	4	0.75	●	2	R0.2	6	1.6	50	4	1.95	●
0.8	R0.1	2	0.65	50	4	0.75	●	2	R0.2	8	1.6	50	4	1.95	●
0.8	R0.1	4	0.65	50	4	0.75	●	2	R0.2	10	1.6	50	4	1.95	●
0.8	R0.1	6	0.65	50	4	0.75	●	2	R0.2	12	1.6	50	4	1.95	●
0.8	R0.1	8	0.65	50	4	0.75	●	2	R0.2	16	1.6	50	4	1.95	●
0.8	R0.1	12	0.65	50	4	0.75	●	2	R0.2	20	1.6	60	4	1.95	●
0.8	R0.2	2	0.65	50	4	0.75	●	2	R0.3	4	1.6	50	4	1.95	●



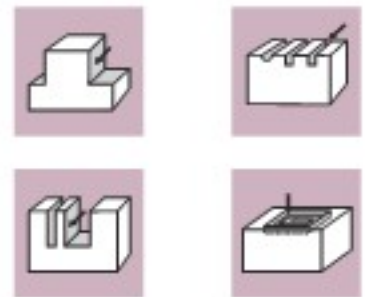
Steel < 70HRC

P	H	M	K	N	S
●	●	●	○	○	○

SMG Carbide AITISIN TX



Type of Operation

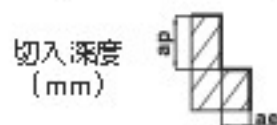


Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 > 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP/CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Side Milling 側面切削

被削材 Work Material		GR1 碳鋼 / GR2 合金鋼 / GR3 高合金鋼 Carbon Steel / Low alloyed Steel / High alloyed Steel (-24HRC) (-30HRC)				GR4 硬化工鋼 / GR5 硬化工鋼 Hardened Steel / Hardened Steel (36-46HRC) (30-36HRC)				GR6 硬化工鋼 Hardened Steel (46-56HRC)				GR7 硬化工鋼 Hardened Steel (56-66HRC)			
型號 Code No	刃徑×總長 D×L	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	ap (mm)	a2 (mm)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	ap (mm)	a2 (mm)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	ap (mm)	a2 (mm)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	ap (mm)	a2 (mm)
F690TX	D.2×0.5	36,500	550	0.01	0.05	35000	500	0.01	0.05	31500	400	0.01	0.05	47775	30	0.01	0.05
F690TX	D.2×1	36,115	528	0.008	0.03	34650	480	0.008	0.03	31165	384	0.008	0.03	39812.5	20	0.008	0.03
F690TX	D.2×2	37,026	495	0.005	0.02	33660	450	0.005	0.02	30294	360	0.005	0.02	31850	10	0.005	0.02
F690TX	D.3×1	37,765	638	0.015	0.07	34350	580	0.015	0.07	30915	464	0.015	0.07	31850	30	0.015	0.07
F690TX	D.3×2	36,740	605	0.012	0.06	33400	550	0.012	0.06	30060	440	0.012	0.06	26541.667	20	0.012	0.06
F690TX	D.3×3	30,448	572	0.01	0.05	27660	520	0.01	0.05	24912	416	0.01	0.05	21233.333	10	0.01	0.05
F690TX	D.4×1	36,960	704	0.02	0.1	33600	640	0.02	0.1	30240	512	0.02	0.1	23687.5	50	0.02	0.1
F690TX	D.4×2	35,750	682	0.018	0.08	32500	620	0.018	0.08	29250	496	0.018	0.08	19906.25	45	0.018	0.08
F690TX	D.4×3	29,480	660	0.015	0.06	26600	600	0.015	0.06	24120	480	0.015	0.06	15925	40	0.015	0.06
F690TX	D.4×4	26,765	638	0.01	0.05	24350	580	0.01	0.05	21915	464	0.01	0.05	14332.5	30	0.01	0.05
F690TX	D.5×1	35,200	748	0.03	0.12	32,000	680	0.03	0.12	28800	544	0.03	0.12	21500	70	0.03	0.12
F690TX	D.5×2	35,112	730	0.029	0.117	31,920	664	0.029	0.117	28728	531	0.028	0.117	20,100	66	0.028	0.117
F690TX	D.5×3	26,072	563	0.023	0.113	25,520	512	0.023	0.113	22968	410	0.020	0.113	16,100	52	0.008	0.113
F690TX	D.5×4	25,608	484	0.018	0.108	23,280	440	0.018	0.108	20952	352	0.014	0.108	14,600	45	0.008	0.108
F690TX	D.5×5	23,232	414	0.011	0.099	21,120	376	0.011	0.099	19008	301	0.010	0.099	13,300	39	0.004	0.099
F690TX	D.5×6	21,296	352	0.007	0.090	19,360	320	0.007	0.090	17424	256	0.006	0.090	12,200	33	0.003	0.090
F690TX	D.6×2	25,168	449	0.010	0.219	22,880	408	0.010	0.219	20592	326	0.010	0.219	15,200	43	0.004	0.219
F690TX	D.6×4	17,952	290	0.005	0.104	16,320	264	0.005	0.104	14688	211	0.005	0.104	10,800	26	0.002	0.1035
F690TX	D.6×6	14,784	220	0.003	0.099	13,440	200	0.003	0.099	12096	160	0.003	0.099	8,900	21	0.001	0.099
F690TX	D.6×8	13,695	198	0.003	0.05	12,450	180	0.003	0.06	11205	144	0.003	0.06	10,617	20	0.001	0.06
F690TX	D.8×4	15,400	396	0.014	0.117	14,000	360	0.014	0.117	12600	288	0.015	0.117	10,200	41	0.007	0.117
F690TX	D.8×6	12,848	299	0.008	0.108	11,680	272	0.008	0.108	10512	216	0.008	0.108	8,500	30	0.004	0.108
F690TX	D.8×8	11,264	238	0.005	0.090	10,240	216	0.005	0.090	9216	173	0.004	0.090	7,600	20	0.002	0.090
F690TX	D.8×12	10,760	220	0.003	0.06	9,600	200	0.003	0.06	8620	160	0.003	0.06	6,370	15	0.001	0.05
F690TX	1×2	14,014	770	0.03	0.9	12,740	700	0.03	0.9	11466	560	0.03	0.9	5,308	90	0.02	0.3
F690TX	1×4	12,144	722	0.030	0.870	11,040	656	0.030	0.870	9936	525	0.035	0.270	6,500	80	0.017	0.270
F690TX	1×6	9,944	572	0.021	0.216	9,040	520	0.021	0.216	8136	416	0.024	0.216	7,000	64	0.012	0.216
F690TX	1×8	8,624	431	0.016	0.189	7,840	392	0.016	0.189	7056	314	0.016	0.189	6,100	46	0.009	0.189
F690TX	1×10	7,744	282	0.011	0.126	7,040	256	0.011	0.126	6336	205	0.013	0.126	5,400	32	0.006	0.126
F690TX	1×12	7,128	185	0.008	0.072	6,480	168	0.008	0.072	5832	134	0.009	0.072	5,000	21	0.004	0.072
F690TX	1.2×6	8,272	510	0.018	0.090	7,520	464	0.018	0.090	6768	371	0.022	0.090	6,200	60	0.011	0.090
F690TX	1.2×8	8,272	510	0.018	0.090	7,520	464	0.018	0.090	6768	371	0.022	0.090	6,200	60	0.011	0.090
F690TX	1.2×10	5,964	326	0.007	0.072	5,440	296	0.007	0.072	4896	237	0.008	0.072	4,500	36	0.004	0.072
F690TX	1.5×4	11,616	959	0.045	0.450	10,560	872	0.045	0.450	9504	696	0.060	0.450	9,200	124	0.033	0.450
F690TX	1.5×6	9,328	906	0.041	0.405	8,480	824	0.041	0.405	7632	659	0.055	0.405	7,400	117	0.030	0.405
F690TX	1.5×8	8,184	766	0.034	0.315	7,440	696	0.034	0.315	6696	557	0.045	0.315	6,500	99	0.025	0.315
F690TX	1.5×10	7,480	660	0.032	0.288	6,800	600	0.032	0.288	6120	480	0.042	0.288	6,000	85	0.023	0.288
F690TX	1.5×12	6,864	590	0.029	0.270	6,240	536	0.029	0.270	5616	429	0.036	0.270	5,400	76	0.021	0.270
F690TX	1.5×16	5,964	449	0.015	0.180	5,440	408	0.015	0.180	4896	326	0.020	0.180	4,700	58	0.011	0.180
F690TX	2×4	12,650	935	0.05	0.8	11,500	850	0.05	0.8	10350	680	0.05	0.8	11,148	140	0.04	0.85
F690TX	2×6	11,264	898	0.043	0.810	10,240	816	0.043	0.810	9216	653	0.060	0.810	9,700	133	0.036	0.810
F690TX	2×8	9,856	818	0.039	0.720	8,960	744	0.039	0.720	8064	595	0.055	0.720	8,400	121	0.033	0.720
F690TX	2×10	8,800	766	0.033	0.585	8,000	696	0.033	0.585	7200	557	0.047	0.585	7,600	113	0.028	0.585
F690TX	2×12	8,008	722	0.031	0.450	7,280	656	0.031	0.450	6552	525	0.044	0.450	6,900	107	0.026	0.450



1. Please work with good rigidity / high precision facilities and collet chuck.
 2. Please choose proper cutting fluid.
 3. The cutting data is reference value only. Please adjust it according to your real working conditions.
 4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
 5. If vibration occurs during cutting, please reduce cutting parameter.
1. 請使用剛性好、精度高的設備和夾具。
 2. 請選擇適用於工件材料的切削液。
 3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
 4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
 5. 切削加工時如果發生振顫，請降低切削條件。

F690TX 極超微粒鎢鋼塗層深溝環面R角立銑刀

Toric End Mills For Rib Processing With Corner Radius

Code No. F690TX-Dc×R×L1

Dc	R	L1	Lc	L	d	DI	AITiSiN	Dc	R	L1	Lc	L	d	DI	AITiSiN
-0.02	± 0.005	mm	mm	mm	h5	mm	F690TX	-0.02	± 0.005	mm	mm	mm	h5	mm	F690TX
2	R03	6	16	50	4	1.95	●	4	R05	8	4	60	6	3.85	●
2	R03	8	16	50	4	1.95	●	4	R05	12	4	60	6	3.85	●
2	R03	10	16	50	4	1.95	●	4	R05	16	4	60	6	3.85	●
2	R03	12	16	50	4	1.95	●	4	R05	20	4	70	6	3.85	●
2	R03	16	16	50	4	1.95	●	4	R05	25	4	70	6	3.85	●
2	R03	20	16	60	4	1.95	●	4	R05	30	4	80	6	3.85	●
2	R05	4	16	50	4	1.95	●	4	R05	40	4	90	6	3.85	●
2	R05	6	16	50	4	1.95	●	4	R1	8	4	60	6	3.85	●
2	R05	8	16	50	4	1.95	●	4	R1	12	4	60	6	3.85	●
2	R05	10	16	50	4	1.95	●	4	R1	16	4	60	6	3.85	●
2	R05	12	16	50	4	1.95	●	4	R1	20	4	70	6	3.85	●
2	R05	16	16	50	4	1.95	●	4	R1	25	4	70	6	3.85	●
2	R05	20	16	60	4	1.95	●	4	R1	30	4	80	6	3.85	●
3	R01	6	25	50	6	2.85	●	4	R1	40	4	90	6	3.85	●
3	R01	8	25	50	6	2.85	●	5	R02	20	4	70	6	4.85	●
3	R01	12	25	50	6	2.85	●	5	R02	40	4	90	6	4.85	●
3	R01	16	25	60	6	2.85	●	5	R03	20	4	70	6	4.85	●
3	R01	20	25	60	6	2.85	●	5	R03	40	4	90	6	4.85	●
3	R01	25	25	70	6	2.85	●	5	R05	20	4	70	6	4.85	●
3	R01	30	25	70	6	2.85	●	5	R05	40	4	90	6	4.85	●
3	R02	6	25	50	6	2.85	●	5	R1	20	4	70	6	4.85	●
3	R02	8	25	50	6	2.85	●	5	R1	40	4	90	6	4.85	●
3	R02	12	25	50	6	2.85	●	6	R02	12	5	60	6	5.85	●
3	R02	16	25	60	6	2.85	●	6	R02	18	5	60	6	5.85	●
3	R02	20	25	60	6	2.85	●	6	R02	24	5	70	6	5.85	●
3	R02	25	25	70	6	2.85	●	6	R02	36	5	80	6	5.85	●
3	R02	30	25	70	6	2.85	●	6	R02	54	5	100	6	5.85	●
3	R03	6	25	50	6	2.85	●	6	R03	12	5	60	6	5.85	●
3	R03	8	25	50	6	2.85	●	6	R03	18	5	60	6	5.85	●
3	R03	12	25	50	6	2.85	●	6	R03	24	5	70	6	5.85	●
3	R03	16	25	60	6	2.85	●	6	R03	36	5	80	6	5.85	●
3	R03	20	25	60	6	2.85	●	6	R03	54	5	100	6	5.85	●
3	R03	25	25	70	6	2.85	●	6	R05	12	5	60	6	5.85	●
3	R03	30	25	70	6	2.85	●	6	R05	18	5	60	6	5.85	●
3	R05	6	25	50	6	2.85	●	6	R05	24	5	70	6	5.85	●
3	R05	8	25	50	6	2.85	●	6	R05	36	5	80	6	5.85	●
3	R05	12	25	50	6	2.85	●	6	R05	54	5	100	6	5.85	●
3	R05	16	25	60	6	2.85	●	6	R1	12	5	60	6	5.85	●
3	R05	20	25	60	6	2.85	●	6	R1	18	5	60	6	5.85	●
3	R05	25	25	70	6	2.85	●	6	R1	24	5	70	6	5.85	●
3	R05	30	25	70	6	2.85	●	6	R1	36	5	80	6	5.85	●
4	R01	8	4	60	6	3.85	●	6	R1	54	5	100	6	5.85	●
4	R01	12	4	60	6	3.85	●								
4	R01	16	4	60	6	3.85	●								
4	R01	20	4	70	6	3.85	●								
4	R01	25	4	70	6	3.85	●								
4	R01	30	4	80	6	3.85	●								
4	R01	40	4	90	6	3.85	●								
4	R02	8	4	60	6	3.85	●								
4	R02	12	4	60	6	3.85	●								
4	R02	16	4	60	6	3.85	●								
4	R02	20	4	70	6	3.85	●								
4	R02	25	4	70	6	3.85	●								
4	R02	30	4	80	6	3.85	●								
4	R02	40	4	90	6	3.85	●								
4	R03	8	4	60	6	3.85	●								
4	R03	12	4	60	6	3.85	●								
4	R03	16	4	60	6	3.85	●								
4	R03	20	4	70	6	3.85	●								
4	R03	25	4	70	6	3.85	●								
4	R03	30	4	80	6	3.85	●								
4	R03	40	4	90	6	3.85	●								



Steel < 70HRC

P	H	M	K	N	S
●	●	●	○	○	○

SMG Carbide	AITISIN TX

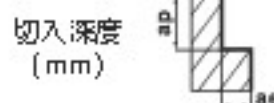
Type of Operation

Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloyed Steel	●
	GR3	高合金鋼 > 30HRC High alloyed Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Side Milling 側面切削

被削材 Work Material		GR1 碳鋼 / GR2 低合金鋼 / GR3 高合金鋼 Carbon Steel / Low alloyed Steel / High alloyed Steel (-24HRC) (-30HRC)				GR.4 硬仕鋼 / GR.5 硬仕鋼 Hardened Steel / Hardened Steel (3B-4BHRC) (3D-3BHRC)				GR.6 硬仕鋼 Hardened Steel (4B-5BHRC)				GR.7 硬仕鋼 Hardened Steel (5B-6BHRC)			
型號 Code No	刃徑-柄徑 Dc×U	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	ap (mm)	ae (mm)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	ap (mm)	ae (mm)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	ap (mm)	ae (mm)	RPM 迴轉速度 (m n-1)	Feed 進給速度 (mm/m n)	ap (mm)	ae (mm)
F690TX	2×1B	6,864	607	0.028	0.315	6,240	552	0.028	0.315	5616	442	0.039	0.315	5,900	90	0.023	0.315
F690TX	2×2D	6,160	563	0.017	0.198	5,600	512	0.017	0.198	5040	410	0.024	0.198	5,300	84	0.014	0.198
F690TX	3×6	13,200	1,375	0.15	0.8	12,000	1,250	0.15	0.8	10800	1000	0.15	0.8	12,740	300	0.15	0.8
F690TX	3×8	12,320	1,329	0.15	0.72	11,200	1,208	0.15	0.72	10080	966	0.15	0.72	12,000	270	0.1	0.72
F690TX	3×12	9,240	1,012	0.105	0.670	8,400	920	0.105	0.670	7560	736	0.105	0.670	9,000	200	0.075	0.670
F690TX	3×1B	8,096	645	0.061	0.630	7,360	768	0.061	0.630	6624	614	0.061	0.630	7,900	173	0.054	0.630
F690TX	3×2D	7,392	774	0.073	0.580	6,720	704	0.073	0.580	6048	563	0.073	0.580	7,100	150	0.044	0.580
F690TX	3×2S	6,600	722	0.065	0.495	6,000	656	0.065	0.495	5400	525	0.065	0.495	6,400	146	0.043	0.495
F690TX	3×3D	6,160	634	0.050	0.380	5,600	576	0.050	0.380	5040	461	0.050	0.380	6,000	118	0.029	0.380
F690TX	4×8	8,600	990	0.1	1.2	8,000	900	0.1	1.2	7200	720	0.1	1.2	7,963	230	0.09	1.3
F690TX	4×12	7,832	950	0.063	1.150	7,120	864	0.063	1.150	6408	691	0.120	1.150	6,400	215	0.065	1.150
F690TX	4×1B	6,952	906	0.065	1.000	6,320	824	0.065	1.000	5688	659	0.100	1.000	5,600	205	0.065	1.000
F690TX	4×2D	6,072	871	0.054	0.900	5,520	792	0.054	0.900	4968	634	0.060	0.900	4,900	198	0.058	0.900
F690TX	4×2S	5,456	792	0.043	0.8	4,960	720	0.043	0.8	4464	576	0.065	0.8	4,500	175	0.043	0.8
F690TX	4×3D	4,840	634	0.027	0.648	4,400	576	0.027	0.648	3960	461	0.04	0.6	3,900	144	0.029	0.648
F690TX	4×4D	4,048	317	0.007	0.315	3,680	288	0.007	0.315	3312	230	0.01	0.315	3,300	72	0.007	0.315
F690TX	5×2D	7,007	935	0.05	0.9	6,370	850	0.05	0.9	5733	680	0.05	0.9	6,370	250	0.06	0.9
F690TX	5×4D	5,606	770	0.01	0.3	5,096	700	0.01	0.3	4586	560	0.01	0.3	5,733	90	0.03	0.3
F690TX	6×12	5,830	946	0.1	1.0	5,300	860	0.1	1.0	4770	688	0.1	1.0	5,308	200	0.1	1.0
F690TX	6×1B	5,170	880	0.05	0.9	4,700	800	0.05	0.9	4230	640	0.05	0.9	4,778	160	0.05	0.9
F690TX	6×24	4,620	770	0.04	0.8	4,200	700	0.04	0.8	3780	560	0.04	0.8	4,247	130	0.04	0.8
F690TX	6×3B	4,070	517	0.02	0.6	3,700	470	0.02	0.6	3330	376	0.02	0.6	3,716	120	0.02	0.6
F690TX	6×54	3,498	275	0.01	0.3	3,180	250	0.01	0.3	2862	200	0.01	0.3	3,165	90	0.01	0.3



1. Please work with good rigidity / high precision facilities and collet chuck.
 2. Please choose proper cutting fluid.
 3. The cutting data is reference value only. Please adjust it according to your real working conditions.
 4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
 5. If vibration occurs during cutting, please reduce cutting parameter.
1. 請使用剛性好、精度高的設備和夾具。
 2. 請選擇適用於工件材料的切削液。
 3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
 4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
 5. 切削加工時如果發生振顫，請降低切削條件。

F693TX 極超微粒鎢鋼塗層深溝環面R角立銑刀

Toric End Mills For Rib Processing With Corner Radius

Code No. F693TX-Dc×R×L1

Code No. F693TX-Dc×R×L1								Code No. F693TX-Dc×R×L1							
Dc	R	Li	Lc	L	d	DI	AITiSiN	Dc	R	Li	Lc	L	d	DI	AITiSiN
0.02	±0.005	mm	mm	mm	h5	mm	F693TX	0.02	±0.005	mm	mm	mm	h5	mm	F693TX
1	R0.1	4	0.8	50	4	0.95	●	3	R0.3	12	2.5	50	6	2.85	●
1	R0.1	6	0.8	50	4	0.95	●	3	R0.3	16	2.5	60	6	2.85	●
1	R0.1	8	0.8	50	4	0.95	●	3	R0.3	20	2.5	60	6	2.85	●
1	R0.1	10	0.8	50	4	0.95	●	3	R0.3	25	2.5	70	6	2.85	●
1	R0.1	12	0.8	50	4	0.95	●	3	R0.3	30	2.5	70	6	2.85	●
1	R0.2	4	0.8	50	4	0.95	●	3	R0.5	8	2.5	50	6	2.85	●
1	R0.2	6	0.8	50	4	0.95	●	3	R0.5	12	2.5	50	6	2.85	●
1	R0.2	8	0.8	50	4	0.95	●	3	R0.5	16	2.5	60	6	2.85	●
1	R0.2	10	0.8	50	4	0.95	●	3	R0.5	20	2.5	60	6	2.85	●
1	R0.2	12	0.8	50	4	0.95	●	3	R0.5	25	2.5	70	6	2.85	●
1	R0.3	4	0.8	50	4	0.95	●	3	R0.5	30	2.5	70	6	2.85	●
1	R0.3	6	0.8	50	4	0.95	●	4	R0.1	12	4	60	6	3.85	●
1	R0.3	8	0.8	50	4	0.95	●	4	R0.1	16	4	60	6	3.85	●
1	R0.3	10	0.8	50	4	0.95	●	4	R0.1	20	4	70	6	3.85	●
1	R0.3	12	0.8	50	4	0.95	●	4	R0.1	30	4	80	6	3.85	●
1.5	R0.1	4	1.2	50	4	1.45	●	4	R0.1	40	4	90	6	3.85	●
1.5	R0.1	6	1.2	50	4	1.45	●	4	R0.2	12	4	60	6	3.85	●
1.5	R0.1	8	1.2	50	4	1.45	●	4	R0.2	16	4	60	6	3.85	●
1.5	R0.1	10	1.2	50	4	1.45	●	4	R0.2	20	4	70	6	3.85	●
1.5	R0.1	12	1.2	50	4	1.45	●	4	R0.2	30	4	80	6	3.85	●
1.5	R0.1	16	1.2	50	4	1.45	●	4	R0.2	40	4	90	6	3.85	●
1.5	R0.2	4	1.2	50	4	1.45	●	4	R0.3	12	4	60	6	3.85	●
1.5	R0.2	6	1.2	50	4	1.45	●	4	R0.3	16	4	60	6	3.85	●
1.5	R0.2	8	1.2	50	4	1.45	●	4	R0.3	20	4	70	6	3.85	●
1.5	R0.2	12	1.2	50	4	1.45	●	4	R0.3	30	4	80	6	3.85	●
1.5	R0.2	16	1.2	50	4	1.45	●	4	R0.3	40	4	90	6	3.85	●
1.5	R0.3	4	1.2	50	4	1.45	●	4	R0.5	12	4	60	6	3.85	●
1.5	R0.3	6	1.2	50	4	1.45	●	4	R0.5	16	4	60	6	3.85	●
1.5	R0.3	8	1.2	50	4	1.45	●	4	R0.5	20	4	70	6	3.85	●
1.5	R0.3	12	1.2	50	4	1.45	●	4	R0.5	30	4	80	6	3.85	●
1.5	R0.3	16	1.2	50	4	1.45	●	4	R0.5	40	4	90	6	3.85	●
2	R0.1	6	1.6	50	4	1.95	●	4	R1	12	4	60	6	3.85	●
2	R0.1	8	1.6	50	4	1.95	●	4	R1	16	4	60	6	3.85	●
2	R0.1	12	1.6	50	4	1.95	●	4	R1	20	4	70	6	3.85	●
2	R0.1	16	1.6	50	4	1.95	●	4	R1	30	4	80	6	3.85	●
2	R0.1	20	1.6	60	4	1.95	●	4	R1	40	4	90	6	3.85	●
2	R0.2	6	1.6	50	4	1.95	●	5	R0.2	20	5	70	6	4.85	●
2	R0.2	8	1.6	50	4	1.95	●	5	R0.2	40	5	90	6	4.85	●
2	R0.2	12	1.6	50	4	1.95	●	5	R0.3	20	5	70	6	4.85	●
2	R0.2	16	1.6	50	4	1.95	●	5	R0.3	40	5	90	6	4.85	●
2	R0.2	20	1.6	60	4	1.95	●	5	R0.5	20	5	70	6	4.85	●
2	R0.3	6	1.6	50	4	1.95	●	5	R0.5	40	5	90	6	4.85	●
2	R0.3	8	1.6	50	4	1.95	●	5	R1	20	5	70	6	4.85	●
2	R0.3	12	1.6	50	4	1.95	●	5	R1	40	5	90	6	4.85	●
2	R0.3	16	1.6	50	4	1.95	●	6	R0.2	36	6	80	6	5.85	●
2	R0.3	20	1.6	60	4	1.95	●	6	R0.2	54	6	100	6	5.85	●
2	R0.5	6	1.6	50	4	1.95	●	6	R0.3	36	6	80	6	5.85	●
2	R0.5	8	1.6	50	4	1.95	●	6	R0.3	54	6	100	6	5.85	●
2	R0.5	12	1.6	50	4	1.95	●	6	R0.5	36	6	80	6	5.85	●
2	R0.5	16	1.6	50	4	1.95	●	6	R0.5	54	6	100	6	5.85	●
2	R0.5	20	1.6	60	4	1.95	●	6	R1	36	6	80	6	5.85	●
3	R0.1	8	2.5	50	6	2.85	●	6	R1	54	6	100	6	5.85	●
3	R0.1	12	2.5	50	6	2.85	●								
3	R0.1	16	2.5	60	6	2.85	●								
3	R0.1	20	2.5	60	6	2.85	●								
3	R0.1	25	2.5	70	6	2.85	●								
3	R0.1	30	2.5	70	6	2.85	●								
3	R0.2	8	2.5	50	6	2.85	●								
3	R0.2	12	2.5	50	6	2.85	●								
3	R0.2	16	2.5	60	6	2.85	●								
3	R0.2	20	2.5	60	6	2.85	●								
3	R0.2	25	2.5	70	6	2.85	●								
3	R0.2	30	2.5	70	6	2.85	●								
3	R0.3	8	2.5	50	6	2.85	●								



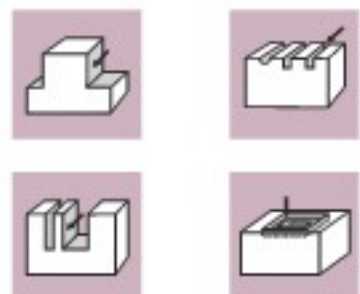
Hardened Steel 40-70HRC

P	H	M	K	N	S
	●				

SMG Carbide AITISIN TX



Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	
	GR2	低合金鋼 < 24HRC Low alloy Steel	
	GR3	高合金鋼 > 30HRC High alloy Steel	
H	GR4	硬化鋼 30-38HRC Hardened Steel	
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	●
M	GR8	不銹鋼 Stainless Steel	
K	GR9	鑄鐵 Cast Iron	
N	GR10	鋁 Aluminum	
	GR11	銅 Copper	
	GR12	塑膠 Plastics	
	GR13	複合材料 FRP CFRP Composite Material	
S	GR14	石墨 Graphite	
	GR15	鈦合金 Titanium	
	GR16	鎳 Nickel	
	GR17	耐熱鋼 Heat-resistant Steel	

Side Milling 側面切削

液劑材 Work Material		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)				GR.6 硬化鋼 Hardened Steel (4B-56HRC)				GR.7 硬化鋼 Hardened Steel (56-6BHRC)			
型號 Code No.	刃徑×刃長 D×L	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/min)	ap (mm)	ae (mm)	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/min)	ap (mm)	ae (mm)	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/min)	ap (mm)	ae (mm)
F693TX	1×4	13 800	1 310	0 039	0 270	12 000	1 070	0 031	0 243	8 500	640	0 015	0 243
F693TX	1×6	11 300	1 040	0 021	0 216	9 800	860	0 016	0 209	7 000	510	0 01	0 108
F693TX	1×8	9 800	780	0 02	0 189	8 500	720	0 012	0 16	6 100	420	0 008	0 094
F693TX	1×10	8 800	510	0 011	0 126	7 600	510	0 009	0 1	5 400	350	0 006	0 05
F693TX	1×12	8 000	450	0 01	0 1	7 000	450	0 005	0 05	5 000	300	0 003	0 03
F693TX	1.5×4	13 200	1 360	0 054	0 054	13 200	1 280	0 042	0 495	10 100	700	0 033	0 292
F693TX	1.5×6	11 600	1 280	0 041	0 486	10 600	1 210	0 038	0 445	8 100	460	0 025	0 202
F693TX	1.5×8	10 200	1 080	0 037	0 378	9 300	1 020	0 031	0 346	7 100	390	0 015	0 157
F693TX	1.5×10	9 500	9 000	0 032	0 35	8 800	800	0 03	0 32	6 500	350	0 013	0 15
F693TX	1.5×12	8 500	830	0 029	0 324	7 800	780	0 026	0 297	5 900	300	0 01	0 162
F693TX	1.5×16	7 400	670	0 018	0 216	6 800	600	0 014	0 198	5 100	230	0 005	0 108
F693TX	2×6	12 800	1 280	0 064	0 648	12 000	1 200	0 06	0 729	9 700	700	0 028	0 324
F693TX	2×8	11 200	1 160	0 058	0 612	10 400	1 100	0 055	0 648	8 400	600	0 026	0 288
F693TX	2×12	9 100	1 030	0 046	0 405	8 500	960	0 044	0 405	6 900	420	0 018	0 180
F693TX	2×16	7 800	860	0 042	0 283	7 300	700	0 039	0 315	5 900	270	0 016	0 157
F693TX	2×20	7 000	800	0 025	0 198	6 600	650	0 024	0 198	5 300	290	0 007	0 116
F693TX	3×8	12 500	2 530	0 105	0 7	11 800	2 200	0 07	0 7	9 900	810	0 047	0 50
F693TX	3×12	10 500	2 020	0 084	0 670	10 000	1 950	0 052	0 67	8 100	660	0 037	0 5
F693TX	3×16	9 200	1 680	0 064	0 634	8 800	1 600	0 04	0 63	7 100	570	0 027	0 378
F693TX	3×20	8 400	1 540	0 058	0 580	7 900	1 490	0 036	0 58	6 300	550	0 022	0 319
F693TX	3×25	7 500	1 350	0 05	0 4	7 000	1 100	0 025	0 4	6 000	450	0 01	0 2
F693TX	3×30	7 000	1 260	0 04	0 38	6 500	1 230	0 015	0 38	5 400	390	0 007	0 144
F693TX	4×12	8 500	1 400	0 1	1 0	7 100	1 350	0 078	1 08	6 000	760	0 051	0 76
F693TX	4×16	7 900	1 370	0 091	1 0	6 600	1 330	0 071	1 0	5 600	740	0 043	0 7
F693TX	4×20	6 200	1 200	0 06	0 8	5 200	1 120	0 047	0 8	4 500	630	0 022	0 56
F693TX	4×30	5 500	960	0 037	0 648	4 600	920	0 029	0 648	3 900	600	0 011	0 388
F693TX	4×40	4 125	720	0 027	0 486	3 450	690	0 021	0 486	2 925	450	0 008	0 291
F693TX	5×20	5 800	1 730	0 18	2 358	3 500	1 000	0 1	1 31	3 000	760	0 07	1 31
F693TX	5×40	3 000	800	0 1	1 35	1 700	480	0 1	0 75	1 400	360	0 04	0 5
F693TX	6×36	4 500	1 290	0 158	2 268	2 600	740	0 158	1 260	2 200	580	0 066	1 26
F693TX	6×54	2 000	510	0 05	0 9	1 200	330	0 04	0 5	1 000	240	0 02	0 3



1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

F695TX 極超微粒鎢鋼塗層深溝圓頭立銑刀

Ball Nose End Mills For Rib Processing

Code No. F695TX-R×L1

R	LI	Lc	L	d	DI	AITiSiN	R	LI	Lc	L	d	DI	AITiSiN
±0.005	mm	mm	mm	h5	mm	F695TX	±0.005	mm	mm	mm	h5	mm	F695TX
0.1R	0.5	0.16	50	4	0.18	●	0.75R	12	1.2	50	4	1.45	●
0.1R	1	0.16	50	4	0.18	●	0.75R	16	1.2	50	4	1.45	●
0.1R	1.5	0.16	50	4	0.18	●	0.75R	20	1.2	60	4	1.45	●
0.1R	2	0.16	50	4	0.18	●	0.75R	25	1.2	60	4	1.45	●
0.1R	3	0.16	50	4	0.18	●	0.75R	30	1.2	70	4	1.45	●
0.15R	1	0.24	50	4	0.27	●	1R	3	1.6	50	4	1.45	●
0.15R	1.5	0.24	50	4	0.27	●	1R	4	1.6	50	4	1.95	●
0.15R	2	0.24	50	4	0.27	●	1R	6	1.6	50	4	1.95	●
0.15R	3	0.24	50	4	0.27	●	1R	8	1.6	50	4	1.95	●
0.2R	1	0.3	50	4	0.37	●	1R	10	1.6	50	4	1.95	●
0.2R	1.5	0.3	50	4	0.37	●	1R	12	1.6	50	4	1.95	●
0.2R	2	0.3	50	4	0.37	●	1R	16	1.6	50	4	1.95	●
0.2R	3	0.3	50	4	0.37	●	1R	20	1.6	60	4	1.95	●
0.2R	4	0.3	50	4	0.37	●	1R	25	1.6	60	4	1.95	●
0.2R	5	0.3	50	4	0.37	●	1R	30	1.6	70	4	1.95	●
0.25R	1	0.4	50	4	0.45	●	1R	35	1.6	75	4	1.95	●
0.25R	2	0.4	50	4	0.45	●	1.5R	6	2.4	50	6	2.85	●
0.25R	3	0.4	50	4	0.45	●	1.5R	8	2.4	50	6	2.85	●
0.25R	4	0.4	50	4	0.45	●	1.5R	10	2.4	50	6	2.85	●
0.25R	5	0.4	50	4	0.45	●	1.5R	12	2.4	50	6	2.85	●
0.25R	6	0.4	50	4	0.45	●	1.5R	16	2.4	60	6	2.85	●
0.25R	8	0.4	50	4	0.45	●	1.5R	20	2.4	60	6	2.85	●
0.25R	10	0.4	50	4	0.45	●	1.5R	25	2.4	70	6	2.85	●
0.3R	1	0.5	50	4	0.55	●	1.5R	30	2.4	70	6	2.85	●
0.3R	2	0.5	50	4	0.55	●	1.5R	35	2.4	80	6	2.85	●
0.3R	3	0.5	50	4	0.55	●	1.5R	40	2.4	80	6	2.85	●
0.3R	4	0.5	50	4	0.55	●	2R	8	3.2	60	6	3.85	●
0.3R	5	0.5	50	4	0.55	●	2R	10	3.2	60	6	3.85	●
0.3R	6	0.5	50	4	0.55	●	2R	12	3.2	60	6	3.85	●
0.3R	8	0.5	50	4	0.55	●	2R	16	3.2	60	6	3.85	●
0.3R	10	0.5	50	4	0.55	●	2R	20	3.2	70	6	3.85	●
0.3R	12	0.5	50	4	0.55	●	2R	25	3.2	70	6	3.85	●
0.4R	2	0.6	50	4	0.75	●	2R	30	3.2	80	6	3.85	●
0.4R	3	0.6	50	4	0.75	●	2R	35	3.2	80	6	3.85	●
0.4R	4	0.6	50	4	0.75	●	2R	40	3.2	90	6	3.85	●
0.4R	5	0.6	50	4	0.75	●	2.5R	10	4	60	6	4.85	●
0.4R	6	0.6	50	4	0.75	●	2.5R	20	4	70	6	4.85	●
0.4R	8	0.6	50	4	0.75	●	2.5R	30	4	80	6	4.85	●
0.4R	10	0.6	50	4	0.75	●	2.5R	40	4	90	6	4.85	●
0.4R	12	0.6	50	4	0.75	●	3R	12	4.8	60	6	5.85	●
0.5R	2	0.8	50	4	0.95	●	3R	20	4.8	70	6	5.85	●
0.5R	3	0.8	50	4	0.95	●	3R	30	4.8	80	6	5.85	●
0.5R	4	0.8	50	4	0.95	●	3R	40	4.8	90	6	5.85	●
0.5R	5	0.8	50	4	0.95	●	3R	50	4.8	100	6	5.85	●
0.5R	6	0.8	50	4	0.95	●							
0.5R	8	0.8	50	4	0.95	●							
0.5R	10	0.8	50	4	0.95	●							
0.5R	12	0.8	50	4	0.95	●							
0.5R	16	0.8	50	4	0.95	●							
0.5R	20	0.8	60	4	0.95	●							
0.5R	25	0.8	60	4	0.95	●							
0.6R	2	1	50	4	1.15	●							
0.6R	4	1	50	4	1.15	●							
0.6R	6	1	50	4	1.15	●							
0.6R	8	1	50	4	1.15	●							
0.6R	10	1	50	4	1.15	●							
0.6R	12	1	50	4	1.15	●							
0.6R	16	1	50	4	1.15	●							
0.75R	2	1.2	50	4	1.15	●							
0.75R	4	1.2	50	4	1.45	●							
0.75R	6	1.2	50	4	1.45	●							
0.75R	8	1.2	50	4	1.45	●							
0.75R	10	1.2	50	4	1.45	●							
0.75R	12	1.2	50	4	1.45	●							



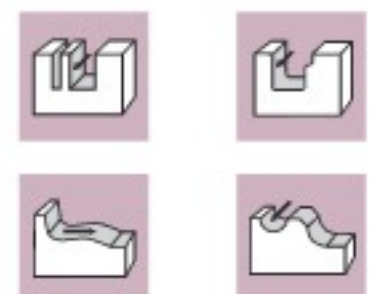
Steel < 62HRC

P	H	M	K	N	S
●	●	●	○	○	○

SMG Carbide	AITISIN TX
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Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 > 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

General processing 普通加工

型號 Code No.	被削材 Work Material	GR1 高碳鋼/GR2 合金鋼/GR3 高合金鋼 Carbon Steel / low alloy Steel / H alloy Steel L-24HRC / L-30HRC				GA.4 硬化鋼 / GA.5 硬化鋼 Hardened Steel / Hardened Steel (30-36HRC) / (36-48HRC)				GA.6 硬化鋼 Hardened Steel (48-56HRC)				GA.7 硬化鋼 Hardened Steel (56-68HRC)			
		RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/m ³)	ap [mm]	ae [mm]	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/m ³)	ap [mm]	ae [mm]	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/m ³)	ap [mm]	ae [mm]	RPM 迴轉速度 (min ⁻¹)	Feed 進給速度 (mm/m ³)	ap [mm]	ae [mm]
F695TX-R	0.1R×0.5	50,000	325	0.01	0.01	45,500	273	0.01	0.01	37,800	189	0.01	0.01	35,700	147	0.01	0.01
F695TX-R	0.1R×1.5	45,900	325	0.006	0.006	45,500	273	0.006	0.006	37,800	189	0.006	0.006	35,700	147	0.006	0.006
F695TX-R	0.1R×2	45,900	269	0.006	0.006	45,500	273	0.006	0.006	37,800	189	0.006	0.006	35,700	147	0.006	0.006
F695TX-R	0.1R×3	44,500	212	0.003	0.003	40,500	173	0.003	0.003	30,240	121	0.003	0.003	33,500	110	0.003	0.003
F695TX-R	0.15R×1	43,200	432	0.01	0.01	36,000	360	0.01	0.01	30,750	278	0.01	0.01	30,750	233	0.01	0.01
F695TX-R	0.15R×1.5	39,282	400	0.01	0.01	34,000	3,000	0.01	0.01	29,000	250	0.01	0.01	29,000	220	0.01	0.01
F695TX-R	0.15R×2	36,700	333	0.01	0.01	32,250	278	0.006	0.006	27,750	203	0.006	0.006	27,750	173	0.006	0.006
F695TX-R	0.15R×3	34,200	286	0.005	0.005	28,500	240	0.007	0.006	24,000	180	0.006	0.006	24,000	150	0.004	0.006
F695TX-R	0.2R×1	43,200	594	0.03	0.03	36,000	495	0.018	0.024	27,750	338	0.015	0.024	27,750	285	0.013	0.024
F695TX-R	0.2R×1.5	43,200	560	0.02	0.02	36,000	460	0.018	0.024	27,750	320	0.015	0.024	27,750	260	0.012	0.024
F695TX-R	0.2R×2	43,200	531	0.016	0.016	36,000	443	0.018	0.024	27,750	300	0.015	0.024	27,750	255	0.012	0.024
F695TX-R	0.2R×3	36,900	378	0.01	0.01	30,750	315	0.012	0.012	23,250	210	0.011	0.012	23,250	180	0.009	0.012
F695TX-R	0.2R×4	34,500	360	0.01	0.01	2,850	300	0.009	0.012	22,500	203	0.009	0.012	22,500	173	0.007	0.012
F695TX-R	0.2R×5	26,100	297	0.01	0.01	21,750	248	0.008	0.012	19,500	195	0.007	0.012	19,500	158	0.005	0.012
F695TX-R	0.25R×1/0.25R×2/0.25R×3	34,200	522	0.03	0.045	33,000	720	0.03	0.04	26,000	400	0.02	0.04	26,000	230	0.012	0.03
F695TX-R	0.25R×4	34,200	522	0.02	0.04	28,500	435	0.017	0.024	23,250	300	0.014	0.024	23,250	185	0.009	0.012
F695TX-R	0.25R×5	29,700	432	0.02	0.03	24,750	360	0.012	0.012	22,500	293	0.009	0.012	22,500	150	0.008	0.012
F695TX-R	0.25R×6	25,200	360	0.01	0.03	21,000	300	0.008	0.012	20,250	248	0.005	0.012	20,250	150	0.005	0.010
F695TX-R	0.25R×8	25,200	360	0.01	0.02	21,000	300	0.008	0.012	20,250	248	0.005	0.012	20,250	150	0.005	0.010
F695TX-R	0.25R×10	23,500	300	0.006	0.01	18,000	270	0.006	0.01	20,000	210	0.005	0.01	20,000	130	0.005	0.01
F695TX-R	0.3R×1/0.3R×2/0.3R×3	34,500	693	0.04	0.07	30,000	630	0.03	0.1	24,000	420	0.025	0.1	24,000	370	0.025	0.1
F695TX-R	0.3R×4/0.3R×5/0.3R×6	31,500	414	0.02	0.04	26,250	450	0.020	0.072	19,500	285	0.016	0.072	19,500	240	0.013	0.072
F695TX-R	0.3R×8	21,600	360	0.02	0.04	18,000	300	0.009	0.036	17,250	240	0.008	0.036	17,250	203	0.005	0.036
F695TX-R	0.3R×10	20,500	330	0.008	0.03	16,500	300	0.006	0.03	15,000	200	0.005	0.03	15,000	170	0.005	0.03
F695TX-R	0.3R×12	20,000	300	0.005	0.03	15,000	250	0.006	0.03	13,500	170	0.005	0.03	13,500	150	0.005	0.03
F695TX-R	0.5R×2/0.5R×3/0.5R×4	29,500	710	0.07	0.18	25,500	630	0.06	0.2	16,800	380	0.05	0.2	15,500	370	0.01	0.18
F695TX-R	0.5R×5/0.5R×6/0.5R×8	28,800	693	0.05	0.18	24,000	5,775	0.057	0.2	16,500	360	0.045	0.2	14,025	360	0.009	0.180
F695TX-R	0.5R×10	15,840	477	0.03	0.1	13,200	396	0.024	0.060	12,375	315	0.018	0.060	11,550	225	0.009	0.060
F695TX-R	0.5R×12	15,840	477	0.02	0.08	13,200	396	0.024	0.060	12,375	315	0.018	0.060	11,550	225	0.009	0.060
F695TX-R	0.5R×16	13,860	396	0.02	0.05	11,550	330	0.018	0.060	10,725	270	0.014	0.060	9,075	180	0.005	0.036
F695TX-R	0.5R×20	12,870	324	0.02	0.04	10,725	270	0.013	0.036	9,900	225	0.009	0.036	7,425	135	0.005	0.024
F695TX-R	0.5R×25	11,500	300	0.01	0.035	10,000	240	0.01	0.03	8,800	200	0.009	0.03	7,400	110	0.005	0.02
F695TX-R	0.75R×2/0.75R×4/0.75R×6	19,500	1,000	0.15	0.2	19,500	900	0.15	0.2	12,000	550	0.12	0.2	11,000	500	0.09	0.2
F695TX-R	0.75R×8/0.75R×10	14,670	630	0.1	0.155	12,225	525	0.084	0.160	9,075	338	0.069	0.160	9,075	300	0.057	0.180
F695TX-R	0.75R×12/0.75R×16	14,670	630	0.06	0.1	12,225	525	0.084	0.160	9,075	338	0.069	0.160	9,075	300	0.057	0.180
F695TX-R	0.75R×20	11,160	432	0.04	0.05	9,300	360	0.016	0.060	8,700	293	0.012	0.060	8,700	270	0.010	0.060
F695TX-R	0.75R×25	10,000	390	0.03	0.03	9,000	300	0.03	0.03	8,500	250	0.01	0.03	8,200	250	0.01	0.03
F695TX-R	0.75R×30	9,000	380	0.02	0.02	8,500	300	0.02	0.02	8,000	240	0.01	0.01	7,500	220	0.01	0.01
F695TX-R	1R×3/1R×4/1R×6/1R×8	17,000	1,200	0.2	0.2	14,500	1,000	0.2	0.2	10,000	650	0.15	0.2	10,000	650	0.08	0.2
F695TX-R	1R×10/1R×12/1R×16	16,650	1,008	0.05	0.15	13,875	840	0.05	0.15	9,900	653	0.05	0.15	9,900	533	0.03	0.15
F695TX-R	1R×20	13,230	522	0.05	0.05	11,025	435	0.05	0.05	8,700	435	0.05	0.05	8,700	360	0.05	0.05
F695TX-R	1R×30	9,540	405	0.03	0.03	7,950	338	0.03	0.03	7,650	338	0.03	0.03	7,650	270	0.03	0.03
F695TX-R	1R×40	9,100	300	0.02	0.02	7,200	260	0.02	0.02	7,200	260	0.01	0.01	6,800	230	0.01	0.01
F695TX-R	1.5R×6/1.5R×8/1.5R×10	11,610	1,512	0.15	0.2	9,675	1,260	0.1	0.2	6,900	975	0.15	0.2	4,800	533	0.15	0.2
F695TX-R	1.5R×12/1.5R×16	11,610	1,359	0.1	0.2	9,675	1,133	0.1	0.2	6,900	878	0.15	0.2	4,800	488	0.15	0.2
F695TX-R	1.5R×20	9,045	1,067	0.1	0.15	7,538	889	0.13	0.15	6,075	780	0.13	0.15	4,350	443	0.09	0.15
F695TX-R	1.5R×30	7,920	702	0.07	0.07	6,600	585	0.07	0.07	6,075	585	0.04	0.07	4,350	315	0.04	0.07
F695TX-R	1.5R×40	6,350	450	0.03	0.03	6,350	450	0.03	0.03	5,400	450	0.03	0.03	3,600	250	0.03	0.03
F695TX-R	2R×8/2R×10/2R×12	8,730	1,404	0.15	0.2	7,275	1,170	0.1	0.2	5,100	908	0.2	0.2	5,100	735	0.15	0.2
F695TX-R	2R×16/2R×20	8,730	1,287	0.13	0.2	7,275	1,073	0.1	0.2	5,100	833	0.2	0.2	5,100	660	0.15	0.2
F695TX-R	2R×30	7,560	1,125	0.1	0.15	6,300	938	0.1	0.16	4,500	735	0.15	0.15	4,500	585	0.15	0.15
F695TX-R	2R×40	5,940	855	0.08	0.1	4,950	713	0.07	0.15	4,500	735	0.1	0.15	4,500	585	0.1	0.15
F695TX-R	2R×50	5,310	423	0.05	0.1	4,425	353	0.05	0.1	4,200	368	0.05	0.1	4,200	293	0.050	0.05
F695TX-R	2.5R×10/2.5R×20	7644	764	0.15	0.3	7262	726	0.15	0.3	6899	690	0.15	0.2	6554	621	0.13	0.2
F695TX-R	2.5R×30	5733	570	0.1	0.2	5446	542	0.1	0.2	5174	514	0.1	0.15	4657	489	0.1	0.15
F695TX-R	2.5R×40	5415	550	0.08	0.15	5144	523	0.08	0.15	4887	496	0.05	0.15	4396	472	0.05	0.15
F695TX-R	2.5R×50	5096	500	0.08	0.1	4841	475	0.08	0.1	4599	451	0.05	0.1	4139	429	0.05	0.1
F695TX-R	3R×12/3R×20	5839	640	0.2	0.3	5547	608	0.2	0.3	5270	578	0.2	0.15	4743	549	0.2	0.1
F695TX-R	3R×30	4778	590	0.13	0.2	4539	561	0.13	0.2	4312	532	0.1	0.1	3881	506	0.1	0.2
F695TX-R	3R×40	4512	550	0.13	0.2	4286	523	0.13	0.2	4072	496	0.1	0.1	3665	472	0.1	0.2
F695TX-R	3R×50	4247	500	0.1	0.15	4034	475	0.1	0.15	3833	451	0.1	0.1	3449	429	0.05	0.15



F69ITX 極超微粒鎢鋼塗層深溝立銑刀

End Mills For Rib Processing

Code No. F69ITX-Dc×L1

Dc 0 -0.02	L1 mm	Lc mm	L mm	d h5	D1 mm	AITiSiN F69ITX
0.5	2	0.7	50	4	0.45	●
0.5	4	0.7	50	4	0.45	●
0.5	6	0.7	50	4	0.45	●
0.6	2	0.9	50	4	0.55	●
0.6	4	0.9	50	4	0.55	●
0.6	6	0.9	50	4	0.55	●
0.7	2	1	50	4	0.65	●
0.7	4	1	50	4	0.65	●
0.7	6	1	50	4	0.65	●
0.8	4	1.2	50	4	0.75	●
0.8	6	1.2	50	4	0.75	●
0.8	8	1.2	50	4	0.75	●
1	6	1.5	50	4	0.95	●
1	8	1.5	50	4	0.95	●
1	10	1.5	50	4	0.95	●
1	12	1.5	50	4	0.95	●
1.2	6	1.8	50	4	1.15	●
1.2	10	1.8	50	4	1.15	●
1.5	6	2.3	50	4	1.45	●
1.5	8	2.3	50	4	1.45	●
1.5	10	2.3	50	4	1.45	●
1.5	12	2.3	50	4	1.45	●
1.5	14	2.3	50	4	1.45	●
1.5	16	2.3	50	4	1.45	●
1.5	20	2.3	60	4	1.45	●
2	6	3	50	4	1.95	●
2	8	3	50	4	1.95	●
2	10	3	50	4	1.95	●
2	12	3	50	4	1.95	●
2	14	3	50	4	1.95	●
2	16	3	50	4	1.95	●
2	20	3	60	4	1.95	●
2.5	8	3.7	50	4	2.4	●
2.5	10	3.7	50	4	2.4	●
2.5	12	3.7	50	4	2.4	●
2.5	16	3.7	60	4	2.4	●
3	12	4.5	50	6	2.85	●
3	14	4.5	60	6	2.85	●
3	16	4.5	60	6	2.85	●
3	18	4.5	60	6	2.85	●
3	20	4.5	60	6	2.85	●
3	25	4.5	70	6	2.85	●



尖角
Sharp Corner edge
A-1

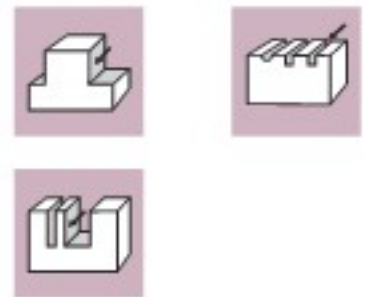
Steel < 62HRC

P	H	M	K	N	S
●	●	●	○	○	○

SMG Carbide AITISIN TX



Type of Operation



Work Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	●
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	○
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
S	GR14	石墨 Graphite	○
	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

Slotting 溝切削







被削材 Work Material		GR.1 碳鋼 Carbon Steel			GR.2 低合金鋼 Low-alloyed Steel (-24HRC)			GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)			GR.4 硬化鋼 Hardened Steel (30-38HRC)			GR.5 硬化鋼 Hardened Steel (38-48HRC)			GR.6 硬化鋼 Hardened Steel (48-56HRC)			GR.7 硬化鋼 Hardened Steel (56-66HRC)		
型號 Code No	刃徑 Dc×L	RPM 轉速 [n·s]	Feed 進給量 [mm/n·s]	ap [mm]	RPM 轉速 [n·s]	Feed 進給量 [mm/n·s]	ap [mm]	RPM 轉速 [n·s]	Feed 進給量 [mm/n·s]	ap [mm]	RPM 轉速 [n·s]	Feed 進給量 [mm/n·s]	ap [mm]	RPM 轉速 [n·s]	Feed 進給量 [mm/n·s]	ap [mm]	RPM 轉速 [n·s]	Feed 進給量 [mm/n·s]	ap [mm]	RPM 轉速 [n·s]	Feed 進給量 [mm/n·s]	ap [mm]
F691TX	0.5×2	45,440	720	0.015	45,440	720	0.015	43,200	608	0.014	32,480	408	0.011	32,480	408	0.011	26,000	280	0.008	14,000	20	0.008
F691TX	0.5×4	32,480	464	0.008	32,480	464	0.008	28,800	368	0.007	23,760	264	0.006	23,760	264	0.006	18,960	184	0.004	14,000	18	0.004
F691TX	0.5×6	26,720	336	0.004	26,720	336	0.004	22,800	256	0.004	19,760	200	0.003	19,760	200	0.003	15,760	136	0.002	14,000	16	0.002
F691TX	0.6×2	50,880	992	0.023	50,880	992	0.023	42,640	744	0.02	31,280	480	0.016	31,280	480	0.016	25,040	328	0.011	12,000	23	0.011
F691TX	0.6×4	33,040	592	0.012	33,040	592	0.012	27,760	440	0.011	22,320	312	0.009	22,320	312	0.009	17,840	216	0.006	12,000	21	0.006
F691TX	0.6×6	25,680	416	0.007	25,680	416	0.007	21,600	312	0.006	18,400	232	0.005	18,400	232	0.005	14,720	160	0.003	12,000	19	0.003
F691TX	0.7×2	31,120	700	0.02	31,120	700	0.02	26,160	510	0.02	20,640	360	0.02	20,640	360	0.02	16,480	240	0.01	10,000	20	0.01
F691TX	0.7×4	31,120	672	0.017	31,120	672	0.017	26,160	504	0.015	20,640	352	0.012	20,640	352	0.012	16,480	232	0.009	10,000	22	0.009
F691TX	0.7×6	24,160	480	0.01	24,160	480	0.01	20,320	360	0.009	16,960	264	0.007	16,960	264	0.007	13,520	184	0.005	10,000	20	0.005
F691TX	0.8×4	29,680	744	0.027	29,680	744	0.027	24,880	560	0.024	19,280	384	0.019	19,280	384	0.019	15,440	264	0.013	8,000	20	0.013
F691TX	0.8×6	23,040	544	0.015	23,040	544	0.015	19,360	408	0.013	15,840	296	0.01	15,840	296	0.01	12,640	200	0.007	8,000	18	0.007
F691TX	0.8×8	19,280	416	0.009	19,280	416	0.009	16,240	312	0.008	13,760	240	0.006	13,760	240	0.006	11,040	160	0.004	8,000	16	0.004
F691TX	1×6	21,200	680	0.023	21,200	680	0.023	17,680	504	0.021	14,080	352	0.016	14,080	352	0.016	11,280	248	0.012	6,500	14	0.012
F691TX	1×8	17,680	528	0.014	17,680	528	0.014	14,880	392	0.013	12,240	288	0.01	12,240	288	0.01	9,840	200	0.01	6,500	14	0.01
F691TX	1×10	15,360	424	0.01	15,360	424	0.01	12,960	320	0.009	11,040	240	0.007	11,040	240	0.007	8,800	168	0.005	6,500	12	0.005
F691TX	1×12	13,760	352	0.007	13,760	352	0.007	11,600	264	0.006	10,080	200	0.005	10,080	200	0.005	8,080	136	0.003	6,500	11	0.003
F691TX	1.2×6	19,840	776	0.037	19,840	776	0.037	16,560	576	0.034	12,880	392	0.026	12,880	392	0.026	10,240	272	0.019	9,600	22	0.019
F691TX	1.2×10	14,400	496	0.016	14,400	496	0.016	12,080	376	0.014	9,920	272	0.011	9,920	272	0.011	7,920	184	0.008	/	/	0.008
F691TX	1.5×6	18,240	896	0.057	18,240	896	0.057	15,200	672	0.051	11,520	440	0.04	11,520	440	0.04	9,200	304	0.028	9,600	60	0.028
F691TX	1.5×8	15,200	720	0.041	15,200	720	0.041	12,720	536	0.037	10,000	368	0.029	10,000	368	0.029	8,000	256	0.02	9,600	25	0.02
F691TX	1.5×10	13,280	600	0.03	13,280	600	0.03	11,040	448	0.027	8,960	312	0.021	8,960	312	0.021	7,120	216	0.015	9,600	13	0.015
F691TX	1.5×12	11,840	504	0.023	11,840	504	0.023	9,920	376	0.02	8,160	272	0.016	8,160	272	0.016	6,560	192	0.011	/	/	0.011
F691TX	1.5×14	10,720	440	0.017	10,720	440	0.017	8,960	328	0.016	7,600	240	0.012	7,600	240	0.012	6,080	168	0.009	/	/	0.009
F691TX	1.5×16	9,840	384	0.013	9,840	384	0.013	8,240	288	0.012	7,120	216	0.009	7,120	216	0.009	5,680	152	0.007	/	/	0.007
F691TX	1.5×20	8,560	296	0.009	8,560	296	0.009	7,200	224	0.008	6,320	160	0.006	6,320	160	0.006	5,040	120	0.004	/	/	0.004
F691TX	2×6	16,240	1080	0.064	16,240	1080	0.064	13,920	824	0.058	10,000	520	0.045	10,000	520	0.045	8,000	360	0.032	9,600	211	0.032
F691TX	2×8	13,600	872	0.054	13,600	872	0.054	11,600	664	0.048	8,640	432	0.038	8,640	432	0.038	6,960	304	0.027	9,600	89	0.027
F691TX	2×10	11,840	736	0.045	11,840	736	0.045	10,080	560	0.04	7,760	376	0.031	7,760	376	0.031	6,240	264	0.022	9,600	45	0.022
F691TX	2×12	10,560	632	0.037	10,560	632	0.037	8,960	480	0.034	7,120	336	0.026	7,120	336	0.026	5,680	232	0.019	9,600	56	0.019
F691TX	2×14	9,600	560	0.031	9,600	560	0.031	8,160	424	0.028	6,560	296	0.022	6,560	296	0.022	5,280	208	0.016	9,600	16	0.016
F691TX	2×16	8,880	496	0.026	8,880	496	0.026	7,520	376	0.024	6,160	272	0.018	6,160	272	0.018	4,880	184	0.013	9,600	11	0.013
F691TX	2×20	7,680	400	0.018	7,680	400	0.018	6,480	304	0.016	5,520	224	0.013	5,520	224	0.013	4,400	152	0.009	/	/	0.009
F691TX	2.5×8	12,000	1072	0.077	12,000	1072	0.077	10,240	816	0.069	7,680	536	0.054	7,680	536	0.054	6,160	368	0.039	9,600	227	0.039
F691TX	2.5×10	10,480	912	0.068	10,480	912	0.068	8,880	688	0.061	6,880	472	0.048	6,880	472	0.048	5,520	320	0.034	9,600	116	0.034
F691TX	2.5×12	9,440	800	0.06	9,440	800	0.06	8,000	600	0.054	6,320	416	0.042	6,320	416	0.042	5,040	288	0.03	9,600	67	0.03
F691TX	2.5×16	7,920	632	0.045	7,920	632	0.045	6,720	472	0.04	5,440	344	0.031	5,440	344	0.031	4,400	232	0.022	9,600	28	0.022
F691TX	3×12	8,400	888	0.081	8,400	888	0.081	6,960	664	0.073	5,360	448	0.057	5,360	448	0.057	4,240	304	0.041	8,000	128	0.041
F691TX	3×14	7,680	800	0.072	7,680	800	0.072	6,400	592	0.065	4,960	408	0.051	4,960	408	0.051	4,000	280	0.036	8,000	81	0.036
F691TX	3×16	7,120	720	0.064	7,120	720	0.064	5,920	536	0.058	4,720	376	0.045	4,720	376	0.045	3,760	256	0.032	8,000	54	0.032
F691TX	3×18	6,640	656	0.057	6,640	656	0.057	5,600	488	0.051	4,480	344	0.04	4,480	344	0.04	3,600	240	0.028	8,000	38	0.028
F691TX	3×20	6,240	600	0.05	6,240	600	0.05	5,280	448	0.045	4,240	320	0.035	4,240	320	0.035	3,440	224	0.025	8,000	27	0.025
F691TX	3×25	5,520	496	0.036	5,520	496	0.036	4,640	368	0.032	3,840	272	0.025	3,840	272	0.025	3,120	184	0.018	8,000	14	0.018

切入深度
(mm)



1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

短型立銑刀/NC車床用 Short End Mills For Lathe Machine

Page	85	85	87	87
Apperance				
Code No	E113X	E114X	E115HX	E116HX
Carbide	MG Carbide	MG Carbide	MG Carbide	MG Carbide
Coating	AlTiN X-NaNo	AlTiCrN HX	AlTiCrN HX	AlTiCrN HX
Helix Angle	 35°	 35° 38°	 38° 41°	 38° 41°
No.of Flutes	 3	 不等 4	 不等 3	 不等 4

E113X 超微粒鎢鋼塗層短型立銑刀/NC車床用

Short End Mills For Lathe



Steel < 48HRC

P	H	M	K	N	S
●	●	○	●	○	○

Code No. E113X-Dc

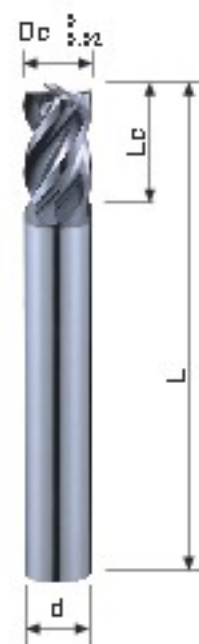
Dc D -0.02	Lc mm	L mm	d h6	AlTiN E113X
2	3	50	6	●
3	5	50	6	●
4	6	50	6	●
5	8	50	6	●
6	10	50	6	●
8	12	50	8	●
10	15	50	10	●

TWork Material

P	GR1	碳鋼 Carbon Steel	●
	GR2	低合金鋼 < 24HRC Low alloy Steel	●
	GR3	高合金鋼 < 30HRC High alloy Steel	●
H	GR4	硬化鋼 30-38HRC Hardened Steel	●
	GR5	硬化鋼 38-48HRC Hardened Steel	●
	GR6	硬化鋼 48-56HRC Hardened Steel	○
	GR7	硬化鋼 56-68HRC Hardened Steel	○
M	GR8	不銹鋼 Stainless Steel	○
K	GR9	鑄鐵 Cast Iron	●
N	GR10	鋁 Aluminum	○
	GR11	銅 Copper	○
	GR12	塑膠 Plastics	○
	GR13	複合材料 FRP CFRP Composite Material	○
	GR14	石墨 Graphite	○
S	GR15	鈦合金 Titanium	○
	GR16	鎳 Nickel	○
	GR17	耐熱鋼 Heat-resistant Steel	○

E114X 超微粒鎢鋼塗層短型立銑刀/NC車床用

Short End Mills For Lathe



Code No. E114X-Dc

Dc D -0.02	Lc mm	L mm	d h6	AlTiN E114X
2	3	50	6	●
3	5	50	6	●
4	6	50	6	●
5	8	50	6	●
6	10	50	6	●
8	12	50	8	●
10	15	50	10	●

Slotting 溝切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-30HRC)		GR.4 硬化鋼 Hardened Steel (30-38HRC)		GR.5 硬化鋼 Hardened Steel (38-48HRC)		GR.9 鑄鐵 Cast Iron		GR.11 銅 Copper			
切削速度 Vc m/min		80		80		60		50		30		80		100			
型號 Code No.	刃徑 Dc	RPM		Feed		RPM		Feed		RPM		Feed		RPM		Feed	
		迴轉速度 (m n-1)	進給速度 (mm/m n)	迴轉速度 (m n-1)	進給速度 (mm/m n)	迴轉速度 (m n-1)	進給速度 (mm/m n)	迴轉速度 (m n-1)	進給速度 (mm/m n)	迴轉速度 (m n-1)	進給速度 (mm/m n)	迴轉速度 (m n-1)	進給速度 (mm/m n)	迴轉速度 (m n-1)	進給速度 (mm/m n)	迴轉速度 (m n-1)	進給速度 (mm/m n)
E113X/E114X-2	2	11 000	135	11 000	135	7 000	90	6 350	70	3 950	40	11 000	135	15 500	200		
E113X/E114X-3	3	7 400	200	7 400	200	5 300	100	4 450	75	2 750	45	7 400	200	10 500	300		
E113X/E114X-4	4	5 950	235	5 950	235	4 250	125	3 500	90	2 200	50	5 950	235	7 950	300		
E113X/E114X-5	5	5 300	315	5 300	315	3 550	130	3 050	100	1 900	55	5 300	315	6 350	300		
E113X/E114X-6	6	4 450	310	4 450	310	2 950	130	2 500	100	1 550	55	4 450	310	5 300	300		
E113X/E114X-8	8	3 300	295	3 300	295	2 200	125	1 900	100	1 150	50	3 300	295	3 950	300		
E113X/E114X-10	10	2 650	280	2 650	280	1 750	125	1 500	95	955	50	2 650	280	3 150	300		
切入深度 (mm)		ap:<3 0 3D ≥3 0 5D		ap:<3 0 3D ≥3 0 5D		ap:<3 0 3D ≥3 0 5D		ap:<3 0 3D ≥3 0 5D		ap:<3 0 02D ≥3 0 05D		ap:<3 0 3D ≥3 0 5D		ap:<3 0 3D ≥3 0 5D			

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

E115HX 超微粒鎢鋼塗層短型立銑刀/NC車床用

Short End Mills For Lathe



Code No. E115HX-Dc

Dc D -0.02	Lc mm	L mm	d h6	AITiCrN E115HX
3	6	35	4	●
4	6	35	4	●
5	6	35	6	●
6	6	35	6	●
7	6	35	6	●
8	6	35	6	●
9	6	35	6	●
10	6	35	6	●
12	6	35	6	●



Steel < 48HRC

P	H	M	K	N	S
●	●	●	○	○	○

Type of Operation



Work Material

Material Group	Material	Availability
P	GR1 碳鋼 Carbon Steel	●
	GR2 低合金鋼 < 24HRC Low alloy Steel	●
	GR3 高合金鋼 < 30HRC High alloy Steel	●
H	GR4 硬化鋼 30-38HRC Hardened Steel	●
	GR5 硬化鋼 38-48HRC Hardened Steel	●
	GR6 硬化鋼 48-56HRC Hardened Steel	○
	GR7 硬化鋼 56-68HRC Hardened Steel	○
M	GR8 不銹鋼 Stainless Steel	●
K	GR9 鑄鐵 Cast Iron	○
N	GR10 鋁 Aluminum	○
	GR11 銅 Copper	○
	GR12 塑膠 Plastics	○
	GR13 複合材料 FRP CFRP Composite Material	○
S	GR14 石墨 Graphite	○
	GR15 鈦合金 Titanium	○
	GR16 鎳 Nickel	○
	GR17 耐熱鋼 Heat-resistant Steel	○

E116HX 超微粒鎢鋼塗層短型立銑刀/NC車床用

Short End Mills For Lathe



Code No. E116HX-Dc

Dc D -0.02	Lc mm	L mm	d h6	AITiCrN E116HX
3	6	35	4	●
4	6	35	4	●
5	6	35	6	●
6	6	35	6	●
7	6	35	6	●
8	6	35	6	●
9	6	35	6	●
10	6	35	6	●
12	6	35	6	●



Side Milling 側面切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-3DHRC)		GR.4 硬化鋼 Hardened Steel (3D-3BHRC)		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.B 不鏽鋼 Stainless Steel 使用切削液	
切削速度 Vc m/min		100~120		100~120		100~120		65~80		55~70		55~70	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E115HX/E116HX-3	3	10 000	600	10 000	600	10 000	600	7 000	400	7 000	400	6 000	300
E115HX/E116HX-4	4	7 500	600	7 500	600	7 500	600	5 200	400	5 200	400	4 500	300
E115HX/E116HX-5	5	6 000	600	6 000	600	6 000	600	4 200	400	4 200	400	3 600	300
E115HX/E116HX-6	6	5 000	600	5 000	600	5 000	600	3 500	400	3 500	400	3 000	300
E115HX/E116HX-7	7	4 500	560	4 500	560	4 500	560	3 000	360	3 000	360	2 700	280
E115HX/E116HX-8	8	4 000	520	4 000	520	4 000	520	2 800	350	2 800	350	2 400	260
E115HX/E116HX-9	9	3 600	500	3 600	500	3 600	500	2 500	320	2 500	320	2 200	250
E115HX/E116HX-10	10	3 200	450	3 200	450	3 200	450	2 200	300	2 200	300	1 900	230
E115HX/E116HX-12	12	2 700	410	2 700	410	2 700	410	1 900	270	1 900	270	1 600	210
切入深度 (mm)		ap:1.0D		ap:1.0D		ap:1.0D		ap:1.0D		ap:1.0D		ap:1.0D	
		ae:0.2D		ae:0.2D		ae:0.2D		ae:0.2D		ae:0.2D		ae:0.2D	

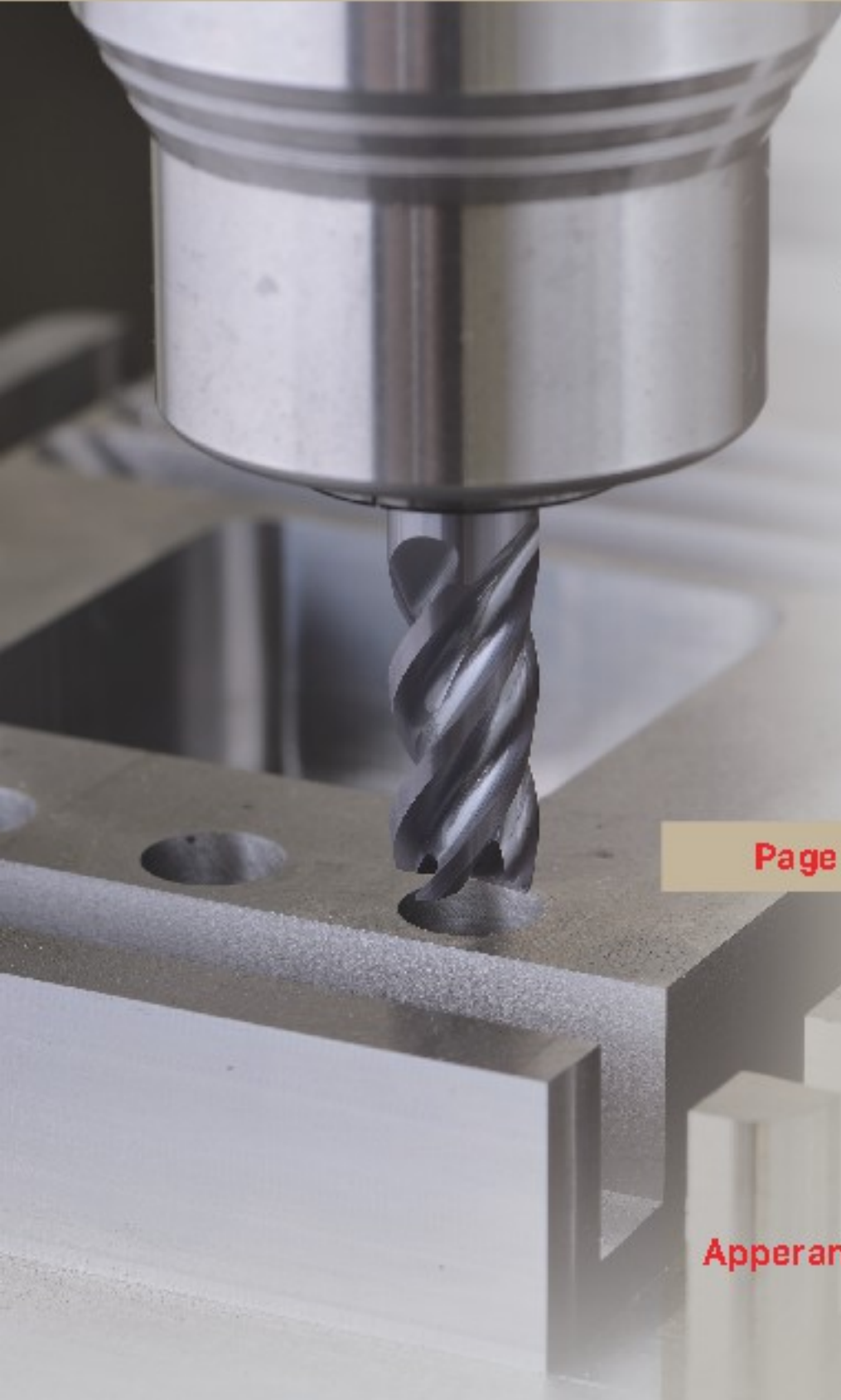
Slotting 溝切削

被削材 Work Material		GR.1 碳鋼 Carbon Steel		GR.2 低合金鋼 Low-alloyed Steel (-24HRC)		GR.3 高合金鋼 Hi-alloyed Steel (-3DHRC)		GR.4 硬化鋼 Hardened Steel (3D-3BHRC)		GR.5 硬化鋼 Hardened Steel (3B-4BHRC)		GR.B 不鏽鋼 Stainless Steel	
切削速度 Vc m/min		100~120		100~120		100~120		65~80		55~70		55~70	
型號 Code No.	刃徑 Dc	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)	RPM 迴轉速度 (min-1)	Feed 進給速度 (mm/min)
E115HX/E116HX-3	3	10 000	600	10 000	600	10 000	600	7 000	400	7 000	400	6 000	300
E115HX/E116HX-4	4	7 500	600	7 500	600	7 500	600	5 200	400	5 200	400	4 500	300
E115HX/E116HX-5	5	6 000	600	6 000	600	6 000	600	4 200	400	4 200	400	3 600	300
E115HX/E116HX-6	6	5 000	600	5 000	600	5 000	600	3 500	400	3 500	400	3 000	300
E115HX/E116HX-7	7	4 500	560	4 500	560	4 500	560	3 000	360	3 000	360	2 700	280
E115HX/E116HX-8	8	4 000	520	4 000	520	4 000	520	2 800	350	2 800	350	2 400	260
E115HX/E116HX-9	9	3 600	500	3 600	500	3 600	500	2 500	320	2 500	320	2 200	250
E115HX/E116HX-10	10	3 200	450	3 200	450	3 200	450	2 200	300	2 200	300	1 900	230
E115HX/E116HX-12	12	2 700	410	2 700	410	2 700	410	1 900	270	1 900	270	1 600	210
切入深度 (inch)		ap:0.2D		ap:0.2D		ap:0.2D		ap:0.2D		ap:0.2D		ap:0.2D	

1. Please work with good rigidity / high precision facilities and collet chuck.
2. Please choose proper cutting fluid.
3. The cutting data is reference value only. Please adjust it according to your real working conditions.
4. If RPM is lower the reference value, the Feed rate (fz) and RPM should be reduced by the same proportion.
5. If vibration occurs during cutting, please reduce cutting parameter.

1. 請使用剛性好、精度高的設備和夾具。
2. 請選擇適用於工件材料的切削液。
3. 此切削條件表中的數值為切削條件的基準值，實際加工時，請考慮加工形狀、目的、使用機台等因素，對切削條件進行調整。
4. 如果機台轉速低於表中所列數值，則進給速度應與轉速按同一比例降低。
5. 切削加工時如果發生振顫，請降低切削條件。

多用途立銑刀 Multipurpose End Mills



Page	91	93	95	97	99	101
Apperance						
Code No	EI30HX	EI40HX	EI41-1.5HX EI41-2.0HX EI41-3.0HX	EI41-4.0HX EI41-5.0HX	EI44X EI46X	EI44-4.0X EI44-5.0X EI44-6.0X
Carbide	MG Carbide	MG Carbide	MG Carbide	MG Carbide	UMG Carbide	UMG Carbide
Coating	AlTiCrN HX	AlTiCrN HX	AlTiCrN HX	AlTiCrN HX	AlTiN X-NaNo	AlTiN X-NaNo
Helix Angle						
No.of Flutes						

103

105

107

109

111

113

115

117

119



F6I2HX
F6I7HX

EI48HX

EI49HX

B270TX

B252-2.5HX

B274HX

F636TX

F608HX
F609HX

F638TX
F649TX

UMG
Carbide

MG
Carbide

MG
Carbide

UMG
Carbide

UMG
Carbide

UMG
Carbide

UMG
Carbide

UMG
Carbide

UMG
Carbide

AITICrN
HX

AITICrN
HX

AITICrN
HX

AITISIN
TX

AITICrN
HX

AITICrN
HX

AITISIN
TX

AITICrN
HX

AITISIN
TX

