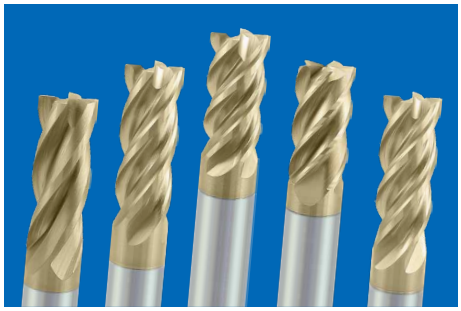
Index 索引

V53X Series



- For stainless steel & high temperature alloy.
- High efficiency cutting.
- Unequal flute and variable helix for anti-vibration.
- SNAX smooth coating.

- 適用於不鏽鋼及高溫合金
- 高效益、高去除率加工
- 抗震不等分割刃與不等螺旋設計
- 含矽平滑塗層

Appearance 外觀	Name 名稱	Code No. 編碼	Diameter 外徑	Helix 螺旋角	Coating 塗層	P	M	K	N	S	H	Page 頁碼
V53X Series for Exotic Material · Anti-vibration · Variable Helix 適用不鏽鋼 / 高溫合金 · 抗震 · 不等螺旋												
	Square · Variable Helix · Standard · 4F 不等螺旋平銑刀 · 標準型 · 4 刃	ESSSVC	Ø1~Ø25	38°~41°	SNAX	●	○	●		○	●	B168
	Square · Variable Helix · Standard · 5F 不等螺旋平銑刀 · 標準型 · 5 刃	ESSSVC	Ø4~Ø16	38°~42°	SNAX	●	○	●		○	●	B169
	Square · Variable Helix · Standard · 4F 不等螺旋平銑刀 · 標準型 · 4 刃	ESSSVD	Ø4~Ø12	43°~46°	SNAX	●	○	●		○	●	B170
	Square · Variable Helix · Standard · 4F 不等螺旋平銑刀 · 標準型 · 4 刃	ESSSVA	Ø6~Ø16	30°~32°	SNAX	●	○	●		○	●	B171
	Square · Variable Helix · Standard · 4F 不等螺旋平銑刀 · 標準型 · 4 刃	ESSSVB	Ø4~Ø20	35°~38°	SNAX	●	○	●		○	●	B172
	Square · Variable Helix · Necked · 4F 不等螺旋平銑刀 · 帶頸型 · 4 刃	ESSUVB	Ø8~Ø12	35°~38°	SNAX	●	○	●		○	●	B173

V53X - Tools selection 刀具選擇建議

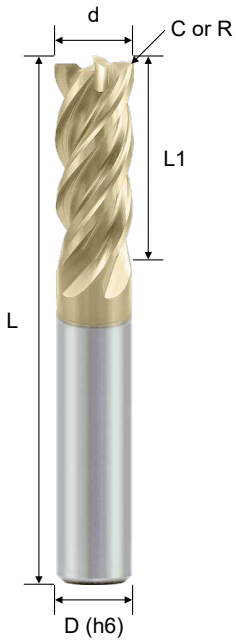
Series 系列	Series Number 系列編碼		Helix Angle 螺旋角	Tool Type 刀具型式	Slot milling 開槽加工	Side roughing 側邊粗加工	Side finishing 側邊精加工	P	M	K	N	S	H
V53XC	ESSSVC	Standard 標準型	38°~41°	Square 平刀 Chamfer 倒 C Radius 小 R	✓	✓	✓	●	●	●		●	○
		Standard 標準型	38°~42°	Square 平刀 Radius 小 R		✓	✓	○	●	○		●	○
V53XD	ESSSVD	Standard 標準型	43°~46°	Square 平刀 Chamfer 倒 C Radius 小 R		✓	✓	●	●	●		●	○
V53XA	ESSSVA	Standard 標準型	30°~32°	Chamfer 倒 C	✓			●	●	●		○	○
V53XB	ESSSVB	Standard 標準型	35°~38°	Square 平刀 Chamfer 倒 C Radius 小 R	✓	✓	✓	●	●	●		○	○
	ESSUVB	Necked 帶頸型	35°~38°	Radius 小 R	✓	✓	✓	●	●	●		●	○

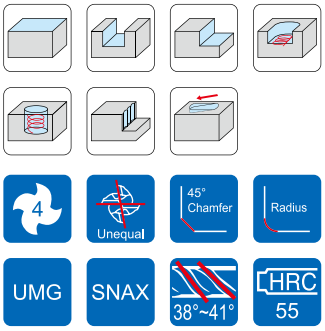
V53XC - Square · Variable Helix · Standard · 4F 不等螺旋平銑刀・標準型・4 刃

- Unequal flute spacing and variable helix design.
- High removal rate for P, M, K and S materials.
- Helix angle 38° ~ 41° is better for side milling.
- SNAX smooth coating (Al, Ti, Si, Cr, N) provides a superior wear resistance and extend tool life.

ESSSVC

P	M	K	N	S	H
●	●	●		●	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No. 訂購編碼	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	C or R	Flutes (Z)
ESSSVC4410000S	1	3	50	4	-	4
ESSSVC4420000S	2	5	50	4	-	4
ESSSVC4430000S	3	8	50	4	-	4
ESSSVC4440000S	4	10	50	4	-	4
ESSSVC4040011S	4	10	50	6	0.10C	4
ESSSVC4040012S	4	10	50	6	0.10R	4
ESSSVC4050000S	5	13	50	6	-	4
ESSSVC4060000S	6	15	50	6	-	4
ESSSVC4060011S	6	15	50	6	0.15C	4
ESSSVC4060012S	6	15	50	6	0.15R	4
ESSSVC4060052S	6	12	50	6	0.50R	4
ESSSVC4070000S	7	18	60	8	-	4
ESSSVC4080000S	8	20	60	8	-	4
ESSSVC4080011S	8	20	60	8	0.15C	4
ESSSVC4080012S	8	20	60	8	0.15R	4
ESSSVC4080052S	8	16	60	8	0.50R	4
ESSSVC4080102S	8	16	60	8	1.00R	4
ESSSVC4090000S	9	22	75	10	-	4
ESSSVC4100000S	10	25	75	10	-	4
ESSSVC4100003S	10	30	75	10	-	4
ESSSVC4100021S	10	25	75	10	0.20C	4
ESSSVC4100022S	10	25	75	10	0.20R	4
ESSSVC4100052S	10	20	75	10	0.50R	4
ESSSVC4100102S	10	20	75	10	1.00R	4
ESSSVC4120000S	12	30	75	12	-	4
ESSSVC4120022S	12	30	75	12	0.20R	4
ESSSVC4120052S	12	30	75	12	0.50R	4
ESSSVC4120102S	12	24	75	12	1.00R	4
ESSSVC4120202S	12	24	75	12	2.00R	4
ESSSVC4140000S	14	30	75	14	-	4
ESSSVC4160000S	16	35	100	16	-	4
ESSSVC4200000S	20	45	100	20	-	4
ESSSVC4250000S	25	45	100	25	-	4

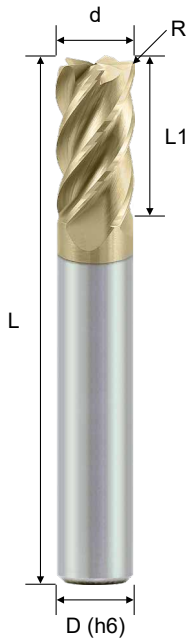
Cutting conditions：Page B265

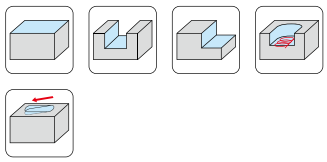
V53XC - Square · Variable Helix · Standard · 5F 不等螺旋平銑刀・標準型・5 刃

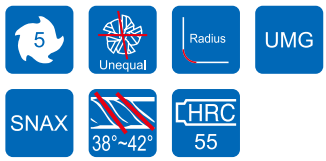
- Unequal flute spacing and variable helix design.
- High removal rate for M and S materials.
- Helix angle 38° ~ 42° is better for side milling.
- SNAX smooth coating (Al, Ti, Si, Cr, N) provides a superior wear resistance and extend tool life.

ESSSVC

P	M	K	N	S	H
○	●	○		●	○







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No. 訂購編碼	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	R	Flutes (Z)
ESSSVC5040022S	4	8	50	6	0.25R	5
ESSSVC5060000S	6	15	50	6	-	5
ESSSVC5060042S	6	12	50	6	0.40R	5
ESSSVC5080000S	8	20	60	8	-	5
ESSSVC5080012S	8	16	60	8	0.15R	5
ESSSVC5080052S	8	16	60	8	0.50R	5
ESSSVC5100000S	10	25	75	10	-	5
ESSSVC5100052S	10	20	75	10	0.50R	5
ESSSVC5100102S	10	20	75	10	1.00R	5
ESSSVC5120000S	12	30	75	12	-	5
ESSSVC5120052S	12	24	75	12	0.50R	5
ESSSVC5120072S	12	24	75	12	0.75R	5
ESSSVC5120102S	12	24	75	12	1.00R	5
ESSSVC5120202S	12	24	75	12	2.00R	5
ESSSVC5160000S	16	35	100	16	-	5
ESSSVC5160072S	16	32	100	16	0.75R	5
ESSSVC5160102S	16	32	100	16	1.00R	5
ESSSVC5160202S	16	32	100	16	2.00R	5
ESSSVC5160302S	16	32	100	16	3.00R	5

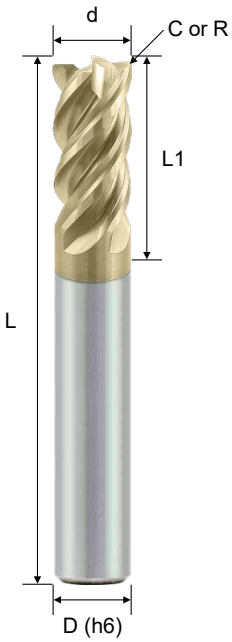
Cutting conditions：Page B265

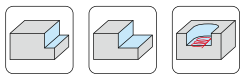
V53XD - Square · Variable Helix · Standard · 4F 不等螺旋平銑刀・標準型・4 刃

- Unequal flute spacing and variable helix design.
- High removal rate for P, M, K and S materials.
- Helix angle 43° ~ 46° is better for trochoidal milling.
- SNAX smooth coating (Al, Ti, Si, Cr, N) provides a superior wear resistance and extend tool life.

ESSSVD

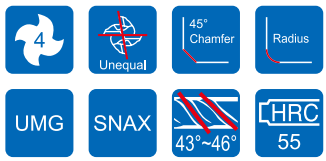
P	M	K	N	S	H
●	●	●		●	○





Order No. 訂購編碼	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	C or R	Flutes (Z)
ESSSVD4040000S	4	8	50	6	-	4
ESSSVD4040011S	4	8	50	6	0.10C	4
ESSSVD4040032S	4	8	50	6	0.30R	4
ESSSVD4060000S	6	12	50	6	-	4
ESSSVD4060011S	6	12	50	6	0.15C	4
ESSSVD4060052S	6	12	50	6	0.50R	4
ESSSVD4080000S	8	16	60	8	-	4
ESSSVD4080011S	8	16	60	8	0.15C	4
ESSSVD4080052S	8	16	60	8	0.50R	4
ESSSVD4100000S	10	20	75	10	-	4
ESSSVD4100003S	10	30	75	10	-	4
ESSSVD4100021S	10	20	75	10	0.20C	4
ESSSVD4100052S	10	20	75	10	0.50R	4
ESSSVD4120000S	12	24	75	12	-	4
ESSSVD4120021S	12	24	75	12	0.20C	4
ESSSVD4120052S	12	24	75	12	0.50R	4

Cutting conditions：Page B265



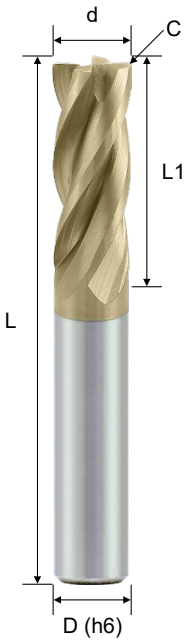
d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

V53XA - Square · Variable Helix · Standard · 4F 不等螺旋平銑刀・標準型・4 刃

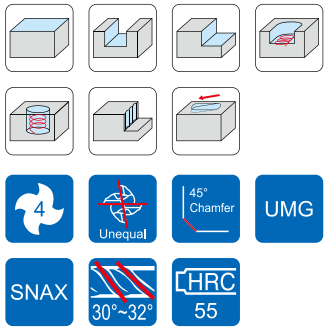
- Unequal flute spacing and variable helix design.
- High removal rate for P, M, K and S materials.
- Helix angle 30° ~ 32° is better for slotting.
- SNAX smooth coating (Al, Ti, Si, Cr, N) provides a superior wear resistance and extend tool life.

ESSSVA

P	M	K	N	S	H
●	●	●		○	○



Order No. 訂購編碼	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	C	Flutes (Z)
ESSSVA4060011S	6	15	50	6	0.10C	4
ESSSVA4080011S	8	20	60	8	0.15C	4
ESSSVA4100021S	10	25	75	10	0.20C	4
ESSSVA4120021S	12	30	75	12	0.20C	4
ESSSVA4160031S	16	35	100	16	0.32C	4



d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

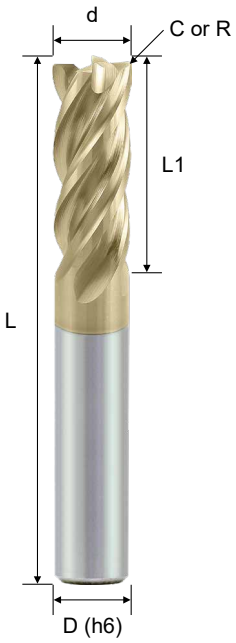
Cutting conditions：Page B266

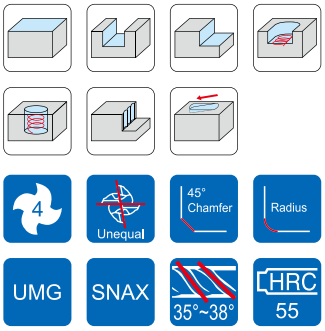
V53XB - Square · Variable Helix · Standard · 4F 不等螺旋平銑刀・標準型・4 刃

- Unequal flute spacing and variable helix design.
- High removal rate for P, M, K and S materials.
- Helix angle 35° ~ 38° for general purpose milling.
- SNAX smooth coating (Al, Ti, Si, Cr, N) provides a superior wear resistance and extend tool life.

ESSSVB

P	M	K	N	S	H
●	●	●		○	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No. 訂購編碼	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	C or R	Flutes (Z)
ESSSVB4040000S	4	10	50	6	-	4
ESSSVB4040011S	4	10	50	6	0.10C	4
ESSSVB4040022S	4	8	50	6	0.20R	4
ESSSVB4040032S	4	8	50	6	0.30R	4
ESSSVB4040052S	4	8	50	6	0.50R	4
ESSSVB4060000S	6	13	50	6	-	4
ESSSVB4060011S	6	13	50	6	0.15C	4
ESSSVB4060022S	6	12	50	6	0.20R	4
ESSSVB4060052S	6	12	50	6	0.50R	4
ESSSVB4080000S	8	20	60	8	-	4
ESSSVB4080011S	8	20	60	8	0.15C	4
ESSSVB4080022S	8	16	60	8	0.20R	4
ESSSVB4080052S	8	16	60	8	0.50R	4
ESSSVB4100000S	10	25	75	10	-	4
ESSSVB4100021S	10	25	75	10	0.20C	4
ESSSVB4100032S	10	20	75	10	0.30R	4
ESSSVB4100052S	10	20	75	10	0.50R	4
ESSSVB4120000S	12	30	75	12	-	4
ESSSVB4120021S	12	30	75	12	0.20C	4
ESSSVB4120032S	12	24	75	12	0.30R	4
ESSSVB4120052S	12	24	75	12	0.50R	4
ESSSVB4120102S	12	24	75	12	1.00R	4
ESSSVB4120302S	12	24	75	12	3.00R	4
ESSSVB4160000S	16	35	100	16	-	4
ESSSVB4160031S	16	35	100	16	0.32C	4
ESSSVB4160102S	16	32	100	16	1.00R	4
ESSSVB4160302S	16	32	100	16	3.00R	4
ESSSVB4180000S	18	45	100	20	-	4
ESSSVB4200000S	20	45	100	20	-	4

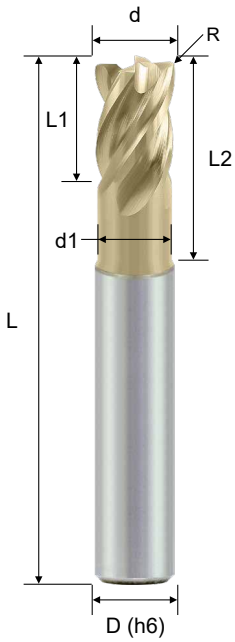
Cutting conditions：Page B266

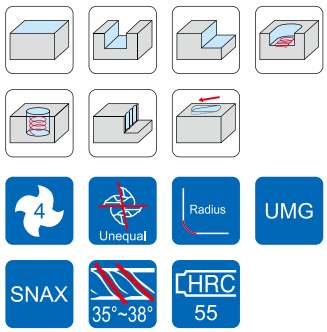
V53XB - Square · Variable Helix · Necked · 4F 不等螺旋平銑刀・帶頸型・4 刃

- Unequal flute spacing and variable helix design.
- High removal rate for P, M, K and S materials.
- Helix angle 35° ~ 38° for general purpose milling.
- Necked design is able to increase feed rate.
- SNAX smooth coating (Al, Ti, Si, Cr, N) provides a superior wear resistance and extend tool life.

ESSUVB

P	M	K	N	S	H
●	●	●		●	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No. 訂購編碼	Dia. (d)	CL (L1)	EFF-L (L2)	Neck Dia. (d1)	OAL (L)	Shank (D)	R	Flutes (Z)
ESSUVB4080052S	8	12	20	7.52	60	8	0.50R	4
ESSUVB4080102S	8	12	20	7.52	60	8	1.00R	4
ESSUVB4100052S	10	15	25	9.4	75	10	0.50R	4
ESSUVB4100102S	10	15	25	9.4	75	10	1.00R	4
ESSUVB4100152S	10	15	25	9.4	75	10	1.50R	4
ESSUVB4120102S	12	18	30	11.28	75	12	1.00R	4
ESSUVB4120202S	12	18	30	11.28	75	12	2.00R	4

Cutting conditions：Page B267

Recommended Cutting Conditions 建議切削參數

V53X Seires ESSSVC4, ESSSVC5

Working Material	Cutting Application	ae×d	ap×d	Vc	fz					
					4	6	8	10	12	16
Carbon steel (S45C，S55C)	Slot milling	1	0.5 ~ 1.0	100 ~ 180	0.029	0.035	0.046	0.058	0.069	0.092
	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	130 ~ 280	0.040	0.048	0.064	0.081	0.097	0.129
Alloy steel / Tool steel (SK, SCM, SKD)	Slot milling	1	0.5 ~ 1.0	80 ~ 160	0.025	0.031	0.041	0.054	0.064	0.085
	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	110 ~ 220	0.036	0.044	0.058	0.076	0.090	0.120
Stainless steel (SUS304, SUS316)	Slot milling	1	0.3 ~ 0.6	60 ~ 120	0.017	0.023	0.035	0.040	0.046	0.064
	Side milling	0.1 ~ 0.2	0.7 ~ 1.5	80 ~ 140	0.024	0.032	0.048	0.056	0.064	0.090
Superalloy	Slot milling	1	0.2 ~ 0.4	30 ~ 60	0.017	0.023	0.029	0.035	0.040	0.055
	Side milling	0.05 ~ 0.1	0.7 ~ 1.5	65 ~ 100	0.024	0.032	0.040	0.048	0.056	0.077

d = tool diameter

V53X Seires ESSSVD4

Working Material	Cutting Application	ae×d	ap×d	Vc	fz					
					4	6	8	10	12	16
Carbon steel (S45C，S55C)	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	80 ~ 125	0.040	0.048	0.064	0.081	0.097	0.129
	Side finishing	0.05 ~ 0.2	0.7 ~ 1.5	120 ~ 180	0.045	0.053	0.071	0.089	0.106	0.141
Alloy steel / Tool steel (SK, SCM, SKD)	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	70 ~ 105	0.036	0.044	0.058	0.076	0.090	0.120
	Side finishing	0.05 ~ 0.2	0.7 ~ 1.5	100 ~ 150	0.039	0.048	0.063	0.084	0.099	0.131
Stainless steel (SUS304, SUS316)	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	60 ~ 90	0.024	0.032	0.048	0.056	0.064	0.090
	Side finishing	0.05 ~ 0.2	0.7 ~ 1.5	85 ~ 130	0.026	0.036	0.053	0.062	0.071	0.099
Superalloy	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	45 ~ 70	0.024	0.032	0.040	0.048	0.056	0.077
	Side finishing	0.05 ~ 0.2	0.7 ~ 1.5	65 ~ 100	0.026	0.036	0.045	0.053	0.062	0.085

d = tool diameter

※If the machine not stable, please reduce the feed about 20%. 若機床條件較不穩定，請將進給率調降 20%
If using trochoidal milling, please refer to the side milling cutting data. 若使用擺線加工，請參考側銑切削數據

Recommended Cutting Conditions 建議切削參數

V53X Seires ESSSVA4

Working Material	Cutting Application	ae×d	ap×d	Vc	fz					
					4	6	8	10	12	16
Carbon steel (S45C，S55C)	Slot milling	1	0.5 ~ 1.0	100 ~ 180	0.029	0.035	0.046	0.058	0.069	0.092
	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	130 ~ 280	0.035	0.041	0.055	0.069	0.083	0.110
Alloy steel / Tool steel (SK, SCM, SKD)	Slot milling	1	0.5 ~ 1.0	80 ~ 160	0.025	0.031	0.041	0.054	0.064	0.085
	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	110 ~ 220	0.030	0.037	0.049	0.064	0.077	0.102
Stainless steel (SUS304, SUS316)	Slot milling	1	0.3 ~ 0.6	60 ~ 120	0.017	0.023	0.035	0.040	0.046	0.064
	Side milling	0.1 ~ 0.2	0.7 ~ 1.5	80 ~ 140	0.021	0.028	0.041	0.048	0.055	0.077
Superalloy	Slot milling	1	0.2 ~ 0.4	30 ~ 60	0.017	0.023	0.029	0.035	0.040	0.055
	Side milling	0.05 ~ 0.1	0.7 ~ 1.5	65 ~ 100	0.021	0.028	0.035	0.041	0.048	0.067

d = tool diameter

V53X Seires ESSSVB4

Working Material	Cutting Application	ae×d	ap×d	Vc	fz					
					4	6	8	10	12	16
Carbon steel (S45C，S55C)	Slot milling	1	0.5 ~ 1.0	100 ~ 180	0.029	0.035	0.046	0.058	0.069	0.092
	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	130 ~ 280	0.040	0.048	0.064	0.081	0.097	0.129
Alloy steel / Tool steel (SK, SCM, SKD)	Slot milling	1	0.5 ~ 1.0	80 ~ 160	0.025	0.031	0.041	0.054	0.064	0.085
	Side milling	0.1 ~ 0.3	0.7 ~ 1.5	110 ~ 220	0.036	0.044	0.058	0.076	0.090	0.120
Stainless steel (SUS304, SUS316)	Slot milling	1	0.3 ~ 0.6	60 ~ 120	0.017	0.023	0.035	0.040	0.046	0.064
	Side milling	0.1 ~ 0.2	0.7 ~ 1.5	80 ~ 140	0.024	0.032	0.048	0.056	0.064	0.090
Superalloy	Slot milling	1	0.2 ~ 0.4	30 ~ 60	0.017	0.023	0.029	0.035	0.040	0.055
	Side milling	0.05 ~ 0.1	0.7 ~ 1.5	65 ~ 100	0.024	0.032	0.040	0.048	0.056	0.077

d = tool diameter

※If the machine not stable, please reduce the feed about 20%. 若機床條件較不穩定，請將進給率調降 20%
If using trochoidal milling, please refer to the side milling cutting data. 若使用擺線加工，請參考側銑切削數據

Recommended Cutting Conditions 建議切削參數

V53X Seires ESSUVB4

Working Material	Cutting Application	ae×d	ap×d	Vc	fz					
					4	6	8	10	12	16
Carbon steel (S45C，S55C)	Slot milling	1	0.5 ~ 1.0	100 ~ 180	0.035	0.041	0.055	0.069	0.083	0.110
	Side milling	0.1 ~ 0.3	0.7 ~ 1.2	130 ~ 280	0.048	0.058	0.077	0.097	0.116	0.154
Alloy steel / Tool steel (SK, SCM, SKD)	Slot milling	1	0.5 ~ 1.0	80 ~ 160	0.030	0.037	0.049	0.064	0.077	0.102
	Side milling	0.1 ~ 0.3	0.7 ~ 1.2	110 ~ 220	0.043	0.053	0.069	0.091	0.108	0.144
Stainless steel (SUS304, SUS316)	Slot milling	1	0.3 ~ 0.6	60 ~ 120	0.021	0.028	0.041	0.048	0.055	0.077
	Side milling	0.1 ~ 0.2	0.7 ~ 1.2	80 ~ 140	0.029	0.039	0.058	0.068	0.077	0.108
Superalloy	Slot milling	1	0.2 ~ 0.4	30 ~ 60	0.021	0.028	0.035	0.041	0.048	0.067
	Side milling	0.05 ~ 0.1	0.7 ~ 1.2	65 ~ 100	0.029	0.039	0.048	0.058	0.068	0.092
d = tool diameter										

※If the machine not stable, please reduce the feed about 20%. 若機床條件較不穩定，請將進給率調降 20%
If using trochoidal milling, please refer to the side milling cutting data. 若使用擺線加工，請參考側銑切削數據

A100 Seires ENSSC1

Material	**Aluminum**		
Vc	150 ~ 250 m/min		
Dia. (d)	RPM	Feed (mm/min)	fz (mm/tooth)
4	15000	5000	0.33
6	10000	5000	0.50
8	8400	4000	0.48
10	6700	4000	0.60
12	5000	4000	0.80
	ap = 0.5d ae = 1d		

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.