

Super Endmill for HD

(Heavy-Duty)

High-efficiency end mills for heavy-Duty milling on materials
with hardness below HRC52

- Excellent tool life across various materials
- Suitable for machining Carbon steel, Alloy steel, Pre-hardened steel, and Stainless steel



High-efficiency end mills for heavy-Duty milling on materials with hardness below HRC 52

Super Endmill for HD

As customer demands solutions for producing their parts across the various of types of materials, securing a competitive edge in a such a manufacturing environment has become a critical challenge.

KORLOY has launched the new Super Endmill for HD, optimized for high-efficiency heavy-Duty milling and designed to meet these market demands. This product features a new UE coating with its excellent versatility, delivering stable machining performance across a wide range of materials- including Carbon steel, Alloy steel, Stainless steel, and Pre-hardened steel with hardness below HRC 52.

With an optimized design that balances tool rigidity and chip evacuation, the Super Endmill for HD demonstrates outstanding and stable performance even under high-efficiency and medium cutting conditions.

Reduce tool changes, minimize machining times, and maximize productivity! With a single end mill, you can machine more materials faster, stronger, and more reliably.

The Super Endmill for HD improves production efficiency in diverse manufacturing environments by cutting tool costs, improving productivity, and streamlining inventory management.

» Excellent tool life across various materials - Applying a new UE coating based on AlCrN

- Suitable for machining Carbon steel, Alloy steel, Pre-hardened steel, and Stainless steel.

» Optimized for high-efficiency heavy duty

- An excellent flute design that balances rigidity and chip evacuation
- Applied an asymmetric variable pitch design



» Line-up

Type	Designation	Grade	Picture	Product name	No. of flute	Size(Ø)		Page
						Min	Max	
Ball	SBEU2000	UT		2 flutes ball Endmill	2	1	12	8
Flat	SSFEU2000	UE		2 flutes short flat Endmill	2	1	12	9
	SFEU2000	UE		2 flutes flat Endmill	2	1	12	10
	SFEU2000	UE		2 flutes neck type flat Endmill	2	6	20	11
	SSFEU3000	UE		3 flutes short flat Endmill (for Swiss machining)	3	3	12	12
	SFEU3000	UE		3 flutes flat Endmill	3	2	20	13
	SFEU3000	UE		3 flutes neck type flat Endmill	3	6	20	14
	SFEU4000	UE		4 flutes flat Endmill	4	2	20	15
	SFEU4000	UE		4 flutes neck type flat Endmill	4	6	20	16
	SLFEU4000	UE		4 flutes long flat Endmill	4	6	20	17
	SLFEU4000-SPLT	UE		4 flutes long flat splitter Endmill	4	6	20	18
	SFEU5000	UE		5 flutes flat Endmill	5	6	20	19
	SFEU5000	UE		5 flutes neck type flat Endmill	5	6	20	20
	SLFEU5000	UE		5 flutes long flat Endmill	5	6	20	21
	SLFEU5000-SPLT	UE		5 flutes long flat splitter Endmill	5	6	20	22
	SFEU6000	UE		6 flutes flat Endmill	6	6	20	23
	SFEU6000	UE		6 flutes neck type flat Endmill	6	6	20	24
Radius	SREU2000	UE		2 flutes radius Endmill	2	1	12	25~26
	SREU2000	UE		2 flutes neck type radius Endmill	2	6	20	27
	SREU4000	UE		4 flutes radius Endmill	4	2	20	28~29
	SREU4000	UE		4 flutes neck type radius Endmill	4	6	20	30
	SREU5000	UE		5 flutes radius Endmill	5	6	20	31
	SREU5000	UE		5 flutes neck type radius Endmill	5	6	20	32
	SREU6000	UE		6 flutes radius Endmill	6	6	20	33
	SREU6000	UE		6 flutes neck type radius Endmill	6	6	20	34
Roughing	SFREU4000/5000	UE		4, 5 flutes fine pitch roughing Endmill	4, 5	6	20	35
	SFREU4000/5000	UE		4, 5 flutes neck type fine pitch roughing Endmill	4, 5	6	20	36
High feed	SDREU6000	UT		6 flutes high feed Endmill	6	6	16	37

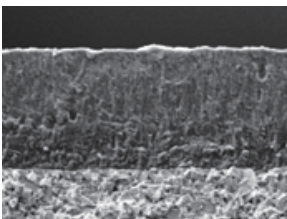
» Code System

S	R	E	U	4	120	-	080	-	(N200)	-	(R30)	-	(SPLT)
Super Endmill		Endmill		No. of flute 4: 4 flutes 5: 5 flutes			Overall length 080 : 80 mm				Corner R R30 : R3 mm		
	Type SF: Short Flat F: Flat LF: Long Flat R: Radius LR: Long Radius B: Ball FR: Fine Pitch Roughing DR: Double Radius		Workpiece U: Universal T: Titanium/STS S: Super alloy · Inconel718 · Waspaloy · Hastelloy		Tool diameter 120 : Ø12 mm			Neck length N200 : 20 mm				SPLT Chip Splitter type	

» Tool Selection Guide

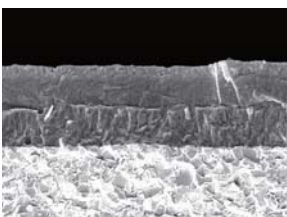
Super Endmill for HD 						A-Star Endmill	Composite Router Endmill
U-Star Endmill		S-Star Endmill		Super Endmill for Ti		H-Star Endmill	
		Super Endmill for Ti	Super Endmill for HRSA	Super Endmill for Ti			
P	K	M	S	H	N		
Carbon steel, Alloy steel	Cast iron	Stainless steel	Inconel718, Waspaloy, Hastelloy	Titanium	High hardness steel	Non-ferrous steel	Composite material (CFRP/GFRP)

» Grade Features



UE coating (Ultra Endurable resistance coating)

- Maximizes tool life with a high hardness coating offering excellent wear resistance.
- Ensures machining stability by achieving outstanding surface finish on the coating.
- Excellent surface lubricity prevents built up edge and enhances chip evacuation

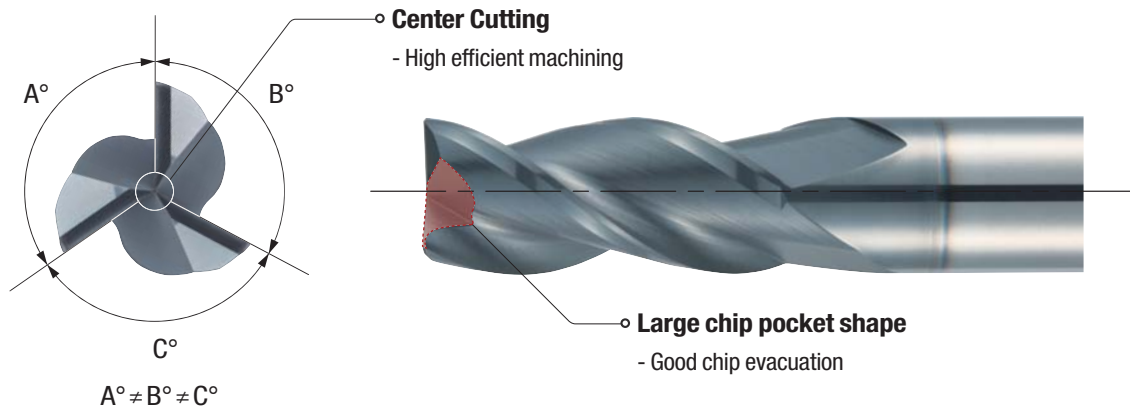


UT coating (Ultra Thermal resistance coating)

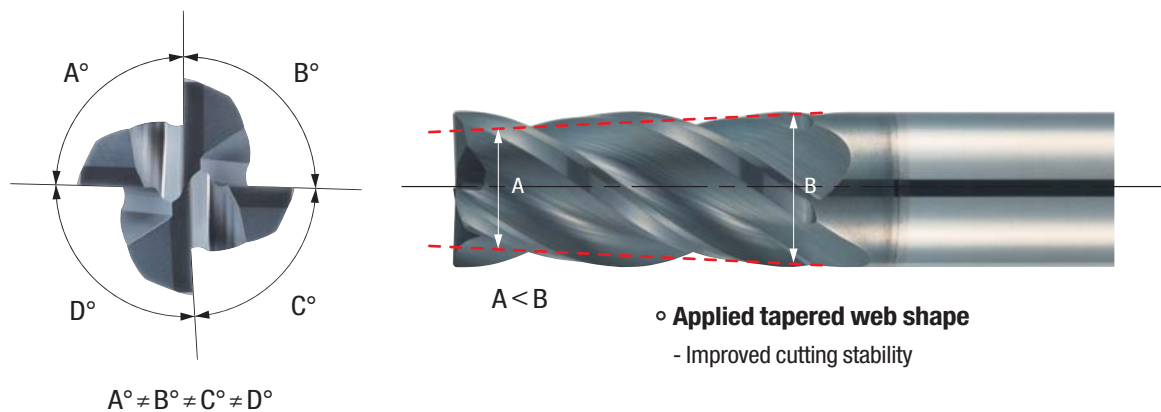
- Applied advanced coating technology that offers excellent stability during high-temperature machining, resulting in improved wear resistance, heat resistance, and anti-chipping performance.
- Utilized a substrate with enhanced anti-chipping properties for even better durability.

» Features

SFEU3000 (Flat)



SFEU4000 (Flat) / SREU4000 (Radius)



Plunging / SFEU3000 (Flat)



Workpiece	Pre-hardened steel (KP4M)
Cutting condition	vc(m/min) = 100, fn(mm/rev) = 0.105, wet ap(mm) = 12, wet (External)
Tool	SFEU3120-083 (Tool diameter = Ø12mm, UE coating)



[Super Endmill]

[Competitor]

High quality cutting / SLFEU4000 (Long flat)



Workpiece	Pre-hardened steel (KP4M)
Cutting condition	vc(m/min) = 120, fz(mm/t) = 0.05 ap(mm) = 12, ae(mm) = 0.9, wet
Tool	SLFEU4120-105 (Tool diameter = Ø12mm, UE coating)

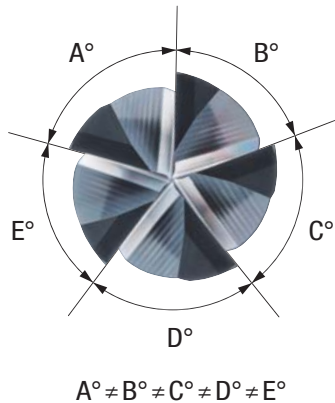


[Super Endmill]

[Competitor]

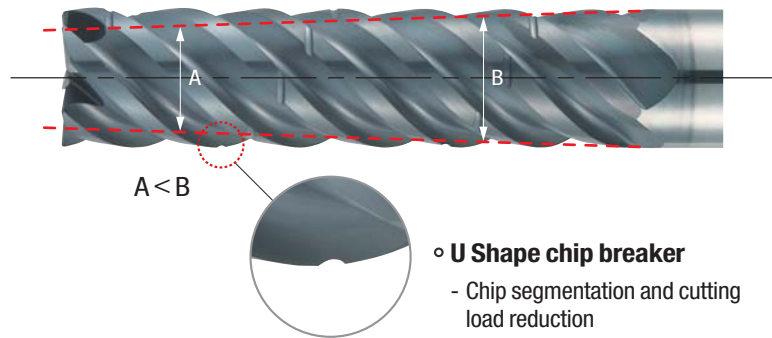
» Features

SLFEU5000-SPLT (Splitter)

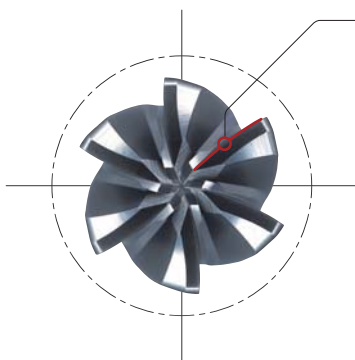


◦ Applied tapered core web shape

- High rigidity and prevention of tool deformation



SDREU6000 (High feed)



◦ Helix type spiral shape

- Low cutting load

◦ Large chip pocket shape

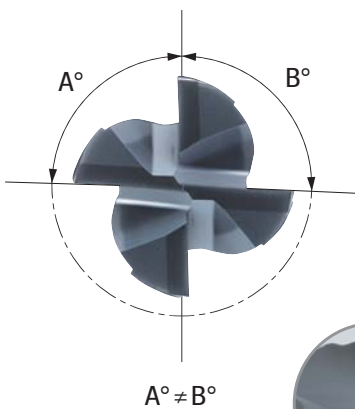
- Excellent chip evacuation



◦ Profile shape with low approach angle

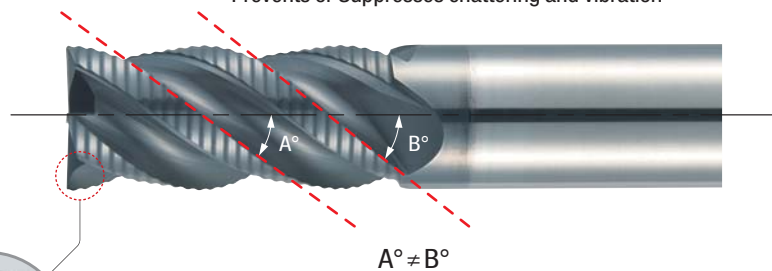
- Optimal shape for low cutting load and high feed cutting

SFREU4000 (Fine pitch roughing)



◦ Asymmetric variable pitch design

- Prevents or Suppresses chattering and vibration



◦ Fine pitch serration cutting edge

- Optimal shape for low cutting load and high feed cutting

» Performance evaluation

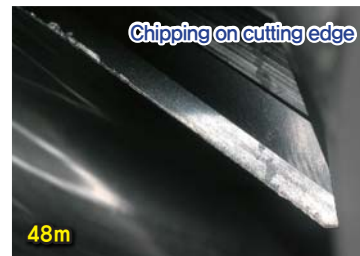
Pre-hardened steel (KP4M)

Workpiece	vc (m/min) = 160, fz (mm/t) = 0.07, ap (mm) = 12, ae (mm) = 2.4, wet (Emersion)
Tool	SFEU4120-083 (Tool diameter = Ø12 mm, UE coating)



[Super Endmill]

Machining length
improved by 200%



[Competitor]

» A newly developed grade with excellent wear resistance extended tool life.

Carbon steel (SM45C)

Workpiece	vc (m/min) = 250, fz (mm/t) = 0.1, ap (mm) = 18, ae (mm) = 4.8, wet (Emersion)
Tool	SFREU4120-083 (Tool diameter = Ø12 mm, UE coating)



[Super Endmill]

Machining time
improved by 50%



[Competitor]

» Optimized roughing cutting edge reduces cutting resistance, extending tool life.

Pre-hardened steel (KP4M)

Workpiece	vc (m/min) = 180, fz (mm/t) = 0.6/0.5, ap (mm) = 0.6, ae (mm) = 6.6, wet (Emersion)
Tool	SDREU6120-083-N180 (Tool diameter = Ø12 mm, UT coating)



[Super Endmill]

Machining efficiency
improved by 20%



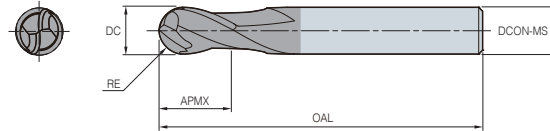
[Competitor]

» Optimized end cutting edge improves machining efficiency.

SBEU2000(2 flutes ball)



DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø12	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	RE
SBEU 	2010-050-S4	1	1.5	50	4	0.5
	2010-050-S6	1	1.5	50	6	0.5
	2015-050-S4	1.5	2	50	4	0.75
	2015-050-S6	1.5	2	50	6	0.75
	2020-057	2	3	57	6	1
	2025-057	2.5	4	57	6	1.25
	2030-057	3	4.5	57	6	1.5
	2030-080	3	8	80	6	1.5
	2040-057	4	6	57	6	2
	2040-080	4	11	80	6	2
	2050-057	5	7.5	57	6	2.5
	2050-080	5	13	80	6	2.5
	2060-057	6	9	57	6	3
	2060-080	6	13	80	6	3
	2080-063	8	12	63	8	4
	2080-100	8	19	100	8	4
	2100-072	10	15	72	10	5
	2100-100	10	22	100	10	5
	2120-083	12	18	83	12	6
	2120-100	12	26	100	12	6

• Applicable workpiece

◎: Excellent ○: Good

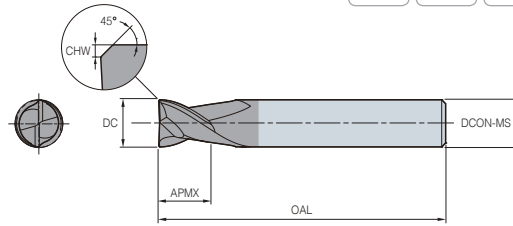
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎		◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation					◎		◎	◎				

SSFEU2000(2 flutes short flat)



DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø12	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SSFEU 2	2010-040	1	2	40	4	-
	2015-040	1.5	3	40	4	-
	2020-040	2	4	40	4	-
	2030-040	3	5	40	4	0.08
	2040-050	4	8	50	6	0.13
	2050-050	5	9	50	6	0.13
	2060-050	6	10	50	6	0.13
	2080-058	8	12	58	8	0.2
	2100-066	10	14	66	10	0.2
	2120-073	12	16	73	12	0.2

• Applicable workpiece

◎: Excellent ○: Good

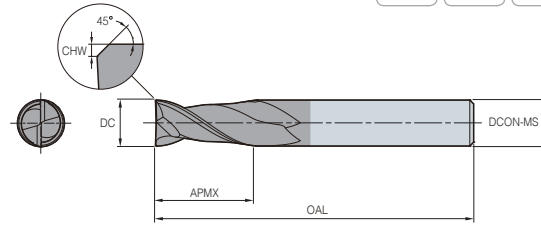
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU2000(2 flutes flat)



DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø12	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SFEU 	2010-040	1	3	40	4	-
	2015-040	1.5	4	40	4	-
	2020-057	2	6	57	6	-
	2030-057	3	8	57	6	0.08
	2040-057	4	11	57	6	0.13
	2050-057	5	13	57	6	0.13
	2060-057	6	13	57	6	0.13
	2080-063	8	19	63	8	0.2
	2100-072	10	22	72	10	0.2
	2120-083	12	26	83	12	0.2

• Applicable workpiece

◎: Excellent ○: Good

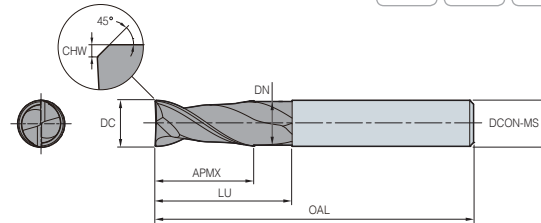
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU2000(2 flutes neck type flat)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	CHW
SFEU 	2060-057-N200	6	13	20	5.7	57	6	0.13
	2080-063-N260	8	19	26	7.6	63	8	0.2
	2100-072-N300	10	22	30	9.5	72	10	0.2
	2120-083-N360	12	26	36	11.4	83	12	0.2
	2160-092-N420	16	32	42	15.2	92	16	0.2
	2200-104-N520	20	38	52	19	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

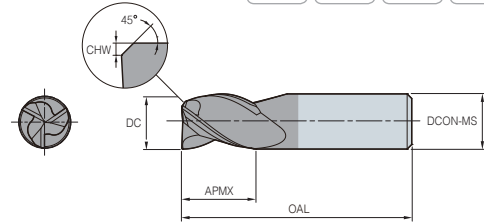
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SSFEU3000(3 flutes short flat - for Swiss machining)



DC	Tolerance
Ø3 ~ Ø6	0.000 ~ -0.015
Ø7 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SSFEU 3	3030-040-S4	3	4.5	40	4	0.08
	3030-040-S6	3	4.5	40	6	0.08
	3035-040-S6	3.5	5	40	6	0.08
	3038-040-S6	3.8	6	40	6	0.08
	3040-040-S4	4	6	40	4	0.13
	3040-040-S6	4	6	40	6	0.13
	3045-045-S6	4.5	7	45	6	0.13
	3048-045-S6	4.8	7.5	45	6	0.13
	3050-045-S6	5	7.5	45	6	0.13
	3058-045-S6	5.8	9	45	6	0.13
	3060-045-S6	6	9	45	6	0.13
	3070-050-S7	7	10.5	50	7	0.13
	3070-050-S8	7	10.5	50	8	0.13
	3078-050-S8	7.8	12	50	8	0.2
	3080-050-S7	8	12	50	7	0.2
	3080-050-S8	8	12	50	8	0.2
	3097-050-S10	9.7	15	50	10	0.2
	3100-050-S7	10	15	50	7	0.2
	3100-050-S10	10	15	50	10	0.2
	3117-050-S12	11.7	15	50	12	0.2
	3120-050-S7	12	15	50	7	0.2
	3120-050-S10	12	15	50	10	0.2
	3120-050-S12	12	15	50	12	0.2

• Applicable workpiece

◎: Excellent ○: Good

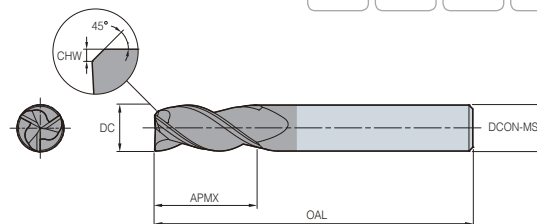
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU3000(3 flutes flat)



DC	Tolerance
Ø2 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

Designation	DC	APMX	OAL	DCON-MS	CHW
SFEU					
3020-057	2	6	57	6	-
3030-057	3	8	57	6	0.08
3040-057	4	11	57	6	0.13
3050-057	5	13	57	6	0.13
3060-057	6	13	57	6	0.13
3080-063	8	19	63	8	0.2
3100-072	10	22	72	10	0.2
3120-083	12	26	83	12	0.2
3160-092	16	32	92	16	0.2
3200-104	20	38	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

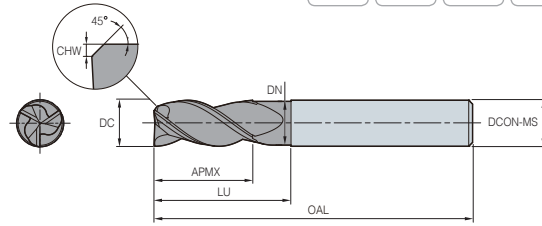
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU3000(3 flutes neck type flat)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	CHW
SFEU 	3060-057-N200	6	13	20	5.7	57	6	0.13
	3080-063-N260	8	19	26	7.6	63	8	0.2
	3100-072-N300	10	22	30	9.5	72	10	0.2
	3120-083-N360	12	26	36	11.4	83	12	0.2
	3160-092-N420	16	32	42	15.2	92	16	0.2
	3200-104-N520	20	38	52	19	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

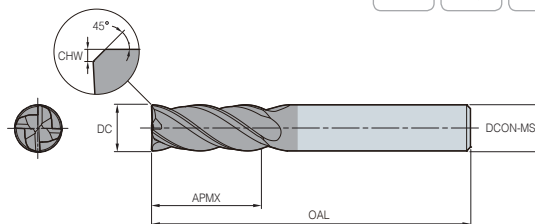
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU4000(4 flutes flat)



DC	Tolerance
Ø2 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SFEU 	4020-057	2	6	57	6	-
	4030-057	3	8	57	6	0.08
	4040-057	4	11	57	6	0.13
	4050-057	5	13	57	6	0.13
	4060-057	6	13	57	6	0.13
	4080-063	8	19	63	8	0.2
	4100-072	10	22	72	10	0.2
	4120-083	12	26	83	12	0.2
	4160-092	16	32	92	16	0.2
	4200-104	20	38	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

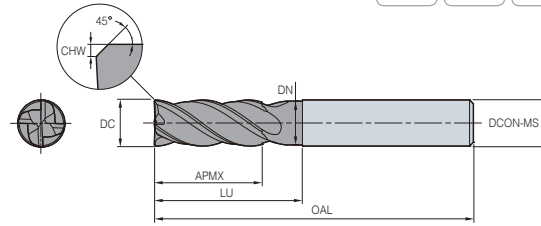
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU4000(4 flutes neck type flat)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	CHW
SFEU 4	4060-057-N200	6	13	20	5.7	57	6	0.13
	4080-063-N260	8	19	26	7.6	63	8	0.2
	4100-072-N300	10	22	30	9.5	72	10	0.2
	4120-083-N360	12	26	36	11.4	83	12	0.2
	4160-092-N420	16	32	42	15.2	92	16	0.2
	4200-104-N520	20	38	52	19	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

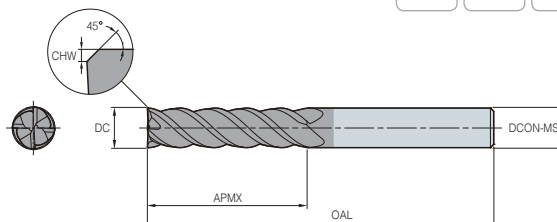
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SLFEU4000(4 flutes long flat)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SLFEU 4	4060-060	6	18	60	6	0.13
	4060-070	6	24	70	6	0.13
	4080-070	8	24	70	8	0.2
	4080-080	8	32	80	8	0.2
	4100-075	10	30	75	10	0.2
	4100-090	10	40	90	10	0.2
	4100-100	10	50	100	10	0.2
	4120-090	12	36	90	12	0.2
	4120-105	12	48	105	12	0.2
	4120-130	12	60	130	12	0.2
	4160-105	16	48	105	16	0.2
	4160-130	16	64	130	16	0.2
	4160-150	16	80	150	16	0.2
	4200-120	20	60	120	20	0.3
	4200-150	20	80	150	20	0.3
	4200-170	20	100	170	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

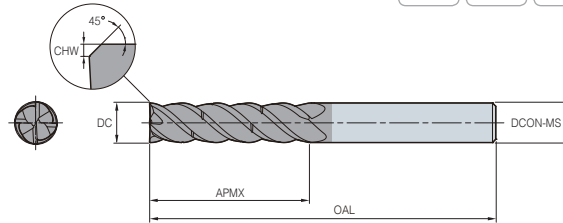
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SLFEU4000(4 flutes long flat splitter)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SLFEU 4	4060-060-SPLT	6	18	60	6	0.13
	4060-070-SPLT	6	24	70	6	0.13
	4080-070-SPLT	8	24	70	8	0.2
	4080-080-SPLT	8	32	80	8	0.2
	4100-075-SPLT	10	30	75	10	0.2
	4100-090-SPLT	10	40	90	10	0.2
	4100-100-SPLT	10	50	100	10	0.2
	4120-090-SPLT	12	36	90	12	0.2
	4120-105-SPLT	12	48	105	12	0.2
	4120-130-SPLT	12	60	130	12	0.2
	4160-105-SPLT	16	48	105	16	0.2
	4160-130-SPLT	16	64	130	16	0.2
	4160-150-SPLT	16	80	150	16	0.2
	4200-120-SPLT	20	60	120	20	0.3
	4200-150-SPLT	20	80	150	20	0.3
	4200-170-SPLT	20	100	170	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

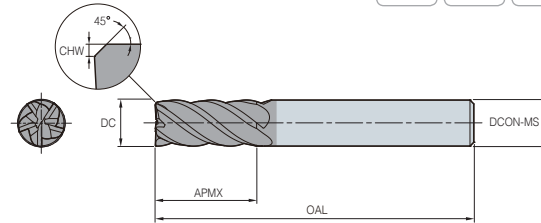
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU5000(5 flutes flat)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SFEU 	5060-057	6	13	57	6	0.13
	5080-063	8	19	63	8	0.2
	5100-072	10	22	72	10	0.2
	5120-083	12	26	83	12	0.2
	5160-092	16	32	92	16	0.2
	5200-104	20	38	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

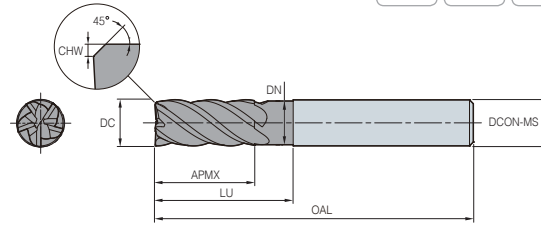
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU5000(5 flutes neck type flat)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	CHW
SFEU 	5060-057-N200	6	13	20	5.7	57	6	0.13
	5080-063-N260	8	19	26	7.6	63	8	0.2
	5100-072-N300	10	22	30	9.5	72	10	0.2
	5120-083-N360	12	26	36	11.4	83	12	0.2
	5160-092-N420	16	32	42	15.2	92	16	0.2
	5200-104-N520	20	38	52	19	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

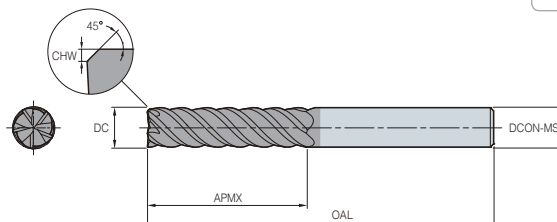
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SLFEU5000(5 flutes long flat)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

Designation	DC	APMX	OAL	DCON-MS	CHW
SLFEU					
5 5060-060	6	18	60	6	0.13
5060-070	6	24	70	6	0.13
5080-070	8	24	70	8	0.2
5080-080	8	32	80	8	0.2
5100-075	10	30	75	10	0.2
5100-090	10	40	90	10	0.2
5100-100	10	50	100	10	0.2
5120-090	12	36	90	12	0.2
5120-105	12	48	105	12	0.2
5120-130	12	60	130	12	0.2
5160-105	16	48	105	16	0.2
5160-130	16	64	130	16	0.2
5160-150	16	80	150	16	0.2
5200-120	20	60	120	20	0.3
5200-150	20	80	150	20	0.3
5200-170	20	100	170	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

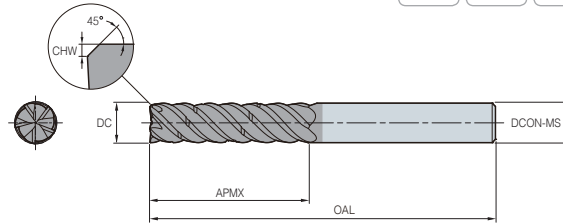
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SLFEU5000(5 flutes long flat splitter)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SLFEU 5	5060-060-SPLT	6	18	60	6	0.13
	5060-070-SPLT	6	24	70	6	0.13
	5080-070-SPLT	8	24	70	8	0.2
	5080-080-SPLT	8	32	80	8	0.2
	5100-075-SPLT	10	30	75	10	0.2
	5100-090-SPLT	10	40	90	10	0.2
	5100-100-SPLT	10	50	100	10	0.2
	5120-090-SPLT	12	36	90	12	0.2
	5120-105-SPLT	12	48	105	12	0.2
	5120-130-SPLT	12	60	130	12	0.2
	5160-105-SPLT	16	48	105	16	0.2
	5160-130-SPLT	16	64	130	16	0.2
	5160-150-SPLT	16	80	150	16	0.2
	5200-120-SPLT	20	60	120	20	0.3
	5200-150-SPLT	20	80	150	20	0.3
	5200-170-SPLT	20	100	170	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

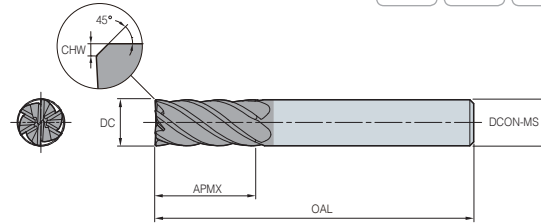
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU6000(6 flutes flat)



DC	Tolerance
Ø6	0.000 ~ -0.025
Ø8 ~ Ø20	0.000 ~ -0.030



(mm)

	Designation	DC	APMX	OAL	DCON-MS	CHW
SFEU 	6060-057	6	13	57	6	0.13
	6080-063	8	19	63	8	0.2
	6100-072	10	22	72	10	0.2
	6120-083	12	26	83	12	0.2
	6160-092	16	32	92	16	0.2
	6200-104	20	38	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

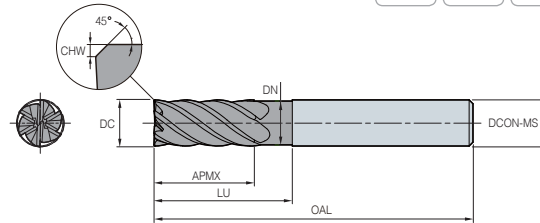
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFEU6000(6 flutes neck type flat)



DC	Tolerance
Ø6	0.000 ~ -0.025
Ø8 ~ Ø20	0.000 ~ -0.030



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	CHW
SFEU 	6060-057-N200	6	13	20	5.7	57	6	0.13
	6080-063-N260	8	19	26	7.6	63	8	0.2
	6100-072-N300	10	22	30	9.5	72	10	0.2
	6120-083-N360	12	26	36	11.4	83	12	0.2
	6160-092-N420	16	32	42	15.2	92	16	0.2
	6200-104-N520	20	38	52	19	104	20	0.3

• Applicable workpiece

◎: Excellent ○: Good

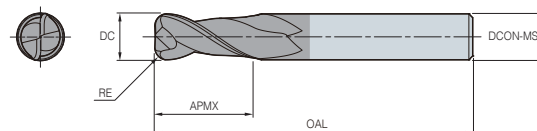
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU2000 (2 flutes radius)



DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø12	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	RE
SREU 	2010-040-R01	1	3	40	4	0.1
	2010-040-R02	1	3	40	4	0.2
	2015-040-R01	1.5	4	40	4	0.1
	2015-040-R02	1.5	4	40	4	0.2
	2020-057-R01	2	6	57	6	0.1
	2020-057-R02	2	6	57	6	0.2
	2020-057-R03	2	6	57	6	0.3
	2030-057-R02	3	8	57	6	0.2
	2030-057-R05	3	8	57	6	0.5
	2040-057-R02	4	11	57	6	0.2
	2040-057-R05	4	11	57	6	0.5
	2040-057-R10	4	11	57	6	1
	2050-057-R02	5	13	57	6	0.2
	2050-057-R05	5	13	57	6	0.5
	2050-057-R10	5	13	57	6	1
	2060-057-R03	6	13	57	6	0.3
	2060-057-R05	6	13	57	6	0.5
	2060-057-R10	6	13	57	6	1
	2080-063-R03	8	19	63	8	0.3
	2080-063-R05	8	19	63	8	0.5
	2080-063-R10	8	19	63	8	1

• Applicable workpiece

◎: Excellent ○: Good

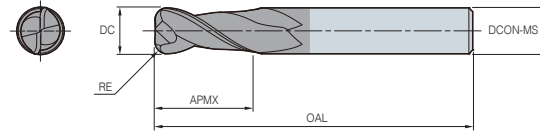
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU2000 (2 flutes radius)



DC	Tolerance
Ø1 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø12	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	RE
SREU 	2100-072-R03	10	22	72	10	0.3
	2100-072-R05	10	22	72	10	0.5
	2100-072-R10	10	22	72	10	1
	2100-072-R15	10	22	72	10	1.5
	2100-072-R20	10	22	72	10	2
	2100-072-R30	10	22	72	10	3
	2120-083-R05	12	26	83	12	0.5
	2120-083-R10	12	26	83	12	1
	2120-083-R15	12	26	83	12	1.5
	2120-083-R20	12	26	83	12	2
	2120-083-R25	12	26	83	12	2.5
	2120-083-R30	12	26	83	12	3

• Applicable workpiece

◎: Excellent ○: Good

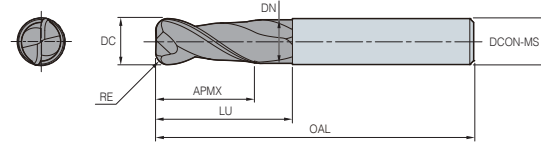
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU2000 (2 flutes neck type radius)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	RE
SREU 	2060-057-N200-R05	6	13	20	5.7	57	6	0.5
	2060-057-N200-R10	6	13	20	5.7	57	6	1
	2080-063-N260-R05	8	19	26	7.6	63	8	0.5
	2080-063-N260-R10	8	19	26	7.6	63	8	1
	2100-072-N300-R05	10	22	30	9.5	72	10	0.5
	2100-072-N300-R10	10	22	30	9.5	72	10	1
	2100-072-N300-R15	10	22	30	9.5	72	10	1.5
	2100-072-N300-R20	10	22	30	9.5	72	10	2
	2120-083-N360-R05	12	26	36	11.4	83	12	0.5
	2120-083-N360-R10	12	26	36	11.4	83	12	1
	2120-083-N360-R15	12	26	36	11.4	83	12	1.5
	2120-083-N360-R20	12	26	36	11.4	83	12	2
	2120-083-N360-R30	12	26	36	11.4	83	12	3
	2160-092-N420-R05	16	32	42	15.2	92	16	0.5
	2160-092-N420-R10	16	32	42	15.2	92	16	1
	2160-092-N420-R20	16	32	42	15.2	92	16	2
	2160-092-N420-R30	16	32	42	15.2	92	16	3
	2200-104-N520-R05	20	38	52	19	104	20	0.5
	2200-104-N520-R10	20	38	52	19	104	20	1
	2200-104-N520-R20	20	38	52	19	104	20	2
	2200-104-N520-R30	20	38	52	19	104	20	3

• Applicable workpiece

◎: Excellent ○: Good

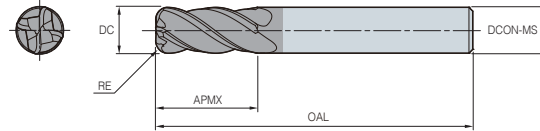
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU4000(4 flutes radius)



DC	Tolerance
Ø2 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	RE
SREU 	4020-057-R02	2	6	57	6	0.2
	4020-057-R03	2	6	57	6	0.3
	4030-057-R02	3	8	57	6	0.2
	4030-057-R05	3	8	57	6	0.5
	4040-057-R02	4	11	57	6	0.2
	4040-057-R05	4	11	57	6	0.5
	4040-057-R10	4	11	57	6	1
	4050-057-R02	5	13	57	6	0.2
	4050-057-R05	5	13	57	6	0.5
	4050-057-R10	5	13	57	6	1
	4060-057-R03	6	13	57	6	0.3
	4060-057-R05	6	13	57	6	0.5
	4060-057-R10	6	13	57	6	1
	4080-063-R03	8	19	63	8	0.3
	4080-063-R05	8	19	63	8	0.5
	4080-063-R10	8	19	63	8	1
	4100-072-R03	10	22	72	10	0.3
	4100-072-R05	10	22	72	10	0.5
	4100-072-R10	10	22	72	10	1
	4100-072-R15	10	22	72	10	1.5
	4100-072-R20	10	22	72	10	2
	4100-072-R30	10	22	72	10	3

• Applicable workpiece

◎: Excellent ○: Good

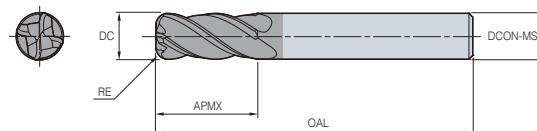
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU4000(4 flutes radius)



DC	Tolerance
Ø2 ~ Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	RE
SREU 	4120-083-R05	12	26	83	12	0.5
	4120-083-R10	12	26	83	12	1
	4120-083-R15	12	26	83	12	1.5
	4120-083-R20	12	26	83	12	2
	4120-083-R25	12	26	83	12	2.5
	4120-083-R30	12	26	83	12	3
	4160-092-R05	16	32	92	16	0.5
	4160-092-R10	16	32	92	16	1
	4160-092-R20	16	32	92	16	2
	4160-092-R30	16	32	92	16	3
	4200-104-R05	20	38	104	20	0.5
	4200-104-R10	20	38	104	20	1
	4200-104-R20	20	38	104	20	2
	4200-104-R30	20	38	104	20	3

• Applicable workpiece

◎: Excellent ○: Good

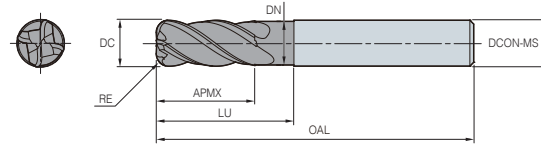
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU4000 (4 flutes neck type radius)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	RE
SREU 	4060-057-N200-R05	6	13	20	5.7	57	6	0.5
	4060-057-N200-R10	6	13	20	5.7	57	6	1
	4080-063-N260-R05	8	19	26	7.6	63	8	0.5
	4080-063-N260-R10	8	19	26	7.6	63	8	1
	4100-072-N300-R05	10	22	30	9.5	72	10	0.5
	4100-072-N300-R10	10	22	30	9.5	72	10	1
	4100-072-N300-R15	10	22	30	9.5	72	10	1.5
	4100-072-N300-R20	10	22	30	9.5	72	10	2
	4120-083-N360-R05	12	26	36	11.4	83	12	0.5
	4120-083-N360-R10	12	26	36	11.4	83	12	1
	4120-083-N360-R15	12	26	36	11.4	83	12	1.5
	4120-083-N360-R20	12	26	36	11.4	83	12	2
	4120-083-N360-R30	12	26	36	11.4	83	12	3
	4160-092-N420-R05	16	32	42	15.2	92	16	0.5
	4160-092-N420-R10	16	32	42	15.2	92	16	1
	4160-092-N420-R20	16	32	42	15.2	92	16	2
	4160-092-N420-R30	16	32	42	15.2	92	16	3
	4200-104-N520-R05	20	38	52	19	104	20	0.5
	4200-104-N520-R10	20	38	52	19	104	20	1
	4200-104-N520-R20	20	38	52	19	104	20	2
	4200-104-N520-R30	20	38	52	19	104	20	3

• Applicable workpiece

◎: Excellent ○: Good

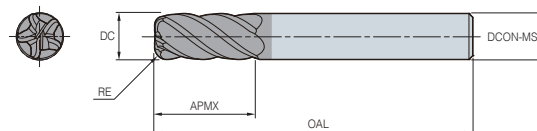
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU5000 (5 flutes radius)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	OAL	DCON-MS	RE
SREU 	5060-057-R03	6	13	57	6	0.3
	5060-057-R05	6	13	57	6	0.5
	5060-057-R10	6	13	57	6	1
	5080-063-R03	8	19	63	8	0.3
	5080-063-R05	8	19	63	8	0.5
	5080-063-R10	8	19	63	8	1
	5100-072-R03	10	22	72	10	0.3
	5100-072-R05	10	22	72	10	0.5
	5100-072-R10	10	22	72	10	1
	5100-072-R15	10	22	72	10	1.5
	5100-072-R20	10	22	72	10	2
	5100-072-R30	10	22	72	10	3
	5120-083-R05	12	26	83	12	0.5
	5120-083-R10	12	26	83	12	1
	5120-083-R15	12	26	83	12	1.5
	5120-083-R20	12	26	83	12	2
	5120-083-R25	12	26	83	12	2.5
	5120-083-R30	12	26	83	12	3
	5160-092-R05	16	32	92	16	0.5
	5160-092-R10	16	32	92	16	1
	5160-092-R20	16	32	92	16	2
	5160-092-R30	16	32	92	16	3
	5200-104-R05	20	38	104	20	0.5
	5200-104-R10	20	38	104	20	1
	5200-104-R20	20	38	104	20	2
	5200-104-R30	20	38	104	20	3

• Applicable workpiece

◎: Excellent ○: Good

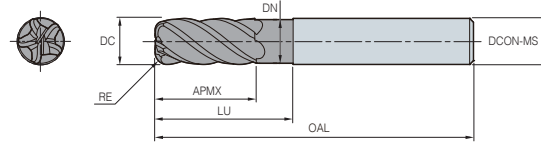
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU5000 (5 flutes neck type radius)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø20	0.000 ~ -0.020



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	RE
SREU 	5060-057-N200-R05	6	13	20	5.7	57	6	0.5
	5060-057-N200-R10	6	13	20	5.7	57	6	1
	5080-063-N260-R05	8	19	26	7.6	63	8	0.5
	5080-063-N260-R10	8	19	26	7.6	63	8	1
	5100-072-N300-R05	10	22	30	9.5	72	10	0.5
	5100-072-N300-R10	10	22	30	9.5	72	10	1
	5100-072-N300-R15	10	22	30	9.5	72	10	1.5
	5100-072-N300-R20	10	22	30	9.5	72	10	2
	5120-083-N360-R05	12	26	36	11.4	83	12	0.5
	5120-083-N360-R10	12	26	36	11.4	83	12	1
	5120-083-N360-R15	12	26	36	11.4	83	12	1.5
	5120-083-N360-R20	12	26	36	11.4	83	12	2
	5120-083-N360-R30	12	26	36	11.4	83	12	3
	5160-092-N420-R05	16	32	42	15.2	92	16	0.5
	5160-092-N420-R10	16	32	42	15.2	92	16	1
	5160-092-N420-R20	16	32	42	15.2	92	16	2
	5160-092-N420-R30	16	32	42	15.2	92	16	3
	5200-104-N520-R05	20	38	52	19	104	20	0.5
	5200-104-N520-R10	20	38	52	19	104	20	1
	5200-104-N520-R20	20	38	52	19	104	20	2
	5200-104-N520-R30	20	38	52	19	104	20	3

• Applicable workpiece

◎: Excellent ○: Good

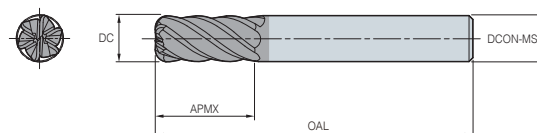
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness (HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness (HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU6000 (6 flutes radius)



DC	Tolerance
Ø6	0.000 ~ -0.025
Ø8 ~ Ø20	0.000 ~ -0.030



(mm)

	Designation	DC	APMX	OAL	DCON-MS	RE
SREU 	6060-057-R03	6	13	57	6	0.3
	6060-057-R05	6	13	57	6	0.5
	6060-057-R10	6	13	57	6	1
	6080-063-R03	8	19	63	8	0.3
	6080-063-R05	8	19	63	8	0.5
	6080-063-R10	8	19	63	8	1
	6100-072-R03	10	22	72	10	0.3
	6100-072-R05	10	22	72	10	0.5
	6100-072-R10	10	22	72	10	1
	6100-072-R15	10	22	72	10	1.5
	6100-072-R20	10	22	72	10	2
	6100-072-R30	10	22	72	10	3
	6120-083-R05	12	26	83	12	0.5
	6120-083-R10	12	26	83	12	1
	6120-083-R15	12	26	83	12	1.5
	6120-083-R20	12	26	83	12	2
	6120-083-R25	12	26	83	12	2.5
	6120-083-R30	12	26	83	12	3
	6160-092-R05	16	32	92	16	0.5
	6160-092-R10	16	32	92	16	1
	6160-092-R20	16	32	92	16	2
	6160-092-R30	16	32	92	16	3
	6200-104-R05	20	38	104	20	0.5
	6200-104-R10	20	38	104	20	1
	6200-104-R20	20	38	104	20	2
	6200-104-R30	20	38	104	20	3

• Applicable workpiece

◎: Excellent ○: Good

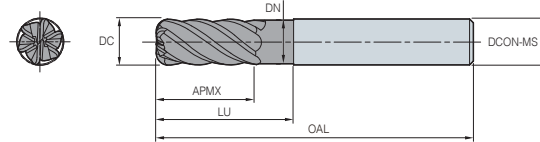
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SREU6000 (6 flutes neck type radius)



DC	Tolerance
Ø6	0.000 ~ -0.025
Ø8 ~ Ø20	0.000 ~ -0.030



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	RE
SREU 	6060-057-N200-R05	6	13	20	5.7	57	6	0.5
	6060-057-N200-R10	6	13	20	5.7	57	6	1
	6080-063-N260-R05	8	19	26	7.6	63	8	0.5
	6080-063-N260-R10	8	19	26	7.6	63	8	1
	6100-072-N300-R05	10	22	30	9.5	72	10	0.5
	6100-072-N300-R10	10	22	30	9.5	72	10	1
	6100-072-N300-R15	10	22	30	9.5	72	10	1.5
	6100-072-N300-R20	10	22	30	9.5	72	10	2
	6120-083-N360-R05	12	26	36	11.4	83	12	0.5
	6120-083-N360-R10	12	26	36	11.4	83	12	1
	6120-083-N360-R15	12	26	36	11.4	83	12	1.5
	6120-083-N360-R20	12	26	36	11.4	83	12	2
	6120-083-N360-R30	12	26	36	11.4	83	12	3
	6160-092-N420-R05	16	32	42	15.2	92	16	0.5
	6160-092-N420-R10	16	32	42	15.2	92	16	1
	6160-092-N420-R20	16	32	42	15.2	92	16	2
	6160-092-N420-R30	16	32	42	15.2	92	16	3
	6200-104-N520-R05	20	38	52	19	104	20	0.5
	6200-104-N520-R10	20	38	52	19	104	20	1
	6200-104-N520-R20	20	38	52	19	104	20	2
	6200-104-N520-R30	20	38	52	19	104	20	3

• Applicable workpiece

◎: Excellent ○: Good

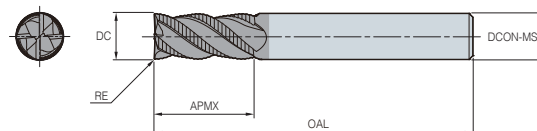
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness (HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎	◎	◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness (HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation				○	○		○	○				

SFREU4000/5000 (4, 5 flutes fine pitch roughing)



DC	Tolerance
Ø6 ~ Ø20	0.000 ~ -0.050



(mm)

	Designation	DC	APMX	OAL	DCON-MS	RE
SFREU 4	4060-057	6	13	57	6	0.2
	4080-063	8	19	63	8	0.2
	4100-072	10	22	72	10	0.3
	4120-083	12	26	83	12	0.3
	4160-092	16	32	92	16	0.5
	4200-104	20	38	104	20	0.5
SFREU 5	5120-083	12	26	83	12	0.3
	5160-092	16	32	92	16	0.5
	5200-104	20	38	104	20	0.5

• Applicable workpiece

◎: Excellent ○: Good

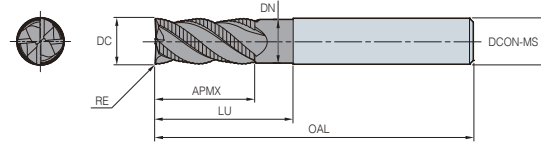
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎		◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-based HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation							○					

SFREU4000/5000 (4, 5 flutes neck type fine pitch roughing)



DC	Tolerance
Ø6 ~ Ø20	0.000 ~ -0.050



(mm)

	Designation	DC	APMX	LU	DN	OAL	DCON-MS	RE
SFREU 4	4060-057-N200	6	13	20	5.7	57	6	0.2
	4080-063-N260	8	19	26	7.6	63	8	0.2
	4100-072-N300	10	22	30	9.5	72	10	0.3
	4120-083-N360	12	26	36	11.4	83	12	0.3
	4160-092-N420	16	32	42	15.2	92	16	0.5
	4200-104-N520	20	38	52	19	104	20	0.5
SFREU 5	5120-083-N360	12	26	36	11.4	83	12	0.3
	5160-092-N420	16	32	42	15.2	92	16	0.5
	5200-104-N520	20	38	52	19	104	20	0.5

• Applicable workpiece

◎: Excellent ○: Good

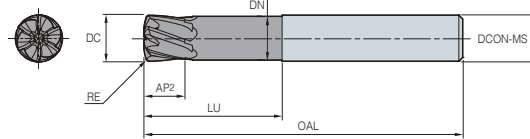
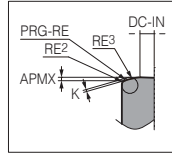
ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎		◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation							○					

SDREU6000 (6 flutes high feed)



DC	Tolerance
Ø6	0.000 ~ -0.015
Ø8 ~ Ø16	0.000 ~ -0.020



(mm)

Designation		DC	PRG-RE	APMX	AP2	LU	DN	OAL	DCON-MS	Duplex Corner Radius			
										DC-IN	RE ₂	RE ₃	K
SDREU 6	6060-057-N090	6	0.67	0.32	5	9	5.7	57	6	1.32	0.375	6	0.2
	6060-063-N180	6	0.67	0.32	5	18	5.7	63	6	1.32	0.375	6	0.2
	6080-063-N120	8	0.9	0.42	7	12	7.6	63	8	1.76	0.5	8	0.27
	6080-076-N240	8	0.9	0.42	7	24	7.6	76	8	1.76	0.5	8	0.27
	6100-072-N150	10	1.12	0.53	9	15	9.5	72	10	2.2	0.625	10	0.34
	6100-089-N300	10	1.12	0.53	9	30	9.5	89	10	2.2	0.625	10	0.34
	6120-083-N180	12	1.34	0.63	11	18	11.4	83	12	2.64	0.75	12	0.41
	6120-100-N360	12	1.34	0.63	11	36	11.4	100	12	2.64	0.75	12	0.41
	6160-092-N240	16	1.79	0.84	15	24	15.2	92	16	3.52	1	16	0.54
	6160-110-N480	16	1.79	0.84	15	48	15.2	110	16	3.52	1	16	0.54

• Applicable workpiece

◎: Excellent ○: Good

ISO	P				M	K			N		
Group	P1~P5	P6~P9	P10~P11	P14~P15	M1	K1~K2	K3~K4	K5~K6	N1~N2	N3~N5	N6~N8
	Non-alloy steel and Carbon steel	Low alloy steel	High alloy steel and Tool steel	Stainless steel (Ferrite, Martensitic)	Stainless steel (Austenite)	Grey cast iron	Ductile cast iron	Malleable cast iron	Aluminum forged alloy	Aluminum cast alloy	Copper and Copper alloy
Hardness(HB)	125~300	180~350	200~325	200~240	180	180~260	160~250	130~230	60~100	75~130	90~110
Recommendation	◎	◎	◎	◎		◎	◎	◎			

ISO	S				H				O			
Group	S1~2	S3~S5	S6~S8	S9~S11	H1	H2	H4	H5	O1	O2	O3	O4
	Fe-based HRSA	Co-based HRSA	Ni-base HRSA	Titanium and Titanium alloy steel	Hardened steel		Chilled cast iron	Hardened cast iron	Plastic	Reinforced plastic	Graphite	Ceramic
Hardness(HB)	200~280	250~320	250~320	Rma) 400~1390	~HrC55	~HrC60	400	HrC55				
Recommendation					◎		◎	◎				

» Recommended cutting conditions

SBEU2000 (2 flutes ball)

[Profiling]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	1	2	3	4	5	6	8	10	12	
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	0.05D	0.08D		vc (m/min)	94	187	187	187	175	157	167	175	157
									fz (mm/t)	0.048	0.057	0.091	0.121	0.156	0.174	0.189	0.199	0.212
									rpm (min ⁻¹)	29921	29762	19841	14881	11141	8329	6645	5570	4165
									feed (mm/min)	2872	3393	3611	3601	3476	2899	2512	2217	1766
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	0.05D	0.08D		vc (m/min)	94	187	187	187	175	157	167	175	157
									fz (mm/t)	0.048	0.057	0.091	0.121	0.156	0.174	0.189	0.199	0.212
									rpm (min ⁻¹)	29921	29762	19841	14881	11141	8329	6645	5570	4165
									feed (mm/min)	2872	3393	3611	3601	3476	2899	2512	2217	1766
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	0.05D	0.08D		vc (m/min)	94	187	187	187	175	157	167	175	157
									fz (mm/t)	0.048	0.057	0.091	0.121	0.156	0.174	0.189	0.199	0.212
									rpm (min ⁻¹)	29921	29762	19841	14881	11141	8329	6645	5570	4165
									feed (mm/min)	2872	3393	3611	3601	3476	2899	2512	2217	1766
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	0.05D	0.08D		vc (m/min)	94	187	187	187	175	157	167	175	157
									fz (mm/t)	0.048	0.057	0.091	0.121	0.156	0.174	0.189	0.199	0.212
									rpm (min ⁻¹)	29921	29762	19841	14881	11141	8329	6645	5570	4165
									feed (mm/min)	2872	3393	3611	3601	3476	2899	2512	2217	1766
H	H1	Hardened steel	SKD61	X40CrMoV5-1	~HRC55	0.04D	0.06D		vc (m/min)	85	151	151	151	141	124	136	141	127
									fz (mm/t)	0.042	0.05	0.075	0.1	0.125	0.141	0.15	0.16	0.17
									rpm (min ⁻¹)	27056	24032	16022	12016	8976	6578	5411	4488	3369
									feed (mm/min)	2273	2403	2403	2403	2244	1855	1623	1436	1145

» Recommended cutting conditions

SSFEU2000 (2 flutes short flat) / SFEU2000 (2 flutes flat) / SREU2000 (2 flutes radius)

[Side Milling]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	1	2	3	4	5	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1D	0.3D		vc (m/min)	116	122	129	135	143	150	150	150	150	150
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	36945	19445	13646	10773	9072	7958	5968	4775	3979	2984
									feed (mm/min)	517	467	491	517	544	573	573	557	537	477
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1D	0.3D		vc (m/min)	116	122	129	135	143	150	150	150	150	150
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	36945	19445	13646	10773	9072	7958	5968	4775	3979	2984
									feed (mm/min)	517	467	491	517	544	573	573	557	537	477
	P10 ~ P11	High alloy steel and Tool steel	STD11	X153CrMoV12	200 ~ 325	1D	0.2D		vc (m/min)	93	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	29556	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	414	373	393	414	435	458	458	446	430	382
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1D	0.2D		vc (m/min)	93	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	29556	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	414	373	393	414	435	458	458	446	430	382
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	1D	0.2D		vc (m/min)	77	81	86	90	95	100	100	100	100	100
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	24630	12963	9097	7182	6048	5305	3979	3183	2653	1989
									feed (mm/min)	345	311	327	345	363	382	382	371	358	318
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1D	0.3D		vc (m/min)	124	130	137	144	152	160	160	160	160	160
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	39408	20741	14555	11491	9677	8488	6366	5093	4244	3183
									feed (mm/min)	552	498	524	552	581	611	611	594	573	509
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1D	0.3D		vc (m/min)	108	114	120	126	133	140	140	140	140	140
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	34482	18149	12736	10055	8467	7427	5570	4456	3714	2785
									feed (mm/min)	483	436	458	483	508	535	535	520	501	446
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1D	0.3D		vc (m/min)	108	114	120	126	133	140	140	140	140	140
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	34482	18149	12736	10055	8467	7427	5570	4456	3714	2785
									feed (mm/min)	483	436	458	483	508	535	535	520	501	446
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ⁹⁾ 400 ~ 1390	1D	0.1D		vc (m/min)	62	65	69	72	76	80	80	80	80	80
									fz (mm/t)	0.007	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	19704	10371	7278	5745	4838	4244	3183	2546	2122	1592
									feed (mm/min)	276	249	262	276	290	306	306	306	297	286

» Recommended cutting conditions

SSFEU2000 (2 flutes short flat)/SFEU2000 (2 flutes flat)/SREU2000 (2 flutes radius)

[Slotting]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	1	2	3	4	5	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1D	1D		vc (m/min)	93	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.005	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	29556	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	296	249	262	276	290	318	334	306	318	306
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1D	1D		vc (m/min)	93	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.005	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	29556	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	296	249	262	276	290	318	334	306	318	306
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1D	1D		vc (m/min)	77	81	86	90	95	100	100	100	100	100
									fz (mm/t)	0.005	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	24630	12963	9097	7182	6048	5305	3979	3183	2653	1989
									feed (mm/min)	246	207	218	230	242	265	279	255	265	259
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1D	1D		vc (m/min)	77	81	86	90	95	100	100	100	100	100
									fz (mm/t)	0.005	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	24630	12963	9097	7182	6048	5305	3979	3183	2653	1989
									feed (mm/min)	246	207	218	230	242	265	279	255	265	259
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	0.75D	1D		vc (m/min)	62	65	69	72	76	80	80	80	80	80
									fz (mm/t)	0.005	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	19704	10371	7278	5745	4838	4244	3183	2546	2122	1592
									feed (mm/min)	197	166	175	184	194	212	223	204	212	207
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1D	1D		vc (m/min)	101	106	111	117	124	130	130	130	130	130
									fz (mm/t)	0.005	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	32019	16852	11826	9336	7862	6897	5173	4138	3448	2586
									feed (mm/min)	320	270	284	299	314	345	362	331	345	336
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1D	1D		vc (m/min)	85	90	94	99	105	110	110	110	110	110
									fz (mm/t)	0.005	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	27093	14260	10007	7900	6653	5836	4377	3501	2918	2188
									feed (mm/min)	271	228	240	253	266	292	306	280	292	284
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1D	1D		vc (m/min)	85	90	94	99	105	110	110	110	110	110
									fz (mm/t)	0.005	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	27093	14260	10007	7900	6653	5836	4377	3501	2918	2188
									feed (mm/min)	271	228	240	253	266	292	306	280	292	284
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^h) 400 ~ 1390	0.5D	0.1D		vc (m/min)	46	49	51	54	57	60	60	60	60	60
									fz (mm/t)	0.004	0.006	0.009	0.012	0.015	0.019	0.026	0.030	0.038	0.049
									rpm (min ⁻¹)	14778	7778	5458	4309	3629	3183	2387	1910	1592	1194
									feed (mm/min)	118	93	98	103	109	119	125	115	119	116

» Recommended cutting conditions
 SSFEU3000 (3 flutes short flat) / SFEU3000 (3 flutes flat)

[Side Milling]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	2	3	4	5	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1.5D	0.3D		vc (m/min)	122	129	135	143	150	150	150	150	150
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	19445	13646	10773	9072	7958	5968	4775	3979	2984
									feed (mm/min)	700	737	776	816	859	859	836	806	716
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1.5D	0.3D		vc (m/min)	122	129	135	143	150	150	150	150	150
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	19445	13646	10773	9072	7958	5968	4775	3979	2984
									feed (mm/min)	700	737	776	816	859	859	836	806	716
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1.5D	0.2D		vc (m/min)	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	560	589	621	653	688	688	668	645	573
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1.5D	0.2D		vc (m/min)	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	560	589	621	653	688	688	668	645	573
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	1.5D	0.2D		vc (m/min)	81	86	90	95	100	100	100	100	100
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	12963	9097	7182	6048	5305	3979	3183	2653	1989
									feed (mm/min)	467	491	517	544	573	573	557	537	477
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1.5D	0.3D		vc (m/min)	130	137	144	152	160	160	160	160	160
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	20741	14555	11491	9677	8488	6366	5093	4244	3183
									feed (mm/min)	747	786	827	871	917	917	891	859	764
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1.5D	0.3D		vc (m/min)	114	120	126	133	140	140	140	140	140
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	18149	12736	10055	8467	7427	5570	4456	3714	2785
									feed (mm/min)	653	688	724	762	802	802	780	752	668
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1.5D	0.3D		vc (m/min)	114	120	126	133	140	140	140	140	140
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	18149	12736	10055	8467	7427	5570	4456	3714	2785
									feed (mm/min)	653	688	724	762	802	802	780	752	668
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b 400 ~ 1390	1.5D	0.1D		vc (m/min)	65	69	72	76	80	80	80	80	80
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	10371	7278	5745	4838	4244	3183	2546	2122	1592
									feed (mm/min)	373	393	414	435	458	458	446	430	382

» Recommended cutting conditions

SSFEU3000 (3 flutes short flat)/SFEU3000 (3 flutes flat)

[Slotting]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	2	3	4	5	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1D		vc (m/min)	98	103	108	114	120	120	120	120	120	120
								fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	15556	10916	8618	7257	6366	4775	3820	3183	2387	1910
								feed (mm/min)	373	393	414	435	477	501	458	477	466	458
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1D		vc (m/min)	98	103	108	114	120	120	120	120	120	120
								fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	15556	10916	8618	7257	6366	4775	3820	3183	2387	1910
								feed (mm/min)	373	393	414	435	477	501	458	477	466	458
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1D		vc (m/min)	81	86	90	95	100	100	100	100	100	100
								fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	12963	9097	7182	6048	5305	3979	3183	2653	1989	1592
								feed (mm/min)	311	327	345	363	398	418	382	398	388	382
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1D		vc (m/min)	81	86	90	95	100	100	100	100	100	100
								fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	12963	9097	7182	6048	5305	3979	3183	2653	1989	1592
								feed (mm/min)	311	327	345	363	398	418	382	398	388	382
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	0.75D		vc (m/min)	65	69	72	76	80	80	80	80	80	80
								fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	10371	7278	5745	4838	4244	3183	2546	2122	1592	1273
								feed (mm/min)	249	262	276	290	318	334	306	318	310	306
	K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	1D		vc (m/min)	106	111	117	124	130	130	130	130	130	130
								fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	16852	11826	9336	7862	6897	5173	4138	3448	2586	2069
								feed (mm/min)	404	426	448	472	517	543	497	517	504	497
		K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	1D		vc (m/min)	90	94	99	105	110	110	110	110	110	110
								fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	14260	10007	7900	6653	5836	4377	3501	2918	2188	1751
								feed (mm/min)	342	360	379	399	438	460	420	438	427	420
		K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	1D		vc (m/min)	90	94	99	105	110	110	110	110	110	110
								fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	14260	10007	7900	6653	5836	4377	3501	2918	2188	1751
								feed (mm/min)	342	360	379	399	438	460	420	438	427	420
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b 400 ~ 1390	0.5D		vc (m/min)	49	51	54	57	60	60	60	60	60	60
								fz (mm/t)	0.006	0.009	0.012	0.015	0.019	0.026	0.030	0.038	0.049	0.060
								rpm (min ⁻¹)	7778	5458	4309	3629	3183	2387	1910	1592	1194	955
								feed (mm/min)	140	147	155	163	179	188	172	179	175	172

» Recommended cutting conditions
SSFEU3000 (3 flutes short flat) / SFEU3000 (3 flutes flat)

[Plunging]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	2	3	4	5	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1D		vc (m/min)	70	80	90	95	100	100	100	100	100	100
								fz (mm/t)	0.006	0.010	0.014	0.015	0.019	0.027	0.035	0.040	0.042	0.042
								rpm (min ⁻¹)	11141	8488	7162	6048	5305	3979	3183	2653	1989	1592
								feed (mm/min)	203	250	298	272	300	318	338	314	249	199
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1D		vc (m/min)	70	80	90	95	100	100	100	100	100	100
								fz (mm/t)	0.006	0.010	0.014	0.015	0.019	0.027	0.035	0.040	0.042	0.042
								rpm (min ⁻¹)	11141	8488	7162	6048	5305	3979	3183	2653	1989	1592
								feed (mm/min)	203	250	298	272	300	318	338	314	249	199
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1D		vc (m/min)	56	64	72	76	80	80	80	80	80	80
								fz (mm/t)	0.006	0.010	0.014	0.015	0.019	0.027	0.035	0.040	0.042	0.042
								rpm (min ⁻¹)	8913	6791	5730	4838	4244	3183	2546	2122	1592	1273
								feed (mm/min)	162	200	239	218	240	255	271	252	199	159
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1D		vc (m/min)	56	64	72	76	80	80	80	80	80	80
								fz (mm/t)	0.006	0.010	0.014	0.015	0.019	0.027	0.035	0.040	0.042	0.042
								rpm (min ⁻¹)	8913	6791	5730	4838	4244	3183	2546	2122	1592	1273
								feed (mm/min)	162	200	239	218	240	255	271	252	199	159
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	0.5D		vc (m/min)	53	56	59	62	65	65	65	65	65	65
								fz (mm/t)	0.005	0.007	0.010	0.011	0.014	0.020	0.027	0.030	0.031	0.031
								rpm (min ⁻¹)	8426	5913	4668	3931	3448	2586	2069	1724	1293	1035
								feed (mm/min)	126	124	146	130	146	155	165	153	121	97
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1D		vc (m/min)	70	80	90	95	105	105	105	105	105	105
								fz (mm/t)	0.006	0.010	0.014	0.015	0.019	0.027	0.035	0.040	0.042	0.042
								rpm (min ⁻¹)	11141	8488	7162	6048	5570	4178	3342	2785	2089	1671
								feed (mm/min)	203	250	298	272	315	334	355	330	261	209
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1D		vc (m/min)	70	80	90	95	95	95	95	95	95	95
								fz (mm/t)	0.006	0.010	0.014	0.015	0.019	0.027	0.035	0.040	0.042	0.042
								rpm (min ⁻¹)	11141	8488	7162	6048	5040	3780	3024	2520	1890	1512
								feed (mm/min)	203	250	298	272	285	302	321	299	236	189
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1D		vc (m/min)	70	80	90	95	95	95	95	95	95	95
								fz (mm/t)	0.006	0.010	0.014	0.015	0.019	0.027	0.035	0.040	0.042	0.042
								rpm (min ⁻¹)	11141	8488	7162	6048	5040	3780	3024	2520	1890	1512
								feed (mm/min)	203	250	298	272	285	302	321	299	236	189
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b 400 ~ 1390	0.5D		vc (m/min)	41	43	45	48	50	50	50	50	50	50
								fz (mm/t)	0.005	0.007	0.010	0.011	0.014	0.020	0.027	0.030	0.031	0.031
								rpm (min ⁻¹)	6482	4549	3591	3024	2653	1989	1592	1326	995	796
								feed (mm/min)	97	96	112	100	113	119	127	118	93	75

» Recommended cutting conditions

SFEU4000 (4 flutes flat) / SREU4000 (4 flutes radius)

[Side Milling]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	2	3	4	5	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1.5D	0.3D		vc (m/min)	122	129	135	143	150	150	150	150	150
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	19445	13646	10773	9072	7958	5968	4775	3979	2984
									feed (mm/min)	933	982	1034	1089	1146	1146	1114	1074	955
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1.5D	0.3D		vc (m/min)	122	129	135	143	150	150	150	150	150
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	19445	13646	10773	9072	7958	5968	4775	3979	2984
									feed (mm/min)	933	982	1034	1089	1146	1146	1114	1074	955
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1.5D	0.2D		vc (m/min)	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	747	786	827	871	917	917	891	859	764
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1.5D	0.2D		vc (m/min)	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	747	786	827	871	917	917	891	859	764
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	1.5D	0.2D		vc (m/min)	81	86	90	95	100	100	100	100	100
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	12963	9097	7182	6048	5305	3979	3183	2653	1989
									feed (mm/min)	622	655	689	726	764	764	743	716	637
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1.5D	0.3D		vc (m/min)	130	137	144	152	160	160	160	160	160
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	20741	14555	11491	9677	8488	6366	5093	4244	3183
									feed (mm/min)	996	1048	1103	1161	1222	1222	1188	1146	1019
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1.5D	0.3D		vc (m/min)	114	120	126	133	140	140	140	140	140
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	18149	12736	10055	8467	7427	5570	4456	3714	2785
									feed (mm/min)	871	917	965	1016	1070	1070	1040	1003	891
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1.5D	0.3D		vc (m/min)	114	120	126	133	140	140	140	140	140
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	18149	12736	10055	8467	7427	5570	4456	3714	2785
									feed (mm/min)	871	917	965	1016	1070	1070	1040	1003	891
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^{b)} 400 ~ 1390	1.5D	0.1D		vc (m/min)	65	69	72	76	80	80	80	80	80
									fz (mm/t)	0.012	0.018	0.024	0.03	0.036	0.048	0.06	0.07	0.09
									rpm (min ⁻¹)	10371	7278	5745	4838	4244	3183	2546	2122	1592
									feed (mm/min)	498	524	552	581	611	611	594	573	509

» Recommended cutting conditions
SFEU4000 (4 flutes flat) / SREU4000 (4 flutes radius)

[Slotting]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	2	3	4	5	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1D	1D		vc (m/min)	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	498	524	552	581	637	668	611	637	621
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1D	1D		vc (m/min)	98	103	108	114	120	120	120	120	120
									fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	15556	10916	8618	7257	6366	4775	3820	3183	2387
									feed (mm/min)	498	524	552	581	637	668	611	637	621
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1D	1D		vc (m/min)	81	86	90	95	100	100	100	100	100
									fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	12963	9097	7182	6048	5305	3979	3183	2653	1989
									feed (mm/min)	415	437	460	484	531	557	509	531	517
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1D	1D		vc (m/min)	81	86	90	95	100	100	100	100	100
									fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	12963	9097	7182	6048	5305	3979	3183	2653	1989
									feed (mm/min)	415	437	460	484	531	557	509	531	517
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	0.75D	1D		vc (m/min)	65	69	72	76	80	80	80	80	80
									fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	10371	7278	5745	4838	4244	3183	2546	2122	1592
									feed (mm/min)	332	349	368	387	424	446	407	424	414
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1D	1D		vc (m/min)	106	111	117	124	130	130	130	130	130
									fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	16852	11826	9336	7862	6897	5173	4138	3448	2586
									feed (mm/min)	539	568	598	629	690	724	662	690	672
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1D	1D		vc (m/min)	90	94	99	105	110	110	110	110	110
									fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	14260	10007	7900	6653	5836	4377	3501	2918	2188
									feed (mm/min)	456	480	506	532	584	613	560	584	569
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1D	1D		vc (m/min)	90	94	99	105	110	110	110	110	110
									fz (mm/t)	0.008	0.012	0.016	0.02	0.025	0.035	0.04	0.05	0.065
									rpm (min ⁻¹)	14260	10007	7900	6653	5836	4377	3501	2918	2188
									feed (mm/min)	456	480	506	532	584	613	560	584	569
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b 400 ~ 1390	0.5D	1D		vc (m/min)	49	51	54	57	60	60	60	60	60
									fz (mm/t)	0.006	0.009	0.012	0.015	0.019	0.026	0.030	0.038	0.049
									rpm (min ⁻¹)	7778	5458	4309	3629	3183	2387	1910	1592	1194
									feed (mm/min)	187	196	207	218	239	251	229	239	233

» Recommended cutting conditions

SLFEU4000 (4 flutes long flat) / SLFEU4000-SPLT (4 flutes long flat splitter)

[Side Milling]

Workpiece material			KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	3D	0.1D		vc (m/min)	160	160	160	160	160	160
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	8488	6366	5093	4244	3183	2546
									feed (mm/min)	1358	1451	1467	1460	1273	1222
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	3D	0.1D		vc (m/min)	160	160	160	160	160	160
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	8488	6366	5093	4244	3183	2546
									feed (mm/min)	1358	1451	1467	1460	1273	1222
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	3D	0.1D		vc (m/min)	140	140	140	140	140	140
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228
									feed (mm/min)	1188	1270	1283	1277	1114	1070
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	3D	0.1D		vc (m/min)	140	140	140	140	140	140
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228
									feed (mm/min)	1188	1270	1283	1277	1114	1070
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	3D	0.075D		vc (m/min)	120	120	120	120	120	120
									fz (mm/t)	0.036	0.052	0.066	0.008	0.094	0.11
									rpm (min ⁻¹)	6366	4775	3820	3183	2387	1910
									feed (mm/min)	917	993	1008	102	898	840
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	3D	0.1D		vc (m/min)	180	180	180	180	180	180
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	9549	7162	5730	4775	3581	2865
									feed (mm/min)	1528	1633	1650	1642	1432	1375
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	3D	0.1D		vc (m/min)	150	150	150	150	150	150
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	7958	5968	4775	3979	2984	2387
									feed (mm/min)	1273	1361	1375	1369	1194	1146
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	3D	0.1D		vc (m/min)	150	150	150	150	150	150
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	7958	5968	4775	3979	2984	2387
									feed (mm/min)	1273	1361	1375	1369	1194	1146
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b 400 ~ 1390	3D	0.075D		vc (m/min)	80	80	80	80	80	80
									fz (mm/t)	0.036	0.052	0.066	0.008	0.094	0.11
									rpm (min ⁻¹)	4244	3183	2546	2122	1592	1273
									feed (mm/min)	611	662	672	68	598	560

» Recommended cutting conditions

SLFEU4000 (4 flutes long flat) / SLFEU4000-SPLT (4 flutes long flat splitter)

[High-speed, Dynamic Milling]

Workpiece material			KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	3D	0.1D		vc (m/min)	260	260	260	260	260	260
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	13793	10345	8276	6897	5173	4138
									feed (mm/min)	3310	3310	3310	3310	3104	2814
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	3D	0.1D		vc (m/min)	250	250	250	250	250	250
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	13263	9947	7958	6631	4974	3979
									feed (mm/min)	3183	3183	3183	3183	2984	2706
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	3D	0.1D		vc (m/min)	230	230	230	230	230	230
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	12202	9151	7321	6101	4576	3661
									feed (mm/min)	2928	2928	2928	2928	2745	2489
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	3D	0.1D		vc (m/min)	230	230	230	230	230	230
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	12202	9151	7321	6101	4576	3661
									feed (mm/min)	2928	2928	2928	2928	2745	2489
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	3D	0.075D		vc (m/min)	140	140	140	140	140	140
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228
									feed (mm/min)	1783	1783	1783	1783	1671	1515
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	3D	0.1D		vc (m/min)	300	300	300	300	300	300
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	15915	11937	9549	7958	5968	4775
									feed (mm/min)	3820	3820	3820	3820	3581	3247
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	3D	0.1D		vc (m/min)	240	240	240	240	240	240
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	12732	9549	7639	6366	4775	3820
									feed (mm/min)	3056	3056	3056	3056	2865	2597
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	3D	0.1D		vc (m/min)	240	240	240	240	240	240
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	12732	9549	7639	6366	4775	3820
									feed (mm/min)	3056	3056	3056	3056	2865	2597
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b) 400 ~ 1390	3D	0.075D		vc (m/min)	110	110	110	110	110	110
									fz (mm/t)	0.042	0.055	0.07	0.085	0.1	0.12
									rpm (min ⁻¹)	5836	4377	3501	2918	2188	1751
									feed (mm/min)	980	963	980	992	875	840

» Recommended cutting conditions
SFEU5000 (5 flutes flat) / SREU5000 (5 flutes radius)

[Side Milling]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1.5D		vc (m/min)	150	150	150	150	150	150
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	7958	5968	4775	3979	2984	2387
								feed (mm/min)	1432	1432	1432	1393	1343	1194
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1.5D		vc (m/min)	150	150	150	150	150	150
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	7958	5968	4775	3979	2984	2387
								feed (mm/min)	1432	1432	1432	1393	1343	1194
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1.5D		vc (m/min)	120	120	120	120	120	120
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	6366	4775	3820	3183	2387	1910
								feed (mm/min)	1146	1146	1146	1114	1074	955
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1.5D		vc (m/min)	120	120	120	120	120	120
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	6366	4775	3820	3183	2387	1910
								feed (mm/min)	1146	1146	1146	1114	1074	955
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	1.5D		vc (m/min)	100	100	100	100	100	100
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	5305	3979	3183	2653	1989	1592
								feed (mm/min)	955	955	955	928	895	796
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1.5D		vc (m/min)	160	160	160	160	160	160
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	8488	6366	5093	4244	3183	2546
								feed (mm/min)	1528	1528	1528	1485	1432	1273
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1.5D		vc (m/min)	140	140	140	140	140	140
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228
								feed (mm/min)	1337	1337	1337	1300	1253	1114
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1.5D		vc (m/min)	140	140	140	140	140	140
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228
								feed (mm/min)	1337	1337	1337	1300	1253	1114
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^{*)} 400 ~ 1390	1.5D		vc (m/min)	80	80	80	80	80	80
								fz (mm/t)	0.036	0.048	0.06	0.07	0.09	0.1
								rpm (min ⁻¹)	4244	3183	2546	2122	1592	1273
								feed (mm/min)	764	764	764	743	716	637

» Recommended cutting conditions
SFEU5000 (5 flutes flat)/SREU5000 (5 flutes radius)

[Slotting]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1D		vc (m/min)	120	120	120	120	120	120
								fz (mm/t)	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	6366	4775	3820	3183	2387	1910
								feed (mm/min)	637	668	611	637	621	611
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1D		vc (m/min)	120	120	120	120	120	120
								fz (mm/t)	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	6366	4775	3820	3183	2387	1910
								feed (mm/min)	637	668	611	637	621	611
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1D		vc (m/min)	100	100	100	100	100	100
								fz (mm/t)	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	5305	3979	3183	2653	1989	1592
								feed (mm/min)	531	557	509	531	517	509
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1D		vc (m/min)	100	100	100	100	100	100
								fz (mm/t)	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	5305	3979	3183	2653	1989	1592
								feed (mm/min)	531	557	509	531	517	509
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	0.75D		vc (m/min)	80	80	80	80	80	80
								fz (mm/t)	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	4244	3183	2546	2122	1592	1273
								feed (mm/min)	424	446	407	424	414	407
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1D		vc (m/min)	130	130	130	130	130	130
								fz (mm/t)	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	6897	5173	4138	3448	2586	2069
								feed (mm/min)	690	724	662	690	672	662
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1D		vc (m/min)	110	110	110	110	110	110
								fz (mm/t)	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	5836	4377	3501	2918	2188	1751
								feed (mm/min)	584	613	560	584	569	560
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1D		vc (m/min)	110	110	110	110	110	110
								fz (mm/t)	0.025	0.035	0.04	0.05	0.065	0.08
								rpm (min ⁻¹)	5836	4377	3501	2918	2188	1751
								feed (mm/min)	584	613	560	584	569	560
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b 400 ~ 1390	0.5D		vc (m/min)	60	60	60	60	60	60
								fz (mm/t)	0.019	0.026	0.030	0.038	0.049	0.060
								rpm (min ⁻¹)	3183	2387	1910	1592	1194	955
								feed (mm/min)	239	251	229	239	233	229

» Recommended cutting conditions

SLFEU5000 (5 flutes long flat) / SLFEU5000-SPLT (5 flutes long flat splitter)

[Side Milling]

Workpiece material			KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	3D	0.1D		vc (m/min)	160	160	160	160	160	160
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	8488	6366	5093	4244	3183	2546
									feed (mm/min)	1698	1814	1833	1825	1592	1528
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	3D	0.1D		vc (m/min)	160	160	160	160	160	160
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	8488	6366	5093	4244	3183	2546
									feed (mm/min)	1698	1814	1833	1825	1592	1528
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	3D	0.1D		vc (m/min)	140	140	140	140	140	140
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228
									feed (mm/min)	1485	1588	1604	1597	1393	1337
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	3D	0.1D		vc (m/min)	140	140	140	140	140	140
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228
									feed (mm/min)	1485	1588	1604	1597	1393	1337
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	3D	0.075D		vc (m/min)	120	120	120	120	120	120
									fz (mm/t)	0.036	0.052	0.066	0.008	0.094	0.11
									rpm (min ⁻¹)	6366	4775	3820	3183	2387	1910
									feed (mm/min)	1146	1241	1261	127	1122	1050
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	3D	0.1D		vc (m/min)	180	180	180	180	180	180
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	9549	7162	5730	4775	3581	2865
									feed (mm/min)	1910	2041	2063	2053	1790	1719
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	3D	0.1D		vc (m/min)	150	150	150	150	150	150
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	7958	5968	4775	3979	2984	2387
									feed (mm/min)	1592	1701	1719	1711	1492	1432
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	3D	0.1D		vc (m/min)	150	150	150	150	150	150
									fz (mm/t)	0.04	0.057	0.072	0.086	0.1	0.12
									rpm (min ⁻¹)	7958	5968	4775	3979	2984	2387
									feed (mm/min)	1592	1701	1719	1711	1492	1432
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b 400 ~ 1390	3D	0.075D		vc (m/min)	80	80	80	80	80	80
									fz (mm/t)	0.036	0.052	0.066	0.008	0.094	0.11
									rpm (min ⁻¹)	4244	3183	2546	2122	1592	1273
									feed (mm/min)	764	828	840	85	748	700

» Recommended cutting conditions

SLFEU5000 (5 flutes long flat) / SLFEU5000-SPLT (5 flutes long flat splitter)

[High-speed, Dynamic Milling]

Workpiece material			KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	3D	0.1D		vc (m/min)	260	260	260	260	260	260
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	13793	10345	8276	6897	5173	4138
									feed (mm/min)	4138	4138	4138	4138	3879	3517
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	3D	0.1D		vc (m/min)	250	250	250	250	250	250
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	13263	9947	7958	6631	4974	3979
									feed (mm/min)	3979	3979	3979	3979	3730	3382
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	3D	0.1D		vc (m/min)	230	230	230	230	230	230
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	12202	9151	7321	6101	4576	3661
									feed (mm/min)	3661	3661	3661	3661	3432	3111
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	3D	0.1D		vc (m/min)	230	230	230	230	230	230
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	12202	9151	7321	6101	4576	3661
									feed (mm/min)	3661	3661	3661	3661	3432	3111
M	M1	Stainless steel (Austenite)	STS316	X5CrNiMo17-12-2	180	3D	0.075D		vc (m/min)	140	140	140	140	140	140
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228
									feed (mm/min)	2228	2228	2228	2228	2089	1894
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	3D	0.1D		vc (m/min)	300	300	300	300	300	300
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	15915	11937	9549	7958	5968	4775
									feed (mm/min)	4775	4775	4775	4775	4476	4058
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	3D	0.1D		vc (m/min)	240	240	240	240	240	240
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	12732	9549	7639	6366	4775	3820
									feed (mm/min)	3820	3820	3820	3820	3581	3247
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	3D	0.1D		vc (m/min)	240	240	240	240	240	240
									fz (mm/t)	0.06	0.08	0.1	0.12	0.15	0.17
									rpm (min ⁻¹)	12732	9549	7639	6366	4775	3820
									feed (mm/min)	3820	3820	3820	3820	3581	3247
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ^b) 400 ~ 1390	3D	0.075D		vc (m/min)	110	110	110	110	110	110
									fz (mm/t)	0.042	0.055	0.07	0.085	0.1	0.12
									rpm (min ⁻¹)	5836	4377	3501	2918	2188	1751
									feed (mm/min)	1225	1204	1225	1240	1094	1050

» Recommended cutting conditions

SFEU6000 (6 flutes neck type flat) / SREU6000 (6 flutes neck type radius)

[High-speed, Dynamic Milling]

Workpiece material			KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	6	8	10	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	1.0401 1.0503	125 ~ 300	2D	0.1D		vc (m/min)	205	205	205	205	205	205
									fz (mm/t)	0.05	0.085	0.106	0.128	0.149	0.167
									rpm (min ⁻¹)	10876	8157	6525	5438	4078	3263
									feed (mm/min)	3263	4160	4150	4176	3646	3269
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	1.7225 1.6511	180 ~ 350	2D	0.1D		vc (m/min)	205	205	205	205	205	205
									fz (mm/t)	0.05	0.085	0.106	0.128	0.149	0.167
									rpm (min ⁻¹)	10876	8157	6525	5438	4078	3263
									feed (mm/min)	3263	4160	4150	4176	3646	3269
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	1.2379	200 ~ 325	2D	0.1D		vc (m/min)	100	100	100	100	100	100
									fz (mm/t)	0.041	0.071	0.088	0.105	0.123	0.137
									rpm (min ⁻¹)	5305	3979	3183	2653	1989	1592
									feed (mm/min)	1305	1695	1681	1671	1468	1308
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	1.4028	200 ~ 240	2D	0.1D		vc (m/min)	215	215	215	215	215	215
									fz (mm/t)	0.049	0.084	0.104	0.125	0.146	0.162
									rpm (min ⁻¹)	11406	8555	6844	5703	4277	3422
									feed (mm/min)	3353	4312	4270	4277	3747	3326

» Recommended cutting conditions

SFEU6000 (6 flutes neck type flat) / SREU6000 (6 flutes neck type radius)

[High-speed, Dynamic Milling]

Workpiece material			KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	6	8	10	12	16	20
M	M1	Stainless steel (Austenite)	STS316	1.4401	180	2D	0.075D		vc (m/min)	145	145	145	145	145	145
									fz (mm/t)	0.041	0.071	0.088	0.105	0.123	0.137
									rpm (min ⁻¹)	7692	5769	4615	3846	2885	2308
									feed (mm/min)	1892	2458	2437	2423	2129	1897
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	2D	0.1D		vc (m/min)	225	225	225	225	225	225
									fz (mm/t)	0.082	0.139	0.173	0.208	0.242	0.27
									rpm (min ⁻¹)	11937	8952	7162	5968	4476	3581
									feed (mm/min)	5844	7477	7426	7434	6510	5801
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	2D	0.1D		vc (m/min)	165	165	165	165	165	165
									fz (mm/t)	0.082	0.139	0.173	0.208	0.242	0.27
									rpm (min ⁻¹)	8754	6565	5252	4377	3283	2626
									feed (mm/min)	4307	5475	5452	5462	4766	4254
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	2D	0.1D		vc (m/min)	165	165	165	165	165	165
									fz (mm/t)	0.082	0.139	0.173	0.208	0.242	0.27
									rpm (min ⁻¹)	8754	6565	5252	4377	3283	2626
									feed (mm/min)	4307	5475	5452	5462	4766	4254
S	S9 ~ S10	Titanium and Titanium alloy steel	Ti-6Al-4V	Ti-6Al-4V	Rm ⁹) 400 ~ 1390	2D	0.075D		vc (m/min)	115	115	115	115	115	115
									fz (mm/t)	0.033	0.055	0.07	0.083	0.097	0.113
									rpm (min ⁻¹)	6101	4576	3661	3050	2288	1830
									feed (mm/min)	1208	1510	1537	1519	1332	1241

» Recommended cutting conditions
SFREU4000 / SFREU5000 (4, 5 flutes fine pitch roughing)

[Slotting]

Workpiece material		KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Operation type	Tool	4 Flute						5 Flute		
									6	8	10	12	16	20	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1D	1D		vc (m/min)	150	150	150	150	150	150	150	150
									fz (mm/t)	0.045	0.06	0.075	0.09	0.11	0.15	0.09	0.11
									rpm (min ⁻¹)	7958	5968	4775	3979	2984	2387	3979	2984
									feed (mm/min)	1432	1432	1432	1432	1313	1432	1432	1313
	P6 ~ P9	Low alloy steel	SCM440 SNM439	42CrMo4 34CrNiMo6	180 ~ 350	1D	1D		vc (m/min)	150	150	150	150	150	150	150	150
									fz (mm/t)	0.045	0.06	0.075	0.09	0.11	0.15	0.09	0.11
									rpm (min ⁻¹)	7958	5968	4775	3979	2984	2387	3979	2984
									feed (mm/min)	1432	1432	1432	1432	1313	1432	1790	1641
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1D	1D		vc (m/min)	140	140	140	140	140	140	140	140
									fz (mm/t)	0.045	0.06	0.075	0.09	0.11	0.15	0.09	0.11
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228	3714	2785
									feed (mm/min)	1337	1337	1337	1337	1225	1337	1671	1532
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1D	1D		vc (m/min)	140	140	140	140	140	140	140	140
									fz (mm/t)	0.045	0.06	0.075	0.09	0.11	0.15	0.09	0.11
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228	3714	2785
									feed (mm/min)	1337	1337	1337	1337	1225	1337	1671	1532
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1D	1D		vc (m/min)	180	180	180	180	180	180	180	180
									fz (mm/t)	0.045	0.06	0.075	0.09	0.11	0.15	0.09	0.11
									rpm (min ⁻¹)	9549	7162	5730	4775	3581	2865	4775	3581
									feed (mm/min)	1719	1719	1719	1719	1576	1719	2149	1970
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1D	1D		vc (m/min)	140	140	140	140	140	140	140	140
									fz (mm/t)	0.045	0.06	0.075	0.09	0.11	0.15	0.09	0.11
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228	3714	2785
									feed (mm/min)	1337	1337	1337	1337	1225	1337	1671	1532
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1D	1D		vc (m/min)	140	140	140	140	140	140	140	140
									fz (mm/t)	0.045	0.06	0.075	0.09	0.11	0.15	0.09	0.11
									rpm (min ⁻¹)	7427	5570	4456	3714	2785	2228	3714	2785
									feed (mm/min)	1337	1337	1337	1337	1225	1337	1671	1532

» Recommended cutting conditions

SFREU4000 / SFREU5000 (4, 5 flutes fine pitch roughing)

[Side Milling]

Workpiece material			KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Machining	Tool	4 Flute						5 Flute		
										6	8	10	12	16	20	12	16	20
P	P1 ~ P5	Non-alloy steel and Carbon steel	SM15C SM45C	C15 C45	125 ~ 300	1.5D	0.4D		vc (m/min)	180	180	180	180	180	180	180	180	180
									fz (mm/t)	0.06	0.085	0.1	0.12	0.15	0.2	0.12	0.15	0.2
									rpm (min ⁻¹)	9549	7162	5730	4775	3581	2865	4775	3581	2865
									feed (mm/min)	2292	2435	2292	2292	2149	2292	2865	2686	2865
	P6 ~ P9	Low alloy steel	SCM440 SNCM439	42CrMo4 34CrNiMo6	180 ~ 350	1.5D	0.4D		vc (m/min)	180	180	180	180	180	180	180	180	180
									fz (mm/t)	0.06	0.085	0.1	0.12	0.15	0.2	0.12	0.15	0.2
									rpm (min ⁻¹)	9549	7162	5730	4775	3581	2865	4775	3581	2865
									feed (mm/min)	2292	2435	2292	2292	2149	2292	2865	2686	2865
	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	1.5D	0.4D		vc (m/min)	145	145	145	145	145	145	145	145	145
									fz (mm/t)	0.06	0.085	0.1	0.12	0.15	0.2	0.12	0.15	0.2
									rpm (min ⁻¹)	7692	5769	4615	3846	2885	2308	3846	2885	2308
									feed (mm/min)	1846	1962	1846	1846	1731	1846	2308	2164	2308
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	1.5D	0.4D		vc (m/min)	145	145	145	145	145	145	145	145	145
									fz (mm/t)	0.06	0.085	0.1	0.12	0.15	0.2	0.12	0.15	0.2
									rpm (min ⁻¹)	7692	5769	4615	3846	2885	2308	3846	2885	2308
									feed (mm/min)	1846	1962	1846	1846	1731	1846	2308	2164	2308
K	K1 ~ K2	Grey cast iron	GC250 GC350	GG25 GG35	180 ~ 260	1.5D	0.4D		vc (m/min)	200	200	200	200	200	200	200	200	200
									fz (mm/t)	0.06	0.085	0.1	0.12	0.15	0.2	0.12	0.15	0.2
									rpm (min ⁻¹)	10610	7958	6366	5305	3979	3183	5305	3979	3183
									feed (mm/min)	2546	2706	2546	2546	2387	2546	3183	2984	3183
	K3 ~ K4	Ductile cast iron	GCD400 GCD700	GGG40 GGG70	160 ~ 250	1.5D	0.4D		vc (m/min)	160	160	160	160	160	160	160	160	160
									fz (mm/t)	0.06	0.085	0.1	0.12	0.15	0.2	0.12	0.15	0.2
									rpm (min ⁻¹)	8488	6366	5093	4244	3183	2546	4244	3183	2546
									feed (mm/min)	2037	2165	2037	2037	1910	2037	2546	2387	2546
	K5 ~ K6	Malleable cast iron	FCMW330	GTS-35	130 ~ 230	1.5D	0.4D		vc (m/min)	160	160	160	160	160	160	160	160	160
									fz (mm/t)	0.06	0.085	0.1	0.12	0.15	0.2	0.12	0.15	0.2
									rpm (min ⁻¹)	8488	6366	5093	4244	3183	2546	4244	3183	2546
									feed (mm/min)	2037	2165	2037	2037	1910	2037	2546	2387	2546

» Recommended cutting conditions

SDREU6000 (6 flutes high feed)

[High Feed]

Workpiece material			KS	DIN	Brinell hardness (HB)	ap (mm)	ae (mm)	Machining	Tool	6	8	10	12	16
P	P10 ~ P11	High alloy steel and Tool steel	SKD61 STD11	X40CrMoV5-1 X153CrMoV12	200 ~ 325	0.05D	0.55D		vc (m/min)	180	180	180	180	180
									fz (mm/t)	0.3	0.5	0.5	0.5	0.6
									rpm (min ⁻¹)	9549	7162	5730	4775	3581
									feed (mm/min)	11459	14324	11459	9549	8594
	P14 ~ P15	Stainless steel (Ferrite, Martensitic)	STS420	X40Cr13	200 ~ 240	0.05D	0.55D		vc (m/min)	180	180	180	180	180
									fz (mm/t)	0.3	0.5	0.5	0.5	0.6
									rpm (min ⁻¹)	9549	7162	5730	4775	3581
									feed (mm/min)	11459	14324	11459	9549	8594
H	H1	Hardened steel	SKD61	X40CrMoV5-1	~HrC55	0.05D	0.55D		vc (m/min)	120	120	120	120	120
									fz (mm/t)	0.2	0.3	0.3	0.4	0.5
									rpm (min ⁻¹)	6366	4775	3820	3183	2387
									feed (mm/min)	5093	5730	4584	5093	4775

» Workpiece Material Group

ISO	Microstructure / Composition	Heat treatment	Hardness (HB)	Group
P	Carbon steel	Carbon content about 0.15%	Annealing (Soft annealing)	125 P1
		Carbon content about 0.45%	Annealing (Soft annealing)	190 P2
		Carbon content about 0.45%	Tempering (After quenching)	250 P3
		Carbon content about 0.75%	Annealing (Soft annealing)	270 P4
		Carbon content about 0.75%	Tempering (After quenching)	300 P5
	Low alloy steel		Annealing (Soft annealing)	180 P6
			Tempering (After quenching)	275 P7
			Tempering (After quenching)	300 P8
			Tempering (After quenching)	350 P9
	High alloy steel and tool steel		Annealing (Soft annealing)	200 P10
			Tempering (After quenching)	325 P11
	Bainite-based ultra-high carbon steel		Bainite transformation-based tempering	260-480 P12
	Powder metallurgy material		HIP	250-340 P13
	Stainless steel	Ferritic/ Martensitic	Tempering (After quenching)	200 P14
		Martensitic	Tempering (After quenching)	240 P15
		Martensitic	Precipitation hardening	350 P16
M	Stainless steel	Austenitic	Annealing	180 M1
		Austenitic (Super austenitic)	Precipitation hardening	M2
		Austenitic- Ferritic (Duplex)	Solution annealing	M3
		Austenitic- Ferritic (Super duplex)	Solution annealing	M4
		Heat-resistant austenitic steel	Casting	M5
K	Grey cast iron(GCI)	Pearlitic/ Ferritic		180 K1
		Pearlitic (Martensitic)		260 K2
	Ductile cast iron(GJS)	Ferritic		160 K3
		Pearlitic		250 K4
	Malleable cast iron(MCI)	Ferritic		130 K5
		Pearlitic		230 K6
	Compact graphite cast iron(CGI)	Ferritic, pearlitic or pearlite/ ferritic		K7
N	Aluminum alloy for plastic deformation	Not capable of precipitation hardening	State after age hardening	60 N1
		Capable of age hardening (precipitation hardening)		100 N2
	Aluminum cast alloy	Si ≤ 12%, Not capable of precipitation hardening		75 N3
		Si ≤ 12%, Capable of age hardening	Precipitation hardening	90 N4
		Si > 12%, Not capable of precipitation hardening		130 N5
	Copper and Copper alloy (Bronze/ brass)	Free-cutting alloy (Pb > 1%)		110 N6
		Cu-Zn alloy, Cu-Sn-Zn alloy		90 N7
		Cu-Sn alloy (bronze), lead-free copper and electrolytic copper		100 N8
	Magnesium alloy		Die-cast	70 N9
S	Iron matrix alloy	Soft annealing		200 S1
		Precipitation hardening		280 S2
	Cobalt matrix alloy	Soft annealing		250 S3
		Precipitation hardening		350 S4
		Casting		320 S5
	Nickel matrix alloy	Soft annealing		250 S6
		Precipitation hardening		350 S7
		Casting		320 S8
	Titanium matrix alloy	Titanium		Rm ^{a)} 400 S9
		Alpha/ beta alloy	Precipitation hardening	Rm ^{a)} 1050 S10
		Beta alloy		Rm ^{a)} 1390 S11
H	Quenched steel (Hardened steel)		Tempering (After quenching)	55 HRC ^{b)} H1
			Tempering (After quenching)	60 HRC ^{b)} H2
			Tempering (After quenching)	> 60 HRC ^{b)} H3
	Cold worked cast iron		Casting	400 H4
	Heat-treated cast iron		Tempering (After quenching)	55 HRC ^{b)} H5
	Weld overlay layer and hard alloy (Hard facing alloy)	Fe-, Ni-, Cr-, W-, or Mo-based matrix alloy		H6
O	Composition material	Cemented carbide (hard metal)	Sintering	H7
		Unreinforced plastic		O1
		Reinforced plastic	GFRP, CFRP	O2
		Graphite		O3
		Ceramic	Sintering	O4

^{a)} Rm: Tensile strength, Unit MPa

^{b)} Rockwell hardness C scale (Rockwell C scale)

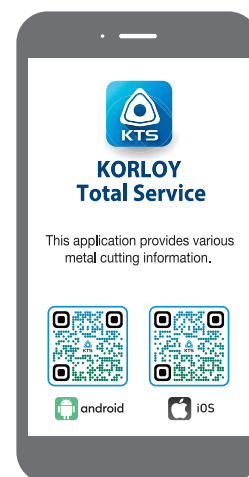
For the safe metalcutting

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasses or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the tools can be pulled out due to centrifugal force while high speed machining.



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